

The International Debt

we are going to analyze international debt data collected by The World Bank. The dataset contains information about the amount of debt (in USD) owed by developing countries across several categories. We are going to find the answers to questions like:

- What is the total amount of debt that is owed by the countries listed in the dataset?
- Which country owns the maximum amount of debt and what does that amount look like?
- What is the average amount of debt owed by countries across different debt indicators?

The World Bank's International Debt Data

It's not that we humans only take debts to manage our necessities. A country may also take debt to manage its economy. For example, infrastructure spending is one costly ingredient required for a country's citizens to lead comfortable lives. [The World Bank](#) is the organization that provides debt to countries.

```
-- select 10 rows of data from our international_debt table
```

```
SELECT * from international_debt  
LIMIT 10
```

country_name	country_code	indicator_name	indicator_code	debt
Afghanistan	AFG	Disbursements on external debt, long-term (DIS, current US\$)	DT.DIS.DLXF.CD	72894453.700000003
Afghanistan	AFG	Interest payments on external debt, long-term (INT, current US\$)	DT.INT.DLXF.CD	53239440.100000001
Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336.899999999
Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114729.399999999
Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620.100000001
Afghanistan	AFG	PPG, multilateral (AMT, current US\$)	DT.AMT.MLAT.CD	39107845
Afghanistan	AFG	PPG, multilateral (DIS, current US\$)	DT.DIS.MLAT.CD	23779724.300000001
Afghanistan	AFG	PPG, multilateral (INT, current US\$)	DT.INT.MLAT.CD	13335820
Afghanistan	AFG	PPG, official creditors (AMT, current US\$)	DT.AMT.OFFT.CD	100847181.900000006
Afghanistan	AFG	PPG, official creditors (DIS, current US\$)	DT.DIS.OFFT.CD	72894453.700000003

From the first ten rows, we can see the amount of debt owed by *Afghanistan* in the different debt indicators.

Finding the number of distinct countries

Does this table contains data from Afghanistan only? or is it any other country? How many countries are on our table? Without a count of unique countries, we will not be able to perform our statistical analyses holistically.

```
SELECT COUNT(DISTINCT(country_name))  
      AS total_distinct_countries  
FROM international_debt;
```

total_distinct_countries
124

So, there are actually 124 countries in our table

Finding out the distinct debt indicators

From our table, there is a column called `indicator_name` that briefly specifies the purpose of taking the debt. Just beside that column, there is another column called `indicator_code` which symbolizes the category of these debts. Knowing about these various debt indicators will help us to understand the areas in which a country can possibly be indebted to.

```
SELECT DISTINCT(indicator_code) as distinct_debt_indicators
FROM international_debt
ORDER BY distinct_debt_indicators
```

There are 25 kind of symbol of these debts. Here are 5 of them :

distinct_debt_indicators
DT.AMT.BLAT.CD
DT.AMT.DLXF.CD
DT.AMT.DPNG.CD
DT.AMT.MLAT.CD
DT.AMT.OFFT.CD

Totaling the amount of debt owed by the countries

As mentioned earlier, the financial debt of a particular country represents its economic state. But if we were to project this on an overall global scale, how will we approach it?

Let's switch gears from the debt indicators now and find out the total amount of debt (in USD) that is owed by the different countries. This will give us a sense of how the overall economy of the entire world is holding up.

```
SELECT
    ROUND((SUM(debt)/1000000), 2) as total_debt
FROM international_debt;
```

total_debt
3079734.49

There is more 3 trillion USD total debt of all countries, what an fantastic number, right?

Country with the highest debt

"Human beings cannot comprehend very large or very small numbers. It would be useful for us to acknowledge that fact." - [Daniel Kahneman](#).

This 3 Trillion total debt is the sum of different debts owed by a country across several categories. This will help to understand more about the country in terms of its socio-economic scenarios. Now that we have the exact total of the amounts of debt owed by several countries, let's now find out the country that owns the highest amount of debt along with the amount.

```
SELECT
    country_name,
    SUM(debt) as total_debt
FROM international_debt
GROUP BY country_name
ORDER BY total_debt desc
LIMIT 1;
```

country_name	total_debt
China	285793494734.200001568

China is the country with the highest total debt!

Average amount of debt across indicators

So, it was *China*. A more in-depth breakdown of China's debts can be found [here](#).

We now have a brief overview of the dataset and a few of its summary statistics. We already have an idea of the different debt indicators in which the countries owe their debts. We can dig even further to find out on an average how much debt a country owes? This will give us a better sense of the distribution of the amount of debt across different indicators.

```
SELECT
    indicator_code AS debt_indicator,
    indicator_name,
    AVG(debt) as average_debt
FROM international_debt
GROUP BY debt_indicator, indicator_name
ORDER BY average_debt desc
LIMIT 10;
```

debt_indicator	indicator_name	average_debt
DT.AMT.DLXF.CD	Principal repayments on external debt, long-term (AMT, current US\$)	5904868401.499193612
DT.AMT.DPNG.CD	Principal repayments on external debt, private nonguaranteed (PNG) (AMT, current US\$)	5161194333.812658349
DT.DIS.DLXF.CD	Disbursements on external debt, long-term (DIS, current US\$)	2152041216.890243888
DT.DIS.OFFT.CD	PPG, official creditors (DIS, current US\$)	1958983452.859836046
DT.AMT.PRVT.CD	PPG, private creditors (AMT, current US\$)	1803694101.963265321
DT.INT.DLXF.CD	Interest payments on external debt, long-term (INT, current US\$)	1644024067.650806481
DT.DIS.BLAT.CD	PPG, bilateral (DIS, current US\$)	1223139290.398230108
DT.INT.DPNG.CD	Interest payments on external debt, private nonguaranteed (PNG) (INT, current US\$)	1220410844.421518983
DT.AMT.OFFT.CD	PPG, official creditors (AMT, current US\$)	1191187963.083064523
DT.AMT.PBND.CD	PPG, bonds (AMT, current US\$)	1082623947.653623188

We can see that the indicator `DT.AMT.DLXF.CD` tops the chart of average debt. This category includes repayment of long term debts. Countries take on long-term debt to acquire immediate capital. More information about this category can be found [here](#).

The highest amount of principal repayments

An interesting observation in the above finding is that there is a huge difference in the amounts of the indicators after the second one. This indicates that the first two indicators might be the most severe categories in which the countries owe their debts.

We can investigate this a bit more so as to find out which country owes the highest amount of debt in the category of long term debts (`DT.AMT.DLXF.CD`). Since not all the countries suffer from the same kind of economic disturbances, this finding will allow us to understand that particular country's economic condition a bit more specifically.

```
SELECT
    country_name,
    indicator_name
FROM international_debt
WHERE debt = (SELECT
                MAX(debt)
                FROM international_debt
                WHERE indicator_code='DT.AMT.DLXF.CD');
```

country_name	indicator_name
China	Principal repayments on external debt, long-term (AMT, current US\$)

China has the highest amount of debt in the long-term debt (`DT.AMT.DLXF.CD`) category. This is verified by [The World Bank](#). It is often a good idea to verify our analyses like this since it validates that our investigations are correct.

The most common debt indicator

We saw that long-term debt is the topmost category when it comes to the average amount of debt. But is it the most common indicator in which the countries owe their debt? Let's find that out.

```
SELECT indicator_code,
       COUNT(indicator_code) AS indicator_count
FROM international_debt
GROUP BY indicator_code
ORDER BY indicator_count desc, indicator_code desc
LIMIT 10
```

indicator_code	indicator_count
DT.INT.OFFT.CD	124
DT.INT.MLAT.CD	124
DT.INT.DLXF.CD	124
DT.AMT.OFFT.CD	124
DT.AMT.MLAT.CD	124
DT.AMT.DLXF.CD	124
DT.DIS.DLXF.CD	123
DT.INT.BLAT.CD	122
DT.DIS.OFFT.CD	122
DT.AMT.BLAT.CD	122

There are a total of six debt indicators in which all the countries listed in our dataset have taken debt. The indicator `DT.AMT.DLXF.CD` is also there in the list. So, this gives us a clue that all these countries are suffering from a common economic issue. But that is not the end of the story, but just a part of the story.

Other viable debt issues and conclusion

Let's change tracks from `debt_indicators` now and focus on the amount of debt again. Let's find out the maximum amount of debt that each country has. With this, we will be in a position to identify the other plausible economic issues a country might be going through.

We took a look at debt owed by countries across the globe. We extracted a few summary statistics from the data and unraveled some interesting facts and figures. We also validated our findings to make sure the investigations are correct.

```
SELECT country_name,
       MAX(debt) as maximum_debt
FROM international_debt
GROUP BY country_name
ORDER BY maximum_debt desc LIMIT 10
```

country_name	maximum_debt
China	96218620835.699996948
Brazil	90041840304.100006104
Russian Federation	66589761833.5
Turkey	51555031005.800003052
South Asia	48756295898.199996948
Least developed countries: UN classification	40160766261.599998474
IDA only	34531188113.199996948
India	31923507000.799999237
Indonesia	30916112653.799999237
Kazakhstan	27482093686.400001526