

Calculating the grant element of concessional loans

Methodological note, 28 September 2020

Some financing provided by development institutions has a **grant** component—financing that does not have to be repaid to the lender. Funding from the International Monetary Fund’s (IMF’s) catastrophe containment and relief trust fund is one example of this. Another example is the project financing provided by the World Bank in countries under high debt distress. Additionally, much financing provided to low and lower-middle income countries by development institutions is provided in the form of **concessional loans**—loans with more favourable terms than can be obtained in the market. These favourable terms mean these loans essentially have a hidden grant element. This grant element can come about from a grace period on repayments (a period where no repayments are made), a low to zero interest rate, altering the number of repayments made per year, and altering the period the loan is repaid over (referred to as the **loans maturity**). Calculating this grant element provides information on the full extent of grant funding that has been made available to low- and middle-income countries.

The **grant element** is defined as the difference in the **face value of the loan**, and the **present value of the debt services** to be made by the borrower. The grant element of a concessional loan (expressed as a percentage of the loan) can be calculated by using one of the following formulae.

Equal principle repayment	Lump sum debt service	Annuity
$\left(1 - \frac{r}{n}\right) * \left[1 - \left(\frac{1}{(1+d)^{n*g}} - \frac{1}{(1+d)^{(n*m)}}\right)\right]$ <p>, where $d = (1 + D)^{\frac{1}{n}} - 1$</p>	$1 - \frac{1+r*m}{(1+D)^n}$	$1 - PV_g - PV_N$ where $PV_g = r * \frac{1 - \frac{1}{d}}{n * d}$ where $d = (1+D)^{\frac{1}{n}} - 1$, and $d_g = (1+D)^g$ $PV_N = \left(\frac{r}{n}\right) * \left[\frac{1}{\left(1 + \frac{r}{n}\right)^N - 1} + 1\right] * \left(\frac{1}{d_g}\right) * \left(\frac{1 - \frac{1}{d_p}}{d}\right)$, where $d_p = (1+D)^p$

[Source](#)

- r, interest rate
- m, maturity (year)
- n, number of repayments per annum
- D, discount rate
- p, principal repayment periods(s) (year) (m-g)
- N, total number of repayments (p*n)
- g, interval (year)



1 Methodology

It is possible to calculate the grant element of the loans tracked by the Centre for Disaster Protection in relation to covid-19. This is done using the equal principle repayment calculation method.¹

The World Bank and the IMF currently provide enough public information to calculate the grant element of their concessional loans. Grant elements are calculated for IMF concessional loans, World Bank repurposed and new concessional loans, and World Bank catastrophe deferred drawdown options (Cat DDOs). Regional development banks do not currently publish enough information to allow us to calculate a grant element.

2 Assumptions

The information and assumptions used were as follows.

World Bank:

The World Bank provides all the necessary information required to calculate the grant element of concessional World Bank loans, on the [IDA terms sheet](#). The only assumption required is the **discount rate**, which we take as 5% given this is the discount rate [assumed by the World Bank and IMF](#). The discount rate is a key assumption when calculating the grant element of a loan.

IMF:

The IMF provides [some documentation](#) around the terms of its loans, for rapid credit facility, extended credit facility, and standby credit facility loans. This makes it possible to calculate the grant element. However, it is necessary to make an assumption on the **number of repayments per year**. We assume this to be equal to **2**. We also assume the **commitment charge** is **0**. Again, the **discount rate** is assumed to be 5%.

3 Results

The Centre for Disaster Protection is currently tracking around **US\$4,689 million** in World Bank concessional loans and **US\$7,841 million** in IMF concessional loans.

The total monetary value of the grant element for World Bank loans was calculated to be **US\$1,740 million** (37% of the total World Bank loan portfolio). While the total monetary value of the grant element for IMF loans was calculated to be **US\$2,442 million** (31% of total IMF loan portfolio).

The average grant element for a World Bank loan is 41% of the loan value, and the average grant element for an IMF loan is 31% of the loan value. The difference between them is mainly owing to the longer maturity period of World Bank loans. This causes the discount rate to have a greater impact on the overall grant element as it affects a longer time period.

¹ We also tested the annuity method and the lump sum debt service. There was less than 1% difference between the annuity and the equal principle payment methods across the loans currently tracked. The lump sum payment calculation yields a quite different estimate.