

Homework 6

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ECON815: Topics in Microeconomics
Fall 2019

Here I will get different data Using APIs and Web Scraping tools
I gathered the description and information of both parts from WIKIPEDIA

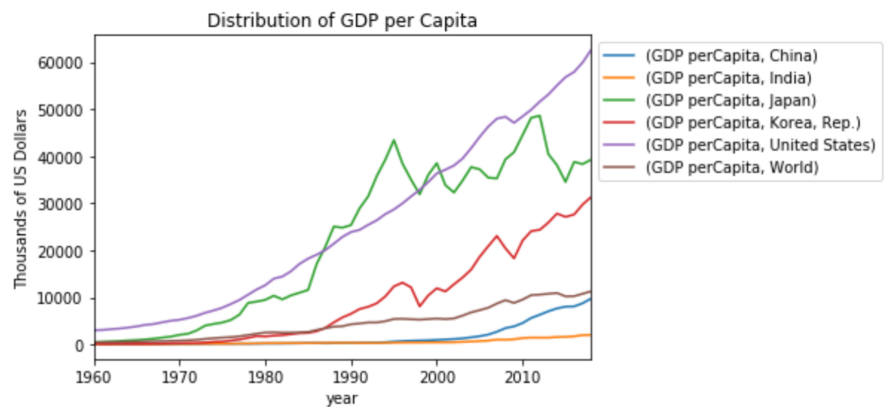
Part I

Getting Data by Using API

In this part I would like to see how GDP per capita has changed overtime for 4 Asian countries along with United States and the world level of GDP per capita from 1960 to 2019. I choose Japan, China, India and South Korea as they are sited as top economies in Asia. The data is coming from World Bank.

Figure shows distribution of GDP per capita for countries and the world:

Figure 1: Distribution of GDP per Capita



of GDP per Capita.PNG

Japan

From the 1960s to the 1980s, overall real economic growth was extremely large: a 10 percent average in the 1960s, a 5 percent average in the 1970s and a 4 percent average in the 1980s. By the end of said period, Japan had moved into being a high-wage economy.

Growth slowed markedly in the late 1990s also termed the Lost Decade after the collapse of the Japanese asset price bubble.

By 1998, Japan's public works projects still could not stimulate demand enough to end the economy's stagnation. In desperation, the Japanese government undertook "structural reform" policies intended to wring speculative excesses from the stock and real estate markets. Unfortunately, these policies led Japan into deflation on numerous occasions between 1999 and 2004. The Bank of Japan used quantitative easing to expand the country's money supply in order to raise expectations of inflation and spur economic growth. Initially, the policy failed to induce any growth, but it eventually began to affect inflationary expectations. By late 2005, the economy finally began what seems to be a sustained recovery. GDP growth for that year was 2.8 percent, with an annualized fourth quarter expansion of 5.5 percent, surpassing the growth rates of the US and European Union during the same period.

If we measure by growth in real gross domestic product (GDP), without considering changes in population, Japan's economic growth is far behind that of the United States. From 2000 to 2015, its real GDP grew an average of 0.72 percent per year, while U.S. real GDP grew an average of 1.77 percent.

In average growth rates, more than 1 percent per year is a big difference, indeed, as it compounds over time. Over 15 years, this annual growth rate difference would add up to U.S. GDP being 30 percent larger, compared to 11 percent larger for Japan, a difference of 19 percentage points.

However, economic well-being is not measured by aggregate GDP, but by GDP per capita. The question is how much production there is per person. In this case, measuring per-capita growth gives us a very different outcome.

In 2015, Japan's population was essentially the same as it was in 2000, with an average annual growth rate of 0.01 percent. The corresponding annual growth rate of the U.S. population was 0.87 percent. So the U.S. added 39 million more people over the period to provide for.

Thus real GDP growth per capita in Japan was 0.71 percent per year. In the United States, it was 0.89 percent – a much more similar number. The growth rate advantage over Japan, measured per capita, is reduced to a modest 0.18 percent.

South Korea

Until 1961, South Korea received a 3100 million dollar donation from the United States, a very high figure for the time, a privilege for being on the hottest frontier of the Cold War. This policy of foreign economic and military support continued for decades. Workers' saw their wages and working conditions steadily improve, which increased domestic consumption. And the country steadily rose from low income to middle income status by the 1980s.

South Korea's real gross domestic product expanded by an average of more than 8 percent per year, from US 2.7 billion dollars in 1962 to US 230 billion dollars in 1989, breaking the trillion dollar mark in 2006. Nominal GDP per capita grew from 103.88 dollars in 1962 to 5,438.24 dollars in 1989, reaching the 20,000 dollars milestone in 2006. For the first half of the 1990s, the South Korean economy continued a stable and strong growth in both private consumption and GDP. Things changed quickly in 1997 with the Asian Financial crisis. After several other Asian currencies were attacked by speculators, the Korean won started to heavily depreciate in October 1997. The problem was exacerbated by the problem of non-performing loans at many of Korea's merchant banks. By December 1997, the IMF had approved a US 21 billion dollars loan, that would be part of a US 58.4 billion dollars bailout plan. Actions by the South Korean government and debt swaps by international lenders contained the country's financial problems. Korea's economy moved away from the centrally planned, government-directed investment model toward a more market-oriented one. These economic reforms, pushed by President Kim Dae-jung, helped Korea maintain one of Asia's few expanding economies, with growth rates of 10.8 percent in 1999 and 9.2 percent in 2000. Growth fell back to 3.3 percent in 2001 because of the slowing global economy, falling exports, and the perception that much-needed corporate and financial reforms have stalled. Like most industrialized economies, Korea suffered significant setbacks during the late-2000s recession that began in 2007. Growth fell by 3.4 percent in the fourth quarter of 2008 from the previous quarter, the first negative quarterly growth in 10 years, with year on year quarterly growth continuing to be negative into 2009. Most sectors of the economy reported declines, with manufacturing dropping 25.6 percent as of January 2009, and consumer goods sales dropping 3.1 percent. Exports in autos and semiconductors, two critical pillars of the economy, shrank 55.9 percent and 46.9 percent respectively, while exports overall fell by a record 33.8 percent in January, and 18.3 percent in February 2009 year on year. As in the 1997 crisis, Korea's currency also experienced massive fluctuations, declining by 34 percent against the dollar. Annual growth in the economy slowed to 2.3 percent in 2008, and was expected to drop to as low as -4.5 percent by Goldman Sachs, but South Korea was able to limit the downturn to a near standstill at 0.2 percent in 2009.

Despite the global financial crisis, the South Korean economy, helped by timely stimulus measures and strong domestic consumption of products that compensated for a drop in exports,[48] was able to avoid a recession unlike most industrialized economies, posting positive economic growth for two consecutive years of the crisis. In 2010, South Korea made a strong economic rebound with a growth rate of 6.1 percent, signaling a return of the economy to pre-crisis levels. South Korea's export has recorded 424 billion Dollars in the first eleven months of the year 2010, already higher than its export in the whole year of 2008. The South Korean economy of the 21st century, as a Next Eleven economy, is expected to grow from 3.9 percent to 4.2 percent annually between 2011 and 2030, similar to growth rates of developing countries such as Brazil or Russia.

India

The economy of India is characterised as a developing market economy. It is the world's fifth-largest economy by nominal GDP and the third-largest by purchasing power parity (PPP). According to the IMF, on a per capita income basis, India ranked 142nd by GDP (nominal) and 119th by GDP (PPP) per capita in 2018. From independence in 1947 until 1991, successive governments promoted protectionist economic policies with extensive state intervention and regulation; the end of the Cold War and an acute balance of payments crisis in 1991 led to the adoption of a broad program of economic liberalisation. Since the start of the 21st century, annual average GDP growth has been 6 percent to 7 percent, and from 2014 to 2018, India was the world's fastest growing major economy, surpassing China. Historically India was one of the largest economy in the world for most of the two millennia from 1st until 19th century.

China

At the outset of the reforms in 1978, China was poor. It had a GDP per capita level similar to Zambia – lower than half of the Asian average and lower than two thirds of the African average. China experienced an average GDP growth of close to 10 percent per year until 2014, raising per capita GDP almost 49-fold, from 155 current US Dollars (1978) to 7,590 US Dollars in 2014, lifting 800 million people out of poverty – an unparalleled achievement. In urban centres in China, poverty has been virtually eliminated. However, China's development has been driven by the coastal east, while development in the rural west is lagging behind. Its per capita income is still below the world average, showing the amount of development still to be done.

Part II

Getting Data by Web Scraping

Ali Daei is the all-time men's top goalscorer and a former Iranian football player who holds the record for the most goals in international men's football, with 109 goals in 149 appearances. I want to scrape the number of his international goals and the games that he scored on them.

Table 1 describes the information about all the competitions between Iran and its opponents where Ali was playing as the team's Captain or Skipper.

Ali was named the world's top scorer in official international competitions by the International Federation of Football History and Statistics (IFFHS), having scored 20 goals in competitive matches for Iran in 1996, including his famous 4 goal haul against South Korea in Asian Cup 1996. By the end of the 1996 Asian Cup, he had scored 29 goals in 38 appearances for Iran. In the 1998 World Cup qualifying campaign, he was again on top of the charts, scoring 9 goals in 17 matches for Iran, reaching at that time, 38 goals in 52 appearances for his country.

Ali Daei joined the exclusive circle of players with a century of caps. In a 28 November 2003 Asian Cup qualifier in Tehran against Lebanon, he scored his 85th international goal, elevating him past Hungarian legend Ferenc Puskás to top the all-time list of scorers in international matches. On 17 November 2004, he scored four goals against Laos in a World Cup qualifier, giving him 102 goals and making him the first male player to score 100 goals in international play. He has 149 caps for Iran and, as of 13 September 2019, is ranked 28th among the world's most capped players list. Table 2 and Table 3 show the number of Goals by year and the number of goals by opposition.

Table 1: Games and Results

36	7 June 2000	Tehran', ' ', 'Iran	1	(LG Cup
37	9 June 2000	Tehran', ' ', 'Iran	2	3	LG Cup
38	27 September 2000	Doha', ' ', 'Qatar	1	2	International Match
39	12 October 2000	Beirut', ' ', 'Lebanon	4	4	2000 AFC Asian Cup
40	15 October 2000	Beirut', ' ', 'Lebanon	1	1	2000 AFC Asian Cup
41	18 October 2000	Sidon', ' ', 'Lebanon	1	1	2000 AFC Asian Cup',
42	24 November 2000	Tabriz', ' ', 'Iran	7	19	2002 FIFA World Cup Qualification
43	28 November 2000	Tabriz', ' ', 'Iran	1	2	2002 FIFA World Cup Qualification
44	19 January 2001	Tehran', ' ', 'Iran	1	4	Ancient Civilization Cup
45	8 August 2001	Tehran', ' ', 'Iran	4	5	LG Cup
46	10 August 2001	Tehran', ' ', 'Iran	3	4	LG Cup
47	24 August 2001	Tehran', ' ', 'Iran	1	2	2002 FIFA World Cup Qualification
48	7 September 2001	Baghdad', ' ', 'Iraq	2	2	2002 FIFA World Cup Qualification
49	28 September 2001	Jeddah', ' ', 'Saudi Arabia	1	2	2002 FIFA World Cup Qualification
50	21 October 2001	Manama', ' ', 'Bahrain	1	1	2002 FIFA World Cup Qualification
51	31 October 2001	Abu Dhabi', ' ', 'United Arab Emirates	1	3	2002 FIFA World Cup Qualification
52	21 August 2002	Kiev', ' ', 'Ukraine	1	1	International Match
53	19 September 2002	Tabriz', ' ', 'Iran	1	(LG Cup
54	5 September 2003	Tehran', ' ', 'Iran	1	4	2004 AFC Asian Cup Qualification
55	19 November 2003	Beirut', ' ', 'Lebanon	1	3	2004 AFC Asian Cup Qualification
56	28 November 2003	Tehran', ' ', 'Iran	1	1	2004 AFC Asian Cup Qualification
57	2 December 2003	Kuwait City', ' ', 'Kuwait	1	1	International Match
58	18 February 2004	Tehran', ' ', 'Iran	3	3	2006 FIFA World Cup Qualification
59	31 March 2004	Vientiane', ' ', 'Laos	1	7	2006 FIFA World Cup Qualification
60	17 June 2004	Tehran', ' ', 'Iran	1	4	WAAF Tournament
61	21 June 2004	Tehran', ' ', 'Iran	1	7	WAAF Tournament
62	25 June 2004	Tehran', ' ', 'Iran	2	4	WAAF Tournament
63	20 July 2004	Chongqing', ' ', 'China	3	3	2004 AFC Asian Cup
64	6 August 2004	Beijing', ' ', 'China	3	4	2004 AFC Asian Cup
65	8 September 2004	Amman', ' ', 'Jordan	2	2	2006 FIFA World Cup Qualification
66	17 November 2004	Tehran', ' ', 'Iran	1	7	2006 FIFA World Cup Qualification
67	18 December 2004	Tehran', ' ', 'Iran	1	1	International Match
68	2 February 2005	Tehran', ' ', 'Iran	1	2	International Match
69	17 August 2005	Yokohama', ' ', 'Japan	1	1	2006 FIFA World Cup Qualification
70	24 August 2005	Tehran', ' ', 'Iran	3	4	International Match
71	13 November 2005	Tehran', ' ', 'Iran	1	2	LG Cup
72	22 February 2006	Tehran', ' ', 'Iran	4	4	2007 AFC Asian Cup Qualification
73	1 March 2006	Tehran', ' ', 'Iran	2	3	International Match

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37	9 June 2000	Tehran', ' ', 'Iran	2	3	LG Cup
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64	6 August 2004	Beijing', ' ', 'China	3	4	2004 AFC Asian Cup
65	8 September 2004	Amman', ' ', 'Jordan	2	2	2006 FIFA World Cup Qualification
66	17 November 2004	Tehran', ' ', 'Iran	1	7	2006 FIFA World Cup Qualification
67	18 December 2004	Tehran', ' ', 'Iran	1	1	International Match
68	2 February 2005	Tehran', ' ', 'Iran	1	2	International Match
69	17 August 2005	Yokohama', ' ', 'Japan	1	1	2006 FIFA World Cup Qualification
70	24 August 2005	Tehran', ' ', 'Iran	3	4	International Match
71	13 November 2005	Tehran', ' ', 'Iran	1	2	LG Cup
72	22 February 2006	Tehran', ' ', 'Iran	4	4	2007 AFC Asian Cup Qualification
73	1 March 2006	Tehran', ' ', 'Iran	2	3	International Match

Table 2: Goals by Year

#	Opposition	Goals
0	Maldives	8
1	Laos	8
2	Lebanon	6
3	Sri Lank	5
4	Nepal	5
5	Guam	4
6	South Kore	4
7	Chinese Taipei	4
8	Syri	4
9	Iraq	4
10	Japan	4
11	Kuwait	4
12	Bahrain	4
13	Saudi Arabi	4
14	Oman	4
15	Qatar	4
16	Uzbekistan	3
17	China PR	3
18	Tajikistan	3
19	Bosnia and Herzegovin	3
20	Jordan	3
21	Thailand	3
22	North Kore	2
23	Canad	1
24	United Arab Emirates	1
25	Ukraine	1
26	Ecuador	1
27	Egypt	1
28	Mexico	1
29	Costa Ric	1
30	Panam	1
31	Togo	1
32	Paraguay	1
33	Liby	1
34	North Macedoni	1
35	Kyrgyzstan	1

Table 3: Goals by Opposition

#	Year	Apps	Goals
0	1993	16	7
1	1994	1	0
2	1995	0	0
3	1996	18	22
4	1997	17	9
5	1998	13	9
6	1999	5	2
7	2000	19	20
8	2001	16	10
9	2002	4	2
10	2003	9	5
11	2004	16	17
12	2005	9	4
13	2006	6	2