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**Budgetary balances adjustments from governmental accounting into national accounts
in EU countries:
can deficits be prone to management?**

Abstract

European Union (EU) countries are required to achieve deficit targets, thus incentivized to select instruments to keep on limits. This paper argues that accounting discretion might be used in managing some adjustments made when translating data from Governmental Accounting (GA) into National Accounts (NA), in order to window-dress their final deficit/surplus reported to EUROSTAT. The empirical research evidences certain circumstances that might facilitate the use of GA-NA 'adjustments discretion'. EU authorities must pay special attention to these conditions, to assure reliability of the deficits reported. Main findings also could assist in future efforts to improve the integrity of the adjustment process.

Keywords: budgetary reporting; national accounts; deficit/surplus; adjustments management; accounting discretion; central government; EUROSTAT.

INTRODUCTION

When reporting to EUROSTAT, particularly for the purpose of deficit assessment, European Union (EU) member-states follow National Accounts (NA) rules, basically the requirements of the European System of National and Regional Accounts (ESA). However, the information reported is gathered from Governmental Accounting (GA), namely from budgetary reporting. In this process, several adjustments are needed when translating data from GA into NA. Regarding the deficit/surplus, these adjustments relate to: the scope of the general government sector, the accounting basis (for most countries GA budgetary balance is still cash-based, while NA budgetary balance according to ESA is accrual-based), financial and non-financial transactions comprised or not in the GA balance, and operations of lending/borrowing with other entities linked to the Central Government.

These adjustments raise questions about the reliability of the final deficit/surplus reported within the Excessive Deficits Procedures (EDP) requirements, casting doubts about NA data accuracy and trustworthiness to assess the Maastricht Treaty convergence criteria, and to monitor EU fiscal policy. These issues are enhanced by the fact that some categories of GA-NA adjustments might be prone to management.

In the last decades, GA reforms have been mostly concerned with moving from cash into accrual basis systems. One important discussion that emerges from these reforms is the introduction of the accrual basis also in budgetary accounting. Most countries across the EU and the US, have adopted accrual basis in GA financial reporting but not in their budgetary systems, namely in what concerns the budget preparation and reporting of budgetary performance (Lüder and Jones 2003; CBO 2006 [2018](#); Benito and Bastida 2009; [Moretti 2016](#)). Therefore, the distinction between budgetary and financial reporting systems is important. While the former are still connected to mixed cash/commitments accounting bases, financial

reporting systems are mostly linked to modified or full accrual accounting, with different practices and degrees of implementation across countries (van der Hoek 2005; PwC 2014; Jorge, Jesus, and Laureano 2016; **CBO 2018**). Consequently, the lack of harmonization is still a problem concerning GA systems, namely among EU member-States.

On the other hand, NA is the first internationally harmonized reporting system, aiming to calculate key aggregate indicators so that the whole national economy might be evaluated, including comparisons with other countries' aggregates (Bos 2008). EU member-states are obliged to follow ESA to prepare their NA, for the specific purpose, among others, of supporting the European monetary policy. This implies monitoring national aggregates such as Gross Domestic Product (GDP), public deficit and public debt. ESA is therefore the harmonized conceptual framework for EU member-states' NA, on the basis of which one obtain the ratios established in the Maastricht Treaty and required by the protocol on the EDP. These criteria are the fundament for assessing and monitoring the budgetary discipline of EU member-states, under the European Monetary Union (Benito and Bastida 2009).

In this context, one question that might be raised concerns knowing whether the current GA systems in the EU countries are able to meet ESA requirements. Accordingly, the relationship between GA and NA is an important matter, especially concerning General Government Sector (GGS) data to NA. These data are obtained from GA systems, which are not harmonized and present significant divergences to NA. Such issues may question the relevance, reliability and comparability of the aggregates that sustain financial decisions of EU member-States (Benito and Bastida 2009).

Framed by the earnings management approach, this paper analyzes the role of GA-NA adjustments as a way of managing the final budgetary balance (deficit/surplus), reported in NA to EUROSTAT by EU member-states for the purpose of deficit assessment.

While assuming that countries resort to any instrument at their disposal in order to show the accomplishment of the budgetary balance target, this paper argues that accounting discretion, managing GA-NA adjustments, might be used by countries to window-dress their final budgetary balances. In particular, it considers that certain circumstances, in each country and each year, facilitate the management and reporting of GA-NA adjustments to present a desired final deficit/surplus.

The main research question the paper tries to answer might be put as follows:

Are there characteristics of each country, in each year, especially related to economic conditions that, while determining GA-NA adjustments materiality, may encourage their management and ultimately the management of the final deficit/surplus reported in NA to EUROSTAT?

Accordingly, the empirical analysis, using data from EDP reporting regarding central governments of all EU member-states for 2007 to 2012, explores some situations (especially relating to economic conditions) that might constitute factors encouraging NA deficit/surplus management via GA-NA adjustments.

These economic circumstances relate to, e.g., the economic growth, the economic crisis period, being part of the euro zone, the accomplishment with the Maastricht treaty convergence criteria¹, and the GA budgetary balance as a result of the budget accomplishment.

Whilst identifying GA-NA budgetary balances adjustments and discussing how their materiality might be affected, this research evidences circumstances that may foster management of those adjustments. In doing so, it makes important contributions both to the literature and for practice.

¹ According to Article 104 of the Maastricht treaty concerning budgetary discipline, convergence criteria relate to the public deficit and the public debt limits. The former cannot exceed 3 percent of GDP, while the latter cannot exceed 60 percent of GDP.

It fills the literature gaps, adding about the understanding of which factors might affect the materiality of GA-NA deficit-related adjustments (especially of some more susceptible to management); these factors represent circumstances encouraging the use of accounting discretion. Literature shows that countries ‘cheat’ when reporting their deficits (e.g., Brück and Stephan 2006; Milesi-Ferretti 2003) and that some political factors affect that cheating; but it does not address whether and how a country’s economic conditions affect the adjustments to the deficit reported. For practice, raising the issue of GA-NA budgetary balances adjustments discretion, the paper calls the attention of EU authorities to some adjustment categories that, in certain circumstances, might leave room for maneuvering, so requiring particular scrutiny. Finally, this paper also offers some reflections for policy making, namely in what regards approaching GA and NA systems as an important process for improving the quality and reliability of the reported data within the EDP.

Henceforth the paper is organized as follows. Section two introduces the theoretical approach used to frame the research question. Section three addresses the adjustments that occur when passing from GA (micro level) into NA (macro level), regarding the budgetary balances to be reported to EUROSTAT. Section four presents the empirical study, starting from the methodological issues and then presenting and discussing the main findings. At last, concluding remarks and research implications are presented in section five.

EARNINGS MANAGEMENT FRAMEWORK

This research assumes that accounting discretion might be used to manage reported deficits by managing GA-NA budgetary balance adjustments, especially within certain adjustment categories.

At a country's level, the budgetary balance might approximate to 'earnings'. Therefore, literature on earnings management **and economic and political incentives to fraud financial statements in order to achieve specific stakeholders requirements** (e.g., Eisner 1984; Christensen and Mohr 1995; Petersen 2003; Stalebrink 2007; **Stalebrink and Sacco 2007**; Anessi-Pessina and Steccolini 2009a 2009b) was used to inform the conceptual framework for this study.

Within the earnings management framework, accounting discretion has been vastly analyzed in the finance and accounting literature referring to the private or business sector context. Contrarily, in the public sector, studies are still rare and mostly focused at the organizational level (Christensen and Mohr 1995; Stalebrink 2007; Anessi-Pessina and Steccolini 2009a 2009b), although increasing namely due to the approximation between business and public sector accounting (Pilcher and Van der Zahn 2010).

Either in the private or in the public sector, the main idea underlying this framework is that, at the organizational level, earnings management occur when decision-makers resort to some creativity by means of accounting discretion to manage/change the reported financial performance/position. Financial information is manipulated intending to signal a certain situation to stakeholders (e.g. investors), namely to meet particular expectations. Managers and decision-makers might have incentives to report more favorable financial pictures of the organization (Cheng and Warfield 2005; **Stalebrink and Sacco 2007**).

However, this research focuses a macro level scenario. Therefore, it searches for factors, which might constitute incentives to use some 'accounting creativity' in order to report a more convenient deficit/surplus position in terms of EDP.

In the public sector, authors such as Eisner (1984) and Petersen (2003) referred to practices to measure, manage and report budgetary deficits that, although within the US context, are related to some of the GA-NA budgetary balances adjustment categories. Eisner (1984)

mentioned, among others, off-budget items and credit extension, contingent expenditures and investment assets not systematically accounted for. Petersen (2003) explained that deficit reductions tend to be achieved by practices other than raising taxes or reducing spending, namely changing the assumptions underlying the budget, altering the timing and recognition of various flows, or even redefining what constitutes revenues and expenditures. He adds, referring to techniques contributing to an apparently balanced budget, such as: over-estimation of revenues, internal borrowing, assets sales, acceleration on revenues and delays in spending, and anticipated future savings. GA-NA deficit-related adjustments, regarding the recognition or not of certain operations, the concepts of budgetary revenues/expenditures and the accounting basis, fit in the abovementioned 'creative' practices.

In the field of economics, a few studies have also pointed to some creativity while reporting deficits in the context of the EU. Brück and Stephan (2006) proved that Eurozone governments cheat in reporting their budget deficits forecasts, since the adoption of the Stability and Growth Pact (SGP), especially in periods prior to general elections. They conclude that "The Pact creates incentives for governments to mislead their electorates about budget deficit forecasts" (p.4). Milesi-Ferretti (2003) studied the effects of fiscal rules when the government has a margin for 'creative accounting'. In her analysis, she highlighted that the numerical rules imposed by the SGP "may encourage the use of dubious accounting practices, thereby reducing the degree of transparency in the government budget. These concerns have gained strength with the use of 'creative accounting' by a number of European countries in order to facilitate meeting the budget deficit ceiling established in the Maastricht treaty" (p.378). These authors point to some issues concerning the fact that creativity might exist while reporting to the EUROSTAT, if a country is included in the Eurozone, thus committed with convergence deficit limits.

Furthermore, empirical reports, such as those by Koen and Van den Noord (2005) and Mora and Martins (2007), explained some one-off measures taken by the EU member-states in

order to achieve the Maastricht criteria to the Eurozone adhesion, or in the subsequent years to accomplish with those criteria. The authors referred to operations such as privatizations, tax amnesties, pension funds acquisitions and sales of third-generation mobile-phone (UMTS) licenses, as had been used by the member-States to reduce their deficit figures in a specific period; these were decisions of a non-current nature, with impact in one or few years, not representing a better financial performance in fact, but only the use of fiscal discretion to achieve a concrete momentary objective. The case of Portugal between 2002 and 2003, analyzed by Mora and Martins (2007), is a relevant example, inasmuch as a set of one-off measures as those mentioned above represented 1.4 percent of the GDP. Also the case of Greece is very interesting, considering that this member-state has used one-off measures to shape the deficit and debt data, both to enter the Eurozone and after, in order to accomplish with the European monetary union convergence criteria (Koen and Van den Noord 2005).

In the last years, the political and economic debate, especially associated to the context of crisis in some EU countries and the problems regarding the accomplishment of the SGP, have pointed to issues relating to certain economic circumstances in the country, which might be relevant to affect not only the category of GA-NA deficit-related adjustments to be made, but also their materiality, therefore possible of encouraging adjustments discretion and ultimately the management of the final deficit/surplus reported in NA.

The explanation above supports the reasoning of using an earnings management approach for managing budgetary balances. However, no literature was found addressing particularly the effects of a country's economic conditions on that management. Moreover, one did not find any references to the particular effects of those conditions on GA-NA adjustments. Therefore, this is an innovative study, considering it explores a different perspective of the earnings management approach to analyze a specificity of the EU member-states deficit reporting context.

The next section briefly addresses the relationship between GA (micro perspective) and the NA (macro perspective), explaining the budgetary deficit-related adjustments necessary to make when reporting from the former into the latter.

GOVERNMENTAL ACCOUNTING *VERSUS* NATIONAL ACCOUNTS: ADJUSTMENTS IN BUDGETARY BALANCES

The GA-NA Relationship

As explained, the Maastricht treaty convergence criteria for EU member-states are assessed on the basis of a harmonized reporting system of NA supported by the ESA. The ESA framework² offers guidance, tables and procedures for countries to report to EUROSTAT, namely within the scope of the EDP. A full accruals basis of accounting is implicitly used for the recognition of most flows.

Nevertheless, public sector data reported to the convergence criteria are derived from (micro) GA systems (mostly budgetary reporting systems), drawn upon the rules in practice for each country. Despite all with some kind of accrual accounting, GA systems are not yet harmonized inter countries, and in some cases, neither within each country. Additionally, in many countries, budgets and budgetary accounting are still cash-based (Lüder and Jones 2003; Blöndal 2003; van der Hoek 2005; Brusca and Montesinos 2014).

Therefore, when reporting to EUROSTAT for the purpose of deficit assessment, countries start from the so-called ‘working balance’ (deficit/surplus) in GA and make adjustments to get the final deficit/surplus in NA for convergence evaluation. These

² Regulation (EU) 549/2013 of the European Parliament and of the Council, of 21 May 2013—European System of National and Regional Accounts in the European Union. Published in the Official Journal of the European Union, L174, Vol.56, 26.06.2013.

adjustments result from conceptual differences between the two accounting and reporting systems (GA and NA), among which there are those regarding accounting principles, such as recognition criteria – cash versus accrual basis (Lüder 2000; Keuning and Tongeren 2004; Dasí, Montesinos, and Murgui 2013; Jesus and Jorge, 2016).

In spite of recent GA reform trends in EU member-states, moving from cash into accruals (PwC 2014), differences still remain due to the co-existence, in some countries, of two different accounting bases in GA – accrual basis for financial accounting and cash basis for budgetary accounting. This is particularly relevant given that the data from GA into NA are based on budgetary reporting (van der Hoek 2005; Barton 2007). Since in some countries (e.g., Spain and the UK) GA working balance is already reported in accrual basis, while in others is still cash-based, the adjustments range from highly diverse and material, to a reduced number and of low magnitude (Jesus and Jorge 2015).

Authors as Keuning and Tongeren (2004) and documental sources (e.g., IPSASB 2012) additionally identify other specific issues concerning differences between GA and NA that raise a need for adjustments when translating data from one system into the other. Particularly interesting are papers pointing out to the materiality and diversity of those adjustments, questioning the reliability and comparability of the final deficits/surpluses reported by EU member-states within the EDP (Jesus and Jorge 2014 2015). They raise doubts about NA data accuracy and reliability to assess the Maastricht treaty convergence criteria.

Deficit-Related Adjustments

According to the inventories of sources and methods³ each EU member-state discloses (henceforth called inventories), the need to make deficit-related adjustments from GA data into

³ Available to all EU member-States at <http://ec.europa.eu/Eurostat>.

NA arises essentially from conceptual differences between the two reporting frameworks. The main adjustment categories relate to: (a) cash-to-accrual adjustments; and (b) reclassification of some transactions (Jesus and Jorge 2014 2015).

Regarding cash-to-accrual adjustments, derived from different recognition criteria, the Inventories describe the adjustments each country makes in order to transform cash-based data into accrual-based data, considering issues such as taxes, social contributions and other receivables, interest, and primary expenditure. In this matter, the analysis of the inventories allows to observe that the procedures are not harmonized between countries, both in terms of the issues adjusted and in the way the adjustments are done. As to the adjustments related to reclassification of some transactions, the procedures described in the Inventories tend to be similar among the countries and concern to: (i) capital injections in state-owned corporations; (ii) dividends paid to GGS entities; and (iii) military equipment expenditure and EU grants (Jesus and Jorge 2014 2015).

The quantitative impact of the GA-NA deficit-related adjustments may be measured using data from EDP reporting notifications each country submits to EUROSTAT twice a year. In those notifications, TABLE 2A provides data related to central government deficit/surplus reported by EU member-states, conveying the categories and amounts of adjustments to pass from central government accounts ‘working balance’ (GA)⁴ into central government final deficit/surplus (NA).

Dasí, Montesinos, and Murgui (2013) explained that the ‘working balance’ in GA must be adjusted for the net lending/borrowing in NA and those adjustments can be classified into four categories, as resulting from: (i) Differences in the classification of transactions between financial and non-financial public entities; (ii) Differences in time of recording, basis of

⁴ This is the deficit/surplus resulting from the budgetary execution, reported in cash basis in some countries and in accrual or mixed bases in others. The Inventories show that a few countries display mixed accounting basis, meaning they use cash in some transactions and accruals in others.

recognition and time period; (iii) Differences in the delimitation of the public sector; and (iv) Other adjustments.

Following previous research (Jesus and Jorge 2015), this paper points out (see table one) that some of the adjustment categories are related to the conceptual differences already identified, whereas others are not.

< Table 1 >

Some of these adjustment categories are critical, in the sense that they might be prone to be conveniently managed, including resorting to one-off measures, especially if they show to be material in relation to the GA ‘working balance’, hence having high impact on the NA deficit/surplus. Categories B (non-financial transactions not included in the ‘working balance’) and C (accounting basis adjustments) are good examples.

Regarding category B, some sporadic operations may not be reported under GA and consequently some discretion is possible when reporting in NA. E.g., according to Koen and Van den Noord (2005), some non-financial transactions between the GGS and other entities, such as public-private partnerships (PPPs) and concessions agreements, were sometimes not considered by Portugal, Spain and the UK. Jesus and Jorge (2014) refer to warranties offered by governments to development funds and credit insurances companies.

In what concerns category C, using different recognition and measurement criteria may lead to lower final deficit or even to reach a surplus. Specifically about this adjustment category, different countries make different adjustments according to each subcategory mentioned in table one – interest, taxes and other receivables, and payables (Jesus and Jorge 2015). Because of this, accounting basis adjustments represent a mean each country may use to manage its deficit/surplus in a specific year, deferring or anticipating the recognition of certain transactions

(for example, taxes or other accounts payable). An example of this type of operations is the fiscal debt securitization adopted by Portugal in 2003, representing 1.4 percent of the Portuguese GDP by anticipating tax revenues in that year; another case is the Portuguese Mail (CTT) pension fund transference, also in this country in 2003⁵, with a positive impact on that year deficit, but with negative consequences on the future periods deficits (Koen and Van den Noord 2005).

Category A (financial transactions included in the ‘working balance’), although related to recognition criteria differences, does not seem to be susceptible of managing, since it reflects financial transactions that are recognized under a cash basis in GA and must be converted into balance sheet stocks in NA. Consequently, the adjustment is technical and must be made and recognized by all countries that report the ‘working balance’ in cash basis. Adjustments in this category include operations such as financial or non-financial assets sales or acquisitions, which are considered in the GA ‘working balance’, but are not flows in NA.

Category D (balance of other central government entities), related to the delimitation of the GGS sector, is manageable in the sense that countries may or may not include some entities (for example, reclassified entities – entities that were not part of the GGS sector but because they present successive deficits financed by governments, they must become included in its perimeter). The criteria for these reclassifications may be susceptible to be manageable, so this adjustment category is also critical.

Category E (other adjustments) is also conceptually susceptible to management because it essentially concerns reclassifications of some transactions countries might have not reported in a proper way. Examples of these include the reclassification of capital injections in state-owned companies – according to ESA rules these transactions must be considered financial

⁵ By then CTT was a state-owned company. While transferring the pension fund (receivables), the Portuguese government improved the final deficit in that year, but assumed the responsibility for paying the future pensions to the CTT employees.

transfers, hence due to affect the deficit; when members-states do not report in this way, the EUROSTAT requires adjustments to be made afterwards. Such operations were carried out in Portugal, France and Germany, around 2002-2003 (Koen and Van den Noord, 2005). However, these reclassifications are highly under EUROSTAT scrutiny and the space to management is increasingly limited.

The above discussion shows that the management of these adjustments demands for further research, particularly exploring circumstances that possibly encourage deficit/surplus management, taking advantage of adjustment materiality and of accounting discretion.

In the next section, the paper performs an empirical analysis with this purpose. The theoretical framework, as explained, in the perspective used in this paper, does not allow a theoretical foundation in order to pre-establish hypotheses. Consequently, the paper explores, in an inductive approach, the relationships the data might show.

EMPIRICAL ANALYSIS

Methodology

Sample and data. Central government data are used, gathered from both EDP reporting notifications (TABLES 2A from April 2012 and October 2013 notifications) and EUROSTAT statistics. The sample consists of all 27 EU member-states at that date, covering years 2007 to 2012, in a total of 162 observations.

This period was selected for several reasons. Firstly, it allows for a coherent comparison between adjustment categories – the way GA-NA adjustments are made, as well as their reporting, changed in 2005 and in 2013, making it difficult to harmonize and categorize adjustments if a larger period would have been considered. Then, it embraces *ex-ante* and *ex-*

post years to the economic crises (2009 is generally acknowledged as the striking year in Europe). Finally, it comprises the largest number of EU countries with the exception of Croatia, which entered the EU in 2013.

Regarding the dependent variable, it should represent the materiality (magnitude) of each adjustment category. Accordingly, the research uses eight dependent variables, taking into account the adjustment categories presented in table one. Given some specificities, categories C (accounting basis adjustments) and D (balance of other central government entities) were subdivided.

For each adjustment category, materiality was defined as its weight in the absolute value of GA ‘working balance’, expressed in percentage. For instance, for category A – financial transactions included in the ‘working balance’ – the expression is:

$$\text{Materiality of Category } A_i = \frac{\text{Adjustment amount of Category } A_i}{|\text{GA Budgetary balance}_i|} \times 100 \quad (1)$$

As previously explained, the total amount of GA-NA adjustments results from transactions not yet included in the GA balance or already included but using different criteria than in NA. **An adjustment category (adjustment magnitude) is considered material if the discretion it provides is sufficiently large to allow a country to reach a desirable final deficit.** Therefore, it measures the impact of the adjustment (regardless the sign) in the final deficit/surplus. If a certain category is more material and more susceptible of being managed, countries have more incentive to use it for discretion (especially when certain economic circumstances occur). In the ratio, the adjustment amount is divided by the budgetary balance in GA (the so-called ‘working balance’), given that adjustments are added to or subtracted from that, to ‘correct it’ and get the final deficit/surplus in NA.

Table two reports the summary statistics for the materiality of each adjustment category. Negative values make the adjustment to contribute to a higher deficit or a lower surplus and positive values otherwise.

Overall, there is large dispersion in materiality of all adjustment categories. Furthermore, the percentages on GA budgetary balance of certain adjustment categories in some years are largely higher (more than 100 percent) than the balance itself; for example, category C2 (accounting basis adjustments related to other accounts receivable, including taxes and social contributions) shows a minimum of -1,697 percent (impacting negatively on the balance reported in NA), and category E (other adjustments) shows a maximum of 923 percent (impacting positively on the balance reported in NA).

< Table 2 >

As already explained, this empirical analysis is exploratory. Although the theoretical framework, as it is used in this research, does not allow to derive hypotheses, it points to the choice of variables related to factors that have been mentioned by some authors within the earning and budget management framework. Some of these issues have also generally been at the center of the political and economic debate as possible issues affecting EU countries' deficits/surpluses reported to the accomplishment of the SGP.

Accordingly, the research uses two dimensions of explanatory variables:

- Economic conditions variables:
 - Economic growth, represented by the sign of the GDP percent change to previous year (1 –growth / 0 –recession);
 - Percent of GDP change to previous year, intending to analyze the effect of the magnitude of the variation of GDP;
 - GA budgetary balance (deficit/surplus) over GDP (percent), as a result of the budget accomplishment;
 - NA budgetary balance (final deficit/surplus) over GDP (percent), in the previous year;

- The economic crisis period, considered to affect the EU context, especially after 2008 (1 –2009 or after / 0 –otherwise);
- The accomplishment, in the previous year, of the deficit limit of the Maastricht treaty criteria (1 –yes / 0 –no);
- Eurozone – the country belongs to euro area (1 –yes / 0 –no).
- Control variables:
 - GA accounting basis (cash, accrual or mixed, defined as dummy variables);
 - Country’s size (natural logarithm of the population);
 - Country’s wealth (natural logarithm of the GDP per capita).

In what regards GA accounting basis in particular, previous research have already indicated that it is an important factor explaining GA-NA adjustment diversity and materiality (Jorge, Jesus, and Laureano 2014; Jesus and Jorge 2015).

Table three reports the summary statistics for each explanatory variable. The majority of the adjustments reported occurred in years and countries of economic growth (64.2 percent), with an average GDP growth of 0.66 percent, but with deficit in GA budgetary balance (on average it represented 3.56 percent of the GDP). Furthermore, a small majority of the adjustments was reported by Eurozone countries (58 percent) and by countries that had not accomplished the deficit criterion in the previous year (50.6 percent); this final deficit in NA was, on average, of 3.34 percent of the GDP, slightly above the established limit of three percent. Finally, the majority of the adjustments (69.1 percent) have happened in countries using cash basis in GA reporting and in years of economic crisis, i.e., from 2009 onwards (66.7 percent).

< Table 3 >

Statistical analysis and models. The statistical analysis seeks for some evidence that might associate the variables regarding the economic conditions in a country in a certain year, with the GA-NA deficit related adjustments.

Panel regression models for the materiality of each adjustment category were estimated. The general model is presented as:

$$Y_{it} = \alpha + \beta X'_{it} + u_{it} \quad (2)$$

Where Y is the dependent variable, X'_i is the vector of explanatory variables, α and the vector β are the parameters to estimate, and u_{it} is the stochastic disturbance term. Moreover i represents each of the 27 countries and t represents the period time (years 2007 to 2012).

The qualitative variables were introduced in the model as *dummy* variables, and for the accounting basis the reference category is cash (i.e., cash basis for all operations).

Three estimation methods were used: Ordinary Least Squares (pooled OLS), Random Effects (RE) and Fixed Effects (FE) models. Moreover, F test (allowing to decide between an OLS model and a FE model), Breusch-Pagan Lagrange multiplier test (allowing to decide between an OLS model and a RE model) and Hausman test (allowing to decide between a FE and a RE model) were performed, allowing to decide which model better fitted the purpose under analysis. In the majority of the regressions, the OLS is the preferred model (see bottom line of table four). In order to avoid possible misspecification problems, the regressions were run considering robust standard errors (Green 2002). In addition, we also computed the Variance Inflation Factors (VIF) for explanatory variables; the highest value obtained for GDP percent change to previous year was 2.649 and the lowest one for GA budgetary balance / GDP

was 1.108. These VIF values are very low and confirm the absence of linear dependence of the variables in table four, i.e., absence of multicollinearity problems.

Findings and Discussion

Table four displays the results of the eight regressions models. The results reported concern only the appropriate model for each adjustment category.

< Table 4 >

Among the explanatory variables just a few have a statistically significant impact on adjustment materiality:

- Economic growth has a positive impact on categories B (non-financial transactions not included in the ‘working balance’) and D2 (balance of other central government entities, relating to net borrowing (+) or lending (-) of other central government bodies);
- GDP percent change to previous year has a negative impact on categories C3 (accounting basis adjustments regarding other accounts payable) and D2 (balance of other central government entities, relating to net borrowing (+) or lending (-) of other central government bodies);
- Crisis period has a positive impact on category E (other adjustments);
- Deficit accomplishment in previous year has a negative impact on category C3 (accounting basis adjustments regarding other accounts payable);
- The control variable mixed accounting basis has a positive impact on category C3 (accounting basis adjustments regarding other accounts payable); and

- The control variable LN(Population) has a positive impact on categories C1 (accounting basis adjustments regarding interest paid and accrued) and C3 (accounting basis adjustments regarding other accounts payable).

As to the variables concerning economic growth/recession, the positive effect of the economic growth on adjustment categories B and D2 might reflect overall a higher volume of those types of transactions. Non-financial transactions with other entities and borrowing/lending transactions between central government and other bodies, are likely to increase since there are generally more resources available; hence more materiality of these adjustments. In these cases, countries might have more incentives to use accounting discretion for these adjustments, to reach the targeted final balance in NA.

On the other hand, when analyzing the magnitude of the GDP variation, there is a negative effect of the GDP percent change to previous year on categories C3 and D2, meaning that the higher the growth rate (the more a country's GDP grows or less decreases), the lower the adjustment materiality in these categories. Therefore, a higher growth rate would allow a country to achieve the deficit limit with higher nominal deficit, not having the need to perform material adjustments relating both to the accounting basis used to recognize other accounts payable and to borrowing/lending transactions between central government and other bodies.

Moreover, there is a positive effect of the economic crisis, considered from 2009 onwards, on the "other adjustments" (category E). The crisis made EU oversight authorities, namely the EUROSTAT, to better scrutinize member-States EDP reporting, often requiring corrections, which must be compulsorily included in this adjustment category. Although this is an adjustment category not directly manageable by each member-state, it evidences eventual previous manipulations.

As to the deficit accomplishment in the previous year, it also affects materiality of accounting basis adjustments relating to other accounts payable (category C3). If and when the

country accomplishes with the deficit criteria in the previous year, it shows lower materiality in these adjustment category, or vice-versa. When the deficit target is accomplished in the previous year, in the current year countries might have less concern in postponing expenditure payments; i.e., in these circumstances they might be willing to pay in shorter run, leading to more coincidence between obligations and payments, hence fewer accounting basis adjustments are needed. So, the circumstance of a country accomplishing with the deficit limit in the previous year, seems to lead to fewer incentives in the current year to use accounting discretion while making GA-NA adjustments in category C3, to window-dress the final deficit reported in NA.

Regarding the control variables, the accounting basis used in GA has a positive effect on the materiality of accounting basis adjustments relating to other accounts payable (category C3), meaning that the prevalence of a mixed accounting basis makes adjustment materiality in that category higher. The positive effects of the country's population, as proxy for the country's size, mean that more populated countries have more materiality of accounting basis adjustments both relating to interest paid and accrued (category C1) and to other accounts payable (category C3).

The above discussion tried to offer some hints for the why certain economic conditions in countries might affect materiality of some categories of GA-NA deficit-related adjustments, particularly of those that might be the most susceptible of being manageable: non-financial transactions (category B), accounting basis adjustments (categories C1 and C3) and those relating to the scope of the GGS (category D2).

Therefore, there are indications that incentives might exist to increase or decrease adjustments amounts, especially in certain categories. Overall, this confirms the assumption within the earnings and budget management theoretical framework – accounting discretion,

when used in these categories of adjustments, is likely to have a significant impact on the final deficit reported in NA.

Finally, although some variables were not found statistically significant in this set, they still may be linked to materiality of certain categories of adjustments, hence encouraging the use of discretion. For example, if the GA balance, as a result of the budget accomplishment is far enough to the final deficit targeted in NA, countries might feel encouraged to manage the adjustments in order to achieve the target. However, if the gap is too large, countries may lack the ability to reach the target through the adjustments, and therefore might not use accounting description. Countries might increase their use of accounting discretion only when it makes a difference between meeting the limits or not. Another example relates to the Euro zone: either belonging or not to the Euro zone, countries might be equally constricted to accomplish with the deficit limits, either because they have to fulfill with the SGP criteria as Euro zone members or because they want to become members. Both groups of countries would then be incentivized to manage GA-NA deficit adjustments to reach their objectives.

CONCLUSION

This research presents a quantitative study, for the first time exploring circumstances of a country in a certain year, which might constitute incentives for EU governments to manage their final deficit/surplus in NA. This management is assumed to be done through the use of accounting discretion in GA-NA deficit related adjustments.

The economic conditions identified as statistically significant might be important incentives to manage certain adjustment categories, subsequently encouraging accounting discretion to window-dress the deficit/surplus finally reported to EUROSTAT. They relate to:

the economic growth, the GDP percent change to the previous year, the economic crisis conjuncture and the deficit limit accomplishment in the previous year.

While affecting deficit-related GA-NA adjustment materiality, these circumstances become facilitators to increase/decrease their amount, indicating that adjustments are manageable. Therefore, countries' governments might seize these conditions and manage some transactions which affect more GA-NA adjustment materiality, namely non-financial transactions, other accounts payable and transactions related to other central government entities.

The fact that most of the explanatory variables were not statistically significant, for any of the adjustment categories, is a finding to be emphasized. Indeed, there does not appear to be a clear pattern across the countries in what economic factors determine the materiality of the adjustments. Future research might enlighten on this matter **by, for instance, exploring new approaches to testing the data over longer periods**. This research is an early attempt to provide a more rigorous quantitative understanding of the adjustments, and the study has the salutary effect of motivating other researchers to consider alternative statistical approaches.

The analysis also makes a contribution highlighting issues that need to be addressed by policy-makers. Nowadays micro national governmental accounting systems are changing to approach International Public Sector Accounting Standards (IPSASs); furthermore, a revised ESA has started to be implemented. Consequently, it is important to understand that approaching GA and NA systems must reduce at maximum the afore-mentioned adjustments. This is particular important for those which materiality seems to be more affected by certain economic circumstances the country is undergoing (hence more prone to management). Only this way the window-dressing in the final deficit reported might be reduced, assuring data reliability.

Accordingly, a future extension of this research could be to analyze the effects of ESA2010 in the deficit-related GA-NA adjustments and in their use as a mean for accounting discretion and deficit management.

Although some work has been done in approaching GA and NA (IPSASB 2012 2014), this paper points to the importance of taking into practice all the theoretical efforts that ultimately have been developed regarding convergence between GA (IPSASs) and NA (ESA), hence reducing the adjustments required. If most countries still use cash-based (budgetary) reporting in GA while ESA requires accruals, and the definition and criteria for the reporting entity (especially at the level of the whole of government) differ in practice between the two systems, adjustments concerning the accounting basis, as those related to transactions with other central government entities, are likely to continue and consequently the deficit manipulation.

Assuming that all countries window-dress their ratios for the convergence criteria, stricter control is needed by the oversight bodies, namely by the EUROSTAT; the ‘trust in member-states honesty’ is a strategy that has proved to failed in the latter years, leading to a serious crisis of reliability of GFS as primary instrument to monitor fiscal policy across EU.

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**TABLE
1**

Deficit-Related Adjustment Categories and Conceptual Differences between GA and NA	
Adjustment categories	Conceptual differences
A. Financial transactions included in the 'working balance'	Recognition criteria differences
B. Non-financial transactions not included in the 'working balance'	Not related
C. Accounting basis adjustments	
C.1 Differences between interest paid and interest accrued	Recognition criteria differences
C.2 Other accounts receivable (including taxes and social contributions)	
C.3 Other accounts payable	
D. Balance (net borrowing or net lending) of other Central Government entities	Definition and scope of reporting entity under GA and NA
D.1 'Working balance' (+/-) of entities not part of Central Government	
D.2 Net borrowing (+) or lending (-) of other Central Government bodies	Preparation and disclosure of consolidated financial statements
E. Other adjustments (including reclassifications, dividends paid to GGS entities, military equipment expenditure and EU grants)	Relationship between government and government business enterprises and other reclassifications of specific transactions

**TABLE
2**

Summary Statistics for the Adjustment Materiality (in percent) – Dependent Variables							
Adjustment category	Mean	Standard deviation	Minimum	Percentile 25	Median	Percentile 75	Maximum
A	-10.06	123.34	-1,411.41	-2.04	0.00	9.36	187.58
B	-8.14	25.90	-161.82	-2.25	0.00	0.00	64.28
C1	1.38	40.55	-77.93	-3.94	-0.49	0.44	488.69
C2	-8.51	147.41	-1,696.97	-1.21	2.09	10.87	278.18
C3	-13.48	58.96	-639.39	-7.79	-0.87	0.64	64.05
D1	-1.44	26.72	-326.68	0.00	0.00	0.00	53.85
D2	-4.92	50.86	-223.45	-6.81	0.00	3.01	380.30
E	-5.95	108.04	-766.78	-10.25	-1.29	0.22	922.62

Note: 162 observations. Values are expressed in percent.

**TABLE
3
Summary Statistics for the Explanatory Variables**

Explanatory variables		N°	%	M	SD	Min	Me	Max
Economic growth	No	58	35.8					
	Yes	104	64.2					
Crisis period	No	54	33.3					
	Yes	108	66.7					
Deficit accomplishment in previous year	No	82	50.6					
	Yes	80	49.4					
Euro area	No	68	42.0					
	Yes	94	58.0					
Accounting basis	Accrual	12	7.4					
	Cash	112	69.1					
	Mixed	38	23.5					
GDP change to previous year (percent)				0.66	4.31	-17.70	1.20	10.50
GA budgetary balance / GDP (percent)				-3.56	3.76	-15.32	-3.19	6.27
NA budgetary balance / GDP (percent)				-3.34	4.54	-30.60	-3.10	5.30
LN(Population)				15.89	1.44	12.91	16.05	18.23
LN(GDP per capita)				2.98	.65	1.40	3.05	4.40

Notes: 162 observations.

M-Mean; SD-Standard deviation; Min-Minimum; Me-Median; Max-Maximum.

TABLE
4
Results of the Regression Models for Adjustment Categories' Materiality

Explanatory variables	Adjustment categories (dependent variables)							
	A	B	C1	C2	C3	D1	D2	E
	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
Economic growth (1-Yes/0-No)	25.320 (21.526)	9.778* (5.602)	-0.236 (6.198)	-31.282 (25.493)	6.030 (9.959)	8.800 (8.515)	24.075** (10.186)	-3.841 (16.645)
GDP % change to previous year (percent)	-7.284 (5.520)	-1.271 (0.880)	1.634 (1.916)	1.234 (2.771)	-3.079*** (1.180)	-1.577 (1.618)	-2.261** (1.151)	4.505 (3.889)
GA budgetary balance / GDP (percent)	-1.043 (1.630)	0.205 (0.287)	-0.043 (0.468)	2.006 (4.226)	1.673 (1.555)	0.431 (0.300)	-0.181 (1.005)	-3.931 (2.794)
Crisis period (1-Yes/0-No)	-77.868 (51.027)	-4.558 (3.795)	16.851 (17.424)	-41.399 (56.132)	-29.957 (20.301)	1.795 (2.063)	16.212 (13.764)	77.312* (40.109)
NA budgetary balance / GDP (percent) in previous year	-1.843 (1.792)	0.470 (0.384)	0.485 (0.528)	-0.951 (0.988)	-0.952 (0.599)	0.117 (0.247)	0.786 (1.032)	1.798 (1.343)
Deficit accomplishment in previous year (1-Yes/0-No)	-12.167 (24.602)	-3.532 (7.809)	10.330 (7.660)	-29.058 (57.822)	-35.746* (21.580)	-6.529 (4.232)	12.929 (12.506)	20.106 (22.661)
Euro area (1-Yes/0-No)	56.551 (40.742)	-7.778 (8.110)	-14.463 (14.096)	25.331 (20.957)	1.314 (7.926)	0.543 (2.938)	-4.778 (12.412)	-35.854 (29.468)
Accrual (1-Yes/0-No)	21.570 (31.380)	omitted (collinearity)	-13.882 (10.325)	-4.543 (12.569)	-7.013 (5.771)	-0.900 (1.918)	-16.017 (10.730)	-24.189 (22.193)
Mixed (1-Yes/0-No)	37.795 (47.015)	4.164 (3.794)	-18.443 (15.565)	29.032 (29.404)	20.225* (10.816)	1.381 (2.287)	2.420 (16.196)	-37.943 (31.037)
LN(Population)	2.799 (4.826)	168.992 (128.493)	2.247* (1.193)	8.576 (7.641)	5.822** (2.892)	0.431 (1.195)	5.458 (4.517)	-0.528 (3.280)
LN(GDP per capita)	-47.302 (38.900)	15.528 (42.646)	16.035 (13.495)	-9.625 (14.089)	10.681 (8.039)	2.727 (2.655)	-9.305 (11.113)	40.602 (25.836)
Intercept	79.757 (156.483)	-2733.988 (2036.027)	-84.143* (48.646)	-72.074 (99.967)	-104.241** (41.584)	-17.650 (30.937)	-89.687 (61.020)	-157.026 (96.692)
R-squared (R ²)	0.114	0.088	0.097	0.034	0.149	0.061	0.074	0.112
Panel data model	Pooled OLS	Fixed Effects	Pooled OLS	Pooled OLS	Pooled OLS	Pooled OLS	Random Effects	Pooled OLS

Notes: Dependent variable is the materiality of the adjustments (percent). Total obs: 162.

Robust standard errors are in parentheses.

*** significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.