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DOES INDEPENDENCE AFFECT REGULATORY PERFORMANCE?
THE CASE OF NATIONAL COMPETITION AUTHORITIES
IN THE EUROPEAN UNION

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Abstract

Despite having always been assumed to be true, a relationship between the independence of regulatory agencies and their performance has never been formally tested. This paper aims at verifying whether formal regulatory independence affects the performance of national competition authorities in the EU member states. The author presents and discusses a statistical analysis which shows that greater formal independence leads competition authorities to investigate more cases and to issue more decisions.

Keywords

Agencies, Competition, Independence, Performance

1. Introduction

It is often claimed (see for instance OECD, 2002: 95) that independence *per se* would make Independent Regulatory Agencies (IRAs) more efficient and effective: an autonomous body would pursue its goals without «playing a waiting game» to favour some firms and without being influenced by the preferences of the politics. However, none has offered concrete facts or examples which support this claim, either in the academic literature or in more policy-oriented works. The point is quite crucial: independence of regulatory agencies is often promoted by supranational organisations, scholars, government officials. Yet, are we sure that it really improves the agencies' performance and, ultimately, the general welfare? And if this were not the case, would independence still be worth recommending?

In the last 20 years, much interest has been devoted in political science to the study of IRAs. In Europe, IRAs have developed in what is commonly regarded as the de-regulation and privatisation era. As Levi-Faur (2005: 18) has shown, when states have abandoned direct control over important economic sectors such as energy and telecommunications, independent regulators have been almost simultaneously created. This process has been identified as the «rise of the regulatory state» (Majone 1994) or as the emergence of a «post-regulatory» state (Scott 2004): market liberalisation has been accompanied by a proliferation of rules and agencies in charge of enforcing them (Vogel 1996). The distinctive feature of these bodies is their *independence*, namely the fact that they enjoy a greater degree of autonomy than normal administrative offices. Many theories have been devised which account for this particular characteristic: need for expertise (Bawn 1995; Bendor et al. 2001), need for credibility (Majone 1996, 1997), uncertainty (McCubbins and Schwartz 1984; McCubbins et al. 1987; Moe 1990), blame-shifting (Fiorina 1982; Schoenbrod 1993). Several scholars have attempted to explain why independence varies among IRAs. The most important contribution has been made by Gilardi (2002; 2005), who has tested some of the above mentioned theories on a data set containing IRAs of different sectors in Western European countries. Another similar analysis has been carried out by Elgie and MacMenamin (2005), who have tested similar hypotheses on a population including all the independent agencies in France. A more recent article (Wonka and Rittberger 2010) has presented a similar analysis on 29 EU agencies.

This paper focuses on national competition agencies (NCAs) in the European Union (EU) member states. Competition agencies (or «authorities») are public bodies that apply and enforce competition law; in doing so, they usually enjoy a certain degree of independence from the parliament and the government. With regard to NCAs, the EU is a particularly interesting case to study, because all the 27 member states enforce on their territory the same competition law, according to European Council Regulation 1/2003.¹ However, whilst we have a very homogeneous policy that NCAs are called to enforce, the institutions at the national level are very heterogeneous: in terms of formal independence, there is huge variation among the national competition agencies (see Figure 1).² It seems evident that independence is not conferred on NCAs because of the tasks that they have to enforce; otherwise, there should be little variation as regards their autonomy from the political bodies.

According to Guidi (2012), in polities characterised by high political uncertainty, big firms manage to obtain from the government more favourable regulatory conditions, i.e. a less independent competition authority. At the same time, also the length of EU membership positively affects agency independence, meaning that countries which have been members of the EU for a longer time tend to give more independence to their NCA. Also the presence of credibility problems, such as political

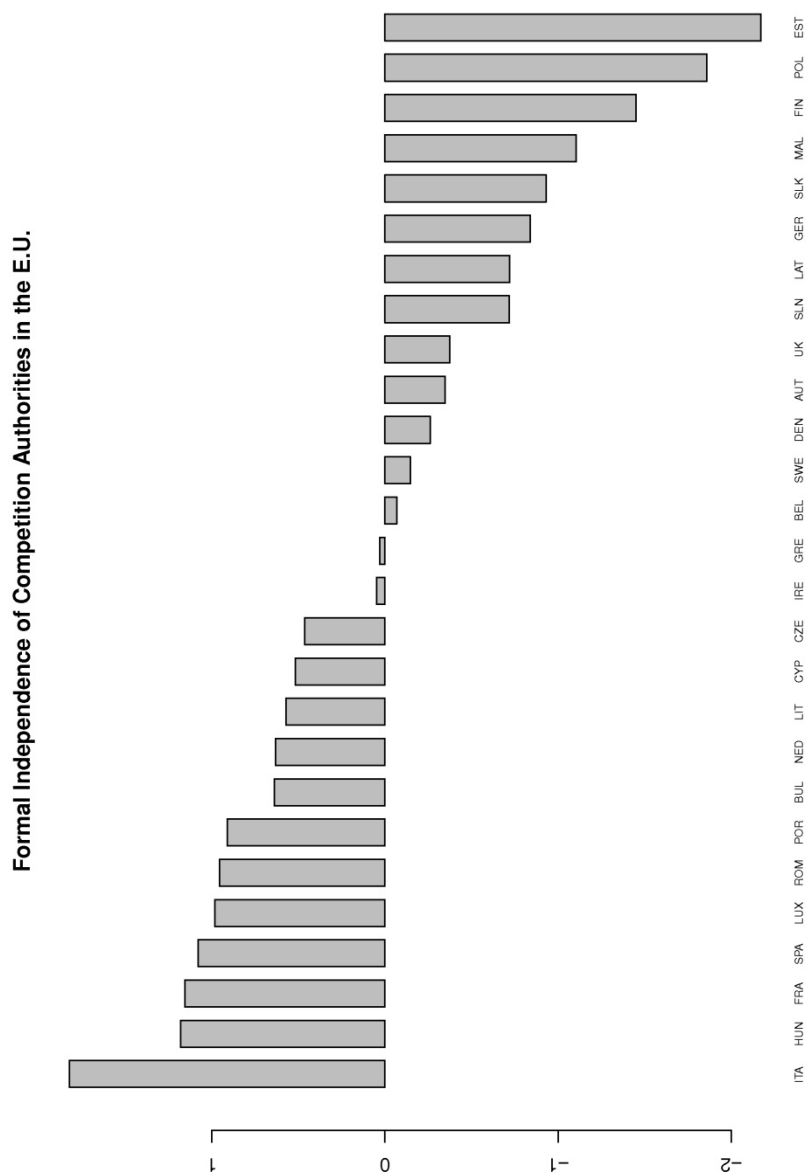
¹ This regulation states that national governments cannot deal with this matter directly, by requiring that every member state delegate competition enforcement to a “competition authority”. At the same time, the regulation does not either specify that these bodies have to be independent or suggest how much independence they ought to enjoy.

² See Section 5.1 for an explanation of the index.

polarisation or poor perceived regulatory quality, contributes to increase the independence of competition agencies. At first sight, none of these motivations seems to be strictly related to the activity that competition authorities perform: the length of the EU membership has mostly to do with the long-run influence of the European legislation in the member states and with the «rebounding Europeanization» phenomenon (McGowan 2005); the explanation that relates independence to the «need for credibility» of the states mainly signals that the lawmakers want to send a «message» to the market; the influence of big firms pertains to forms of collusion with powerful economic interests. In sum, in the decision to confer independence on competition agencies there does not seem to be any reason that is strictly related to their functions – which is rather puzzling.

In this paper, I aim at testing empirically whether a relationship between independence and performance exists. I will first discuss what «performance» means and how it can be measured. Then, I will illustrate the data that I have collected for this purpose, and I will present the theoretical framework and the hypotheses which I will test. Finally, I will report the results of the statistical analysis that I have carried out, and I will discuss its main implications.

Figure 1: Formal independence of national competition authorities in the EU member states



2. How to measure performance

When it comes to trying to measure such a vague and ambivalent value as «performance» (or «effectiveness»), it is very difficult to choose an indicator, or a set of indicators, that correctly represent the concept. What is an «effective» competition authority? The first possible answer to this question is that a competition authority is «effective» if it investigates many cases and adopts many decisions. *Quantity* is certainly an aspect to look at. On the other hand, it might also be worth considering the *content* of NCAs' decisions. What is their impact on the economy? What are the net benefits for consumers? A NCA might deter the creation of cartels (and therefore be very effective) by

imposing very high fines in few cases: the impact on the economy could be remarkable, but this would not be captured by the aggregate number of investigations or decisions.

The difficulty in defining performance is well described by the words of a member of the Italian competition authority:³

«An independent authority is certainly more willing to enforce and promote competition, but its efficacy depends [...] on its ability to adopt the correct decisions. [...] It is a sort of “art” [...], it is not a mechanical application of rules, there are many discretionary choices. It depends on how the authority is able to understand the problem, to analyse it and to take the correct decisions».⁴

In some cases, decisions that are apparently taken in order to restore fair competition conditions among the firms could paradoxically result in a disadvantage for the consumers. In an interview, an expert has brought the example of Google,

«[...] which is destroying the rather competitive market of web search and advertising, and concentrating much power in its hands. And on which basis? On the basis of legal distortions? No: Google does not enjoy any particular legal privilege, [...] it is simply more innovative; it has discovered a technology which the consumers appreciate very much, and it satisfies a demand [...]. Being “the best”, it is creating a sort of *de facto* monopoly. But can you sue Google for abuse of dominant position? In theory you can. [...] Can you “destroy” that capacity, that service that Google offers to the market? A competition authority could do that. But at the end, would the consumer be better off?

A corollary of this consideration was that competition authorities should be very severe in breaking cartels, but they should be very cautious when it comes to sanctioning abuses of dominant position. The expert concluded that «competition is not a static situation, but the constant creation of monopolistic advantages yielded by innovation».⁵ In some cases, by sanctioning the leader of a market, competition authorities can sanction the most innovative company.

To conclude this brief digression, we must mention the fact that, in some cases, different competition enforcers have adopted different rulings on similar issues. In this respect, the way in which the US Department of Justice and the European Commission have dealt with the case of the alleged abuse of dominant position by Microsoft is illuminating. In the US, Microsoft was obliged⁶ only to disclose part of its application programming interfaces with other companies: neither limitations to the tying of its software with the Windows operating system were imposed, nor fines were charged. In a very similar case ruled by the European Commission and by the European Court of First Instance, a fine of 497 million Euro was imposed on Microsoft, and the company was forced to provide a version of its operating system that did not contain a particular programme.⁷

Which antitrust enforcer has safeguarded competition better? Both of them have investigated a case and reached a conclusion. Yet, it is hard to say which of them has produced the better impact on the consumers' welfare. This example and other cases that have been mentioned during expert interviews (some interviewees have argued that in some cases, paradoxically, an authority might enhance the consumers' welfare even by *not acting*) suggest that, although effectiveness is not just a matter of *quantity*, assessing the *quality* of antitrust enforcement in a comparative perspective is particularly problematic. From this point of view, the most advanced attempt to empirically assess the

³ For my dissertation, I have conducted several interviews with competition policy experts and members of competition authorities of France, Italy, Greece and Portugal. The interviews have been conducted between June 2010 and September 2011.

⁴ Interviews with members of the Italian competition authority, 19 July 2010.

⁵ A similar argument is made by Segal and Whinston (2007).

⁶ US District Court for the District of Columbia, United States vs. Microsoft Corporation, Final Judgement, 12 November 2002.

⁷ Commission Decision of 24 March 2004 relating to a proceeding under Article 82 of the EC Treaty.

effectiveness of antitrust enforcement has been carried out by Dutz and Vagliasindi (2000). However, on the one hand the authors employ micro-level data which are not available for all the EU member states;⁸ on the other hand, they also rely on assessments of legal practitioners and experts, which are not necessarily an accurate and comparable source of information.

When measuring an abstract concept with an empirical indicator, in an empirical analysis that embraces a relevant number of cases, some simplification is needed. If one drew coherent conclusions from what legal scholars and experts point out, every case dealt with by every authority should be carefully scrutinised to ascertain whether it improved the consumers' welfare, and to what extent. Moreover, one should also agree on what can be defined an «improvement», which would open another Pandora's box. Moreover, as Carlton (2009: 89) claims, analysis of individual cases cannot substitute quantitative analysis, and the two are hardly compatible. After some attempts to verify if such an operationalisation driven by qualitative assessments was feasible, I have concluded that it is not, for a number of reasons. First, it would be too troublesome to reach a satisfying definition of what is effectiveness and what improves or damages the consumers' welfare. Second, even if this were possible, classifying all the cases for all the countries included in the empirical analysis on agencies' independence would require at least several years. Third, gaining in precision would imply anyway to lose in generality. Fourth, as the result would still be a very generic operationalisation of the concept of performance, I deem it would bring little benefit to the comprehension of the phenomenon, and to the conclusions of this paper.

Hence, I decide to focus on quantitative data that can be more easily compared, being conscious that they shed light only on one aspect of effectiveness. The elements of the agencies' activity that I take into account to measure the efficacy of the authorities are the *number of investigations started* and the *number of (envisaged)⁹ decisions* taken by them. I choose to focus on these two indicators, for a theoretical and a practical motivation. Theoretically, these indicators summarise the agencies' activities that are related to the enforcement of the articles 101 and 102 of the Treaty on the functioning of the European Union – i.e. of the articles which all the EU national competition authorities apply with no differences in every country, and on which they share their competence with the DG Competition.¹⁰ Therefore, these data are homogeneous and can be meaningfully compared. This leads to the practical motivation for employing them. Since any investigation initiated and any decision issued from 2004 on has to be communicated to the DG competition, we have a reliable and accessible source for these two kinds of acts.

⁸ In particular the World Bank enterprise-level survey on the business environment and enterprise performance (BEEPS). See: <http://beeps.prognoz.com/beeps/Home.ashx>

⁹ The NCAs must inform the Commission before taking final decisions on cases. Therefore, when such information is transmitted, the decision has not yet been formally taken. However, a decision that is communicated to the Commission is almost always issued by the authority.

¹⁰ Article 11.3 states that NCAs, when acting under articles 101 and 102 of the TFEU, must «inform the Commission in writing before or without delay after commencing the first formal investigative measure». Article 11.4 prescribes that «[n]o later than 30 days before the adoption of a decision requiring that an infringement be brought to an end, accepting commitments or withdrawing the benefit of a block exemption Regulation, the competition authorities of the Member States shall inform the Commission».

Table 1: Number of investigations started and envisaged decisions (2004-2010)

Country	Investigations started	Envisaged decisions	Decisions/Investigations ratio
Austria	27	6	0.22
Belgium	36	8	0.22
Bulgaria	12	4	0.33
Cyprus	3	0	0
Czech Republic	12	8	0.67
Denmark	62	33	0.53
Estonia	7	3	0.43
Finland	16	9	0.56
France	194	71	0.37
Germany	132	61	0.46
Greece	33	24	0.73
Hungary	81	20	0.25
Ireland	13	1	0.08
Italy	86	61	0.71
Latvia	10	3	0.3
Lithuania	13	7	0.54
Luxembourg	1	0	0
Malta	1	0	0
Netherlands	77	34	0.44
Poland	23	10	0.43
Portugal	35	12	0.34
Romania	21	3	0.14
Slovak Republic	9	9	1
Slovenia	26	13	0.5
Spain	81	38	0.47
Sweden	36	17	0.47
UK	54	11	0.2

3. Data on investigations and decisions

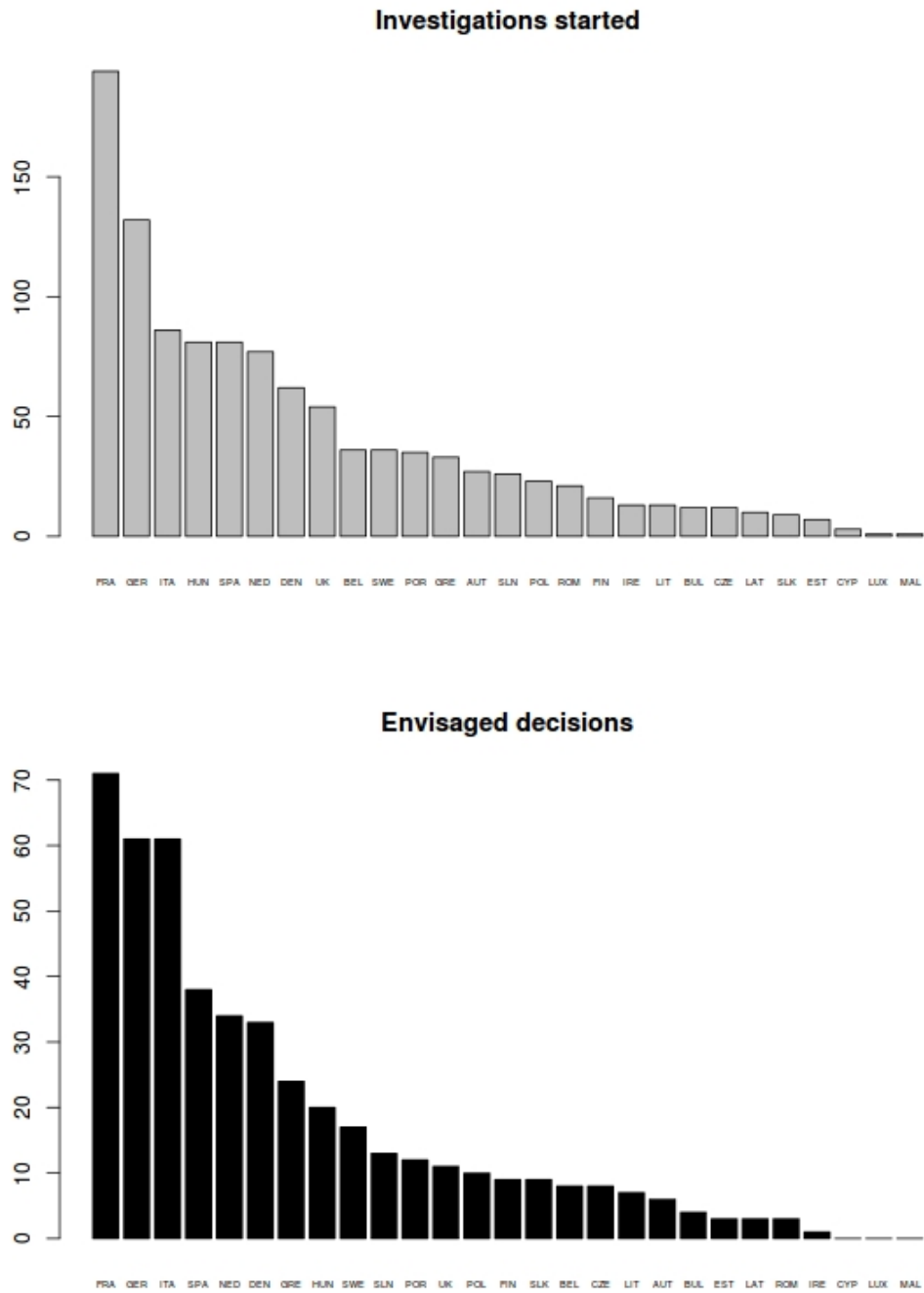
The statistics on investigations and envisaged decisions are available on the DG Competition website.¹¹ Unfortunately, they are not disaggregated per year, and I had to decide the period of time to be included in the analysis. I have chosen to consider the period going from when the collection of these data started (2004, when Regulation 1/2003 came into force) to the end of 2010. The data are illustrated in Table 1 and in Figure 2.

¹¹ <http://ec.europa.eu/competition/ecn/statistics.html>

As we can see, there are huge differences between the authorities, both in the number of investigations started and in the amount of proceedings concluded with decisions. France and Germany are the countries whose competition authorities get the highest values in both the activities. The Italian agency has started fewer proceedings, but it has a higher rate of investigations that are concluded with decisions. A great part of the variation that we observe is undoubtedly due to the size of the countries' economies. In fact, the countries in the left part of the graph in Figure 2 are the biggest economies of the continent. They have more firms, more economic activities, more consumers: it is not surprising that their authorities deal with a higher number of cases. Nevertheless, some cases look quite strange at a first sight. The British authority, for instance, has initiated in the 2004-10 period fewer investigations than the Hungarian agency, despite the fact that the UK's economy has been more than ten times as big as the Hungarian one.

It is worth reminding again that these data must be interpreted *cum grano salis*. On one hand, a smaller number of investigations could simply signal a more competitive economy, in which fewer interventions by the competition authority are needed. Therefore, it will be necessary to control for this source of variation. A last obvious remark regards the fact that in this analysis investigations and decisions are just counted, although everyone knows that they all take a different time, and a different amount of funds and personnel, to be concluded.

Figure 2: Investigations started and envisaged decisions per authority (2004-2010)



4. Hypotheses

The main purpose of this paper is to establish a connection between formal independence and performance of competition agencies. Independence is a «net loss» of control for the elected bodies,

and consequently also for the voters.¹² Hence, it is justified in terms of democratic accountability only if it brings some tangible improvement in the performance of these IRAs. Various theoretical frameworks assume that independence improves the way in which the authorities operate, and from a more policy-oriented point of view, independence is often regarded as a positive characteristic for IRAs. However, no solid proof has ever been offered with regard to the relationship between independence and performance.

In this section, I will illustrate the hypotheses by which I aim to explain the authorities' effectiveness. Obviously, formal independence is the main factor whose impact I will test. Beside it, I will also take into consideration two features of *de facto* independence, namely the budget and the average duration of governments in a country. The first because, beyond representing a natural limit to the agencies' action, budget is a means to hold the authority accountable; the second because, all else equal, there can be informal influence of the government on the agencies only when the two actors (executive and agency) play repeated games – a condition that is hardly met if governments do not last long.

4.1 Formal independence

Almost everyone seems to agree on the fact that independence is a good feature for regulatory agencies, and competition authorities are certainly not an exception. But in spite of this common agreement, there has been little theorisation about the reasons for which independence would be good and about how it would improve the agencies' activity. A causal link is often implicitly established between expertise and ability to analyse concrete cases, but no empirical tests have been carried out to test if a relationship between the degree of autonomy and the actual performance exists.

The few attempts that can be found in the literature do not point out a direct correlation between independence and performance. Majone's theory of credible commitment (Majone 1996) rather indicates that independence, yielded by credibility, contributes to the better functioning of the market, because the economic actors will be confident that the authority will strictly sanction any violation of competition. In other words, independence creates credibility, credibility creates trust, trust improves economic transactions. Autonomy from the political power would have an intrinsic effect on the expectations of the regulatees, but not necessarily on the regulator.¹³

Another academic contribution that suggests a relation between independence and performance has been proposed by Bawn (1995), who argues that the optimal agency performance depends on the balance between technical and procedural uncertainty. In other words, given a certain amount of technical expertise required, agencies should be given as much discretion as possible, as long as this does not allow the authorities to deviate too much from the preferences of the lawmakers. If the technical uncertainty is the same for all the competition authorities in the EU,¹⁴ we should observe a positive correlation between independence and performance.

¹² Modern democracies, parliamentary systems in particular, are organised as «chains of delegation» (Strøm 2000; Strøm et al. 2003) in which the citizens, «those authorized to make political decisions», «[...] conditionally designate others [...] to make [...] decisions in their name and place» (Bergman et al. 2000: 257). But delegation clearly does not stop at the first step: some power is delegated from the parliament to the government, the government itself delegates the implementation of specific policies to the ministers, ministries themselves have their own bureaucracy, and so forth. At first sight, IRAs seem nothing more than another link in the same chain, that is ultimately connected to the voters. But their peculiar condition, their *independence*, supposedly insulates them from political control, and thus from the voters' control.

¹³ Majone's theory draws inspiration from the monetary economics literature on the causes of inflation and on the reasons for having an independent central bank (see Kydland and Prescott 1977; Barro and Gordon 1983; Rogoff 1985).

¹⁴ Since the policy that they enforce is the same, this is a reasonable assumption.

In the interviews that I have conducted in 2010 and 2011, I have asked the experts whether they thought that such a relationship existed. The responses have been mixed. Every interviewee stated that in principle independence is a good thing and that, therefore, it should improve the agencies' performance, and their ability to enforce antitrust law. However, no expert has given a clear description of this relationship. An Italian expert claimed that a certain amount of independence is necessary, given the semi-judiciary functions that the competition agencies perform:

«[...] being [the competition authority] an agency that has to decide on the enjoyment of individual rights, it is inefficient in any case that [such a function] is dealt with by a body controlled by the politics, which can decide on the basis of political criteria. [...] It is the same reason for which some tasks are assigned to judges»¹⁵

This statement implies that a relationship between autonomy and performance exists, but the effect would be on the *quality* of the performance rather than on the *quantity*. And such an effect, as argued before, is almost impossible to analyse in a comparative perspective. A member of the French competition authority argued that, when the government and the parliament decided to increase the independence of the *Autorité*, they were mainly interested in improving its power to advise the parliament; competition enforcement was not mentioned.¹⁶

In general, except for some quite vague statements, in most answers the interviewees concluded that formal independence by itself can hardly produce a good performance. According to all the theoretical contributions in this field (positive theory of delegation, economic theory of regulation, credibility theory, veto players theory), and to the practical knowledge of people who directly deal with competition regulation, we should observe no concrete effects of independence on the regulatory output in terms of number of cases investigated and sanctioned.

Nonetheless, I deem the relationship is worth testing. As a matter of fact, formal independence consists of many characteristics that may have an impact on the quantitative performance. With more formal independence, the members of the authority are less likely to be «punished» for the decisions that they take, be these decisions favoured or not by the political principals; the members are also less likely to have had previous relationships with the firms that they regulate; the authority is more likely not to be told on which cases it has to focus, and so forth. I posit that a less autonomous body should show more self-restraint in a number of potential competition violations, when economic interests of important firms are concerned. I therefore hypothesise that:

HYPOTHESIS 1 («FORMAL INDEPENDENCE»)

The higher the independence of a competition authority, the higher the number of cases that it will investigate and sanction

4.2 Informal independence: the budget

Another factor that is apparently related to the way in which the authorities operate is the budget that the parliaments set for them every year. The source of the budget (whether the authorities are entirely dependent on government funding or if they can also count on fees levied on firms) is a feature of the index of formal independence employed in Guidi (2012), and whose impact will be tested with Hypothesis 1. Nevertheless, the influence of the agencies and of politicians on the budget is often considered as a component of informal (or *de facto*) independence (see Gilardi and Maggetti 2010; Maggetti 2007). Similarly, theorists of congressional dominance (see for instance Weingast and Moran

¹⁵ Interview with Italian expert, 21 July 2010.

¹⁶ Interview with members of the board of the French competition authority, 28 June 2010.

1983; McCubbins et al. 1987) convincingly argued that the budget is one of the instruments by which the legislature controls the agencies: by bargaining every year with an agency on the money that it will allocate for its activities, the government holds the authority accountable.

The budget has been spontaneously mentioned in various interviews, especially by members of the competition agencies. In the words of a member of the Italian competition authority:

«In the last period, especially because of the economic crisis, we have experienced a considerable decrease in our budget. Although the formal independence has remained the same, budget cuts represent a decrease in our *de facto* independence. [...] What is more, whilst the budget has been decreasing, our tasks have been constantly growing.»¹⁷

The substance of this claim is fairly simple: if the money available for the agency is not enough, the agency will have to investigate fewer cases, it will probably discover fewer violations of competition law, and it will adopt fewer decisions than if it had an adequate funding. Put in this way, this argument seems hard to reject: *ceteris paribus*, if the budget of an agency is reduced, the resources that the agency can «invest» in discovering and sanctioning violations of competition law should diminish, and the total output should vary accordingly.

From the point of view both of informal independence and of the practical availability of resources, we can hypothesise that:

HYPOTHESIS 2 («BUDGET»)

The higher the budget of a competition authority, the higher the number of cases that it will investigate and sanction

4.3 Informal independence: duration of governments

Another feature of *de facto* independence is the duration of governments. Executives can have an influence on the NCAs' activity by many means, both formally and informally. Depending on the legislation of each country, a government (or its parliamentary majority) may appoint the members of the agencies or dismiss them, it may set the main objectives of the authority's action, it may scrutinise its activity and, as illustrated in the previous subsection, set its annual budget. In principle, the average duration of governments should not affect these practises, because they are supposed to take place on a regular basis.

Nevertheless, an executive which stays in office for a longer time is more likely to establish a «dialogue» with the authority: it may allocate the money according to whether it deems that they agency spent it well or not (it might punish or reward the agency), or it may modify some legislation that affects the activity of the agency. More in general, the «classical» literature on bureaucracy (Weber 1978 [1922]; Niskanen 1971, 1973) has emphasised a crucial concept: governments change, but bureaucracy remains. In normal conditions, bureaucratic offices retain much discretion in carrying out their functions, and the legislature can affect the final outcome only by complex incentives and norms (McCubbins et al., 1987; Shepsle, 1992). This is especially true for IRAs, which enjoy more autonomy than normal bureaucracy.

In consequence of that, the more parliamentary majorities and governments change frequently, the less they can be preoccupied with influencing the agency and signalling their preferences to it. First, because it takes some time for the government to envisage how the agency works and how it can be influenced. Second, because the authority itself will perceive itself as more autonomous if ministers change before they can even get to know their departments.

¹⁷ Interview with member of the Italian competition authority, 19 July 2010.

Following the same assumption of Hypothesis 1, we can hypothesise that a competition authority that enjoys less informal independence (because of longer average duration of governments) is more likely to «step back» in situations in which the politics opposes an intervention. In sum:

HYPOTHESIS 3 («GOVERNMENT DURATION»)

The shorter the government duration in a country, the higher the number of cases that the competition authority will investigate and sanction

5. Data and operationalisation

5.1 Dependent variable

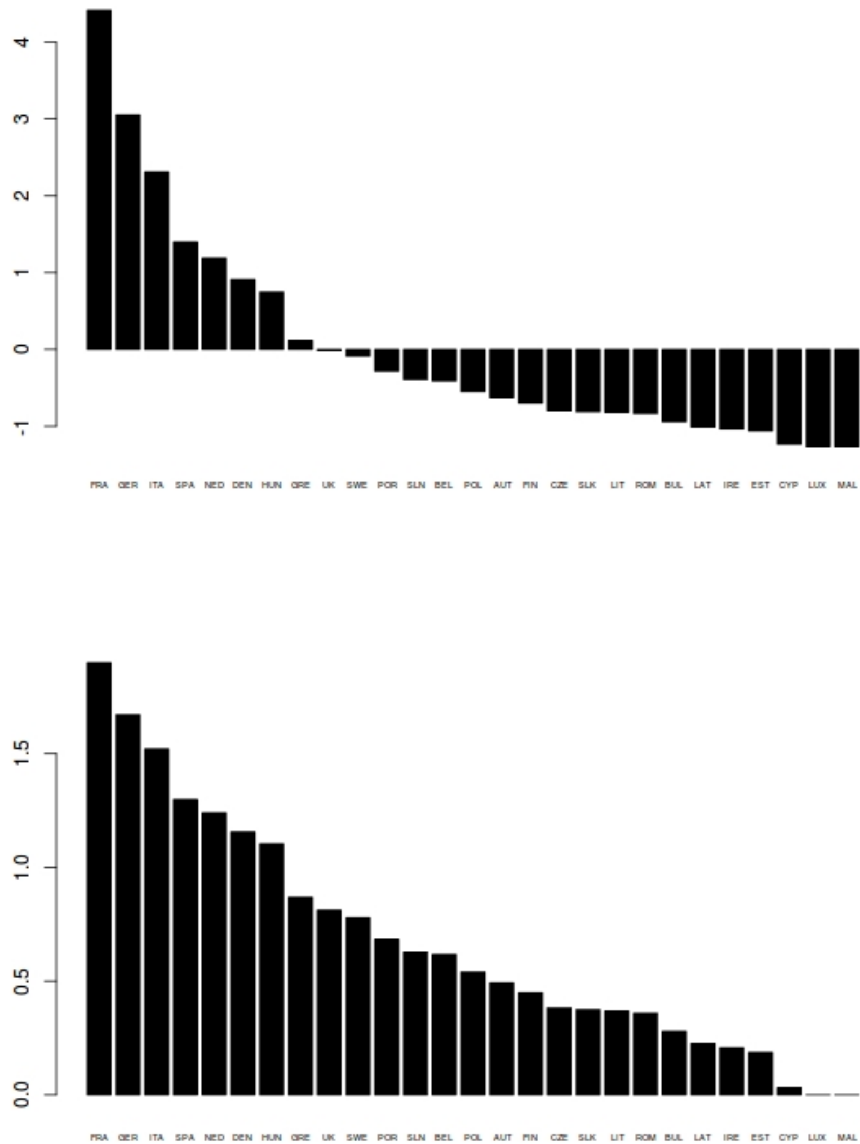
In Section 2, we have seen that two indicators are available to measure agency effectiveness: the number of investigation initiated and the number of decisions adopted. Are there reasons for preferring one over the other? The number of investigations started is a proxy for the capacity of an authority to discover potential violations of competition law: it signals to what extent the agency actively looks for infringements and responds to complaints and reports. On the other hand, the number of decisions indicates the ability of an authority to bring proceedings to an end, sanctioning the alleged violations.

Since neglecting one indicator in favour of the other would be very problematic to justify, I have opted for a solution which includes both the variables, creating a unified indicator.¹⁸ To do so, I have run a principal component analysis, retaining the scores of the first component, which captures 97% of the variance of the two variables.¹⁹ The frequency distribution of the two variables is much skewed, as shown in Figure 3. Thus, a logarithmic transformation of the original values has been performed. The much more regular frequency distribution avoids problems of heteroskedasticity.

¹⁸ In this analysis I do not use the «decisions/investigations» ratio (see Table 1) as dependent variable. For the sake of information, replacing the dependent variable with the ratio yields a poorly specified model, in which no explanatory variable has a significant coefficient, and with an adjusted R-squared of zero.

¹⁹ The principal component scores have been computed with the function `princomp` in R (2010).

Figure 3: Principal component of investigations and infringement decisions (above) and its logarithmic transformation (below)



5.2 Explanatory variables

The formal independence indicator is the index employed in Guidi (2012). Data on all the known features of formal independence have been collected with a survey, sent to all the agencies.²⁰ In order to build an index of formal independence, all the indicators drawn from the survey have been

²⁰ The survey, collected between September and December 2009, was mainly based on Gilardi's (2002; 2005) one, which was drawn from that of Cukierman, Webb, and Neyapti (1992). Some adjustments were also suggested by Koop and Hanretty (2009).

conflated into one. To do so, I have neither assigned the same weight to all the indicators, nor have I divided them in categories (appointment of the head, appointment of the board, relationship with parliament and government, etc.) and then given the same weight to all the categories (as was done in similar studies). Such arrangements, in fact, are arbitrary, and might lead the author to impose his own beliefs on the data, assigning weights and relevance according to his prior expectations. I have instead employed factor analysis to estimate the amount of the latent trait (independence, in this case) in each item. With this method, the weights of the items depend on how much they “adhere” to the latent trait common to all the variables across all the observations.²¹ To form the index, the items have been weighted according to their scores for the first factor.²²

As regards the second hypothesis, the value of the budget used in this statistical analysis is the mean value, in millions Euro, in the period 2004-2010. These data have been mainly drawn from the annual reports on the authorities’ activity, available on their website. When this information was not available, members of the staff of the competition agencies have been requested to provide it.²³ The indicator for Hypothesis 3 is the average duration of governments in the period 2004-2010. The value is that of the governments whose office terminated during these years.

5.3 Control variables

Beside the three indicators illustrated in the previous subsection, I will use two control variables. In fact, the total number of investigations and infringement decisions shown in Table 1 (from which the dependent variable is derived) is very likely not to be caused only by the formal and actual independence of the agencies. As already said in Section 3, to some extent, some authorities discover and sanction more cases just because they operate in economies where more firms work. To capture this difference, which is not due to the main explanatory variables, and to control for it, I employ two indicators: the gross domestic product and the perceived rule of law of the country.

The gross domestic product value used in this analysis is the mean value in the period 2004-2010, in thousands of billions of purchasing power standard at current prices (in 2010).²⁴ This value is a rough indicator of the size of an economy, and it is certainly useful in order to estimate how much potential workload an authority has, depending on the country in which it operates. The second control variable is a «rule of law» indicator. This proxy is provided by the World Bank,²⁵ and it is based on

²¹ The problems connected with the assumptions often made to construct these indexes are discussed by Koop and Hanretty (2009). The factor analysis method, like all the others employed by other scholars, assumes that independence is unidimensional throughout the data. The index employed in the statistical analysis and another calculated with Gilardi’s method are correlated at 89%.

²² I have first imputed the missing values using multiple imputation, and creating five different data sets. Then, for each data set, I have run a factor analysis on all the items derived from the questions of the survey, retaining only the first factor and calculating the scores for that factor for the 27 authorities. Finally, I have computed the mean value for each authority among the five data sets.

²³ The value of the British authority, the Office of Fair Trading (OFT), has been corrected. This has been necessary because the average budget of the Office of Fair Trading in the period 2004-2009 seems too high if compared with the others almost four times as much as the Italian authority’s budget (the second highest one), five times as much as the German Bundeskartellamt’s. After asking members of the staff of the OFT, I have been told that the agency deals both with competition enforcement and consumer protection, and that only 25% of the personnel works on competition enforcement. Therefore, I have taken one fourth of the total budget as value for the OFT in this statistical analysis. A minor correction has been done also for the value of the Dutch competition authority, the *Nederlandse Mededingingsautoriteit*. In 2007, the agency became also responsible for the regulation of the transport and energy markets, and its budget has increased. In order to control for this «spurious» increase, the proportional difference between 2006 and 2007 has been subtracted from the last three years.

²⁴ Eurostat data. The data have been converted from millions into thousands of billions in order to better show their statistical effect.

²⁵ See <http://info.worldbank.org/governance/wgi/index.asp> and Kaufmann et al. (2010).

the perceptions that economic actors have about a country and the way in which it enforces rules. It contains evaluations on whether there are losses and costs due to crime, if there is trust in the judiciary system, if the judicial process is quick enough, how is the protection of private property, what is the effectiveness of the police for the security of people and goods, etc.²⁶ Beside the gross size of the economy, this indicator should allow us to control more accurately for the number of firms and companies present in a country: indeed, the more investors «trust» a country, the higher is the economic activity. Despite what one might expect, this indicator is negatively correlated with the formal independence one. This demonstrates that the two variables do not belong to the same dimension.²⁷

Table 2: Variables employed in the statistical analysis (descriptive statistics)

	Range	Mean	St. deviation
Dependent variable	[0, 1.899]	0.673	0.519
Formal independence	[-2.15,1.805]	0	0.99
Budget	[0.0165, 39.96]	8.082	8.92
Avg. gov. duration	[0.886, 5]	2.461	1.027
GDP	[0.0076, 2.269]	0.435	0.618
Rule of law	[0.122, 1.951]	1.114	0.625

6. Statistical analysis

The multiple regression models of the statistical analysis are shown in Table 3. In Model 1, the three explanatory variables and the two control variables have been included in the regression. As can be observed in the table, among the explanatory variables, only FORMAL INDEPENDENCE is significantly correlated with the dependent variable. In accordance with Hypothesis 1, the variable has a positive effect on competition agencies' performance. AVERAGE GOVERNMENT DURATION is negatively correlated with the dependent variable, but its standard error is larger than that of FORMAL INDEPENDENCE. Contrarily to what claimed in Hypothesis 2, instead, the BUDGET of the authorities does not seem to affect the number of investigations and decisions. Both the control variables are positively related to the dependent variable, as hypothesised, but only GDP's coefficient is significant. The value of the adjusted R-squared shows that two thirds of the variance is explained by this model. As a result of the removal of the budget indicator, Model 2 turns out to be better specified than Model 1, as the higher F value proves. Moreover, AVERAGE GOVERNMENT DURATION's coefficient becomes statistically significant. Overall, the variance explained remains almost unchanged. In Model 3, also the rule of law indicator is removed.

²⁶ A more detailed documentation can be found at the web address <http://info.worldbank.org/governance/wgi/pdf/rl.pdf>.

²⁷ The Pearson correlation coefficient between the two variables is -0.17.

Table 3: Multiple regression models

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Formal independence	0.129° (-0.067)	0.161* (-0.063)	0.134* (-0.062)
Budget	0.012 (-0.009)		
Average government duration (2004-2010)	-0.104 (-0.061)	-0.134* (-0.057)	-0.104° (-0.055)
GDP	0.493*** (-0.121)	0.585*** (-0.098)	0.621*** (-0.098)
Rule of law	0.116 (-0.108)	0.161 (-0.104)	
Intercept	0.512** (-0.179)	0.597** (-0.169)	0.681*** (-0.165)
Adjusted R-squared	0.6826	0.6736	0.6536
<i>F</i>	12.18***	14.42***	17.35***

Dependent variable: investigations initiated and envisaged decisions in the period 2004-2010 (logged principal component scores). Method: OLS regression.

Estimators' significance: <0.001 *** <0.01 ** <0.05 * <0.1 °

As regards possible violations of linear regression assumptions, no multicollinearity problems arise in this statistical analysis.²⁸ Also heteroskedasticity does not appear as a severe issue: the absolute values of the residuals are not correlated with the fitted values, and the studentised Breusch-Pagan test confirms that the error term has an almost constant variance.²⁹ With respect to the presence of outliers and influential observations, neither Residuals vs. Leverage plots nor the Bonferroni t-test suggest particularly problematic cases in any of the models. Nonetheless, specific tests have been carried out on the impact of four cases: Germany, Netherlands, UK and Luxembourg. The first two have a

²⁸ No variable has a variance inflation factor higher than 2.12 in Model 1, higher than 1.22 in Model 2 and higher than 1.06 in Model 3. VIF tests have been performed with the package `car` (Fox 2009) in R.

²⁹ The hypothesis that the models suffer from heteroskedasticity are statistically significant at 0.72, 0.59 and 0.98 respectively (Breusch-Pagan test performed with the command `bptest` in the package `lmtest` in R (Zeileis and Hothorn 2002)).

considerably high hat value,³⁰ the latter have a Cook's distance higher than $4/N$ in Models 1 and 2 (UK also in Model 3).³¹ Running different regressions without these observations, however, does not yield sensibly different results. Therefore, the estimation of the coefficients can be considered solid and can be confidently interpreted.³²

7. Discussion of results

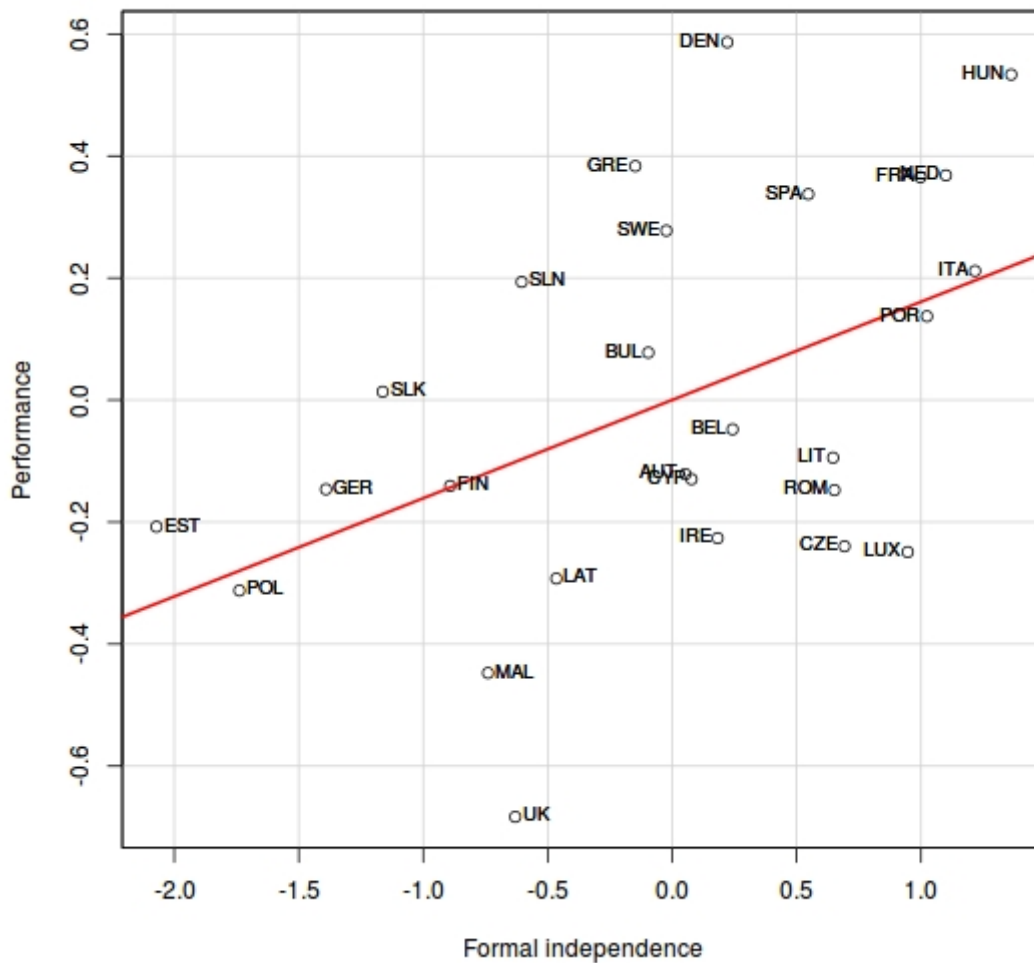
The statistical analysis provides a confirmation for two out of the three hypotheses illustrated in Section 4. Formal independence turns out to positively influence the effectiveness of the authorities. This means that independence does not only yield a «reputation» effect, but it also brings an improvement in the objective performances of the competition agencies. The argument – always made as a sort of assumption until now – that an independent antitrust authority is more willing to prosecute competition violations is empirically verified. Figure 4 provides a clear representation of this relationship.

³⁰ Germany's hat-value is around 0.48 in all models, higher than twice the mean. Netherlands has a very high hat-value in the first regression (0.82) and a normal value in the second one this is due to the fact that the value of the dependent variable for the Dutch authority is particularly abnormal compared to its budget (see note 23).

³¹ Which, according to Bollen and Jackman (1990), indicates the presence of potential outliers.

³² In particular, the main explanatory variable (FORMAL INDEPENDENCE) is significant in all the regressions run without the potential outliers.

Figure 4: Partial regression plot (FORMAL INDEPENDENCE vs. PERFORMANCE, Model 2)



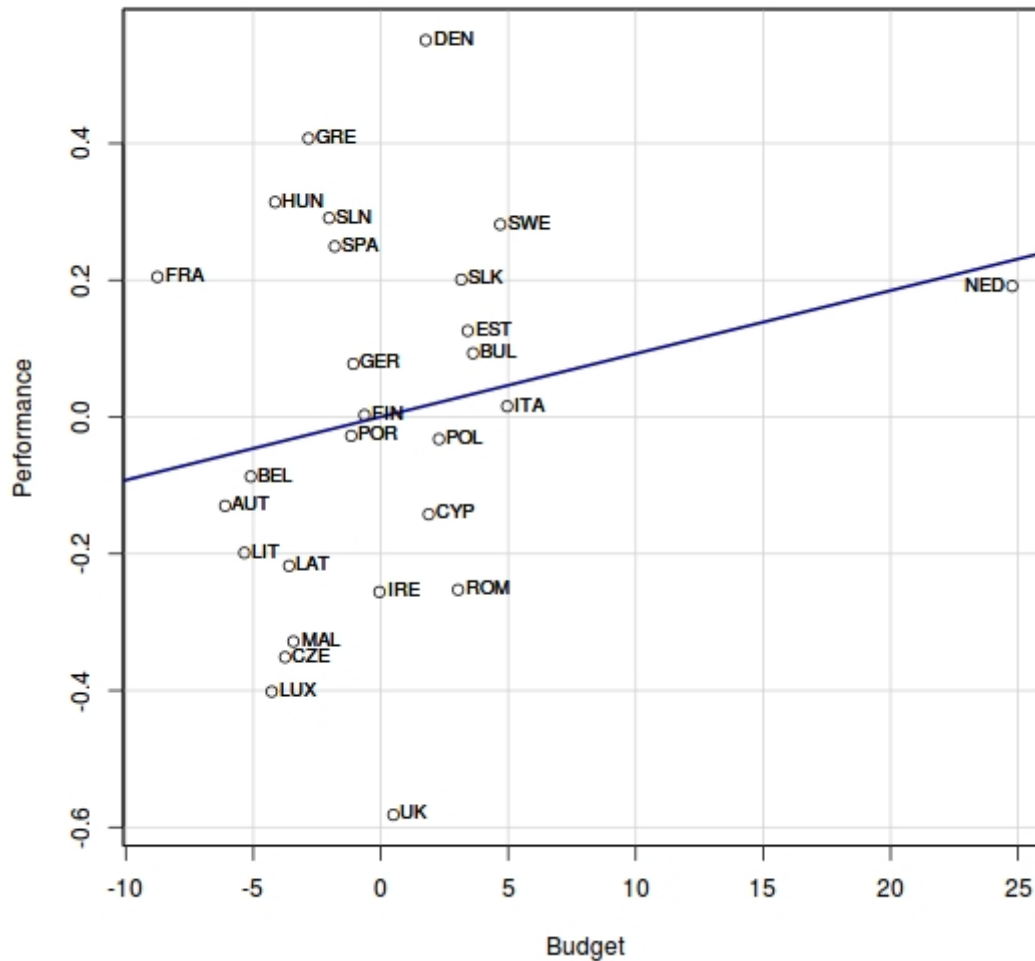
According to the classic theories of regulatory independence, countries give autonomy to their competition authorities depending, among other things, on the *need for credibility*. This has been confirmed by Guidi (2012): countries that do not experience high polarisation and that already have a good reputation in encouraging and promoting private investments end up establishing less independent agencies. Such a tendency is apparently due to the persuasion that *institutional* independence serves a merely symbolic purpose. However, the statistical analysis carried out proves that this is not true, and that formal independence has been underestimated to a great extent. It also suggests that parliaments and governments should regard it as a measure that improves policy effectiveness without creating additional costs for the collectivity.

As concerns the budget hypothesis, its rejection is somewhat surprising, because various experts and members of the authorities had described it as the main constraint in their activity. Nevertheless, Model 1 shows that the variable is very far from being significantly correlated with the dependent variable. Why does that happen? Figure 5 helps us understand how the two variables are related. Except for the strange case of the Netherlands, whose competition agency has an unusually high budget, all the other countries are «clustered», with no big differences in the budget and huge variation in the level of investigations and decisions. Countries with a similar budget can differ very much between them with regard to the effectiveness, and countries with very distant levels of funding can

deal with a very similar number of cases. Obviously, the fact that no significant relationship is found with these data does not imply that budget does not affect the agencies' activity. The budget of the authorities covers several tasks that are not captured by the dependent variable: merger control, regulatory activities shared with other IRAs, *ad hoc* tasks. The agencies employ a part of their budget also in these activities, and the amount of money that they spend beyond investigations on cartels and other antitrust infringements may not be the same for all of them.

The other indicator for *de facto* independence, the average duration of governments, is instead positively correlated with the number of investigations and decisions. All else equal, competition agencies operating in countries with short-lived governments tend to deal with more cases. According to the hypothesis, this is the result of two concurring processes: on one hand, shorter executives are less likely to interfere with the activity of the authorities, as they have less time for signalling their preferences to the authority and engaging in a sort of «dialogue» with them; on the other, the authorities themselves tend to act in a more autonomous way if they are more stable than governments.

With regard to the control variables, GDP is positively related to the number of proceedings dealt with by the agencies, as expected, and its coefficient has a strong statistical significance. This is not the case for the rule of law indicator.

Figure 5: Partial regression plot (BUDGET vs. PERFORMANCE, Model 1)

In order to find out what is the “net impact” of formal independence, I have run a thousand simulations for two quantities of interest of this explanatory variable: in the first set of simulation, the variable was set to its minimum; in the second set, to its maximum.³³ The average increase in effectiveness for a shift from the minimum to the maximum value of formal independence is 0.63, which equals the 33% of its total variation. This means that politicians do have an instrument which they can use to significantly enhance the authorities’ performance. All the other variables in the model represent conditions or events on which politicians have little power and which, in any case, they cannot regard as means to boost the agencies’ effectiveness: the GDP, the economic actors’ perceptions on the regulatory quality of a country, and even the duration of governments, all these variables are ultimately environmental characteristics, which do not depend on regulatory choices. The only variable on which the national legislators can have a direct impact is formal independence: through that, they can noticeably enhance the authorities’ effectiveness.

³³ The simulations have been run using the package *Zelig* (Imai et al. 2009) in R. For a discussion of the logic and the implications of stochastic simulation, see King (1997: 141 ss.).

8. Conclusions

The analysis presented in this paper confirms the hypothesis that formal independence has a positive impact on the number of cases that NCAs investigate and sanction. This result was not easily predictable. As has been pointed out previously, most literature on independence of regulatory agencies is strangely silent on the practical consequences of formal autonomy. Supranational organisations like the OECD, and also the European Union, often recommend to grant independence to IRAs, but they do so in such vague and abstract terms that it is very hard to ascertain whether these advices are technical, and to what extent. In the end, no formal requirement of independence is imposed on the member states, and this uncertainty reflects on the huge differences observed among the EU countries.

Although it is debatable whether the number of investigations and decisions accurately captures the quality of the authorities' performance, yet there is no doubt that independence *matters*. And if it does, then the EU should be more explicit in recommending it, and the national governments should commit themselves to confer more autonomy on their agencies. However, this will happen only if the executives – and the national lawmakers in general – are genuinely convinced that having a strong and credible competition authority is in their own interest. Unfortunately, it has been shown (Guidi 2012) that governments have mixed incentives, and that their institutional decisions regarding antitrust agencies are not based on functional requirements, but rather on a blend of external constraints and attempts to meet the big firms' needs.

This analysis also demonstrates that there is no «net loss» for lawmakers and voters from the point of view of democratic accountability: the more these agencies are set free from public bodies' constraints i.e. the less they are accountable towards parliaments and governments the more actively they perform their tasks. If the loss of control is compensated by a gain in terms of policy output, then delegation in this field can be considered a successful strategy, and it should be pursued with greater confidence.

For legislators interested in improving their competition authority's ability to perform its tasks, the findings shown in this paper are worth examining. They prove that these agencies do not work just as «boards of experts» that employ their specialisation, nor they are like scarecrows, which just need to be there in order to have an impact on the economy. Competition agencies' effectiveness depends on how distant from the political power they appear, both formally and in practice, and on how free they are to select their targets without being influenced by the lawmakers. The highest support that governments and parliaments can provide to these bodies is abstaining from interferences and pressures, and demonstrating this commitment through their institutional choices.

References

- Barro, R. J. and Gordon, D. B. (1983). A positive theory of monetary policy in a natural rate model. *The Journal of Political Economy*, 91(4): 589–610.
- Bawn, K. (1995). Political control versus expertise: Congressional choices about administrative procedures. *The American Political Science Review*, 89(1): 62–73.
- Bendor, J., Glazer, A., and Hammond, T. (2001). Theories of delegation. *Annual Review of Political Science*, 4(1): 235–269.
- Bergman, T., Müller, W. C., and Strøm, K. (2000). Introduction: Parliamentary democracy and the chain of delegation. *European Journal of Political Research*, 37(3): 255–260.
- Bollen, K. A. and Jackman, R. W. (1990). Regression diagnostics: An expository treatment of outliers and influential cases. In Fox, J. and Long, J. S., editors, *Modern methods of data analysis*, pages 257–291. Sage Publications, Newbury Park, Calif.
- Carlton, D. W. (2009). Why we need to measure the effect of merger policy and how to do it. *Competition Policy International*, 5(1): 77–90.
- Cukierman, A., Webb, S. B., and Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. *The World Bank Economic Review*, 6(3): 353–398.
- Dutz, M. A. and Vagliasindi, M. (2000). Competition policy implementation in transition economies: An empirical assessment. *European Economic Review*, 44(4-6): 762–772.
- Elgie, R. and McMenamin, I. (2005). Credible commitment, political uncertainty or policy complexity? explaining variations in the independence of non-majoritarian institutions in france. *British Journal of Political Science*, 35(3): 531–548.
- European Commission (2004). Commission decision of 24.03.2004 relating to a proceeding under article 82 of the EC treaty. available at <http://www.microsoft.com/presspass/download/legal/european-commission/03-24->
- Fiorina, M. P. (1982). Legislative choice of regulatory forms: Legal process or administrative process? *Public Choice*, 39(1): 33–66.
- Fox, J. (2009). *car: Companion to Applied Regression*. R package version 1.2-16.
- Gilardi, F. (2002). Policy credibility and delegation to independent regulatory agencies: a comparative empirical analysis. *Journal of European Public Policy*, 9(6): 873–893.
- Gilardi, F. (2005). The formal independence of regulators: A comparison of 17 countries and 7 sectors. *Swiss Political Science Review*, 11(4): 139–167.
- Gilardi, F. and Maggetti, M. (2010). The independence of regulatory authorities. In *Handbook of Regulation*. Edward Elgar, Cheltenham.
- Guidi, M. (2012). *Explaining Independence: National Competition Authorities in the European Union Member States*. Ph.D Thesis. European University Institute, Florence.
- Imai, K., King, G., and Lau, O. (2009). Zelig: Everyone’s statistical software. <http://gking.harvard.edu/zelig>.
- Kaufmann, D., Kraay, A., and Mastruzzi, M. (2010). The worldwide governance indicators: Methodology and analytical issues. *World Bank Policy Research Working Paper No. 5430*.
- King, G. (1997). *A solution to the ecological inference problem: reconstructing individual behavior from aggregate data*. Princeton University Press.

- Koop, C. and Hanretty, C. (2009). Measuring the statutory independence of regulators. *Presented at the American Political Science Association, Toronto, Canada.*
- Kydland, F. E. and Prescott, E. C. (1977). Rules rather than discretion: The inconsistency of optimal plans. *The Journal of Political Economy*, 85(3): 473–491.
- Levi-Faur, D. (2005). The global diffusion of regulatory capitalism. *The ANNALS of the American Academy of Political and Social Science*, 598(1): 12–32.
- Maggetti, M. (2007). De facto independence after delegation: A fuzzy-set analysis. *Regulation & Governance*, 1(4): 271–294.
- Majone, G. (1994). The rise of the regulatory state in Europe. *West European Politics*, 17(3): 77–101.
- Majone, G. (1996). Temporal consistency and policy credibility: Why democracies need Non-Majoritarian institutions. *EUI Working Papers*, RSCAS 1996/57.
- Majone, G. (1997). Independent agencies and the delegation problem: Theoretical and normative dimensions. In Steunenberg, B. and Vught, F. V., editors, *Political Institutions and Public Policy: Perspectives on European Decision Making*, page 139–156. Kluwer Academic Publishers, Dordrecht.
- McCubbins, M. D., Noll, R. G., and Weingast, B. R. (1987). Administrative procedures as instruments of political control. *Journal of Law, Economics, & Organization*, 3(2): 243–277.
- McCubbins, M. D. and Schwartz, T. (1984). Congressional oversight overlooked: Police patrols versus fire alarms. *American Journal of Political Science*, 28(1): 165–179.
- McGowan, L. (2005). Europeanization unleashed and rebounding: assessing the modernization of EU cartel policy. *Journal of European Public Policy*, 12(6): 986–1004.
- Moe, T. M. (1990). Political institutions: The neglected side of the story. *Journal of Law, Economics, & Organization*, 6: 213–253.
- Niskanen, W. A. (1971). *Bureaucracy and Representative Government*. Aldine, Atherton.
- Niskanen, W. A. (1973). *Bureaucracy: Servant or Master? Lessons from America*. Institute of Economic Affairs, London.
- OECD (2002). *Regulatory Policies in OECD Countries*.
- R Development Core Team (2010). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria.
- Rogoff, K. (1985). The optimal degree of commitment to an intermediate monetary target. *The Quarterly Journal of Economics*, 100(4): 1169–1189.
- Schoenbrod, D. (1993). *Power Without Responsibility: How Congress Abuses the People through Delegation*. Yale University Press, New Haven.
- Scott, C. (2004). Regulation in the age of governance: The rise of the post-regulatory state. In Jordana, J. and Levi-Faur, D., editors, *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance*, pages 145–74. Edward Elgar, Cheltenham, UK.
- Segal, I. and Whinston, M. D. (2007). Antitrust in innovative industries. *The American Economic Review*, 97(5): 1703–1730.
- Shepsle, K. A. (1992). Bureaucratic drift, coalitional drift, and time consistency: A comment on macey. *Journal of Law, Economics, & Organization*, 8(1): 111–118.
- Strøm, K. (2000). Delegation and accountability in parliamentary democracies. *European Journal of Political Research*, 37(3): 261–289.

- Strøm, K., Bergman, T., and Müller, W. C. (2003). *Delegation and Accountability in Parliamentary Democracies*. Oxford University Press, Oxford.
- US District Court for the District of Columbia (2002). United states of america vs. microsoft corporation.
- Vogel, S. K. (1996). *Freer Markets, More Rules: Regulatory Reform in Advanced Industrial Countries*. Cornell studies in political economy. Cornell University Press, Ithaca, N.Y.
- Weber, M. (1978). *Economy and Society: An Outline of Interpretive Sociology*. University of California Press, Berkeley.
- Weingast, B. R. and Moran, M. J. (1983). Bureaucratic discretion or congressional control? regulatory policymaking by the federal trade commission. *The Journal of Political Economy*, 91(5): 765–800.
- Wonka, A. and Rittberger, B. (2010). Credibility, complexity and uncertainty: Explaining the institutional independence of 29 EU agencies. *West European Politics*, 33(4): 730–752.
- Zeileis, A. and Hothorn, T. (2002). Diagnostic checking in regression relationships. *R News*, 2(3): 7–10.

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