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Does BIGMAC Index Consider as a Substitute for Inflation Rate

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Does BIGMAC Index Consider as a Substitute for Inflation Rate

Mai Yasser [α], Mohamed Mussad [σ] & Nadine Sanad [ρ]

I. Introduction

The BIGMAC Index was designed by The Economist in 1986 as a happy manual for whether monetary standards are at their "right" level. It depends on the hypothesis of acquiring power equality (PPP), the thought that over the long haul trade rates should move towards the rate that would even out the costs of an indistinguishable container of merchandise and enterprises (for this situation, a burger) in any two nations. The BicMac list has been distributed every year by The Economist since 1986 and is evaluated as a streamlined pointer of a nation's individual obtaining power. The same number of nations have various monetary forms, the institutionalized BIGMAC costs are determined by changing over the normal national BIGMAC costs with the most recent swapping scale to U.S. dollars. The Big Mac, as a top-selling McDonald's burger, is utilized for examination since it is accessible in pretty much every nation and fabricated in an institutionalized size, piece and quality. McDonald's is an overall working drive-through joint chain with central command in Oak Brook, Illinois. Its worldwide income added up to about 21.03 billion U.S. dollars in 2018. Most McDonald eateries are spread over the United States. The BIGMAC Index is determined by partitioning the cost of a BIGMAC in one nation by the cost of a BIGMAC in another nation in their separate nearby monetary forms to land at a conversion scale. This conversion scale is then contrasted with the official swapping scale between the two monetary forms to decide whether either money is underestimated or exaggerated by the PPP hypothesis.

For instance, assume that a BIGMAC in the U.S. costs one U.S. dollar and one in the eurozone costs two euros. The BIGMAC Index valuation for EUR/USD would be 2.0, or two partitioned by one, which could then be contrasted with the EUR/USD swapping scale. In the event that the EUR/USD swapping scale was 1.5, financial specialists may anticipate that the euro is underestimated by 0.5 Euros per U.S. dollar. Burgernomics was never planned as an exact measure of cash misalignment, simply an instrument to make conversion scale hypothesis progressively edible. However, the BIGMAC list has gotten a worldwide standard, remembered for a few monetary course books and the subject of a decent number of scholarly investigations.

Financial specialists can utilize information from the BIGMAC Index from various perspectives. For example, they can utilize the qualities to decide whether a money is exaggerated or underestimated comparative with others, at that point exchange dependent on that information the outside trade showcase. Correspondingly, financial specialists can quantify changes in values after some time to decide paces of expansion and contrast that with authentic records. Expansion itself is incredibly helpful to know with regards to esteeming money related instruments. For instance, security yields must factor in the foreseen paces of expansion to guarantee that they will stay alluring later on. Swelling rates likewise sway money valuations, which is significant for lawmakers while deciding if duties or other exchange hindrances are defended.

At last, worldwide speculators should utilize the BIGMAC index as one of the numerous instruments available to them while breaking down universal markets.

II. Review of Literature

a) The history of purchasing power parity

One of the main components of the main economic theories that can be used to state and calculate the relative value of currencies. Many theories state that purchasing power parity (PPP) can estimate in certain conditions the exact number of euros to buy US dollars and measure the exact number of goods that would cost a person to buy the same goods with these euros. The main aim of PPP is identifying the exchange rates of the BIGMAC index, the PPP equation helps one to guess what the exchange rate would have to be between two currencies in order for the each to be in accordance with the two currencies purchasing power (Ong, 2003). Using the PPP value for hypothetical conversations in the currency, the given amount of the currency will consequently have the exact same purchasing power, if this purchasing power is directly used for the purchase of a commodity basket of goods, therefore observed exchange rate deviations from PPP are calculated by the real exchange rate deviations (Josic & Wittine, 2018).PPP exchange rates tend to

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reduce unfair international comparisons with markets exchange rates. For instance, suppose that two countries produce the same physical amount of goods as each other in each of two different years". Because market exchange rate varies significantly when the GDP is put in consideration. By using market exchange rates, one currency is being calculated and in its own value and it will be converted to the other country's currency (Pakko & Pollard, 2003).There's also an economic theory which the PPP is founded on called the law of one price (LoOP) which indicates that a basket with the same products should sell for the exact same price in two different markets giving that the cost, taxes, and tariffs factors remain off the equation (Josi Wittine & Barišić, 2018) . In one year, one country could be deduced to have higher real GDP than the other, but lower in the other rate; these two interferences would not represent the reality of their relative production levels. But if the GDP of one country is converted into the currency of the other country using PPP exchange rate rather than the market's exchange rates observed. Another perception states that the value of exchange rates difference at home and abroad is equal to the exchange rate depreciation percentage of appreciation deviations from parity indicate differences in countries own purchasing power (Pakko & Pollard, 2003). The actual exchange rate is the same as the average exchange rate, modified by the price's differences. If PPP is being considered properly, the actual exchange rate will always equal "1".

b) The history of BIGMAC index

The BIGMAC index was made by The Economist in the year 1986 as a guide to discover if the currencies are in their actual levels or not (Reuters, 1843). According to the economist magazine, BMI measures the purchasing power parity (PPP) between countries and nations. As quoted by (Reuters, 1843)," the notion that in the long run exchange rates should move towards the rate that would equalize the prices of an identical basket of goods and services in any two countries." The BIGMAC index was made by The Economist in the year 1986 as a guide to discover if the currencies are in their actual levels or not (Reuters, 1843). According to the economist magazine, BMI measures the purchasing power parity (PPP) between countries and nations. As quoted by (Reuters, 1843), the notion that in the long run exchange rates should move towards the rate that would equalize the prices of an identical basket of goods and services in any two countries."

i. *The Concept of BMI*

The Burgernomics" main aim was to invent a tool to adjust the exchange-rate theory and make it more absorbable (D.H. & R.L.W., 2018).

"lighthearted, tongue-in-cheek, half-hearted" are some symbols associated with the introduction of The Economist about The BIGMAC Index since the development in 1986 (M. D college,2014). The concept of BMI is based on some theories. The BIGMAC Index was created to measure the disparities in consumer purchasing power between nations, the burger replaces the goods basket that analysts have been historically used to calculate the consumer's price disparities. Burgernomics was never intended as a precise gauge of currency misalignment, merely a tool to make exchange-rate theory more digestible," as stated by economists. In fact, the BIGMAC index is widely used for the comparison of prices. The currency value stands for the changes of the expected price of the red line for each country and its actual price gives a supersized measure of under- and over-valuation of currency, according to (D.H. & R.L.W., 2018). For instance, if the price of a BIGMAC is 3$ and 60 pesos a PPP exchange rate of US 1$ to 20 pesos is indicated. The US$ is counted against the pesos by 33% as mentioned by (M.D college, 2014). As stated in the M.D college article (2014), in those trading of stock by computer, the process done by Mexican fast food shop owners of which they exchange the pesos with dollars by buying them, leads to the decrease of the value pesos and the increase of the value of dollar. This action of manipulating a BIGMAC alone apparently wouldn't be enough for the country's exchange level whether to get it up or down, but if all goods were taken in consideration -according to the theory-, economists take into account the index to be a reasonably correct real-world indicator of native economic buying power, since the rating of a giant macintosh, like most commodity, should take into consideration native prices of raw materials, labor, taxes, and business premises (Pakko & Pollard, 2003). The burgernomics is a terminology that stands for the economic value of a burger. Burgernomics was never intended as a precise gauge of currency misalignment, merely a tool to make exchange-rate theory more digestible. Another concept the BIGMAC index is based on, is that it might assist to grasp the possible long direction that a currency may take, If the BIGMAC index shows that a selected currency is undervalued, it is expected that over the semi permanent exchange rates can change so the PPP is accordingly equal, this occurs because of the integrated existence of global trade and purchasing power parity disparities continue to level out over time (Pakko & Pollard, 2003).

ii. *The relationship between BIGMAC and economics*

BIGMAC index is based on the theory of PPP, the relation of the BIGMAC and economics was introduced by the economist journal in 1986 as a guide that can be used as a calculator to measure the exchange rates; furthermore, the cost of the same burger in any two countries. PPP which stands for the purchasing power parity, it is defined as the amount of economic theories and an approach used to figure the

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relation between values and different currencies. Karl Gustav Cassel (1918) was at the time the creator of the concept behind the theory of the PPP and the most respected economist in this sector (Josic & b, 2018). PPP demanded that price levels must be identical in two countries when exchanged into a common currency to guarantee that the real exchange rate is equivalent to unity (Ong, 2003). According to Josic & Wittine (2018) the absolute PPP valuation is a divergence from the balance of purchasing power. The Local currency is overvalued against the USD if deviations are positive, otherwise local currency is undervalued, this absolute valuation is calculated by using some specific equations for the BIGMAC index (Josic & Wittine, 2018).Therefore, it could be said that the exchange rate theory of the PPP looks at the relationship between the foreign exchange rate of a nation and its price level, as well as the relationship between the changes in those variables (Ong, 2003).This summarize the relation of how a burger can be related to economics and help to measure the difference of a currency with another.

III. The Two Methods of BMI

According to the economist magazine there two ways to calculate BIGMAC index, the first is the "raw" BIGMAC index which compare the absolute value of PPP to the FX value, and the second is the "adjusted" BIGMAC index which add a cross-sectional linear regression to the equation to modify the values of PPP variations and compare it to the GDP per person. The new modified BMI focus on the false idea that the expected average prices of burgers to be cheaper in poor nations than in rich ones as the labor costs less (D.H. & R.L.W., 2018). The ideology of this new method is using a line to measure the BIGMAC prices and GDP per person and compare the data with the income of people. This gives a closer supersized measure to the misevaluation of a certain currency.

a) *Currency misevaluation*

As the currency misevaluation is identified as the difference between the real rate of exchange and the intrinsic currency exchange rate a certain currency may be overestimated or underestimated to a different one. The FX value is based on an economic ideology like the PPP. It also can differ from the currency reference when estimating the bilateral evaluation of the currencies (O'Brien & Vargas, 2018). There are many ways to calculate currency misevaluation but let's just focus on the BIGMAC index. putting the new method of measuring the misevaluation of currencies for example (figure 1), shows the dollar valuation in Egypt using both methods, the data differs as the dollar valuation by using the raw method value in Jan 2018 is -63.40% on the other hand by using the adjusted method the value at the date is -34.70% .

b) *Calculating BMI*

The way to calculate the BIGMAC index is to divide the price of the burger in the currency of the chosen country by its price in the US, and compare the result with the official exchange rate to reach an understanding if the currency is under or overvalued. For example, the formula should look like:

$$BMI = \frac{P_b}{P*_b}$$

P_b is the price of burger in local currency of the chosen country, while $P*_b$ is the price of the burger in US dollars.

Table 1

Date	Country	Local price	US price	BMI	Exchange rate	Raw index
1/1/2018	Egypt	34.21	5.28	6.4791	17.7	Undervalued by 63.4%
1/1/2018	Sweden	49.10	5.28	9.30	8.02	Overvalued by 16%
1/1/2018	Israel	16.50	5.28	3.13	3.44	Undervalued by 9.1%

Sources: McDonald's; Thomson Reuters, IMF; The economist

c) *Should BMI be used as an indicator?*

The BIGMAC index is considered useful for currency traders trying to evaluate the long-term expectation and exchange rate assessment of a currency. If the BIGMAC index rate varies from the actual exchange rate, it can be used as a predictor of a potential foreign currency price adjustment. PPP and the BIGMAC index, in fact, can help traders create a connection between products and currency trading, and can act as a guide to where the market may go. There are a variety of other indices that measure demand, such as the US consumer price index (CPI) and the British consumer price growth index. (Herath, 2017). The BMI, however, is helpful for comparing prices of nations with different economic welfare. With more than 34,480 locations in 119 countries, McDonald's is the world's largest restaurant chain, so it's easy to understand how a burger can be a global benchmark. Big Macs are also considered to be the same globally, because they are technically similar in volume, value and ingredients.

d) *Limitations of BMI*

Although BMI can be helpful, however it may be misleading about the economic condition of a certain country. Many people may seem to think that the price of BIGMAC is very cheap comparing to other countries, well it is. However, this is not how reality works.

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i. *Cost of transportation*

Due to transportation costs, the prices of similar items can vary by location. The pricing of the same good priced in various countries around the world will be different.

ii. *Taxes and tariffs*

Governments around the world impose different taxes, tariffs and restrictions on manufactured and exported products. The price levels will vary from country to country due to these added taxes (Alessandria & Kaboski, 2008).

iii. *Non-tradable goods*

In an economy, there are certain goods and services that cannot be sold across borders. for instance, the rental business space. The owners must rent a property in that particular country to run a McDonald's restaurant. If the neighborhood is highly populated, the rent on the land can be significantly high. In that particular market, expensive land leases will be passed on to the BIGMA Crates offered. There are more non-traded resources that are not into consideration, such as water, energy, land-rent, etc., can have a major impact on countries ' relative price scales.

iv. *Income levels*

According to world data website, the average monthly income in Egypt is $233, however, in Israel is $3404 and in the US is $5238. A Survey were conducted by UBS Prices and Earnings Survey 2018 (table 1) shows the time needed to a person be able to buy a big mac; a person in Egypt must work a least 101.2 minutes to be able to buy a big mac. On the other hand, a person in the US (Los Angeles) 13.6 minutes. Adding GDP per capita to the equation which also based on the PPP theory, but it adds the buyer's sum gross value of prices and any good taxes minus the substitutes not added in the value of the good. (figure 2) shows that how the GDP per capita is more reliable to understand the economy in each country. The BMI cannot be a determiner on realty because of the other factors that effects the price of the burger.

IV. Conclusions

To summarize, BMI was originally developed by the Economist magazine in 1986.BMI is based on the application of PPP as the formula allows one to calculate what is the exchange rate of two currencies have to be in order for each to match the purchasing power of a basket of goods. Using the PPP value of theoretical currency interactions, the specified quantity of the goods will therefore have exactly the same purchasing power, if this purchasing power is used explicitly for the purchase of a basket of goods, the real exchange rate deviations will be measured. The theory suggests that the currency exchange of two countries, in the longer term, will rise toward the conversion point to allow the same rates of equivalent goods and services. If the prices of a basket of identical products are constantly divided around different countries, it may give the country that sells the goods for the lowest price a chance to purchase it. PPP exchange rates tend to reduce unfair comparisons to exchange rates on the international market. There's also a fundamental theory such as the LOOP, which indicates that a basket of the same products should be sold at exactly the same price in two different markets, so that costs, taxes and tariffs remain outside the equation. as they the raw BMI is calculated by dividing the local price of BIGMA Cover the US price of the same good; to determine the if the currency is over or undervalued to the US dollar. Over the years the adjusted BMI came to light; that used a cross-sectional linear regression to give more realistic data and information about the countries economic condition. However, the BMI cannot be used as the only indicator to understand and forecast the economic conditions of a certain country as it has many limitations such as production cost, wages of employees, taxes, and non- tradable goods. The BMI can be a used as a really good indicator to measure the currency misevaluation, but it's not enough for traders or economists to extract any empirical data that will help to forecast the future of a certain currency

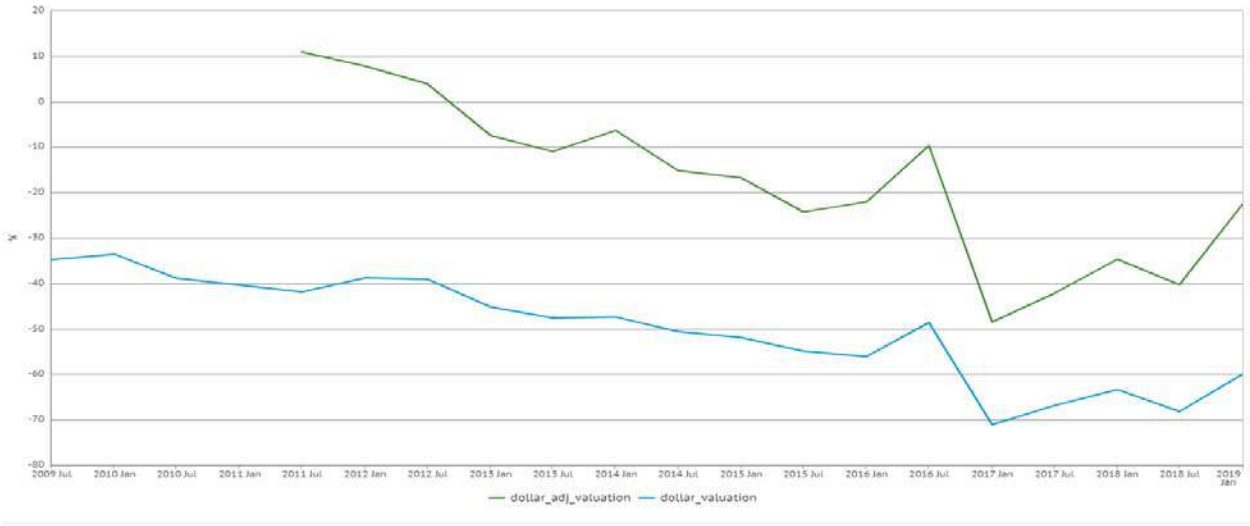
References Références Referencias

1. Alessandria, G, and J Kaboski. 2008. *"Why Are Goods So Cheap in Some Countries?"* Business Review, 1–12.
2. Clements, K. W., Lan, Y., & Seah, S. P. (2010, October 12). The BIGMAC index two decades on: an evaluation of burgernomics. Retrieved from https://www.onlinelibrary.wiley.com/doi/abs/10.1002/ijfe.432.
3. D.H., & R.L.W. (17, January 2018). The BIGMAC index. Retrieved from https://www.economist.com/node/21569171 ? page=14.
4. Herath, A. (2015). *Burgernomics and Purchasing Power Parity*. Economic Review. https://philadelphiafed.org/research-and-data/publications/businessreview/2008/q2/alessandria-kaboski_why-are-goods-so-cheap.pdf.
5. Jošić, H. & Wittine, Z. & Barišić, A. (2018). *Investigating the Determinants of Bigmac Index: A Panel Data Analysis.*
6. kartikganga Follow. (6, October 2014). BIGMAC index Project. Retrieved from https://www.slideshare.net/kartikganga/big-mac-index-project.
7. Obrien, T. J., & Vargas, S. R. D. (2015). Clarifying the Adjusted BIGMAC index. *SSRN Electronic Journal*. doi: 10.2139/ssrn.2656881
8. Ong, L. L. (2003). *The BIGMAC index: applications of purchasing power parity*. Houndmills: Palgrave Macmillan.

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9. Pakko, M. R., & Pollard, P. S. (2004). *Burgernomics: The BIGMAC Guide to Purchasing Power Parity. ICPSR Data Holdings*. doi:10.3886/icpsr 01298
10. Portes, L. S. V., & Atal, V. (2014). *The BIGMAC index: A Shortcut to Inflation and Exchange Rate Dynamics? Price Tracking and Predictive Properties. International Business & Economics Research Journal (IBER)*, *13*(4), 751. doi: 10.19030/ iber.v13i4.8683
11. The BIGMAC index. (10, July 2019). *MD College* Retrieved from https://www.economist.com/news/ 2019/07/10/the-big-mac-index.
12. The BIGMAC index. (n.d.). Retrieved from https://www.thomsonreuters.com/en.html.

Appendix



Sources: McDonald's; Thomson Reuters; IMF; The Economist

Figure 1

Table 1

Rank	Cities	Time at work needed to afford a Big Mac (minutes)
1	Hong Kong	11.8
2	Taipei	12.0
3	Tokyo	12.2
4	Luxembourg	13.1
5	Auckland	13.3
6	Zurich	13.4
7	Los Angeles	13.6
8	Miami	13.9
9	Chicago	14.0
10	Sydney	14.5
11	Toronto	15.0
12	New York*	15.2
13	Manama	15.4
14	Geneva	15.4
15	Munich	16.3
16	Frankfurt	16.8
17	Copenhagen	16.9

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18	London	17.0
19	Dublin	17.7
20	Vienna	17.9
21	Montreal	18.0
22	Berlin	18.4
23	Nicosia	19.4
24	Amsterdam	21.2
25	Stockholm	21.5
26	Ljubljana	21.7
27	Dubai	21.8
28	Oslo	22.3
29	Doha	23.0
30	Paris	23.1
31	Tel Aviv	23.3
32	Rome	23.5
33	Helsinki	24.0
34	Riyadh	24.5
35	Lyon	24.9
36	Milan	26.0
37	Brussels	26.9
38	Johannesburg	27.1
39	Madrid	27.8
40	Barcelona	28.6
41	Seoul	28.7
42	Moscow	29.9
43	Kuala Lumpur	31.7
44	Tallinn	32.6
45	Warsaw	32.8
46	Santiago de Chile	36.0
47	Lisbon	36.3
48	St Petersburg	37.7
49	Vilnius	39.5
50	Bucharest	40.2
51	Panama City	41.6
52	Prague	42.3
53	Athens	43.9
54	Zagreb	46.4
55	Bangkok	46.9
56	Bratislava	48.0
57	Sofia	49.3
58	Hanoi	49.4
59	Beijing	51.0
60	São Paulo	52.5
61	Riga	52.5
62	Buenos Aires	53.1
63	Shanghai	53.4
64	Lima	55.6
65	Budapest	55.6
66	Rio de Janeiro	56.7

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67	Kiev	58.0
68	Manila	61.9
69	Bogotá	64.3
70	Istanbul	66.5
71	Jakarta	82.9
72	Mexico City	86.8
73	Mumbai	88.1
74	New Delhi	90.5
75	Lagos	99.8
76	Cairo	101.2
77	Nairobi	133.8

Data source: UBS Prices and Earnings Survey 2018

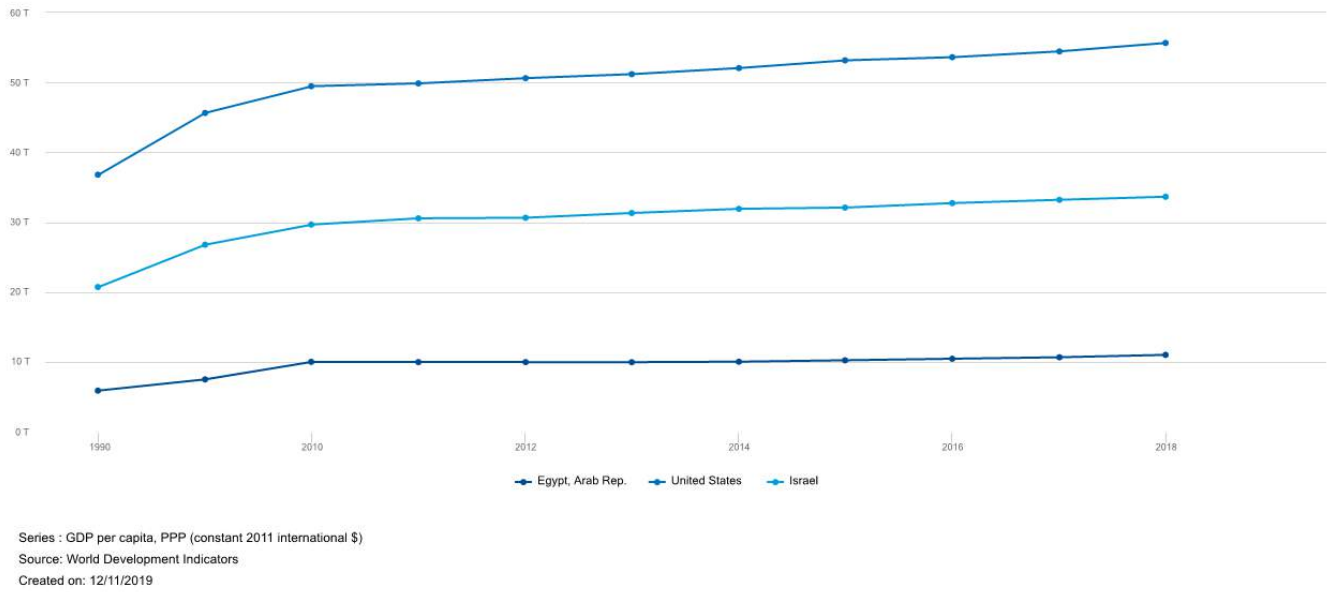


Figure 2

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