I. ATTEMPTING TO QUANTIFY THE ACCURACY OF COMPLEX MACROECONOMIC FORECASTS

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Abstract

Based on the 2012 Version of the Romanian Macromodel, the first section of this paper discusses the evolution of the Romanian economy in 2014. The previous simulations were revised taking into account the changes in the internal and external socio-economic conjuncture or in the available statistics. Starting from improved input-output tables, the Leontief matrix was recalculated, maintaining the ten-branch sectoral structure. Some accommodated exogenous parameters and expert corrective coefficients were also incorporated, according to the modified context in which the Romanian economy was effectively developing during this period.

The second section examines the forecast accuracy problem for the case of a complex economic macromodel. The methodological considerations are doubled by an illustrative application, comparing the previous projections for 2014 with the last preliminary data.

The third section presents the main predictive estimates for 2015, commented in correlation with the official prognosis.

Some concluding remarks are synthetized in the fourth section of the paper.

Keywords: macromodel, simulation, forecast accuracy

JEL Classification: C32, C51, C52, C53

I. Introduction: The Romanian Economy in 2014

Based on the last version of our macromodel (NCP, 2013; Păuna and Sâman, 2013), the paper presents and discusses the evolution of the Romanian economy over the period 2014-2015.

1. Regarding the year 2014, the previous simulations (Dobrescu, 2013) have been revised taking into account the changes in the internal and external socio-economic conjuncture or in the available statistics.

1.1. Among them, the improved input-output tables must be especially mentioned. They were extended by two years, concomitantly with the methodological homogenisation of data for the entire interval 1989-2011 (NIS, 2014).

The Leontief matrix was correspondingly recalculated for the ten-sector structure of economy as in the previous simulations, namely: 1. Agriculture, forestry, hunting and fishing; 2. Mining and quarrying; 3. Production and distribution of electric and thermal power; 4. Food, beverages and tobacco; 5. Textiles, leather, pulp and paper, furniture; 6. Machinery and equipment, transport means, other metal products; 7. Other manufacturing industries; 8. Constructions; 9. Transports, post and telecommunications; and 10. Trade, business and public services.

1.2. Almost all the indicators for the years 2012-2013 were also amended - employment, tangible fixed assets, labor income, macroeconomic production function, private and public consumption, gross capital formation, foreign trade, price indexes, exchange rate, other monetary variables, general consolidated budget and public debt, balance of payments and external debt. As inputs to the macromodel equations, these modifications also influenced the updated numerical results for 2014.

1.3. Normally, the simulations incorporated some accommodated exogenous parameters and expert corrective coefficients, according to the changed conditions (against the previous computations) in which the economy effectively developed during 2014.

2. Table 1 contains the main annual macroindicators for 2014, in four estimating variants:

- NCP13 – the predictions of the National Commission for Prognosis provided at the end of 2013;

- BSc13 – the Base Scenario described in the Romanian Journal of Economic Forecasting (RJEF), number 4/2013 (Dobrescu, 2013, pp. 14-16);

- ASc13 – the Alternative Scenario published in the same number of RJEF;

- Prel14 – the updated macromodel simulations, considered as referential preliminary data.

Since the branch nomenclature involved in the NCP prognosis is different from that of the macromodel, the sectoral data have not been included.

According to Table 1, for most of the real and nominal indicators (except for the current account), the NCP predictions and the Macromodel Base Scenario are close enough to the preliminary data.

More significant differences (concerning especially the general consolidated budget) can be observed for the Macromodel Alternative Scenario. We remind, however, that this scenario was intrinsically conceived as a possible, but undesirable trajectory of the economy. The preliminary data confirm that it was generally avoided.

Table 1

Annual Macroindicators of the Romanian Economy for 2014

Indicators	Symbol	NCP13	BSc13.	ASc13	Prel14
Gross domestic product, current prices, bill. RON	GDP	661.3	669.2077	670.7443	667.9566
Index of gross domestic product, constant prices (previous year=1)	IGDPc	1.022	1.026249	1.016756	1.024835
Index of household consumption, constant prices (previous year=1)	ICHc	1.019	1.01411	0.98339	1.015357
Index of public consumption, constant prices (previous tear=1)	ICGc	1.013	0.985384	1.005476	1.0148
Index of gross fixed capital formation, constant prices (previous year=1)	IGFCFc	1.045	1.059844	1.018505	1.022715
Export of goods, bill. EUR	XGE	51.7	50.26808	50.27462	49.83732
Import of goods, bill. EUR	MGE	58.616	61.23871	60.67803	58.60821
Current account, bill. EUR	CAE	-1.91	-8.66699	-8.3899	-6.78975
Ratio of the current account to GDP	rCAE	-0.013	-0.05764	-0.05611	-0.04502
Unemployment rate, ILO definition	ru	0.07	0.070667	0.072811	0.068607
Consumer price index (previous year=1)	CPI	1.03	1.03048	1.065174	1.030164
Industrial production price index (previous year=1)	IPPI		1.043951	1.043951	1.03799
Gross domestic product deflator (previous year=1)	PGDP	1.034	1.039215	1.051327	1.03689
Exchange rate RON/EUR	ERE	4.45	4.450641	4.485896	4.42912
Employment, mill. persons, AMIGO definition	E	9.46	8.961894	8.941216	9.183241
Salaried persons in the economy, mill. persons, AMIGO definition	ES	6.36	6.074172	6.222619	6.250881
General consolidated budget revenues, bill. RON	BR	221.9211	225.54	224.8156	216.2598
General consolidated budget expenditures, bill. RON	BE	235.957	240.9268	251.8517	230.9181
General consolidated budget balance, bill. RON	BB	-14.0359	-15.3868	-27.0361	-14.6583
Ratio of the general consolidated budget balance to GDP	cbb	-0.02125	-0.02299	-0.04031	-0.02195

3. The second section of the paper examines the forecast accuracy problem in the case of a complex economic macromodel. The methodological considerations are doubled by an illustrative application, comparing the BSc13 and ASc13 estimates with the preliminary data for 2014. This analysis includes not only the macroindicators (detailed in Table 1), but also the sectoral estimates as well.

The third section of the paper extends the macromodel predictive simulations for 2015, starting from the last preliminary data for 2014. The main computational assumptions and results of these simulations are commented in comparison with the corresponding work of the National Commission of Prognosis.

Some concluding remarks are synthetized in the last section of the paper.

II. The Forecast Accuracy Problem

At all times, the accuracy of predictions was a highly challenging question. The rapidly increasing complexity of the modern economy has considerably emphasized this interest, first of all, for practical reasons, but as a theoretical feed-back also. A huge amount of literature discusses this issue relating to simple (for one or few variables) and multi-indicators forecasts, in both their possible determinations (*ex ante* or *ex post*). It was intensively disseminated by the well-known M-competitions (1982, 1993, 2000), organized by the teams led by S. Makridakis in order to comparatively evaluate the accuracy of different forecasting methods (Makridakis and Hibon, 2000).

1. The forecast accuracy estimation raises many methodological problems, of which several are essential.

1.1. Roughly speaking, it is estimated by confronting the predicted values of interest (denoted by F) and the similar benchmark vector (denoted by B) represented by statistical data or by the informational output of other model admitted as referential. Frequently, the corresponding indicators of the so-called naïve (random walk) forecast (Mincer and Zarnowitz, 1969; Scott and Collopy, 1992: Makridakis and Hibon, 1995: Hyndman and Koehler, 2006; Hoover, 2009; Jakaitiene and Dées, 2009; Goodwin, 2014) are recommended as benchmark.

1.2. Secondly, the choice of an adequate metrics for quantifying the deviation of F against B is also important. Until now, many such measures were experimented. Conceptualizing the terminological diversity in this field, these metrics gravitate around:

- the differences between the corresponding elements of F and B, as absolute or relative magnitudes (Armstrong and Collopy, 1992; Tofallis, 2013; Goodwin, 2014); their logarithm can be also included in this category (Tofallis, 2013);

- the mean of the above-mentioned squared differences (Mincer and Zarnowitz, 1969; Armstrong and Collopy, 1992; Diebold and Mariano, 1995; Makridakis and Hibon, 1995; Granger and Pesaran, 2000; Hyndman, 2006; Hyndman and Koehler, 2006; Valentin, 2007; Hoover, 2009; Gorr, 2009; Susan, 2009; Vermorel, 2013; Goodwin, 2014);

- the median (Makridakis and Hibon, 1995; Hyndman and Koehler, 2006; Gorr, 2009) or mean of such differences (Armstrong and Collopy, 1992; Makridakis and

Hibon, 1995; Kitchenham *et al.*, 2001; Hyndman, 2006; Hyndman and Koehler, 2006; Kolassa and Schutz, 2007; Kolassa, 2008; Hoover, 2009; Gorr, 2009; Green and Tashman, 2009; Susan, 2009; Hoover, 2009; Clements, 2010; Stellwagen, 2011; Vermorel, 2013; Tofallis, 2013; Diebold and Shin, 2014: Goodwin, 2014).

2. In our empirical analysis, the accuracy of two macromodel forecasts for 2014 (BSc13 and Asc13) will be defined in relation to the preliminary estimations for this year (Prel14). As an accuracy metrics, we propose the relative absolute deviations

$$RAD=|F/B-1| \quad (1)$$

which are easily interpretable.

Technically, it would not be difficult to make such a comparison involving all the indicators contained in the macromodel. Among them there are, however, many interferences and juxtapositions. Consequently, in order to limit the perturbing implications of redundancies as much as possible, we shall focus attention on five main blocks, all of them having an unsubstitutable significance in defining the state of the economy. Each of them is characterized by a representative integral indicator. The blocks are (the integral indicator in brackets):

- Macroeconomic production function at current prices (GDP);
- Sectoral structure of the gross value added (GVA);
- Domestic absorption (DAD);
- Foreign trade (FT);
- General consolidated budget (GCB).

Table 2 displays the representative integral indicators for BSc13, ASc13, and Prel14, and their corresponding relative absolute deviations, RADB and RADA.

Table 2

Forecast Accuracy for Integral Indicators of the Main Blocks

Indicator, bill. RON	BSc13	ASc13	Prel14	RADB	RADA
GDP	669.2077	670.7443	667.9566	0.001873	0.004174
GVA	582.3974	585.0576	582.8627	0.000798	0.003766
DAD	713.7	714.4	704.6	0.012869	0.013802
FT	568.3	571.1	561.8	0.011572	0.016629
GCB	466.4668	476.6674	447.1779	0.043135	0.065946
Mean				0.014049	0.020863

Estimated for the integral indicators, the forecast accuracy is acceptable for the GDP, GVA, DAD, and FT, and does not look very bad in the case of GCB. As a mean, the absolute relative deviation represents only 1.4% for the Base Scenario and approximately 2.1% for the Alternative Scenario.

3. Due to some analytical and managerial reasons, it could be necessary to investigate the problem at a more disaggregated level, taking into account the forecast accuracy of the components included in the above-defined blocks. Table 3 describes them, with the specification adopted in Version 2012 of the Romanian macromodel.

Table 3

Components of the Main Blocks

Block	Determinants (symbols in brackets)
Macroeconomic production function at current prices (GDP)	Employment, mill. persons (E); Tangible fixed assets, constant prices 2005, bill. RON (Kc05); Labor income share in gross value added (alpha); Total factor productivity, constant prices 2005 (TFP05n); Gross domestic product deflator, year 2005=1 (PGDP05)
Sectoral structure of the gross value added (GVA)	Gross value added of sector i, current prices, bill. RON (GVAi for i=1, 2,…, 10)
Domestic absorption (DAD)	Market consumption of households, current prices, bill. RON (CHm); Non-market consumption of households, current prices, bill. RON (CHn); Public consumption, current prices, bill. RON (CG); Gross fixed capital formation, current prices, bill. RON (GFCF); Inventory change, current prices, bill. RON (STOCK)
Foreign trade (FT)	Export of goods and services, current prices, bill. RON (X); Import of goods and services, current prices, bill. RON (M)
General consolidated budget (GCB), revenues (BR) and expenditures (BE)	Collected taxes on profits, bill. RON (DTP); Collected taxes on wages as income, bill. RON (DTW); Employers' social security contributions, bill. RON (SCF); Employees' social security contributions, bill. RON (SCE); Value-added tax, bill. RON (VAT); Excises, bill. RON (EX); Customs duties, bill. RON (CD); Other GCB revenues, bill. RON (OGR); Grants, including EU disbursements, bill. RON (EUF); Expenditures for labor cost, bill. RON (GW); Purchasing of goods, services, and other temporary expenditures, bill. RON (GSOBET); Subsidies, bill. RON (GBS); Expenditures for pensions, bill. RON (TRE); Social expenditures (incl. for unemployment) and other transfers, bill. RON (SA1OTR); Capital expenditures and EU projects, bill. RON (KEEUP); Interest payments, bill. RON (GIE); Contribution of Romania to EU budget, repayments and loans, bill. RON (EUC+RL)

These blocks and their determinants are linked by the following relationships:

$$GDP=E^{alpha}*Kc05^{(1-alpha)}*TFP05n*PGDP05 \qquad (2)$$
$$GVA=\Sigma GVAi, \text{ for } i=1, 2,..., 10 \qquad (3)$$
$$DAD=CHm+CHn+CG+GFCF+STOCK \qquad (4)$$
$$FT=X+M \qquad (5)$$
$$GCB=BR+BE=DTP+DTW+SCF+SCE+VAT+EX+CD+OGR+EUF+GW+GSOBET+$$
$$+GBS+TRE+SA1OTR+KEEUP+GIE+(EUC+RL) \qquad (6)$$

The BSc13, Asc13, and Prel14 series are detailed in the Statistical Appendix.

4. For such an attempt, it is necessary, first of all, to estimate the relative absolute deviations of BSc13 and of ASc13 in comparison with Prel14 for all the above-mentioned components. However, it would be hard to accept their aggregation by the

simple arithmetic mean. Clearly, the mentioned components have not an equal significance. In our opinion, their shares in forming the corresponding integral indicators could be used as differentiated weights of summation. In the case of the first block, such a solution would be possible through the logarithms of the macroeconomic production function.

The relative absolute deviations of BSc13 and ASc13 in comparison with Prel14 are presented in Table 4 in a double determination (as such and as weighted values).

Table 4

Forecast Accuracy for the Components of the Main Blocks

Symbol	RADB	RADA	Weights	wRADB	wRADA
E^alpha	0.069162	0.091445	0.198359	0.013707	0.018123
Kc05^(1-alpha)	0.204659	0.286943	0.420462	0.085976	0.120543
TFP05n	0.112139	0.1564	0.285507	0.031989	0.044614
PGDP05	0.012043	0.023838	0.095673	0.001151	0.002279
GVA1	0.084767	0.080586	0.069109	0.005858	0.005569
GVA2	0.34316	0.340159	0.022806	0.007826	0.007758
GVA3	0.169217	0.165423	0.047078	0.007966	0.007788
GVA4	0.092816	0.097808	0.034016	0.003157	0.003327
GVA5	0.140514	0.136588	0.055924	0.007858	0.007638
GVA6	0.029275	0.024841	0.106415	0.003115	0.002643
GVA7	0.136543	0.141734	0.05934	0.008103	0.008411
GVA8	0.049253	0.04491	0.113242	0.005578	0.005086
GVA9	0.198798	0.204274	0.085869	0.017071	0.017541
GVA10	0.022336	0.027006	0.406201	0.009073	0.01097
CHm	0.02506	0.022752	0.534742	0.013401	0.012167
CHn	0.143874	0.141969	0.054984	0.007911	0.007806
CG	0.110905	0.062232	0.160427	0.017792	0.009984
GFCF	0.114602	0.031763	0.237314	0.027197	0.007538
STOCK	1.97667	2.889766	0.012534	0.024776	0.036221
X	0.002507	0.004577	0.467355	0.001171	0.002139
M	0.023925	0.027203	0.532645	0.012743	0.01449
DTP	0.087476	0.105576	0.026566	0.002324	0.002805
DTW	0.028519	0.042249	0.045616	0.001301	0.001927
SCF ,	0.030768	0.036496	0.080206	0.002468	0.002927
SCE	0.041031	0.02823	0.051153	0.002099	0.001444
VAT	0.108732	0.086681	0.124736	0.013563	0.010812
EX	0.219824	0.216503	0.055339	0.012165	0.011981
CD	0.384334	0.388766	0.002009	0.000772	0.000781
OGR	0.079961	0.064785	0.084569	0.006762	0.005479
EUF	0.583333	0.583333	0.013417	0.007827	0.007827
GW	0.13874	0.047946	0.104584	0.01451	0.005014
GSOBET	0.07556	0.083905	0.09032	0.006825	0.007578
GBS	0.001873	0.004174	0.014747	2.76E-05	6.15E-05

Symbol	RADB	RADA	Weights	wRADB	wRADA
TRE	0.029209	0.031665	0.106789	0.003119	0.003381
SA1OTR	0.047953	0.071282	0.078119	0.003746	0.005568
KEEUP	0.383282	0.386823	0.081733	0.031327	0.031616
GIE	0.02831	0.155242	0.023326	0.00066	0.003621
EUC+RL	0	0	0.016772	0	0

5. Aggregated for each block, the weighted relative absolute deviations are presented in Table 5

Table 5

Weighted Relative Absolute Deviations Aggregated for Each Block

Block	wRADB	wRADA
1.Macroeconomic production function at current prices (GDP)	0.132823	0.185559
2. Sectoral structure of gross value added (GVA)	0.075605	0.076731
3. Domestic absorption (DAD)	0.091076	0.073715
4. Foreign Trade (FT)	0.013915	0.016629
5. General Consolidated Budget (GCB)	0.00066	0.003621

A more disaggregated analysis of the forecast accuracy changes substantially the picture described in Table 2. The RAD Graph is conclusive.

Graph RAD
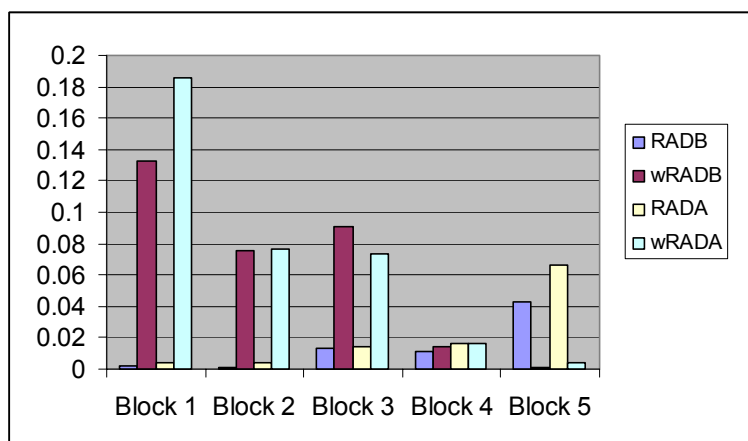
The mean of wRADB increases to 6.3% and of wRADA to 7.1%, being higher than the level of the integral indicators. This is an expected result, since in a non-negligible measure the accuracy disturbances are reciprocally neutralized by aggregation.

III. Predictive Simulations for 2015

1. As for 2015, there were again predictive simulations within two scenarios – basic and alternative. Both of them take into consideration that the external economic conjuncture remains complicated.

The main positions of general consolidated budget were conceived without changes in taxation, but under conditions of a more effective fight against fiscal evasion.

A noticeable extension of the banking credit is also expected, concomitantly with a better absorption of the European structural funds. A relative constancy of the international reserves of the National Bank of Romania is assumed.

The basic scenario maintains the trend of economic growth recorded in the second part of the current year, especially due to the amplification of the investment process.

The alternative scenario admits that the institutional uncertainties do not yet allow for a significant improvement in the internal business environment, with a compression of the gross capital formation. The consumption also stagnates.

2. The differences between the mentioned predictive scenarios are synthetized in Table 6, which also reproduces the indicators for 2015 estimated by the National Commission of Prognosis.

Table 6

Estimations for 2015

Indicators	Symbol	Prel14	NCP14	BSc14	ASc14
Gross domestic product, current prices, bill. RON	GDP	667.9566	698.6	704.1351	704.088
Index of gross domestic product, constant prices (previous year=1)	IGDPc	1.024835	1.026	1.027855	1.017485
Index of households consumption, constant prices (previous year=1)	ICHc	1.015357	1.029	1.008874	0.997111
Index of public consumption, constant prices (previous tear=1)	ICGc	1.0148	1.017	0.933857	0.911941
Index of gross fixed capital formation, constant prices (previous year=1)	IGFCFc	1.022715	1.040	1.049656	0.961997
Export of goods, bill. EURO	XGE	49.83732	57.015	48.92468	48.49104
Import of goods, bill. EURO	MGE	58.60821	60.605	60.61274	59.4434
Current account, bill. EURO	CAE	-6.78975	-2.365	-9.35894	-9.09454
Ratio of the current account to GDP	rCAE	-0.04502	-0.0151	-0.05848	-0.05723
Unemployment rate, ILO definition	ru	0.068607	0.0695	0.066757	0.066757
Consumer price index (previous year=1)	CPI	1.030164	1.028	1.020093	1.032055
Industrial production price index (previous year=1)	IPPI	1.03799		1.039926	1.039926
Gross domestic product deflator (previous year=1)	PGDP	1.03689	1.028	1.025595	1.035978

Indicators	Symbol	Prel14	NCP14	BSc14	ASc14
Exchange rate RON/EURO	ERE	4.42912	4.4	4.399505	4.430417
Employment, mill. persons, AMIGO definition	E	9.183241	9.355	9.259242	9.259242
Salaried persons in economy, mill. persons, AMIGO definition	ES	6.250881	6.410	6.033845	5.945054
General consolidated budget revenues, bill. RON	BR	216.2598	230.169	231.5502	223.1918
General consolidated budget expenditures, bill. RON	BE	230.9181	240.205	243.9841	244.1937
General consolidated budget balance, bill. RON	BB	-14.6583	-10.0363	-12.4339	-21.0019
Ratio of the general consolidated budget balance to GDP	cbb	-0.02195	-0.01437	-0.01766	-0.02983

3. The sectoral structure is characterized by the shares of different branches in the total gross value added of the economy (Graph EcS).

Graph EcS
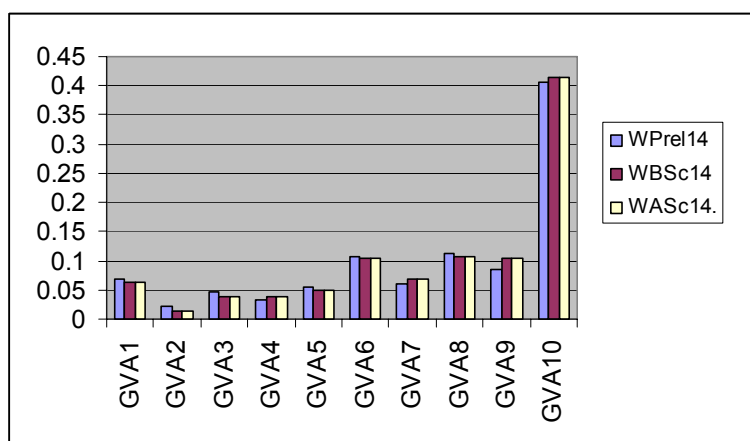
Both scenarios, therefore, incorporate relatively small changes in the sectoral structure of the Romanian economy.

IV. Final Discussion

Our analysis consolidated some previous statements regarding the applicative macromodelling of an emergent economy, but at the same time raised new problems.

1. Generally, the preliminary data for 2014 have re-confirmed the potentialities of the last version of Romanian macromodel to generate reliable predictive estimations. Undoubtedly, its performance must be further improved by taking into account the new

statistical data, the signals - provided by simulations - concerning the econometric specification of behavioural equations, a more complex foundation of expert corrective coefficients involved in scenario building.

2. The determination of forecast accuracy at the level of components of the main macromodel blocks has proved to be relevant for the analysis of aggregated computational effects. Therefore, the second section of the paper used the weights of the benchmark series.

Obviously, the corresponding weights of compared series could be also involved. Consequently, Table 5 was completed with the results computed by the weights of BSc13 (denoted by wbRADB), and of ASc13, respectively (denoted by waRADA). There were added, as well, the Fisher averages, FB and FA:

$$FB=(wRADB*wbRADB)^{0.5} \text{ and} \tag{7}$$
$$FA=(wRADA*waRADA)^{0.5} \tag{8}$$

Table 5

Recalculated Weighted Relative Absolute Deviations Aggregated for Each Block

Block	wRADB	wbRADB	wRADA	waRADA	FB	FA
1.Macroeconomic production function at current prices (GDP)	0.132823	0.135852	0.185559	0.191214	0.134329	0.158772
2. Sectoral structure of the gross value added (GVA)	0.075605	0.07466	0.076731	0.076127	0.075131	0.075688
3. Domestic absorption (DAD)	0.091076	0.137944	0.073715	0.174214	0.112087	0.100839
4. Foreign Trade (FT)	0.013915	0.014054	0.016629	0.016754	0.013984	0.015288
5. General Consolidated Budget (GCB)	0.00066	0.000615	0.003621	0.003925	0.000637	0.001492

Normally, the final methodological option has to be adopted depending on the peculiarities of the given application.

3. Some authors insist on the so-called directional forecast accuracy (Henriksson and Merton, 1981; Pesaran and Timmermann, 2004; Elliott and Timmermann, 2007; Blaskowitz and Herwartz, 2009; Tsuchiya, 2013). Not only the size of prediction error, but also the correctness of the anticipated direction of change is considered important.

There are some discrepancies of this kind also in our application (for instance, the predictions concerning TFP05n, GVA7, GVA9, CHn, CG, SCE, EX, GW, TRE). Actually, the relative absolute deviation (RAD) in determination (1) does not answer such a question.

At least for the increases/decreases problem, a possible solution is the involvement in forecast accuracy metrics of the most recent statistically recorded level of the examined indicator (denoted by Y). Based on dF (=F-Y) and dB (=B-Y) differences, the RAD formula can be extended (symbol ERAD) as follows:

$$ERAD=RAD*[1+0.5*[dF*|dB|/(dB*|dF|)-1]*(-\omega)] \tag{9}$$

where: ω represents a relative penalizing parameter.

The dF*|dB|/(dB*|dF|) ratio takes on either the value +1 (when the direction is correctly forecasted) or -1 (the contrary situation). In the first case, the ω parameter nullifies, while in the second it becomes positive, increasing the discussed relative absolute deviation.

4. The aggregation problem needs also several supplementary comments. When there are possible consistent algebraical summations, the algorithm used in the present paper for the main macromodel blocks seems reasonable. What can be done, however, if this solution is not accessible?

For instance, our attempt to estimate a synthesis measure for the entire macromodel, involving the forecast accuracy coefficients determined separately for all the mentioned blocks. Illustratively, in Section II we used a mean with equal weights. This could be admitted only as a casual solving, since the desired forecasts accuracy of different blocks cannot be identical, at least from a managerial perspective. Thus, a reliable prediction of the public budget can be an essential target in some applications, while in others a good projection of the sectoral structure of the economy could become a priority. I recall here the statement formulated by Theil in the mid '60s: "the quality of a forecast is determined by the quality of the decision to which it leads" (Theil, H., *Applied Economic Forecasting*, Chicago, 1966. p. 15, cited from Mincer and Zarnowitz, 1969, p. 21). More recently, this question was also examined in Granger and Pesaran, (2000) and Granger and Machina (2006). In our case, such an approach would involve the use of differentiated aggregation weights (depending on the importance attributed to different blocks in the macroeconomic policies). Further research must be developed in this field.

5. A final remark. The macromodel predictive simulations for 2015 (third section of the paper) have to be interpreted by a double key.

On one hand, it is necessary to remember that the Romanian economy continues to be in a negative GAP position. In other words, there still are large under-utilized reserves towards growth. On the other hand, however, several major risks are persisting. There are, consequently, conditions for the real economic life to improve the performance sketched in the Base Scenario, but the probability to be placed in the proximity of the Alternative Scenario cannot be neglected, as well. The structural reforms directed especially towards stimulating the economic activity and the integration into the Eurozone remain decisive.

The Main Indicators of the Romanian Economy for 2014

Indicator	Symbol	Macromodel Base Scenario	Macromodel Alternative Scenario	Preliminary Data
1	2	3	4	5
1.Macroeconomic production function at current prices (GDP)				
Employment, mill. persons	E	8.961894	8.941216	9.183241
Tangible fixed assets, constant prices 2005, bill. RON	Kc05	706.5604	702.4651	682.9615
Labor income share in gross value added	alpha	0.555122	0.544647	0.581336
Gross domestic product, constant prices 2005, bill. RON	GDP05	355.0975	351.8127	356.6684
Total factor productivity, constant prices 2005	TFP05n	5.677078	5.394068	6.394109
Gross domestic product deflator, year 2005=1	PGDP05	1.884576	1.90654	1.86215
Gross domestic product, current prices, bill. RON	GDP	669.2077	670.7443	667.9566
	E^{alpha}	3.4	3.3	3.6
	$Kc05^{(1-alpha)}$	18.5	19.8	15.4
2. Sectoral structure of the gross value added (GVA)				
Gross value added, current prices, bill. RON, sector 1	GVA1	36.86647	37.03487	40.28097
Gross value added, current prices, bill. RON, sector 2	GVA2	8.73117	8.771051	13.29268
Gross value added , current prices, bill. RON, sector 3	GVA3	22.79677	22.9009	27.44011
Gross value added, current prices, bill. RON, sector 4	GVA4	21.66663	21.7656	19.82642
Gross value added, current prices, bill. RON, sector 5	GVA5	28.01563	28.1436	32.59578
Gross value added, current prices, bill. RON, sector 6	GVA6	60.20956	60.48458	62.02536
Gross value added, current prices, bill. RON, sector 7	GVA7	39.31	39.48956	34.58735
Gross value added, current prices, bill. RON, sector 8	GVA8	62.75381	63.04046	66.00474
Gross value added, current prices, bill. RON, sector 9	GVA9	59.99986	60.27393	50.05001
Gross value added, current prices, bill. RON, sector 10	GVA10	242.0475	243.1531	236.7592
Total gross value added, current prices, bill. RON	GVA	582.3974	585.0576	582.8627
3. Domestic absorption (DAD)				
Market consumption of households, current prices, bill. RON	CHm	367.3541	368.2236	376.7967

1	2	3	4	5
Non-market consumption of households, current prices, bill. RON	CHn	33.16924	33.24303	38.74341
Public consumption, current prices, bill. RON	CG	100.505	106.0071	113.0419
Gross fixed capital formation, current prices, bill. RON	GFCF	186.3826	172.5304	167.2189
Inventory change, current prices, bill. RON	STOCK	26.28998	34.35446	8.832011
Total domestic absorption, current prices, bill. RON	DAD	713.7	714.4	704.6
4. Foreign Trade (FT)				
Export of goods and services, current prices, bill. RON	X	261.8806	263.7405	262.5387
Import of goods and services, current prices, bill. RON	M	306.3738	307.3547	299.2151
Foreign trade of goods and services, current prices, bill. RON	FT	568.3	571.1	561.8
5. General Consolidated Budget (GCB)				
Collected taxes on profits, bill. RON	DTP	12.9188	13.13381	11.87961
Collected taxes on wages as income, bill. RON	DTW	20.98018	21.26025	20.39843
Employers' social security contributions, bill. RON	SCF ,	36.96969	37.17512	35.86617
Employees' social security contributions, bill. RON	SCE	21.93588	22.2287	22.87443
Value-added tax, bill. RON	VAT	61.84408	60.61412	55.77913
Excises, bill. RON	EX	19.30643	19.38863	24.74625
Customs duties, bill. RON	CD	1.243584	1.247565	0.898327
Other GCB revenues, bill. RON	OGR	40.84136	40.26743	37.81745
Grants, including EU disbursements, bill. RON	EUF	9.5	9.5	6
Expenditures for labor cost, bill. RON	GW	40.27909	44.52528	46.76762
Purchasing of goods, services, and other temporary expenditures, bill. RON	GSOBET	43.44102	43.77804	40.38919
Subsidies, bill. RON	GBS	6.606903	6.622074	6.594551
Expenditures for pensions, bill. RON	TRE	49.14837	49.26563	47.75353
Social expenditures (incl. for unemployment) and other transfers, bill. RON	SA1OTR	33.25803	37.4233	34.9332
Capital expenditures and EU projects, bill. RON	KEEUP	50.55786	50.68725	36.5492
Interest payments, bill. RON	GIE	10.13554	12.05014	10.43084
Contribution of Romania to EU budget, repayments and loans, bill. RON	EUC+RL	7.5	7.5	7.5
Total of the GCB revenues and expenditures	GCB	466.4668	476.6674	447.1779

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