Globalisation, Democracy and Development [(*)]

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Abstract

This paper uses simultaneous estimation techniques to address the complex interactions between convergence in development, the quality of democracy and globalisation. Focusing on the more recent wave of globalisation (1970-2005) in over 90 countries, we find a two-way relationship between civil liberties and political rights on the one hand and economic, political and social globalisation on the other as well as significant two-way relationships with convergence in development. To reflect context, the ratio of GDP per capita to the US is used as a proxy for convergence in development. To reflect process, we use multi-dimensional, *de facto,* and continuous measures of democracy and globalisation. In this way, we extend the test for the two-way relationship between democracy and globalisation put forward by Eichengreen and Leblang (2008). We find a virtuous cycle between globalization, democracy and development. However, relationships between democracy and development are either non-significant or negative among non-OECD countries.

Keywords: Globalisation, Democracy and Freedoms, Convergence in Development, Panel data.

JEL classification: F02, F11, F13

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1. Introduction

The literature on development economics has focused on the crucial importance of institutions. Evidence collected by Acemoglu and Robinson (2012) from many historical episodes worldwide shows that, while extractive societies may grow for a while, sustainable development requires inclusive institutions. Another strand of literature has analysed how globalisation can improve governance. Bonaglia et al. (2001) look at how openness improves the quality of domestic institutions in a sample of 119 countries over 1984-98[1]. They report that the influence of trade openness on corruption was close to that exercised by income per capita. Using a much longer time period (1870-2000), Eichengreen and Leblang (2008) adopted another definition of governance and showed a two-way interaction between democracy and globalisation and relying on binary measures of democracy and of financial openness with less emphasis on institutions.

In this paper, we seek to merge these three strands of literature and disentangle the relationships between globalisation, institutional quality (proxied by an indicator on the level of democracy) and economic development (proxied by the relative income per capita). Indeed, globalisation and democracy cannot be separated from the effect of the level of development, insofar as the interaction between globalisation and governance is always context-specific - as defined by space (geography) and time (history).

We use here a broader index of globalisation which not only includes economic, political and social dimensions but within the former distinguishes trade and financial openness. We show that our results hold for the three dimensions of globalisation. To capture the level of democracy we use an index of civil rights and political liberties. The use of the GDP per capita gap instead of the level of GDP per capita may avoid spurious correlation between income and democracy due to the common time trend. The distance to US GDP per capita is also a rough way to approximate the technological frontier as well as the maturity of institutions[2].

More precisely, this paper focuses on how do globalisation, democracy and development interact simultaneously with each other. Indeed, Lopez-Cordova and Meissner (2005) pointed out that the existing literature on the topic has suffered from econometric problems that may explain the difficulty of reaching a consensus. In particular, endogeneity as well as the difficulties of finding valid instruments challenge a number of previous results. This problem applies to the analyses of the interactions between

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[1] Using a parsimonious specification - which includes only import openness, per capita GDP and an index of political rights ó they explained almost 50 per cent of the variability in the corruption index Moreover, a 10% increase in imports openness results in 0.03-point change in the corruption score. This is a sizeable effect, especially when compared to the 0.09-point changes due to a 10% increase in income per capita. They summarise available theoretical explanations of causal relationships between globalisation and governance, noting that trade policy, competition by foreign producers and international investors, and openness-related differences in institution building costs are three major transmission mechanisms through which openness affects a countryøs corruption levels.

[2] This is consistent with the idea of asymmetric growth advocated by Acemoglu et al. (2014), where some countries will opt for a type of capitalism that generates greater inequality and more innovation and will become the technology leaders, while others will free- ride on the cutthroat incentives of the leaders and choose more cuddly reward structures. In addition, õdomestic constraints from social democratic parties or unions may be beneficial for a country because they prevent cutthroat capitalism domestically, instead inducing other countries to play this roleö.

economic growth and democracy or globalisation, although estimates of positive relationships were consistently found by Rodrik and Wacziarg (2005) and Acemoglu et al. (2015).

To address these interactions in a systemic way, we use a simultaneous equation estimation method of the relationships among democracy, globalisation and development in over a large panel of country-year observations. Under the assumption that these three variables interact with each other, treating them separately would induce endogeneity and/or omitted variable biases. Furthermore, our method may offer an insight into the dynamics of globalisation and thereby provide relevant policy insights for converging countries.

Our results uncover strong two-way relationships between globalisation and development, as well as between democracy and development. However, results seem to be more sensitive to the economic context, as relationships between democracy and convergence to the frontier are either non-significant or negative when OECD countries are excluded from the sample. Overall, our findings suggest a self-reinforcing process led by the OECD group[3]. The virtuous cycle breaks due to countries with democracy index around the sample mean (Brazil, Colombia, Philippines).

The analysis presented here may open interesting perspectives on the current debate about the ever increasing interdependence of national economies, polities and societies, which the global financial crisis seems to have halted. If the positive interactions highlighted in this paper could be affected by the slowdown of globalisation, the virtuous cycle could turn into a vicious one leading to lower levels of both democracy and development.

The remainder of this paper is organized as follows. Section 2 discusses the data. Section 3 presents the empirical methodology, most notably a simultaneous system estimation of the reciprocal effects of each of our three variables of interest. Section 4 presents and discusses our main results together with some sensitivity and robustness checks. Section 5 goes back to the evidence, providing examples of the effects of history and geography on the three different two-way relationships between the three endogenous variables (Figures 3 and 4). The last section concludes.

2. The measurement of Globalisation, Democracy and development

We first describe our approach to measure the three endogenous variables whose interactions we are seeking to understand. There are indeed several important empirical issues related to the way they have been captured in the economic literature and the options proposed here.

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[3] It is worth recalling that national responses to interdependence, or mutual sensitivity tend to be defensive or exploitative rather than cooperative, so that even between two identical countries, the benefits of increased interdependence are more strongly felt at home than abroad, making each country dependent on the otherøs expansion. Moreover, the symmetry in cyclical positions does not prevent an increase in the current account balance so that deficit countries face additional external vulnerability. The mutual interaction that Cooper (1968) analyzed in the North Atlantic security community was at the heart of complex interdependence, a form of international relations which spread to the founding members of the OECD and Japan.

2.1 Globalisation

To account for globalisation, we use the KOF index (Dreher, 2006; Dreher et al., 2008).[4] Its main advantage is that it presents a multi-dimensional and continuous measure of the globalisation process for our sample of countries. It includes three types of globalisation. *First*, economic globalisation is decomposed into actual flows (trade, foreign direct investments, and portfolio investments) and restrictions on trade and capital (hidden import barriers, mean tariff rare, taxes on international trade, and capital account restrictions). *Second*, political globalisation is measured by the number of embassies, membership of international organizations, and participation in UN Security Council missions. *Third*, social globalisation is decomposed into personal contact (tourism, foreign population, transfers), information flows (internet users, telephone mainlines, daily newspapers), and cultural proximity.

The value ranges from zero to one hundred, a higher score corresponding to a more õglobalizedö country. The KOF index is probably closer to reality than measures focusing on only one dimension (or aspects of it, such as trade openness), namely the economic dimension. As far as we are aware, such a multi-dimensional and continuous index of globalisation has not been used before in other studies linking it with democracy variables. Box-plots for globalisation, democracy and development (available upon request) show, as one would expect, that the level of globalisation, democracy and development are much higher and have lower dispersion in OECD countries than in non-OECD countries.

2.2 Democracy

Rather than looking at perceptions of good governance inferred from low corruption, we focus on the complex interaction between globalisation and democracy, as a form of government that has been rising since the 1970s. Democracy is best understood by looking at its constituent elements, possibly on a case-by-case basis, rather than by a binary variable, or even by a regime characterized exclusively by electoral competition and political participation. Thus, contrarily to Eichengreen and Leblang (2008), who focused on the dichotomous nature of the democracy variable (including its age of democracy) that limits the interpretation of their results, in this paper we employ a more detailed (and continuous) democracy index based on rights and liberties. Instead of characterizing democracy by electoral competition and political participation (Przeworski et al., 2000) we try to account for the democratic process, which is likely to depend on slow moving cultural factors, by averaging two measures of the quality of democracy: political rights and civil liberties. These are *de facto* and continuous measures of democracy as opposed to the *de jure* and dichotomous ones employed by Eichengreen and Leblang (2008). The use of a dichotomous variable prevents from identifying the effect of intermediate levels of democracy on development. The extension of suffrage, for example, would not appear in this dichotomous variable. Yet democracy and parliaments were seen as a source of greater stability in the previous wave of globalisation because they put checks and controls on the sovereign and imply a greater implied ability to tax. This contradicts the

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[4] Downloadable from the Swiss Federal Institute of Technology, Zurich: http://globalisation.kof.ethz.ch/

widespread view that the repression of democracy facilitated the operation of the pre-1914 international monetary system by making external adjustment easier[5].

Some of these points also apply to the related literature attempting to find the nexus between democracy and growth. For example, Tavares and Wacziarg (2001) define democracy in purely procedural terms.[6] As a result of this tendency to measure democracy in a purely political and formal manner, quantitative studies may misrepresent the effect of democracy on globalisation or misinterpret the aspect of democracy responsible for that effect. The concept of democratic capital proposed by Persson and Tabellini (2005, 2006, 2007), where own history of democracy and that of democratic capital accumulation among neighbouring countries help to determine the rate of economic growth, is another way of introducing quality considerations.[7]

Along these lines, our approach is that political rights and civil liberties are essential ingredients of democracy. To enhance the quality of the democracy measure, we decompose it into those two main components. First, the key elements of civil liberties (CL) include freedom of thought, religion, association, free press and respect for the rights of minorities. We derived these elements from the Freedom House Civil Liberties index, which is computed for almost all countries for the period 1972 onwards. Second, political rights (PR) are associated with free and fair elections for the executive and legislative branches of power, freedom to constitute political parties, freedom of association, independence from political, religious and military authorities, real possibilities of the change of power and other related aspects of the political system. All of these and other features of political rights are taken into account by the Political Rights Index, which is published by Freedom House and covers the same period as that of the CL index. Both indexes are measured in the 1 to 7 scale with 1 corresponding to low institutional quality and 7 corresponding to high institutional quality.[8]

Economic liberties are excluded from the simple average of CL and PR, which is published by Freedom House as the *Freedom index*. Indeed, the multi-dimensional nature of the globalisation index features some of these economic liberties. Thus, the results would be biased, displaying an automatic correlation between the two due to their common components. This problem, however, does not seem to concern the political rights and civil liberties indices.

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[5] A negative interaction between democracy and debt default has been found for the period of the classical gold standard. Specifically, Flandreau and Zummer (2004, p. 44) find that the extension of suffrage reduces the default probability with an elasticity of 0.5 for the whole sample and of 1.3 for capital-poor countries.

[6] Wanting to clearly distinguish democracy from other characteristics of political systems, they use the Freedom House indicator of political rights, based precisely on this procedural definition of democracy. They add that all previous studies focus on the *direct* effect of democracy on growth, conditional on other growth-determining factors and they question this procedure: õIn theory, if a comprehensive institution such as democracy matters, it should matter *indirectly* through its effect on variables that in turn determine economic growth. Existing theoretical arguments point to links between democracy and a number of societal characteristics that influence growth. However, none of those arguments suggest that democracy has a direct impact on growthö.

[7] Eichengreen and Leblang (2008) used the age of democracy instead. Giuliano and Nunn (2013) showed the positive effect of democracy from the village to the Nation-state using *Ancestral Characteristics Database*.

[8] Downloadable from http://www.freedomhouse.org/printer_friendly.cfm?page=35&year=2006

5

In sum, we posit democracy to be a multidimensional reality and stress the importance of its *de facto* nature. This entails a trade-off, as refining the measure of democracy implies a smaller sample period (1970-2005) when compared to that of Eichengreen and Leblang (2008), which covers the period 1870-2000. Although this might make the results more sensitive to sample bias (because the number of countries is much bigger than the number of years), the loss is not as large as might appear because of the missing values problem in the data.[9]

2.3 Development

The measure of economic development is captured here by the distance to the income frontier, as the GDP per capita gap between each country and the US. This measure may not suffer from the usual problems related to the use of GDP per capita levels, which may display common time trends with the globalisation and democracy variables. This variable is mainly derived from the *World Development Indicators* database, completed with other sources when appropriate. It is measured at constant prices and, in order to obtain a consistent series, the data are PPP adjusted.

3. Globalisation, Democracy and Development: a long-term nexus?

The existence of possible positive relationships between globalisation, the capacity of countries to develop by reducing their income per capita gaps with the more developed countries and the reinforcement of democratic institutions has been questioned (e.g. Stiglitz, 2002; Rodrik, 2011).

Insert Figure 1

Using the variables defined above for GLOB, DEM and DEV we computed an average for the group of 92 countries over the period 1972-2008 (Figure 1).[10] In order to capture the long-term trends, we decided to exclude the period after the Great Recession of 2008 of our analysis. Since 2008, there has been indeed a concomitant slowdown of trade flows and reduction of economic growth generated by the crisis that could induce a spurious correlation.

Overall, we can see that GLOB has increased steadily over the period considered and even accelerated after the mid-90s (under the so-called hyper-globalisation period). In contrast, the level of freedoms captured by DEM variable has increased at much lower rate and tended to stabilise towards the end of the period. The DEV variable measuring the average reduction of the income gaps vis-à-vis the US is totally flat over the entire period. This contrasts with the steady increase of the income frontier represented by the level of GDP per capita in the US (constant prices PPP adjusted).

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[9] The Eichengreen and Leblang sample covers 135 years for 202 countries (taking into account name and border changes) but no regression includes more than one third of the maximum number of observations (about 27K). In this regard, using our measures of democracy cuts the sample size by half rather than by two thirds.

[10] The years between 2005 and 2008 are displayed here but were not used in the econometric estimates because lack of availability for some of the control variables.

In Figure 2 we provide the complete data cloud used subsequently in our econometric estimates (92 countries for 1974-2005). Looking at the full panel, the gradient of globalisation rising everywhere, but the sample shows a strong polarization for the DEM variable driven by the expanding OECD group. On DEV, however, we see a rise at lower levels of DEM, there is a reversion around the median of the DEM, increasing again for higher levels.

Insert Figure 2

4. Empirical Methodology

Our sample corresponds to a panel of 92 countries over the period 1974-2005. The country grouping includes 23 founding members of OECD, 6 new entrants plus 63 non-OECD countries. The country list together with summary statistics for the three endogenous variables, globalisation, democracy, and development are presented in the Appendix. We first tested for possible non-stationarity issues in the data (see Appendix, section 2). This does not seem to be problem in our context because only one case, for the GLOB variable, the tests do not reject the non-stationarity hypothesis.

4.1 Identification and Endogeneity Issues

The issue of endogeneity of the regressors is usually dealt with in the literature by using instrumental variable (IV) estimators. Yu (2005), for example, used measures of justice independence and the use of death penalty to account for democracy. Milner and Kubota (2005) used a secondary schooling measure and the political-party system's age to instrument for democracy, and economic crises, pressures by international organizations and a measure of economic ideas to instrument globalisation. However, these analyses make no mention of an over-identification test, which is the main problem in our case. Lopez-Cordova and Meissner (2005) used gravity and geographic information to instrument globalisation but, facing an over-identification problem, simply gathered these variables into a single instrument (without being able to control for its validity).

Consequently, we try the different instruments suggested by the literature. However, taken individually, very few prove to satisfy the independence requirement. This problem becomes even clearer when using combinations of instruments, as almost none satisfies the over-identification test. Apart from the widespread difficulty in finding instruments for democracy and globalisation in the literature, one could mention two reasons specific to our analysis. First of all, the multi-dimensional aspect of the KOF index of globalisation makes it even harder to find a variable that is not correlated to this index. Secondly, the same goes for convergence and economic growth (many instruments can be thought to impact growth independently of their effects on globalisation or democracy).

Keeping in mind these difficulties, fuel export dependence and colonial origin (in each case represented by dummy variables, which are not, when used on their own, ideal instruments) are used to instrument democracy. The investment rate is used to instrument economic convergence. Finally, inflation and the logarithm of the distance to the rest of the world are alternatively used to instrument globalisation. Nonetheless, several of these specifications suffer from weak identification. Moreover, it is worth noting that no valid instrument was found for the equations explaining globalisation with development and development with democracy, the latter having the N shaped bilateral relationship displayed in Figure 2, as noted above.

7

4.3 A System Equation approach

To address endogeneity issues, we use a system-equation approach that enables to address the bi-directional causality. We applied the standard Three-Stage Least Square method (3SLS).[11] The 3SLS method uses all the information provided by the exogenous right-hand-side (RHS) variables to instrument the endogenous (LHS) left-hand-side variables. As such, it avoids the potential pitfall of having to find õgoodö instruments within a single equation context.[12] Moreover, when different interdependence equations are specified, it seems more natural to make use of a simultaneous equation approach.

In order to provide consistent estimates, the 3SLS method requires a set of exogenous variables specific to each endogenous variable for each equation. Therefore, we include the number of currency crises in the year in the globalisation equation, and the investment rate in the development equation. We also include dummy variables standing for legal and colonial origins, as well as for fuel export dependence, the number of democracies in the world, population density, and a measure of urban population in the democracy equation. Other control variables, common to at least two equations, are also used. These are gravity controls (distance, area, and population), inflation and regional dummies. We recognize that the 3SLS method may be more sensitive to the existence of spurious correlations or multi-collinearity among the regressors in one equation, thereby "contaminating" the remaining equations. Yet, this does not seem to be an issue in our sample.

Accordingly, we define the following simultaneous system (1) of three equations:

(i) $Globalisation_{it} = {}_1. Democracy_{it} + {}_1. Development_{it} + {}_1.Z_{1it} + \mu_t + {}_i + {}_{it}$

(ii) $Democracy_{it} = {}_1.Globalisation_{it} + {}_2. Development_{it} + {}_2.Z_{2it} + \mu_t + {}_i + {}_{it}$

(iii) $Development_{it} = {}_2. Democracy_{it} + {}_2.Globalisation_{it} + {}_3.Z_{3it} + \mu_t + {}_i + {}_{it}$

for $i = 1,í$, N and $t = 1970\text{-}2005$

where, for each country, *Globalisation* stands for the KOF index of globalisation. *Democracy* is the Freedom House index variable averaging political rights (PR) and civil liberties (CL). *Development* represents the ratio of a given countryøs GDP per capita over that of the United States while $\{Z_i\}$ denotes a set of appropriate control variables for each equation.[13] μ_t , $_i$ denote country and time effects, respectively. $_{it}$ denotes the disturbance

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[11] At the first stage, endogenous variables are instrumented by all exogenous variables in the system; at the second stage an efficient estimate for the covariance matrix of the disturbances is obtained; and at the final stage a GLS-type estimation uses this covariance matrix in a regression of the dependent variables on the instrumented values of endogenous variables and on the exogenous variables, with some identification restrictions.

[12] To deal with the potential endogeneity problem, Eichengreen and Leblang (2008) adopted a GMM-Instrumental variable approach where each relationship is estimated individually.

[13] We followed Eichengreen and Leblang (2008) benchmarkøs identification strategy very closely. Similarly to their study, we used a set of control variables for globalisation and democracy: the equation for globalisation includes size variables, (as larger countries tend to be less open to trade), a distance variable, regional dummies for Latin America, Middle-East, Africa and Asia, a variable equal to the number of currency crisis, and the rate of inflation; the equation for democracy includes regional dummies, a dummy for fuel exporters and a number of institutional controls: the number of prior transitions to dictatorship, the constitutional age, the number of other democracies in the global system, dummies for the socialist legal

term satisfying usual assumptions of zero mean and constant variance. Country and time effects were included in all estimations but not reported for reasons of parsimony.

Insert Table 1

5. Empirical Results

5.1 Dealing with Endogeneity

Prior to our 3SLS estimation in the next sub-section, we employ a two-step Difference GMM approach *a la* Arellano and Bond (1991) and a System GMM approach *a la* Arellano and Bover (1995) to attempt overcoming endogeneity concerns surround our three main variables of interest. These estimators deal effectively with the endogeneity problem by using a set of instruments for the endogenous variables. The former uses lagged levels as instruments for the equation in differences; in addition to that, the latter uses lagged differences as instruments for the additional equations in levels.

Insert Table 2

Tables 1 and 2 provide the results of the Difference GMM and System GMM method, respectively for the entire sample of countries. Democracy seems to have a positive effect on globalisation; convergence displays a positive role on democracy, and globalisation a positive impact on both democracy and convergence. However, the difficulties encountered when trying to find valid instruments suggests that these results should be treated with great caution. This leads us to use a simultaneous equations approach as our baseline specification.

5.2 Baseline Simultaneous Equation Model Estimation

Tables 3, 4 and 5 display, respectively, the estimations for all the countries pooled together, for the OECD countries, and for the non-OECD countries. For the whole sample, we observe strong positive two-way effects between democracy and globalisation on the one hand, and between globalisation and development on the other hand. This is a strong result for the analysis of our topic. Furthermore, democracy impacts positively on development and the feedback effect from development to democracy is positive and statistically significant.

As for the remaining regressors, we observe that fuel export dependence negatively affects the level of democracy. This is typical in what Acemoglu and Robinson (2012) call extractive societies and is also related to Dutch disease type of effects. Such natural resources are predominantly located in developing countries whose quality of institutions is to some extent low and corrupt, rent seeking behaviours easily emerge.

Inflation seems to negatively impact development and this can be justified on the ground of the literature on *seignoriage* consequences and the õinvisible taxö that erodes wealth. In line with the growth literature, investment and size matter for development as attested by

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system, colonial heritage (British, French and Spanish), the percentage of the population living in urban areas and the population density.

9

the positive and statistically significant coefficient on investment rate and area, whereas population has the reverse effect.

Overall, there seems to be a ‑contagion effectø of the extension democracy, captured by the (lagged) number of democratic countries, as it affects positively the level of civil and political rights. This effect only derives from the non-OECD sample (Table 5). Interestingly, population density affects negatively democracy, but urbanisation acts as a counteracting force for non-OECD countries.

Other controls reflect the impact of history and geography. On historical and cultural aspects, the socialist legal origin affects negatively democracy, but within the OECD group the effect is positive, suggesting that former socialists when provided with a strong policy anchor (for example, the process of EU accession) can overcome past legacies. In contrast, the English colony dummy is uniformly positive in all samples. The Spanish colony dummy is also positive for developing countries, while the French colony dummy is never significant. The geography dummies (Latin America, Middle East, Africa and Asia) tend to show a negative effect of on globalisation and democracy for the sample of non-OECD countries. Distant countries tend to be less globalized, but this geographic factor does not seem to hinder convergence forces within the OECD group. Also, large developing countries tend to be less globalized, but they have higher convergence to the income frontier.

Insert Tables 3, 4 & 5

Table 6 provides the calculated cross-elasticities for globalisation, democracy and development - derived from the estimates for a country presenting mean values of these three variables[14]. In the full sample (Panel A), the largest effect is the impact of globalisation on development (+1.33). As an illustration, an increase in the globalisation index from the non-OECD mean (around 37, cf. Appendix) to the OECD mean (around 68, or a factor of 1.83) would narrow the distance to the frontier from the level of Colombia in 2005 (around 17) to almost that of Chile (around 43, i.e. a factor of 2.4). A similar increase in the globalisation index would induce an increase of 24% in the democracy index. All these results are obtained, *ceteris paribus*, keeping the other variables constant.

Insert Table 6

When taking into account higher order effects reflecting the simultaneity relations could actually produce even higher values. Using an iterative method, we computed the long-run elasticity between globalisation and democracy, leaving out the effects on the income gap for simplicity. When, as in the previous example, globalisation increases by 1.83, the long-run effect on democracy is now 60% (i.e. more than double the first round effect), roughly equivalent to going from the mean of non-OECD to the one of OECD. The mutually reinforcing effect would, in turn, make Globalisation converge to a level close to that of the US (or a compound increase of 2.1 instead of 1.83).

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[14] While computed elasticities for the effects of globalisation, democracy and development, are based on mean values of the full sample, the OECD and the non-OECD sample and hence may be masking disparities within samples, our results are robust to the exclusion of outliers. Using the Least Absolute Deviation approach prior to the 3SLS estimation to remove potential outliers yields qualitatively the same results.

10

Looking at the mean effects, for OECD countries (Panel B), the positive two-way relationships between democracy and globalisation, as well as between democracy and development, remain. In particular, the latter effect is much stronger. In contrast, globalisation has a much smaller effect on the reduction of the income gap.

For non-OECD countries (Panel C), the elasticity of globalisation with respect to development is almost as large as for the full sample (1.23 vs. 1.33), while the elasticity of development with respect to globalisation is larger than in the full sample (0.51 vs. 0.38). However, the interaction between democracy and development changes dramatically: the elasticity of democracy with respect to development becomes negative, and there is no effect of development on democracy.

5.3 Sensitivity and Robustness checks

Seemingly Unrelated Regression Estimation

Our first exercise consists in re-estimating our system (1) using the SURE method with an iteration procedure over the estimated disturbance covariance matrix and parameter estimates that converge to stable maximum likelihood results (Zellner, 1962, 1963; Zellner and Huang, 1962). Results are displayed in Table 7. Generally, speaking for all countries, OECD and Non-OECD there are not major changes compared to our baseline, which is reassuring.

Insert Table 7

Decomposing the Globalisation Index

Given that our globalisation index is an aggregation of several components as discussed in Section 2, we now run our system (1) with three stage least squares for each of the three main components of the total index: i) economic globalisation; ii) social globalisation; and iii) political globalisation. This can provide some further and useful insights driving the main results discussed in section 4.

We begin with the full sample, whose results for the three main variables of concern are displayed in Table 8.[15] Most estimates are in line with previous results, but when the dependent variable is the political globalisation this has a negative and statistically significant effect on democracy. Thus, political globalisation (notably captured by membership in International Organizations) by itself is not sufficient to generate an increase in political and civil rights whereas both economic and social globalisation seem to be more effective in generating democracy.

Insert Table 8

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[15] To economise on space, the coefficient estimates on other regressors have been omitted from Tables 5-7 but they are available from the authors upon request. Overall, the sign, statistical significance and economic interpretation do not qualitatively change throughout the different exercises conducted.

11

For OECD countries (Table 9) economic globalisation, measured by actual flows and restrictions on trade and capital, does not seem to impact the level of development. One reason may be due to the fact that these countries are at or close to the technological frontier and all marginal gains from increase economic globalisation are almost exhausted. As before, all the remaining estimates are in line with previous results.

Insert Table 9

For non-OECD countries (Table 10), the component driving the negative impact of democracy on development in Non-OECD countries is social globalisation (bottom left panel). The change in the sign is probably due to the fact that social globalisation is driven by elites and consumer behaviour that may not affect the supply-side of the economy.

Insert Table 10

6. Summing-up the results: from general to context-specific interactions

Coming back to the evolution of the three variables described in the Introduction, it shows a striking contrast between Democracy, Globalisation, on the one hand, and Development, on the other hand (Figure 1). Democratic freedoms (DEM) rose steadily since they were first measured in the 1970s. Globalisation (GLOB) also increases with an acceleration after the collapse of the Soviet Union in the 1990s. But the average level of Development (DEV), measured by the income gap, remains stable throughout the period. Of course, this relative stagnation still implies an increase in the absolute levels of GDP per capita, as shown by the steady increase in the worldøs technological frontier (YCAPUS or GDP per capita in the US). The whole panel of 92 countries over the period 1974-2005 for the three variables shows that the virtuous cycle of globalisation, democracy and democracy is a feature of OECD countries, broken by countries at the sample mean of DEM (Figure 2).

To sum-up, in the full sample, a positive two-way relationship appears between Globalisation and Development (measured by the income gap), between Globalisation and Democracy, as well as Democracy and Development. These results support Eichengreen and Leblang (2008)øs findings and the hypothesis of a positive two-way relationship between democracy and globalisation.

However, our results are not uniform across time and space; in particular, the impact of democracy on globalisation varies with resource endowments and global economic conditions.[16] Eichengreen and Leblang (2008, page 5) had already noted that õgeneral conclusions, not surprisingly, remain elusive. But the evidence here is a start.ö In our estimates, OECD countries are characterized with positive two-way relationships between economic convergence and freedoms on the one hand, and between freedoms and globalisation on the other hand. For non-OECD countries, two features appear particularly interesting. First, Globalisation appears to interact positively with both Democracy and Development, both ways. Second, Democracy and Development do not display a positive relationship, notably with a significant negative impact of Democracy on Development, measured by the income gap vis-à-vis the US.

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[16] See Huang (2006) for a model suggesting a long-run relationship between economic development and political development based on the inherent technical features of different production factors.

Finally, we come back to the importance of history and geography discussed earlier, by summarizing the impact of these controls on Globalisation, Democracy and Development for the full sample. Unlike the English and Spanish colony dummies, the socialist legal origin negatively affects democracy (Figure 3)[17].

Insert Figure 3

Figure 4 shows the effects of geography: countries from Latin America, Africa and Asia show a lower DEV but a higher GLOB, while countries from Middle East and Africa have a negative impact on DEM.

Insert Figure 4

7. Conclusions

In this paper, we analysed for the the simultaneous the interactions between globalisation, democracy and development for 89 countries over the period 1970-2005. Our starting point is the two-way robust relation between democracy and globalisation found in Eichengreen and Leblang (2008). We extended their analysis by using multi-dimensional and continuous measures of democracy and globalisation, as well as integrating the relationships between these two variables and the income gap relative to the US, as a measure of economic development.

Two main results of our work should be highlighted. When separated into two groups, clearly distinct patterns emerge for OECD and non-OECD countries. Introducing the income gap as a third endogenous variable confirms the two-way interaction between democracy and globalisation found in Eichengreen and Leblang (2008), both for OECD and non-OECD countries. Globalisation displays significant positive effects on both democracy and development in non-OECD countries. Our analysis, however, indicates a significant negative impact of democracy on development in non-OECD group. This may reflect the hypothesis that globalisation's effects on democracy are mediated by slow-moving cultural values, probably leading to a dynamic asymmetry between globalisation and democracy, moderated by the stage of economic and institutional development.

Further work is therefore needed to understand the long-run dynamics and sustainability of this global system, in particular the mechanisms that could enforce or reinforce the expected positive effect of Globalisation on both Development and Democracy.

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[17] In a complementary explanation of the democracy-globalisation interaction, one of us based it on the manner in which diversity, be it socio-cultural or economic, is addressed by a given society (Braga de Macedo, 2014). This diversity depends to the ability to build inclusive institutions and is at the heart of õwhy nations failö, borrowing the title of Acemoglu and Robinson (2012). Nevertheless it goes beyond the asymmetric growth mentioned above in the text following Acemoglu et al (2014).

References

Acemoglu, D., J. A. Robinson, 2012, *Why Nations Fail The origins of power prosperity and poverty*, Princeton University Press

Acemoglu, D., J. A. Robinson, T. Verdier, 2014, õAsymmetric Growth and Institutions in an Interdependent Worldö *NBER Working Paper* No. 18441, October 2012 revised April

Acemoglu, D., S. Naidu, P. Restrepo, J. A. Robinson, 2015, õDemocracy Does Cause Growthö, *NBER Working Paper* No. 20004, March 2014 revised May

Arellano, M. O. Bover, 1995, õAnother look at the instrumental variable estimation error component modelsö, *Journal of Econometrics*, 68(10), 29-51.

Arellano, M., S. Bond, 1991, õSome tests of specification for panel data: Monte Carlo evidence and an application to employment equationsö, *Review of Economic Studies*, 58(2), 277-297.

Bonaglia, F., J. Braga de Macedo, M. Bussolo, 2001, õHow Globalisation Improves Governanceö, CEPR Discussion Paper nº 2992, October reprinted in Linda Yueh (ed.) *The Law and Economics of Globalisation*, Edward Elgar, 2011, pp. 193-224.

Braga de Macedo, J., 2001, õGlobalisation and Institutional Change: A Development Perspectiveö, in *Globalisation Ethical and Institutional Concerns*, edited by L. Sabourin and E. Malinvaud, The Pontifical Academy of Social Sciences, Acta 7, Vatican City, pp. 223-267.

Braga de Macedo, J., 2014, õInterdépendance, liberté et développement internationalö, *FERDI Working Paper Development Policies* nº 86, February

Braga de Macedo, J., J. Oliveira Martins and B. Rocha 2013, "Are complementary reforms a "luxury" in developing countries?", *Journal of Comparative Economics* 2013.

Braga de Macedo, J., J. Oliveira Martins, L. Brites Pereira, J. Tovar Jalles "Globalization, Democracy and Development", *NBER Working Paper* nº 19575, 2013.

Cooper, R., 1968, *The Economics of Interdependence, Economic Policy in the Atlantic Community*, McGraw Hill.

Diebolt, C., T. Mishra, B. Ouattara and M. Parhi, 2013, õDemocracy and Economic Growth in an Interdependent Worldö, *Review of International Economics*, pp. 733-749.

Dreher, A., 2006, õDoes Globalisation affect Growth? Evidence from a new index of Globalisationö, *Applied Economics*, 38, pp.1091-1110.

Dreher, A., 2008, õHas Globalisation increased Inequality?ö *Review of International Economics*, 16(3), pp.516-536.

Eichengreen, B., D. Leblang, 2008, õDemocracy and Globalisationö, *Economics and Politics* vol. 20(3), pp. 289-334.

Flandreau M., F. Zummer, 2004, *The Making of Global Finance 1880-1913,* Paris: OECD Development Centre Studies.

Garoupa, N., J. Tavares, 2009, õInstitutions and Portuguese economic History: Implications and (Brief) Applicationsö, in J. Braga de Macedo, A. Ferreira da Silva, L. Amaral and A. C. Henriques (editors), *Nove Ensaios na tradição de Jorge Borges de Macedo*, Lisboa: Tribuna da História, pp. 133-154.

14

Giuliano, P., N. Nunn, 2013, õThe transmission of democracy: From the village to the Nation-Stateö, *American Economic Review* 103(3), pp. 86-92.

Huang, F., 2006, õThe coevolution of Economic Development and Political Developmentö, *mimeo* Singapore Management University.

Lopez-Cordova, E., C. Meissner, 2005, õThe Globalisation of Trade and Democracy, 1870-2000ö, *NBER Working Paper* n°11117, February.

Maddala G.S., S. Wu, 1999, õA comparative study of unit root tests with panel data and new simple testö, *Oxford Bulletin of Economics and Statistics*, Special issue, 631-652

Milner, H., K. Kubota, 2005, õWhy the Move to Free Trade? Democracy and Trade Policy in the Developing Countriesö, *International Organization*, 59, Winter, pp.107-143.

OøSullivan; J. (2016); õWorld Economy Special Report: An open and shut caseö, *The Economist* October 1, 16 pp.

Persson, T., G. Tabellini, 2005, õDemocracy and Development: Devil in the Detailsö, December.

Persson, T., G. Tabellini, 2006, õDemocratic capital the nexus of political and economic changeö, *NBER Working Paper* No. 12175.

Persson, T., G. Tabellini, 2007, õThe growth effects of democracy: Is it heterogeneous and how can it be estimated?ö, March.

Pesaran, M. H., 2007, õA simple panel unit root test in the presence of cross section dependenceö, *Journal of Applied Econometrics*, 22(2), 265-312.

Przeworski, A., M. Alvarez, J.A. Cheibub and F. Limongi, 2000, õDemocracy and Development: Political Institutions and Well-Being in the World, 1950-1990ö, Cambridge: Cambridge University Press.

Rodrik, D., R. Wacziarg, 2005, õDo Democratic Transitions Produce Bad Economic Outcomes?ö, *American Economic Review*, 95(2), May, pp. 50-55.

Rodrik, D., 2011, *The Globalization Paradox: Democracy and the Future of the World Economy*, New York and London: W.W. Norton.

Stiglitz, J. E., 2002, *Globalization and Its Discontents,* New York: W.W. Norton.

Tavares, J., R. Wacziarg, 2001, õHow Democracy Affects Growthö, *European Economic Review*, August 2001, 1341-1378.

Yu, M., 2005, õTrade Globalisation and Political Liberalization: A Gravity Approachö, November.

Zellner, A., 1962, õAn Efficient Model of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Biasö, *Journal of the American Statistical Association*, 57, 348-368.

Zellner, A., 1963, õEstimators for seemingly unrelated regression equations: Some exact finite sample resultsö. *Journal of the American Statistical Association* 58: 977-992.

Zellner, A., D. S. Huang 1962, õFurther properties of efficient estimators for seemingly unrelated regression equationsö. *International Economic Review* 3: 300-313.

Appendix

1. List of 92 countries

Non-OECD group: Albania, Algeria, Argentina, Bangladesh, Benin, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cameroon, Central African Republic, Chad, China, Colombia, Costa Rica, Cyprus, Dominican Rep., Ecuador, Egypt, El Salvador, Ghana, Guatemala, Haiti, India, Indonesia, Iran, Ivory Coast, Jamaica, Jordan, Kenya, Kuwait, Madagascar, Malawi, Malaysia, Mali, Malta, Morocco, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Romania, Rwanda, Senegal, Sierra Leone, Singapore, Sri Lanka, Tanzania, Thailand, Togo, Tunisia, Uganda, Uruguay, Venezuela, Zambia, Zimbabwe.

OECD group (year indicated when country entered after the beginning of the sample period): Australia, Austria, Belgium, Canada, Chile (2010), Denmark, Finland, France, Greece, Hungary (1996), Iceland, Ireland, Israel (2010), Italy, Japan, Korea (1996), Luxembourg, Mexico (1994), Netherlands, New Zealand, Norway, Poland (1996), Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

Summary statistics (1970-2005)

All countries					
Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Globalisation (KOF)	3312	45.40	19.36	7.14	93.64
Freedoms (PRCL)	3312	4.51	1.96	1	7
Development	3312	0.30	0.29	0.02	2.03
OECD Countries					
Variable (incl Malta)	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Globalisation	866	68.39	14.67	27.90	93.64
Democracy	866	6.65	0.76	2	7
Development	866	0.70	0.21	0.21	1.62
Non-OECD Countries					
Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Globalisation	2446	37.26	13.35	7.14	84.45
Democracy	2446	3.75	1.67	1	7
Development	2446	0.16	0.16	0.02	2.03

2. Co-integration tests

In order to deal with the issue of a possible panel co-integration, stationarity tests were carried out for the three endogenous variables (globalisation GLOB, democracy DEM and development DEV as defined in the text and in the Appendix). We implemented three different types of panel unit root tests: two first generation tests, namely the Imbs *et al.* (2003) test (IPS); the Maddala and Wu (1999) test (MW) and one second generation test ó the Pesaran (2007) CIPS test. The latter is associated with the fact that previous tests do not account for cross-sectional dependence of the contemporaneous error terms and failure to consider it may cause substantial size distortions in panel unit root tests (Pesaran, 2007). The null hypothesis in the three tests is that all panels contain a unit root against the alternative that they are stationary. As reported in Tables A.1 and A.2, only the KOF index suffers from non-stationarity, which implies that co-integration is not a problem here.

Table A.1 First Generation Panel Unit Root Tests
Im, Pesaran and Shin (2003) Panel Unit Root Test (IPS) (a)

Globalisation (KOF index)			Democracy			Convergence (Development)		
[t-bar]	(p)	lag	[t-bar]	(p)	lag	[t-bar]	(p)	lag
2.76	0.99	0.75	-4.62	0.00	0.75	-2.04	0.02	1.14

Maddala and Wu (1999) Panel Unit Root Test (MW) (b)

Full	Globalisation (KOF index)		Democracy		Convergence (Development)	
lags	p_λ	(p)	p_λ	(p)	p_λ	(p)
in levels						
0	66.680	1.00	287.961	0.000	226.209	0.019
1	55.619	1.00	294.308	0.000	242.153	0.003
2	63.368	1.00	237.645	0.005	214.000	0.064
3	49.808	1.00	336.250	0.000	195.850	0.261

Notes: (a) We report the average of the country-specific õidealö lag-augmentation (via AIC). We report the t-bar statistic, constructed as $t-bar = (1/N)\sum_i t_i$ (t_i are country ADF t-statistics). Under the null of all country series containing a nonstationary process this statistic has a non-standard distribution: the critical values are -1.73 for 5%, -1.69 for 10% significance level ó distribution is approximately *t*. We indicate the cases where the null is rejected with **. (b) We report the MW statistic constructed as $p_\lambda = -2\sum_i \log(p_i)$ (p_i are country ADF statistic p-values) for different lag-augmentations. Under the null of all country series containing a nonstationary process this statistic is distributed $\chi^2(2N)$. We further report the p-values for each of the MW tests.

Table A.2: Second Generation Panel Unit Root Tests
Pesaran (2007) Panel Unit Root Test (CIPS)

Variable	Globalisation (KOF index)		Democracy		Convergence (Development)	
lags	p_λ	*(p)*	p_λ	*(p)*	p_λ	*(p)*
in levels						
0	-3.088	0.001	-1.623	0.052	2.764	0.997
1	-1.909	0.025	-1.103	0.135	0.099	0.539
2	-1.622	0.052	0.137	0.555	1.307	0.904
3	-0.024	0.49	-0.057	0.477	2.469	0.993

Notes: Null hypothesis of non-stationarity. We further report the p-values for each of the CIPS tests.

Figure 1: Average (92 countries) of GLOB, DEM and DEV 1970-2016 (US 1972=DEV rebased)
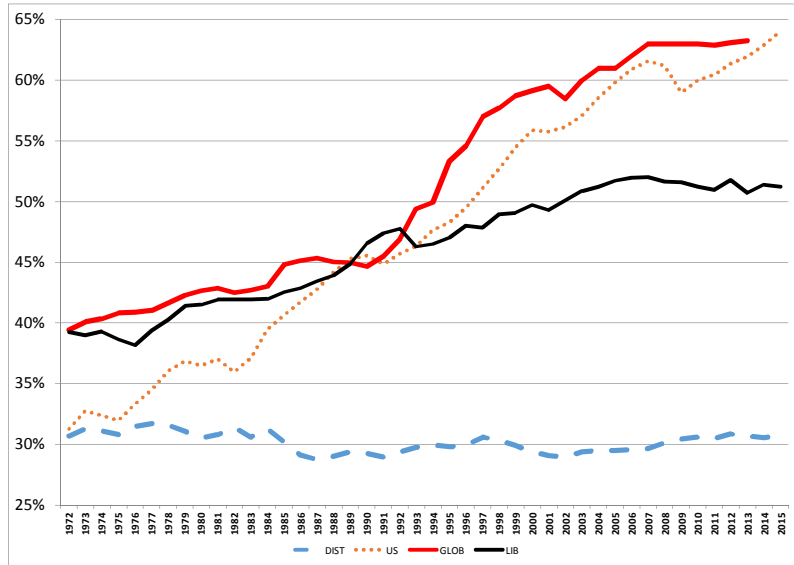
Notes: GLOB is the KOF Globalisation index; DEM is the average of political and civil rights; DEV is the ratio between GDP per capita in each country vis-à-vis the US; and YCAPUS is the level of GDP per capita in the US (or the income frontier).

Figure 2: GLOB, DEM and DEV across 92 countries (1974-2005)
(Green dots=OECD, Orange dots= Non-OECD)
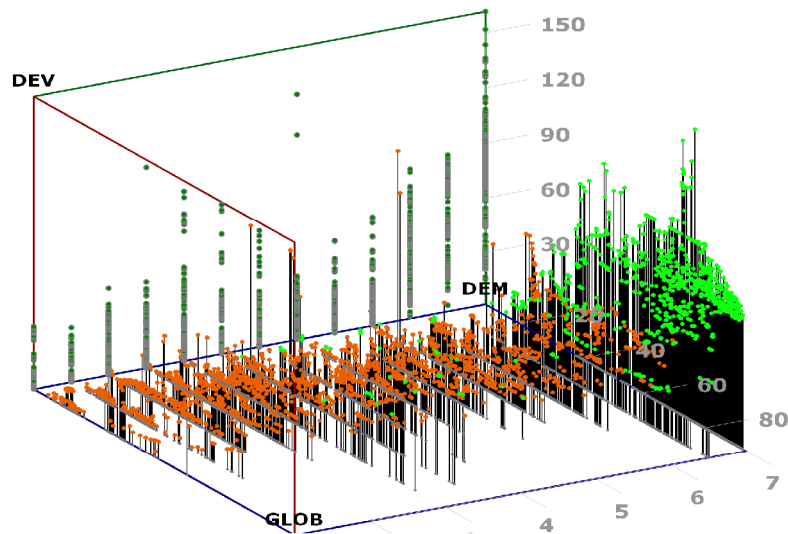
Notes: GLOB is the KOF Globalisation index; DEM is the average of political and civil rights; DEV is the ratio between GDP per capita in each country vis-à-vis the US.

19

Figure 3: Effect of History: all countries
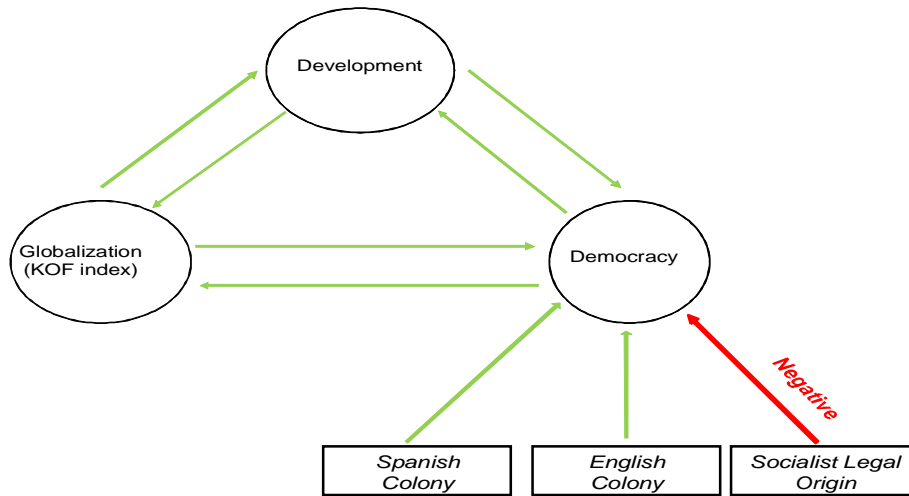
Notes: Democracy is the average of political and civil rights; Development is the ratio between GDP per capita in each country vis-à-vis the US. The green and red colours mean, respectively, a positive sign and a negative sign.

Figure 4: Effect of geography: all countries
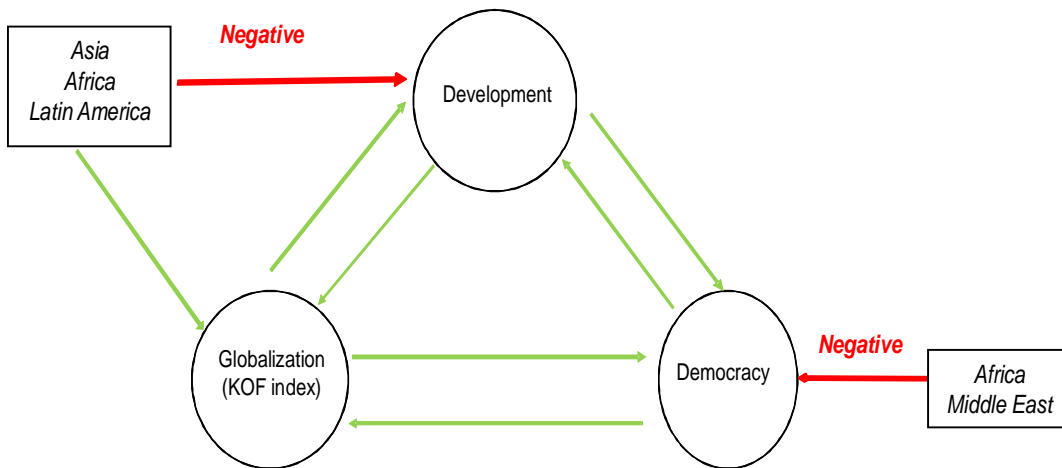
Notes: Democracy is the average of political and civil rights; Development is the ratio between GDP per capita in each country vis-à-vis the US. The green and red colours mean, respectively, a positive sign and a negative sign.

Table 1 ó Difference GMM estimation, all countries

Specification	(1)	(2)	(3)	(4)	(5)
	Globalisation (KOF)		Democracy (PRCL)		Development
COEFFICIENT					
Development	0.0855	0.5218*	0.0024	0.0355**	
	(0.124)	(0.315)	(0.011)	(0.018)	
Democracy	1.3368	0.8511			-0.4179
	(1.073)	(0.752)			(0.521)
Lagged total financial crises	-0.1286***	-0.0911***			
	(0.019)	(0.022)			
Lagged inflation	-0.0042	-0.0039			-0.0004*
	(0.003)	(0.005)			(0.000)
Log distance from the rest of the world	-100.4159***	-56.5735*			-21.7439
	(23.016)	(29.141)			(19.619)
Log area	146.2584	87.7472			31.1900
	(226.923)	(170.837)			(99.796)
Log population	38.1425***	41.7753***			-9.5856
	(4.262)	(6.966)			(7.370)
KOF index			0.0080	-0.0148	0.2160
			(0.018)	(0.015)	(0.149)
Lagged number of prior transitions to dictatorship			0.5028	1.1316***	
			(0.396)	(0.281)	
Lagged constitutional age			-0.0334**	-0.0189*	
			(0.015)	(0.010)	
Lagged total number of democracies			0.0033	0.0067	
			(0.004)	(0.005)	
Lagged urban population			0.0441*	0.0296*	
			(0.025)	(0.017)	
Lagged population density			-0.0003	-0.0005	
			(0.002)	(0.001)	
Investment rate					0.1944*
					(0.111)
Instruments	English colony	Lagged fuel export dependence	log distance from the rest of the world	Investment rate	Inflation
Observations	2,649	2,649	2,832	2,832	2,852
Hansen (p-value)	0.0071	0.1385	1.0000	1.0000	1.0000
AR(1)	0.2295	0.5963	0.0140	0.0068	0.0474
AR(2)	0.1988	0.0969	0.0936	0.0474	0.2287

Note: The models are estimated by difference Generalized Method of Moments (DIFF-GMM). Heteroskedastic-consistent standard errors are in parentheses. The Hansen test evaluates the validity of the instrument set, i.e., tests for over-identifying restrictions. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order (the null is no autocorrelation), respectively. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 2 ó System GMM estimation, all countries

Specification	(1)	(2)	(3)	(4)	(5)
	Globalisation		Democracy		Development
COEFFICIENT	(KOF)		(PRCL)		
Globalisation (KOF index)			0.0242*	0.0122	0.3262***
			(0.014)	(0.012)	(0.108)
Development	0.3657***	0.3544***	0.0108	0.0124	
	(0.088)	(0.075)	(0.015)	(0.010)	
Lagged number of prior transitions to dictatorship			0.0056	0.0121	
			(0.133)	(0.170)	
Lagged constitutional age			0.0009	-0.0005	
			(0.007)	(0.007)	
Lagged total number of democracies			0.0042	0.0068*	
			(0.005)	(0.004)	
Lagged fuel export dependence			-0.0177	-0.8747	
			(0.937)	(0.858)	
Socialist legal origin			-2.2113***	-2.3898***	
			(0.756)	(0.702)	
English colony			0.4127	0.1442	
			(0.390)	(0.601)	
French colony			-0.1929	-0.6649	
			(0.494)	(0.813)	
Spanish colony			0.2322	0.3244	
			(0.305)	(1.200)	
Lagged urban population			0.0059	0.0095	
			(0.010)	(0.014)	
Lagged population density			-0.0006***	-0.0009	
			(0.000)	(0.001)	
Latin America	-0.8579	-1.3295	-0.7251	-1.1900	-62.7800***
	(3.708)	(3.640)	(0.886)	(1.410)	(15.960)
Middle East	1.7468	0.2582	-2.4263***	-2.1848**	-13.3237
	(5.663)	(5.418)	(0.867)	(1.083)	(15.826)
Africa	-1.2316	-1.8968	-1.8627*	-2.0856**	-27.8221***
	(3.730)	(3.241)	(0.953)	(1.026)	(7.964)
Asia	-2.2665	-2.8901	-0.7318	-0.8774	-38.8319**
	(5.880)	(4.516)	(0.933)	(0.910)	(15.145)
Democracy	3.3806***	3.4480***			0.9832
	(0.897)	(0.854)			(1.363)
Lagged total financial crises	0.0352	0.0345			
	(0.032)	(0.030)			
Lagged inflation	0.0019	0.0035			-0.0002
	(0.003)	(0.004)			(0.001)
Log distance from the rest of the world	-6.9637	-7.2708			84.5342***
	(4.663)	(4.422)			(27.274)
Log area	-0.2478	-0.2679			5.1698*
	(0.778)	(0.689)			(2.748)
Log population	1.1397	1.1031			-8.2661***
	(1.174)	(1.023)			(2.895)
Investment rate					0.7059*
					(0.392)
Constant	67.9182*	71.3385*	3.4062***	3.9720***	-642.2196***
	(40.229)	(36.572)	(1.020)	(0.968)	(225.839)

Instruments	English colony	Lagged fuel export dependence	log distance from the rest of the world	Investment rate	Inflation
Observations	2,741	2,741	2,921	2,921	2,946
Hansen (p-value)	0.9995	0.9996	1.0000	1.0000	1.0000
AR(1)	0.3686	0.8817	0.4096	0.3730	0.1095
AR(2)	0.0142	0.1318	0.1636	0.1478	0.7676

Note: The models are estimated by system Generalized Method of Moments (SYS-GMM). Heteroskedastic-consistent standard errors are in parentheses. The Hansen test evaluates the validity of the instrument set, i.e., tests for over-identifying restrictions. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order (the null is no autocorrelation), respectively. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 3: Baseline specification System Three Stage Least Squares, all countries

Specification	(1)	(2)	(3)
COEFFICIENT	Globalisation	Democracy	Development
Globalisation		0.0294***	0.8888***
		(0.003)	(0.021)
Democracy	2.6999***		3.2793***
	(0.173)		(0.221)
Development	0.5646***	0.0280***	
	(0.013)	(0.003)	
Lagged number of prior transitions to dictatorship		0.0781***	
		(0.022)	
Lagged constitutional age		-0.0015	
		(0.001)	
Lagged total number of democracies		0.0055***	
		(0.001)	
Lagged fuel export dependence		-0.2937***	
		(0.088)	
Socialist legal origin		-1.2972***	
		(0.123)	
English colony		0.4584***	
		(0.064)	
French colony		0.0152	
		(0.085)	
Spanish colony		0.2036**	
		(0.080)	
Lagged urban population		0.0024	
		(0.002)	
Lagged population density		-0.0004***	
		(0.000)	
Latin America	6.9909***	0.0787	-18.1751***
	(0.936)	(0.128)	(1.109)
Middle East	1.2839	-1.4167***	-1.7731
	(1.097)	(0.135)	(1.392)
Africa	5.5560***	-0.9009***	-12.0937***
	(0.921)	(0.140)	(1.118)
Asia	6.9411***	-0.0462	-16.6862***
	(0.954)	(0.130)	(1.126)
Lagged total financial crises	0.0349		
	(0.026)		
Lagged inflation	0.0007		-0.0012*
	(0.000)		(0.001)
Log distance from the rest of the world	-13.4748***		15.1859***
	(1.353)		(1.713)
Log area	-0.1746		0.4773**
	(0.146)		(0.186)
Log population	0.1098		-0.8090***
	(0.184)		(0.234)
Investment rate			0.1726***
			(0.026)
Constant	125.0519***	2.0633***	-140.9057***
	(11.339)	(0.154)	(14.441)
Observations	2584	2584	2584
R-squared	0.6608	0.6316	0.7574

Note: The system is estimated by three-stage least squares. Time and countries dummies are included but not presented for reasons of parsimony. Heteroskedastic-consistent standard errors are in parentheses. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 4: Baseline specification System Three Stage Least Squares, OECD countries

Specification	(1)	(2)	(3)
COEFFICIENT	Globalisation	Democracy	Development
Globalisation		0.0246***	0.4724***
		(0.003)	(0.045)
Democracy	8.9114***		13.2783***
	(0.876)		(1.011)
Development	0.3196***	0.0238***	
	(0.031)	(0.002)	
Lagged number of prior transitions to dictatorship		0.0458*	
		(0.026)	
Lagged constitutional age		-0.0006	
		(0.001)	
Lagged total number of democracies		-0.0020*	
		(0.001)	
Lagged fuel export dependence		0.0000	
		(0.000)	
Socialist legal origin		0.3065**	
		(0.147)	
English colony		0.3087***	
		(0.066)	
French colony		0.0000	
		(0.000)	
Spanish colony		-0.0041	
		(0.104)	
Lagged urban population		0.0021	
		(0.002)	
Lagged population density		0.0003	
		(0.000)	
Latin America	32.6426***	-0.6142**	-17.3094***
	(4.374)	(0.261)	(5.328)
Middle East	0.0000	0.0000	0.0000
	(0.000)	(0.000)	(0.000)
Africa	0.0000	0.0000	0.0000
	(0.000)	(0.000)	(0.000)
Asia	8.0643	0.1163	-16.0072***
	(4.928)	(0.281)	(6.030)
Lagged total financial crises	0.0882		
	(0.057)		
Lagged inflation	-0.0061		-0.0960*
	(0.043)		(0.051)
Log distance from the rest of the world	-17.7677***		10.5331***
	(2.000)		(2.545)
Log area	0.2638		0.5639
	(0.352)		(0.423)
Log population	-2.4998***		2.9561***
	(0.424)		(0.511)
Investment rate			0.3463***
			(0.085)
Constant	157.1841***	3.1602***	-177.8495***
	(16.791)	(0.167)	(21.530)
Observations	650	650	650
R-squared	0.4391	0.4747	0.5255

Note: The system is estimated by three-stage least squares. Time and countries dummies are included but not presented for reasons of parsimony. Heteroskedastic-consistent standard errors are in parentheses. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 5: Baseline specification System Three Stage Least Squares, non-OECD countries

Specification	(1)	(2)	(3)
COEFFICIENT	Globalisation	Democracy	Development
Globalisation		0.0392***	0.8196***
		(0.005)	(0.021)
Democracy	3.8584***		-1.4832***
	(0.190)		(0.215)
Development	0.7667***	0.0020	
	(0.019)	(0.004)	
Lagged number of prior transitions to dictatorship		0.0835***	
		(0.031)	
Lagged constitutional age		-0.0015	
		(0.002)	
Lagged total number of democracies		0.0090***	
		(0.002)	
Lagged fuel export dependence		-0.3605***	
		(0.110)	
Socialist legal origin		-2.1144**	
		(0.880)	
English colony		0.6740***	
		(0.095)	
French colony		0.0678	
		(0.114)	
Spanish colony		0.2510**	
		(0.112)	
Lagged urban population		0.0061*	
		(0.003)	
Lagged population density		-0.0004***	
		(0.000)	
Latin America	-9.1930***	-0.5371	4.7180***
	(1.398)	(0.879)	(1.553)
Middle East	-7.0072***	-1.9161**	6.5196***
	(1.263)	(0.866)	(1.353)
Africa	0.8721	-1.7849**	-5.3247***
	(1.057)	(0.881)	(1.128)
Asia	-7.8052***	-0.7245	3.6383***
	(1.279)	(0.880)	(1.386)
Lagged total financial crises	0.0214		
	(0.030)		
Lagged inflation	0.0007		-0.0010*
	(0.000)		(0.001)
Log distance from the rest of the world	1.6832		-1.3164
	(2.278)		(2.510)
Log area	-0.6811***		1.1793***
	(0.162)		(0.175)
Log population	1.2976***		-2.1934***
	(0.205)		(0.216)
Investment rate			0.1624***
			(0.024)
Constant	-8.3742	2.3778***	13.3539
	(19.049)	(0.888)	(20.921)
Observations	1934	1934	1934
R-squared	0.1782	0.3568	0.4553

Note: The system is estimated by three-stage least squares. Time and countries dummies are included but not presented for reasons of parsimony. Heteroskedastic-consistent standard errors are in parentheses. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 6. Estimated elasticities, baseline specification

Countries	Panel A: All countries		
Impact of row on column ➔	Globalisation	Democracy	Development
Globalisation	--	0.29	1.33
Democracy	0.27	--	0.49
Development	0.38	0.19	--
Countries	Panel B: OECD countries		
Impact of row on column ➔	Globalisation	Democracy	Development
Globalisation	--	0.25	0.46
Democracy	0.87	--	1.26
Development	0.33	0.25	--
Countries	Panel C: Non-OECD countries		
Impact of row on column ➔	Globalisation	Democracy	Development
Globalisation	--	0.39	1.23
Democracy	0.39	--	-0.22
Development	0.51	0.01	--

Table 7: System Three Stage Least Squares SURE estimation

All countries			
Variables	Globalisation	Democracy	Development
Globalisation		0.0270*** (0.003)	0.8603*** (0.020)
Democracy	2.4305*** (0.149)		3.1584*** (0.191)
Development	0.5336*** (0.012)	0.0261*** (0.002)	
OECD			
Variables	Globalisation	Democracy	Development
Globalisation		0.0262*** (0.003)	0.5970*** (0.041)
Democracy	6.9967*** (0.698)		9.7080*** (0.829)
Development	0.3838*** (0.027)	0.0218*** (0.002)	
Non-OECD			
Variables	Globalisation	Democracy	Development
Globalisation		0.0301*** (0.004)	0.6776*** (0.021)
Democracy	2.8710*** (0.158)		-0.1689 (0.178)
Development	0.5966*** (0.018)	0.0113*** (0.003)	

Note: Each block of results correspond to the system (1) estimated by three-stage least squares seemingly unrelated regression (SURE) with iteratively convergence to ML estimates, as in Table 1-3 for the full sample, OECD and non-OECD (blocks A, B and C, respectively). Other regressorsø coefficient estimates are available upon request. Time and countries dummies are included but not presented for reasons of parsimony. Heteroskedastic-consistent standard errors are in parentheses. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 8: System Three Stage Least Squares estimation by type of Globalisation, all countries

Variables (memory)	Globalisation (KOF)	Democracy	Development	Variables	Globalisation Economic	Democracy	Development
Glob (KOF)		0.0294*** (0.003)	0.8888*** (0.021)	Glob Econc		0.0154*** (0.002)	0.5339*** (0.020)
Democracy	2.6999*** (0.173)		3.2793*** (0.221)	Democracy	2.5194*** (0.225)		6.0620*** (0.225)
Development	0.5646*** (0.013)	0.0280*** (0.003)		Development	0.4917*** (0.017)	0.0396*** (0.002)	

Variables	Globalisation Social	Democracy	Development	Variables	Globalisation Political	Democracy	Development
Glob Social		0.0378*** (0.003)	0.8174*** (0.018)	Glob Polit		0.0047*** (0.002)	0.7215*** (0.018)
Democracy	3.1881*** (0.198)		2.7144*** (0.223)	Democracy	1.4895*** (0.232)		4.7059*** (0.218)
Development	0.6565*** (0.015)	0.0166*** (0.003)		Development	0.6658*** (0.017)	0.0434*** (0.002)	

Note: Each of the four blocks of results correspond to the system (1) estimated by three-stage least squares as in Table 1-3 for: the KOF composite index (repeated top left for convenience), Economic Globalisation (top right), Social Globalisation (bottom left) and Political Globalisation (bottom right). Other regressors ø coefficient estimates are available upon request. Time and countries dummies are included but not presented for reasons of parsimony. Heteroskedastic-consistent standard errors are in parentheses. ***, ** and * denote significant coefficients, respectively at the 1, 5 and 10 % confidence levels.

Table 9: System Three Stage Least Squares estimation by type of Globalisation, OECD countries

Variables (memory)	Globalisation (KOF)	Democracy	Development	Variables	Globalisation Economic	Democracy	Development
Globalisation (KOF)		0.0246*** (0.003)	0.4724*** (0.045)	Globalisation Economic		0.0224*** (0.002)	-0.0736 (0.046)
Democracy	8.9114*** (0.876)		13.2783*** (1.011)	Democracy	10.2338*** (1.008)		20.4103*** (0.935)
Development	0.3196*** (0.031)	0.0238*** (0.002)		Development	-0.0606* (0.036)	0.0323*** (0.002)	

Variables	Globalisation Social	Democracy	Development	Variables	Globalisation Political	Democracy	Development
Globalisation Social		0.0202*** (0.002)	0.3931*** (0.031)	Globalisation Political		-0.0070*** (0.003)	0.8982*** (0.045)
Democracy	11.3847*** (1.206)		12.1688*** (1.001)	Democracy	4.8321*** (0.799)		9.7902*** (0.955)
Development	0.5315*** (0.042)	0.0207*** (0.002)		Development	0.5002*** (0.026)	0.0372*** (0.002)	

Note: as in Table 8.

27

Table 10: System Three Stage Least Squares estimation by type of Globalisation, non-OECD countries

Variables (memory)	Globalisation (KOF)	Democracy	Development	Variables	Globalisation Economic	Democracy	Development
Glob (KOF)		0.0392***	0.8196***	**Glob Econ**		0.0212***	0.5761***
		(0.005)	(0.021)			(0.003)	(0.019)
Democracy	3.8584***		-1.4832***	**Democracy**	3.6492***		-0.3186
	(0.190)		(0.215)		(0.241)		(0.219)
Development	0.7667***	0.0020		**Development**	0.8230***	0.0081*	
	(0.019)	(0.004)			(0.025)	(0.005)	

Variables	Globalisation Social	Democracy	Development	Variables	Globalisation Political	Democracy	Development
Glob Social		0.0669***	0.8165***	**Glob Pol**		-0.0132***	0.5712***
		(0.004)	(0.020)			(0.002)	(0.017)
Democracy	4.8682***		-2.4573***	**Democracy**	2.7043***		-0.2303
	(0.193)		(0.221)		(0.277)		(0.216)
Development	0.7772***	-0.0234***		**Development**	0.9094***	0.0132***	
	(0.019)	(0.005)			(0.028)	(0.005)	

Note: as in Table 8.