

```
In [36]: import pandas as pd
import numpy as np
import warnings
import matplotlib.pyplot as plt
import plotly.graph_objects as go
from plotly.subplots import make_subplots
import os
import dash
from dash import dcc
from dash import html
os.chdir('/Users/Lenovo/Desktop/EBAC')
warnings.filterwarnings('ignore')
```

```
In [62]: # Carga de los datos
df = pd.read_csv('SYB67_230_202411_GDP and GDP Per Capita.csv')
# Convertir la primera fila en encabezado
df.columns = df.iloc[0]
df = df[1:].reset_index(drop=True)
df
```

Out[62]:

	Region/Country/Area	NaN	Year	Series	Value	Footnotes	Source
0	1	Total, all countries or areas	1995	GDP in current prices (millions of US dollars)	31,290,901	NaN	United Nations Statistics Division, New York, ...
1	1	Total, all countries or areas	2005	GDP in current prices (millions of US dollars)	47,816,593	NaN	United Nations Statistics Division, New York, ...
2	1	Total, all countries or areas	2010	GDP in current prices (millions of US dollars)	66,633,612	NaN	United Nations Statistics Division, New York, ...
3	1	Total, all countries or areas	2015	GDP in current prices (millions of US dollars)	75,440,153	NaN	United Nations Statistics Division, New York, ...
4	1	Total, all countries or areas	2020	GDP in current prices (millions of US dollars)	85,483,570	NaN	United Nations Statistics Division, New York, ...
...
6769	716	Zimbabwe	2010	GDP real rates of growth (percent)	19.7	NaN	United Nations Statistics Division, New York, ...
6770	716	Zimbabwe	2015	GDP real rates of growth (percent)	1.8	NaN	United Nations Statistics Division, New York, ...
6771	716	Zimbabwe	2020	GDP real rates of growth (percent)	-5.3	NaN	United Nations Statistics Division, New York, ...
6772	716	Zimbabwe	2021	GDP real rates of growth (percent)	6.3	NaN	United Nations Statistics Division, New York, ...
6773	716	Zimbabwe	2022	GDP real rates of growth (percent)	3.5	NaN	United Nations Statistics Division, New York, ...

6774 rows × 7 columns

```
In [64]: # Datos de Mexico
df_Mexico = df[df["Region/Country/Area"] == '484']
df_Mexico
```

Out[64]:

Region/Country/Area		NaN	Year	Series		Value	Footnotes	Source
4251	484	Mexico	1995	GDP in current prices (millions of US dollars)		380,157	NaN	United Nations Statistics Division, New York, ...
4252	484	Mexico	2005	GDP in current prices (millions of US dollars)		917,572	NaN	United Nations Statistics Division, New York, ...
4253	484	Mexico	2010	GDP in current prices (millions of US dollars)		1,105,424	NaN	United Nations Statistics Division, New York, ...
4254	484	Mexico	2015	GDP in current prices (millions of US dollars)		1,213,294	NaN	United Nations Statistics Division, New York, ...
4255	484	Mexico	2020	GDP in current prices (millions of US dollars)		1,120,832	NaN	United Nations Statistics Division, New York, ...
4256	484	Mexico	2021	GDP in current prices (millions of US dollars)		1,313,070	NaN	United Nations Statistics Division, New York, ...
4257	484	Mexico	2022	GDP in current prices (millions of US dollars)		1,463,324	NaN	United Nations Statistics Division, New York, ...
4258	484	Mexico	1995	GDP per capita (US dollars)		4,225	NaN	United Nations Statistics Division, New York, ...
4259	484	Mexico	2005	GDP per capita (US dollars)		8,702	NaN	United Nations Statistics Division, New York, ...
4260	484	Mexico	2010	GDP per capita (US dollars)		9,823	NaN	United Nations Statistics Division, New York, ...
4261	484	Mexico	2015	GDP per capita (US dollars)		10,098	NaN	United Nations Statistics Division, New York, ...
4262	484	Mexico	2020	GDP per capita (US dollars)		8,896	NaN	United Nations Statistics Division, New York, ...
4263	484	Mexico	2021	GDP per capita (US dollars)		10,363	NaN	United Nations Statistics Division, New York, ...
4264	484	Mexico	2022	GDP per capita (US dollars)		11,477	NaN	United Nations Statistics Division, New York, ...
4265	484	Mexico	1995	GDP in constant 2015 prices (millions of US do...		724,232	NaN	United Nations Statistics Division, New York, ...
4266	484	Mexico	2005	GDP in constant 2015 prices (millions of US do...		1,004,312	NaN	United Nations Statistics Division, New York, ...
4267	484	Mexico	2010	GDP in constant 2015 prices (millions of US do...		1,066,822	NaN	United Nations Statistics Division, New York, ...
4268	484	Mexico	2015	GDP in constant 2015 prices (millions of US do...		1,213,294	NaN	United Nations Statistics Division, New York, ...
4269	484	Mexico	2020	GDP in constant 2015 prices (millions of US do...		1,169,145	NaN	United Nations Statistics Division, New York, ...
4270	484	Mexico	2021	GDP in constant 2015 prices (millions of US do...		1,236,244	NaN	United Nations Statistics Division, New York, ...
4271	484	Mexico	2022	GDP in constant 2015 prices (millions of US do...		1,285,063	NaN	United Nations Statistics Division, New York, ...
4272	484	Mexico	1995	GDP real rates of growth (percent)		-5.9	NaN	United Nations Statistics Division, New York, ...
4273	484	Mexico	2005	GDP real rates of growth (percent)		2.1	NaN	United Nations Statistics Division, New York, ...
4274	484	Mexico	2010	GDP real rates of growth (percent)		5.0	NaN	United Nations Statistics Division, New York, ...
4275	484	Mexico	2015	GDP real rates of growth (percent)		2.7	NaN	United Nations Statistics Division, New York, ...
4276	484	Mexico	2020	GDP real rates of growth (percent)		-8.6	NaN	United Nations Statistics Division, New York, ...
4277	484	Mexico	2021	GDP real rates of growth (percent)		5.7	NaN	United Nations Statistics Division, New York, ...
4278	484	Mexico	2022	GDP real rates of growth (percent)		3.9	NaN	United Nations Statistics Division, New York, ...

In [32]: # Revisamos los tipos de datos
df_Mexico.dtypes

```
Out[32]: 0
Region/Country/Area    object
NaN                    object
Year                   object
Series                 object
Value                  int32
Footnotes              object
Source                 object
dtype: object
```

```
In [66]: # Cambiamos la columna Value a Int
df_Mexico["Value"] = pd.to_numeric(df_Mexico["Value"].str.replace(",", ""), errors="coerce")
df_Mexico = df_Mexico.dropna(subset=["Value"])
df_Mexico["Value"] = df_Mexico["Value"].astype(int)
df_Mexico
```

Out[66]:

Region/Country/Area		NaN	Year	Series		Value	Footnotes	Source
4251	484	Mexico	1995	GDP in current prices (millions of US dollars)		380157	NaN	United Nations Statistics Division, New York, ...
4252	484	Mexico	2005	GDP in current prices (millions of US dollars)		917572	NaN	United Nations Statistics Division, New York, ...
4253	484	Mexico	2010	GDP in current prices (millions of US dollars)		1105424	NaN	United Nations Statistics Division, New York, ...
4254	484	Mexico	2015	GDP in current prices (millions of US dollars)		1213294	NaN	United Nations Statistics Division, New York, ...
4255	484	Mexico	2020	GDP in current prices (millions of US dollars)		1120832	NaN	United Nations Statistics Division, New York, ...
4256	484	Mexico	2021	GDP in current prices (millions of US dollars)		1313070	NaN	United Nations Statistics Division, New York, ...
4257	484	Mexico	2022	GDP in current prices (millions of US dollars)		1463324	NaN	United Nations Statistics Division, New York, ...
4258	484	Mexico	1995	GDP per capita (US dollars)		4225	NaN	United Nations Statistics Division, New York, ...
4259	484	Mexico	2005	GDP per capita (US dollars)		8702	NaN	United Nations Statistics Division, New York, ...
4260	484	Mexico	2010	GDP per capita (US dollars)		9823	NaN	United Nations Statistics Division, New York, ...
4261	484	Mexico	2015	GDP per capita (US dollars)		10098	NaN	United Nations Statistics Division, New York, ...
4262	484	Mexico	2020	GDP per capita (US dollars)		8896	NaN	United Nations Statistics Division, New York, ...
4263	484	Mexico	2021	GDP per capita (US dollars)		10363	NaN	United Nations Statistics Division, New York, ...
4264	484	Mexico	2022	GDP per capita (US dollars)		11477	NaN	United Nations Statistics Division, New York, ...
4265	484	Mexico	1995	GDP in constant 2015 prices (millions of US do...		724232	NaN	United Nations Statistics Division, New York, ...
4266	484	Mexico	2005	GDP in constant 2015 prices (millions of US do...		1004312	NaN	United Nations Statistics Division, New York, ...
4267	484	Mexico	2010	GDP in constant 2015 prices (millions of US do...		1066822	NaN	United Nations Statistics Division, New York, ...
4268	484	Mexico	2015	GDP in constant 2015 prices (millions of US do...		1213294	NaN	United Nations Statistics Division, New York, ...
4269	484	Mexico	2020	GDP in constant 2015 prices (millions of US do...		1169145	NaN	United Nations Statistics Division, New York, ...
4270	484	Mexico	2021	GDP in constant 2015 prices (millions of US do...		1236244	NaN	United Nations Statistics Division, New York, ...
4271	484	Mexico	2022	GDP in constant 2015 prices (millions of US do...		1285063	NaN	United Nations Statistics Division, New York, ...
4272	484	Mexico	1995	GDP real rates of growth (percent)		-5	NaN	United Nations Statistics Division, New York, ...
4273	484	Mexico	2005	GDP real rates of growth (percent)		2	NaN	United Nations Statistics Division, New York, ...
4274	484	Mexico	2010	GDP real rates of growth (percent)		5	NaN	United Nations Statistics Division, New York, ...
4275	484	Mexico	2015	GDP real rates of growth (percent)		2	NaN	United Nations Statistics Division, New York, ...
4276	484	Mexico	2020	GDP real rates of growth (percent)		-8	NaN	United Nations Statistics Division, New York, ...
4277	484	Mexico	2021	GDP real rates of growth (percent)		5	NaN	United Nations Statistics Division, New York, ...
4278	484	Mexico	2022	GDP real rates of growth (percent)		3	NaN	United Nations Statistics Division, New York, ...

In [72]:

```
# Crecimiento en $
df_MXUSD = df_Mexico[df_Mexico["Series"] == 'GDP in current prices (millions of US dollars)']
fig1 = go.Figure()
fig1.add_trace(go.Scatter(x = df_MXUSD["Year"], y = df_MXUSD["Value"], mode = "lines", name = "Growth", line = c
fig1.update_layout(title = "USD GDP", xaxis_title = "Year",
                    yaxis_title = "Millones de Dolares")
fig1.show()
```

```
In [70]: # Crecimiento de GDP en dls a traves de los años
df_MXP = df_Mexico[df_Mexico["Series"] == 'GDP real rates of growth (percent)']
fig2 = go.Figure()
fig2.add_trace(go.Bar(x = df_MXP["Year"], y = df_MXP["Value"], name = "GDP", marker = dict(color = "red")))
fig2.update_layout(title = "GDP Millions of US Dollars",
                    xaxis_title = "Year",
                    yaxis_title = "GDP Millions of US Dollars")
fig2.show()
```

```
In [76]: # Crecimiento X GDP per Capita
df_MXGP = df_Mexico[df_Mexico["Series"] == 'GDP real rates of growth (percent)']
df_MXPC = df_Mexico[df_Mexico["Series"] == 'GDP per capita (US dollars)']
fig4 = make_subplots(specs = [{"secondary_y" : True}])
fig4.add_trace(go.Scatter(x = df_MXGP["Year"], y = df_MXGP["Value"], mode = 'lines', name = "Crecimiento %", style = 'solid'))
fig4.add_trace(go.Scatter(x = df_MXPC["Year"], y = df_MXPC["Value"], mode = 'lines', name = "GDP Per Capita", style = 'solid'))
fig4.update_layout(title = "Crecimiento % X GDP Per Capita",
                    xaxis_title = "Year",
                    yaxis_title = "Crecimiento % / GDP Per Capita")
fig4.show()
```

Dashboard

In [83]: *# Consolidacion de graficos*

```
app = dash.Dash(__name__)
app.layout = html.Div([
    html.H1('Cuadro de Control de Mando (Dashboard)'),

    html.Div([
        dcc.Graph(figure = fig1),
        dcc.Graph(figure = fig2),
    ], style = {'display': 'flex'}),

    html.Div([
        dcc.Graph(figure = fig4),
    ], style = {'display': 'flex'}),
])

if __name__ == '__main__':
    app.run(debug=True, port=8051)
```

Conclusion:

En los ultimos años Mexico ha tenido un desaceleramiento con respecto al crecimiento del producto interno bruto, podemos observar como desde 1995, los siguientes 3 lustros tuvieron bastante buen desempeño, mermado por la contraccion del 2020. Tambien, cabe descatar que el PIB per capita tuvo muy buen desempeño de 1995 a 2015, en donde pasamos de $USD4225$ (1995) a $USD10098$ (2015), para en 2020 al igual a la contraccion pasar a $USD 8896$.

In []:

Processing math: 100%