Untitled

February 1, 2023

```
[14]: !pip install wbdata
      !pip install cufflinks
      !pip install iso3166

      import iso3166 #iso3166.countries.get('country details')
      import wbdata
      import cufflinks as cf
      import pandas as pd
      import numpy as np
      import plotly
      import matplotlib.pyplot as plt
      import seaborn as sns
      cf.go_offline()
```

Requirement already satisfied: wbdata in /opt/conda/lib/python3.9/site-packages
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Requirement already satisfied: zipp>=0.5 in /opt/conda/lib/python3.9/site-packages (from importlib-metadata>=3.6->nbconvert>=5->notebook>=4.4.1->widgetsnbextension~=3.6.0->ipywidgets>=7.0.0->cufflinks) (3.11.0)
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Requirement already satisfied: iso3166 in /opt/conda/lib/python3.9/site-packages (2.1.1)

```python
#wbdata.get_source() to get all sources
#wbdata.get_topic()
#wbdata.get_indicator()

source_id = 60 #Economic Fitness
```

```
indicators = wbdata.get_indicator(source=source_id)
indicators
```

```
[2]: id              name
     -------------   ---------------------------------------------
     EF.EFM.OVRL.XD  Economic Fitness Metric
     EF.EFM.RANK.XD  Economic Fitness Ranking (1 = high, 149 = low)
```

```
[3]: # Give variable for clarity
     variable_labels = {"NY.GDP.PCAP.CD":"GDP per capita"}


     myanmar = wbdata.get_dataframe(variable_labels, country="MMR")

     # Date index is of type string; change to integers
     myanmar.index = myanmar.index.astype(int)

     # Print a few years' data
     myanmar.head()
```

```
[3]:       GDP per capita
     date
     2021      1209.926942
     2020      1477.452870
     2019      1295.201448
     2018      1274.915657
     2017      1175.202557
```

```
[4]: myanmar.iplot(title="Myanmar GDP Over Time",xTitle='Year',yTitle='GDP per␣
     ↪Capita (current US$)')
```

```
[5]: variable_labels = {"NY.GDP.PCAP.CD":"GDP per capita"}
     south_korea = wbdata.get_dataframe(variable_labels, country="KOR")
     south_korea.index = south_korea.index.astype(int)
     south_korea.head()
```

```
[5]:       GDP per capita
     date
     2021     34997.781643
     2020     31721.298914
     2019     31902.416905
     2018     33436.923065
     2017     31616.843400
```

```
[7]: south_korea.iplot(title="South Korea GDP Over Time",xTitle='Year',yTitle='GDP␣
     ↪per Capita (current US$)')
```

```python
[6]: variable_labels = {"NY.GDP.PCAP.CD":"GDP per capita"}

     # Three letter codes come from wbdata.get_country()
     countries = {"MMR":"Mynmar",
                  "KOR":"South Korea"}

     df = wbdata.get_dataframe(variable_labels, country = countries).squeeze()

     df = df.unstack('country')
     # Date index is of type string; change to integers
     df.index = df.index.astype(int)

     # Differences (over time) in logs give us growth rates
     np.log(df).diff().iplot(title="GDP Growth Rate of Mynmar vs South Korea",
                             yTitle="Growth Rate",xTitle='Year')
```

```python
[12]: gdp_indicator = {"NY.GDP.PCAP.CD":"GDP per capita"}
      countries = {"MMR":"Mynmar",
                   "KOR":"South Korea"}

      gdp = wbdata.get_dataframe(gdp_indicator, country = countries).squeeze().
       ↪unstack('country')
      gdp.iplot(title="GDP per Capita of Myanmar and South Korea Over␣
       ↪Time",xTitle='Year',yTitle='GDP per Capita (current US$)')
```

```python
[13]: # Data from WDI on age-sex comes in the forms of variables
      # which take the form "SP.POP.LLHH.MA" for males
      # and "SP.POP.LLHH.FE" for females, where LL is the *low* end of
      # age range, like "05" for 5-yo, and HH is the *high* end.

      # We construct a list of age-ranges.

      # Start with an empty list of age-rages
      age_ranges = []

      # Ranges top out at 80, and go in five year increments
      for i in range(0,80,5):
          age_ranges.append(f"{i:02d}"+f"{i+4:02d}")

      age_ranges.append("80UP")

      print(age_ranges)
```

```
['0004', '0509', '1014', '1519', '2024', '2529', '3034', '3539', '4044', '4549',
 '5054', '5559', '6064', '6569', '7074', '7579', '80UP']
```

```
[5]: male_variables = {"SP.POP."+age_range+".MA":"Males "+age_range for age_range in
     ↪age_ranges}
     female_variables = {"SP.POP."+age_range+".FE":"Females "+age_range for
     ↪age_range in age_ranges}

     variables = male_variables
     variables.update(female_variables)

     print(variables)
```

```
{'SP.POP.0004.MA': 'Males 0004', 'SP.POP.0509.MA': 'Males 0509',
'SP.POP.1014.MA': 'Males 1014', 'SP.POP.1519.MA': 'Males 1519',
'SP.POP.2024.MA': 'Males 2024', 'SP.POP.2529.MA': 'Males 2529',
'SP.POP.3034.MA': 'Males 3034', 'SP.POP.3539.MA': 'Males 3539',
'SP.POP.4044.MA': 'Males 4044', 'SP.POP.4549.MA': 'Males 4549',
'SP.POP.5054.MA': 'Males 5054', 'SP.POP.5559.MA': 'Males 5559',
'SP.POP.6064.MA': 'Males 6064', 'SP.POP.6569.MA': 'Males 6569',
'SP.POP.7074.MA': 'Males 7074', 'SP.POP.7579.MA': 'Males 7579',
'SP.POP.80UP.MA': 'Males 80UP', 'SP.POP.0004.FE': 'Females 0004',
'SP.POP.0509.FE': 'Females 0509', 'SP.POP.1014.FE': 'Females 1014',
'SP.POP.1519.FE': 'Females 1519', 'SP.POP.2024.FE': 'Females 2024',
'SP.POP.2529.FE': 'Females 2529', 'SP.POP.3034.FE': 'Females 3034',
'SP.POP.3539.FE': 'Females 3539', 'SP.POP.4044.FE': 'Females 4044',
'SP.POP.4549.FE': 'Females 4549', 'SP.POP.5054.FE': 'Females 5054',
'SP.POP.5559.FE': 'Females 5559', 'SP.POP.6064.FE': 'Females 6064',
'SP.POP.6569.FE': 'Females 6569', 'SP.POP.7074.FE': 'Females 7074',
'SP.POP.7579.FE': 'Females 7579', 'SP.POP.80UP.FE': 'Females 80UP'}
```

```
[7]: # WLD is the World; substitute your own code or list of codes.
     # Remember you can search for the appropriate codes using
     # wbdata.search_countries("")

     df = wbdata.get_dataframe(variables,country="KOR")
     print(df.query("date=='2020'").sum(axis=0))
```

```
Males 0004        913445.0
Males 0509       1162482.0
Males 1014       1165664.0
Males 1519       1312977.0
Males 2024       1762109.0
Males 2529       1937096.0
Males 3034       1737312.0
Males 3539       2000804.0
Males 4044       1989327.0
Males 4549       2213774.0
Males 5054       2185302.0
Males 5559       2119268.0
```

```
Males 6064     1880334.0
Males 6569     1275725.0
Males 7074      926909.0
Males 7579      680065.0
Males 80UP      634737.0
Females 0004    866770.0
Females 0509   1103295.0
Females 1014   1094955.0
Females 1519   1214683.0
Females 2024   1597372.0
Females 2529   1687370.0
Females 3034   1557387.0
Females 3539   1865559.0
Females 4044   1899028.0
Females 4549   2143155.0
Females 5054   2168987.0
Females 5559   2112978.0
Females 6064   1939613.0
Females 6569   1376742.0
Females 7074   1062125.0
Females 7579    915866.0
Females 80UP   1333027.0
dtype: float64
```

```python
[9]: import plotly.offline as py
     import plotly.graph_objs as go
     import pandas as pd
     import numpy as np

     py.init_notebook_mode(connected=True)

     layout = go.Layout(barmode='overlay',
                        yaxis=go.layout.YAxis(range=[0, 90], title='Age'),
                        xaxis=go.layout.XAxis(title='Number'))

     year = 2020

     bins = [go.Bar(x = df.loc[str(year),:].filter(regex="Male").values,
                    y = [int(s[:2])+1 for s in age_ranges],
                    orientation='h',
                    name='Men',
                    marker=dict(color='pink'),
                    hoverinfo='skip'
                    ),

             go.Bar(x = -df.loc[str(year),:].filter(regex="Female").values,
                    y=[int(s[:2])+1 for s in age_ranges],
```

```
                orientation='h',
                name='Women',
                marker=dict(color='blue'),
                hoverinfo='skip',
                )
        ]
py.iplot(dict(data=bins, layout=layout))
```

[11]:
```
df = wbdata.get_dataframe(variables,country="MMR")
print(df.query("date=='2020'").sum(axis=0))

py.init_notebook_mode(connected=True)

layout = go.Layout(barmode='overlay',
                   yaxis=go.layout.YAxis(range=[0, 90], title='Age'),
                   xaxis=go.layout.XAxis(title='Number'))

year = 2020

bins = [go.Bar(x = df.loc[str(year),:].filter(regex="Male").values,
               y = [int(s[:2])+1 for s in age_ranges],
               orientation='h',
               name='Men',
               marker=dict(color='pink'),
               hoverinfo='skip'
               ),

        go.Bar(x = -df.loc[str(year),:].filter(regex="Female").values,
               y=[int(s[:2])+1 for s in age_ranges],
               orientation='h',
               name='Women',
               marker=dict(color='blue'),
               hoverinfo='skip',
               )
        ]
py.iplot(dict(data=bins, layout=layout))
```

```
Males 0004      2318768.0
Males 0509      2268374.0
Males 1014      2300425.0
Males 1519      2360501.0
Males 2024      2278275.0
Males 2529      2232782.0
Males 3034      2138928.0
Males 3539      2078186.0
Males 4044      1866538.0
Males 4549      1677226.0
```

```
Males 5054        1468381.0
Males 5559        1208064.0
Males 6064         946622.0
Males 6569         678009.0
Males 7074         404839.0
Males 7579         224419.0
Males 80UP         155843.0
Females 0004      2188793.0
Females 0509      2152601.0
Females 1014      2192878.0
Females 1519      2258470.0
Females 2024      2196937.0
Females 2529      2172995.0
Females 3034      2093747.0
Females 3539      2052893.0
Females 4044      1869607.0
Females 4549      1709572.0
Females 5054      1537268.0
Females 5559      1316917.0
Females 6064      1089436.0
Females 6569       839680.0
Females 7074       544629.0
Females 7579       326585.0
Females 80UP       274011.0
dtype: float64
```

[ ]: