

The chicken and the egg: economic growth and freedom[†]

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Abstract

In this paper we explore the causal links between economic growth and political and economic freedoms in a series of countries. We find, with a model built from a panel with a small time dimension and using a corrected LSDV estimator, that countries primarily concerned with economic growth would apparently benefit from institutional reform in the form of market liberalisation. Furthermore, our results indicate that greater democracy may result in faster growth and higher levels of economic freedom. Since political and economic freedoms are found to be mutually reinforcing, broad institutional reform may be the wisest growth-enhancing policy. Finally, we show that these conclusions are not dependent on the econometric methodology used to estimate the residuals for computing the corrected LSDV.

Keywords: economic growth, economic and political freedom, causality, dynamic panel data

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1. Introduction

Every year we have occasion to read a series of reports explicitly intended to analyse economic (Gwartney *et al*, 2001; O’Driscoll *et al.*, 2001) and political (Freedom House, 2001) freedom around the world by formulating indices that represent, more or less accurately, the aspects that the respective authors believe best define such freedoms. The explanations and graphs in these papers illustrate the relationships between each of these indices and relevant economic variables such as gross domestic product (GDP) growth, employment and inflation, to name a few. According to these studies, there is a positive relationship between economic freedom and growth, and between the latter and political freedom.

Nonetheless, and although such assertions would appear to be intuitively correct, we find no empirical evidence in these papers that lends scientific support to such relationships. The empirical analyses existing in the literature afford more or less clear, but inconclusive, results. Briefly, we might highlight the positive impact of economic freedom on growth¹, or the ambiguous relationship between growth and the variable political freedom. Fewer studies have been published on the association between the two types of freedom, but much attention is paid to the hypothesis of both being mutually enhancing.

Such conclusions are open to criticism. Generally speaking, they depend on the methodologies used which, in turn, are subject to the size of the panels. Moreover, a series of control variables must be included in the model for the analysis to be sufficiently robust. This translates into the need for data on a broad range of variables for a considerable number of countries over a long period of time: a task whose complexity should not be underestimated. In fact, in many cases we are obliged to work

with panels with smaller dimensions, i.e., with a small sample of countries or a short number of time observations. This problem conditions the methodology to be used (Judson and Owen, 1999). Under such circumstances, no new contribution on the subject is unwelcome, insofar as it can offer additional evidence on the behaviour of these variables and contribute to suitable institutional reform. It is along these lines that our study is intended.

In this article we do not design to analyse the variables relevant to economic growth², but the causal relationships existing among the three variables mentioned, using the appropriate econometric methodology. With this aim in mind, we have structured the article as follows: in section 2 we provide a brief review of what we regard to be the key ideas and studies in the development of the basic theory underlying the research into the three variables; in section 3 we define economic and political freedom and briefly explain the most relevant characteristics used to build the indices to measure them; in section 4 we develop the model we use to study and analyse the different associations and statistical relationships between the variables; in section 5 we briefly explain the methodology used; in section 6 we discuss the results; and finally, in section 7 we set out the conclusions reached in the paper.

2. Democracy, free market and economic growth: the pursuit of causality links.

As North (1990) has pointed out, a society's institutional framework seems to play an instrumental role in the long-term performance of its economy. As appropriate

¹ Some of these empirical studies stress that economic freedom is one of the factors that introduces differences in the economic development of many countries (de Vanssay and Spindler, 1994; de Haan and Sierman, 1998; de Haan and Sturm, 2000, among others).

² Some of the more relevant papers on this subject include Feder (1982), Leamer (1983), Baumol *et al.* (1989), Romer (1989), Barro (1991), Levine *et al.* (1992), Fischer (1993), Barro (1995), Barro and Sala-i-Martin (1995), Sala-i-Martin (1997), among others.

data have become available, empirical researchers have added economic freedom, democracy and other institutional variables to the set of potential determinants of economic growth. Indeed, any number of studies attempt to identify the variables that determine economic growth and how they do so. But some interesting questions remain unsolved, as the following review of the relevant literature will show.

A significant body of research indicates that economic freedom enhances economic growth. Baumol (2002) stresses that the free-market economic system acts as a powerful innovation machine – a fundamental driving force behind growth processes-, at least in societies where the rule of law prevails. Dutz and Hayri (2000), addressing the theory that greater competition leads to more innovation and faster productivity growth, discover a high correlation between long-term growth and effective enforcement of antitrust and competition policy. Barro (1997) furnishes empirical evidence supporting the idea that free markets and maintenance of property rights foster economic growth. However, not all the literature is so conclusive. De Haan and Sturm (2000), for instance, after comparing various institutional indicators, sustain that economic freedom brings countries to their steady state level of economic growth more quickly, but does not increase the rate of steady state growth. De Haan and Siermann (1998) offer an even more sceptical view: according to these authors, the positive effect of economic freedom on economic growth is not robust, but depends on the indicator of economic freedom used.

The connection between political freedom and either economic freedom or economic growth is much more controversial. Friedman (1962) believes that democracy and economic freedom are mutually reinforcing. Under this hypothesis, democracy should facilitate economic growth through the development of an institutional framework more compatible with incentives to engage in productive transactions. In

other words, democracy is the political system that allows markets to perform adequately. In his discussion of this question, Rodrik (2000) reaches a suggestive empirical conclusion: participatory democracies favour what he calls “higher-quality growth”: more predictable long-term growth rates, greater short-term stability, better resilience to adverse shocks and more equitable distribution of wealth. The interpretation of these results stressed by the author is that democracy helps build better institutions because it works as an efficient meta-institution for eliciting and handling local knowledge.

Democratic institutions can foster growth in a variety of ways. Przeworski and Limongi (1993) hypothesise that democracy should positively influence economic growth through better protection of property rights, which promotes savings and investment. Rodrik's (1999) results indicate that participatory and democratic institutions cushion the impact of negative external shocks on economic growth. Svensson (1999) finds that the long-term impact of international aid on growth depends on the political and civil liberties in the host country. More specifically, aid tends to have a positive impact on growth only in countries with democratic governments. But Svensson (2000) and Knack (2001) also provide some evidence that higher aid levels erode institutional quality, as measured by indices of bureaucratic quality, corruption, and the rule of law. One tentative interpretation would be that aid only enhances growth in those countries that have democratic institutions sufficiently robust to deal with problems such as conflicts over the control of aid funds.

In other recent papers, authors such as Mauro (1995) show the extent to which corruption hinders economic growth. Del Monte and Papagni (2001) provide further evidence in support of this premise. They also point out that corruption may be relevant in under-developed countries, where society lacks democratic control over government,

a possibility investigated by Paldam (2002). According to his results, democracy seems to decrease corruption and lower corruption rates may provide for higher growth, but the effect is slight and fragile. He also suggests the potential for rent-seeking is large in countries with highly regulated economies —little “economic freedom”—. They tend to have high corruption as well, although this link is not clear for Bliss and Di Tella (1997), who present a microeconomic model that shows that increased competition may not reduce corruption.

Democracy is thought to promote gender equality and foster female education, which in turn promotes growth in different ways. On the one hand, it represents a substantial gain in terms of human capital. For instance, Behrman *et al.* (1999) test the hypothesis that increases in female literacy enhance the human capital of next generations. They conclude that, during the green revolution in India, a significant and positive relationship between maternal literacy and childhood schooling reflected the productivity effect of home teaching. On the other hand, as Barro (1996) finds out, female education reduces fertility and infant mortality, paving the way for increases in growth.

Despite the fact that political freedoms have an intrinsic value, social scientists are also aware of the growth-hindering aspects of democracy. Majority suffrage tends to redistribute income and thus reduce efficiency; democratic governments that try to maximise tenure must respond to popular demands for greater consumption and spending; representative legislatures allow well-organised interest groups to lobby and legally appropriate resources at the expense of society as a whole³. In a recent paper,

³ See Przeworski and Limongi (1993) and Barro (1997). The issue of how inequality and redistribution affect economic growth is controversial in itself. Income inequality may produce social and political unrest, uncertainty and economic disruption. If that is the case, redistribution programmes would improve productivity. Barro (2000) discusses this and other possibilities, concluding that inequality retards growth in poor countries but encourages growth in richer areas. In any case, his empirical study for a broad panel of countries shows only a small overall relationship between inequality and growth and investment rates.

Tavares and Wacziarg (2001) find that democracy hinders growth because it reduces investment in physical capital and also because it raises the ratio of public consumption to GDP⁴.

Placing all the positive and negative effects in the balance, what is the net impact of democracy on economic growth? The literature fails to provide a conclusive answer. Typically ambiguous results can be found, for example, in a paper by Helliwell (1994), who concludes that democracy may have either a positive or a negative influence on economic growth; de Haan and Siermann (1995) state that the relationship is not robust. Przeworski and Limongi (1993) address the question of how political rights affect economic growth both positively and negatively. They interpret their likewise ambiguous results to mean that while political institutions are important for economic growth, reducing them to democratic and non-democratic regimes does not seem to account for the relevant differences⁵.

In another cross-country empirical study, Barro (1997) observes that democracy has a non-linear effect on growth. Increases in political rights initially increase growth, which tends to slacken once a certain level of democracy is attained. His own interpretation of these results is that, in the strictest dictatorships, increased freedom stimulates growth by limiting governmental abuse. But after achieving some degree of

Tavares and Wacziarg (2001) discover evidence of the positive effects of democracy on growth via reductions in income inequality.

⁴ Persson and Tabellini (2002) discuss the effect of constitutional rules for elections on government size. Their empirical answer is that presidential regimes and majority-ruled elections produce smaller governments. So, do constitutional rules have an impact on growth?

⁵ In an attempt to address that question, Durham (1999) develops a continuous variable - the effective party/constitutional framework measure- to quantify the degree of policymaker discretion or freedom of action. His study renders no empirical regularities between policymaker discretion and growth or investment in the total sample. Dividing the sample into *per capita* income brackets produces some significant results. As he expected, discretion affects growth negatively in developed countries. Some evidence also indicates that discretion brings investment down in poorer areas. Gupta *et al.* (1998) argue that it is not the type of regime that influences economic growth in less developed countries but the level of political stability. Therefore, democracies as well as dictatorships should experience similar levels of growth if the political environment has been stable for a period of time. Although their empirical study suggests that democracy is more conducive to long-term economic growth than other regimes, they

political freedom, further increases in democracy hinder growth by intensifying the redistribution of resources. Chong and Calderón (2000) show that improvements in the institutional framework have a positive influence on economic growth, especially in poor countries. After establishing and solving a full system of equations determining growth and the channel variables, Tavares and Wacziarg (2001) sustain that the overall impact of democracy on growth is moderately negative. In an article with a different approach, Minier (1998) studies the experience of countries in which the level of political freedom changes significantly. Countries that democratise seem to grow faster, while countries becoming less democratic grow more slowly than comparable nations.

Economists have also studied the existence of reverse causality between democracy and growth. Specifically, economic growth also appears to prompt institutional and political change and prosperity is regarded to enhance democracy. There is some empirical evidence for this idea, known as the Lipset hypothesis⁶. In a comparative historical survey, Huber *et al.* (1993) confirm the existence of such a relationship. The explanation, in their view, is that economic development enlarges the working and middle classes, making it more difficult for elitist groups to exclude them politically. Posing the question of whether a higher standard of living favours democracy, Barro (1999) finds a relationship in data gathered on a large panel of countries. His premise holds when democracy is measured in terms of electoral rights or civil liberties and the standard of living is approximated by *per capita* GDP, percentage of primary school attained, equality between male and female primary schooling, and middle-class share of income. The same conclusions are to be found in Helliwell (1994), whose analysis reveals that the impact of income on democracy is positive and robust. Burkhart and Lewis-Beck (1994) conduct a very similar study for less developed

believe that a higher degree of democracy is not a sufficient or a necessary condition to strengthen domestic stability or economic growth.

countries, concluding that democracy does not trigger economic development, but rather that economic development furthers political rights, so that a certain degree of economic development is prerequisite to democratisation⁷. Chong and Calderón (2000) deduce from their analysis that economic growth favours institutional improvement apparently in less time than it takes for institutional quality to enhance growth⁸. The image of democracy as a political system that emerges from these studies, then, is that it is a luxury that poor nations can ill afford.

By way of summary, the interplay between economic freedom, democracy and economic growth can be said to form various cause-effect chains, which have been studied theoretically and empirically but are not fully understood. Our objective is to shed some additional light on the empirical relationships between these variables.

3. The difficult task of defining economic and political freedoms.

Economic freedom and political freedom are both concepts difficult to define and address. In fact, they are ideas so closely related that any distinction between them may appear to be more or less arbitrary. It is not our intention to clarify or discuss this question in the present article. Since we adopt an empirical approach, our priority is data availability. Consequently we shall use the index formulated by Gwartney *et al.* (2001) as the measure of economic freedom and the Freedom House (2001) index of political freedom as our indicator of political liberties. In other words, we shall define these

⁶ Lipset (1959) Lipset prefers to credit the idea to Aristotle.

⁷ In an earlier paper, Barro (1997) looks at the cross-country data and suggests that while countries at low levels of economic development in general are not able to sustain democracy, less democratic nations that undergo substantial economic development tend to expand their political freedoms. For a slightly different result, see Przeworski and Limongi (1997): the level of economic development does not affect the likelihood of a transition to democracy but affluence makes democracy more stable. From another point of view, Ranis *et al.* (2000) suggest that countries should give priority to policies aimed at human development as a way to create a virtuous growth-development circle.

⁸ Economic growth may also increase economic freedom, for example by cutting out some of the social and economic waste caused by corruption. See Paldam (2002).

freedoms as the authors of these indicators do⁹. Such indices are certainly far from perfect; some of their shortcomings are discussed below in this section. Nonetheless, they are likewise the indices traditionally used in empirical studies on political and economic freedoms, which is tantamount to saying that their use yields results comparable to those reported in the literature. This feature is particularly appealing for us, given that this paper puts the emphasis on the methodological contribution made to the overall discussion.

According to Gwartney *et al.* (2001), economic freedom is determined by personal choice, the protection of private property and freedom to trade. Therefore, they sustain that "individuals have economic freedom when the following conditions exist: (a) their property acquired without the use of force, fraud, or theft is protected from physical invasions by others and (b) they are free to use, exchange, or give their property to another as long as their actions do not violate the identical rights of others".

These authors emphasise that we should distinguish economic freedom from civil and political liberties. Political freedom, they explain, is present in situations where citizens are completely free to participate in the political process (suffrage, association and choice among candidates in elections), elections are fair, competitive and corruption-free and when different political parties can participate freely in the political process. Civil liberty, in turn, includes freedom of the press, freedom of association, freedom of religion and freedom of speech. Their index of economic freedom is formulated in accordance with the above definition and consists of 21 components grouped under the seven areas listed in Table 1 below:

⁹The same argument could be applied to other variables extensively used in empirical research. For instance, we implicitly accept the operational definition of inflation used by bodies responsible for formulating official statistics.

Table 1

Major areas of the index of economic freedom formulated by Gwartney *et al.* (2001)

Size of government: consumption, transfers, and subsidies
Structure of the economy and use of markets (<i>Production and allocation via governmental and political mandates rather than private enterprises and markets</i>)
Monetary policy and price stability (<i>Protection of money as a store of value and medium of exchange</i>)
Freedom to use alternative currencies (<i>Freedom of access to alternative currencies</i>)
Legal structure and property rights (<i>Security of property rights and viability of contracts</i>)
International exchange: freedom to trade with foreigners
Freedom of exchange in capital and financial markets

Once all the components of the index are evaluated, each country is ranked for economic freedom on a scale ranging from 0 (nil economic freedom) to 10 (total economic freedom).

The measure of political freedom used in the present article is the index developed by the Freedom House think tank. This institution uses the results of a survey conducted yearly to evaluate the political rights and civil liberties in place in a broad range of countries (Freedom House, 2001). According to this institution "Freedom is the opportunity to act spontaneously in a variety of fields outside the control of the government and other centres of potential domination". It does not consider governments *per se*, but the rights and freedoms enjoyed by individuals in each country or territory. The survey groups all the characteristics analysed under two major headings: political rights and civil liberties. Political rights comprise people's freedom to participate in their country's political processes. Civil liberties include the freedoms to develop views, institutions and personal autonomy apart from the state. The survey consists of a series of questions grouped under political rights and civil liberties check lists and each country or territory is given a numerical score for each category. Finally,

the political rights and civil liberties scores are averaged and used to assign each country the status of “Free”, “Partly Free” or “Not Free”. A score of 1 corresponds to the countries enjoying greatest freedom and a score of 7 to countries with the least freedom.

These indices have not gone uncriticised. Freeman (2001) for instance, stresses that the indicators of economic freedom are built from sub-indices which are weighted subjectively and are largely impervious to change in institutions and the interactions among them.

De Haan and Sturm (2000), in turn, criticise the Gwartney *et al.* (2001) index, sustaining that the inclusion of taxation and public spending levels is at least questionable, since they believe that the government needs to produce certain goods that private enterprise cannot provide. With respect to taxation, specifically, the tax burden depends on other factors in each country's tax system, such as deductions and others that determine tax liability. With respect to monetary policy, there is always the question of whether or not inflation should be treated as a tax; and finally, the existence of a positive correlation between two components of the index in this area, namely inflation and the standard deviation of inflation, creates serious problems and doubts.

Milton Friedman himself, one of the main forces behind the Fraser Institute's Economic Freedom in the World project, discusses certain conceptual shortcomings in these indices in the introduction to the most recent edition of the report. Specifically, with regard to the relationship between the indicators of economic and political freedom, he writes, “*the next big task facing the economic freedom project will be to try to weld the two together and make a combined index of economic and political freedom, especially where they mesh with one another. (...) Some of the elements in the Freedom House index seem to me to be inconsistent with some of the elements in our index, and it*

would seem to be useful to see how to reconcile those two and put them on the same philosophical basis”¹⁰. He also comments on the inherent difficulties in measuring relevant variables, in particular with respect to the rule of law, because there may well be substantial differences between the letter of the law and its enforcement. This drawback is underlined by Knack and Keefer (1995), who present a comparative study of a variety of subjective country indices in respect of property rights and legal/political structure.

Minier (1998) stresses some of the limitations of the Freedom House index of political freedom. First, the subjectivity involved in building this index introduces some measure of error and bias; second, democracy is a complex subject: the index is based on a checklist that includes a wide range of tangible indicators but the overall ranking is purely impressionistic. Finally, the index forces a question of degree into a discrete variable or ranking system.

Considering the practical policy implications of the debates on democracy, Durham (1999) criticises the available indicators of political freedoms because they focus on outcomes rather than institutions. He suggests that measures of political freedoms and regimes could be improved if they could gauge governments' discretionary power on a continuum. He also points out that the Freedom House indicators are inherently subjective and the validity of their time-series is highly questionable.

Clearly, all of the above objections go to show that the indicators used in our study do not provide a wholly accurate measurement of a society's economic or political freedom. They only provide a broad approximation, as any other indicator does. Suffice it to refer, in this regard, to the correlation between the Freedom House index and

¹⁰ Gwartney and Lawson (2002), p. xxvii.

indices used to evaluate political regime such as the Polity III data (Jagers and Gurr, 1995, or Rodrik 2000). In any event, the indices of economic and political freedom chosen meet the two requirements that we believe to be relevant for our purposes: data availability and extensive use in previous studies.

4. The panel data model

In this paper we intend to determine what causal relationships exist between economic freedom, political freedom and economic growth. We shall use a dynamic model in our approach, and define causality along the lines established by Granger (Granger, 1969). We say that the variable x is causing y if we are better able to predict y using all available information than if the information apart from x had been used. Namely, if we control for the information contained in past values of y , and past values of x add significantly to the explanation of current y , then we may say that x “Granger-causes” y .

We intend to analyse whether economic growth prompts economic and/or political freedom. More precisely, we purpose to determine the direction of any such causality. As we are also interested in the causal link between economic and political freedom, we have proceeded to develop the following dynamic specifications.

(a) Economic freedom as a cause of economic growth ($f^{ef} \rightarrow g$) and economic growth as a cause of economic freedom ($g \rightarrow f^{ef}$):

$$g_{i,t} = \sum_{j=1}^m \gamma_j^{g,ef} g_{i,t-j} + \sum_{j=1}^n \delta_j^{g,ef} f_{i,t-j}^{ef} + \alpha_i^{g,ef} + \varepsilon_{i,t}^{g,ef} \quad (1)$$

$$f_{i,t}^{ef} = \sum_{j=1}^{m'} \gamma_j^{ef,g} f_{i,t-j}^{ef} + \sum_{j=1}^{n'} \delta_j^{ef,g} g_{i,t-j} + \alpha_i^{ef,g} + \varepsilon_{i,t}^{ef,g} \quad (2)$$

(b) Political freedom as a cause of economic growth ($f^{pf} \rightarrow g$) and economic growth as a cause of political freedom ($g \rightarrow f^{pf}$):

$$g_{i,t} = \sum_{k=1}^q \gamma_k^{g,pf} g_{i,t-k} + \sum_{k=1}^r \delta_k^{g,pf} f_{i,t-k}^{pf} + \alpha_i^{g,pf} + \varepsilon_{i,t}^{g,pf} \quad (3)$$

$$f_{i,t}^{pf} = \sum_{k=1}^{q'} \gamma_k^{pf,g} f_{i,t-k}^{pf} + \sum_{k=1}^{r'} \delta_k^{pf,g} g_{i,t-k} + \alpha_i^{pf,g} + \varepsilon_{i,t}^{pf,g} \quad (4)$$

(c) Political freedom as a cause of economic freedom ($f^{pf} \rightarrow f^{ef}$) and economic freedom as a cause of political freedom ($f^{ef} \rightarrow f^{pf}$):

$$f_{i,t}^{ef} = \sum_{l=1}^r \gamma_l^{ef,pf} f_{i,t-l}^{ef} + \sum_{l=1}^s \delta_l^{ef,pf} f_{i,t-l}^{pf} + \alpha_i^{ef,pf} + \varepsilon_{i,t}^{ef,pf} \quad (5)$$

$$f_{i,t}^{pf} = \sum_{l=1}^{r'} \gamma_l^{pf,ef} f_{i,t-l}^{pf} + \sum_{l=1}^{s'} \delta_l^{pf,ef} f_{i,t-l}^{ef} + \alpha_i^{pf,ef} + \varepsilon_{i,t}^{pf,ef} \quad (6)$$

with $i = 1, \dots, N$, $t = 1, \dots, T$, where $g_{i,t}$ is the growth rate of real *per capita* GDP in country i in period t ; $f_{i,t}^{ef}$ is the index of economic freedom and $f_{i,t}^{pf}$ the index of politic freedom for country i over t ; α_i represents unobserved individual effects that vary across i but are constant over time; and $\varepsilon_{i,t}$ is an independent and identically distributed random error $N(0, \sigma_\varepsilon^2)$.

5. Methodology and Data

The choice of methodology is conditioned by the characteristics of the panel data designed. And the dimensions of the panel, in turn, depend on data availability.

Initially, we had a panel of over one hundred countries, although this number steadily declined as we considered the set of variables to be studied. In our search for

data we were unable to find observations prior to 1975 or more recent than 1995 for all the variables considered in the study.

The Fraser Institute's index of economic freedom is formulated once every five years. Unfortunately, there are no observations prior to 1970 and the data for 2000 have just been released (after this study was conducted). The Freedom House political freedom index, in turn, has no observations prior to 1972. The growth rate has been calculated for the real GDP *per capita* in constant dollars (international prices, base year 1996; Laspeyres Index).¹¹

Five-year averages were computed for all the variables so they would concur with the index of economic freedom. This also obviated having to deal with the variability inherent in economic cycles (Carrol *et al*, 1994). The panel thus obtained consisted of a total of 45 countries with 5 yearly observations for each country between 1975 and 1995 ($N = 45$, $T = 5$)¹². The index of political freedom was standardised to concur with the index of economic freedom so that a ratio of zero means a country with no political freedom and a ratio of ten corresponds to countries with full political freedom.

As far as dynamic relations are concerned, the small number of observations in the time dimension poses a substantial problem. Judson and Owen (1999), among others, draw attention to the bias generated by the LSDV estimator in panels with small time dimensions when a lagged value of the dependent variable is included in the equation (equations (1) to (6)). Furthermore, all these estimators depend on the characteristics of the data to be analysed. The authors, using Monte Carlo experiments, reach the following conclusions for panels with a small time dimension:

¹¹ Data source: Penn World Table 6.0, Summers *et al*. (2001)

¹² See Appendix A for a description of the countries comprising the panel.

- (1) The LSDV estimator bias is not insignificant (and for $T = 30$, the bias can reach figures as high as 20% of the true value of the coefficient in question).
- (2) For panels of any dimension, the corrected LSDV estimator usually yields a smaller mean quadratic error than any other.
- (3) The most effective estimator is restricted GMM, provided the instruments used are a subset of lagged values.

They conclude by showing that for balanced panels with a time dimension less than or equal to 10 ($T \leq 10$) the corrected LSDV estimator proposed by Kiviet (1995) is preferable to any of the other dynamic balanced panel estimators. Their conclusions are given in Table 2 (Judson and Owen, 1999, p. 13).

Table 2:

Judson and Owen (1999) conclusions

Recommendations			
	$T \leq 10$	$T = 20$	$T=30$
Balanced panel	LSDVC	LSDVC	LSDVC
Unbalanced panel	GMM1	GMM1 or AH	LSDV

On these grounds, therefore, the estimator used to solve for expressions (1) to (6) is the LSDV estimator corrected as proposed by Kiviet (1995).

6. Empirical Evidence

The main goal of this paper is to offer new evidence on the causality relationships between freedom and economic growth. Perhaps the most interesting question, both from a positive and a normative point of view, is whether freedoms drive economic prosperity, given that the causal relationship may also work the other way around. Tables (3) through (8) show our estimates for the dynamic relationships specified in equations (1) to (6). Two estimation methods were used to find the residuals

in the Kiviet's correction: the Arellano and Bond one-step (GMM1) and two-step (GMM2) generalized method of moments estimator, and the Anderson and Hsiao's instrumental variable estimator (AH).¹³ The main results are discussed below.

Table 3

Dynamic relationships: causality $f_t^{ef} \rightarrow g_t$

Dependent variable: g_t	AH	GMM1	GMM2
g_{t-1}	-0.215*** (0.074)	-0.087 (0.070)	-0.086 (0.070)
f_{t-1}^{ef}	0.004*** (0.0004)	0.003*** (0.0004)	0.003*** (0.0004)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. Figures in brackets, i.e., (), indicate standard deviations.

Table 4

Dynamic relationships: causality $g_t \rightarrow f_t^{ef}$

Dependent variable: f_t^{ef}	AH	GMM1	GMM2
f_{t-1}^{ef}	0.847*** (0.024)	0.887*** (0.022)	0.883*** (0.022)
g_{t-1}	-3.014 (4.450)	-4.802 (4.173)	-4.425 (4.192)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. Figures in brackets, i.e., (), indicate standard deviations.

Table 5

Dynamic relationships: causality $f_t^{pf} \rightarrow g_t$

Dependent variable: g_t	AH	GMM1	GMM2
g_{t-1}	-0.137 (0.072)	-0.021 (0.069)	-0.026 (0.069)
f_{t-1}^{pf}	0.002*** (0.0003)	0.002*** (0.0003)	0.002*** (0.0003)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. Figures in brackets, i.e., (), indicate standard deviations.

¹³ See Anderson and Hsiao (1981), Hsiao (1986), Arellano (1989), and Arellano and Bond (1991).

Table 6Dynamic relationships: causality $g_t \rightarrow f_t^{pf}$

Dependent variable: f_t^{pf}	AH	GMM1	GMM2
f_{t-1}^{pf}	0.721*** (0.029)	0.771*** (0.027)	0.777*** (0.027)
g_{t-1}	16.591** (6.742)	14.568** (6.317)	14.059** (6.277)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. Figures in brackets, i.e., (), indicate standard deviations.

Table 7Dynamic relationships: causality $f_t^{pf} \rightarrow f_t^{ef}$

Dependent variable: f_t^{ef}	AH	GMM1	GMM2
f_{t-1}^{ef}	0.560*** (0.051)	0.642*** (0.049)	0.645*** (0.049)
f_{t-1}^{pf}	0.270*** (0.042)	0.216*** (0.039)	0.214*** (0.039)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. Figures in brackets, i.e., (), indicate standard deviations.

Table 8Dynamic relationships: causality $f_t^{ef} \rightarrow f_t^{pf}$

Dependent variable: f_{t-1}^{pf}	AH	GMM1	GMM2
f_{t-1}^{pf}	0.302*** (0.068)	0.431*** (0.064)	0.434*** (0.064)
f_{t-1}^{ef}	0.694*** (0.082)	0.561*** (0.078)	0.558*** (0.078)

*** indicates that the coefficient is statistically significant at the 1 percent level, ** indicates that the coefficient is statistically significant at the 5 percent level, * indicates that the coefficient is statistically significant at the 10 percent level. . Figures in brackets, i.e., (), indicate standard deviations.

The application of Kiviet's method yields interesting results. Political and economic freedoms appear to play a role in enhancing growth forces. In view of the significantly positive correlation found, the conclusion is that greater freedom is conducive to higher growth rates. The impact of economic freedom on economic growth nearly doubles the effect of political freedom. That is, free-market institutions boost growth more than democracy does. Does this mean that institutional reform intended to foster growth should be geared more to market liberalisation than

democratisation? To answer such a question, we need to consider a broad set of dynamic relationships.

The results of a review of the interaction between political and economic freedoms are enlightening. Economic freedom enhances political freedom, at the same time as more democratic institutions provide for greater economic freedom. A tentative interpretation of these links would be that some liberalisation processes are implemented to foster economic prosperity, regardless of their impact on political rights. That is to say, economic prosperity, not democracy, is the primary concern but more political freedom is achieved in the end too. On the other hand, societies can capitalise on political freedom to enhance economic freedom. Given these considerations and the intrinsic value of democratic liberties, economic reforms should go together with democratisation or, at the very least, democratisation should not be postponed under the weight of economic arguments.

Another causal relationship which proves to be significant is that prior higher growth rates foster political freedom. Although our results show no statistically significant causality working from growth to economic freedom, they suggest that higher growth rates might undermine economic freedom. This relationship would make sense if economic prosperity was followed by redistribution policies, which are contrary to economic freedom by definition.

These results must, of course, always be interpreted with caution because as de Haan and Sturm (2000) note: “one possible objection towards our analysis so far could be that the choice of our sample of countries, although only based on data availability, may have influenced our results”.

7. Conclusions

In this paper we have tried to find new evidence on the relationships between freedom and economic prosperity. Insofar as the methodology is the main novelty in this paper, we present two different sets of conclusions. The first includes our empirical findings as well as an interpretation of the normative implications of the results. The second refers to certain econometric issues.

The dynamic relationships estimated strongly suggest that economic freedom fosters economic growth. To our knowledge, this causal link appears as an empirical regularity in most of the literature addressing the subject. Market liberalisation seems to be an appropriate institutional reform for countries whose main concern is economic growth.

The impact of political freedoms on economic growth is much less clear in the existing literature. Based on the evidence presented in the previous sections, we can safely say that political freedoms do not have to be postponed. Furthermore, the dynamic relationships estimated with the Kiviet method indicate that intensified democracy may result in faster growth and greater economic freedom. They also indicate that economic prosperity makes democratisation easier. Our own interpretation of these results is closer to Friedman's belief than to Lipset's hypothesis. Even if democracy and economic freedom were not mutually reinforcing, there are no economic grounds for postponing democratisation to give priority to market reforms. Why not take advantage of broad institutional reform to consolidate both political and economic freedoms?

The key lesson that emerges from this study is that no single reform by itself is sufficient for fast growth. A moderate degree of freedom is necessary in political and economic areas to improve growth perspectives. That is, institutional reforms have

important complementarities and liberties seem to be mutually reinforcing. Of course, we don't suggest there is an immediate cause effect relationship between freedom and economic growth. There will be delays reflecting the particular circumstances of each country. Unfortunately, such delays represent a danger both to freedom and economic growth.

As far as the econometrics of the question is concerned, the paucity of time observations - only five were available - obliged us to work with a balanced panel with a very small time dimension. For that reason, we used Kiviet's corrected LSDV estimator, which, according to previous research, is preferable to all other dynamic balanced panel estimators. We estimated the dynamic relationships using the residuals previously estimated with the Anderson-Hsiao instrumental variable estimator as well as with Arellano-Bond GMM1 and GMM2 estimators for the sake of comparison. Interestingly enough, we found that the conclusions on causal relationships are not contingent upon the methodology used. At the same time, we are well aware that our conclusions depend on the sample chosen and that as new data become available, new conclusions may emerge.

Appendix A

Sample description

List of countries

Africa	Asia	Latin America	Industrial Countries
Congo, D.R.	India	Argentina	Australia
Ghana	Indonesia	Chile	Austria
Morocco	Israel	Colombia	Belgium
Nigeria	Korea	Costa Rica	Canada
Tanzania	Malaysia	Ecuador	Denmark
	Pakistan	Guatemala	Finland
	Philippines	Mexico	France
	Singapore	Peru	Greece
	Syria	Venezuela	Iceland
	Thailand		Ireland
	Turkey		Italy
			Japan
			Netherlands
			New Zealand
			Norway
			Portugal
			Spain
			Sweden
			United Kingdom
			United States

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