Financial liberalization and economic growth: the (ir)relevance of the democracy context

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Abstract:

The aim of this article is to ascertain whether countries benefit from capital account liberalization in more democratic contexts. To this end, we used a sample of 77 countries with panel data from 1990 to 2010. When considering the presence of fixed effects and endogeneity, we were able to see that capital account openness has a positive effect on economic growth only in highly democratic countries. On the other hand, the effects are negative when the level of democracy is low. When the same estimates are carried out with a more restricted sample, composed of 52 developing countries, the results are more pessimistic. In this case, capital account openness has a negative and significant effect, although being more democratic is not sufficient in itself to reap the benefits of financial integration.

Keywords:

Financial Liberalization; Democracy; Economic Growth

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1. Introduction

A significant portion of the economic literature posits that capital account liberalization[i] stimulates a country's economic growth. According to this approach, which follows the general lines of a neoclassical model of growth, in countries that have abundant capital financial liberalization allows excess savings to be transferred to countries where capital is scarce, boosting poor economies (Obstfeld, 1998; Gorinchas & Jeanne, 2002). The most

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important corollary of these models is that the greater the economic integration between countries, including in the financial sphere, the greater the level of social welfare, while income disparities between nations are reduced over time.

For Edwards (2001), increased capital account openness may affect economic performance through two channels. The first is via external savings and, through this, aggregate investment: countries with greater capital account openness are more prone to finance their deficits in current accounts and, thus, increase the volume of external savings. The second channel is through growth in productivity: nations that eliminate control of the flow of capital experience an expansion in productivity. On reviewing a wide range of literature that relates the globalization of finance to economic activity, Kose *et al* (2006) argue that financial integration[ii] provides a series of "potential collateral benefits", which are more important than the direct effects of growth. These benefits are related to the development of financial markets, better institutions, governance and macroeconomic discipline.

However, it is worth noting that the positive relationship between financial liberalization and economic growth has not reached consensus amongst researchers (Rodrik, 1998; Stiglitz, 2000). The succession of crises faced by Latin American economies in the 1980s and emerging countries in the 1990s, as well as the international financial crisis of 2007-08, have led many economies to adopt an increasingly cautious approach in relation to the benefits of financial liberalization. One could therefore assert that there are several reasons to think that the macroeconomic effects of capital account liberalization vary according to domestic structural conditions.

In fact, Alesina *et al* (1993) found evidence of a small positive association between capital account liberalization and economic growth for a sample of 20 high-income countries. Eichengreen *et al* (2002) argued that when there are distortions in the domestic and international financial markets, the economic consequences of liberalization may be less benign. Grilli & Milesi-Ferrett (1995) noticed that there is a negative relationship between liberalization and growth when developing countries dominate the sample.

In this sense, of all the structural issues upon which the economic benefits of financial integration rest, those associated with institutional development are the most salient. Edwards himself (2001) admits that capital openness may have a negative effect on the poorest countries, since these lack adequate institutions to deal efficiently with the large-scale movement of capital. Boyd *et al* (1992) demonstrated that international financial integration in countries with weak institutions may induce an exit of capital, which migrates from

locations where it is more scarce to nations where it is abundant, essentially because institutions function better in the latter. Along the same lines, Chen & Quang (2012) suggest that the countries capable of reaping the benefits of international financial integration are those that satisfy certain conditions in relation to the level of financial and institutional economic development.

For their part, Brune *et al* (2001) stress that capital account liberalization has occurred less frequently in poor countries, where certain domestic institutions are not available[iii]. From this point of view, specific institutions must be included in a set of preconditions responsible for these countries' enjoyment of the benefit of international financial integration. One of the ideas of Brune *et al* (2001) and of Eichengreen & Leblang (2006) is that countries with a stable democratic regime tend to have greater capital account openness. Similarly, Simmons *et al* (2000) and Garrett *et al* (2000) demonstrated that "political contagion" plays an important role in the decision to open up the capital account: between 1980 and 1990 many countries democratized and, consequently, adhered to financial liberalization.

It is worth noting, however, that the relationship between democracy and financial liberalization is not viewed unanimously in the literature. One significant fact is a preoccupation with understanding how democracy and financial integration relate to one another. Some authors start out with an understanding that the degree of freedom (or restriction) of a country's laws about international financial transactions is a political choice and, according to this logic, it makes perfect sense to analyse the impact of financial liberalization on economic activity by taking the political context of the country into consideration.

This work aims to contribute to the empirical literature that recognizes the role of the democratic context in understanding the causal relationship between financial liberalization and economic growth. Our principal issue is to find out whether capital account openness, when associated with democracy, stimulates economic growth for both a large sample of countries and a smaller group of developing countries. In comparison to the works we consulted, the innovation here is based on an analysis of the joint effect of democracy and capital openness on economic growth. This is conducted by introducing an interactive variable including the two elements mentioned above, by considering unobservable effects and bypassing problems of endogeneity.

It is understood that political institutions may influence a country's economic performance. Considering the democratic contexts a way of understanding economic growth,

our intention is therefore to reassert the need for the scientific debate to study the economic issues associated with such institutions. Further, if the political context, to some extent, affects certain mechanisms responsible for growth, then future studies must attempt to analyse the regional impact of the waves of democratization that have reached certain countries over recent years, such as Egypt, Libya, Syria, Morocco, Yemen and others. Democracy may produce effects beyond the attainment of liberty and the political participation of citizens and have an impact on important economic issues.

To this end, the article is divided into three sections, as well as this introduction and the final considerations. The first section presents a brief review of the literature about the relationship between democracy and liberalization. The second examines both the method employed and the database and the third section discusses the main results obtained through the estimated models.

2. Democracy, liberalization and economic activity: a brief review of the literature

The relationship between democracy and globalization (commercial and financial) is of interest to both economists and political scientists. Thus, it is possible to argue from both the theoretical and empirical points of view that the relationship between these variables may occur in both directions. In this section, we seek to briefly highlight some of the results found in the literature.

Dailami (2000) classified countries into four groups: i) undemocratic and financially closed; ii) undemocratic and financially open; iii) highly democratic and more financially open; and iv) highly democratic and less financially open. He therefore developed a logit model to estimate the probability of any given country changing its classification. The author estimates a model using the maximum likelihood method with cross sectional data from a sample of 67 countries. The results indicate that per capita income and social expenditure in proportion to GDP has a statistically significant impact on explaining the probability of a country falling into the third category described above (highly democratic and more financially open). Similar results were obtained in relation to the first classification (undemocratic and financially closed), but are inconclusive for the intermediary classifications.

The analytical picture outlined by the author cited above is that when protecting against the risk of capital flow volatility, countries choose the degree of international financial openness aimed at maximum social welfare. In this context, democratic governments play an important role in the definition of the specificities of the function of social welfare in a way that is consistent with its citizens' desire for redistribution, as well as degree of risk aversion.

Brune *et al* (2001) warn that issues related to power and the interests of certain groups may lead a specific government to adopt policies that benefit a given coalition in detriment to aggregate welfare. Furthermore, they point out that political institutions affect the means by which political actors influence government choices. In order to corroborate this idea, the authors demonstrate two important stylized facts: a) there is more capital account openness in democracies; and b) between 1970 and 2000 the gap between capital openness in democratic and undemocratic countries increased considerably. The empirical models estimated by Brune *et al* (2001) suggest that democracy is not statistically significant for a large sample of countries, but when only considering developing countries, one can ascertain that the more democratic the country, the greater the capital account openness and further, regime change (from undemocratic to democratic) accelerates capital account openness. It is possible to think then, that the first effect of democracy in developing countries is to change the balance of power between elites. Thus, a democratic change in these nations may convey greater political power on groups that benefit from liberalization. It is perhaps for this reason that the democracy-financial liberalization association is so marked.

Using indicators of autocracy and democracy, Quinn (2000) also suggested that democratic regimes are more prone to removing capital flow controls, but noted the possibility that high levels of financial openness are associated with a drop, some years later, in democratization. Although Quinn (2000) recognizes the possibility of reverse causation between democracy and financial openness, the author does not consider the problem of endogeneity in the same way as Brune *et al* (2001). Eichengreen *et al* (2006) also stress that insofar as the free transaction of international capital benefits society as a whole, democracy must lead to the removal of restrictions to free capital mobility. In this perception, the democracy-globalization logic is reinforced by positive feedback from economic and financial globalization to political democratization. In financially open economies, the government and central bank must be transparent in order to generate confidence in the market. If it were true that transparency is the ruin of autocratic regimes, then one would expect that less democratic systems would have more closed capital accounts. In fact, these authors show that between

the middle of the 1970s and 2000 the number of democratic countries quadrupled, while global trade in proportion to GDP increased from 7.7% to 19.5% and the tranche of countries open to international capital flow jumped from 25% to 38%.

It is worth noting, however, that the idea that democratization stimulates economic openness has not reached consensus in the literature. Rudra (2005), for example, stresses that it is easy to ascertain the means by which trade and financial globalization affect democratic arrangements in developing countries, but not the reverse. The author cites a part of the literature to argue that exogenous economic forces may exacerbate conflicts between existing elites and, consequently, create an environment favourable to democracy. From an empirical point of view, the main results of Rudra's (2005) work suggest that, for a sample of 59 developing countries, capital flow is associated with democratic rights, provided that social groups receive sufficient compensation for their losses. Yu (2005), for his part, argues that concentrated interests may have a greater capacity to impose protectionist policies on the democratic systems in which they are represented. In this sense, democratization will not result in working class support for financial globalization in locations where domestic distortions are incapable of benefitting the poorest.

One surprising result found by Li & Reuveny (2003) is also worth noting. These authors looked at a sample of 127 countries between 1970 and 1996 and concluded that the greater the financial globalization, the lower the perspective for democracy. However, even emphasizing the robustness of this result, which is valid for the entire sample and for developing countries, the authors recognize that an extension of their research agenda should consider the problem of endogeneity.

The defenders of the free movement of capital start with the notion that the absence of obstacles to free functioning promotes the efficient allocation of resources, which are used more productively. Financial integration, moreover, leads to the efficient allocation of global saving. In other words, capital moves from rich countries to poorer ones, accelerating domestic accumulation and convergence. Efficient risk allocation is another argument used in defence of financial openness, since the free movement of capital permits portfolio diversification. The free movement of capital may also be beneficial for domestic financial systems, since, according to Eichengreen*et al* (1998), it generates efficiency gains by stimulating the specialization of demand for financial services. Another benefit attributed to international financial integration refers to domestic policy discipline. Thus, countries with an

open capital account must exercise discipline in attaining good policies under penalty of capital flight.

On the other hand, as a result of the high volatility of capital, emerging countries that have structural problems in the balance of payments may suffer more acutely with an open capital account. The experiences of Chile and Argentina in the middle of the 1970s may be an example of this. Capital inflow to these countries provoked a strong and real appreciation of their currencies, which weakened current accounts in the midst of the opening up of trade and resulted in the intensification of the financial crisis. Stiglitz (2000) argues that the liberalization of short-term capital movement may have a negative impact on the financial stability of developing countries, since short-term capital flow increases economic fluctuations. Further, we should stress that the movement of capital reduces policymaker capacity to guide policies aimed at attaining domestic objectives. In view of this, the control of capital may be important for economic growth principally in economies characterized by macroeconomic instability. These controls select capital flows in such a way that speculative capital attains manageable volume. This is critical to mitigating external shocks. In short, capital account openness may provoke: i) a loss of autonomy in conducting monetary policy; ii) an increase in the external weakness of the economy; and iii) a tendency for exchange rate appreciation. Countries such as Chile and Malaysia are successful examples of achieving capital control.

What one may see in this brief review of the literature, therefore, is that the political context has been an object of study for certain authors interested in understanding the consequences of the process of financial integration. Starting out with the findings that: a) there is no general consensus in the literature about the effects of capital account openness on economic activity; and b) a series of works suggest that democracy and liberalization are strongly associated; the central issue for the following sections is to ascertain whether the benefits obtained through capital account openness in terms of economic growth are greater as nations become more democratic.

3. Data and Method

The study was conducted between 1990 and 2010, since the process of financial integration became more widespread in the global economy from the 1990s onwards. The estimation was made using balanced panel data and the sample contained 77 countries with

data from four non-overlapping sub-periods of time: 1991-1995, 1996-2000, 2001-2005, and 2006-2010. Of the total number of nations, 36% had a maximum per capita income of $4,035 dollars per year. Another 36% were countries considered high-income by the World Bank, since they had a per capita income equal to or above $12,475 dollars. Finally, the remaining 28% were considered to have an upper-middle income, since their per capita income range falls between the two.

Baltagi (2005) indicates a series of advantages in the use of data collected in this way, these are: i) it enables one to control for individual heterogeneity and to resolve the problem of omitted variables; ii) it provides more information and variability, less collinearity between variables, and more degrees of freedom and efficiency; iii) it is better for studying the dynamics of adjustment; and iv) it is more capable of identifying and measuring effects that are not detected in cross sectional or time series analysis.

The main aim is to investigate whether political context is important for an understanding of the effect of capital account openness on the real GDP per capita growth rate. "Political context" in this work, has a limited scope and is basically understood as a country's degree of democracy.

The variables used in the study are as follows:

i) The dependent variable is the real GDP per capita growth rate between 1990 and 2010 for a set of 77 countries. It is defined thus:

$$\frac{1}{T}\ln\left(\frac{y_t}{y_{t-T}}\right)$$

Where y_t is the real per capita GDP in the final period, y_{t-T} is the real per capita GDP in the initial period and T is the time elapsed between the initial and end year. Both the dependent variable and the i to iv independent ones (presented below) were obtained from the World Bank's 2011 World Development Indicators.

ii) The logarithm of average fertility rate between each sub-period described above (FERT) – if the population is growing, then a portion of economic investment is used to supply capital for new workers instead of expanding capital per worker, and

therefore an increase in the population's growth rate tends to reduce the real GDP per capita growth rate;

iii) The logarithm of the real GDP per capita at the beginning of each sub-period (GDP) – the idea is to ascertain whether there is a conditional convergence of real per capita income from the countries towards their respective steady states; expected negative sign;

iv) The logarithm of average gross capital formation to GDP during the different sub-periods (INV) – countries with high investment rates should have higher growth rates, since they favour capital accumulation;

v) A proxy for the capital openness represented by the logarithm of the sum of capital inflows and outflows in the form of direct foreign investment and portfolio on account of GDP (CaOPEN). According to Edison *et al* (2002), this proxy is a sign of greater international financial integration. The advantage of this proxy is that, unlike other indicators used in the literature, it is not a subjective measure of capital constraints. Its disadvantage is that many factors, such as economic growth, influence capital flows (Edison *et al*, 2002). In other words, the use of this variable necessarily involves consideration of endogeneity.

vi) The logarithm of average government expenditure in relation to GDP in each sub-period (GOV) – this is a proxy for type of macroeconomic policy; it is expected that high expenditure represents unhealthy policies that tend to undermine growth;

vii) This variable (HCa) represents an individual's average years of study at the beginning of each sub-period – the aim is to capture the stock of human capital and it is expected that nations with more capital stock will have high growth rates over the decade. The data source here is the human capital indicator developed by Barro & Lee (2000);

viii) DEM is a proxy for democracy. It is an indicator of political rights developed by Gastil *et al* (1982). In their definition, political rights ""are rights to participate meaningfully in the political process. In a democracy this means the right of all adults to vote and compete for public office, and for elected representatives to have a decisive vote on public policies" (Gastil, 1982-83 ed, p. 7). This indicator originally varied between 1 and 7 - the lower the number, the more democratic the country. Here, in order to facilitate interpretations of the models, we opted, like Barro (1996), to perform a scale conversion from zero to one. Now, the higher the indicator the more democratic the nation.

ix) Finally, DEM*x*CaOPEN is the variable of interaction between capital openness and democracy.

The model for estimation is therefore as follows:

$$y_{growth} = \alpha + \beta_1 GDP + \beta_2 INV + \beta_3 FERT + \beta_4 CaOPEN + \beta_5 GOV + \beta_6 HCa + \ldots$$
$$\ldots + \beta_7 DEM + \beta_8 DEMxCaOPEN + \varepsilon_i$$

The initial strategy, as presented at the beginning of this section, is to estimate a model with panel data. To this end, in the first instance we need to identify the presence of unobservable effects. The Breusch-Pagan test was therefore performed – this is a LM type test, which ascertains whether the variance of the unobservable effect is statistically different from zero. In other words, it tests for the presence of unobservable effects in the proposed model. The statistic is given thus:

$$LM = \frac{NT}{2(T-1)}\left[\frac{\sum_{i=1}^{N}(\sum_{t=1}^{T}\hat{e}_{it})^2}{\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{e}_{it}^2} - 1\right] \sim \chi^2 \qquad (1)$$

In which:

$$\hat{e}_{it} = y_{it} - [\mathrm{x'_{it}} \quad 1]\begin{bmatrix}\hat{\beta}\\ \hat{u}\end{bmatrix}_{Pooled} \qquad (2)$$

The null hypothesis is an absence of unobservable effects. The calculated statistic was at the value of 4.39 and the null hypothesis was rejected at a 5% level of significance, since

the p-value was equal to 0.036. It is therefore reasonable to assume the presence of unobservable effects.

Fixed or random effect models may be used to analyse panel data. The suppositions made in relation to the unobservable effects will determine which estimation is the most appropriate. Considering a linear model with unobservable effects for T time periods:

$$y_{it} = x_{it}\beta + c_i + u_{it} \qquad t = 1,\ldots,T \tag{3}$$

In which y_{it} is the dependent variable; x_{it} is $1\times K$ and may contain variables that change with *t*, but not with *i*, variables that change with *i*, but not with *t*, and variables that change in both (t and *i*); c_i is called individual heterogeneity and u_{it} is the idiosyncratic error. The estimation of $\beta's$ in the random effects approach considers c_i to be an element that constitutes the error. In this case, there is a supposition that c_i and x_{it} are orthogonal. In terms of objectivity, this estimator will not be detailed, since the Hausman test, presented throughout the article, suggests that the estimation should be made with fixed-effects.

In the case of fixed-effects, this enables an arbitrary correlation between c_i and x_{it}. Thus, equation 3 may be rewritten in this way:

$$y_i = X_i\beta + c_i j_T + u_i \tag{4}$$

In which $\mathbf{j}_T$ is a $T \times 1$ vector of ones.

The estimate of $\beta's$, under a hypothesis of strict exogeneity, that is $E(u_{it}|x_i, c_i) = 0, t = 1, 2, \ldots, T$, must transform equation 4 to eliminate fixed-effects. The procedure to eliminate the fixed-effects is known as a within transformation. Suppose the following equation, therefore:

$$y_i = \bar{x}_i\beta + c_i + \bar{u}_i \tag{5}$$

In which $\bar{y}_i = T^{-1}\sum_{t=1}^{T} y_{it}$, $\bar{x}_i = \sum_{t=1}^{T} x_{it}$ and $\bar{u}_i = \sum_{t=1}^{T} u_{it}$. Subtracting equation 5 from equation 3, we have:

$$y_{it} - \bar{y}_i = (x_{it} - \bar{x}_i)\beta + u_{it} - \bar{u}_i \tag{6}$$

or

$$\ddot{y}_{it} = \ddot{x}_{it}\beta + \ddot{u}_{it} \qquad t = 1,2, \ldots, T \tag{7}$$

Following Wooldridge (2002), the fixed-effects estimator may be expressed as:

$$\hat{\beta}_{FE} = \left(\sum_{i=1}^{N} \ddot{X}_i' \ddot{X}_i\right)^{-1} \left(\sum_{i=1}^{N} \ddot{X}_i' \ddot{y}_i\right) = \left(\sum_{i=1}^{N}\sum_{t=1}^{T} \ddot{\mathrm{x}}'_{it}\, \ddot{y}_{it}\right) \quad (8)$$

As mentioned above, the models presented below are fixed-effects estimates. This was because of the results indicated by the Hausman test. As well as the Hausman standard, we opted to perform an asymptotically equivalent test, which may be obtained thus:

$$(y_{it} - \hat{\theta}\bar{y}_{it}) = (1 - \hat{\theta})\alpha + (\mathrm{x}_{1it} - \hat{\theta}\bar{\mathrm{x}}_{1i})'\,\beta_1 + (\mathrm{x}_{1it} - \bar{\mathrm{x}}_{1i})'\gamma + v_{it} \quad (9)$$

This test is suggested by Wooldridge (2002) and may be interpreted as a standard Wald test to determine $H_0: \gamma = 0$. The Hausman standard test presents a statistic at the value of 15.03, which is rejected at a 10% level of significance. In the same way, in the robust version of the Hausman test or the asymptotically equivalent Wald test, the statistical value was 17.43 and the null hypothesis is rejected at a 1% level of significance. The rejection of the null hypothesis indicates that the fixed-effects model is more appropriate.

We note, therefore, that beyond the existence of unobservable effects, the fixed-effects model must be more appropriate. However, it is prudent to consider the possibility of possible endogenous variables. There are theoretical reasons to suppose that the model variables are endogenous. In the case of capital openness, this was mentioned in the description of the variables. Endogeneity caused by reverse causality may also exist in relation to investment and democracy. In the latter case, the so-called Modernization Theory, more widespread in Political Science, helps us to understand the process (Lipset, 1959; Przeworski, 2004; Wucherpfennig & Franziska, 2009; Inglehart & Welzel, 2009). Finally, and merely as an illustration, a country's education and its condom distribution, for example, help to explain, respectively, years of study and fertility rates. It now seems prudent to consider the possibility of endogeneity in the model.

According to Wooldridge (2002), one of the procedures to confirm the presence of endogenous variables must include the following steps. If y_{it2} is a potentially endogenous variable, z_{it} the set of exogenous variables (including instruments), c_{i2} the unobserved effects and $u_{it2}$the idiosyncratic error, the fixed-effects should be estimated thus:

$$y_{it2} = z_{it}\delta_1 + c_{i2} + u_{it2} \tag{10}$$

Extracting the residues, $\hat{\ddot{u}}_{it2} = \ddot{y}_{it2} - \ddot{z}_{it}\hat{\delta}_1$, the following equation is estimated:

$$y_{it2} = \alpha_1 y_{it2} + z_{it1}\delta_1 + \rho_1 \hat{\ddot{u}}_{it2} + c_{i1} + error_{it} \tag{11}$$

Rejecting $H_0: \rho_1 = 0$ implies that the variable is endogenous. For this test, the value calculated was 4.72 and the null hypothesis is rejected at 1% significance. The variables are now endogenous. The same conclusion is obtained through the Davidson-MacKinnon test. The null hypothesis is that the regressors are exogenous and rejecting it indicates that the fixed-effects instrumental variables estimator must be analysed. The Davidson-MacKinnon test value was 5.56, rejecting the null hypothesis at a 1% level of significance. There is, thus, a problem of endogeneity, which needs to be taken into account.

The first difference variables were therefore used as instruments. For democracy, as well as first difference, we followed the suggestion of Acemoglu *et al* (2008) and considered latitude as a second instrument. In this case, there is, therefore, an overidentified model. Note that, when using the first differences as instruments, one period is lost for all the observations.

Given the possibility of endogeneity in the model presented earlier, the estimation below will adopt the Generalized Method of Moments (GMM) estimator, whose general form of estimated parameters is given as:

$$\hat{\beta}_{GMM} = (X'ZWZ'X)^{-1}X'ZWZ'y \tag{12}$$

In which *W* is a full rank, symmetric matrix. According to Cameron *et al* (2005), the weights on *W* may depend on both data and the unknown parameters. For exactly identified models, all the choices of this matrix lead to the same estimator, which minimizes the following objective function:

$$Q(\beta) = \left\{\frac{1}{N}(y - X\beta)'Z\right\} W \left\{\frac{1}{N}Z'(y - X\beta)\right\} \tag{13}$$

Note that in the GMM estimation some choices of *W* are better than others. The optimum GMM estimator uses $W = \hat{S}^{-1}$ such that:

$$\hat{\beta}_{OGMM} = (X'Z\hat{S}^{-1}Z'X)^{-1}X'Z\hat{S}^{-1}Z'y \tag{14}$$

In which $\hat{S}$ is an estimation of $Var(N^{-\frac{1}{2}}Z'u)$. If the errors are independent and heteroscedastic, then $\hat{S} = 1/N\sum_{i=1}^{N}\hat{u}_i^2\, z_i z'_i$, where $\hat{u}_i^2 = (y_i - x'_i\hat{\beta})$.

As mentioned above, since this is an overidentified model, we need to test whether or not the number of instruments over and above the number of endogenous variables is expendable. To this end, we performed the Hansen test. Consider, then, equation 13 described above. If the conditions of the population moment $E\{Z'(y - X\beta)\} = 0$ are correct, then $Z'(y - X\hat{\beta}) \cong 0$ such that $Q(\hat{\beta})$ must be close to zero. Under the null hypothesis that all the instruments are valid, it is possible to demonstrate that $Q(\hat{\beta})$ has an asymptotic chi-square distribution with degrees of freedom equal to the number of overidentified constraints. High values for $Q(\hat{\beta})$ lead to the rejection of H_0: $E\{Z'(y - X\beta)\} = 0$. The rejection is interpreted as an indication that at least one of the instruments is not valid. The statistic calculated is 0.88 and the null hypothesis is not rejected, since the p-value is 0.34. In other words, the null hypothesis that all the instruments are valid is not rejected. Finally, it is worth saying that we note from the first stage regression that the instruments are good.

Although these tests indicate that the most appropriate model is the one that considers the presence of fixed-effects as well as endogenous variables, the results below are explained according to three possibilities. The first is that there are neither unobservable effects nor endogeneity. In this case, the estimation is conducted using Pooled OLS. The second is that there are fixed-effects but that endogeneity is not considered. Here, we use a fixed-effects model. We note that these two cases should produce inconsistent estimators. Finally, the last case, judged to be more consistent, considers both unobservable effects and the existence of endogeneity. Here, we apply the GMM estimator for fixed-effects.

4. Results and Discussion

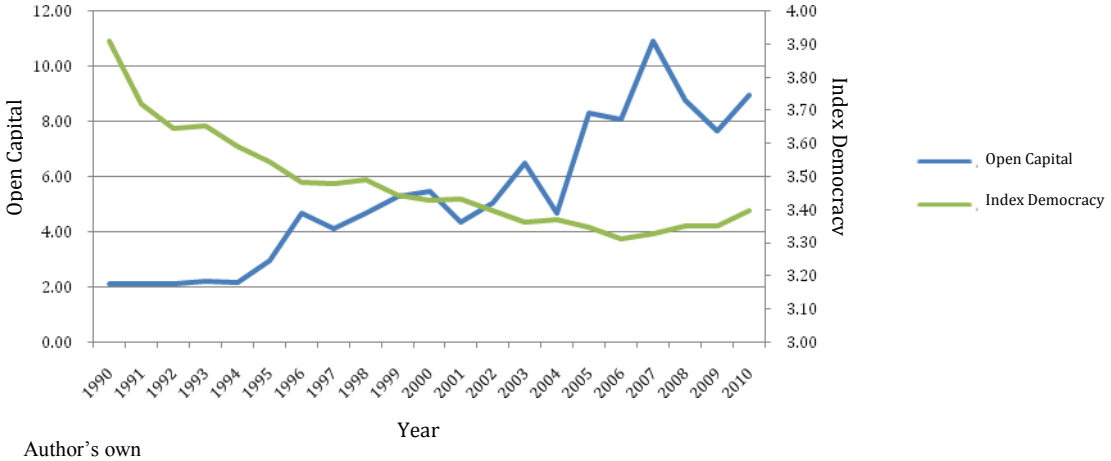
As already noted, there is no definitive response about the effects of financial integration on economic growth, particularly when referring to developing countries. Nevertheless, it is reasonable to suppose that the possible economic benefits of financial globalization depend on specific domestic characteristics.

Of the internal aspects that should be taken into account, here we suggest one of a political nature. According to the literature review undertaken in section two, the political

context may be important in understanding the effects of capital openness on economic growth. This happens because, to a certain extent, the degree of financial freedom is a political choice and so it makes sense to consider a positive association between democracy and capital account openness.

The graph below demonstrates the evolution of capital account openness and the democracy indicator from the 1990s. The democracy indicator was computed in its original form, as in Gastil *et al* (1982). Lower values now indicate that the country is more democratic. Note also that capital account openness has been growing since the middle of the 1990s. There is a considerable fall between 2007 and 2009 as a result of the global economic crisis. On the other hand, observe that the democracy indicator also falls over the years, indicating that, on average, countries become more democratic. In the second half of the 2000s, however, this reduction slows down.

Graph 1: Open Capital and Democracy



Author's own

The table below presents the democracy and capital account openness indices taking account of the four sub-periods to be used in the econometric estimations. We should stress that, unlike in Graph 1, the democracy indicator shown below was converted to a scale of zero to one, whereby the more democratic the country, the closer it is to one. The sample contained 77 countries and of these 50 were classified as developing countries. The criteria adopted to classify them as such was based on per capita income. Thus, given the income strata suggested by the World Bank, developing countries are those where per capita income does not exceed $12,615.

Table 1: Capital Openness and Democracy

	Total sample		Developing Countries	
Period	Capital Openness	Democracy	Capital Openness	Democracy
1991/1995	3.0	0.62	2.26	0.48
1996/2000	5.5	0.59	4.01	0.51
2001/2005	6.8	0.60	3.79	0.57
2006/2010	8.6	0.62	6.56	0.59

Author's own

Note that for both the total and the restricted sample, capital account openness is seen to grow over the two decades, while developing countries are less democratic on average than the countries in the large sample. A visual analysis of the graph and data suggest that there is a close association between democracy and financial liberalization. However, the basic question posited by this article is whether economic growth is stimulated to the degree that financial integration increases in more democratic countries. Given the methodological considerations explained above, the following table presents results for the general model proposed in the previous section.

Table 2

Regression results for the large sample = 77 countries (1990-2010)

Dependent variables = average real GDP per capita growth

Independent variables	Pooled OLS	FE	FEIV
GDP	-0.009***	-0.090***	-0.104***
	(0.002)	(0.016)	(0.028)
INV	0.005	0 .015**	0.081***
	(0.008)	(0.006)	(0.020)
CaOPEN	0.018***	0.018***	-0.022**
	(0.006)	(0.006)	(0.008)
HCa	-0.0009	0.001	0.006
	(0.0007)	(0.002)	(0.004)
FERT	-0.015***	-0.073***	-0.112***
	(0.005)	(0.012)	(0.023)
DEMxCaOPEN	-0.016**	-0.014**	0.029***
	(0.006)	(0.007)	(0.008)
GOV	-0.007	-0.013	-0.036
	(0.004)	(0.011)	(0.054)
DEM	0.034***	0.036***	-0.021
	(0.01)	(0.012)	(0.025)
CONST	0.080**	0.831***	1.06***
	(0.03)	(0.135)	(0.299)
R^2	0.21	0.53	
OBS	308	308	231
Groups	77	77	77

Note: (***) statistically significant at 1%; (**) statistically significant at 5%; (*) statistically significant at 10%. Correspondent standard error in brackets. Pooled OLS estimates corrected for potential heteroscedasticity and autocorrelation.

Variables: GDP - logarithm of the real GDP per capita; INV - logarithm of average gross capital formation to GDP; CaOPEN - proxy for the capital openness; HCa - individual's average years of study; FERT - logarithm of average fertility rate; DEMxCaOPEN - variable of interaction between capital openness and democracy; GOV - logarithm of average government expenditure in relation to GDP; DEM - proxy for democracy

The real GDP per capita logarithm at the beginning of each period was negative and significant for all the estimations. This was expected because of the conditional convergence, which is a strong feature of empirical regularity. The fertility rate was therefore also negative and significant. Gross fixed capital formation produced the expected results; however, in the Pooled OLS model this was not seen to be significant. The government expenditure variable demonstrated signs of agreement as expected, but without statistical significance at conventional levels. Finally, in the Pooled OLS model, education demonstrated the opposite of the expectation, although this was not significant. In the other two, the result was expected but also insignificant.

The theoretical debate about the other variables is uncertain. The results presented in the Pooled OLS and fixed-effect models, without considering endogeneity, show that capital openness stimulated economic growth independent of level of democracy[iv]. However, the positive effects of capital account openness are greater to the extent that countries become less democratic. One can see that in the two models mentioned above the effects of democracy on growth are also associated with financial openness. More specifically, regimes that are more democratic stimulate economic growth, but their effects may be negative insofar as the nations are more financially integrated. However, it is probable that the estimated parameters in these two models, Pooled OLS and fixed-effect, are inconsistent due to the presence of endogeneity. As explained in the previous section, there are theoretical reasons to suppose that this occurs and, moreover, the formal tests corroborate this assertion.

When making estimates through the instrumental variable method (third column Table 2), the results change substantially in respect of the signs of the two variables of interest. Note that in relation to the more traditional variables there are no considerable differences in relation to the first and second column. However, unlike in the previous case, the proxy for capital openness has become negative and statistically significant. Therefore, when endogeneity is taken into account, what we see is that capital account openness produces effects on growth rates that vary according to level of democracy. In this case, capital

account openness only has positive effects on nations whose level of democracy is above 0.75 (highly democratic countries).

Table 3 below provides the results for the restricted sample, which only considers developing countries.

Table 3

Regression results for the restricted sample = 50 countries (1990-2010)

Dependent variables = average real GDP per capita growth			
Independent variables	Pooled OLS	FE	FEIV
GDP	-0.009***	-0.086***	-0.070***
	(0.002)	(0.010)	(0.018)
INV	0.005	0 .013*	0.028**
	(0.009)	(0.007)	(0.010)
CaOPEN	0.019**	0.020***	-0.018*
	(0.007)	(0.004)	(0.01)
HCa	-0.002	0.001	0.027**
	(0.001)	(0.003)	(0.007)
FERT	-0.020***	-0.086***	0.003
	(0.007)	(0.020)	(0.04)
DEMxCaOPEN	-0.017*	-0.018**	0.013
	(0.009)	(0.007)	(0.014)
GOV	-0.008	-0.010	-0.007
	(0.005)	(0.012)	(0.023)
DEM	0.033**	.041***	-0.022
	(0.01)	(0.011)	(0.025)
CONST	0.092**	0.784***	0.48***
	(0.04)	(0.095)	(0.14)
R^2	0.23	0.53	
OBS	200	200	150
Groups	50	50	50

Note: (***) statistically significant at 1%; (**) statistically significant at 5%; (*) statistically significant at 10%. Correspondent standard error in brackets. Pooled OLS estimates corrected for potential heteroscedasticity and autocorrelation.
Variables: GDP - logarithm of the real GDP per capita; INV - logarithm of average gross capital formation to GDP; CaOPEN - proxy for the capital openness; HCa - individual's average years of study; FERT - logarithm of average fertility rate; DEMxCaOPEN - variable of interaction between capital openness and democracy; GOV - logarithm of average government expenditure in relation to GDP; DEM - proxy for democracy.

It is important to stress that when we disregard the presence of unobservable effects, capital account openness explains economic growth in countries from both the large sample and the developing country sample. Its effect, however, depends on the level of democracy observed. On dismissing the problem of endogeneity (second column Table 3), we note that the effects

of democracy on real GDP per capita growth are positive and significant. The interactive term, however, is negative and significant, indicating that instead of optimising the effects of capital account openness, more democratic regimes have lower growth rates to the extent that financial integration increases.

It happens, however, that the estimated parameters are inconsistent in the presence of endogeneity. The conclusions described above are therefore compromised. In Tables 2 and 3, the model of fixed-effect with instrumental variables (FEIV) estimated using the GMM method offers consistent estimators, albeit - due to the nature of the method - less efficient. In this sense, when we bypass the endogeneity problem the results of the variables of interest change considerably.

When we consider the endogeneity problem in the case of the restricted sample, the results appear to be more pessimistic. Note that in the third column of Table 3, unlike in the large sample, when we estimate the FEIV, the interactive variable becomes non-significant, while the proxy for capital account openness does not vary according to the level of democracy in these countries. For these, only the negative effect of financial integration is valid in understanding the impact on economic growth rates. In summary, for developing countries, it seems to be safe to claim that financial integration impedes the rate of economic growth, regardless of each nation's level of democracy. Looking at Table 3, it is worth noting that level of education matters here. In other words, for developing nations, investment in human capital is important in attaining higher growth rates, something not observed in the large sample.

For policymakers in countries whose level of democracy is reasonably high the message remains that capital account openness may be important for economic growth. On the other hand, for developing countries, independent of their level of democracy, it may be that a control on capital flows is a useful instrument to avoid a reduction in growth rate.

We must not lose sight of the fact that the results obtained in this paper are limited to the number of observations and the period analysed. Furthermore, the conclusions need to be confirmed by a test of robustness, which should be conducted in future works; such works could make use of other democracy indicators and other instruments.

5. Final Considerations

By the middle of the 1970s, some countries had started to interact financially with the global economy, but it was only from the 1990s that capital account openness began to form part of the economic dynamics of a greater number of nations. In the meantime, many theoretical economists argued that financial liberalization would bring considerable benefits to all countries. However, the view that liberalization always brings benefits, independent of certain economic characteristics, remains far from consensus in economic theory. It is from within this context that the debate emerged about the necessary and appropriate preconditions and institutions for countries to benefit from financial openness. Here, we took democracy to be central to those institutions considered essential.

Given that political context may be an important element in understanding the financial integration process, a model was estimated that sought to ascertain whether capital account openness benefits more democratic countries in terms of economic growth. Using panel data (1990 to 2010) for a sample of 77 countries, we noted that when we considered the presence of fixed-effects and endogeneity, the effect of capital account openness is only positive for nations whose democratic index is above 0.75, that is, for highly democratic countries. However, when the same estimations are made with a sample of 50 developing countries, the results are different. In this case, the proxy for financial integration is negative and significant, although the interactive term does not have statistical significance.

This article offers some insights that may be of service to the development of future research. In the first place, it suggests the preparation of further robustness tests for the interactive variable proposed here. Secondly, changes to political regime may influence the effects of capital account openness. Finally, interesting results would be found if we used level (rather than rate) for the dependent variable and the independent variable structures suggested here were maintained. In this case, what is brought to the discussion is the possibility that financial liberalization, combined with political regime, has the capacity to explain income differences between nations.

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[i] The terms "capital account liberalization" and "financial liberalization" are understood as synonymous here.

[ii] Financial integration is a process through which financial markets in an economy become more closely integrated with other economies or with the rest of the world. This implies an increase in capital flows and a tendency for prices and returns on financial assets traded in different countries to equalize. Beale (2004) defines a market as totally integrated "if all potential market participants with the same relevant characteristics (1) face a single set of rules when they decide to deal with those financial instruments and/or services; (2) have equal access to the above-mentioned set of financial instruments and/or services; and (3) are treated equally when they are active in the market". (Beale *et al* p. 6, 2004)

[iii] Ju & Wei (2007) suggest that institutions affect the pattern of international capital flow: weak property rights may reduce domestic and foreign firms' opportunities for profit. Chen & Quang (2012) also argue that the institutional arrangements that establish the guarantee of property rights, the enforcement of contracts and an effective legal system may affect the role international financial integration plays in growth, since such institutions are seen as fundamental sources of long-term economic growth.

[iv] In fact, capital account openness has negative effects on growth rates for countries whose democracy indicator is above 1.125 and 1.28, for the Pooled OLS and Fixed Effect models, respectively. However, the maximum value that this may assume is 1 and, for this reason, it is not possible for capital account openness to generate negative effects in both models.