Measuring Government Debt: From D1 to D4

The magnitude of government debt, and public sector debt likewise, depends on the coverage of instruments used and available data. To accommodate a fair international comparison of related indicators, the IMF, the OECD and the World Bank have agreed to define various debt measures depending on the coverage or non-coverage of instruments: D1 to D4.

The D1-D4 presentation classifies gross government debt and public sector debt into four separate categories, as defined in the 2012 IMF Staff Discussion Note: "What Lies Beneath: The Statistical Definition of Public Sector Debt". This coverage of instruments according to this classification ranges from a narrow definition including only debt securities and loans (D1) to a fully comprehensive definition covering all six debt instruments (D4), as defined in the Public Sector Debt Statistics Guide for User and Compilers, and the Government Finance Statistics Manual 2014. Table 1 below shows the delineation for D1-D4 with the area shaded in blue indicating which debt instruments are included in each.

Table 1: Delineation of Government and Public Sector Debt

Debt Instrument	D1	D2	D3	D4
Debt Securities				
Loans				
SDR's				
Currency & Deposits				
OAP[1]				
IPSGS[2]				

Background:
- It is agreed that the most comprehensive international definition of gross government debt and public sector debt is found in the *Public Sector Debt Statistics Guide for Compilers and Users (PSDS Guide) and in the Government Finance Statistics Manual 2014 (GFSM 2014).*
- While almost all countries are able to compile data for the two largest debt instruments (securities and loans), few countries have the resources to compile fully comprehensive gross debt statistics as defined in the *PSDS Guide* and *GFSM 2014*.
- In practice, country coverage *is not equal* across debt instruments leading to a lack of *transparency* and cross-country *comparability* in the current presentation of government debt and public sector debt data.
- International organisations already explicitly provide debt data according to differences in coverage of the population (central government, general government, public sector) and differences in valuation, but not according to differences in instrument coverage.

Why a New Presentation of Government Debt and Public Sector Debt Data?
- As noted above, ideal reporting objectives are constrained by reality - current resource constraints in most countries prevent them from computing, for example, data on *other accounts payable* (in countries where they have to rely on a cash recording accounting system) and liabilities related to *insurance, pension, and standardized guarantee schemes*

---

[1] Other Accounts Payable

[2] Insurance, Pensions and Standardized Guarantee Schemes

- By providing government debt and public sector debt data for as many countries as possible, with the maximum level of transparency (even if coverage of the population and/or instruments is initially rather narrow) allows: *i)* countries to assess their reporting standards relative to other countries and relative to international standards, *ii)* users to conduct more meaningful analytical work with internationally comparable data.
- The new presentation allows for a presentation of data on government debt and public sector debt with full transparency across all dimensions, in such a way that international comparability is ensured to the greatest extent possible.

Advantages of the Proposed Presentation
- Overlaps with other commonly used presentations.
- Allows for direct international comparability of commonly used debt indicators - Maastricht Debt (D2A)[3] and *PSDS Guide/GFSM 2014* (D4).
- Countries who do not report all instruments, such as *other accounts payable and insurance, pensions,* and *standardized guarantee schemes*, can be easily identified [4].

1. Sector coverage:

D1-D4 indicators are calculated for both general government and central government for all available quarters.

For Chile, Greece, and Kazakhstan, no indicators are calculated as they do not report any data for the two aforementioned sectors. For New Zealand, the first level indicator D1 is not calculated as no figures are reported for loans.

For Armenia, Iceland, Israel, Madagascar, Malawi, Pakistan, Slovenia, Turkey, Russia and Uganda, D1-D4 indicators are calculated for the central government sector only.

2. Measures:

D1-D4 indicators are calculated in national currency, in US dollars and as a percentage of GDP. For this last measure, GDP data are calculated as a four-quarter rolling sum. For instance, the Q1 2015 GDP is calculated by summing GDP data (quarterly levels, current prices, national currency and not seasonally adjusted) from Q2 2014 to Q1 2015.

OECD quarterly national accounts database is the source of the quarterly GDP data for the 34 OECD member countries as well as for Argentina, Brazil, Colombia, Costa Rica, Indonesia, Latvia, Lithuania, Russia, South Africa.

The International Finance Statistics (IFS) database is the source of quarterly GDP data for Albania, Armenia, Bolivia, Bulgaria, China, Cyprus, Georgia, Guatemala, Kazakhstan, Mata, Mauritius, Moldova, Morocco, Paraguay, Peru, Philippines, Romania, Seychelles, Sri Lanka, and Uganda.

The International Finance Statistics (IFS) database is also the source of annual GDP data for Bangladesh, Barbados, Congo DRC, Lebanon, Madagascar, Malawi, Nepal, Pakistan, St. Lucia, Suriname, Tanzania, Togo and Tonga.

Haver Analytics quarterly database, , is the source of the quarterly GDP data for Dominican Republic, El Salvador, Honduras, Kenya, Nicaragua and Nigeria.

---

[3] D2A consists of debt securities, loans and currency and deposits. It excludes SDRs.

[4] These liabilities can be significant and may be an important indicator of fiscal risk (buildup of trade credits for example in the case of other accounts payable).

For Canada, Portugal, the United Kingdom and the United States, GDP data used to calculate GDP rolling sums are seasonally adjusted.

3. Calculations of D1-D4 indicators according to instrument coverage:

D1 is the sum of both debt securities (AF3) and loans (AF4).

D2 is the sum of D1 and currency and deposits (AF2) and Special Drawing Rights (AF12).

D2A is the sum of D1 and currency and deposits (AF2) and represents the definition according the EU Excessive Deficit Procedure (Maastricht debt).

D3 is the sum of D2 and other accounts payable (AF8)

D4 is the sum of D3 and insurance, pensions and standardised guarantee schemes (AF6)

In shorts:

D1= AF3 + AF4
D2= D1 + AF2 + AF12
D2A= D1 + AF2 or D2 − AF12
D3= D2 + AF8
D4= D3 + AF6

4. Calculation rules and treatment of zeroes and not available data ("NA").

As a general rule, an indicator is not calculated if one of its components is missing.

In 2014, a joint OECD-World Bank survey was sent out to countries regarding the reporting of public sector debt data, with the aim (1) to clarify the distinction between true zeroes and unavailable data; and (2) to investigate the coverage of pension liabilities. The results of this survey led to the following rules for OECD countries.

a. SDRs – AF12

Most countries record SDRs allocations as liabilities of the central bank and not as liabilities of the central government. Therefore, they report a true zero for this debt instrument. In the same manner, data reported as being not available (NA) is treated as a zero in order to allow for the calculation of the D2 indicator.

b. Currency and deposits – AF2

True zeroes can be reported for this debt instrument. However, some countries do not report any data for AF2 and specified in the survey that currency and deposits data is equal to zero. Therefore, for these countries (Estonia, Iceland, Korea, Mexico and Norway) AF2 is treated as a true zero.

c. Debt securities and loans – AF3 & AF4

True zeroes can be reported for these two debt instruments.
No specific rule has been applied for these two debt instruments.

d. Other accounts payable – AF8

If data for AF8 is missing or reported as being equal to zero, the indicator D3 is not calculated, as all countries are assumed to have some trade credits and advances for both central government and general government.

Hungary reports the sub-instrument trade credits and advances (AF81) only and does not report data for other accounts payable, except trade credits and advances (AF89).

e. Insurance, pension and standardised guarantee schemes – AF6

D4 indicators are only calculated if reported figures represent all relevant government employment-related pension liabilities.

For Denmark, Ireland, Korea, Netherlands, Portugal, Slovenia, Spain, Turkey and United Kingdom, D4 is not calculated as they report zeroes for AF6.

D4 is also not calculated for Czech Republic, Finland, France, Slovak Republic and Switzerland as they report partial data, which represent either insurance or standardised guarantees or funded pension liabilities only.

5. Valuation of debt instruments:

Public sector debt data should be reported in nominal value. Please see below a table summarising OECD countries' valuation of debt instruments.

OECD countries	Nominal value	Face value	Book value	Fair value	Market value
Australia	X				
Austria		X			
Belgium		X			
Canada	X		X		
Chile		X			
Czech Republic		X			
Denmark	X				
Estonia		X			
Finland		X			
France		X			
Germany		X			
Greece	X				
Hungary		X			
Iceland		X			
Ireland		X			
Israel	X				
Italy		X			
Japan					X
Korea	X				
Luxembourg		X			
Mexico	X				
Netherlands		X			
New Zealand				X	
Norway	X				
Poland		X			
Portugal		X			
Slovak Republic		X			
Slovenia		X			
Spain		X			

	Nominal value	Face value	Book value	Fair value	Market value
Switzerland		X			
Sweden	X		X		X
Turkey	X				
United Kingdom		X			
United States			X		

Non OECD Countries	Nominal value	Face value	Book value	Fair value	Market value
Albania	x	x			
Argentina	x				
Armenia	x				x
Bangladesh					x
Barbados	x				
Brazil	x				
Bulgaria	x				
China	x				
Colombia	X				
Costa Rica	x				
Dominican Rep.		x			
DRC- Congo	x				
El Salvador	x				
Georgia					x
Guatemala	x				
Honduras	x				
Indonesia	x				
Kazakhstan	x				x
Kenya		x			
Lebanon					x
Lithuania	x				
Madagascar	x				
Malawi		x			
Malta	x				
Mauritius		x			
Moldova	x				x
Morocco	x				x
Nepal	x				
Nicaragua	x				
Nigeria	x				
Pakistan	x				
Paraguay		x			
Peru		x			
Philippines	x				
Romania		x			
Russia	?				
Seychelles	x				
South Africa	x				
Sri Lanka	x				

St. Lucia	x				
Suriname	x				
Tanzania		x			
Tonga	x				
Uganda	x	x			