Is there a profile for « good" chief forecasters?[1]

Jean-Charles Bricongne[2] & Irène Grialou[3]

Abstract

Does the profile of chief economists in charge of forecasting in public and private institutions matter for the quality of their forecasting? Different arguments may be invoked in favor or against this argument: chief economists do not always influence directly forecasting, and it may be rather due to the quality of the staff, but on the other hand, the staff may be chosen, reorganized and influenced by the chief economist, whose final opinion should be decisive. Forecasting is indeed a technical matter which requires skills, but opportunism may also play a role, by considering other institutions' forecasts, and this is not always easy to take into account in a profile.

We thus use an agnostic approach, starting from the principle that if a characteristic leads to better or worse forecasting quality, then characteristics matter and a profile for "good" forecasters may emerge.

Among the main stylized facts, we find that the horizon of the forecasting and the variable forecasted matter: performance is not the same whatever the horizon of the indicator. We also find that, for the chief economists, former experience matters, among others former experience in the public sector (especially for French civil servants as regards budget balance forecasts). Lastly, when using the concept developed in Tetlock (2005), we find that "hedgehogs" rather over perform compared to "foxes" and that this characteristic may occult other explanatory variables.

JEL codes: D02, E27, E37

Keywords: forecasting error, chief economist, Consensus forecast, individual characteristics

[1] The opinions and findings expressed here are those of the authors. All remaining errors should be considered as due to the authors and should not involve their institutions.

[2] European Commission/Banque de France, Tours University and LIEPP

[3] Sciences Po Paris

I. Introduction and literature review

In this article, we want to analyze what are the factors linked to the performance of forecasters.
This supposes first to answer the question of differentiated performance among forecasters at a given moment, and over time (are there some forecasters who over-perform compared to their peers, and if so, does this over-performance last over time?), and also to determine criteria to assess the quality of their forecasts. In our paper, we have used specific criteria which penalize more strongly errors on non-volatile variables and enable analyzes between variables' errors (cf. infra, section II, Variables used and computation of the forecasting errors).
If indeed performance is not equal among chief economist forecasters, we may envisage, *a priori*, two groups of factors likely to influence it: context and individual characteristics. Context should be considered in a large perspective, namely covering the kind of institution in which the forecast is performed, the date (times of sizeable fluctuations such as recessions may be more difficult to forecast) and the country to which the forecasts relate and, to a certain extent, available information. This latter variable may depend itself on the time, the institution, and also on the individual profile of the forecaster, who may have more or less talent to find accurate information. More than that, the individual observable characteristics of the forecaster may be related to their training, former experience, their age or their gender. Beyond that, we will try to categorize individual profiles using the concepts of Tetlock (2005).

Are there some forecasters with previsions systematically closer to the realized value than the group mean forecast? In other words, are there better forecasters? *The Wall Street Journal* (WSJ) publishes each year a ranking of the top forecasters and determines who the best are. But when we look at the literature, we find that there is not a consensual result about the potential existence of forecasters better than others. While Stekler (1987) has concluded that "all forecasters [are] not equal and that some [are] better […] at least for some variables", D'Agostino et al. (2010) have found "limited evidence for the idea that the best forecasters are actually innately better than others, though there is evidence that a relatively small group of forecasters perform very poorly".

The divergence between these authors is due to the use of a different statistical method. As the conclusions depend on the criteria used for the statistical tests, it is important to think about the accurate criteria which determine who is a "good" forecaster. Einsenbeis et al. (2002) discuss the method used by *The Wall Street Journal* to rank the forecasters. While the WSJ determines the performance of the forecasters by summing their absolute deviation from the realized value of each series, Einsenbeis et al. (2002) propose a more sophisticated criterion. Assuming that some variables are easier to predict than other ones (like the unemployment which is less volatile than GDP at short horizons), the authors penalize more strongly errors on easy variables than errors on difficult ones. The authors also think that some economic variables are correlated. Therefore, they look at the forecasts made by the same forecaster as a whole and judge their internal consistency. Even if a forecaster has done a good prediction for a certain variable, if this prevision is not coherent with the rest of his forecasts, the authors apply a penalty. Having in mind these remarks, we decide to measure the magnitude of the forecasting error as the absolute value between the forecast and the "real" value, divided by the standard error of the "real" values of the variable over the last five rolling years: if a variable has little variation in the recent past, errors should be more heavily penalized, since it

should be easier to forecast a non-erratic variable. It also avoids the problem of dividing by zero in some cases, if we had chosen for the denominator merely the “real” value. It also enables to give a rolling reference over time, which fits the magnitude of the different variables (GDP, inflation, consumption, unemployment, budgetary surplus and current account) and allows analyzes between errors depending on variables.

Does the context of forecasting influence the accuracy of individual forecasters? Steira (2012) has found that the forecast accuracy of inflation during recessions is worse than during other decades. This suggests the economic situation has an impact on the forecasters' performance. Thus, we control for the time to which the forecast relates, including in our regressions months and years fixed effects, and also the related countries, since the economic situation of the United States, the United Kingdom and France may not be fully synchronized.
Moreover, Bowles et al. (2007) differentiate financial and non-financial institutions and notice that non-financial institutions tend to be more accurate than financial ones to predict inflation at one year horizon but less reliable for the prediction of unemployment and GDP at two years horizon. These results suggest that the institution of membership can have an influence on the forecasts released. Thus, we control for the type of institution by using three categories: public institutions, financial and non-financial ones.
Context may also relate to the information available: it may depend on the time of the forecast (more or less available information over year), on the institution (which can spend for example more or less money to get external information or datasets or which can have some private information if they are connected to data suppliers) and on the country (all countries do not display information in the same proportions). Available information may also be related to individual characteristics, depending on the ability of the chief economist forecaster to get accurate information.

In the literature, many articles which discuss the ability of forecasters to predict economic variables have used for this purpose forecasters' mean prevision which is "on average over time more accurate than most of the corresponding sets of individual predictions" according to Zarnowitz (1984). However, when we look at individual forecasts, the heterogeneity of the previsions is striking and a vast literature has attempted to explain it. Observing that previsions do not converge while information becomes more available when the prevision's horizon diminishes, Andrade and Le Bihan (2010) think that the persistence of heterogeneity is due to a *noisy information*. This type of inattention model proposed by Woodford (2002) supposes that agents continuously update their information but have an imperfect access to it at each period. Thus, Andrade and Le Bihan (2010) suggest that the constant heterogeneity between the forecasts, which have been updated with the new information, reveals that each forecaster has imperfect private information. Meanwhile, Patton et al. (2010) conclude that "heterogeneity in forecasters’ information signals is not a major factor in explaining the cross-sectional dispersion: heterogeneity in priors or models is more important".
"Prior beliefs" of each forecaster may be partly explained by their individual characteristics. For instance, those who have worked in a public institution in their former experience may over or under estimate inflation compared with the others, which we test for example for former economists of central banks.

Indeed, beyond showing that some forecasters are better than others in predicting some variables using defined criteria and taking into account the context, our paper wants to analyze if individual characteristics are able to explain these differences in ability. Lamont (1995) has already shown that the age impacts the forecasters' behavior. He has noticed that aged forecasters tend to release previsions which deviate strongly from the relative consensus

forecast. The author explains this saying that "an inexperienced forecaster [doesn't know his ability to predict and] may perceive benefits to “playing it safe” and adjust his forecast toward the consensus", while an aged forecaster with experience may be more confident about his skills and has more incentive to listen to his own perception. In fact, the author has found that aged forecasters tend to be less accurate. Being given the Lamont's findings, we control for the evolving behavior of forecasters depending on their age by adding some variables indicating in which range the age of the chief economist is.

More generally, as the literature shows that forecasters do not systematically release the prevision in which they trust, the (purely technical) talent of a forecaster is not directly observable. Ottaviani et al. (2006) notice that forecasters are not always honest when they report a prevision. The authors develop the theory of "forecasting contest" to explain this bias. They remark that forecasters are publicly ranked (as the WSJ does) and get out satisfaction from being presented as accurate. As the forecasters are evaluated depending on their capacities to predict the market, we may expect forecasters to report honestly their forecasts. But the authors notice that reporting the honest value is not an equilibrium in the "forecasting contest" game due to two opposite trends. On the one hand, forecasters are encouraged to be honest because they are more likely to be correct. On the other hand, if the honest value is shared among many other forecasters, the contest's player has incentive to report a forecast more distant from the consensus in order to be alone to outperform if his prevision is realized. Hence, forecasters are strategic and compare the probability of the accuracy of their forecast with the difference between their forecast and the consensus one. According to Andrade and Le Bihan (2010), the cost of revising may also explain why the reported forecast doesn't systematically represent the value in which a forecaster trusts. The authors notice that forecasters who update their information frequently don't revise automatically their forecast because it can be costly to change it (forecasters have to convince their hierarchy that the updated information is consistent etc). Again, forecasters are strategic and compare the benefice of revising their forecast with the cost to do so. Thus, in our paper we analyze the accuracy of forecasting depending on the profile of the chief economist but one should keep in mind this accuracy does not only depend on the technical skills. It relates also to the ability of the chief economist to manage his team, to the human and tool capacities that are at his disposal and to his ability to best use the external information available, including the one in other forecasting institutions.

Tetlock (2005) has also investigated if individual characteristics may interfere with the accuracy of forecasting. Asking precise questions about future to many political experts during several years, the author analyses the accuracy of the experts in predicting future. He uses Isaiah Berlin's metaphor of the "foxes" and "hedgehogs" to distinguish two types of experts. "Hedgehogs" are experts who have one grand theory which is used to explain most of the events. On the opposite, "foxes" are experts, skeptic about grand theories. They are less confident about their previsions than "hedgehogs" and adjust their statements to the events while "hedgehogs" have a fixed statement over time whatever happens. Tetlock (2005) notices that "foxes" over-perform "hedgehogs", especially for short-term previsions. "Hedgehogs" seem to be blinded by their theory and are often less accurate than "foxes". This is in line with the findings of Lamont (1995): over-confident experienced forecasters tended to do worse than the others. In our paper, we perform complementary regressions to see if the results of Tetlock (2005) for political experts are verified for economic forecasters. To do so, we differentiate "foxes" and "hedgehogs" forecasters by using reshuffled criteria (cf. infra, section III.B. Clustered results, with complementary explanatory variables).

Thus, our article, compared with the above references, goes further in three directions. First, analysis is more complete with six variables (GDP, inflation, consumption, unemployment, budgetary surplus and current account), three countries, one year and two years terms for forecasts horizons, and covering more than twenty years including the latest crisis episode. Second, we have an extensive coverage of individual characteristics (training, former experience, age...) and also use these individual characteristics to introduce Tetlock (2005) categories in the regressions. Third, we control for most variables described in previous studies: date, country, institution, among others.

In the next sections, we first explain how the database has been built, and display descriptive statistics about variables to explain and explanatory variables (section II). Results of regressions without and with clustering are displayed in section III. Section IV concludes.

II. Database: construction and variables used

Construction of the database

First, we have collected the monthly forecasts reported by the entities which participate to the Consensus Forecast since 1992 for three countries (France, United-States, and United-Kingdom) and six indicators (GDP, inflation, consumption, unemployment, budgetary surplus and current account).

Then, we have made researches to find who the chief economist in office in each institution was at each period. When one entity made forecasts for several countries, we have identified if the previsions were defined below the management of a unique chief economist for all countries or if there was a different chief economist for each geographic zone and we have selected the latest in this case.

Finally, we have searched information about all chief economists to complete their profiles. Most of the information (education, former professional positions etc) was available on their online homepage or on sources like Likedin or, more punctually, the Who's Who. We have also looked if forecasters are registered on Ideas Repec and if they have publications on this source (since these are two different criteria), to have an idea about their academic connections. Some basics data were sometimes harder to find like the date of birth. For those not displaying it, we have calculated the year of birth which seemed the most coherent with the date of graduation. As we use the date of birth to form large groups of age, we assume that an error of one or two years has no significant impact on the results.

In the whole, there are up to around 6000 observations (the figure may vary depending on the variable analyzed because all institutions do not make predictions for all variables and for all horizons) and around 80 chief economists, and predictions are recorded since 1992.

Variables used and computation of the forecasting errors

The variable to explain is the magnitude of the forecasting error, for one year or two years horizons, taken as the absolute value between the forecast and the “real” value, divided by the standard error of the “real” values of the variable over the last five rolling years: if a variable has little variation in the recent past, errors should be more heavily penalized, since it should be easier to forecast a non erratic variable. It also avoids the problem of dividing by zero in

some cases if we had chosen for the denominator merely the "real" value. It also enables to give a rolling reference over time, which fits the magnitude of the different variables (GDP, inflation, consumption, unemployment, budgetary surplus and current account).

For the "real" value, we had the choice between taking the vintage value, namely the first released figure of the variable, and the latest value. Since we consider that agents, at the moment of the forecasting, rather have the limited information available at that time, we privilege the vintage values rather than the latest revised ones.

In the regressions, we use the following explanatory variables:

- X1: equal to 1 if the chief economist holds a PhD
- X2: equal to 1 if the chief economist holds a diploma from a French "grande école" or a PhD/MBA from a topfield university (top 100 in the Repec ranking, with an alternative using the top 20, identified as X2bis)
- X3: in the French case, equal to one if the "Grande École" automatically leads to a career in the public sector (such as Polytechnique/ENSAE, to work in the national statistical institute (INSEE) or in the Ministry of finance)
- X4: equal to 1 if the chief economist had a previous experience as forecaster in the public sector
- X5: equal to 1 if the chief economist had a previous experience in the public sector other than forecaster
- X6: equal to 1 if the chief economist had a previous experience as forecaster in the private sector
- X7: equal to 1 if the chief economist had a previous experience in the private sector other than forecaster
- X8: equal to 1 if the chief economist has made a publication recorded in Repec [one can have a publication in Repec without being himself recorded in this system, for example if some of his co-authors are]
- X9: equal to 1 if the chief economist is recorded in Repec
- X10: equal to 1 if the chief economist is a woman
- X11: defines the country in which the forecast is performed
- X121: equal to 1 if the chief economist is under 40
- X122: equal to 1 if the chief economist is between 40 and 50
- X123: equal to 1 if the chief economist is between 50 and 60
- X124 equal to 1 if the chief economist is between 60 and 70
- X125: equal to 1 if the chief economist is over 70

Correlations between explanatory variables

If we calculate the correlations between explanatory variables, excluding the ones related to the ages, for example, which are rather control variables, we have the following picture in the table 1 hereafter.

Table 1: correlation between the main explanatory variables

	x1	x2	x2bis	x3	x4	x5	x6	x7	x8	x9	x10
x1	**1.00**	**0.31**	**0.44**	**-0.41**	**-0.08**	**0.31**	**0.19**	**-0.11**	**0.16**	**0.02**	**-0.12**
x2	**0.31**	**1.00**	**0.57**	**0.37**	**0.29**	**0.38**	**-0.30**	**-0.08**	**0.35**	**-0.08**	**0.01**
x2bis	**0.44**	**0.57**	**1.00**	**-0.24**	**0.29**	**0.01**	**-0.05**	**0.12**	**0.32**	**-0.16**	**0.11**
x3	**-0.41**	**0.37**	**-0.24**	**1.00**	**0.24**	**0.29**	**-0.35**	**-0.12**	**0.17**	**0.00**	**-0.09**
x4	**-0.08**	**0.29**	**0.29**	**0.24**	**1.00**	**0.20**	**-0.29**	**-0.07**	**0.44**	**-0.02**	**0.03**
x5	**0.31**	**0.38**	**0.01**	**0.29**	**0.20**	**1.00**	**-0.07**	**-0.40**	**0.40**	**0.08**	**-0.14**
x6	**0.19**	**-0.30**	**-0.05**	**-0.35**	**-0.29**	**-0.07**	**1.00**	**0.25**	**-0.03**	**0.03**	**-0.02**
x7	**-0.11**	**-0.08**	**0.12**	**-0.12**	**-0.07**	**-0.40**	**0.25**	**1.00**	**-0.19**	**0.09**	**0.17**
x8	**0.16**	**0.35**	**0.32**	**0.17**	**0.44**	**0.40**	**-0.03**	**-0.19**	**1.00**	**0.06**	**-0.04**
x9	**0.02**	**-0.08**	**-0.16**	**0.00**	**-0.02**	**0.08**	**0.03**	**0.09**	**0.06**	**1.00**	**-0.10**
x10	**-0.12**	**0.01**	**0.11**	**-0.09**	**0.03**	**-0.14**	**-0.02**	**0.17**	**-0.04**	**-0.10**	**1.00**

Except for some specific cases, such as X2 (former student in a top 100 University according to Repec ranking) and X2bis (former student in a top 20 University according to Repec ranking) which are not computed together in regressions anyway, but used alternatively, most correlations do not exhibit too high values that would imply strong collinearities.

Some interesting observations can be made already at this stage:

- The higher correlation between X1 (PhD) and X2bis (top 20 Universities) than between X1 (PhD) and X2 (top 100 Universities) illustrates a higher tendency to get a PhD, inside our sample, in the very best Universities. Yet, even if X2 and X2bis are positively associated with publications recorded in Repec, neither of these two variables exhibits a positive correlation with the fact of being personally recorded in Repec (X9).
- Chief economists having worked as public forecasters before are positively associated with diplomas from top universities (correlations between X4 and X2 or X2bis equal to 0.29), but not necessarily with a PhD (correlation between X4 and X1 slightly negative). This could be partly explained by the French specificity, in which some graduates from certain "Grandes Écoles" automatically get a position as civil servant, without holding a PhD (even if these graduates are, of course, free to get a PhD as a complementary training). This is confirmed by the positive correlation between X3 on the one hand and X4 or X5 on the other hand. Former forecasters in private institutions are more positively correlated with the PhD diploma.
- Top-field universities' graduates are mostly associated with careers in the public sector, whereas as forecaster or non-forecaster. If one considers only the top 20 universities, only the correlation with the public forecaster position holds.
- The fact of being a former public forecaster is more associated with another position in the public sector as non-forecaster (correlation between X4 and X5 of 0.20) rather than with a position as forecaster in the private sector (correlation between X4 and X6 equal to -0.29).
- There is a positive bias of publication recording in Repec for chief economist having worked in the public sector (correlations between X4 or X5 and X8 equal to 0.44 and 0.40 respectively), perhaps because most public institutions have their own collections of working paper series and incite their agents to publish in them.

Correlations between forecast errors

To try to characterize the error forecasts of vintage data, of the different variables to explain, we calculate the correlations between two different variables for the same horizon (1 year (table 2) and 2 years (table 3) horizons), and for each variable, for the two horizons mixed together (table 4).

Table 2: Correlations between forecasting errors for the six variables considered, at one-year horizon

	GDP	consumption	inflation	unemployment	current account	budgetary balance
GDP	1,00	0,43	0,25	0,17	0,08	0,22
consumption	0,43	1,00	0,15	0,17	0,08	0,17
inflation	0,25	0,15	1,00	0,13	0,11	0,14
unemployment	0,17	0,17	0,13	1,00	0,25	0,27
current account	0,08	0,08	0,11	0,25	1,00	0,12
budgetary balance	0,22	0,17	0,14	0,27	0,12	1,00

On looking at these correlations, at one-year horizon, the biggest correlation is between the errors of GDP and consumption forecasting, which seems logical being given the weight of consumption inside GDP (around 70% in the USA and 60% in France). Yet, the forecasting of GDP may be independent of the one of consumption, since GDP forecast is most often not calculated as the sum of the projections of its components (consumption, investment, public expenditure and exports minus imports).

Unemployment and GDP forecast errors also exhibit not too low correlation coefficients with budgetary balance errors, which is understandable being given that budget revenues should be positively correlated with GDP and budget expenses should increase with unemployment.

Table 3: Correlations between forecasting errors for the six variables considered, at two-years horizon

	GDP	consumption	inflation	unemployment	current account	budgetary balance
GDP	1,00	0,46	0,20	0,13	0,06	0,36
consumption	0,46	1,00	0,17	0,13	0,06	0,19
inflation	0,20	0,17	1,00	0,13	0,04	0,20
unemployment	0,13	0,13	0,13	1,00	0,16	0,26
current account	0,06	0,06	0,04	0,16	1,00	0,06
budgetary balance	0,36	0,19	0,20	0,26	0,06	1,00

The features described for the one-year horizon are still valid for the two years horizon, with slightly different values for correlation coefficients.

Table 4: Correlations of forecasting errors for each variable, between one year and two-years horizon

GDP	**0,44**
consumption	**0,35**
inflation	**0,36**
unemployment	**0,57**
current account	**0,46**
budgetary balance	**0,39**

When calculating the correlation coefficients of forecasting errors for each variable, between the one year and the two years horizons, one finds values between 0.35 (for consumption) and 0.57 for unemployment. This can be explained by the fact that consumption is rather more volatile than unemployment over time. In other words, a year characterized by a high

consumption growth may be followed by any profile of growth (rise, stability of decrease), whereas the unemployment rate is rather smooth over time, since it is a stock of unemployed people. It is thus very unlikely to observe a high unemployment rate followed by a low one and, a good forecast for unemployment at the one-year horizon should help to make a good forecast at the two-year horizon.

III. Results

We display two main sets of regressions: the first one is without clustering at the chief economist level and the second one uses clustering at the chief economist*country level. Indeed, most variables on the right-hand side do not vary over time and depend on the economist dimensions only.

We also control for the country for which the forecast is performed (because for instance, forecasting may be more or less difficult, due to the availability of information that may vary between countries) and for the date to which the forecasting relates (month and year).

Since all institutions in the sample do not update their forecasting every month, when a forecast is unchanged between two consecutive months, we may take into account only the first release (that what is done in the second set of regressions, besides clustering). It may lead to suppress some forecasts that have indeed been updated, but that display the same result as for the previous month. Yet, we consider that this bias should be smaller and not concern a given institution a priori, unlike the bias of updating at different intervals, which can be a matter of capacity, "strategic" choice or habit for the institution.

To control for the fact that the frequency of updating depends not only on the objective of the chief economist, but is rather linked to the institution, we add a control variable, which states if the institution is a financial one (bank, insurance company), a public one (broadly speaking: university, or entity related to a school or partly financed with public funds) or a non-financial corporation (for instance in the automobile or the energy sectors…).
Moreover, even if this control is rather loose since it only entails three categories (but on the other hand, controlling for each institution would probably be too strong and would alter the significance of most coefficients), it should also enable to control for the fact that some institutions would have a tendency to recruit a kind of profile (for instance, a public institution such as a university will recruit more PhD profiles), and ensure if the characteristics of the chief economists remain significant.

Besides, since it may take some time for the Chief economist to have an influence over its team and the forecasting of its institution, we do not take into account the forecasting of a chief economist over its first year of position in a given institution.

A. Non-clustered results for the one year and the two-year horizons

Table 5: Regressions for the one year horizon, with X2=top 20 universities in Repec ranking

	GDP	Consumption	Inflation	Unemployment	Current account	Budget balance
	X2=top 20	X2=top 20	X2=top 20	X2=top 20	X2=top 20	X2=top 20
Constant	0,54***	1,33***	0,7***	0,41***	0,67**	0,7***
	(7,33)	(13,5)	(6,92)	(4,44)	(2,57)	(4,99)
X1: PhD	0,02	0	0,02	0,11***	-0,03	-0,06**
	(1,09)	(-0,05)	(0,81)	(4,5)	(-0,96)	(-2,28)
X2: PhD/MBA of a topfield University[1]/topfield French "Grande Ecole"[2]	-0,07***	-0,04*	0,03	0,06**	0	-0,03
	(-3,94)	(-1,85)	(1,06)	(2,56)	(-0,11)	(-1,35)
X3: Topfield French "Grande Ecole" preparing to a civil servant career	-0,01	0,01	0,02	0,04	-0,14***	-0,11***
	(-0,29)	(0,36)	(0,72)	(1,35)	(-2,97)	(-3,1)
X4: Former job as a forecaster in a public institution	-0,03*	0,04*	0,02	-0,04**	-0,02	-0,05***
	(-1,76)	(1,9)	(0,89)	(-2,38)	(-0,65)	(-2,69)
X5: Other former job in a public institution	0	-0,03	-0,05**	0,01	0	0,02
	(0,22)	(-1,54)	(-1,99)	(0,42)	(0,06)	(0,77)
X6: Former job as a forecaster in a private institution	-0,01	0,01	0,03	-0,06***	0,05*	0
	(-0,36)	(0,61)	(1,22)	(-2,94)	(1,94)	(0,18)
X7: Other former job in a private institution	-0,01	-0,02	-0,01	0,03*	-0,07***	-0,05**
	(-0,72)	(-1,17)	(-0,56)	(1,75)	(-2,63)	(-2,24)
X8: Publication registered in Repec	0,04**	0	0,01	0,12***	-0,01	0,02
	(2,4)	(-0,11)	(0,41)	(5,84)	(-0,45)	(0,96)
X9: Profile registered in Repec	0,02	0,08***	0,06*	-0,05*	0,11***	-0,08***
	(0,75)	(2,64)	(1,92)	(-1,84)	(2,71)	(-2,78)
X10: Female forecaster	0	0,04**	0,03	0,02	0,19***	0,01
	(-0,29)	(2,09)	(1,28)	(1,11)	(5,84)	(0,66)
X121: Age under 40?	-0,02	-0,12*	0,23***	0,21***	0,16	0,06
	(-0,43)	(-1,7)	(3,15)	(3,11)	(0,64)	(0,46)
X122: Age between 40 and 50?	-0,01	-0,04	0,16**	0,23***	0,05	0,02
	(-0,23)	(-0,57)	(2,29)	(3,55)	(0,19)	(0,16)
X123: Age between 50 and 60?	0,01	-0,08	0,19***	0,17***	0,08	0,03
	(0,16)	(-1,15)	(2,78)	(2,71)	(0,33)	(0,24)
X124: Age between 60 and 70?	-0,03	-0,06	0,15**	0,18***	0,23	0,06
	(-0,55)	(-0,92)	(2,24)	(2,84)	(0,94)	(0,46)
X125: Age beyond 70?	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Forecast made in a public institution?	-0,06	-0,31***	-0,11	-0,25***	0,12	0,01
	(-1,24)	(-4,66)	(-1,57)	(-3,92)	(1,42)	(0,09)
Forecast made in a financial institution?	-0,12**	-0,31***	-0,22***	-0,29***	0,1	0
	(-2,27)	(-4,45)	(-3,02)	(-4,33)	(1,13)	(-0,06)
Forecast made in a non-financial corporation?	-0,1**	-0,31***	-0,19***	-0,16***	0,21**	0,12*
	(-2,13)	(-4,79)	(-2,85)	(-2,7)	(2,49)	(1,88)
Forecast for USA?	-0,08***	-0,21***	0,01	-0,24***	-0,46***	-0,15***
	(-4,52)	(-8,97)	(0,52)	(-10,77)	(-13,28)	(-5,78)
Forecast for United Kingdom?	0,13***	0,01	0,09***	0,26***	0,07**	0,11***
	(7,55)	(0,42)	(3,83)	(11,63)	(2,29)	(4,47)
Control for year and month?	Yes	Yes	Yes	Yes	Yes	Yes
Cluster for economist*institution?	No	No	No	No	No	No
R^2	0,34	0,25	0,28	0,42	0,27	0,30
RMSE	0,40	0,53	0,55	0,50	0,68	0,50
Number of observations	5413	5398	5289	5126	4611	4348

T-Student statistics in parenthesis under the coefficients

1: Universities are considered topfield if they are among the first 20 in the Repec worldwide institutions ranking

2: French "Grandes Ecoles" are considered topfield if they belong to the usual "A Category", namely:

Ecole Normale Supérieure, Ecole Polytechnique, Ecole des Mines de Paris, Ecole Centrale Paris, Ecole Nationale des Ponts et Chaussées, HEC, ESSEC, ESCP-EAP

Unemployment regressions for 2 years horizon exclude a few outliers above the values of 20

*: coefficients significant at the 10% level; **: coefficients significant at the 5% level; ***: coefficients significant at the 1% level

Table 6: Regressions for the two years horizon, with X2=top 20 universities in Repec ranking

	GDP	Consumption	Inflation	Unemployment	Current account	Budget balance
	X2=top 20	X2=top 20	X2=top 20	X2=top 20	X2=top 20	X2=top 20
Constant	0,76***	1,84***	1,26***	0,42*	1,7***	1,48***
	(5,72)	(11,35)	(7,91)	(1,71)	(3,05)	(6,42)
X1: PhD	0,24***	-0,05	0,07	0,52***	-0,09*	-0,13***
	(6,95)	(-1,11)	(1,64)	(8,13)	(-1,82)	(-4,35)
X2: PhD/MBA of a topfield University[1]/topfield French "Grande Ecole"[2]	-0,06*	-0,04	0,01	-0,17***	0	0
	(-1,81)	(-1,04)	(0,15)	(-2,68)	(-0,06)	(-0,06)
X3: Topfield French "Grande Ecole" preparing to a civil servant career	0,21***	0,05	0,09	0,1	-0,1	-0,19***
	(4,8)	(0,83)	(1,58)	(1,16)	(-1,52)	(-4,88)
X4: Former job as a forecaster in a public institution	-0,06***	-0,02	0,02	-0,06	0,05	-0,04*
	(-2,37)	(-0,72)	(0,51)	(-1,12)	(1,39)	(-1,78)
X5: Other former job in a public institution	-0,04	0,02	-0,11***	-0,07	0,03	0,01
	(-1,34)	(0,67)	(-3,1)	(-1,26)	(0,77)	(0,21)
X6: Former job as a forecaster in a private institution	0,01	0,09***	-0,01	-0,24***	0,01	0,08***
	(0,35)	(2,71)	(-0,45)	(-4,92)	(0,2)	(3,31)
X7: Other former job in a private institution	-0,01	-0,02	0,1***	0,02	0,01	-0,05**
	(-0,34)	(-0,48)	(3,22)	(0,32)	(0,18)	(-2,22)
X8: Publication registered in Repec	0,03	0,05	0,12***	0,25***	-0,09**	0,01
	(1,19)	(1,56)	(3,47)	(4,67)	(-2,17)	(0,31)
X9: Profile registered in Repec	-0,1**	0,06	-0,14***	-0,36***	0,15**	-0,08**
	(-2,51)	(1,16)	(-2,87)	(-4,72)	(2,54)	(-2,2)
X10: Female forecaster	0,05*	0,08**	0,01	0,1*	0,09*	-0,04
	(1,79)	(2,29)	(0,41)	(1,92)	(1,9)	(-1,43)
X121: Age under 40?	-0,12	-0,39***	-0,03	0,65***	-0,25	-0,19
	(-1,2)	(-3,21)	(-0,25)	(3,57)	(-0,46)	(-0,87)
X122: Age between 40 and 50?	-0,01	-0,39***	0,15	0,82***	-0,24	-0,21
	(-0,13)	(-3,28)	(1,33)	(4,59)	(-0,43)	(-0,97)
X123: Age between 50 and 60?	0,01	-0,27**	0,16	0,76***	-0,23	-0,23
	(0,09)	(-2,31)	(1,44)	(4,32)	(-0,43)	(-1,06)
X124: Age between 60 and 70?	-0,15	-0,46***	0,05	0,68***	-0,21	-0,19
	(-1,61)	(-3,98)	(0,4)	(3,94)	(-0,38)	(-0,87)
X125: Age beyond 70?	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Forecast made in a public institution?	0,03	-0,35***	0,31***	-0,17	0,15	0,07
	(0,31)	(-3,12)	(2,84)	(-1,02)	(1,2)	(0,85)
Forecast made in a financial institution?	-0,05	-0,32***	0,25**	-0,32*	0,26**	0,02
	(-0,56)	(-2,78)	(2,19)	(-1,85)	(2,01)	(0,29)
Forecast made in a non-financial corporation?	-0,05	-0,35***	0,04	-0,07	0,19	0,16**
	(-0,51)	(-3,2)	(0,41)	(-0,42)	(1,6)	(2,15)
Forecast for USA?	-0,07**	-0,11***	0,2***	-0,41***	-0,28***	-0,02
	(-2,19)	(-2,87)	(5,09)	(-6,84)	(-5,62)	(-0,68)
Forecast for United Kingdom?	0,05	0,09**	0,03	0,59***	-0,08*	-0,15***
	(1,48)	(2,53)	(0,75)	(10,08)	(-1,65)	(-5,07)
Control for year and month?	Yes	Yes	Yes	Yes	Yes	Yes
Cluster for economist*institution?	No	No	No	No	No	No
R^2	0,33	0,12	0,30	0,19	0,20	0,52
RMSE	0,69	0,84	0,83	1,26	0,92	0,56
Number of observations	5099	5061	4968	4845	4346	4115

T-Student statistics in parenthesis under the coefficients

1: Universities are considered topfield if they are among the first 20 in the Repec worldwide institutions ranking

2: French "Grandes Ecoles" are considered topfield if they belong to the usual "A Category", namely:

Ecole Normale Supérieure, Ecole Polytechnique, Ecole des Mines de Paris, Ecole Centrale Paris, Ecole Nationale des Ponts et Chaussées, HEC, ESSEC, ESCP-EAP

Unemployment regressions for 2 years horizon exclude a few outliers above the values of 20

*: coefficients significant at the 10% level; **: coefficients significant at the 5% level; ***: coefficients significant at the 1% level

Table 7: Regressions for the two years horizon, with X2=top 100 universities in Repec ranking

	GDP	Consumption	Inflation	Unemployment	Current account	Budget balance
	X2=top 100	X2=top 100	X2=top 100	X2=top 100	X2=top 100	X2=top 100
Constant	0,83***	1,88***	1,22***	0,46	1,77***	1,48***
	(6,21)	(11,6)	(7,67)	(1,9)	(3,19)	(6,44)
X1: PhD	0,26***	-0,03	0,05	0,52***	-0,05	-0,13***
	(7,91)	(-0,75)	(1,29)	(8,45)	(-1,14)	(-4,37)
X2: PhD/MBA of a topfield University[1]/topfield French "Grande Ecole"[2]	-0,14***	-0,1***	0,05	-0,22***	-0,13***	-0,01
	(-4,59)	(-2,62)	(1,38)	(-3,61)	(-2,76)	(-0,35)
X3: Topfield French "Grande Ecole" preparing to a civil servant career	0,33***	0,13**	0,04	0,29***	0,01	-0,19***
	(6,56)	(2,08)	(0,68)	(3,01)	(0,13)	(-3,87)
X4: Former job as a forecaster in a public institution	-0,08***	-0,04	0,02	-0,09**	0,04	-0,04*
	(-3,08)	(-1,15)	(0,6)	(-2)	(1,22)	(-1,85)
X5: Other former job in a public institution	-0,02	0,04	-0,12***	-0,03	0,06	0,01
	(-0,61)	(1,07)	(-3,26)	(-0,6)	(1,26)	(0,27)
X6: Former job as a forecaster in a private institution	-0,03	0,06*	0	-0,29***	-0,03	0,08***
	(-1,01)	(1,76)	(0,05)	(-5,53)	(-0,84)	(3,02)
X7: Other former job in a private institution	-0,01	-0,02	0,1***	0	0,02	-0,05**
	(-0,48)	(-0,59)	(3,25)	(-0,1)	(0,54)	(-2,28)
X8: Publication registered in Repec	0,03	0,06	0,12***	0,23***	-0,08**	0,01
	(1,24)	(1,64)	(3,48)	(4,4)	(-2,08)	(0,32)
X9: Profile registered in Repec	-0,11***	0,05	-0,14***	-0,36***	0,15**	-0,08**
	(-2,75)	(0,95)	(-2,76)	(-4,72)	(2,57)	(-2,22)
X10: Female forecaster	0,06**	0,09**	0,01	0,11**	0,11**	-0,03
	(2,11)	(2,48)	(0,26)	(1,99)	(2,31)	(-1,38)
X121: Age under 40?	-0,18*	-0,43***	0	0,62***	-0,35	-0,2
	(-1,78)	(-3,54)	(0,01)	(3,37)	(-0,64)	(-0,9)
X122: Age between 40 and 50?	-0,04	-0,4***	0,17	0,82***	-0,3	-0,21
	(-0,41)	(-3,46)	(1,5)	(4,64)	(-0,55)	(-0,99)
X123: Age between 50 and 60?	-0,03	-0,29**	0,19	0,75***	-0,3	-0,24
	(-0,28)	(-2,53)	(1,63)	(4,26)	(-0,56)	(-1,09)
X124: Age between 60 and 70?	-0,19**	-0,48***	0,06	0,66***	-0,27	-0,19
	(-1,96)	(-4,18)	(0,56)	(3,82)	(-0,51)	(-0,89)
X125: Age beyond 70?	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Forecast made in a public institution?	0,03	-0,34***	0,31***	-0,14	0,15	0,07
	(0,33)	(-3,09)	(2,88)	(-0,83)	(1,19)	(0,86)
Forecast made in a financial institution?	-0,04	-0,31***	0,25**	-0,28	0,29**	0,03
	(-0,43)	(-2,67)	(2,18)	(-1,62)	(2,21)	(0,31)
Forecast made in a non-financial corporation?	-0,06	-0,35***	0,06	-0,05	0,15	0,16**
	(-0,7)	(-3,27)	(0,54)	(-0,33)	(1,22)	(2,12)
Forecast for USA?	-0,02	-0,08**	0,18***	-0,34***	-0,23***	-0,02
	(-0,62)	(-1,85)	(4,3)	(-5,36)	(-4,18)	(-0,5)
Forecast for United Kingdom?	0,05*	0,1***	0,03	0,59***	-0,06	-0,15***
	(1,65)	(2,6)	(0,67)	(10,08)	(-1,23)	(-5,03)
Control for year and month?	Yes	Yes	Yes	Yes	Yes	Yes
Cluster for economist*institution?	No	No	No	No	No	No
R^2	0,33	0,12	0,30	0,19	0,20	0,52
RMSE	0,69	0,84	0,83	1,26	0,92	0,56
Number of observations	5099	5061	4968	4845	4346	4115

T-Student statistics in parenthesis under the coefficients

1: Universities are considered topfield if they are among the first 100 in the Repec worldwide institutions ranking

2: French "Grandes Ecoles" are considered topfield if they belong to the usual "A Category", namely:

Ecole Normale Supérieure, Ecole Polytechnique, Ecole des Mines de Paris, Ecole Centrale Paris, Ecole Nationale des Ponts et Chaussées, HEC, ESSEC, ESCP-EAP

Unemployment regressions for 2 years horizon exclude a few outliers above the values of 20

*: coefficients significant at the 10% level; **: coefficients significant at the 5% level; ***: coefficients significant at the 1% level

When analyzing the results of the three previous tables, for forecast errors on the one year and the two years horizons, with different definitions of the top universities (top 20 or top 100 in Repec ranking), without clustering, one finds the following stylized facts:

<u>The horizon of the forecasting matters</u>

As we could already anticipate, being given the correlations of the forecast of each variable, for the one-year and the two-years horizons, which are high but always smaller than 0.6, the horizon of the forecasting matters and the significance and the magnitude of the explanatory variables differ depending on the horizon.

Indeed, for instance, a chief economist may develop in an institution a model that registers better performance over a one year horizon, whereas another chief economist may rely more on basic regressions based on short-term indicators (including survey data).

The variable forecasted matters: performance is not the same whatever the indicator
As can be seen in the three sets of regressions displayed, the influence of explanatory variables may differ depending on the variable to explain, in terms of magnitude, sign and significance, whatever the horizon of significance.

The fact of being a former forecaster in a public institution is usually linked with better predictions (even if performance is lower for consumption on the one year horizon, but the significance of the coefficient is low), in particular for GDP, unemployment and budget balance. The significance of the latter coefficient may be partially altered with the collinearity with the coefficient of the X3 variable, which leads to careers in the public sector in France, and is associated with very significant better predictions for budget balance and is robust for the three sets of regressions displayed. Yet, for some other variables, chief economists who come from a top-field French "Grande École" preparing to a civil servant career rather tend to under-perform.

Having been a private forecaster before does not seem to lead to better forecasting, especially for budget balances where they rather under-perform for the two years horizon, which is understandable due to the fact that this kind of variable is usually rather technical and complicated to calculate and is best known in public institutions. Yet, former private forecasters seem to over perform for unemployment forecasting and this result seems robust, whatever the horizon and the definition retained for top-field universities.

The fact of having a PhD does not seem to be linked with smaller errors. Yet, when the chief economist gets his upper diploma (PhD or MBA) from a top 20 university, his predictions seem to be of better quality (at least for the two years horizon).

The fact of being registered in Repec or having a publication in Repec, which should testify for some academic capacities, or at least for some current or past concern from the Chief Economist with the academic dimension of his job, **is not obviously linked with better results.**

The fact of being a female chief economist is rather associated with higher errors, but this conclusion is not necessarily robust to clustering.

Except for inflation, **predictions seem to be of better quality for the USA**, either due to the richness of data available or to the capacities used in forecasting institutions to make forecasts for this key country.

The influence of the nature of the institution in which the forecasting is performed **or of the age does not seem to be key in the magnitude of the forecasting errors**.

B. Clustered results, with complementary explanatory variables

For the regressions that follow, we now cluster the results, usually at the economist*country level (because the same economist may intervene in different countries over time).

We also suppress forecasts when they are unchanged compared to previous ones, and introduce new variables such as the lagged explanatory variable (with a lag of one year) and

the fact of being a "hedgehog" (Cf. Tetlock (2005)), by opposition to "foxes". We also reinforce controls by introducing country*year variables, besides the control already used for months.

Table 8: Clustered regressions on a two-year horizon

	GDP	Consumption	Inflation	Unemployment	Current account	Budget balance
	X2=top 100	X2=top 100	X2=top 100	X2=top 100	X2=top 100	X2=top 100
Constant	1.51***	0.85***	1.01***	3.62***	2.81***	2.18***
	(8.15)	(3.25)	(4.97)	(8.51)	(7.67)	(9.06)
Variable to explain with a lag of one year	0.11	0.05*	0.01	0.03	-0.02	-0.02
	(1.34)	(1.85)	(0.83)	(1.27)	(-0.89)	(-1.13)
Fact of being a hedgehog (Cf. Tetlock (2005))	-0.21*	-0.09	-0.09	-0.31**	-0.21**	-0.04
	(-1.87)	(-0.77)	(-1.14)	(-2.04)	(-2.38)	(-0.87)
X1: PhD	0.12	0.05	-0.05	0.16	0.01	-0.12***
	(1.23)	(0.44)	(-1.16)	(1.09)	(0.10)	(-2.73)
X2: PhD/MBA of a topfield University[1]/topfield French "Grande Ecole"[2]	-0.41	-0.13	-0.04	-0.08	-0.15	0.03
	(-0.51)	(-1.31)	(-1.02)	(-0.57)	(-1.44)	(0.73)
X3: Topfield French "Grande Ecole" preparing to a civil servant career	0.05	0.08	0.12*	0.07	0.04	-0.17***
	(0.59)	(0.79)	(1.95)	(0.46)	(0.30)	(-2.79)
X4: Former job as a forecaster in a public institution (for inflation: former agent in a central bank)	-0.11**	-0.03	-0.15*	-0.04	0.07	0.02
	(-2.19)	(-0.47)	(-1.72)	(-0.52)	(0.97)	(0.52)
X5: Other former job in a public institution	-0.03	0.04	-0.09*	-0.10	0.01	0.05
	(-0.67)	(0.63)	(-1.89)	(-1.40)	(0.05)	(1.01)
X6: Former job as a forecaster in a private institution	0.02	-0.03	0.05	0.02	-0.04	0.03*
	(0.35)	(-0.45)	(1.01)	(0.24)	(-0.48)	(1.84)
X7: Other former job in a private institution	-0.02	0.04	0.05	-0.19***	0.02	-0.05
	(-0.50)	(0.73)	(1.20)	(-2.58)	(0.26)	(-1.25)
X8: Publication registered in Repec	0.11*	0.07	0.09*	0.17*	-0.05	-0.08*
	(1.87)	(1.06)	(1.79)	1.93	(-0.71)	(-1.77)
X9: Profile registered in Repec	0.07	0.05	0.08	0.19	0.27	-0.06
	(1.12)	(0.51)	(1.09)	(1.55)	(1.44)	(-1.45)
X10: Female forecaster	0.00	0.02	-0.03	-0.00	0.07	-0.07*
	(0.09)	(0.51)	(-1.08)	(-0.02)	(1.34)	(-1.93)
X121: Age under 40?	omitted	omitted	-0.19**	omitted	-0.69***	omitted
			(-2.15)		-2.73	
X122: Age between 40 and 50?	-0.01	-0.01	-0.13	0.10	-0.56**	-0.05
	(-0.18)	(-0.07)	(-1.52)	(1.16)	(-2.49)	(-0.79)
X123: Age between 50 and 60?	0.10	0.11	-0.07	0.14	-0.61***	-0.07
	(1.32)	(1.22)	-0.83	(1.14)	(-2.75)	(-1.29)
X124: Age between 60 and 70?	-0.01	-0.06	-0.09	0.17	-0.50**	-0.07
	(-0.09)	(-0.66)	-1.12	(1.39)	(-2.39)	(-1.07)
X125: Age beyond 70?	0.01	-0.16	omitted	0.09	omitted	0.11
	(0.11)	(-1.23)		(0.53)		(1.37)
Forecast made in a public institution?	-0.39*	-0.17	-0.03	-0.81**	-0.10	0.13*
	(-1.88)	(-0.69)	(-0.19)	(-2.54)	(-0.55)	(1.68)
Forecast made in a financial institution?	-0.53*	-0.22	-0.01	-0.81**	0.06	0.11
	(-1.94)	(-0.73)	(-0.07)	(-2.08)	(0.28)	(1.30)
Forecast made in a non-financial corporation?	-0.32	-0.31	-0.27**	-0.56*	-0.16	0.11
	(-1.61)	(-1.28)	(-2.34)	(-1.81)	(-0.69)	(1.38)
Control for country*year and month?	Yes	Yes	Yes	Yes	Yes	Yes
Cluster for economist*country?	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.64	0.53	0.58	0.35	0.32	0.65
RMSE	0.50	0.60	0.64	1.26	0.91	0.48
Number of observations	2918	3042	2799	2625	2838	2517

T-Student statistics in parenthesis under the coefficients

1: Universities are considered topfield if they are among the first 100 in the Repec worldwide institutions ranking

2: French "Grandes Ecoles" are considered topfield if they belong to the usual "A Category", namely:

Ecole Normale Supérieure, Ecole Polytechnique, Ecole des Mines de Paris, Ecole Centrale Paris, Ecole Nationale des Ponts et Chaussées, HEC, ESSEC, ESCP-EAP

Unemployment regressions for 2 years horizon exclude a few outliers above the values of 20

*: coefficients significant at the 10% level; **: coefficients significant at the 5% level; ***: coefficients significant at the 1% level

Former experience matters

The stylized fact already found in the non-clustered regressions, namely the importance of former experience, such as former experience in the public sector, is confirmed with clustering.

For predictions related to inflation, the fact of being a former agent in a central bank seems to play a positive role, being given the importance of this variable in these latter institutions, as a monetary policy objective, even if the coefficient is only significant at the 10% level (but a lot of control variables and fixed effects have been introduced, which usually lower the significance of the coefficients of other variables).

To confirm the finding that former experience matters, we implement a complementary regression hereafter, for the one year horizon for GDP, using as explanatory variables the fact of having or not a former experience as a forecaster (this experience as a forecaster may be mixed or not with another experience as non-forecaster: what is important is the fact of having worked before as a forecaster). Unlike the regressions of table 8, we do not include the fact of being a "hedgehog" or the lagged variable to explain.

We find indeed that the fact of becoming a forecaster, without former experience in this field, is associated with significantly poorer results, keeping as explanatory variables X4 to X7 (former job as public forecaster, public non forecaster, private forecaster and private non forecaster) or not (respectively columns (1) and (2) of the following table).

Table 9: Clustered regressions for GDP for the one year horizon, when checking if the chief economist had any former experience as a forecaster

	GDP	GDP
	X2=top 100	X2=top 100
Constant	1.28***	1.29***
	(8.75)	(10.14)
Former experience only as a forecaster	0.21	0.19
	(1.01)	(1.07)
Former experience only as a non forecaster	0.29**	0.34**
	(2.07)	(2.02)
Former experience as forecaster and non forecaster	0.19	0.20
	(1.15)	(1.37)
X1: PhD	0.15	0.18
	(1.20)	(1.24)
X2: PhD/MBA of a topfield University[1]/topfield French "Grande Ecole"[2]	-0.16	-0.17
	(-1.12)	(-1.20)
X3: Topfield French "Grande Ecole" preparing to a civil servant career	0.17	0.18
	(1.40)	(1.40)
X4: Former job as a forecaster in a public institution (for inflation: former agent in a central bank)	-0.06	not included
	(-0.96)	
X5: Other former job in a public institution	0.03	not included
	(0.35)	
X6: Former job as a forecaster in a private institution	-0.01	not included
	(-0.10)	
X7: Other former job in a private institution	0.01	not included
	(0.15)	
X8: Publication registered in Repec	0.11	0.10
	(1.51)	(1.34)
X9: Profile registered in Repec	-0.03	-0.03
	(-0.70)	(-0.70)
X10: Female forecaster	0.02	0.01
	(0.41)	(0.37)
X121: Age under 40?	omitted	omitted
X122: Age between 40 and 50?	-0.02	-0.01
	(-0.38)	(-0.16)
X123: Age between 50 and 60?	0.09	0.10
	(0.95)	(0.98)
X124: Age between 60 and 70?	-0.06	-0.07
	(-0.77)	(-0.95)
X125: Age beyond 70?	-0.11	-0.13
	(-1.18)	(-1.49)
Forecast made in a public institution?	-0.37*	-0.42*
	(-1.76)	(-1.91)
Forecast made in a financial institution?	-0.46*	-0.51*
	(-1.71)	(-1.78)
Forecast made in a non-financial corporation?	-0.29	-0.34*
	(-1.51)	(-1.64)
Control for country*year and month?	Yes	Yes
Cluster for economist*country?	Yes	Yes
R^2	0.64	0.64
RMSE	0.51	0.52
Number of observations	5099	5099

T-Student statistics in parenthesis under the coefficients

1: Universities are considered topfield if they are among the first 100 in the Repec worldwide institutions ranking

2: French "Grandes Ecoles" are considered topfield if they belong to the usual "A Category", namely:

Ecole Normale Supérieure, Ecole Polytechnique, Ecole des Mines de Paris, Ecole Centrale Paris, Ecole Nationale des Ponts et Chaussées, HEC, ESSEC, ESCP-EAP

Unemployment regressions for 2 years horizon exclude a few outliers above the values of 20

*: coefficients significant at the 10% level; **: coefficients significant at the 5% level; ***: coefficients significant at the 1% level

The variable forecasted matters: performance is not the same whatever the indicator

This stylized fact exhibited with non-clustered regressions, according to which the forecasting performance depends on the variable, is still valid.

"Hedgehogs" rather over perform

Referring to the concept of "hedgehogs" developed by Tetlock (2005) by opposition to "foxes", we analyze the profile of each chief economist in our sample, and attribute the value of 1 when his profile is the one of an person with high expertise, in a field related to forecasting or to a close matter (for example productivity) and/or who has hold a position for a long time in a given institution. These characteristics should give to the chief economists some expertise, but perhaps also excessive self-confidence.

If the economist does not seem to exhibit an expert profile and has a rather varied profile which would suggest some kind of opportunism (for example, a chief economist without PhD and who had many experiences in different institutions, both as forecaster and non forecaster), we will attribute the value of 0.

If the conclusion is not obvious on reading the curriculum of the chief economist, profile is considered to be between the two, and we attribute the value of 0.5.

In the set of regressions with clusters (Cf. table 8), the fact of being a "hedgehog" seems to have a positive influence on the quality of forecasting, as regards GDP, unemployment and current account.

Moreover, in this set of regressions, we have also included as an explanatory variable the variable to explain, lagged with one year. When we include the variable "hedgehog" in the regression, the explanatory power of the lagged variable is rather low, except for consumption (at the 10% level though). Thus, the quality of forecasting seems rather structurally linked to the profile of the forecaster and not to the fact of having made a good forecast on the previous year, possibly by chance.

IV. Conclusion

Using an econometric approach to establish if the profile of chief economists in charge of forecasting in public and private institutions matters for the quality of their forecasting, we find that both the horizon of the forecasting and the variable forecasted matters: performance is not the same whatever the indicator and the horizon.

We also find that, for the chief economists, former experience matters, among other former experience in the public sector (especially for French civil servants as regards budget balance forecasts). Lastly, when using the concept developed in Tetlock (2005), we find that "hedgehogs" rather over perform compared to "foxes" and that this characteristic may occult other explanatory variables.

Among the possible ways for further research, since the "hedgehog" profile seems to be important, one may try to find an instrument or more systematic criteria to confirm the over performance of "hedgehogs".

We may also try to check if the findings are confirmed whatever the period, to check the findings of Tetlock (2005). Indeed, in times of crisis, if "hedgehogs" lack flexibility to adapt their findings, due to over-confidence in their expertise, their over performance may be challenged, compared with "foxes".

References:

Andrade, Philippe & Le Bihan, Hervé (2013). "Inattentive professional forecasters", Journal of Monetary Economics, Elsevier, vol. 60(8), pages 967-982

Bowles, Carlos et al. (2007)."The Survey of professional Forecasters (SPF) A review after eight years' experience", European Central Bank, Working Paper NO 59

D'Agostino, Antonello & McQuinn, Kieran (2010). "Are Some Forecasters Really Better Than Others?", UCD School of economics University College Belfied Dublin, Working Paper WP10/12

Lamont, Owen (1995). "Macroeconomic Forecasts and Microeconomic Forecasters", National Bureau of Economic Research, Working Paper #5284.

Ottaviani, Marco & Sørensen, Peter Norman (2006). "The Strategy of Professional Forecasting", Journal of Financial Economics, Elsevier, vol. 81(2), pages 441-466, August.

Patton, Andrew J. & Timmermann, Allan (2010). "Why do forecasters disagree? Lessons from the term structure of cross-sectional dispersion", Journal of Monetary Economics

Stark, Tom (1997). "Macroeconomics forecasts and microeconomic forecasters in the survey of professional forecasters", Federal Reserve Bank of Philadelphia, Working Paper NO. 97-10

Steira, Øyvind (2012). "How Accurate are Individual Forecasters? An Assessment of the Survey of Professional Forecasters", *Institute for Research in Economics and Business Administration,* Working Paper No 51/12

Stekler, Herman (1987). "Who Forecasts Better?", Journal of Business & Economic Statistics, Vol. 5, No. 1 (Jan., 1987), pp. 155-158

Tetlock, Philip E. (2005). "Expert Political Judgment. How Good Is It? How Can We Know?", Princeton Univ. Press.

Woodford, M. (2002). "Imperfect common knowledge and the effect of monetary policy". Knowledge, Information and Expectations in Modern Macroeconomics: In Honor of Edmund S. Phelps. Aghion, P., Frydman, R., Stiglitz, J. and Woodford, M. eds. Princeton University Press.