Institutions, Famine and Inequality

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1. INTRODUCTION

Many low-income economies and in particular emerging economies, experienced in the last two decades a sustained process of economic growth. However, very often this growth has been accompanied by high levels of inequality and increasing income differentials among people in the same country. Next to that, even during periods of high economic growth, some of these countries have faced dramatic crises such as famines.

The present paper engages in the broad debate on (political) institutions and development. Institutions are here considered to be rules and social norms that shape and affect agents' behaviour,

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structuring social interaction (Knight, 1992). The relationship institutions → economic growth has been increasingly investigated both from a theoretical and empirical point of view (e.g., North and Thomas, 1981; Jones, 1981; Knack and Keefer, 1995; Rodrik, 1999). Olson *et al.* (1998) show that better governance and quality of institutions are the main sources of economic growth and determine the differences between the output of the various countries. Along the same lines, Jones and Hall (1999) find that "social infrastructure" and governmental policies explain the different levels among countries of the residual productivity, which in turn, is on the basis of the GDP level of the countries. However, there are often many methodological problems behind the estimate of the impact of institutions on economic performance, making them not always reliable (see, for example, Acemouglu et al., 2001).

In this field of studies, many authors have tried to assess whether and how democracy (or democratic institutions), which plays a central role in this paper, affects economic growth. The evidence is mixed. While Campos's (1994) work supports a positive relationship between democracy and economic growth, Sirowy and Inkeles (1991) find a negative relationship. However, the large part of the literature suggests that there is no systematic relationship between these two variables, leading to the conclusion that the political regime is not important for the expansion of the economy of a country (Przeworski and Limongi, 1993, 1997; Bardhan, 1999; Sen, 1999).

In this paper we conceptualize development in a very different way from the development=economic growth equation. Development is conceived as human development, i.e. "a process of enlargement of

human choices" (UNDP, 1999). It considers primarily social dimensions such as health and education as constitutive elements of development (UNDP, 1990; Sen, 2003a). In this framework, economic growth is conceived as one of the instruments to foster human development. The relationship between institutions and human development might be very different from that between institutions and growth for several reasons: 1) because there is a variety of different institutions for any development dimension; 2) because some institutions can be related with economic growth but not with human development; 3) because sometimes human development and economic growth need different and, often, opposite institutional stimulus.

Some empirical works aiming to analyze the effects of political institutions on human development or some of its dimensions have been carried out. For example, the effect on education (Bardhan, 2005) and social capital (Kornai et. al., 2004) has been recognized. Moreover, Bardhan (2005) suggested that some non-income dimensions of development are better explained by a particular institutional index such as participatory rights and democratic accountability than property right institutions. Finally, authors like Amartya Sen (1999 2003b) have pointed out both the intrinsic and instrumental roles of democracy in promoting human development. Democracy is strictly related to the enlargement of people's choices, and at the same time can influence other development dimensions.

Within the debate on institutions and human development we will concentrate on that on institutions and famines on the one hand, an institutions and inequality on the other. Within the human

development framework the presence of famines and high levels of inequality are at the same time a symptom of lower development levels as well as constraints to future development. The difference between these two phenomena, which makes this study also more original and interesting, is that while inequality is often a structural problem, i.e. a problem which persists in a society without massive changes from one year to another, famine is a dramatic phenomenon causing hunger and mortality in a short period. Therefore, the institutions needed might be very different.

With respect to inequality and famine, we argue that institutions are crucial variables able to prevent famine and to determine also level of inequality trough two ways. First, institutions, as social norms, have an impact on the society levels of tolerance for inequality and disrespect and hostility towards famine. Second, they are bearers of values which may affect policy making decision, and therefore can shape social policies and income distribution, solidarity measures, pro-poor policies and therefore prevent famine.

More in detail, the aim of this paper is twofold. First, it aims at investigating the determinants of famine prevention and famine mortality, focusing on the effect of political institutions. Famine is a phenomenon that suddenly hits a country, provoking widespread hunger and starvation. Though major attention will be given to democratic institutions, with the analysis of the so-called "democracy prevents famines" hypothesis developed by the economist Amartya Sen, also other institutions such as political stability and control of corruption will be considered. The following empirical analysis will

be carried out exclusively on a sample panel of low-income and emerging countries, since nowadays famines hit only these countries.

The second aim is to explore what are the main factors which allow for a better income distribution in a sample of developing and emerging economies. One can observe that EEs experienced, in the best case, a process of economic growth without a correspondent reduction of inequality, measured as a reduction of the Gini coefficient. Inequality is reduced only when appropriate institutions and policies are introduced. We assume that institutions and institutional policies are key factors able to manage social conflicts and to keep lower the inequality in a process of economic growth and of institutional change which identify human development. Countries considered in the sample are in fact countries experiencing both fast economic growth and institutional change.

In particular, education and political stability seem to be key variables to mitigate and prevent inequality. Education gives opportunities to people and a wider range of capabilities which could allow them both to improve social occasion and to increase skills and income opportunities. Similar argument concerns political stability: a country enjoying a stable political situation, without troubles, is probably more inclined to distribute in a better way collective resources. At the same time, however, political stability should be accompanied by democracy and pluralism, otherwise political stability could mean only the keeping of a status quo in which political power and economic resources are concentrated. In order to test the validity of such assumptions, according to which education and political stability are relevant for income distribution, a cross country

regression model will be used, with a sample of 50 emerging and developing economies. Those two variables will be regressed against inequality, i.e., the Gini coefficient.

The paper is organised as follows. Section 2 discusses the relationship between institutions and famine; section 3 engages in the debate on institutions and (income) inequality; finally, section 4 draws some conclusions. Both sections 2 and 3 initially contain a review of the relevant (theoretical and empirical) literature and then present the results of quantitative analyses aiming at understanding *whether* institutions and *which* institutions are relevant explanatory factors for the two phenomena.

2. INSTITUTIONS AND FAMINES

This section discusses the role of political institutions for famine prevention. Section 2.1 defines the concept of famine and analyzes the most recent approaches to study it; section 2.2 stresses the role played by democratic institutions mainly following Amartya Sen's and Jean Dreze's works; section 2.3 presents the perspectives of the opponents to the relevance of democracy for famine relief ; finally, section 2.4 focuses on aspects related to the "quality" of institutions and tries to give empirical evidence of its effect on famine mortality through a cross-country econometric exercise.

2.1 Definition of and approaches to famine

The concept of famine is a very complex and multi-faceted one. As argued by de Waal (2000), it is impossible to properly define it also

because it is a multidisciplinary concept: economists, nutritionists, demographers, experts of agriculture, and political scientists all have a (different) interest in studying famines. Therefore, we might define it according to the main outcomes produced. In this sense, a famine is a phenomenon involving "acute starvation and a sharp increase of mortality", which is distinct from chronic hunger, which involves "sustained nutritional deprivation on a persistent basis" (Dreze and Sen, 1989: 7). In a more comprehensive way, de Waal (2000) identifies four major outcomes of a famine: 1. hunger, 2. impoverishment, 3. social breakdown, and 4. mortality.

The definition of famine is not independent to the approach that is followed to study it. For long time the debate on hunger and famine has been heavily affected by the thought of Thomas Malthus (1798).[1] Malthus pointed the attention on two key variables: food production and population. In absence of large misery to work as a positive check to population, the intensity of population growth is "immense" compared with that of food availability growth (Malthus 1998: 4). The future lack of enough food per capita, he argued, would have created famines and starvation. Using Cuffaro's (1997: 1152) words "Since Malthus, *food availability* has been a core argument of the population scare". As a consequence, famine was conceived as a sharp decline in food availability in a country or region.

Only at the beginning of 1980s Amartya Sen's *entitlement approach* contributed to challenge this perspective and shifted the focus from national food availability to people's access to food. "The

[1] For this book, originally written in 1798, the on-line version printed in 1998 was used as a reference.

entitlement approach concentrates on each person's entitlements to commodity bundles including food, and views starvation as resulting from a failure to be entitled to any bundle with enough food" (Sen, 1981: 434). Entitlements depend on two elements: 1. the personal endowments, which are the resources a person legally owns such as house, livestock, land, and non-tangible goods (Osmani, 1995); 2. the set of commodities the person can have access to through trade and production, i.e. the "exchange entitlement mapping" (Sen, 1981: 435). Starting from a situation in which an individual has just enough means of subsistence, a decline of endowments can obviously lead the person to starvation. However, with the same endowments, a person can still fall into the hunger trap because of a decline in the exchange entitlement mapping; for instance, a sharp reduction of the price of the commodity that the individual produces, due to external causes, reduces its capacity to buy food.

Moreover, the entitlement failure might take different forms. Given an economy in which each group, for simplicity, produces one commodity (including labour), and given a food exchange rate (commodity price/food price), any group risks to starve due to an entitlement failure either because of a reduction of food production for personal consumption or because of a fall in the food exchange rate (Sen, 1981). In the first case, there is a 'direct entitlement failure', in the second case a "trade entitlement failure". This distinction is particularly relevant to examine which group is at risk of starvation if something changes. The "direct entitlement failure" occurs for food-producers as a result of decline in their production; the "trade entitlement failure" occurs for the groups that produce other than food

when their terms of change fall or when the total availability of food declines.

The validity of the above theoretical framework was in-depth tested in three famines: Bengal (1943), Wollo Province of Ethiopia (1973), and Bangladesh (1974) (Sen, 1981). The first finding is that in none of the three countries there was a decline of available food during the year of the crisis.[2] This demonstrates that famines cannot be understood by simply focusing on aggregate food availability. Second, the analysis showed that in all the cases considered there was an entitlement failure, which took different forms. There was mainly a collapse of exchange entitlement mapping in Bengal, a direct entitlement failure in Wollo, and finally an exchange entitlement failure in Bangladesh. The third finding is a consequence of the second one: not all the people were hit in the same way by the famine. In the Great Bengal Famine the rise of food prices hit mainly fishermen, transporters, and agricultural labourers; in the Wollo famine, the main victims were food-growers because the drought reduced the production, while the relative prices of food remained fairly stable; finally, in Bangladesh the largest share of victims was among agricultural labourers, who lost their temporary jobs due to floods (chronologically, the first event from which the crisis and the famine started) and saw the price of rice raising sharply.

The entitlement approach has been very influential in addressing the new famines. It gave empirical evidence that famines

2 Data suggest that in 1973 in the Wollo Province of Ethiopia, the only province affected by the famine, there was no food decline. However, if we take the whole country as unit of analysis, during the famine year there was a reduction in food production.

can occur even without any food availability decline, that we should ultimately look at the means that people have to access food, and, finally, that we need to analyze the conditions of the different occupational groups. Quoting Sen (1981: 434), "starvation is a matter of some people not *having* enough food to eat and not a matter of there *being* not enough food to eat".

2.2 The "protective" role of democratic institutions

The change in the paradigm has contributed to identify new determinants of famines, recognizing a much wider role to public policy. In the past there was a "fatalistic" attitude towards such phenomena because they were believed to be "caused" by man-made and natural disasters such as droughts and floods, which, in turn, reduce food production. The entitlement approach, by shifting the attention to socio-economic factors and breaking down the analysis by occupational groups and geographical areas, implicitly recognizes a wider role to the state and other actors. Several public policies can be adopted in order to prevent the famines and cross-country comparisons outline different results. However, the central focus of the present sub-section is on "who" (which institutions? Which organizations?) should intervene and "why": the "how" will be discussed only briefly.

Amartya Sen (1983, 1999) developed the so-called "democracy prevents famines" argument. He argues that democratic institutions activate some mechanisms that make it impossible to have famines. The first key characteristic of a democracy is the presence of free and independent media in a context in which every person should

ideally have the right to express her opinions in public. While the extent of freedom of expression might depend on many other factors varying among countries, a broader independency of media is an intrinsic element of a genuine democracy. When a crisis occurs, free media play a crucial "informative" role because they provide information on the symptoms of the crisis to the people and also to political parties. Furthermore, news media can directly make pressure on the governments and the other actors in charge of taking action against the crisis. A dynamic journalism, detached in any way from the political sphere, is able to raise awareness of the situation, acting as early warning system, to openly criticize the work of the government and, finally, to demand a sudden intervention.

The second intrinsic element of a well-functioning democracy is the presence of a vivid civil society. This includes people gathering together and mobilizing in order to protest against the current conditions and exercise their "voice". Next to that, in a genuine democracy, non-governmental organizations (Ngos), grass-roots organizations and other volunteering associations play three different roles. An "informative" role because, especially in developing countries, they work with the poor and marginalized people, who are those that are usually hit by famines and other crises. Then, they can also supply goods and services to reduce the effects of the crisis. Finally, more important, they should be active organizations, with a "political" role, in a broader sense. They, in fact, can make pressure on political institutions as well as being intermediaries between the poor and the institutions.

The third "institution" of a democracy is the multi-party system with periodic electoral turns. These factors are fundamental for famine prevention. The opposition parties are likely to show the bad effects of governmental policies and to challenge its overall economic policy. In this situation, a democratically elected government is likely to intervene at least for *political economy* reasons. Even admitting the problems associated to the old welfare paradigm according to which governments maximize the welfare of their citizens, and following the most pragmatic view, according to which governments act for the purpose of being re-elected, governments cannot let a large part of the population dying or starving. This would go at the expenses of their probability of winning the next electoral turnout.

Several scholars stressed the potential role of democracy for famine prevention. Using the words of Osmani (2007: 10), "two attributes of democracy are at work here – viz., the scope for open debate as an accountability-demanding mechanism and the presence of election as an accountability-enforcing mechanism". Similarly, Bardhan (1999: 102) argues that "Democracy helps development through the accountability mechanisms it installs for limiting the abuse of executive power, and provides a system of periodic punishments for undesirable government interventions in the economy and rewards for desirable interventions […] Accountability mechanisms are particularly important in averting disasters". As a consequence, famine should be viewed as an entitlement failure, but the length of this situation is the result of an "institutional failure".

Sen (1999) defends his position drawing a large series of examples. The empirical evidence of the "democracy prevents

famines" hypothesis can be divided in cross-country evidence and evidence based on looking at one single country before and after the change in political system.

The comparison between Zimbabwe and Botswana on the one hand, and Sudan and Ethiopia, on the other hand, in the period 1979-1984 fall into the first category of evidence. During this period, many disasters hit African countries: food production declined by 38% and 17% respectively in the first two countries considered, while it declined by "only" 11% and 12% in Sudan and Ethiopia. Though the size of agricultural disaster was much higher in the first group of countries, famine occurred only in the latter group. The explanation, according to Sen, lies in the lack of political incentives characterizing the authoritarian regimes present in Sudan and Ethiopia, while in Zimbabwe and Botswana the democratically elected governments could not afford the "political costs" of inactivity.

In the same line, Sen compares China and India, traditionally put in the same cluster because of their (large) size, population density, geographical location, and recent transition to market economy. While China still at the beginning of 1960s was ineffective in preventing famines and actually during 1958-1961 went through the most dramatic famine in the contemporary world,[3] India had already managed to avoid the occurrence of famines since the 1947 transition to democracy. Also here, the authoritarian regime in China did not allow for an adequate flow of information around the country. Then, the lack of opposition parties and of the reinforcing mechanisms

[3] It is estimated that nearly 30 million people died in this famine. See Sen (1983, 1999) for a more comprehensive explanation of the causes.

ensured by constant elections did not make the government accountable towards their citizens. With reference to Ethiopia and China, D'Souza (1990: 373) argues that "the absence of democracy, the lack of independent media, the prevalence of draconian censorship resulting in a culture of fear - all these played a pivotal and disastrous role in the famines described here."

Finally, the inter-temporal comparison of India provides additional support to the "protective" role of democracy. Both before and after 1947, the country experienced significant reduction in food availability, with this reduction being only slightly lower in the second period. However, after the Great Bengal famine of 1943, which was one of the worst ever occurred, no famine was registered. The investigative journalism and an active opposition party always imposed an early intervention of the government so that the natural disasters did not move into a famine.

With respect to the historical influence of media in India, Ram (1995) offers one of the few in-depth analyses. In India already since the end of the 19th century there was independent press, which provided relevant information during famines and other crises. However, next to the "independent" press, there was the "nationalist" press. In the 1918 food crisis, the independent press made a substantial analysis, providing timely and numerous reports, which found also the favour of some public officials at local level, and which created protests around the country. However, the "informative" and "adversial" roles of the press was not "listened" and "captured" by the national government, which could hide the gravity of the crisis and suppress all protests. This happened because the independent press

was marginal and the nationalist press was protecting the government, and because of the lack of the reinforcing mechanisms intrinsic in a democracy: the government was not threatened by losing at the next elections. Free and independent press were, instead, crucial for famine prevention after the transition to democracy.

Finally, Dreze (1995) adds some important elements in order to understand the ability of India in averting crises, with reference to the dramatic droughts hitting the Maharashtra state in 1960-1963. According to Dreze three key factors played a substantial role in avoiding a disaster. The first one consists in the presence of Famine Codes, which were already present in the country since the end of the 19th century. They might be considered "institutions" because they are relevant codes of conduct during crisis addressed mainly to the government, which have been *usually* followed. They are formal, but not legal since they are not legally binding. The famine codes are a relevant reference point for any governmental intervention: already in the previous century they recognized that rarely famines in the country were a matter of a decline in food supply and identify strategies to "protect entitlements" of all the groups. The second cause is again related to democratic mechanisms: "Public pressure from political parties, the media, voluntary agencies, and – last but not least – affected populations themselves galvanized the government into action at an early stage and kept it on its toes throughout the crisis" (Dreze, 1995: 155). The last key element of success was the well-planned intervention, mainly aiming at restoring the purchasing power

of the most affected people through public employment.[4] The Famine Codes surely helped in designing adequate policies, but without the political incentives ensured by democratic institutions, the famine would have caused mass starvation in Maharashtra state. This is confirmed by the fact that in the pre-democracy period, many governments simply ignored the Codes.

As a conclusion, Sen argued that "there has never been a famine in a functioning multiparty democracy" (Sen, 1999: 178).

2.3 Critiques and counter-critiques

The idea that democracy plays a significant role in preventing famines has received some critiques, which challenge the previous empirical evidence and the causal mechanisms that might underlie the relationship between democratic institutions and lack of famines:

Most of the critiques fall in the first category. Among others, de Wall (2000), Brass (1986), and Myhrvold (2003) argue that in the Indian state of Bihar in 1966-1967 there was indeed a famine. Myhrvold (2003) points out that also following Sen's definition of famine as a phenomenon involving excess starvation and mortality, a sudden decline in average calorie intake, and large variations of calorie intake across areas and occupational groups, the crisis occurred in Bihar might be labelled "famine". This would undermine the validity of the statement that no democracy has experienced a famine

[4] This type of policy falls in the category of "entitlement protection" policies for famine prevention (see Dreze and Sen, 1989; ch. 7). People who have lost their means of subsistence are employed in temporary public works, usually related to the re-construction of infrastructures destroyed by natural disasters. The same policies were at the basis of the successful strategy adopted in other Indian crises and in Zimbabwe and Botswana (see above).

as well as the identification of India as a fully successful case of famine prevention after the transition to a democratic regime. Furthermore, Myhrvold (2004) stresses that the Indian media in that circumstance, although free and independent, did not provide reliable information.[5] Finally, as argued by Brass (1986), the existence of a democracy might have even caused some problems in the Bihar crisis. The first effects of the crisis were visible just before the elections: therefore, the ruling party had a political disincentive to recognize the famine. The general perspective followed by Brass is that what drives the actions of different agents is self interest, so also in the case of a democracy there could be egoistic reasons that lead not to declare, and therefore not to intervene in front of, a famine/crisis.

There are also other controversial cases of possible famines in "democratic" countries: Bangladesh in 1974, Sudan in 1986-1988, and Ireland in 1945-1949 (de Waal, 1989, 2000). However, as also stressed by de Waal, these cases are exceptional because Bangladesh "was "democratic and liberal in name only", South Sudan and Ireland were not considered as *parts* of Sudan and United Kingdom, respectively.

The above critiques focus on possible exceptions to Sen's argument according to which "there has never been a famine in a functioning multiparty democracy". They depend much on the definition of famine and democracy. In the case of Bihar there are still

[5] Though recognizing the immense role of media in the democratic India, also Ram (1995) suggests to give the right account of the "quality" of information provided by news media. In particular, he emphasizes the "tendencies of overstatement and sensationalism" by Indian news media, which could be counter-productive (Ram, 1995: 211).

different interpretations: while also Berg (1973) does not consider it a famine since the number of deaths and affected people was "contained", it seems that Dreze (1995) himself has some concerns. The other three examples draw attention to specific political problems and, more important, to the need to go beyond a simple dichotomy democracy/autocracy. Democracy is a complex concept, which cannot be defined only by the existence of a multi-party system and free media.

Finally, in our view, all the empirical cases presented in this sub-section do not undermine the validity of the broad "democracy prevents famine" argument.[6] They help in identifying possible exceptions in which a fairly democratic country did not succeed in preventing famines and might help to focus more on the institutional arrangements within and outside democratic countries. Whether or not a country is democratic influences the system of incentives that are likely to make the government accountable, but it is then necessary to analyze the effectiveness and efficiency of these institutions, in general terms and for the specific purpose of preventing famines or reducing famine mortality. The case of free but ineffective media in Bihar is a clear example.

In addition to a further analysis of "democratic institutions", there is a need to examine how these institutions are "used" (defined as "democratic practices" by Dreze and Sen, 2002) within a country in order to have a more comprehensive picture of democracy. While the former are institutional arrangements that constitute the environment

[6] Most of these authors do recognize that their critiques do not touch the core of Sen's view (see, for example, de Waal, 2000).

in which "democratic ideals"[7] can be pushed forward, "democratic practices" depend "on the extent of political participation, the awareness of the public, the vigour of the opposition, the nature of political parties and popular organizations, and various determinants of the distribution of power" (Dreze and Sen, 2002: 1). This is why also in the analysis of the effect of democratic regimes on famine prevention many authors have focused on income and education inequality as well as distribution of power.[8] Within a democratic country characterized by free media there must be "demand for good information about famine" (de Waal, 2000: 16). At national level such demand depends on the educational levels and literacy rates of people, which can tell us whether people are able to "capture" information and to ask for quality information (Myhrvold, 2004). Furthermore, people should have enough power for their "voice" to be heard especially in time of crises.

Finally, another element to consider in order to define democracy and to deepen the understanding of the relationship between democracy and lack of famines is *transparency*. A transparent system - a system where *corruption* is not widely diffused

[7] Democratic ideals "include political characteristics that can be seen to be intrinsically important in terms of the objective of democratic social living, such as freedom of expression, participation of the people in deciding on the factors governing their lives, public accountability of leaders, and an equitable distribution of power" (Dreze and Sen, 2002: 1).

[8] This is a further element to consider in bringing together the two chapters on institutions and inequality on the one hand, and institutions and famines on the other hand. Democracy and political institutions in general are important to reduce inequality and at the same time larger inequality in income, power, and education are symptoms of a lower degree of democracy. Non-democratic regimes or weaker democracies, in turn, are associated with higher likelihood to encounter famines and higher famine mortality.

within the society and does not take a "systemic" form – favours the diffusion of democratic values and the functioning of democratic institutions. To the opposite, a highly corrupted system, where illegal or immoral behaviours and norms are routinely followed, undermines the democratic practices, i.e. people's real opportunity to be informed, to express their opinions, to vote freely, to participate in public life.

As a conclusion of section 2.3 we argue that there is a strong relationship between democracy and lack of famines, but we need to examine case by case the characteristics of a democracy and of the policies adopted to prevent famines. By incorporating power distribution and inequality of education, as well as factors affecting democratic practices such as transparency, we can move towards an idea of democracy as "government by discussion" (see Buchanan, 1954; Sen, 2003b). These elements are important for the relationship between democracy and economic development, democracy and human development, as well as democracy and (lack of) famines.

2.4 Democracy, quality of institutions and famine: an empirical exercise

This section presents a simple empirical analysis, which has two main objectives: 1. to verify whether democratic institutions are more likely to prevent or limit famine mortality; 2. to analyze to what extent the quality of political institutions matters within a group of countries homogenous for political regime. The model here proposed is similar to that developed by Plumber and Neumayer (2008), but refers only to low-income countries.

The main model is expressed by the following equation:

(1) *FamMort* = f (*PRI*; *affected*; *cal*; *water*; *intconf*; *logPop*; *popdens*)

Famine mortality is a function of the level of political rights in a country (*PRI*), the proportion of people affected (*affected*), the amount of calories per capita (*cal*), the amount of drinkable water per capita, the intensity of civil conflicts (*intconf*), the (logarithm of) population (*logPop*) and population density (*popdens*). This way, we analyze the effect of political rights in avoiding famines and in reducing the number of deaths during a famine, being, among other things, the proportion of people affected the same.

The second group of models is expressed by the general equation (2):

(2) *FamMort* = f (*PRI*; *Institutions*; *affected*; *cal*; *water*; *intconf*; *logPop*; *popdens*)

In equation (2) famine mortality is assumed to be a function of the same factors included in equation (1), with the exception of institutional variables. "Voice and accountability" (*Voice*), "control of corruption" (*ControlCorr*), "political stability" (*stability*), and "government effectiveness" (*goveff*) will be separately included in the models.

Then, we will investigate the effect of the four institutional indicators on famine mortality within countries with the same political regimes: democratic countries (subscript "d") in equation (3) and autocratic countries (subscript "a") in equation (4).

(3) $FamMort_d$ = f ($Institutions_d$; $affected_d$; cal_d; $water_d$; $intconf_d$; $logPop_d$; $popdens_d$)

(4) $FamMort_a$ = f ($Institutions_a$; $affected_a$; cal_a; $water_a$; $intconf_a$; $logPop_a$; $popdens_a$)

By estimating equations (3) and (4) it is possible to verify, for example, whether democracy is the essential "institution" for reducing famine mortality, or, to the opposite, autocratic countries with other adequate institutions manage to have a good performance.

2.4.1 Data and variables

Data were originally collected for 110 low-income and emerging countries for the period 1972-2006. Due to missing values in some key variables as well as problems in managing data concerning countries that have been created, merged or divided during this period, the final number of observations for the estimation of equation (1) was brought down to 2905, including 102 countries with, on average, 28.5 years.

The dependent variable is a count variable: number of deaths during a famine. The source of these data is the EM-DAT database developed by the Catholic University of Leuven, which estimates mortality due to natural disasters. Since a specific category "famine" is not included in the list of disasters, data were taken for both "complex emergency" and "drought". The only exception concerns the famine occurred in Bangladesh in 1974, whose data are not

available in the EM-DAT database but were taken from Devereux (2000). Data concerning the number of people affected – defined as injured, homeless and all "people requiring immediate assistance during a period of emergency"[9] - were taken from the same source. The final variable – proportion of people affected by the famine – was obtained dividing this number by the size of the population (source: UN Secretariat, 2007).

Data for political rights are included as the reverse of the index measured by the Freedom House. It ranges from 1 (less rights) to 7 (more rights). As suggested by the Freedom House, countries with a political rights index above or equal 5 are defined as democratic, while those with an index below 5 are autocratic.

The other four main variables are those reflecting the quality of institutions (see Kaufmann et al., 2007). The first is "voice and accountability", which takes into account various aspects related to the political process, civil liberties, and also the independence of the media. The second is the "control of corruption" index, which reflects the reverse of the level of corruption within national institutions as perceived by government officials and the private sector. The "political stability and absence of violence" index, instead, combines "several indicators which measure perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism" (Kaufmann et al., 2004: 255). Finally, "government effectiveness" describes the ability of governments to

[9] Source: EM-DAT glossary, http://www.emdat.be/glossary/9

effectively deliver public services and make policies. All these variables are parts of the Governance Indicators computed by the World Bank. Each of them is obtained by aggregating a series of variables, and it is finally transformed in a standardized index varying approximately between -2.5 and 2.5. Data are available only since 1996 and only for the following years; 1996; 1998; 2000; 2002; 2003; 2004; 2005; 2006. This substantially reduces the number of observations used to estimate equations (2)-(5). The table in Annex 1 shows the correlation among the institutional variables year by year: voice and accountability is clearly the variable more correlated to democracy, while control of corruption is the least correlated to democracy.

The source of data for calories and water per capita is the FAO, respectively the Faostat and Acquastat databases. In particular, the first variable is central in the (here criticized) interpretation of famines as food (or calories) availability decline. The intensity of conflicts, instead, is a measure of the severity of civil conflicts, which varies between 0 (0-24 deaths) and 2 (1,000 deaths or more). Finally, population data are taken from the UN Secretariat (2007) and divided by the total area of the countries, taken by the Faostat database, to calculate population density.

2.4.2 Results

As for Plumber and Neumayer (2008), results are obtained through the negative binomial regression because: 1. the dependent variable, famine mortality, is a count variable; 2. there is overdispersion.[10]

The estimates in model (1) of table 1 show that the political rights index has a highly significant (negative) effect on the number of deaths during famines. This result is coherent with the theoretical framework and with the previous findings of Plumber and Neumayer (2008). Among the other explanatory variables, the proportion of people affected and per capita water availability are the only significant determinants.

It was, then, studied whether it is mainly democracy or other institutions-related factors influencing famine mortality. Since data for governance indicators have been collected only since 1996 and not constantly until 2006, the estimates are based only on 460 to 475 observations. This clearly reduces the reliability of results, but, according to us, can still be used to understand the general relationship between two or more phenomena. The estimates in models (2) to (5) outline that the political rights index always loses significance with the inclusion of other institutional variables, and only control of corruption and government effectiveness have a significant (and negative) coefficient.[11] Given the multi-correlation the same estimates were run on the models without the political rights index, leading to the same results: only control of corruption and government

[10] The standard deviation of the dependent variable is almost four times larger than the mean: this suggests the use of negative binomial regression rather than Poisson regression.

[11] In particular, a high control of corruption, as argued in section 2.3, is a proxy for wider democratic practices.

effectiveness are significant predictors. Concluding from these results, effective and efficient governments as well as effective rules together with transparent institutions might reduce the likelihood of facing a famine, whether or not a country is "democratic" in a narrow sense.

Table 1. Negative binomial estimates of famine mortality: full sample

	(1) with PRI	(2) with PRI + Voice	(3) with PRI + ControlCorr	(4) with PRI + Stability	(5) with PRI + Goveff
Constant	-4.807*	-5.931	-10.686**	-4.967	-13.234***
PRI	-0.770***	0.2844	0.084	-0.066	0.140
Voice	–	-1.623	–	–	–
ControlCorr	–	–	-4.049***	–	–
Stability	–	–	–	-0.845	–
Goveff	–	–	–	–	-3.705***
Affected	24.977***	77.628	65.444	68.430	90.417
Calorie	0.001	-0.002	-0.002	-0.002**	-0.001
Water	-0.000***	-0.000	-0.000	-0.000	-0.000**
Intconflict	0.297	-0.133	-0.356	-0.937	0.180
Logpop	0.263	0.453	0.605*	0.547*	0.711**
Popdens	0.000	-0.006**	-0.006**	-0.005**	-0.010**
N	2905	462	460	470	475

Note: *** = significant at the 0.01-level; ** = significant at the 0.05-level; * = significant at the 0.1-level. Robust standard errors in parenthesis. Clustered standard errors (not reported) led to the same levels of significance of all the variables.

In order to understand better the previous results, we run separate regressions for democratic and autocratic countries. The results – presented in Table 2 - suggest that in the sample of democratic countries only control of corruption and government

effectiveness are significant negative determinant of famine mortality. This indicates again that among countries generally defined as democratic there are differences in the way they manage to keep the corruption low and to adopt effective policies, and this is finally reflected, among other things, in lower famine mortality. Though the group of democratic states registers much higher mean values in the two institutional indicators, such indicators have a great variability across countries in this group (see table 3).

All the institutional variables are significant determinants of famine mortality in autocratic countries (model (5)-(8) in Table 2). This suggests that states without a democratic regime can still have a wide set of institutional arrangements that can prevent famines or reduce famine mortality. Voice and accountability and political stability are significant predictors within autocratic states: also their mean value is much larger in democratic states, but it has also a large variability in non-democratic ones (see Table 2).

The latter finding is not in contrast with Sen's argument on the protective role of democracy. Putting his argument in other words, democracy is likely to be sufficient for famine prevention, but it is not necessary in theoretical terms. De Waal (2000) gives 4 examples of successful attempts of non-democratic governments to prevent famines: 1) Communist China in the period immediately after the 1940s; 2) a group of African countries during 1970s: Sudan, Ethiopia and Somalia; 3) Kenya in 1984; 4) Tigray in northern Ethiopia in mid-1980s. The point is that in the above cases "famine measures are a privilege rather than a right" (de Waal, 2000: 18). Citing again de Waal,

> There can be anti-famine commitments and anti-famine programmes in the absence of democratic accountability, but an anti-famine contract requires the interested party – the people – to have some capacity to enforce the bargain. Liberal political systems provide a number of mechanisms that can help people to do that. In authoritarian systems, the only recourse is protest, either armed or unarmed
>
> (de Waal, 2000: 18).

The lack of re-enforcing mechanisms can seriously undermine the sustainability of these results. For example in the case of China outlined above, already in the 1959-1962 there was the biggest famine ever occurred in the contemporary era, and also in the case of most of the African authoritarian regimes, the system of anti-famine measures collapsed immediately after the 1970s.

Among the other results, it is worth noticing that there is no a systemic significant negative relationship between calorie-per-capita and famine mortality, as one would expect following the definition of famine as decline of food availability. The variable is significant in only one of the five models in Table 1, while it is significant in five out of the eight models in Table 2. Regarding the other variables, water per capita and, even more, population density are often significant and with the expected sign.

As a conclusion, this study seems to provide empirical evidence in support of the "democracy prevents famine" hypothesis. It should also be stressed that the results were obtained on a sample of only low-income and emerging countries: since high income countries have rarely experienced famines since 1972, the final estimates are

likely to underestimate the overall role played by the presence of a democracy in a country. Given the fact that an analysis like the one carried out in this section cannot assess causalities strictly, we should rely on the conceptual framework proposed by Sen and presented in sections 2.2.

The second finding is that a more in-depth analysis should go beyond the system of political incentives existing in different political regime and should move into the analysis of the quality of institutions. The policy environment, the level of beaurocracy, government's capacity to take decisions and implement them in a short period and other factors linked to governance are, in a second stage, crucial for entitlement protection and promotion. Both the variables "government effectiveness" and "control of corruption" are significant (negative) determinants of the number of deaths due to famine.

Finally, illuminated authoritarian governments with adequate political institutions rather than democratic ones can still avoid the occurrence of famines even in front of a dramatic crisis caused by a natural or man-made disaster. However, the long-run validity of these achievements might be at constant risk due to the lack of re-enforcing mechanisms ensured by people's right to express their voice, free and independent media, and constant elections.

Table 2. Negative binomial estimates of famine mortality: selected sub-samples

	Democratic Countries				Autocratic Countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-1.934	-7.211	-5.102	-19.101***	-6.753	-5.812	-6.523	-11.910***
Voice	-2.087	–	–	–	-3.333**	–	–	–
ControlCorr	–	-7.517***	–	–	–	-5.619***	–	–
Stability	–	–	0.876	–	–	–	-4.416***	–
Goveff	–	–	–	-8.843***	–	–	–	-3.151**
Affected	46.154	38.393	23.433	44.258	123.250	81.204	49.204**	142.207
Calorie	-0.004**	-0.005**	-0.004**	-0.005***	-0.003	-0.001	-0.003***	-0.002
Water	-0.000***	-0.004***	-0.000**	-0.000***	-0.000	-0.000	-0.000***	-0.000
Intconflict	-0.830	-0.018	-0.852	-1.126**	1.017	0.468	-2.873*	0.698
Logpop	0.770*	0.942**	0.950**	1.824***	0.558	0.229	0.598	0.731
Popdens	-0.005**	-0.006**	-0.004**	-0.009***	-0.025**	-0.028***	-0.027***	-0.022***
N	190	197	200	202	272	263	270	273

Note: *** = significant at the 0.01-level; ** = significant at the 0.05-level; * = significant at the 0.1-level. Robust standard errors in parenthesis. Clustered standard errors (not reported) led to the same levels of significance of all the variables.

Table 3. Descriptive statistics of institutional indicators, by political regime

Democratic countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Voice	369	.1896748	.4083682	-1.16	.99
ControlCorr	390	-.2514872	.5671313	-1.35	1.48
Stability	384	-.0899708	.6982925	-1.993327	1.401433
Goveff	396	-.1943182	.5567581	-2.52	1.47

Autocratic countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Voice	476	-1.003592	.529751	-2.3	.2
ControlCorr	468	-.7326068	.5705586	-2.09	1.62
Stability	477	-.8903798	.8689057	-3.073682	1.017345
Goveff	478	-.7879707	.5903269	-2.27	1.01

3. Institutions and Inequality

The very foundation of the problem of inequality is the concept of social welfare. According to the utilitarian approach, social welfare is the sum of individual welfare. Social welfare improvements are not possible (or would not be "Pareto efficient") by re-distributing resources from one individual to another, because a "Pareto" improvement is only a situation in which it is possible to make someone better off, without making someone else worse off. On the other hand, an egalitarian approach would consider re-distribution of resources to avoid the situation where an individual could become richer by taking advantage of the fact that the other is in poor health or in poor education, or is handicapped (Sen 1973). In this latter approach, the application of the Rawls' criterion would be the best policy; the aim is not individual welfare but the level of welfare in the

society. If one individual (A) has a lower level of welfare that another (B), and if B can be made better off by re-distributing resources from A, then the Rawls criterion of justice requires that B should have sufficiently more income to make B's utility equal to A's. In Rawlsian thinking, inequalities have to be adjusted following two principles: 1) offices and positions must be open to everyone under conditions of *fair equality of opportunity*; 2) they have to be of greatest benefits for the least-advantaged members of the society (Rawls 1971: 303). To be applied, these criteria require more than meritocracy. 'Fair equality of opportunity' requires not only that positions are distributed on the basis of merit, but also that all have equal opportunity, in terms of education, health etc., to acquire those skills on the basis of which merit is assessed. The application of these principles would, in the end, produce much greater advantages for the society as a whole.

Empirically, an interesting explanation of inequality in the Americas is put forward by Sokoloff and Engerman (2000), who, in order to explain inequality in wealth, human capital and political power, suggest an institutional explanation, historically founded, which lies in the initial roots of the factors of endowment of the respective colonies. In general, political institutions set up by the Spaniards and Portuguese in Latin America were different from the ones set up by the British in North America. Moreover, the latter sent educated people and skilled work forces, along with the lords, to the New World, and these started to build their own future; while the Spaniards and the Portugueses did not encourage massive migration from the motherland but sent landlords who basically exploited slaves from Africa.

One of the first cross-country works on inequality was made by Kuznets (1955). He showed that in the early stage of economic growth income tends to be unequally distributed among individuals. In the early stage of a growth process, over time, the distribution of income worsens. In the later stages, national income starts to be more equally distributed. Hence, inequality declines in the end, after the country has accomplished the "U"-shaped trajectory. Several later empirical studies confirmed this relationship (Chenery and Syrquin, 1975). The reason for such a relationship was attributed to structural changes, which at the beginning of the "transition" bring about job losses and inequalities.

Nevertheless, the implicit trade-off behind the Kuznets curve (economic growth/ inequality) and the idea that an increase in inequality is sometimes necessary for a rapid growth has been often criticized (Atkinson, 1999). An alterative hypothesis to explain why income inequality differs among countries is put forward by Milanovic (1994), who shows that inequality decreases in richer societies because social attitudes towards inequality change as those societies get richer, and inequality is less tolerated (Tridico, 2010). Birdsall and Sabot (1994) showed, contrary to the Kuznets hypothesis, that inequality may be a constraint for growth and, if inequality is lowered, then a country could have a GDP per capita 8.2% higher than a country with income inequality 1 standard deviation higher.

A similar hypothesis is suggested by Voitchovsky (2005: 273) who, however, stresses *the shape* of the distribution and suggests that inequality at the top end of the distribution is positively associated with growth, while inequality lower down the distribution is

negatively related to subsequent growth. Moreover, empirical evidence in cross-countries analysis, from Latin American to East Asian Countries, would pose the question why Latin America has high inequality and low growth and, on the contrary, why East Asia has high growth and low inequality. Birdsall and Sabot (1994) suggest that it is a matter of policies and social attitude towards inequality. In Latin America, dictators, generals and the ruling classes acted, for long time after WWII, with little respect for the poorest part of their society, implementing fiscal and trade policies that provided little benefits to the poor. On the contrary, in East Asia the ruling classes were more aware of social needs, and implemented policies such as land reforms, public housing, public investments in rural infrastructures and public education which had a positive effect on both growth and income distribution; better educated people can get a better job and earn more; public investment in the rural sector can bring farmer productivity and income higher; public housing and other social services can increase the purchasing power of people, and so forth.

3.1 A model for institutions and inequality

We assume that appropriate institutions can generate growth and can also mitigate inequality. In the econometric model we will use some political institutions such as political stability from World Bank, and Adult literacy from UNDP. Clearly education improve people opportunities and consecutively, their capability to improve their condition is higher too.

At the same time, lower inequality means higher levels of social peace and cohesion. Sen (1973) saw inequality as strictly linked to the concept of rebellion and indeed the two phenomena are linked in both ways. Inequality causes rebellion, but it may happen that income inequality may increase after a rebellion where it brings power to a specific apparatus or a nomenclature or a social class; this has happened many times in history when, for instance, rebellions were led by army generals or by elites of nobles. In several transition economies, inequality increased after a "rebellion" which brought to power oligarks. In particular, in the former Soviet Union inequality increased dramatically after the 1991 August Coup which deposed Soviet president Mikhail Gorbachev and dissolved the URSS. In some African countries, such as Congo, Sudan etc. the same happened: rebellions, carried out by generals and warlords, deposed previous authoritarian or less authoritarian regimes, but such a change brought about an increase in inequality. Nowadays, economists try to capture a causality nexus (inequality → rebellion → inequality) through the use of some modern governance indicators such as political stability. The link between political stability and inequality is demonstrated in numerous empirical works such as Alesina and Perrotti (1996) and Easterly (2001), where it emerges that income inequality increases during political instability.

The empirical evidence shows that most of the countries in our sample, during the years 1993-2005 increased their level of inequality, and we assume that this is because political stability and education worsened (see Table 4).

Table 4. Descriptive statistics, by country groups

	Economic growth 1995-07	**Gini coeff. 1993** (in %)	**Gini coeff. 2006** (in %)	**Gini variation 1993-06** (in %)	**Political Stabil. Av. 1998-06** (min -2.5 max +2.5)	**Adult Literacy 2006** (% of pop)
All countries	4.71	37.1	39.2	7.7	-0.04	92.2
CIS (12 countries)	6.1	34.9	35.5	4.4	-0.7	99
CEECs (11 countries)	4.1	28.3	31.6	13.2	0.4	98.9
Latin American (8 countries)	3.5	49.1	53.4	10.3	0.1	91.4
Asia (9 countries)	5.5	36.2	38.5	6.8	-0.1	78.9
Africa, Middle East and Turkey (8 countries)	4.2	43.3	44.5	3.8	-0.5	80.4
EU – 2 old MS	5.6	30.0	34.0	13.8	0.8	99

Source: own elaboration on data in appendix

In fact, in this section we will test the following model

$$ineq = \alpha + \beta \cdot Pol.Instab - \beta \cdot AduLit + \varepsilon$$

Table 5 presents the results of our estimates. Both the variables, Political Instability and Adult Literacy (*Pol.Instab* and *AduLit*) seem to be correlated in the right direction with inequality: Higher political stability and adult literacy reduce inequality. Moreover, when we include the GDP level to control for the an income e effect (Regression II), we discover that it is not significant. Hence the equation model

Table 5. Estimates of income inequality

OLS model - Obs 50					
Dependent Variable: GINI 2006					
Regression I		Regression II		Regression II	
Variables	Coeff	Variables	Coeff	Variables	Coeff
Adult literacy	-.4988347*	Adult literacy	-.4825795*	Adult literacy	-.4903401*

2006	(.1181287)	2004	(.1225385)	2004	(.1213864)
Political Instability avg 1996-06	2.408412*** (1.438897)	Political Instability avg 1996-06	2.891809*** (1.689036)	Political Instability avg 1996-06	2.140241 (1.755738)
		GDP 2007	-.0000841 (.0001507)	GDP 2007	-.0001872 (.0001664)
				Voice & Accountabil. 1996-06	2.593477 (1.855148)
Constant	76.94141* (5.969043)	Constant	76.32705* (6.180829)	Constant	52.58706* (3.330817)
R-squared 0.2828		**R-squared 0.2877**		**R-squared 0.3180**	
Adj R-squared 0.2516		Adj R-squared = 0.2402		Adj R-squared = 0.2560	
Prob(F-statistic) 0.0005		Prob(F-statistic) 0.0015		Prob(F-statistic) 0.0018	

Interestingly enough when we introduce in the regression (III) a democratic variable such as Voice and Accountability which is a good proxy for democracy, according to World Bank (Kaufmann et al, 2007), then our regression is loosing consistency because this last variable is statistically not significant. Moreover, the sign of the direction is even positive, which means that the higher the democracy the higher the inequality. Such result is only apparently surprising. Similar findings have been obtained in the literature: for example, Sen (1999) points out that there are several cases of countries having lower levels of democracy and lower inequality, such as China or former communist countries.

4. CONCLUDING REMARKS

This paper engaged in the debate on political institutions and development, with emphasis on low-income and emerging countries. Conceptualizing development as a phenomenon going much beyond economic growth, theme such as famines and inequality are both

indicators of and obstacles to development. The aim of the paper was to understand *whether* political institutions are important to prevent famines and to reduce income inequality, and especially *which* institutions.

As a general conclusion of the critical review of the literature and of the quantitative analyses, we can argue that political institutions are essential determinants of the two phenomena. However, an important distinction should me made with respect to the type of institutions that affect famine's mortality and inequality.

The findings on famines largely support the so-called "democracy prevents famines" hypothesis elaborated by Amartya Sen during 1980s. In our panel of countries, the variable expressing the degree of democracy has a largely significant and negative effect on famine's mortality. The following exercises carried out on separate sample of democratic and autocratic countries outline that only "control of corruption" and "government effectiveness" out of the four governance indicators are significant in the first sample, while they are all significant in the second sample. This suggests that illuminated authoritarian governments with adequate political institutions rather than democratic ones can still avoid the occurrence of famines even in front of a dramatic crisis caused by a natural or man-made disaster. However, the sustainability of these achievements might be undermined by the lack of re-enforcing mechanisms ensured by people's right to express their voice, free and independent media, and constant elections. In one sentence, in authoritarian regimes "famine measures are a privilege rather than a right" (de Waal, 2000: 18).

The analyses aiming at showing which institutions explain better inequality in emerging and low-income countries provides different results. First of all, democratic institutions, approximated by the World Bank indicator of "voice and accountability" are not significant factors also when a control variable of wealth, i.e., GDP per capita in 2007, is taken into consideration. High levels of inequality can be present with or without democracy. This is in line with Amartya Sen's argument that democracy has a clear "protective" role against "spectacular" crises such as famines, while its role for poverty and hunger reduction is much more unclear. Sen (1983, 1999) used the example of China and India after 1947 to show it: while the democratic India performed better than the authoritarian China in famine prevention, the latter since 1990s managed to reduce much more poverty and undernutrition. In the same way, this study provides evidence that the role of democracy during sudden crises such as famine is very different from its role in front of structural problems as inequality is.

As far as inequality is concerned, we discovered that two institutional variables are important to reduce it. They are political stability and adult literacy. Following part of literature which argues that rebellion may increase the level of inequality, we found out that political instability is positively correlated with inequality. At the same time, lower inequality means higher levels of social peace and cohesion. Inequality may causes rebellion, but what probably happened in many emerging and low income economies is that income inequality increased after a rebellion which brought about to power particular groups, oligarchs, specific power apparatus etc.

Political stability however should be associated with high adult literacy in order for countries to enjoy lower levels of inequality. Education is a crucial variable which increases both income opportunities and people's capabilities, which in turn are functional to reduce inequality.

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ANNEX 1. Correlation among institutional variables, by year

-> year = 1996 (obs=86)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9404	1.0000			
Stability	0.4193	0.5409	1.0000		
ControlCorr	0.4018	0.4631	0.5680	1.0000	
Goveff	0.4134	0.5199	0.6264	0.6553	1.0000

-> year = 1998 (obs=102)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9001	1.0000			
Stability	0.4682	0.6529	1.0000		
ControlCorr	0.4259	0.6295	0.6200	1.0000	
Goveff	0.6022	0.7926	0.6577	0.8266	1.0000

-> year = 2000 (obs=103)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9090	1.0000			
Stability	0.5095	0.6563	1.0000		
ControlCorr	0.4250	0.5907	0.6272	1.0000	
Goveff	0.5704	0.7440	0.6683	0.8445	1.0000

-> year = 2002 (obs=102)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9393	1.0000			
Stability	0.5113	0.5635	1.0000		
ControlCorr	0.3777	0.4549	0.6122	1.0000	
Goveff	0.5998	0.7054	0.6452	0.7609	1.0000

-> year = 2003 (obs=103)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9490	1.0000			
Stability	0.5020	0.5830	1.0000		
ControlCorr	0.3958	0.5008	0.6048	1.0000	
Goveff	0.5279	0.5975	0.5348	0.7923	1.0000

-> year = 2004 (obs=107)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9438	1.0000			
Stability	0.5436	0.6201	1.0000		
ControlCorr	0.5431	0.6540	0.6860	1.0000	
Goveff	0.5866	0.7128	0.5703	0.8085	1.0000

-> year = 2005 (obs=106)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9354	1.0000			
Stability	0.5455	0.6148	1.0000		
ControlCorr	0.5154	0.6180	0.6573	1.0000	
Goveff	0.5813	0.7354	0.6413	0.8012	1.0000

-> year = 2006 (obs=107)

	PRI	Voice	Stability	ControlCorr	Goveff
PRI	1.0000				
Voice	0.9315	1.0000			
Stability	0.4922	0.5772	1.0000		
ControlCorr	0.4891	0.6011	0.6472	1.0000	
Goveff	0.5352	0.6557	0.6077	0.8096	1.0000