WORKING PAPER

DEBT ASSUMPTION IN FINANCIAL ACCOUNTING AND GOVERNMENT FINANCE STATISTICS FRAMEWORKS AND STRENGTHENING INTEROPERABILITY BETWEEN FINANCIAL REPORTING AND STATISTICAL SYSTEMS

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Debt assumption in financial accounting and Government Finance Statistics frameworks and strengthening interoperability between financial reporting and statistical systems

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Abstract: This paper analyses the treatment of debt assumption in Government Finance Statistics (GFS) and national accounts, with particular emphasis on its differences from financial accounting. Debt assumption occurs when general government assumes responsibility for debt originally incurred by, in particular, public non-financial corporations, resulting in the reallocation of the liability between institutional sectors.

The paper compares the statistical treatment under GFS and ESA 2010 with financial reporting practices in Serbia, highlighting differences in recognition, timing, classification, and cash to accrual adjustments. Practical examples illustrate the reconciliation of accounting records with statistical requirements.

A key contribution is the proposal to strengthen interoperability between financial reporting and macroeconomic statistics through bridging tables linking financial accounting classifications with GFS, ESA 2010, and related statistical classifications. The paper also proposes improvements in the structure and disaggregation of national financial reports, particularly in the context of IFRS 18 implementation.

The paper argues that financial accounting and macroeconomic statistics should retain their distinct objectives while being more closely connected through consistent classifications, reconciliation procedures, and sufficiently detailed source data. Such interoperability can improve the quality, consistency, and efficiency of national accounts, GFS, and balance of payments statistics and strengthen their use for economic analysis, forecasting, research, and macroeconomic policymaking.

Keywords: Financial accounting, national accounts – NA, government finance statistics – GFS, debt assumption, cash to accrual adjustment, government guarantees, journal entries, capital transfer expenditure, net lending/borrowing.
[JEL Code]: M41, E01, G30.

Non-technical summary

The paper examines how debt assumption is recorded in Government Finance Statistics (GFS) when the government effectively takes responsibility for debt originally incurred by a public non-financial corporation, particularly when a government guarantee is called because the corporation cannot meet its obligations.

A central issue is the different perspectives of financial accounting and macroeconomic statistics. Financial accounting focuses on individual reporting entities and legal and contractual arrangements, whereas national accounts and GFS focus on the economic substance of transactions and the sector that ultimately bears the economic risk. As a result, a liability may remain on a corporation's financial statements while being reallocated to the government for statistical purposes once the government has effectively assumed the economic burden.

The paper shows that debt assumption can affect government debt and fiscal indicators even before a formal legal transfer occurs. Practical examples illustrate differences between accounting and statistical recording, including cases involving partial or no repayment.

The analysis then addresses the broader interoperability between financial reporting and macroeconomic statistics. IFRS and IPSAS-based financial statements are important sources for national accounts and GFS; their quality, consistency, and level of detail therefore directly affect statistical compilation. Financial information that is sufficiently detailed and structured for systematic mapping to statistical classifications can reduce reliance on additional data collection, estimation, and reconciliation adjustments.

The paper also illustrates the practical link between financial accounting information and statistical measurement through cash to accrual adjustments. This is particularly important when governments use modified cash accounting and undertake substantial capital expenditure, as the timing of cash payments may differ significantly from the timing of the underlying economic activity. Such differences can materially affect the measurement of government expenditure, net lending/net borrowing, and gross fixed capital formation (GFCF). Accounts payable and advances help identify whether expenditure relates to economic activity already incurred or to payments made in advance, allowing cash-based information to be converted into an accrual measure consistent with national accounts. This improves the measurement of government consumption and investment and, consequently, their contribution to GDP and related aggregates such as GNI and GNDI.

Overall, the paper argues that financial accounting and macroeconomic statistics should retain their distinct purposes while becoming more interoperable. Stronger links between the two systems can improve the measurement of economic activity and government exposure, reduce unnecessary statistical adjustments, and provide a more reliable basis for macroeconomic analysis, forecasting, research, and policymaking.

Contents

1 Introduction

Debt assumption is an important transaction in National Accounts (NA) and Government Finance Statistics (GFS) because it can significantly affect government debt, fiscal balances, and the distribution of financial risk across institutional sectors. Under paragraph 20.222 of ESA 2010, debt assumption occurs when one unit assumes responsibility for another unit's outstanding liability, including cases where a government guarantee is called or activated.

The statistical treatment is based on the economic substance of the transaction. According to the 2022 Eurostat Manual on Government Deficit and Debt (MGDD), in certain circumstances, a liability may be reallocated to the government when economic responsibility has been effectively transferred, even before a formal legal transfer. The assessment considers factors such as the likelihood of recovery and the debtor's capacity to service the debt.

This economic substance approach highlights an important distinction between macroeconomic statistics and financial accounting. IFRS and IPSAS-based reporting apply recognition and measurement principles to individual entities within defined reporting boundaries, whereas NA and GFS classify transactions according to institutional sectors and their economic impact. Consequently, the same event may have different timing or classification in accounting and statistical reporting.

These differences are important because financial statements are major sources for NA, GFS, and balance of payments statistics. Their quality, consistency, and level of detail directly affect statistical compilation. Where accounting information is insufficient for statistical classification, additional data, estimates, and reconciliation procedures may be required.

The issue is particularly relevant in Serbia, where differences between modified cash government reporting and accrual based statistical recording require cash to accrual adjustments. Accounts payable and advances provide important information for determining when expenditure is economically incurred rather than paid, which is essential for accurately measuring government consumption, investment, GDP, and related macroeconomic aggregates.

Against this background, the paper analyses debt assumption in Serbia and compares its treatment under GFS, ESA 2010, IFRS, IPSAS, and relevant national accounting practices. Practical examples illustrate the related accounting entries and cash to accrual adjustments.

A key contribution is the proposal to strengthen interoperability between financial reporting and macroeconomic statistics through systematic bridging tables linking accounting classifications with GFS, ESA 2010, and related statistical classifications. The paper also proposes greater disaggregation of financial reports where existing aggregates are insufficient for statistical compilation. These measures could reduce *ad hoc* adjustments and additional data collection while improving the consistency, efficiency, and reliability of macroeconomic statistics.

The following chapter examines the financial accounting treatment of debt assumption and provides the basis for the subsequent comparison with its statistical treatment under NA and GFS.

2 Treatment of debt assumption under the financial accounting framework

The accounting treatment of debt assumption differs significantly from its treatment under statistical frameworks such as the System of National Accounts (SNA 2008/2025), ESA 2010/2030, and GFSM 2014. The principal difference arises because financial accounting considers the recognition and measurement of transactions from the perspective of individual reporting entities, whereas statistical frameworks assess their economic substance and sectoral implications.

2.1 Government perspective

In financial accounting, recognition of a government's assumption of a corporate liability depends primarily on the legal form of the transaction. Where no formal legal assumption of the debt occurs, the liability typically remains on the balance sheet of the original debtor, even if the government makes payments to the creditor. In such cases, the government may recognize a financial asset or receivable reflecting its claim against the corporation for amounts paid on its behalf.

Conversely, where a legally binding debt assumption or novation agreement exists, the liability is derecognized from the corporation's balance sheet and recognized by the government, potentially together with a corresponding financial asset when recovery is expected.

In government financial reporting systems in Serbia, such transactions are generally recorded using a modified approach combining accrual-based accounting and budgetary classifications. Payments made by the government on behalf of a corporation are recorded as expenditures, while corresponding claims are recognized as financial assets or receivables, subject to their recoverability.

Table 1 presents an illustrative scenario in which the government makes a payment of EUR 100,000 to a creditor on behalf of a corporation with an underlying guaranteed debt of EUR 1,000,000.

Within modified government accounting systems, the treatment of this transaction depends on whether a legally enforceable claim against the corporation exists. In the hypothetical and fictitious example presented in this study, it is assumed that the government takes over the entire debt and, in return for the payment made on the corporation's behalf,

acquires a corresponding claim against the corporation. The corporation is further assumed to partially repay EUR 10,000 of this obligation to government.[11]

This framework is designed to illustrate three distinct levels of amounts applied to each journal entry, in order to demonstrate how the accounting treatment of debt assumption and guarantee activation varies under different magnitude scenarios. It is intended to present the full accounting mechanics of these transactions in a structured way, rather than reflect the empirical outcome, where repayment is partial or absent[12].

In practice, corporations whose obligations are settled by government intervention frequently do not fully repay the amounts due to financial constraints or insolvency. The accounting entries presented in Table 1 illustrate the treatment under the Serbian modified government accounting framework and reflect the accounting treatment applied in the illustrative case; they should not be interpreted as a generic IPSAS treatment. For this reason, the analysis presents two alternative scenarios: (a) partial repayment and (b) no repayment.

Table 1 **Recording of transactions under the government financial accounting framework, Modified system of financial accounting** (amounts in EUR)

GOVERNMENT - FINANCIAL ACCOUNTING FRAMEWORK - JOURNAL ENTRIES			
TYPE OF ITEM	**DESCRIPTION**	**DEBIT**	**CREDIT**
Asset	Recognized but unpaid obligation for guaranteed debt	1,000,000	
Liability-loan payable	Obligation for the new debt		1,000,000
Contra-liability account for loan payable	Obligation for the guaranteed debt	100,000	
Cash account	Payment from the government cash account to the creditor		100,000
Expense	Repayment of principal for guaranteed debt	100,000	
Contra-asset account	Recognized but unpaid obligation for guaranteed debt		100,000
Financial transaction	Repayment of principal for guaranteed debt	100,000	
Contra-item for the financial transaction	Repayment of principal for guaranteed debt-closing item		100,000
Asset	Recourse right for paid guarantees - Investment receivable	100,000	
Liability	Deferred other income and receipts		100.000
Cash account	Received money from the corporation for a claim	**10,000**	
Contra-asset account	Recourse right for paid guarantees		**10,000**
Contra-liability account	Deferred other income and receipts	**10,000**	
Revenue	Revenue from received payment		**10,000**

[11] The journal entries in Table 1 are based exclusively on the example provided in the text and reflect all assumptions stated therein. They may therefore differ from official accounting procedures in certain respects. Overall, the accounting procedure presented in Table 1 reflects the modified cash accounting method in nature.

One segment of the journal entries in Table 1 records the expense associated with the repayment of the principal of guaranteed debt (blue background). The author took into account that the Ministry of Finance presents this payment as an expense in the official dataset published on its website. Furthermore, the Treasury's P&L financial report also treats this amount as an expense when calculating the final financial result.

[12] In Serbian practice, the accounting procedure begins when the government initiates payment to the creditor. Table 1 illustrates this process through journal entries recorded for an amount of EUR 100,000. To simplify the presentation and focus on the core accounting and statistical treatment of the transaction, the author provides an example that includes only the principal amount and excludes interest payments and accruals.

At the end of the whole accounting operations presented in Table 1 the following aggregate financial positions and flows are obtained:

1. The government initially recognises the assumed liability of **EUR 1,000,000**. Following payment of **EUR 100,000** to the creditor, the outstanding liability is reduced to **EUR 900,000**;
2. A financial claim on the corporation is recognized in the amount of **EUR 90,000**, reflecting the initial claim of **EUR 100,000** reduced by the repayment of **EUR 10,000**;
3. A cash outflow of **EUR 100,000** is recorded corresponding to the payment made by the government to the creditor and
4. The impact on financial result of the transaction is **EUR -90,000**, reflecting an expense of **EUR 100,000** and a repayment inflow (revenue) by corporation of **EUR 10,000**.

In a case where there is no payment from corporation to the government, which is the more realistic scenario, we would have next positions:

1. The government records a liability of **EUR 900,000** corresponding to the remaining obligation after partial settlement;
2. A financial claim on the corporation of **EUR 100,000** is recognized, subject to impairment assessment depending on recoverability and
3. A cash outflow of **EUR 100,000** is recorded for the payment made to the creditor.
4. The impact on financial result of the transaction is **EUR -100,000**.

Even where collection of claims from corporations is considered unlikely in practice, under the government accounting framework the recognition of a claim against the corporation arising from paid guarantees, recorded as a debit entry together with the corresponding credit entry to Other deferred income and receipts, is necessary to complete the accounting procedure.

From a public sector accounting perspective, recognition of a receivable reflects the expectation of future recovery of amounts paid on behalf of the corporation. Where recovery is uncertain, the receivable may be subject to impairment or non-recognition depending on the applicable accounting and prudential requirements

2.2 Corporation perspective

Table 2 illustrates the accounting treatment under an accrual-based financial reporting framework where a government makes a payment to a creditor on behalf of a corporation without a formal legal debt assumption agreement. Unlike in Table 1, the full amount of the debt assumption is not recorded in the first journal entry. As such, an entry would not be consistent with the IFRS approach, while the statistical example for the corporation includes a corresponding entry.

Under IFRS/IAS principles, the accounting treatment depends on the substance of the transaction. In the absence of a legal debt assumption or other form of contractual novation,

the corporation's obligation to the original creditor is not automatically extinguished. An assessment is therefore required to determine whether the government's payment represents a settlement of a part of the liability and whether a corresponding reimbursement obligation arises.

Accordingly, the government's payment may result in partial settlement of the existing liability to the creditor and recognition of a separate liability to the government, where the corporation is required to reimburse the amount paid on its behalf.

Table 2 **Recording of transactions under the corporation financial accounting framework, accrual method of financial accounting** (amounts in EUR)

CORPORATION - FINANCIAL ACCOUNTING FRAMEWORK JOURNAL ENTRIES			
TYPE OF ITEM	**DESCRIPTION**	**DEBIT**	**CREDIT**
Contra-liability account for loan payable	Removing the part loan from the liabilities side	100,000	
Revenue	Removing the loan liability without payment		100,000
Expense	Expense for the new obligation to government	100,000	
Other obligation	Obligation to the government for paid debt		100,000
Contra-liability account	Other obligations	**10,000**	
Cash account	Payment of obligation to the government		**10,000**

At the end of the accounting process presented in Table 2, the following positions are observed:

1. The corporation's liability to the original creditor is reduced to **EUR 900,000**, reflecting the portion of the obligation settled through the government's intervention, while the remaining liability continues to represent the unpaid balance of the original debt;
2. A separate liability to the government is recognized in the amount of **EUR 100,000**, representing the corporation's obligation to reimburse the government for payments made on its behalf. Where partial repayments are made (e.g. **EUR 10,000**), this liability is subsequently reduced, resulting in a remaining obligation of **EUR 90,000** and
3. The impact on financial results of the transactions is **EUR 0** (**100,000-100,000**) and cash outflow is **EUR 10,000**.

Where the corporation does not repay any amount to the government:

1. The liability to the creditor remains **EUR 900,000**;
2. A liability to the government of **EUR 100,000** is recognised and
3. The impact on financial results of the transactions is **EUR 0 (100,000-100,000)**.

This accounting treatment applies where there is no legal debt assumption. The corporation does not automatically remove its original liability. Whether the liability is derecognised and a new liability to the government is recognised depends on whether the government's payment settles the debt and whether the corporation has an obligation to reimburse the government under IFRS recognition criteria.

The accounting analysis therefore establishes an important distinction: legal form and enforceability are central to entity level recognition, while statistical treatment may subsequently require a different assessment based on economic substance and sectoral allocation. The following chapter applies these principles to the same illustrative transaction under NA and GFS.

3 Treatment of debt assumption under the statistical framework (national accounts/gfs)

3.1 Government perspective

Governments may intervene in the financing of public non-financial corporations by assuming or servicing their debt obligations. In such cases, the statistical recording depends on whether a financial claim is recognized and whether a legal debt assumption exists.

In this example, the government assumes responsibility for a corporation's debt in the amount of EUR 1,000,000 without acquiring a corresponding financial asset due to uncertainty regarding repayment. The transaction is therefore recorded as a capital transfer payable (D.9) from the government to the corporation.

The government subsequently repays EUR 100,000 of principal to the original creditor, while the corporation repays EUR 10,000 to the government. As no financial asset is recognized at inception, these flows are recorded as capital transfers (D.9). The EUR 10,000 repayment is included in the illustrative scenario to demonstrate the statistical treatment of a subsequent payment where no financial asset was recognized at the time of debt assumption. Accordingly, the payment is recorded as a capital transfer from the corporation to the government rather than as repayment of a recognized financial claim. Table 3 presents the statistical recording framework from the aspect of government.[13]

Table 3 **Recording of transactions under the government statistical framework** (amounts in EUR)

GOVERNMENT - STATISTICAL FRAMEWORK NA/GFS RECORDINGS			
TYPE OF ITEM	**DESCRIPTION**	**DEBIT**	**CREDIT**
Expense	Capital transfer expenditure	1,000,000	
Liability	New loan imputed on liability side by debt assumption		1,000,000
Loans payable (Contra-liability account)	Decreasing the assumed debt by payment from government cash account	100,000	
Cash account	Payment from government cash account to creditor		100,000
Asset	Other receivables from corporations	100,000	
Revenue	Capital transfer revenue		100,000
Expense	Capital transfer expenditure (claim not likely to be repaid)	100,000	

[13] The statistical recordings presented in Tables 3 and 4 are based on the example of a debt assumption given in the text, considering the financial accounting treatment in government accounts while adapting it to the relevant statistical standards.

GOVERNMENT - STATISTICAL FRAMEWORK NA/GFS RECORDINGS			
TYPE OF ITEM	DESCRIPTION	DEBIT	CREDIT
Liability	Other receivables from corporations		100,000
Asset	Cash account - collection of the payment from the corporation	**10,000**	
Revenue	Capital transfers revenue from collecting the cash from the original debtor		**10,000**

The statistical outcomes are as follows:

1. The government records a capital transfer expenditure (D.9)[14] of **EUR 1,000,000.** At the time of debt assumption, the government recognizes a liability of **EUR 1,000,000** to the original creditor, reflecting the transfer of responsibility for the outstanding debt.
2. Following the debt assumption, the government reduces its liability to the foreign creditor from **EUR 1,000,000** to **EUR 900,000** through a payment of **EUR 100,000** from its cash account**.**
3. The repayment of **EUR 10,000** by the corporation to the government is recorded as capital transfer revenue **(D.9)**, as no financial claim against the corporation was recognized and the payment is therefore treated as a capital transfer.
4. No financial claim against the public non-financial corporation is recorded because the claim is considered not likely to be repaid and is therefore not recognized as a financial asset (*in the given example it is shown like two consecutive recording operations which cancel each other out, in rows 4 and 5, blue backgrounds*).
5. The government Net lending/borrowing[15] (B.9) is **EUR −990,000 (-**1,000,000 + 10,000)

If no repayment is made by the corporation:

1. The government outstanding loan liability remains **EUR 900,000** (1,000,000-100,000).
2. The impact on Net lending/ borrowing (B.9) is **EUR −1,000,000** for the government.

3.2 Corporation perspective

In the absence of a legal debt assumption, the corporation's original liability remains unchanged in legal terms. For statistical purposes, however, where the government effectively assumes responsibility for the debt and no recoverable financial claim against the corporation is recognized, the corresponding debt is reallocated to the government, and the corporation records a capital transfer (D.9). Any subsequent payment by the corporation to the government is likewise recorded as a capital transfer rather than as repayment of a recognized financial

[14] According to the ESA 2010 national account framework, transaction D.9 (Capital transfers) may be recorded either as revenue or as expenditure, depending on the nature and direction of the transaction.

[15] Net lending/borrowing, according to the World Bank metadata glossary, equals government revenue minus expense, minus net investment in nonofficial assets. It is also equal to the net result of transactions in financial assets and liabilities. Net lending/borrowing is a summary measure indicating the extent to which the government is either putting financial resources at the disposal of other sectors in the economy or abroad, or utilizing the financial resources generated by other sectors in the economy or from abroad. This indicator is expressed as a percentage of Gross Domestic Product (GDP) which is the total income earned through the production of goods and services in an economic territory during an accounting period.

claim. Table 4 presents the statistical recording framework from the perspective of the corporation.

Table 4 **Recording of transactions under the corporation statistical framework** (amounts in EUR)

CORPORATION - STATISTICAL FRAMEWORK NA/GFS RECORDINGS			
TYPE OF ITEM	**DESCRIPTION**	**DEBIT**	**CREDIT**
Contra-liability account	Removing the loan from the liabilities section	1,000,000	
Revenue	Capital transfer revenue (decrease of liab.without payment)		1,000,000
Expense	Expense for the new debt to the government	100,000	
Other obligations	Obligation to the government for assumed debt		100,000
Contra-liability account	Obligation to the government for assumed debt	100,000	
Revenue	Removing the debt (claim not likely to be repaid)		100,000
Expenditure	Capital transfer expenditure	**10,000**	
Cash account	Payement for the obligation to the government		**10,000**

At the end of the whole statistical recording process presented in Table 4 as the result we have:

1. For statistical purposes, the corporation's outstanding loan liability is reduced to **EUR 0** because responsibility for the debt has been transferred to the government.
2. The debt assumption is recorded as a capital transfer revenue (D.9) in the amount of **EUR 1,000,000** by the corporation.
3. No financial liability to the government is recorded because no enforceable or repayable claim is recognized under the statistical treatment.
4. The corporation records B.9 of **EUR 990,000**, calculated as the capital transfer of **EUR 1,000,000** less the **EUR 10,000** payment made by itself to the government.

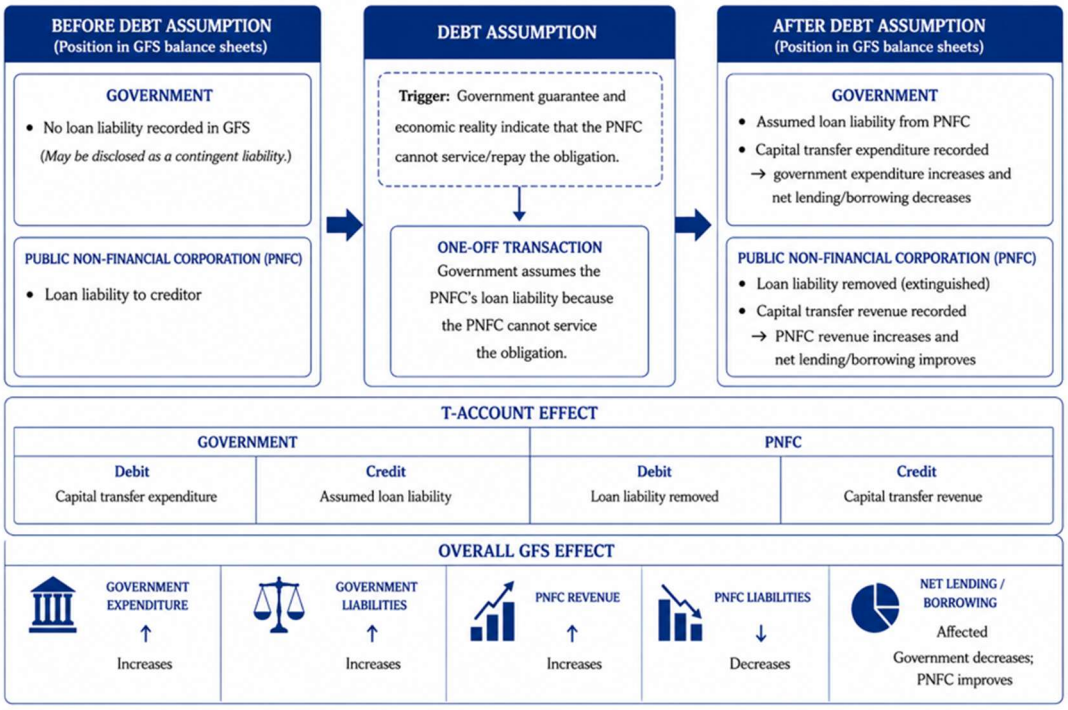
In the case where there is no payment from the corporation to the government in a realistic scenario, the resulting statistical position would be:

1. Outstanding loan liability: **EUR 0 (**1,000,000 − 1,000,000**)**.
2. No liability to government (no financial claim from the government towards the corporation is recognized).
3. B.9 equals **EUR 1,000,000,** because no **EUR 10,000** payment is deducted.

The comparison between Tables 1–4 demonstrates that the same economic event can produce materially different accounting and statistical results. The difference arises primarily from the recognition of financial claims, the assessment of recoverability, the legal status of the debt, and the statistical allocation of economic risk.

The statistical treatment must, however, also consider the institutional sector classification of the corporation. If a public non-financial corporation is itself classified within general government, the treatment of the transaction and its effect on consolidated government indicators can be substantially different.

Illustration 1 **Debt assumption under the GFS/NA framework**



4 Treatment of debt assumption when a public non-financial corporation is classified within the government sector for statistical purposes

Public non-financial corporations that receive substantial and persistent government support, including guarantees, subsidies, capital injections, or other financial assistance, may be classified within the general government sector under ESA 2010, particularly where they are non-market institutional units whose sales revenues do not cover a substantial share of production costs on a sustained basis. Railway and road infrastructure corporations are common examples. Such corporations may depend on government support to maintain operations and service their financial obligations. Creditors may therefore provide financing based partly on explicit or implicit government support rather than on the corporation's standalone financial capacity.

When a public corporation is classified within the general government, transactions with other government units are intra-sector transactions and are eliminated in consolidation. Consequently, liabilities already included within the general government perimeter should not be counted again in consolidated government debt. This is particularly important for government-guaranteed borrowing, requiring reconciliation of Public Debt Administration data with corporate financial statements to avoid double counting.

For public debt and GFS purposes, consolidated government finance statistics and Public Debt Administration records should therefore be considered together with corporate financial

statements rather than mechanically aggregating individual corporate liabilities. A liability formally recorded by a corporation should not be counted again if it is already included in consolidated general government debt.

When the government services debt on behalf of such corporations, the corporation may record capital transfer or subsidy revenue, with corresponding government expenditure. These intra-sector flows are eliminated on consolidation and therefore do not affect consolidated net lending/borrowing, as they represent a reallocation of resources within the same institutional sector rather than the creation of a new external government liability.

Taken together with the preceding analysis, this example demonstrates that the statistical treatment of debt assumption depends on recognition rules, the existence and recoverability of financial claims, institutional-sector classification, and consolidation boundaries. Financial statements therefore cannot always be converted into macroeconomic statistics through mechanical aggregation, highlighting the need for stronger interoperability between financial reporting and statistical systems.

5 Closing remarks and general recommendations for improving the coherence and interoperability of accounting and statistical systems

The analysis of debt assumptions illustrates the broader difference between entity level financial reporting and macroeconomic statistics. Financial accounting applies recognition and measurement principles to individual reporting entities within defined legal and reporting boundaries, whereas statistical systems classify transactions according to institutional sectors and their economic substance. The objective should therefore not be to make the two systems identical, but to ensure sufficient interoperability to support reliable statistical compilation.

5.1 Financial reporting as a source for macroeconomic statistics

Strengthening IFRS/IAS and IPSAS-based financial reporting at the national level is essential for generating reliable source data for national accounts, balance of payments statistics, and GFS. This is consistent with ESA 2010 and the modernization priorities associated with ESA 2030, including improved data quality, greater use of administrative and accounting information, and more efficient statistical production.

National financial reporting systems should therefore enable accounting information, wherever practical, to be converted into statistical aggregates through transparent and systematic mapping. Financial instruments, transactions, and other economically relevant items should be identifiable at sufficient detail to permit appropriate statistical classification. Where accounting aggregates are too broad, additional disaggregation should be provided in the financial statements or in a supplementary Statistical Annex.

5.2 Disaggregation and statistical classification

The IFRS category "Cash and cash equivalents" illustrates the importance of disaggregation. It may include currency, deposits, and short-term debt securities, which are distinct financial instruments with potentially different counterpart sectors. Currency (F.21), deposits (F.22–F.29), and short-term debt securities (F.31) should therefore be identifiable separately rather than mapping the entire accounting category directly to deposits (F.2).

Similar information should be provided for "Other long-term investments and receivables," classified by instrument or investment type, "Deferred income and received donations," identified by counterpart sector, and crypto-assets, where information is necessary for their appropriate statistical classification. Such information may be included in the financial statements or supplementary tables forming part of a Statistical Annex, which should be a part of the external auditing process.

5.3 Consistency across financial statements

Interoperability also requires consistency across the financial statements. Changes in accounting positions should be traceable across the balance sheet, statement of profit or loss, cash flow statement, and statement of changes in equity, enabling statistical compilers to distinguish stocks from flows and reconcile changes between them.

For example, where crypto-assets are recognized, the balance sheet should identify the relevant stock, the statement of profit or loss, the applicable fair value gains or losses, and the cash flow statement of the related acquisition and disposal transactions. The same principle should apply to residency and counterpart sector information, allowing financial positions, income, expenses, and financial flows to be consistently allocated between residents and non-residents and, where relevant, among institutional sectors.

5.4 Mapping and bridging arrangements

Systematic mapping between accounting and statistical classifications should form an integral part of financial reporting and statistical compilation. Bridging tables can establish transparent relationships between financial statement items and the classifications used in ESA, GFS, and related statistical frameworks.

Such arrangements would make differences arising from recognition, valuation, timing, sector classification, consolidation, and other methodological requirements more transparent. They would also reduce reliance on ad hoc adjustments and facilitate reconciliation between accounting information and statistical aggregates.

5.5 Broader value of interoperability

The benefits of interoperability extend beyond statistical compilation. When accounting data are sufficiently detailed and consistently classified, they can be aggregated into measures of sectoral income, expenditure, investment, financial assets and liabilities, debt, and economic

exposure. These measures provide an empirical basis for analyzing fiscal developments, financial stability, external vulnerabilities, investment, indebtedness, and the transmission of economic shocks, supporting research, forecasting, and policymaking.

Financial accounting and macroeconomic statistics should nevertheless retain their distinct purposes. Financial accounting focuses on entity-level recognition, measurement, performance, and accountability, whereas macroeconomic statistics reorganize information across entities and sectors to describe the economy as a whole. The objective should therefore be interoperability, not methodological convergence.

5.6 Institutional cooperation and continuous development

National charts of accounts and financial reporting systems should be treated as structures capable of continuous development rather than systems determined exclusively by legislation. Their design should involve sustained cooperation among legislators, accounting professionals, reporting entities, regulators, and statistical authorities.

Such cooperation can ensure that financial reporting fulfils its primary regulatory and accountability objectives while also generating information suitable for efficient statistical compilation. Supplementary statistical reporting can provide additional information, but it cannot fully compensate for deficiencies in the underlying accounting system. Where financial reporting does not provide the information required for statistical classification, statistical authorities must rely on additional data collection, estimates, assumptions, and adjustments.

5.7 Overall conclusion

The ultimate objective should be a coherent information chain from entity-level financial reporting to sectoral statistics and, ultimately, to macroeconomic analysis and policy. Financial reporting should retain its primary accounting purpose while providing, where practical, sufficiently structured and disaggregated information to support reliable macroeconomic statistics.

Greater interoperability would reduce duplication in data collection and the need for statistical adjustments while improving the consistency, timeliness, and analytical value of macroeconomic indicators.

Its implementation requires the involvement of statistical authorities in the design and continuous development of national charts of accounts and financial reporting requirements, ensuring that accounting information contains the classifications and details needed for national accounts and GFS. The Appendix provides a practical overview of cash, accrual, and modified-cash accounting and shows how accounts payable and advances support cash to accrual adjustments required for statistical compilation.

6 Appendix: financial accounting methods, practical examples and accounting considerations

Based on how revenues and expenses are recognized, how accounts receivable and payable are tracked, and whether the matching principle is applied, accounting systems may generally be classified into cash-based, accrual-based, and modified accounting frameworks. Here is a breakdown of these methods, including two modified variations:

6.1 Cash accounting

This is the simplest method. Transactions are recorded only when cash is received or paid.

Recognition: Revenues are recorded when cash is received; expenses are recorded when cash is paid.

Tracking: There is no formal recognition of accounts receivable, accrued revenue, accounts payable, or accrued expense.

Matching principle: The matching principle does not apply.

6.2 Accrual accounting

Accrual accounting provides a more comprehensive and accurate picture of a company's financial performance over a specific period.

- Recognition: Revenues are recorded when earned and expenses when incurred, regardless of when cash is received or paid.
- Tracking: Accounts receivable, accrued revenue, accounts payable, and accrued expenses are fully recognised and tracked.
- Matching principle: Expenses incurred to generate specific revenue are recognised in the same accounting period as the related revenue. For example, the COGS is recognised when the related product is sold rather than when the raw materials are purchased.

6. 3 Modified cash accounting - variation 1

This method combines cash and accrual principles according to the duration or nature of transactions.

Short-term assets and liabilities are managed using cash principles, while long-term assets and liabilities, such as major equipment and long-term loans, are managed using accrual principles.

6.4 Modified cash accounting -variation 2

This specific and complex method is sometimes used by government entities like non-market producers.

- Recognition: Revenues and expenses are recognized when cash is exchanged.
- Tracking: Unlike pure cash accounting, full tracking of accounts receivable and accrued revenue and Accounts Payable and Accrued expense is present.
- Matching principle: The matching principle is generally not applied.

Unique features

- Cash to accrual adjustment: Because all necessary data is tracked, it is possible to perform "cash to accrual adjustment" to calculate what the figures would be under accrual accounting.
- Fixed assets: Fixed assets are generally not capitalized in the same way as in accrual accounting. They are recorded as fixed assets but are also expensed through numerous entries across different debit and credit accounts to ensure a consistent balance.
- Recording system: The transaction-recording system is comprehensive. For example, a vendor transaction may include entries recording both the obligation and the subsequent cash payment.

The following two examples illustrate the operation of a modified cash accounting system and the use of accounts payable and advances in cash to accrual reconciliation.

6.5 Example 1 – Vendor transactions

The first example assumes:

1. Opening debit balance on the cash account amounting to EUR 10,000 (assumption);
2. Services received in period T+1 in the amount of EUR 500 on account;
3. Partial payment for services received in T+1 executed in month T+2 in the amount of EUR 300 and
4. Accrual of a new expense in the amount of EUR 2,000 in month T+3, invoice has been received.

Example 1 (amounts in EUR)

CASH ACCOUNTING

Debit	CASH		Credit
1)	**10.000**	300	3)
	9.700		

Debit	A/PAYABLE		Credit
		0	**Beginning 1)**
		0	2)
		0	4)
		0	

Debit	EXPENSES		Credit
1) Beginning	0		
2)	0		
3)	300		
4)	0		
	300		

ACCRUAL ACCOUNTING

Debit	CASH		Credit
1)	**10.000**	300	3)
	9.700		

Debit	A/PAYABLE		Credit
3)	300	0	**Beginning 1)**
		500	2)
		2000	4)
		2200	

Debit	EXPENSES		Credit
1) Beginning	0		
2)	500		
4)	2000		
	2500		

MODIFIED CASH ACCOUNTING

Debit	CASH		Credit
1)	**10.000**	300	3)
	9.700		

Debit	EXPENSES		Credit
1) Beginning	0		
3)	300		
	300		

Debit	A/PAYABLE		Credit
3)	300	0	**Beginning 1)**
		500	2)
		2000	4)
		2200	

Debit	CALCULAT. NOT PAID EXPENSES		Credit
1) Beginning	0	300	3)
2)	500		
4)	2000		
	2200		

CASH TO ACCRUAL ADJUSTMENT FOR

Debit	A/PAYABLE		Credit
Cash	300	**0**	**Beginning**
		2500	
		2200	

Adjustment 2500 = (22000 Credit Ending Stock) + (300 Debit Cash) - (0 Beginning Stock)

6.6 Example 2 – Advance payment

The second example assumes:

1. Opening debit balance on the cash account amounting to EUR 10,000 (assumption);
2. Services received in period T+1 in the amount of EUR 500 on account;
3. Partial payment for services received in T+1 executed in month T+2 in the amount of EUR 300 and
4. Advanced payment was made of EUR 1500 in the period T+3 for the service worth 2000, the invoice has not been received yet.

Example 2 (amounts in EUR)

MODIFIED CASH ACCOUNTING

Debit	CASH		Credit
1) Beginning	10000	300	3)
		1500	4)
	8200		

Debit	ADVANCES RECEIVABLES		Credit
1) Beginning	0		
4)	1500		
	1500		

Debit	EXPENSES - CASH METHOD		Credit
Beginning	0		
3)	300		
4)	1500		
	1800		

Debit	CALC. NOT PAID EXPENSES		Credit
1) Beginning	0	300	3)
2)	500		
	200		

Debit	ADVANCES PAID		Credit
		0	Beginning 1)
		1500	4)
		1500	

Debit	A/PAYABLE		Credit
3)	300	0	Beginning 1)
		500	2)
		200	

CASH TO ACCRUAL ADJUSTMENT FOR

Debit	ADVANCES PAYABLE		Credit
Beginning	0	0	
Cash	1500		
	1500		

CASH TO ACCRUAL ADJUSTMENT FOR

Debit	A/PAYABLE		Credit
Cash	300	0	Beginning
		500	
		200	

6.7 Cash to accrual adjustment

The formula for cash to accrual adjustment for all expenses and expenditures that are related to Accounts payable (Vendors) and Advances receivable (Prepayments) is:

= Cash + (Ending A/Payable - Beginning A/Payable) + (Beginning Advances Receivable - Ending Advances Receivable). Using the example:

EUR 1800 + (EUR 200 -EUR 0) + (EUR 0 – EUR 1500) = EUR 500.

The vendor account can be reconciled separately using a formula:

Ending Stock A/Payable + Cash Payments – X = Beginning Stock A/Payable, where X = Accrual expenses/expenditures. Therefore, X = Ending Stock A/P + Cash Payments – Beginning Stock A/P. Using the example:

EUR 200 + EUR 300 – EUR 0 = EUR 500.

Advance receivable (prepayments) can be recalled by the following formula:

Ending Stock A/Receivable – Cash Payments + X = Beginning Stock A/Receivable, where X = Accrual expenses/expenditures. Therefore, X = Beginning Stock A/R - Ending stock A/R + Cash payments. Using the example:

EUR 0 – EUR 1500 + EUR 1500 = EUR 0.

The EUR 500 represents the total amount of accrual expenses and expenditures related to advances and vendor accounts. In practice, allocating this amount to specific expenses and expenditures requires an appropriate allocation methodology. This may range from proportional allocation based on cash expenses and expenditures to more sophisticated methods.

Under a modified cash accounting system, reconciliation of vendor accounts[16] identifies liabilities for goods and services received but not yet paid. These liabilities may relate either to current expenditure or to the acquisition of non-financial assets. Accounts payable and advances should therefore be treated as separate but complementary control accounts: accounts payable represent obligations arising from economic events that have already occurred, while advances represent payments made before the related goods or services are received.

Where the opening and closing balances of accounts payable and advances receivable, together with related cash payments, are known, corresponding accrual expenditure can be derived from movements in these accounts. Expenditure incurred but not paid increases accounts payable, while cash payments reduce outstanding liabilities; conversely, prepayments create advances that should not be recognized as expenditure until the related economic event occurs.

[16] Vendors' accounts on the balance sheets of budgetary units operating under the modified cash accounting system should be divided into two main subcategories: vendors related to current expenditures (intermediate consumption) and vendors related to capital expenditures. This classification is necessary to ensure an accurate balancing procedure. These categories should then be further divided into domestic and foreign vendors, with additional classifications introduced where necessary. The same principle should be applied to advance receivables, i.e. prepayments.

Cash to accrual adjustment[17] is essential for national accounts because expenditure must be attributed to the period in which the underlying economic activity occurs rather than the period in which payment is made. Accurate adjustment is therefore necessary for measuring government final consumption expenditure and gross fixed capital formation (GFCF), and consequently GDP and related aggregates GNI and GNDI.

The adjustment is particularly important for governments using cash or modified-cash accounting, especially during periods of substantial capital expenditure. Significant balances in advances or assets under construction may indicate that cash payments differ materially from the timing of the underlying economic activity. Cash-to-accrual adjustments based on sufficiently detailed financial reporting information are therefore essential for the accurate calculation of statistical aggregates.

[17] Different financial accounting platforms and portals use several approaches to calculate cash to accrual adjustments for a given T-account, each based on different underlying logic. In the author's opinion, the approach presented in this paper in the overview section is the simplest, most transparent, and easiest to understand and remember. This approach is available on the financial accounting channel TLC Tutoring, along with many other useful financial accounting clarifications and explanations.

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