Index of Enterprise Freedom in Europe

by Jacopo Perego & Carlo Stagnaro

1. Introduction[1]

To measure is to compare. The attempt of measuring "economic freedom" thus entails an effort to define such a concept as objectively and independently as possible. Intuitively the idea of economic freedom can be fairly clearly associated with each person or business having the possibility to use their own resources as they desire, with the one restriction to not assail other individuals or their rights. Thus, economic freedom tends to be greatest where only the fewest restrictions that are strictly necessary are placed on the free expression of individual initiative. Furthermore, this implies that there exist necessary restraints both for the ordered development of social life and for economic freedom: the guarantee that contracts will be enforced, that private property will be protected, and the expectation that any infringement will be redressed are all essential elements of economic freedom. Beyond this requirement, however, any diminishment of the individual sphere and the corresponding expansion of the public sphere, however well intentioned or directed toward the resolution of real problems, cannot but skew economic freedom.

Any careful consideration of economic freedom is thus first and foremost a consideration of the relationship between the public and private spheres and, in general, the boundary between individual and political decisions. This would include any public interference, such as laws, regulations, fiscal and para-fiscal levies, and so forth. It is interesting to observe that both from the perspective of economic freedom and in economic analysis in general there is clearly an equivalence between fiscal systems and normative or regulatory systems: a law, an obligation or a prohibition for example, is almost never an insurmountable barrier as much as it is a means to raise the opportunity cost of a particular behavior. In practice, requiring that seat belts be buckled is equivalent to imposing a tax, equivalent to the amount of the fine, on those drivers that prefer to express their individual freedom. In this sense it is both proper and useful—that is, it produces additional information—to examine laws and taxes "crossways", as each has essentially the same sort of cause and effect influence on individual behavior (Posner 1971). It is possible that such forced changes on individual behavior have an ulterior justification—for example, a goal of equity of the distribution of resources (however that may be defined), or environmental protection—but from an economic point of view these without doubt result in reductions in liberty and, generally, in efficiency.

Measuring economic freedom is important for several reasons. Above all, a well constructed economic freedom index can give an estimate of the level of government interference with individual activity. Even for those who retain that government interference is necessary or even desirable, it is useful to know the areas in which it is maximal or minimal.

Furthermore, from the time economic freedom has been measured, significant evidence has been compiled regarding the beneficial effects of greater economic freedom. To cite just a few among the most important results, Cole (2003) found that the contribution of economic freedom to economic growth is both robust and significant in various growth models. Similarly, Doucouliagos and Ulubasoglu (2006) found that the positive correlation between economic freedom and growth holds steady

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even across different specifications of the model, in particular without significant variations due to the specific index utilized, the set of countries examined, or the average employment level. Similar results were shown by Barro (1991), Barro (1994) and others, while Carlsson and Lundström (2002), concentrating on one particular index of economic freedom, found that only a few sub-indicators are relevant to growth. Though this would seem to invite caution—in that the way in which economic freedom is defined is relevant [2]—economic freedom can lead to more vigorous growth in at least two ways. The first is direct, in that a freer country tends more easily toward an optimal allocation of resources; decisions incorporate the sum of knowledge spread through the various actors in the market, rather than being delegated to a "central brain" that is incapable of gathering all available information. The second is indirect, in that a country with greater economic freedom is also more attractive, and thus tends to enjoy higher levels of foreign investment. A wide body of literature has associated foreign investment with economic growth (Romer 1993), leading also to technological advancement (E. Fan 2002), as well as environmental sustainability (Bernstein et al. 2006). Furthermore, Abdiweli (1997) elucidated that economic freedom provides a more important contribution to growth than civil and political liberty (namely, the core issues of other studies, most prominently the annual report of Freedom House on freedoms in the world, which however does not takes into substantial account economic freedom).

Third, despite many misunderstandings in this area, freedom and economic growth have proved to be two powerful instruments to reducing inequality. Sala-i-Martin (2007) showed that not only has global wealth increased in the past three decades at an unprecedented pace, but also that inequalities between various states have been reduced, though areas of extreme poverty still exist.

Putting all the evidence together, one can infer that economic freedom is of prime importance among the institutional factors that encourage growth. It is thus reasonable to search for a working definition of economic freedom that allows one to measure progress (or regress) and to effect comparisons across time and countries.

2. Measuring Economic Freedom

As happens frequently, the concept of economic freedom is at once intuitively easy to describe and yet complex to synthesize in a quantitative indicator. This is partly due to the fact that some aspects of reality are difficult to capture objectively unless approached indirectly. It is also partly due to the fact that there is an implicit subjectivity in evaluating which elements to consider and which to ignore, and to what extent, though in general it is simple to choose the symbols with which to indicate these elements. Rabuska (1991a) summarized the philosophical aspects of economic freedom, pointing out that the most important authors that inspire the tradition of thought favorable to freedom—from John Locke to Milton Friedman—all concur on considering economic freedom as regarding the rights of the individual more than the prerogatives of groups, and which necessarily includes private property, freedom of contract, and the rule of law. De Vanssay and Spindel (1994) brought to the fore that the constitutional oversight of negative freedoms has a positive effect on growth, and vice-versa for positive freedoms; economic freedom should thus be seen above all as a negative freedom, that is, freedom from coercion, and, therefore, freedom from the State.

With these considerations in mind, Rabushka (1991b) proposed a series of variables that should be considered as part of a hypothetical index of economic freedom, among which are various indicators such as the rule of law and the effective protection of property and contracts, tax rates and types of taxes, public expenditure, the degree and scope of regulation, monetary stability, and the freedom of international exchange.

2 As we will see later, while the indices that yield a "narrow" interpretation of economic freedom tend to be strongly correlated, those that provide a broader interpretation—for example, including civil rights in some manner—can give markedly different results.

A few years later the leading attempts to measure economic freedom emerged: the Heritage Foundation/Wall Street Journal index (since 1995), and the Fraser Institute / Cato Institute index (since 1997, to which is adjoined an investigation on the evolution of economic freedom from 1975 to 1995). The two indices, which have undergone various methodological adjustments over the years, do not differ significantly either in the type of indicators used or in the methods of aggregation.

The Heritage Foundation / Wall Street Journal Index (henceforth: *Index of Economic Freedom*; see Miller and Holmes 2009) is composed of ten freedoms: Business Freedom; Trade Freedom; Fiscal Freedom; Government Size; Monetary Freedom; Investment Freedom; Financial Freedom; Property Rights; Freedom from Corruption; Labor Freedom. Each of these freedoms is measured by a series of quantitative sub-indicators available in international statistics. The Index of Economic Freedom is defined as the arithmetic mean of the ten indicators.

The report of the Fraser Institute / Cato Institute (henceforth: *Economic Freedom of the World*; see Gwartney and Lawson 2009) is composed of five areas: Size of Government: Expenditures, Taxes, and Enterprises; Legal Structure and Security of Property Rights; Access to Sound Money; Freedom to Trade Internationally; Regulation of Credit, Labor, and Business. As in the Index of Economic Freedom, the indicators are valued on the basis of available international statistics, and they are then averaged.

3. Regional Economic Freedom

A number of regional and national indices have been developed based on the two major indices; these adapt the same methodologies to a smaller scope of government. Zooming in more tightly can have both positive and negative effects from a theoretical and conceptual point of view. The greater homogeneousness of the sample yields more easily comparable results, given that it reduces the number of confusing factors that may not be evident from the pre-selected indicators. On the downside, some indicators may lose significance in that, for example, they may depend on choices calculated for a higher level of government. For example, when focusing on the economic freedom of a region within a particular state rather than on that of all states in the world, the series of indicators that reflect monetary policy and national laws flatten out. Presumably then the specification of the model becomes of greater importance.

Debroy and Bhandari (2005) calculated an index of economic freedom for the 26 states of India around three areas: Size of Government: Expenditures, Taxes and Enterprises; Legal Structure and Security of Property Rights; Regulation of Credit, Labor, and Business. Leonardi (2007) accomplished a similar project for the 24 Argentinian provinces around three different areas: Tamaño del Sector Pùblico (size of the public sector); Financiamento del Gasto Pùblico (finance of public expenditures, which includes both taxes and expenses); Mercado Laboral (labor market). G. Fan et al. (2001) evaluated the economic freedom of the 30 Chinese provinces around five areas: Government and Market; The Ownership Structure; Goods Market Development; Factors Market Development; The Legal Framework. In contrast with the majority of the other indices, the one on Chinese "marketization" is a relative index, that is, it is designed to compare the results of the provinces between themselves, rather than against a fixed benchmark. Guggiola (2000) carried out an analogous work for the member states of the European Union on the basis of six components: Size of Government; Structure of the Economy; Legal Framework; Structure of Taxation; Monetary Policy and Price Stability; Credit Market.

In contrast, a series of different indices diverge from the two major models. These are concerned with the attempt to measure the economic freedom of the several states that comprise the USA. Byers, McCormick and Yandle (1999) considered five sub-indicators: Fiscal; Regulatory; Judicial; Government Size; Welfare Spending. To determine the definition of the index, the authors developed a series of alternate indices, measuring the correlation of each against several target indicators, growth in particular, and selecting the strongest combination. With respect to other indices, this one

differentiates itself by the attention it gives to a series of regulatory and legal stability indicators. McQuillan et. al. (2008) further developed the Byars, McCormick and Yandle index, systematically organizing its structure and making it as dependent as possible on objective measurements so that it is free of qualitative valuations of a more or less subjective nature.

Ruger and Sorens (2009) diverge from all the previous indices in that, in addition to a series of economic variables, they include measurements of personal and civil liberties. In so doing they position themselves between the aforementioned indices and others, such as the Freedom House index, which tend to evaluate aspects of life that do not give attention to economic initiatives. Ruger and Sorens' index is divided into three areas: Fiscal Policy, Regulatory Policy, and Paternalism. The last category (which in the final index receives a weight of one-half, while the other two receive a weight of one-quarter) includes several sub-indicators that in different ways can be traced back to economic freedom in a strict sense, for example, laws on gambling, but, broadly speaking, it incorporates aspects outside the scope of economic freedom.

Finally, the Centro Studi Sintesi (Sintesi 2009) has developed an index of economic freedom for the Italian regions and provinces. This index incorporates a series of indicators that by their very nature diverge from the approach adopted here, in that it focuses on aspects that are somewhat peripheral; in fact, several variables are considered that are relative to market outcomes. The index considers six areas: Economy, Labor, Social Context, Finance, Fiscal, and Public Finance. As a matter of fact, nearly all the components of the first four areas are immaterial to the idea of economic freedom as a context, making reference instead to principles of "equity" or of creation and distribution of wealth; these may or may not coincide with economic freedom in most current definitions, which are the ones presented here.[3]

4. Enterprise Freedom in Europe

In order to study economic freedom in Europe, we have developed an "*Index of Enterprise Freedom* in Europe". Limiting the scope of the analysis to a restricted number of states that are relatively homogenous, as mentioned in the preceding section, has both pros and cons. Among the pros, the index certainly yields more directly comparable results that reflect fewer variations due to differences external to the variables utilized in the construction of the index. Among the cons, an index of this type a priori does not vary as much, hence it is less meaningful. Precisely for the purpose of obtaining a sufficiently diversified index, a relatively high number of variables (55) are included that are as dissimilar as possible (i.e., they have relatively low correlation rates among themselves).

All of the variables have been rescaled along a scale of zero to one, which is easily interpreted as a percentage, so as to render them homogeneous. All the variables were transformed by the following formula:

$$I_i = \frac{V_{max} - V_i}{V_{max} - V_{min}}$$

Where I_i represents the indicator I for the i-th state; V_i the value of the interest variable for that state; V_{min} and V_{max} respectively the minimum and maximum of a given variable, for all of the states tabulated in a reference year. In this way it was possible to track the values realistically attainable from the individual variables of interest. This formula was applied to all of the indicators (most of them, in fact) for which a higher value corresponded with a reduced freedom (e.g., fiscal pressure or public expense). In the cases in which the contrary was true (i.e. the indicators on the performance and the efficiency of public administration) the one's complement was utilized, that is:

3 Though limited to regulatory aspects, see Stagnaro (2009) for a definition of "liberalization" that is compatible with the idea of economic freedom employed here, and for a more in-depth treatment of its characteristics and its reasoning.

$$I_i = \frac{V_i - V_{min}}{V_{max} - V_{min}}$$

In this manner, each preselected indicator was linearly transformed on a scale of zero to one (obviously interpretable as a percentage), such that values nearer to one (i.e., 100 percent) indicate greater freedom, and values tending toward zero indicate reduced freedom.

Following the rationale that underlies our *Index of Liberalizations* (IBL 2009), we rejected the idea of assuming absolute benchmarks, preferring instead relative references. By virtue of this system, for each indicator the most free state obtains a score of one hundred, while the least free state obtains a score of zero.

The most recently available date among those available was taken as the reference year for each variable.

Each indicator was given a different weight to reflect its greater or lesser importance, even though the macro areas were considered as equally important. In any case, the high number of components that comprise the Index and the small weight of each indicator make it such that as a whole no one of them is capable of significantly altering the result.

The Index is divided into five macro areas: Freedom from Taxes; Freedom from the State; Freedom of Labor; Freedom of Enterprise; Freedom from Regulation. Each area has a weight of one-fifth in the total value of the Index, though each area has a different number of components, each with a different weight. The construction of each area is described in Appendix A. Figure 1 summarizes the component indicators and their relative weights. The research covers 25 European countries (all the members of the European Union except Cyprus and Malta).

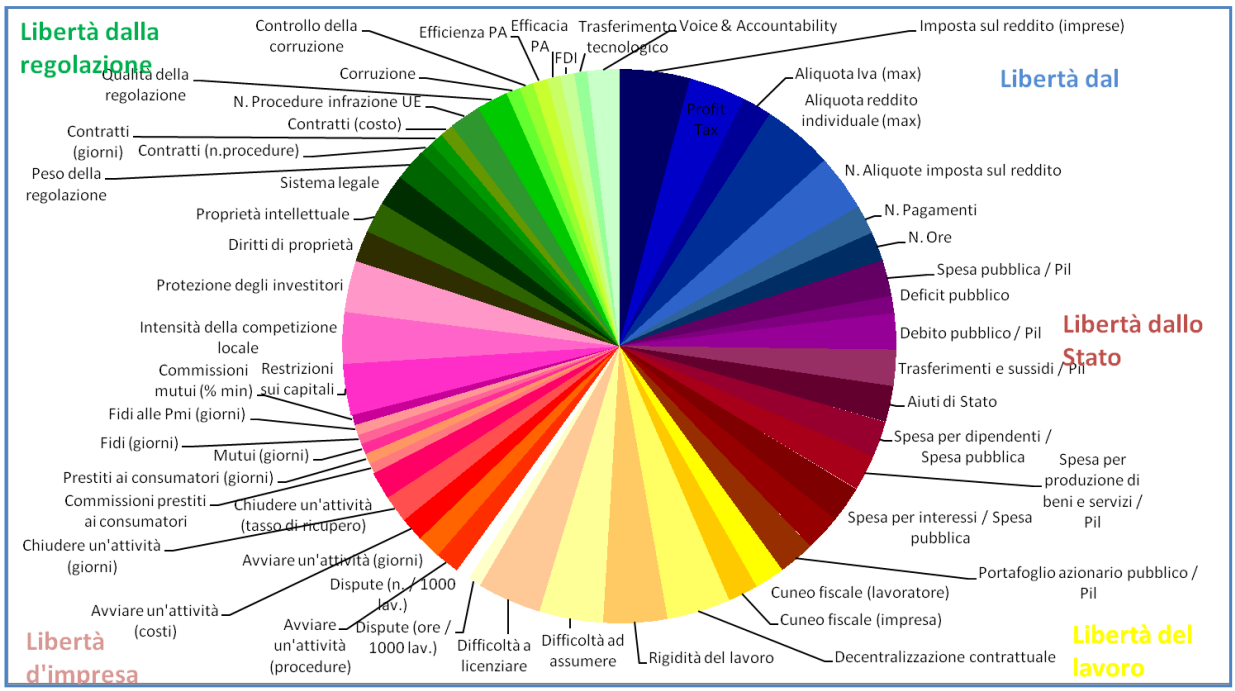

Figure 1. Composition of the Index of Enterprise Freedom and weights of the individual indicators.

5. The Data

Most of the data was taken from four sources: Eurostat, the World Development Indicators (WDI), the World Governance Indicators (WGI), and the Doing Business survey (the last three are projects of the World Bank). The value of the public participation portfolios is taken from Fondazione Eni Enrico

Mattei. The intensity of local competition, the index of investment protection, and the data on direct foreign investments and technology transfer source from the Global Competitiveness Report of the World Economic Forum. The indices on effectiveness and efficiency of the public sector are derived from Afonso, Schuknecht and Tanzi (2005), as well as from the WGI. The estimates on corruption source from the annual report of Transparency International and from the WGI. Some data on fiscal and contributive ratings are taken from the Worldwide Tax Summaries (WTS) of PricewaterhouseCoopers (2010).

6. Europe 2010

In 2010, according to our *Index*, enterprise freedom in Europe is valued on average at 57 percent. Obviously, the average must be interpreted for what it is; it cannot yield indications other than to point out where the "center of gravity" of economic freedom on the continent is situated. All of the indicators are relative; it cannot be viewed as an absolute datum, but rather as a benchmark with respect to the individual states. The most free state is Ireland (at 74 percent), while the least free state is Italy (at 35 percent). The standard deviation of 9, or about one-sixth of the average, indicates a rather narrow distribution, with a marked number of states clustered around the average. Table 1 reports the total value of the *Index of Enterprise Freedom* and the associated values of the macro areas for each country. Figure 2 gives the division by tenths. Figure 3 summarizes the results obtained.

	Total	Freedom from Taxation	Freedom from the State	Freedom of Labor	Freedom of Enterprise	Freedom from Regulation
Ireland	74	67	69	74	83	76
Denmark	70	36	64	86	83	81
UK	68	50	63	80	81	66
Estonia	68	74	76	57	70	61
Slovakia	63	75	69	65	60	46
Latvia	63	80	69	63	52	50
Belgium	62	42	61	62	82	65
Netherlands	62	41	60	62	75	73
Lithuania	62	76	74	66	53	41
Luxembourg	60	54	73	36	51	85
Finland	60	48	47	44	80	79
Czech Republic	60	73	61	68	53	43
Austria	59	44	50	58	68	75
Sweden	59	41	43	57	81	74
Bulgaria	58	85	62	74	38	29
Germany	57	50	58	40	73	64
Poland	54	55	61	73	45	37
Hungary	52	66	34	67	48	47
Romania	51	73	63	36	47	34
Spain	50	40	73	32	58	45

Slovenia	48	54	57	32	52	47
France	48	48	37	33	60	60
Portugal	45	41	32	40	65	47
Greece	38	50	37	38	36	28
Italy	35	31	42	48	37	18
EU	57	56	57	56	61	55

Table 1. Index of Enterprise Freedom in Europe and its components

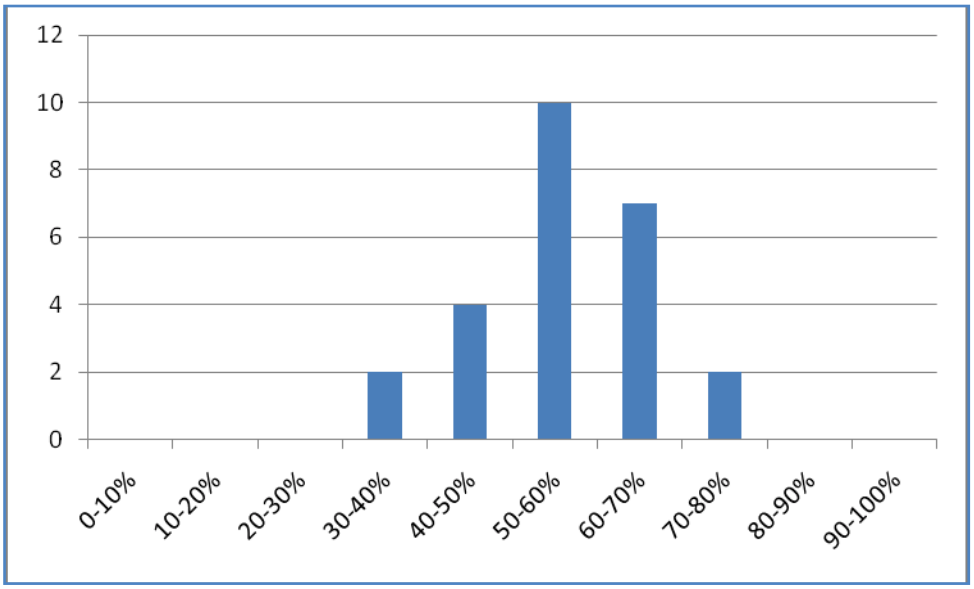

Figure 2. Division of economic freedom by tenths for the member states of the EU.

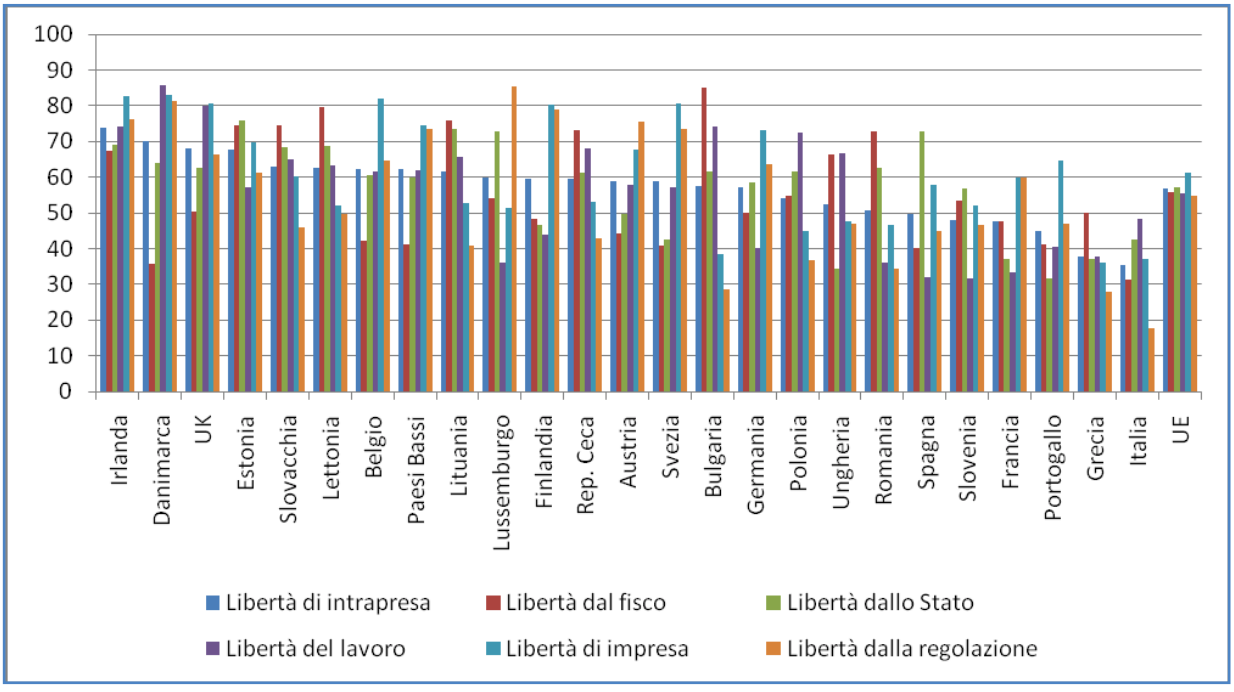

Figure 3. Index of Enterprise Freedom and Macro Area Values.

Several interesting considerations can be deduced from our classification that corroborate what other international statistics show, or at least serve as a further confirmation for opinions or impressions. Above all, no one of our macro areas particularly stands apart from the others. Within the EU, with an index of 57 percent, the macro area with the highest score is the Freedom of Enterprise (at 61 percent), and the lowest is Freedom from Regulation (at 55 percent). The first figure principally reflects the extremely business friendly systems of several northern European countries: six countries actually scored above 80 percent (Denmark, Ireland, Belgium, Sweden, UK, and Finland). Vice-versa, in Freedom from Regulation there is a concentration around the averages, which probably indicates a greater dependency on EU policies; Italy, moreover, ranks last (at 18 percent, the only case of all the macro areas with a value less than 20 percent), at a substantial distance from the next to last (Greece, at 28 percent). The fact that the macro areas on the whole give results similar to that of Europe suggests that the construction of the indicators is quite well balanced.

Conversely, the degree of correlation between the individual macro areas (Table 2) is quite low, indicating that our index conceals underlying realities that are very different: a country can be very open according to one indicator and only slightly open according to another. This in fact tells us that we "measured" different things in the various macro areas. Significantly, and reasonably, the only two macro indicators with a very high correlation coefficient (the Freedom of Enterprise and the Freedom from Regulation, at 0.83) regard complementary aspects of one single feature of the Freedom of Enterprise, that is, the freedom to lead a company according to its inherent obligations and freedoms (i.e., Freedom of Enterprise) rather than in relation to the public administration and to the State (Freedom from Regulation). This suggests that the countries with an anti-business climate tend to be heavily and inefficiently regulated, and vice-versa. In some cases the correlation is actually negative, for example, between Freedom from Taxation and Freedom from Regulation. This phenomenon can be interpreted by the supposition that countries tend to be interventionist, but they do so in different ways: those that lean heavily on taxation tend toward less intrusive regulation (as in the Nordic countries) and vice-versa (as in some Eastern European countries).

	Freedom from Taxation	Freedom from the State	Freedom of Labor	Freedom of Enterprise	Freedom from Regulation
Freedom from Taxation	1	0.44	0.28	-0.35	-0.30
Freedom from Government		1	0.29	0.13	0.17
Freedom of Labor			1	0.27	0.14
Freedom of Enterprise				1	0.83
Freedom from Regulation					1

Table 2. Correlation coefficients between the macro areas of the Index of Freedom of Enterprise.

The *Index of Enterprise Freedom* is obviously highly correlated with other indices of economic freedom (such as the Heritage/*Wall Street Journal* and the Fraser/Cato)—which measure the same "thing", though defined differently—as well as with the "Doing Business" classification of the World Bank, from which several indicators were taken for the calculation of our index. Furthermore, there are positive and meaningful correlations with a series of variables of interest, such as the per capita Gross Domestic Product (Figure 4), the UN's Human Development Index (Figure 5), and the World Economic Forum's Competitiveness Index (Figure 6).

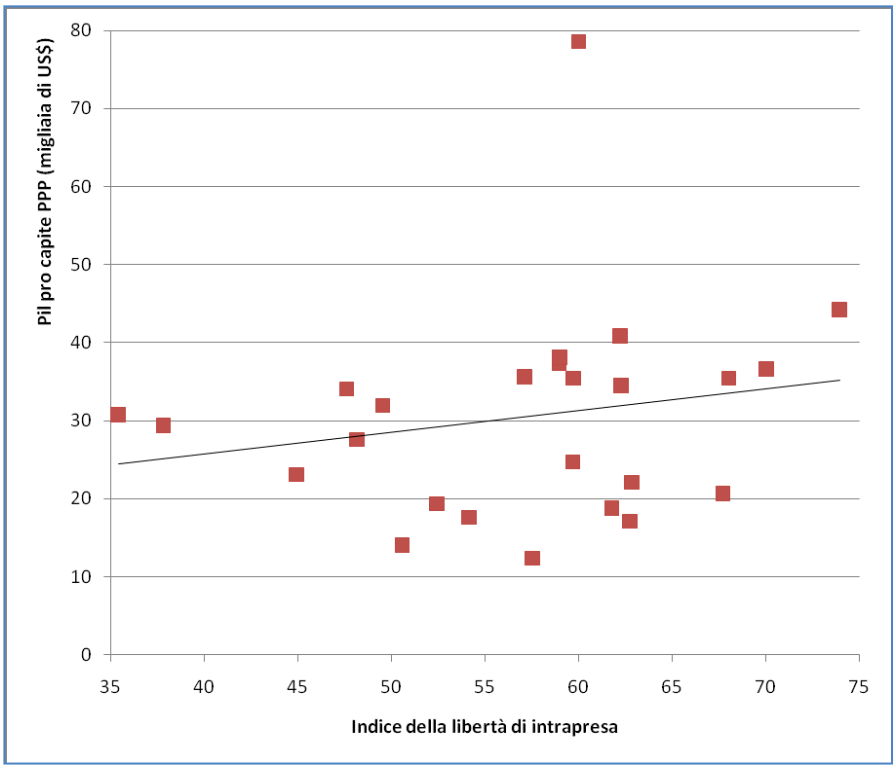

Figure 4. The Index of Enterprise Freedom and per capita GDP PPP (2009). Source: processed data taken from the Istituto Bruno Leoni and the World Bank.

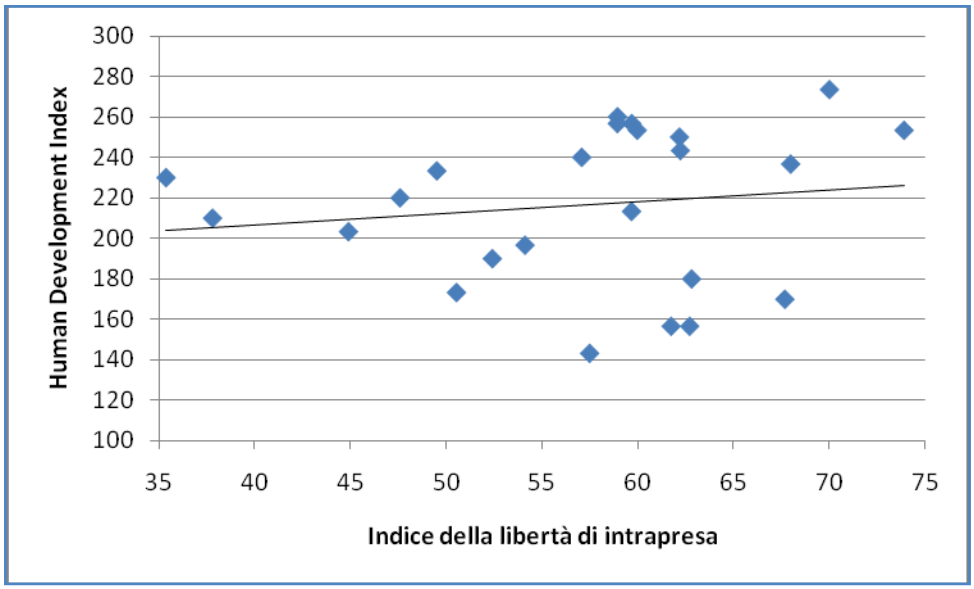

Figure 5. The Index of Enterprise Freedom and the Human Development Index Source: processed data taken from the Istituto Bruno Leoni and the United Nations.

Naturally these correlations—and any others which may emerge—should not be understood as proving any particular point. Not only is it always good to remember that correlation is not causation (and that, even if it were, it would be necessary to clarify where the causal nexus actually lies), but also that above all the sample available to us is too narrow to enable any meaningful inference of a generally applicable result. That said, the fact that these correlations are significant and that the indications are as expected—that is, that greater freedom corresponds to more desirable values in the observed variables—is encouraging, confirming the theoretical approach we adopted.

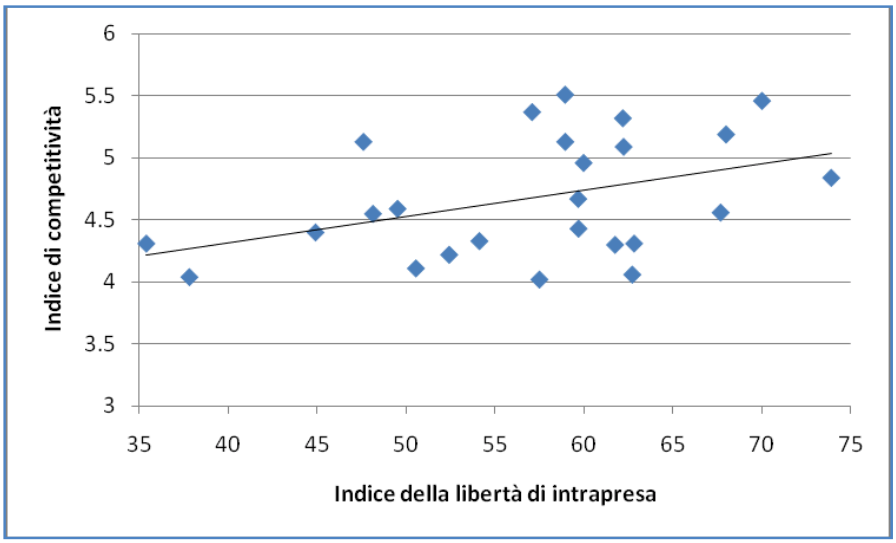

Figure 6. The Index of Enterprise Freedom in Europe and the Index of Competitiveness. Source: processed data from from the Istituto Bruno Leoni and the World Economic Forum.

7. Italy: the Sick Man of Europe?

Italy is the least free country in Europe in our *Index of Enterprise Freedom*. Italy's 35 percent is not due to poor performance in just a few areas: the country ranks among the lowest in each of the individuated macro areas. In particular, the 35 percent result in the *Index of Enterprise Freedom* reflects the average among the various figures of 31 percent Freedom from Taxation, 42 percent Freedom from the State, 48 percent Freedom of Labor, 37 percent Freedom of Enterprise, and 18 percent Freedom from Regulation.

Considering the importance of the macro areas, in Freedom from Taxation Italy is last. In Freedom from the State four countries ranked worse than Italy: France, Greece, Hungary and Portugal. In Freedom of Enterprise, Italy is next to last, above Greece. In Freedom from Regulation, last. The sole relatively successful Italian area is Freedom of Labor, where it ranked in 16th place, ahead of eight other countries and very near the average value for the entire EU (54 percent).

The following figure gives the Italian and the average European data for each macro area.

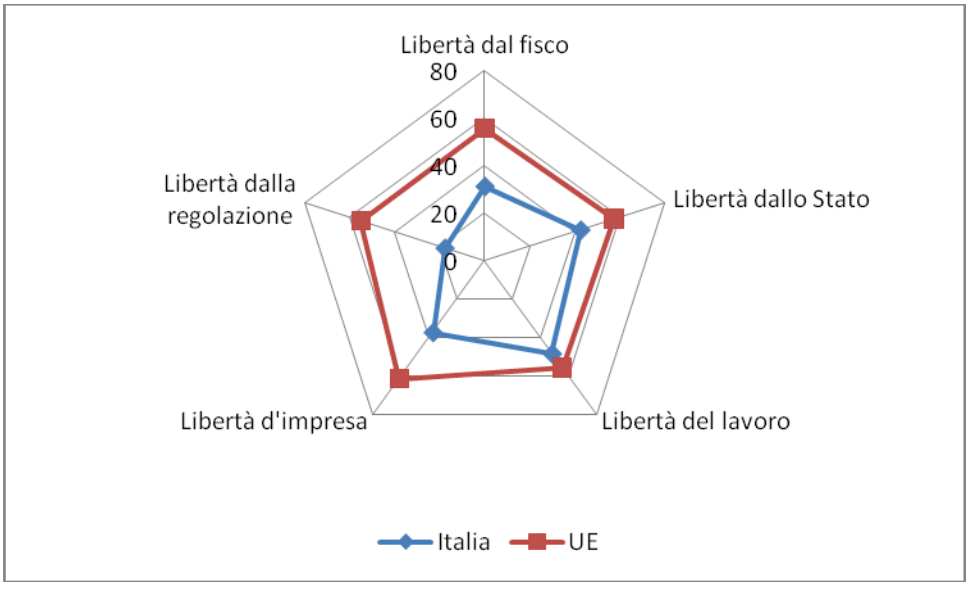

Figure 7. Macro Areas of the Index of Enterprise Freedom: Italy vs. the European Union

In reality, these results only confirm the evidence gathered from a series of other indices. Regarding the two major indices of economic freedom, Italy is evaluated at 62.7 percent (equivalent to seventy-fourth place) by the Heritage Foundation/Wall Street Journal (2010 edition), while it received a score of 6.8 (sixty-eighth place) from the Fraser Institute/Cato Institute (2009 edition). In the World Bank's "Doing Business" survey, Italy ranked seventy-eighth (2010 edition).

The most critical aspect in Italy concerns freedom from regulation, that is, the macro area that summarizes indicators on the quality of laws and regulations and on the efficiency and performance of the public sector. The result of 18 percent is strikingly consistent with the value found for public administration in the Index of Liberalizations of the Istituto Bruno Leoni (Arrigo 2009): that result of 40 percent (with respect to the United Kingdom as a benchmark) is based on a series of indicators relative not only to the services provided by the public administration, but also on its internal organization and cost structure. In any case, the outcome is the same: Italy is next to last in the rankings, surpassed only by Greece.

The fact that Italy performs badly in just about everything – with the partial exception of freedom of labor – indicates the existence of a peculiar structural problem in Italy; this partially explains the growth gap that divides it not only from the more dynamic areas of Europe, but from the average of the EU community as well. From 2000 to 2009 the Italian growth rate was systematically inferior to the average of the EU27 by about 1 percent: the average growth rate of 1.6 percent in Europe corresponds to 0.6 percent in Italy. This means that, figuring a GDP of 100 at the beginning of 2000, Italy finished 2009 at 106, the same level as 2003, while Europe finished at 117, as in 2006. Italy did not outperform Europe in any year.

It would be naïve to attribute the growth deficit solely to the institutional aspect emphasized by the "snapshot" of our *Index of Enterprise Freedom* (and other analogous indices). But it would also be naïve to ignore the parallel indications sourcing from different studies, whether those that concentrate on a "contextual" approach (such as the various indices of economic freedom) or those that are "results-oriented" (the international classifications of competitiveness, public administration, and so forth).

8. Conclusion

The *Index of Enterprise Freedom* follows in the steps of other attempts to measure economic freedom. Just as they do, the objective is to identify, from the data available from international sources, a key by which one can "institutionally" read and interpret the reality of a country. To some extent this inevitably entails a degree of arbitrariness, in that the selection of the indicators and their relative weights is left to the imagination and the sensitivities of the authors, however much these choices might be justifiable from available evidence in the literature.

The Index we developed is articulated in five macro areas for the purpose of measuring five different aspects of economic freedom: Freedom from Taxation, Freedom from the State, Freedom of Labor, Freedom of Enterprise and Freedom from Regulation. On the basis of readily available international statistics, an indicator was constructed for each area, on a scale of zero to one hundred, in which zero corresponds to no freedom and one hundred corresponds to complete freedom. The variables and their weights are graphically displayed in Figure 1. Finally, the *Index of Enterprise Freedom* was defined by averaging the five macro areas; it is scaled from zero to one hundred.

The results are not particularly encouraging. Even in an index constructed of relative references, that is, without a system of absolute coordinates, when the indicators representing best practices are finally aggregated the average level of freedom is 57 percent. The good news is that most of the countries (16 out of 25 surveyed) are located above the European average. The bad news is that the distance between the average and the other nine states is quite high, roughly equal to 10 percenta-

ge points. Worse news yet is that Italy finished lowest with a score of 35 percent—the result of poor performance in every macro area, with the exception of Freedom of Labor.

The *Index of Enterprise Freedom* is constructed on the basis of objective data, but it rests on a clear theoretical basis: a free society is capable of creating greater wealth and of allocating it most efficiently. It is from this perspective that values were assigned to, and interpretations drawn from, data that in and of themselves are neutral. From this perspective a low tax burden is considered more desirable than a high one, and a profligate State less desirable than a State with its public accounts in order. The usefulness of this sort of approach is confirmed, beyond the literature on the topic, by the significant and positive correlations that have been found, for example, with per capita GDP, the *Human Development Index*, or the *Competitiveness Index*.

In the abstract, economic freedom may be either attractive or unattractive, or seem more or less important. But if we ask ourselves the reasons for the gap between Italy and the other European countries—in growth, competitiveness, and well-being—then we cannot ignore what these rankings tell us. The contribution of this study is to confirm what the country already should have known, but that, until now, has pretended not to know.

Appendix A. The components of the Index of Enterprise Freedom in Europe.

The *Index of Enterprise Freedom* is composed of five macro areas, each of which has a weight of one-fifth of the total index. This appendix reconstructs and explains all the variables that were employed to construct the macro areas, and the weight of each is given. All of the variables were calculated according to the formulas recounted in section 4, as follows:

$$I_i = \frac{V_{max} - V_i}{V_{max} - V_{min}}$$

$$I_i = \frac{V_i - V_{min}}{V_{max} - V_{min}} = 1 - Ii$$

These were applied in such a way that a greater degree of freedom would correspond respectively to a higher or lower value of the variable in question. In instances in which the variables of interest were not available, they were removed and the weights were recalculated. All of the variables are taken from the most recent year for which they were available, which was 2008 in most cases.

A.1. Freedom from Taxation

Freedom from Taxation is intended to measure essentially two phenomena: how much the tax rate affects the development of economic activity, and in what manner. In the abstract, lower marginal tax rates equate to greater freedom, and greater simplicity is equivalent to greater freedom. Table 3 gives all the indicators utilized, their weight, their source, and a brief explanation.

A.2. Freedom from the State

Freedom from the State summarizes several public finance indicators regarding the way in which public expense is structured; the purpose is to estimate the rate of "direct interventionism" of public administrations in the economy by means of the stock capitalization of publicly traded companies held by public entities. Table 4 gives all the indicators utilized, their weight, their source, and a brief explanation.

Variable	Weight	Explanation	Source
Tax on income (corporate)	20.66	Highest marginal tax rate on corporate income	WTS
Profit Tax	16.66	Average tax on commercial profits for corporations.	Doing Business
IVA	8.5	Highest marginal value-added tax rate	WTS
Tax on income (individuals)	20.66	Highest marginal tax rate on personal income	WTS
Number of tax brackets	16.5	Number of tax brackets on personal income	WTS
Payments (number)	8.5	Number of payments that corporations must pay into the public treasury	Doing Business
Payments (hours)	8.5	Time employed by corporations to pay taxes	Doing Business

Table 3. Components of Freedom from Taxation.

Variable	Weight	Explanation	Source
Public expense	10.55	Relationship between public expense and GDP	Eurostat
Public deficit	5	Relationship between public deficit and GDP	Eurostat
Public debt	10.55	Relationship between public debt and GDP	Eurostat
Transfers and subsidies	10.55	Subsidies and other transfers to corporations, NGOs and international organizations or other governments in relation to public expense	WDI
State aid	10.55		
Expenses for dependents.	10.55	Quota of public expense used for payments to dependents	WDI
Expenses for goods and services	10.55	Expense for the production of goods and services by public administrations in relation to GDP	WDI
Interest expense	10.55	Quota of public expense for the payment of interest on the debt	Eurostat
Social contributions	10.55	Social contributions in relation to tax revenue	WDI
Public portfolio	10.55	Value of the blocks of stocks of publicly traded companies among the holdings of public entities	FEEM

Table 4. Components of Freedom from the State.

A.3. Freedom of Labor

Freedom of Labor evaluates how intrusive the labor laws are and in what manner. Table 5 gives all the indicators utilized, their weight, their source, and a brief explanation.

Variable	Weight	Explanation	Source
Tax proportion (employee)	8.8	Social contributions borne by the worker with respect to labor cost	WTS
Tax proportion (corporate)	8.8	Social contributions borne by the company with respect to labor cost	WTS
Contractual decentralization	18.6	Degree of decentralization in contract negotiations	GCR
Rigidity of labor	18.6	Index of rigidity in the employment of human resources	GCR
Difficulty of hiring	18.6	Difficulty in beginning a work relationship	Doing Business
Difficulty in firing	18.6	Difficulty in terminating a labor relationship	Doing Business
Disputes (hours)	4.0	Labor disputes (hours per 1000 workers)	Eurostat
Disputes (number)	4.0	Labor disputes (number per 1000 workers)	Eurostat

Table 5. Components of Freedom of Labor.

A.4. Freedom of Enterprise

Freedom of Enterprise focuses on the degree of autonomy with which it is possible to conduct a business. Table 6 gives all the indicators utilized, their weight, their source, and a brief explanation.

Variable	Weight	Explanation	Source
Starting a business venture (procedures)	7.0	Number of procedures necessary to start a business venture	Doing Business
Starting a business venture (days)	7.0	Number of days necessary to start a business venture.	Doing Business
Starting a business venture (costs)	7.0	Costs to start a business venture (with respect to per capita income)	Doing Business
Closing down a business venture (days)	8.0	Number of days necessary to close down a business venture.	Doing Business
Closing down a business venture (recovery)	8.0	Rate of recovery in closing down a business venture (cents on the dollar)	Doing Business
Personal loans (costs)	3.0	Commissions on loans to individuals (% of the minimum loan)	World Bank
Personal loans (days)	3.0	Days to approve loans to individuals	World Bank
Mortgages	3.0	Days to approve a mortgage	World Bank
Loans to businesses (days)	3.0	Days to approve a loan to a business	World Bank
Loans to SMBs (days)	3.0	Days to approve a loan to a small or medium business	World Bank
Mortgages to SMBs (days)	3.0	Days to approve a mortgage to a small or medium business	World Bank
Restrictions on capital	15.0	Index of the degree of freedom in capital movements	GCR
Intensity of local competition	15.0	Degree of competitiveness of local markets	GCR
Investor protections	15.0	Degree of protection of investors	GCR

Table 6. Components of Freedom of Enterprise.

A.5. Freedom from Regulation

Freedom from Regulation measures the degree of intrusiveness of laws and regulations; it is based on a series of indicators of the reliability of the regulatory process, the pervasiveness of corruption, and the quality of public administration. Table 7 gives all the indicators utilized, their weight, their source, and a brief explanation.

Variable	Weight	Explanation	Source
Property rights	9.1	Degree of protection of property rights	GCR
Intellectual property	9.1	Degree of protection of intellectual property rights	GCR
Legal system	9.1	Credibility of the legal system	GCR
Regulatory burden	9.1	Pervasiveness of regulation	GCR
Contracts (procedures)	4.0	Number of procedures to obtain enforceability of a contract	Doing Business
Contracts (days)	4.0	Days necessary to obtain the enforceability of a contract	Doing Business
Contracts (cost)	4.0	Cost to obtain the enforceability of a contract (with respect to the value of the contract)	Doing Business
Breach of contract procedures	9.1	Breach of contract procedures opened by the European Commission as of December 21, 2008	European Commission
Quality of regulation	9.1	Perceived quality of regulation	WGI
Corruption	4.05	Perception of corruption	Transparency International
Checks on corruption	4.05	Credibility of the fight against corruption	WGI
Efficiency of the public administration	4.05	Efficiency of the public administration	Afonso, Schuknecht e Tanzi (2005)
Efficiency of the public administration	4.05	Ability of the public administration to reach its goals	WGI
FDI	4.05	Direct foreign investments in relation to GDP	WDI
Technology transfer	4.05	Effects of direct foreign investments on technology transfer	GCR
Voice & Accountability	9.1	Guarantee of the basic rights of freedom of speech, of association, and of participation in public life	WGI

Table 7. Components of Freedom from Regulation.

Appendix B. Testing

The construction of any index entails a significant measure of arbitrariness. To some extent this is inevitable. First, an index such as the one developed here is clearly the product of a specific "ideological" vision. On the one hand our approach tends to value the market in terms of intervention by the state; on the other it assumes that market results can be explained by institutional choices, not vice-versa, and thus that these results can be seen as useful proxies to understand the effects of institutional structures (in the sense introduced by Williamson 1975). Second, some degree of subjectivity is inevitable, however much one might try to abstract one's judgment and rely on well founded evaluations supported by evidence in the literature. There are four potential sources of error or bias:

1) the selection of the variables
2) the treatment of missing values
3) the assigned weights
4) and the variable conversion formula

To evaluate the reliability of our work, we devised several tests. These tests apply to the second, third and fourth situations. We did not dwell at length on the first for essentially two reasons: (1) in selecting the variables we substantially followed the selections already made by other research groups, though with a few significant differences that led to slightly different results; in particular this is noted in those that elaborate the Index of Economic Freedom and the World Economic Freedom report; (2) some variables included in an earlier version either did not have a sufficient degree of coverage across the countries sampled, or they did not vary much from others considered, or there was the impression of too much overlap with other variables on the "object" that we intended to introduce in our evaluation. Finally, some did not seem to us to sufficiently clearly interpret our purposes.

Regarding missing values, as previously mentioned the decision was made to recalibrate the weights so as to not count them in the cases in which a variable was not available for a given country. Naturally, such a choice can have a distorting effect; for example, by the choice we made, for a country for which no data is available for the variables in which its performance is worse (or better), the *Index of Enterprise Freedom* is clearly overstated (or understated). Where a variable is missing, a possible alternative would be to substitute the average value of all the other states; this mitigates, but does not resolve, this type of distortion. In the final analysis though, this reduces to a difference in how the weights are employed. We thus decided to address this problem in conjunction with the subsequent one regarding the assignment of weights.

To this end we randomly produced 500 variants in the weights, which we then applied to the original database in such a way that, for the missing values, we substituted the average values of those that were available. This made it possible to calculate 500 new values for the *Index of Enterprise Freedom*, all other elements remaining equal. Furthermore, assuming that errors were equally distributed, by this method it was possible to define two bands of confidence. To accomplish this, starting from the average value of the 500 new indices, the lowest and the highest extremes of the bands of confidence were calculated by measuring a distance, both upward and downward, equal to double the standard deviation of the 500 indices. This guaranteed a 95 percent probability of locating the "true" value within the interval, which left a 5 percent probability that the "true" value of the index was "lost". Figure 9 compares the original calculated value of the *Index of Enterprise Freedom* for each country with the two extremes calculated as above. Incidentally, Italy was last in 498 of the 500 simulations.

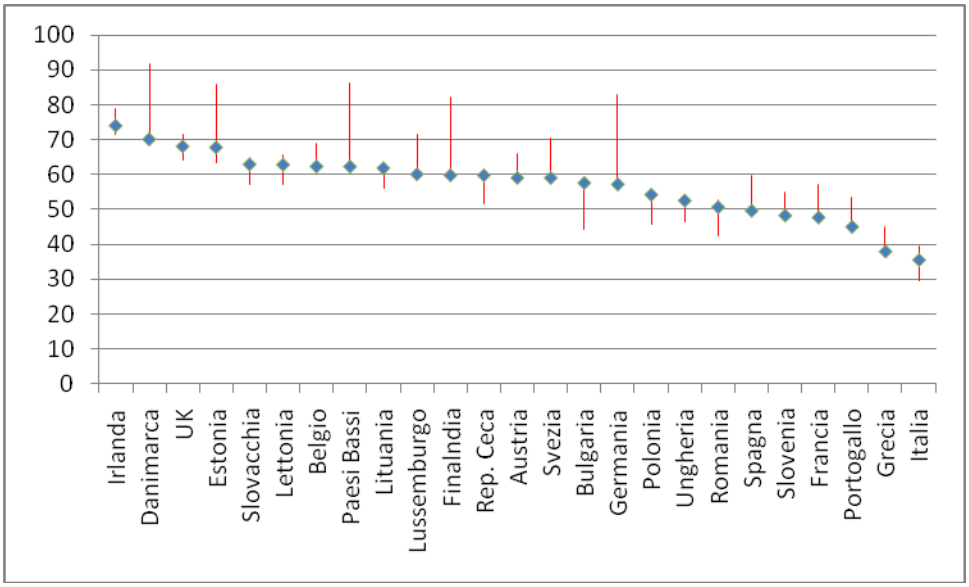

Figure 8. Values of the Index of Enterprise Freedom (blue lozenges) and bands of confidence (red axes).

As is evident, our Index tends to be located near the lower extreme of the bands of confidence, but in most cases falls inside them. In ten cases that did not occur: Bulgaria and Poland were overrated, while the Netherlands, Luxembourg, Finland, Sweden, Spain, France and Portugal were underrated. However, the result is acceptable because the order of the various countries is not significantly altered, even when run through a similar operation. It is no surprise that the coefficient of correlation between the calculated average values and those randomly generated is quite high, at 0.87. The coefficient of correlation is quite high, at 0.80, between the series constituted by the ranking of the 25 European countries in the two classifications.

To verify that the conversion formula of the data in the Index was not itself a source of distortion, we substituted each formula with an equally simple one. Each datum was related to the maximum value encountered in the series, using the value obtained for the indicator if it was a variable for which higher values equated to greater freedom, and its one's complement otherwise. In this case the values of the Index came out nearly identical, with a coefficient of correlation of 0.99. The same coefficient of correlation was obtained by a more complex transformation: the series of values was first normalized (that is, the difference between each element and the average was related to the standard deviation), and the results obtained were then interpreted by the corresponding value of a normal distribution with mean zero and variance unity. As can be easily observed, the scores changed, but the order remained identical. Figure 9 compares the results.

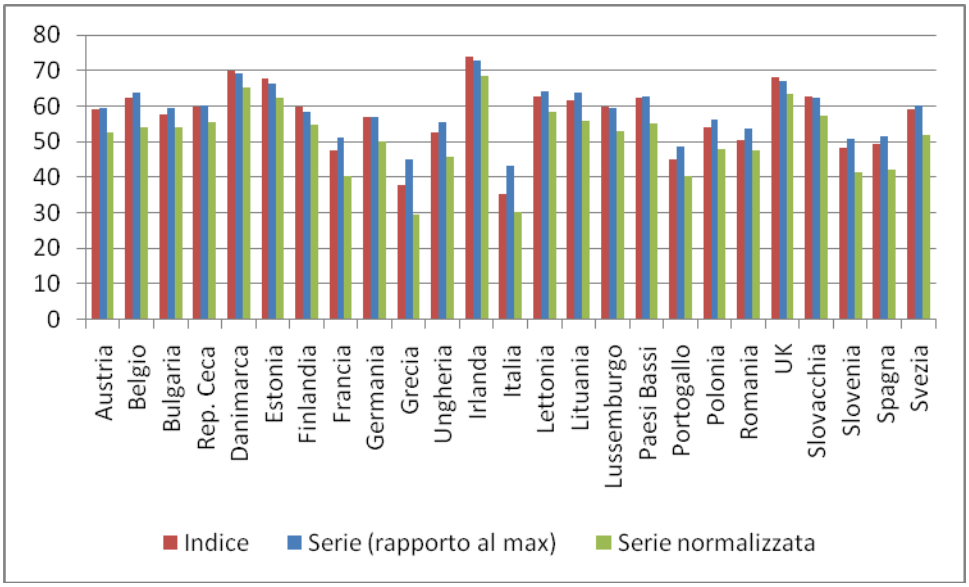

Figure 9. Index of Enterprise Freedom calculated with two different conversion formulas.

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