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**GDP, GNP, Nominal GDP, Real GDP, PPP GDP etc. Making sense of these over-used terms**

**What is GDP?**

GDP (Gross Domestic Product) is a measure of country's production or income. You can simply understand this as the sum of incomes all people living in a particular country. For instance, the GDP of US is $15 trillion. (as of 2013) This is the sum total of incomes of 313 million Americans (at an average of $50,000 per person).

This is one of the simplest & most intuitive measures to track the economy. If incomes go up, wellness goes up, hence the quality of living and the human development index. Thus, most governments prioritize maximizing this measure. The annual growth in GDP is the most used metric to figure out if an economy is going up or going down. However, this should not be mistaken with a Per capita income as this measure assumes an equitable distribution of income within the whole country (which is certainly not the case in America or for that matter most other countries).

The annual increase in GDP is called the growth rate. To make sure that you account for inflation, you subtract the inflation from the growth rate to get the real rate. When an economy goes through a period of negative growth (wages going down) then the economy is said to be in a recession (this is an unofficial use of the term though).

**How is the GDP measured?**

The village of Bandra has 6 cows (generating 100 liters of milk everyday), 100 acres of wheat field (generating 100 tons of Wheat every year) and 100 acres of cotton fields (generating 1000 sets of clothing). Assuming that nothing else is produced in the village, the GDP of the village is:

- 100 liters *365 = 36500 at $1/liter. Annual product: $36500
- 100 tons of Wheat at $500/ton. Annual product: $50000
- 1000 sets of clothing at $10 each. Annual product: $10000

The total GDP of this village is: $365000+$50000+$10000 = $96500.
(Note: We don't take the value of cotton produced here, as it will be accounted in the Textile production).
When you have millions of people living a country, it can be hard to measure the GDP. Most often it takes a couple of years to fully know what happened on a particular year. Thus, there is a lot of guesswork involved in the process to make it realistic and appropriate.

**What is Nominal GDP & PPP GDP?**

The two most common ways to measure GDP per capita are nominal and purchasing power parity (abbreviated PPP). Nominal is an attempt at an absolute measure, a sort of immovable standard that remains the same from country to country. When media mentions ratios like Debt to GDP, it is the Nominal GDP that they are talking about. It is the original concept of GDP. In contrast, PPP is an attempt at a relative measure, taking factors of each country into consideration in order to put a number on a person's standard of living within that country.

- One generalization to explain PPP and nominal is that PPP is how much of a local goods- e.g.: real estate, labour or locally grown produce a person can buy in their country, while nominal GDP depicts how much of internationally standardized (internationally traded) goods (like iPhones, diamonds, gold etc.) a person can buy in their country. Hence developing countries tend to have a higher PPP than nominal while developed countries have a higher nominal to PPP. Consider the following example:

| Country | Average High school teacher's Salary | Cost of dinner in a local deli | Salary to dinner cost ratio | Cost of an iPhone 6s | Salary to iPhone cost |
|---|---|---|---|---|---|
| India | Rs. 350000 p.a. | Rs. 150 | 2333 | Rs. 50000 | 7 |
| USA | $60000 p.a. | $20 | 3000 | $ 549 | 109 |

From the above example, an Indian high school teacher is slightly poor in deli dinners, but extremely poor when it comes to purchasing an iPhone. For US, nominal and PPP are identical since USD is the benchmark.

- Another way to think about this is that as a country's citizens become richer, they are more capable of purchasing international goods. At the same time, any service that could be provided locally to its own citizens (like college education, healthcare, haircut, taxi, business services) will become expensive as they charge more.
- A third way to look at the PPP-nominal numbers is from the point of view of income disparity. In countries with high-income disparity, the haves can pay more for services from the have-nots. The US, which has one of the highest Gini coefficients in the developed world, has an equal PPP & nominal because the US well off are able to buy more services from the US poor (in addition to the USD being the reserve currency).

Some GDP (PPP & Nominal) figures of major countries (2016)

| Country | PPP | Nominal | PPP/Nominal | Country | PPP | Nominal | PPP/Nominal |
|---|---|---|---|---|---|---|---|
| Ukraine | 347.885 | 83.55 | 4.164 | Uruguay | 75.212 | 53.145 | 1.415 |
| Iraq | 588.737 | 148.411 | 3.967 | Spain | 1,674.02 | 1,242.36 | 1.347 |
| India | 8,642.76 | 2,288.72 | 3.776 | Hong Kong | 427.632 | 322.429 | 1.326 |
| Iran | 1,439.30 | 386.12 | 3.728 | Italy | 2,213.11 | 1,848.69 | 1.197 |
| Afghanistan | 64.198 | 17.275 | 3.716 | Canada | 1,671.86 | 1,462.33 | 1.143 |
| Pakistan | 982.38 | 269.97 | 3.639 | Germany | 3,934.66 | 3,467.78 | 1.135 |
| Egypt | 1,092.63 | 330.76 | 3.303 | Netherlands | 856.265 | 762.521 | 1.123 |
| Russia | 3,684.64 | 1,132.74 | 3.253 | Japan | 4,901.10 | 4,412.60 | 1.111 |
| Indonesia | 3,010.75 | 936.955 | 3.213 | France | 2,703.38 | 2,464.79 | 1.097 |
| Sri Lanka | 236.471 | 84.807 | 2.788 | Belgium | 504.757 | 465.248 | 1.085 |
| Saudi Arabia | 1,720.03 | 618.274 | 2.782 | Austria | 413.333 | 384.799 | 1.074 |
| Bangladesh | 620.376 | 226.257 | 2.742 | Ireland | 272.867 | 254.596 | 1.072 |
| Poland | 1,051.56 | 473.501 | 2.221 | New Zealand | 173.186 | 169.922 | 1.019 |
| Argentina | 971.608 | 437.856 | 2.219 | USA | 18,558.13 | 18,558.13 | 1.000 |
| Turkey | 1,665.33 | 751.186 | 2.217 | UK | 2,756.75 | 2,760.96 | 0.998 |
| Taiwan | 1,125.99 | 508.849 | 2.213 | Norway | 363.29 | 366.873 | 0.990 |
| UAE | 669.679 | 325.135 | 2.060 | Australia | 1,177.60 | 1,200.78 | 0.981 |
| Qatar | 333.936 | 170.86 | 1.954 | Finland | 229.276 | 234.578 | 0.977 |
| China | 20,853.33 | 11,383.03 | 1.832 | Luxembourg | 58.234 | 60.176 | 0.968 |
| Latvia | 51.15 | 28.177 | 1.815 | Sweden | 495.586 | 512.748 | 0.967 |
| Maldives | 5.427 | 3.282 | 1.654 | Israel | 292.809 | 306.194 | 0.956 |
| Singapore | 484.951 | 294.56 | 1.646 | Denmark | 265.412 | 301.784 | 0.879 |
| Korea | 1,916.44 | 1,321.20 | 1.451 | Iceland | 15.953 | 18.633 | 0.856 |
| Portugal | 296.719 | 205.085 | 1.447 | Switzerland | 493.126 | 651.77 | 0.757 |

**It is best to have to PPP/Nominal GDP ratio close to 1. Too low and your citizens find local goods & services expensive; too high and your citizens find international goods expensive. In developed countries Nominal GDP is higher than PPP GDP.**

**Difference amongst developed countries GDPs**

One more important point to be noted is the case of developed countries having large land areas- USA, Canada, Australia. These countries have almost similar PPP- Nominal GDPs. The availability of land (and also equally spread-out infrastructure- which is a necessary condition for them being developed) has kept the price of both real estate and natural resources lower than in other countries. As a result, even though they're local goods, they are much cheaper as compared to other countries with respect to average salary.

Example of Scandinavian countries: If you look at Sweden, Norway, Finland & Denmark they all have nominal GDP> PPP GDP. Thus, an average Scandinavian is very rich in international money but due to their high level of socialism and social security measures have led to income equality. A such, they are relatively poor in terms of what they can get in their own country i.e. it is quite expensive to get a haircut/ manicure/ personal gym trainer/ contractor in these countries relative to your income. Thus, an average Scandinavian is very rich in international money but due to their high level of socialism and social security measures, it has led to quite a model for income equality. But compared to an American, they are relatively poor in terms of what they can get in their own country.

**Difference between GDP & GNP**

GNP and GDP both reflect the national output and income of an economy. The main difference is that GNP (Gross National Product) takes into account net income receipts from abroad.

GDP (Gross Domestic Product) is a measure of (national income = national output = national expenditure) produced in a particular country.

**GNP = GDP + Money flowing from foreign countries into home country – Money flowing from home country into foreign countries.** This net income from abroad includes dividends, interest and profit. Basically, GNP includes the value of all goods and services produced by nationals – whether in the country or not.
GNP and GNI (Gross National Income) are often used interchangeably in general.

**Example of GNP**

- If a Japanese multinational produces cars in the UK, this production will be counted towards UK GDP. However, if the Japanese firm sends £50m in profits back to shareholders in Japan, then this outflow of profit is subtracted from GNP of UK (and added to the GNP of Japan). UK nationals don't benefit from this profit which is sent back to Japan.
- If a UK firm makes a profit from insurance companies located abroad, then if this profit is returned to UK nationals, then this net income from overseas assets will be added to UK GNP.

Note, if a Japanese firm invests in the UK, it will still lead to higher GNP, as some national workers will see higher wages. However, the increase in GNP will not be as high as increase in GDP.

If a county has similar inflows and outflows of income from assets, then GNP and GDP will be very similar. However, if a country has many multinationals that repatriate income from local production, then GNP will be lower than GDP.
For example, Luxembourg has a GDP of $87,400 but a GNP of only $45,360. A country like Ireland has received significant foreign investment. Therefore, for Ireland, there is a net outflow of income from the profits of these multinationals. Therefore, Irish GNP is lower than GDP.
Similarly, a manufacturing powerhouses like China, South Korea, Germany etc. where a lot of their national companies make goods and export abroad, have a higher GNP compared since a lot of profit is repatriated back to the home country. Most High-Income companies with Multi-National Companies have a higher GNP than GDP.
Some GDP (Nominal) & GNP figures of major countries* (updated) in USD Billion.

| Country | GDP | GNP | GDP-GNP | | Country | GDP | GNP | GDP-GNP |
|---|---|---|---|---|---|---|---|---|
| United States | 26895 | 27361 | -466 | | UAE | 507 | 504 | 3 |
| China | 18899 | 17795 | 1104 | | Singapore | 418 | 501 | -84 |
| Germany | 4559 | 4456 | 103 | | Norway | 566 | 486 | 80 |
| Japan | 4860 | 4213 | 647 | | Bangladesh | 494 | 437 | 57 |
| India | 3630 | 3550 | 80 | | Philippines | 496 | 437 | 59 |
| UK | 3267 | 3340 | -73 | | Vietnam | 413 | 430 | -17 |
| France | 3072 | 3031 | 42 | | Denmark | 436 | 404 | 32 |
| Italy | 2245 | 2255 | -10 | | Iran | 417 | 402 | 16 |
| Brazil | 1962 | 2174 | -211 | | Thailand | 516 | 515 | 1 |
| Canada | 2163 | 2140 | 23 | | Egypt | 439 | 396 | 43 |
| Russia | 2085 | 2021 | 63 | | Hong Kong | 416 | 382 | 34 |
| Mexico | 1554 | 1789 | -235 | | South Africa | 408 | 378 | 30 |
| Australia | 1682 | 1724 | -42 | | Colombia | 358 | 364 | -6 |
| South Korea | 1835 | 1713 | 123 | | Nigeria | 432 | 363 | 70 |
| Spain | 1556 | 1581 | -24 | | Austria | 503 | 516 | -13 |
| Indonesia | 1353 | 1371 | -19 | | Pakistan | 361 | 338 | 22 |
| Netherlands | 1085 | 1118 | -33 | | Israel | 537 | 510 | 27 |
| Turkey | 994 | 1108 | -114 | | Czech Rep. | 295 | 331 | -36 |
| Saudi Arabia | 1060 | 1068 | -8 | | Finland | 298 | 300 | -2 |
| Switzerland | 842 | 885 | -43 | | Portugal | 276 | 287 | -11 |
| Poland | 724 | 811 | -88 | | Peru | 240 | 268 | -27 |
| Argentina | 584 | 641 | -56 | | Kazakhstan | 218 | 261 | -44 |
| Belgium | 645 | 632 | 12 | | New Zealand | 254 | 253 | 0 |
| Sweden | 650 | 593 | 56 | | Hungary | 190 | 212 | -22 |
| Ireland | 423 | 546 | -123 | | Ukraine | 175 | 179 | -4 |

**This concept of GDP is useful in since most (western) countries will inflate their debt away in terms of their Nominal GDP.** This is where the concept of Real and Nominal GDP is important.

**Real & Nominal GDP difference**

While nominal GDP is easier to understand, real GDP is more important and used widely, not least for calculating the growth rate of an economy and comparing the economies of different countries. It is therefore important to understand how real GDP is calculated and how it is related to nominal GDP. As an example, let us suppose that one country, say the United States, produces three final products: Food, Cloth and Automobiles. This is how this hypothetical country's nominal and real GDP are derived.

| Contents | Price (2010) | Quantity (2010) | Value | |
|---|---|---|---|---|
| Food | 50 | 100 | 5,000 | |
| Cloth | 80 | 80 | 6,400 | |
| Automobile | 60 | 70 | 4,200 | |
| Total | - | - | 15,600 | ← This is the Nominal GDP of 2010 |

| Contents | Price (2011) | Quantity (2011) | Value | |
|---|---|---|---|---|
| Food | 80 | 90 | 7,200 | |
| Cloth | 80 | 100 | 8,000 | |
| Automobile | 80 | 80 | 6,400 | |
| Total | - | - | 21,600 | ← This is the Nominal GDP of 2011 |

**As you can see growth in Nominal GDP is 38% i.e. from 15,600 to 21,600.** But if you see the components of this GDP, how much is due to price increase (i.e. inflation) and how much is due to quantity increase (i.e. productivity)? Let us see the real growth GDP.

| Contents | Price (2010) | Quantity (2011) | Value | |
|---|---|---|---|---|
| Food | 50 | 90 | 4,500 | |
| Cloth | 80 | 100 | 8,000 | |
| Automobile | 60 | 80 | 4,800 | |
| Total | - | - | 17,300 | ← This is the Real GDP of 2011 |

**So, the Real GDP growth is 10.8% i.e. from 15,600 to 17,300.** So, to summarize,

| | 2010 | 2011 | Growth rate |
|---|---|---|---|
| Nominal GDP | 15,600 | 21,600 | 38% |
| Real GDP | 15,600 | 17,300 | 10.8% |

**Nominal GDP growth = Real GDP growth + Inflation rate**

Though I will not predict or comment on the method of calculation of GDP (which again varies from country to country), following pointers are very useful in terms of making sense of the market direction and earnings vis-à-vis valuations as a rough thumb rule.

- **In general, irrespective of the government, Indias real GDP will rise by 6% approx. With an inflation of 5-6%, India's nominal GDP will rise by 12% in coming years. Corporate profitability is normally 1.3-1.5 times the nominal GDP as per some research. Unless we have a nuclear war, general corporate profitability will rise by 15-16% YoY in coming years.**
- **Similarly, Market Cap to GDP is 0.6-0.7x in India (on the lower end) and 1-1.2x (on the higher end). This again gives us an estimate of the market froth**
- **It is a recorded fact of economic history that the profit growth of the sector in the country is between 1.3-1.5 times the nominal gap growth.**

*GDP (Nominal) by Atlas Method & as per World Bank (as against IMF)

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