Imagenes Contexto Economico

October 8, 2022

UNIDAD DE ACTUARIA - IHSS
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Código:
Tema: Generación de Imagines del contexto economico para EA - 2021
Creado: 2022-Jun-05
Actualizado: 2022-Oct-07

1 Librerias Utilizadas

[2]:
```
import matplotlib
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import io
import math
from matplotlib.ticker import FuncFormatter
import seaborn as sns
```

2 Funciones utilizadas

A lo largo del código notaran que cada gráfico hace el llamado a una función para poder nombrar las etiquetas de los mismos. Es por ello, que se crean las diferentes funciones para dicho fin.

Como los gráficos son de estilo de barra y lineas, entonces la función la llamamos ***label_comma_bar_porcentaje_line*** haciendo referencia a que algunas etiquetas van separadas por comas y otros son de tipo porcentual.

[71]:
```
def label_comma_bar_porcentaje_line(ax, typ, spacing=5):
    space = spacing
    va = 'bottom'

    if typ == 'bar':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label =f'{math.ceil(y_value):,}'
            ax.annotate(label,(x_value, y_value), xytext=(0, space),
                    textcoords="offset points", ha='center', va=va)

    if typ == 'bar_porcentaje':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label = '{:.1%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(0, space),
                    textcoords="offset points", ha='center', va=va,
                    color = 'white').set_backgroundcolor('darkorange')

    if typ == 'bar_porcentaje_orange':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label = '{:.1%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(0, space),
                    textcoords="offset points", ha='center', va=va,
                    color = 'orange')

    if typ == 'bar_comma_orange':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label =f'{math.ceil(y_value):,}'
            ax.annotate(label,(x_value, y_value), xytext=(0, space),
                    textcoords="offset points", ha='center', va=va,
                    color = 'orange')

    if typ == 'line':
        line = ax.lines[0]
        for x_value, y_value in zip(line.get_xdata(), line.get_ydata()):
            label = '{:.1%}'.format(y_value/100)
```

```
            ax.annotate(label,(x_value, y_value), xytext=(19, -14),
                textcoords="offset points", ha='right',
                va=va,color = 'white').set_backgroundcolor('green') ##965786

    if typ == 'line_color_#965786':
        line = ax.lines[0]
        for x_value, y_value in zip(line.get_xdata(), line.get_ydata()):
            label = '{:.2%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(19, -14),
                textcoords="offset points", ha='right',
                va=va,color = 'white').set_backgroundcolor('#965786')

    if typ == 'line_color_verde':
        line = ax.lines[0]
        for x_value, y_value in zip(line.get_xdata(), line.get_ydata()):
            label = '{:.2%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(19, -14),
                textcoords="offset points", ha='right',
                va=va,color = 'black')#.set_backgroundcolor('green')
```

3 Gráfico Producto Interno Bruto a Precios Constantes

[ ]:
```
import seaborn as sns
sns.set_context('talk')
#sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

#sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax1 = plt.subplots(figsize=(12,9))

ax2 = ax1.twinx()
sns.barplot(x=['2019','2020','2021'],
            y=[220728,200940,226126],
            color='#004488',
            ax=ax1,label = 'PIB')
sns.lineplot(x=['2019','2020','2021'],
             y=[2.7,-9.0,12.5],
             color='green',
             marker="o",
             ax=ax2,label = '% crec interanual')

ax1.set_title('Producto Interno Bruto a Precios Constantes\n (en millones de␣
 ↪lempiras)', pad=15)

label_comma_bar_porcentaje_line(ax1, typ = 'bar')
```

```
label_comma_bar_porcentaje_line(ax2, typ='line')
fig.tight_layout()

ax1.yaxis.set_major_formatter(FuncFormatter(lambda y, _: f'{math.ceil(y):,}'.
 ↪format(y)))
ax2.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))


#ax2.legend(bbox_to_anchor=(1.01, 1.07))
#ax1.legend(bbox_to_anchor=(0.11, 1.07))

ax2.legend(bbox_to_anchor=(0.7, -0.1))
ax1.legend(bbox_to_anchor=(0.43, -0.1))

ax1.spines['top'].set_visible(False)
ax1.spines['right'].set_visible(False)
ax1.spines['left'].set_visible(False)
ax1.spines['bottom'].set_color('#DDDDDD')
ax1.tick_params(bottom=False, left=False)
ax1.set_axisbelow(True)
ax1.yaxis.grid(True, color='#EEEEEE')
ax1.xaxis.grid(False)

ax1.set_xlabel("Año")
ax1.set_ylabel("PIB")
ax2.set_ylabel("% crecimiento interanual")

plt.savefig('PIB_Final_2.eps',format='eps',pdi=1000,bbox_inches="tight")

plt.show()
sns.set()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
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transparency; partially transparent artists will be rendered opaque.
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transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```
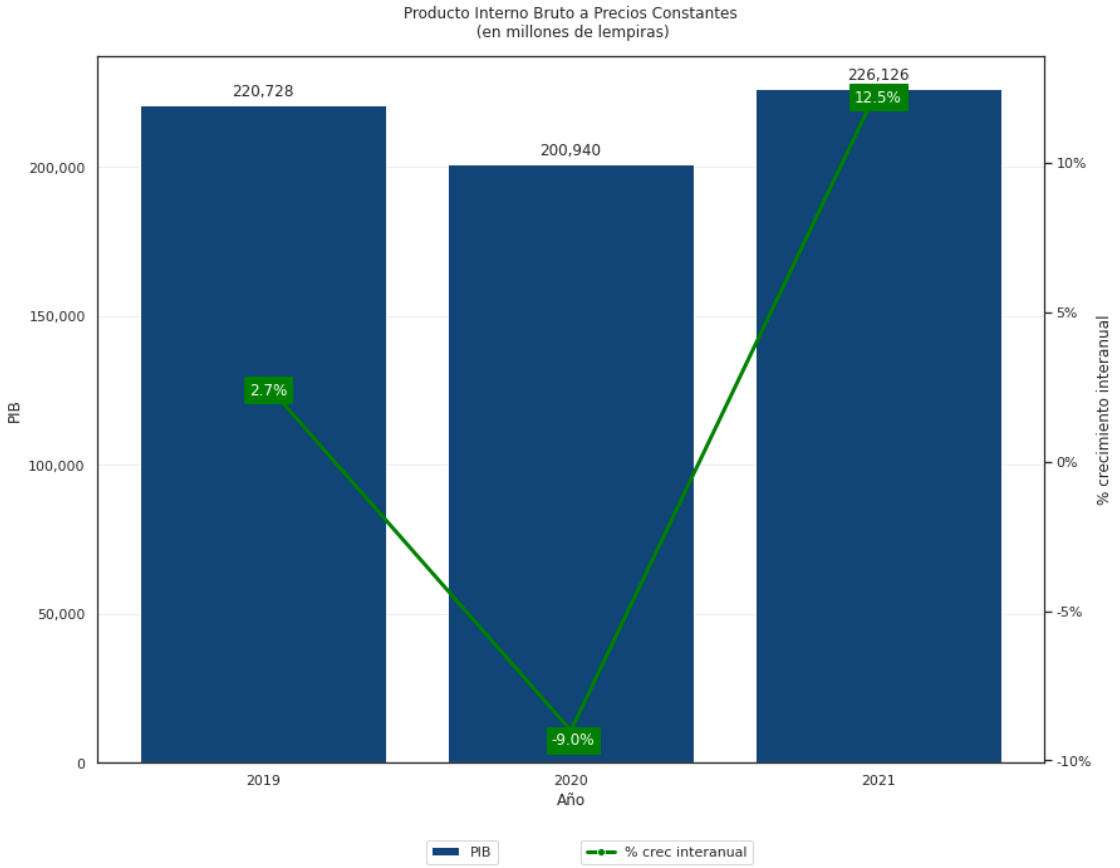



4 Gráfico Tasas Activas y Pasivas

[ ]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving tasas_activas_pasivas_2021.csv to tasas_activas_pasivas_2021.csv
```

[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['tasas_activas_pasivas_2021.csv']))
print(df)
```

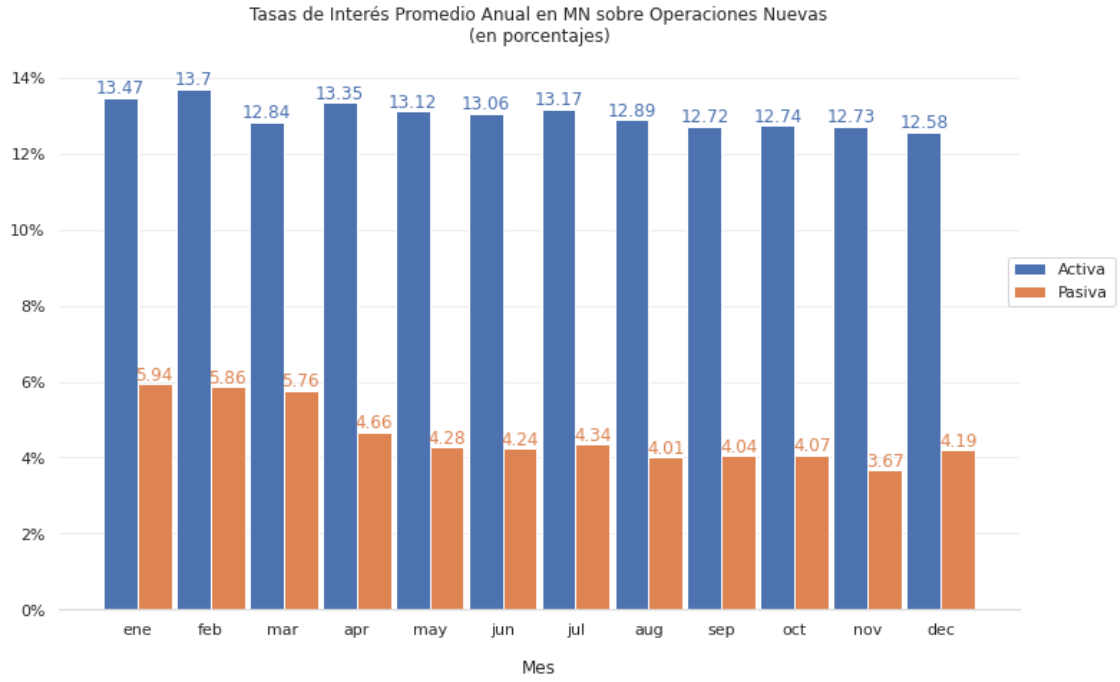
```
   mes  activa  pasiva
0  ene   13.47    5.94
1  feb   13.70    5.86
2  mar   12.84    5.76
```

```
3   apr   13.35    4.66
4   may   13.12    4.28
5   jun   13.06    4.24
6   jul   13.17    4.34
7   aug   12.89    4.01
8   sep   12.72    4.04
9   oct   12.74    4.07
10  nov   12.73    3.67
11  dec   12.58    4.19
```

[ ]:
```python
from __future__ import barry_as_FLUFL
# 1. Estilo del Grafico
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})
# 2. Instanciamos el grafico
fig, ax = plt.subplots(figsize = (12,7))
x = np.arange(len(df.mes.unique()))
bar_width = 0.47

b1 = ax.bar(x, df["activa"], bar_width, label = "Activa")
b2 = ax.bar(x+bar_width, df["pasiva"], bar_width, label = "Pasiva")

# 3. Etiqueta en el eje x
ax.set_xticks(x + bar_width / 2)
ax.set_xticklabels(df.mes.unique())

# 4. Diseño del Plano xy
ax.spines['top'].set_visible(False)
ax.spines['right'].set_visible(False)
ax.spines['left'].set_visible(False)
ax.spines['bottom'].set_color('#DDDDDD')
ax.tick_params(bottom=False, left=False)
ax.set_axisbelow(True)
ax.yaxis.grid(True, color='#EEEEEE')
ax.xaxis.grid(False)

# 5. Titulo y nombres de ejes
ax.set_xlabel('Mes', labelpad=15)
ax.set_ylabel('', labelpad=15)
ax.set_title('Tasas de Interés Promedio Anual en MN sobre Operaciones Nuevas\n'
'(en porcentajes)', pad=15)

# 6. Convertimos la escala del eje y en %
ax.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))

# 7. Etiquetas de las barras
```

```
for bar in ax.patches:

  bar_value = bar.get_height()
  text = f'{bar_value:,}'
  text_x = bar.get_x() + bar.get_width() / 2
  text_y = bar.get_y() + bar_value
  bar_color = bar.get_facecolor()
  ax.text(text_x, text_y, text, ha='center', va='bottom', color=bar_color,
          size=12)

# 8. Leyenda
ax.legend(bbox_to_anchor=(0.98, 0.66))

# 9. Salvamos la el grafioo en calida .eps
plt.savefig('Tasa_Ac_Pa.eps', format = 'eps', pdi = 1000,bbox_inches = "tight")

plt.show()
sns.set()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```



5 Plot - Déficit Administración Central

[ ]:
```
from google.colab import files


uploaded = files.upload()
```

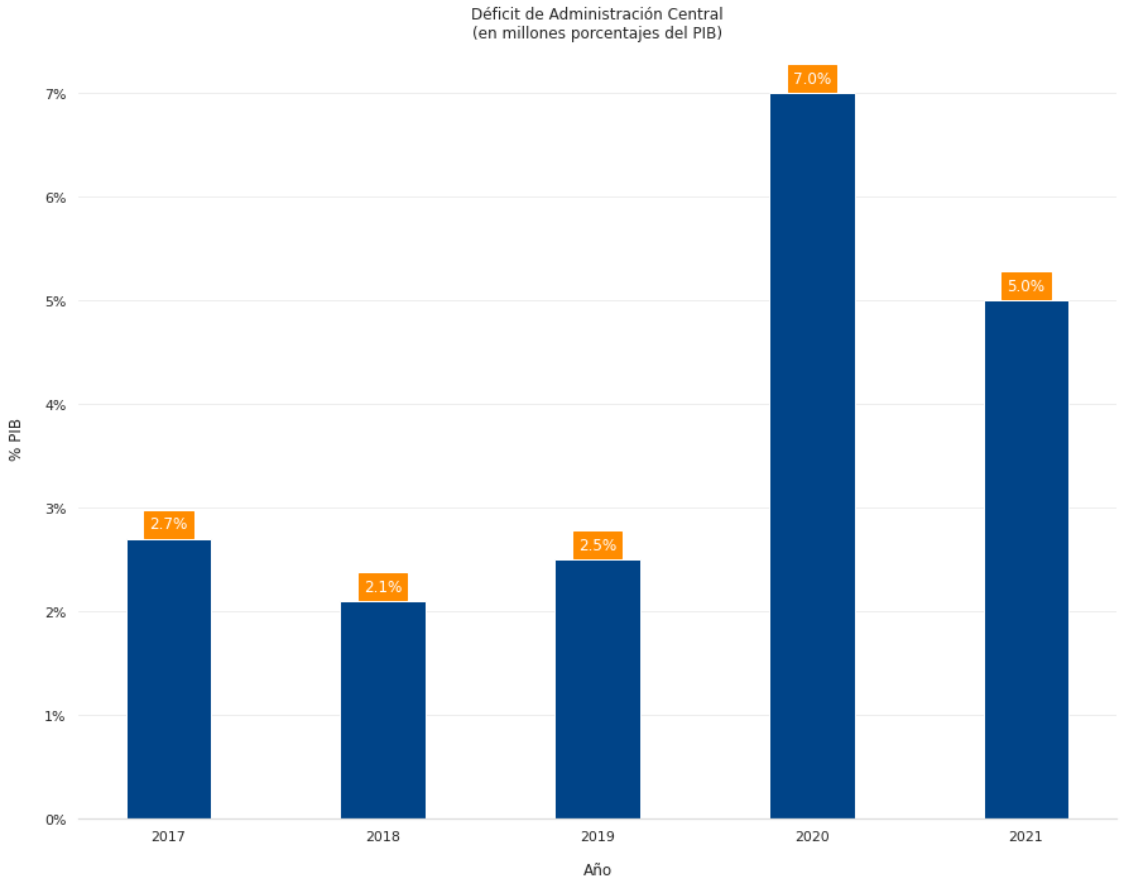
```
<IPython.core.display.HTML object>


Saving deficit_AC.csv to deficit_AC.csv
```

[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['deficit_AC.csv']))
print(df)
```

```
   Date  dac
0  2017  2.7
1  2018  2.1
2  2019  2.5
3  2020  7.0
4  2021  5.0
```

[ ]:
```
import seaborn as sns
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax1 = plt.subplots(figsize=(12,9))


b1 = ax1.bar(df['Date'], df["dac"], 0.4, label = "Activa",color = '#004488')

label_comma_bar_porcentaje_line(ax1, typ = 'bar_porcentaje')
fig.tight_layout()

ax1.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))

ax1.spines['top'].set_visible(False)
ax1.spines['right'].set_visible(False)
ax1.spines['left'].set_visible(False)
ax1.spines['bottom'].set_color('#DDDDDD')
ax1.tick_params(bottom=False, left=False)
ax1.set_axisbelow(True)
ax1.yaxis.grid(True, color='#EEEEEE')
ax1.xaxis.grid(False)

ax1.set_xlabel('Año', labelpad=15)
ax1.set_ylabel('% PIB', labelpad=15)
```

```
ax1.set_title('Déficit de Administración Central\n'
'(en millones porcentajes del PIB)', pad=15)

plt.savefig('deficit_AC.eps', format = 'eps', pdi = 1000,bbox_inches = "tight")
plt.show()
sns.set()
```



6 Plot - Crecimiento Deduda Externa

[ ]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

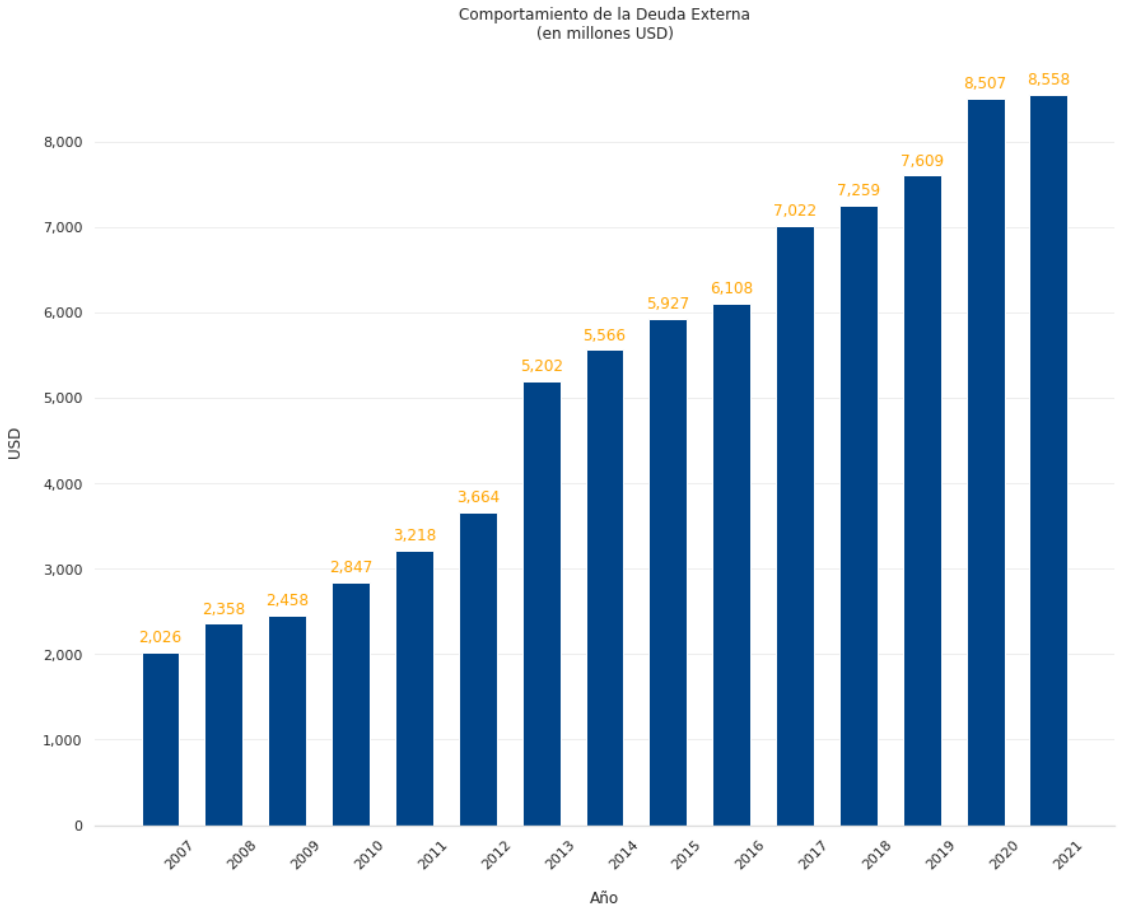
```
Saving crec_deuda_externa_hn.csv to crec_deuda_externa_hn (2).csv
```

[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['crec_deuda_externa_hn.csv']))
print(df)
```

```
    date  deuda_externa
0   2007         2026.0
1   2008         2358.0
2   2009         2458.0
3   2010         2847.0
4   2011         3218.0
5   2012         3664.0
6   2013         5202.0
7   2014         5566.0
8   2015         5927.0
9   2016         6108.0
10  2017         7022.0
11  2018         7259.0
12  2019         7609.0
13  2020         8507.0
14  2021         8558.0
```

[ ]:
```
import seaborn as sns
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax1 = plt.subplots(figsize=(12,9))

x = np.arange(len(df.date.unique()))


b1 = ax1.bar(x, df["deuda_externa"], 0.6, label = "Activa",color = '#004488')

label_comma_bar_porcentaje_line(ax1, typ = 'bar_comma_orange')
fig.tight_layout()

ax1.yaxis.set_major_formatter(FuncFormatter(lambda y, _: f'{math.ceil(y):,}'))

ax1.set_xticks(x + 0.6 / 2)
ax1.set_xticklabels(df.date.unique(),rotation=45)


ax1.spines['top'].set_visible(False)
ax1.spines['right'].set_visible(False)
ax1.spines['left'].set_visible(False)
ax1.spines['bottom'].set_color('#DDDDDD')
ax1.tick_params(bottom=False, left=False)
ax1.set_axisbelow(True)
```

```
ax1.yaxis.grid(True, color='#EEEEEE')
ax1.xaxis.grid(False)

ax1.set_xlabel('Año', labelpad=15)
ax1.set_ylabel('USD', labelpad=15)
ax1.set_title('Comportamiento de la Deuda Externa\n'
'(en millones USD)', pad=15)

plt.savefig('deuda_externa.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
sns.set()
```



7 Plot - Comportamiento del GNI

[ ]:
```
from google.colab import files


uploaded = files.upload()
```

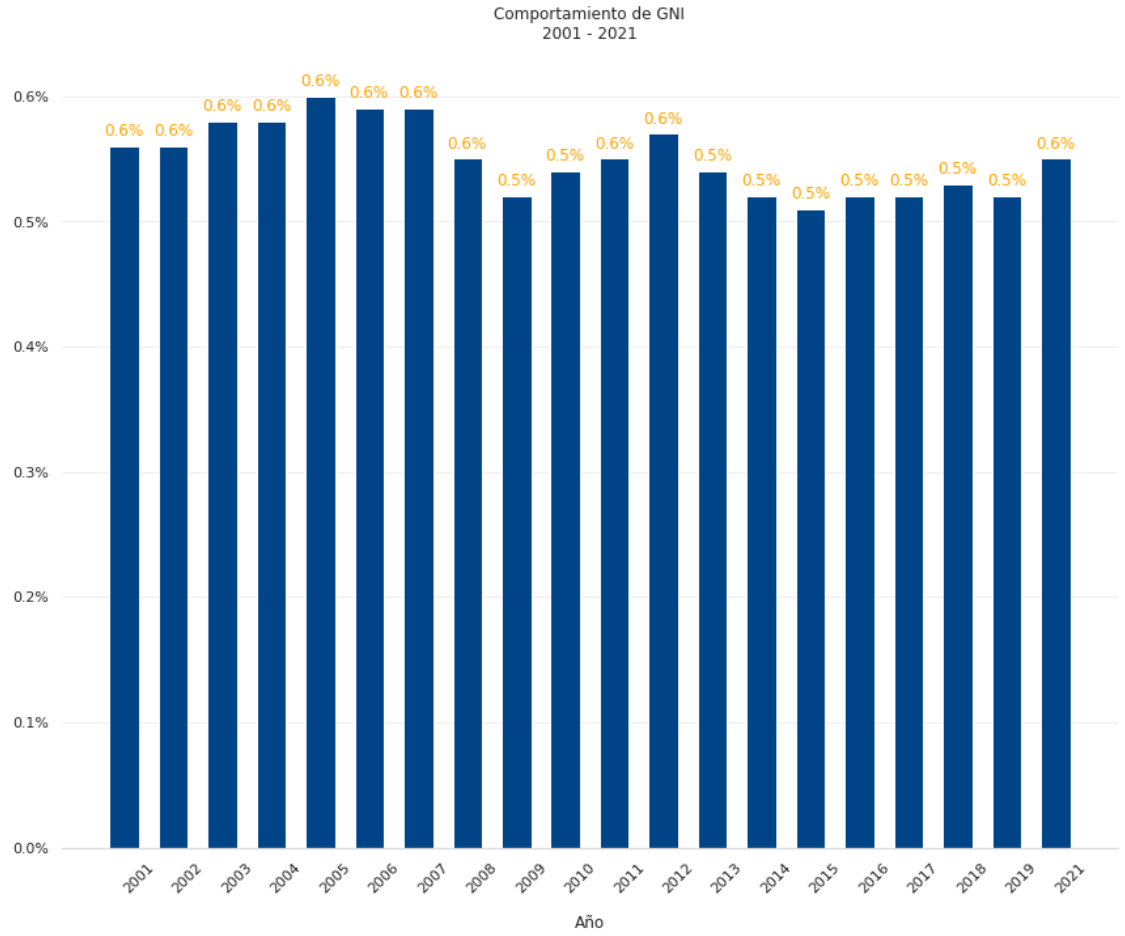
```
<IPython.core.display.HTML object>


Saving GNI.csv to GNI.csv
```

[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['GNI.csv']))
print(df)
```

```
    date   gni
0   2001  0.56
1   2002  0.56
2   2003  0.58
3   2004  0.58
4   2005  0.60
5   2006  0.59
6   2007  0.59
7   2008  0.55
8   2009  0.52
9   2010  0.54
10  2011  0.55
11  2012  0.57
12  2013  0.54
13  2014  0.52
14  2015  0.51
15  2016  0.52
16  2017  0.52
17  2018  0.53
18  2019  0.52
19  2021  0.55
```

[ ]:
```
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax1 = plt.subplots(figsize=(12,9))

x = np.arange(len(df.date.unique()))


b1 = ax1.bar(x, df["gni"], 0.6, label = "Activa",color = '#004488')
```

```
label_comma_bar_porcentaje_line(ax1, typ = 'bar_porcentaje_orange')
fig.tight_layout()

ax1.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/100)))

ax1.set_xticks(x + 0.6 / 2)
ax1.set_xticklabels(df.date.unique(),rotation=45)


ax1.spines['top'].set_visible(False)
ax1.spines['right'].set_visible(False)
ax1.spines['left'].set_visible(False)
ax1.spines['bottom'].set_color('#DDDDDD')
ax1.tick_params(bottom=False, left=False)
ax1.set_axisbelow(True)
ax1.yaxis.grid(True, color='#EEEEEE')
ax1.xaxis.grid(False)

ax1.set_xlabel('Año', labelpad=15)
ax1.set_ylabel('', labelpad=15)
ax1.set_title('Comportamiento de GNI\n'
'2001 - 2021', pad=15)

plt.savefig('GNI.eps', format = 'eps', pdi = 1000,bbox_inches = "tight")
plt.show()
sns.set()
```



8 Plot - Tasa de Ocupacion Informal

[398]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

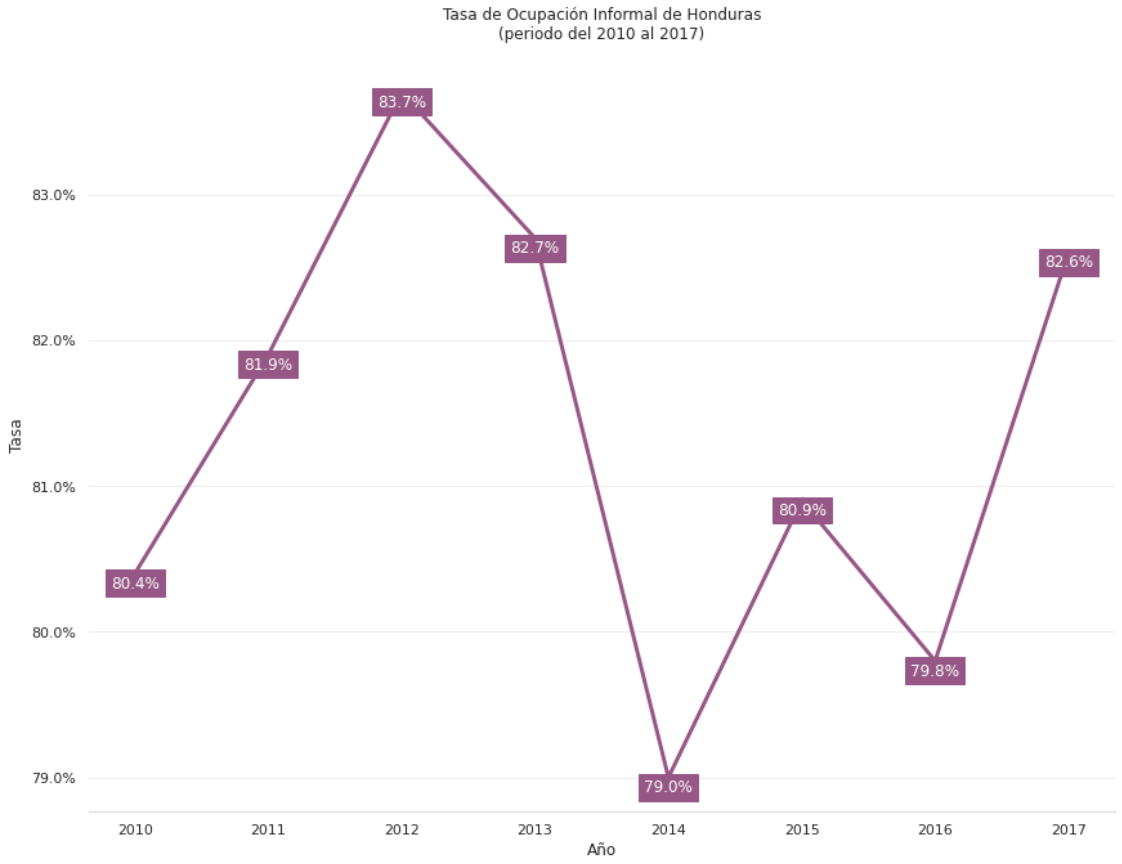
```
Saving Tasa_Informalidad_2010_2017.csv to Tasa_Informalidad_2010_2017 (2).csv
```

[399]:
```
df = pd.read_csv(io.BytesIO(uploaded['Tasa_Informalidad_2010_2017.csv']))
print(df)
```

```
   Date  Tasa
0  2010  80.4
1  2011  81.9
```

```
2  2012  83.7
3  2013  82.7
4  2014  79.0
5  2015  80.9
6  2016  79.8
7  2017  82.6
```

[400]:
```
import seaborn as sns
import math
sns.set_context('talk')

sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax1 = plt.subplots(figsize=(12,9))

sns.lineplot(x = df['Date'],
             y = df['Tasa'],
             color='#965786',
             marker="o",
             ax=ax1)


label_comma_bar_porcentaje_line(ax1, typ = 'line_color_#965786')
fig.tight_layout()

ax1.spines['top'].set_visible(False)
ax1.spines['right'].set_visible(False)
ax1.spines['left'].set_visible(False)
ax1.spines['bottom'].set_color('#DDDDDD')
ax1.tick_params(bottom=False, left=False)
ax1.set_axisbelow(True)
ax1.yaxis.grid(True, color='#EEEEEE')
ax1.xaxis.grid(False)

ax1.set_xlabel('Año')
ax1.set_title('Tasa de Ocupación Informal de Honduras\n'
'(periodo del 2010 al 2017)', pad=15)

ax1.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/100)))

plt.savefig('Tasa_Informal.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
```



9 Plot - Tasa Informal Segun Sexo

[401]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>


Saving Tasa_Informa_Sex.csv to Tasa_Informa_Sex (1).csv
```

[402]:
```
df = pd.read_csv(io.BytesIO(uploaded['Tasa_Informa_Sex.csv']))
print(df)
```

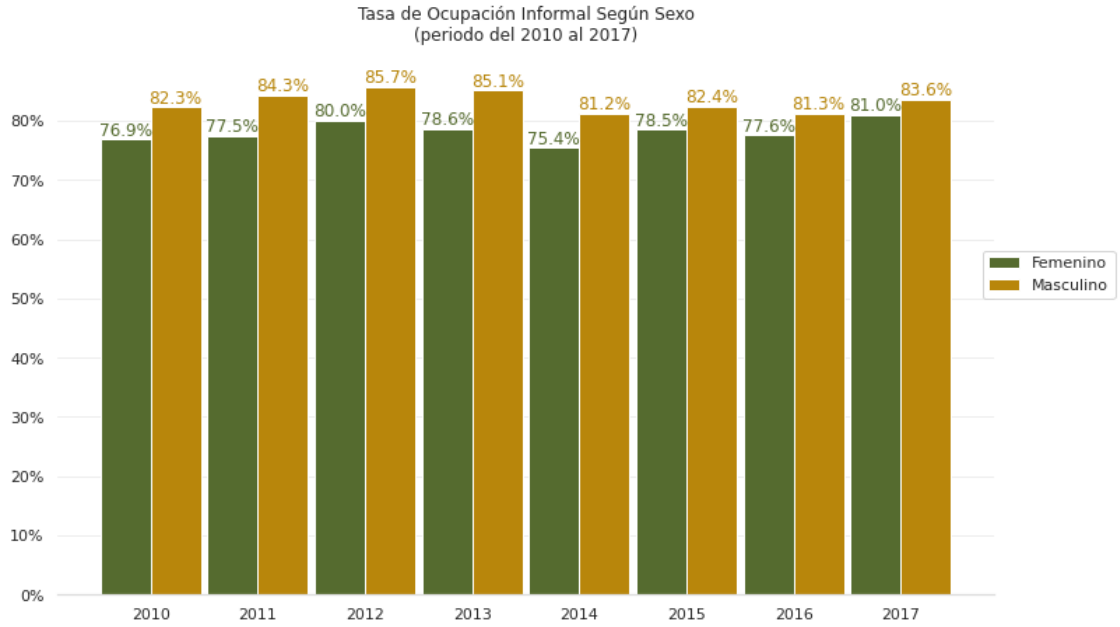
```
   Date  Femenino  Masculino
0  2010      76.9       82.3
1  2011      77.5       84.3
2  2012      80.0       85.7
3  2013      78.6       85.1
```

```
4  2014      75.4       81.2
5  2015      78.5       82.4
6  2016      77.6       81.3
7  2017      81.0       83.6
```

[403]:
```
import seaborn as sns
import math
sns.set_context('talk')

sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax = plt.subplots(figsize = (12,7))

x = np.arange(len(df.Date.unique()))

bar_width = 0.47

b1 = ax.bar(x, df["Femenino"], bar_width, color='darkolivegreen',label =␣
 ↪"Femenino")

b2 = ax.bar(x+bar_width, df["Masculino"], bar_width, color =␣
 ↪'darkgoldenrod',label = "Masculino")

ax.set_xticks(x + bar_width / 2)
ax.set_xticklabels(df.Date.unique())

ax.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))

ax.spines['top'].set_visible(False)
ax.spines['right'].set_visible(False)
ax.spines['left'].set_visible(False)
ax.spines['bottom'].set_color('#DDDDDD')
ax.tick_params(bottom=False, left=False)
ax.set_axisbelow(True)
ax.yaxis.grid(True, color='#EEEEEE')
ax.xaxis.grid(False)

for bar in ax.patches:
  bar_value = bar.get_height()
  text = '{:.1%}'.format(bar_value/100)
  text_x = bar.get_x() + bar.get_width() / 2
  text_y = bar.get_y() + bar_value
  bar_color = bar.get_facecolor()
  ax.text(text_x, text_y, text, ha='center', va='bottom', color=bar_color,
          size=12)

ax.set_title('Tasa de Ocupación Informal Según Sexo\n'
```

```
'(periodo del 2010 al 2017)', pad=15)

ax.legend(bbox_to_anchor=(0.98, 0.66))

plt.savefig('Tasa_Informal_Sexo.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```



10 Plot - Crecimiento Economico Mundial

[404]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving crec_eco_mundial_prueba.csv to crec_eco_mundial_prueba (6).csv
```

[405]:
```
df = pd.read_csv(io.BytesIO(uploaded['crec_eco_mundial_prueba.csv']))
print(df)
```

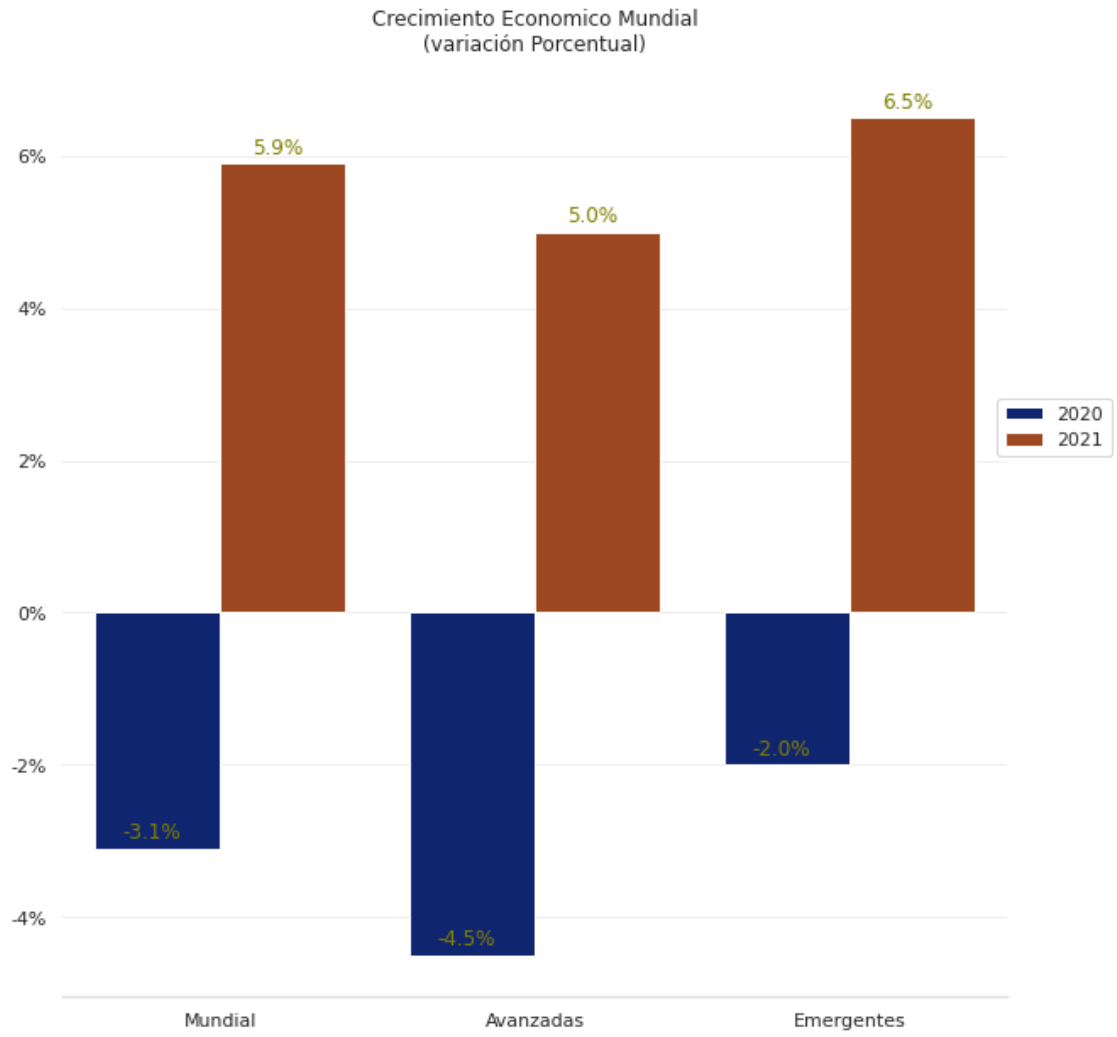
```
    Año   Economias   tasa
0  2020     Mundial -0.031
1  2021     Mundial  0.059
2  2020   Avanzadas -0.045
3  2021   Avanzadas  0.050
4  2020  Emergentes -0.020
5  2021  Emergentes  0.065
```

[406]:
```
# Funcion a necesitar

import math
def add_value_labels2(ax, typ, spacing=5):
    space = spacing
    va = 'bottom'

    if typ == 'bar':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label = '{:.1%}'.format(y_value)
            ax.annotate(label,(x_value, y_value), xytext=(-3, 3),
                    textcoords="offset points", ha='center', va=va,
                    color = 'olive')
```

[407]:
```
sns.set_theme(style="whitegrid")

plt.figure(figsize = (10,10))

ax = sns.barplot(
    data = df,
    x = 'Economias',y = 'tasa',hue = 'Año',alpha=1,
    palette = 'dark'
)

ax.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y)))

ax.spines['top'].set_visible(False)
ax.spines['right'].set_visible(False)
ax.spines['left'].set_visible(False)
ax.spines['bottom'].set_color('#DDDDDD')
ax.tick_params(bottom=False, left=False)
ax.set_axisbelow(True)
ax.yaxis.grid(True, color='#EEEEEE')
```

```
ax.xaxis.grid(False)

add_value_labels2(ax, typ = 'bar')
fig.tight_layout()

ax.set_xlabel('')
ax.set_ylabel('')
ax.set_title('Crecimiento Economico Mundial\n'
'(variación Porcentual)', pad=15)

ax.legend(bbox_to_anchor=(0.98, 0.66))

plt.savefig('Crecim_Econo_Mund.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
sns.set()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```



11 Plot - Inflacion Mundial

[409]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving Inflacion_mundial.csv to Inflacion_mundial (4).csv
```

[410]:
```
df = pd.read_csv(io.BytesIO(uploaded['Inflacion_mundial.csv']))
print(df)
```

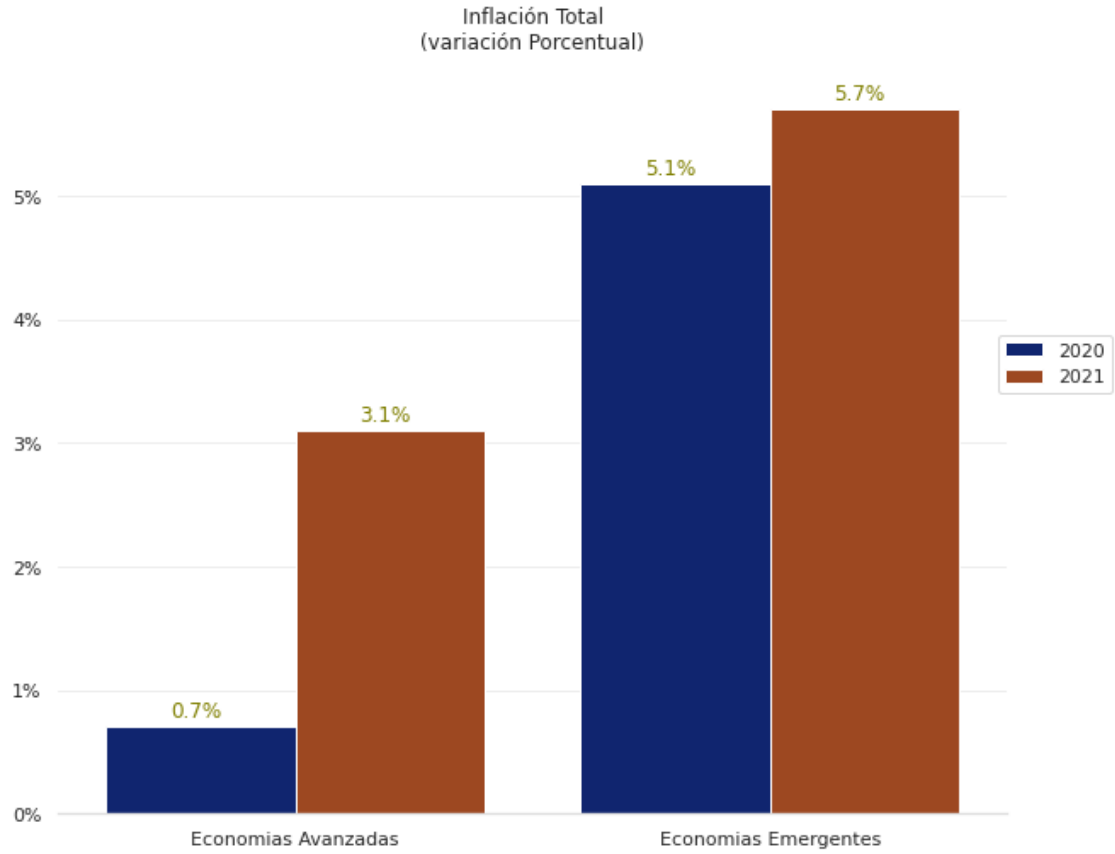
```
   Date             Economias  tasa
0  2020   Economias Avanzadas   0.7
1  2021   Economias Avanzadas   3.1
2  2020  Economias Emergentes   5.1
3  2021  Economias Emergentes   5.7
```

[44]:
```
# Funcion a necesitar

import math
def add_value_labels2(ax, typ, spacing=5):
    space = spacing
    va = 'bottom'

    if typ == 'bar':
        for i in ax.patches:
            y_value = i.get_height()
            x_value = i.get_x() + i.get_width() / 2

            label = '{:.2%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(-3, 3),
                    textcoords="offset points", ha='center', va=va,
                    color = 'olive')
```

[412]:
```
sns.set_theme(style="whitegrid")

plt.figure(figsize = (10,8))

ax = sns.barplot(
    data = df,
    x = 'Economias',y = 'tasa',hue = 'Date',alpha=1,
    palette = 'dark'
)

ax.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))

ax.spines['top'].set_visible(False)
ax.spines['right'].set_visible(False)
ax.spines['left'].set_visible(False)
ax.spines['bottom'].set_color('#DDDDDD')
ax.tick_params(bottom=False, left=False)
ax.set_axisbelow(True)
ax.yaxis.grid(True, color='#EEEEEE')
ax.xaxis.grid(False)

add_value_labels2(ax, typ = 'bar')
fig.tight_layout()
```

```
ax.set_xlabel('')
ax.set_ylabel('')
ax.set_title('Inflación Total\n'
'(variación Porcentual)', pad=15)

ax.legend(bbox_to_anchor=(0.98, 0.66))

plt.savefig('Econo_Inflac.eps', format = 'eps', pdi = 1000,bbox_inches = "tight")
plt.show()
sns.set()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```



12 Plot - Proyeccion Inflacon - 2021 - 2023

[ ]:
```
from google.colab import files


uploaded = files.upload()
```

```
<IPython.core.display.HTML object>


Saving inflacion_proyect_21_23.csv to inflacion_proyect_21_23.csv
```

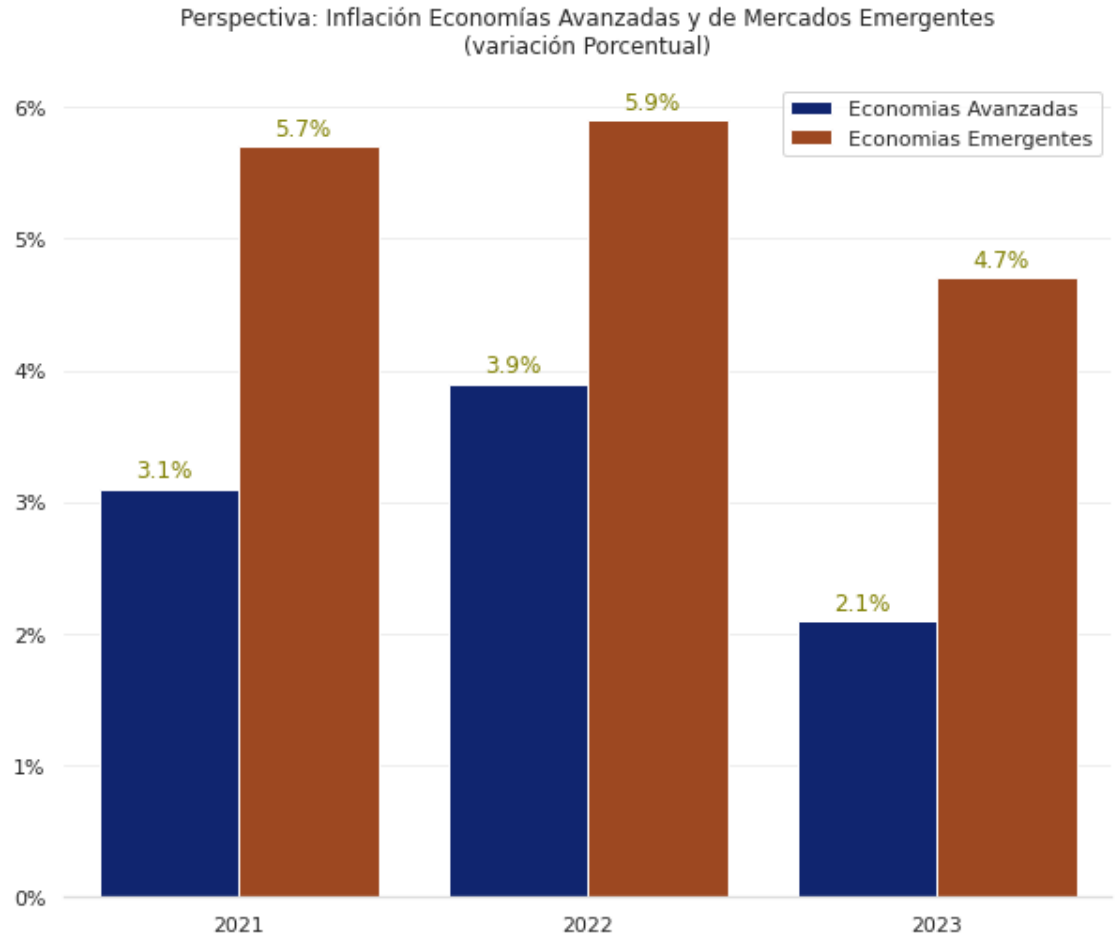
[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['inflacion_proyect_21_23.csv']))
print(df)
```

```
   date             Economias  tasa
0  2021   Economias Avanzadas   3.1
1  2022   Economias Avanzadas   3.9
2  2023   Economias Avanzadas   2.1
3  2021  Economias Emergentes   5.7
4  2022  Economias Emergentes   5.9
5  2023  Economias Emergentes   4.7
```

[ ]:
```
sns.set_theme(style="whitegrid")

plt.figure(figsize = (10,8))

ax = sns.barplot(
    data = df,
    x = 'date',y = 'tasa',hue = 'Economias',alpha=1,
    palette = 'dark'
)

ax.yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.0%}'.format(y/100)))

ax.spines['top'].set_visible(False)
ax.spines['right'].set_visible(False)
ax.spines['left'].set_visible(False)
ax.spines['bottom'].set_color('#DDDDDD')
ax.tick_params(bottom=False, left=False)
ax.set_axisbelow(True)
ax.yaxis.grid(True, color='#EEEEEE')
ax.xaxis.grid(False)

add_value_labels2(ax, typ = 'bar')
fig.tight_layout()

ax.set_xlabel('')
```

```
ax.set_ylabel('')
ax.set_title('Perspectiva: Inflación Economías Avanzadas y de Mercados␣
 ↪Emergentes\n'
'(variación Porcentual)', pad=15)

ax.legend(bbox_to_anchor=(1, 1))

plt.savefig('perspect_inf_econo.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
sns.set()
```

```
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
WARNING:matplotlib.backends.backend_ps:The PostScript backend does not support
transparency; partially transparent artists will be rendered opaque.
```



13 Plot - Inflación por Rubro

[5]:
```
from google.colab import files
uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving Inflacion_PRT.csv to Inflacion_PRT.csv
```

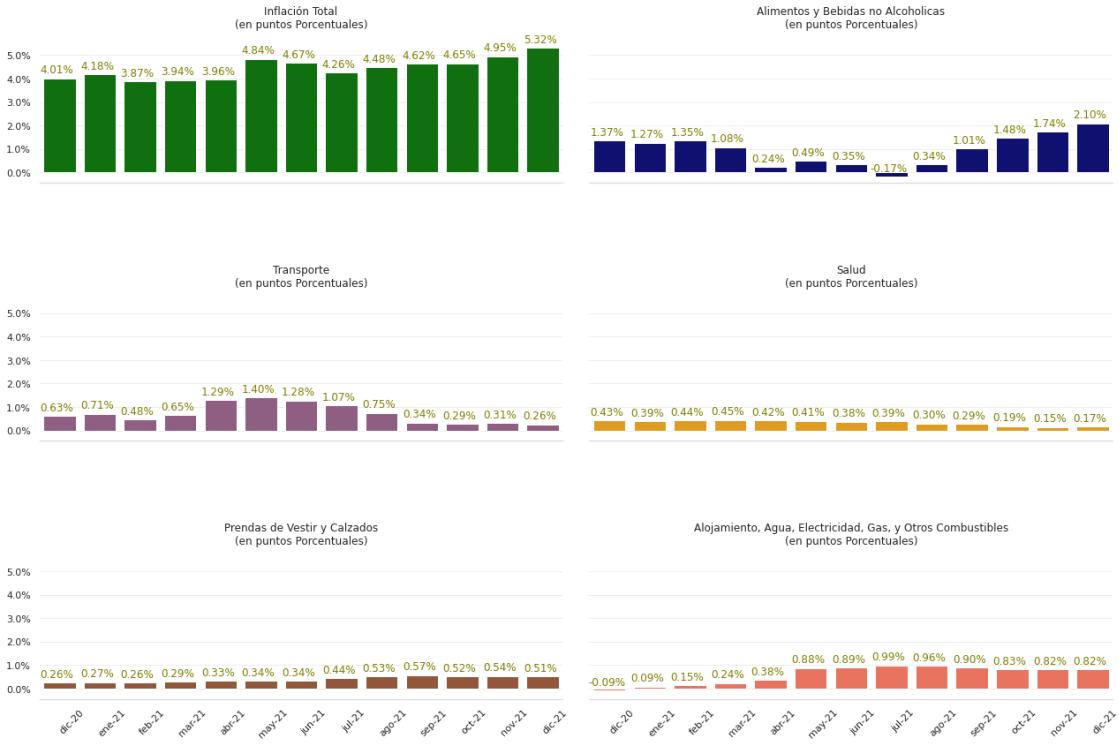
[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['Inflacion_PRT.csv']))
print(df)
```

[50]:
```
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax = plt.subplots(3,2,sharey = True,figsize = (18,12))
x = np.arange(len(df.Date.unique()))
g1 = sns.barplot(
    data = df,
    x = 'Date',y = 'Inflacion Total',alpha=1,
    color = 'green',
    #marker = 'o',
    ax = ax[0,0]
)

g2 = sns.barplot(
    data = df,
    x = 'Date',y = 'Alimentos y Bebidas no Alcoholicas',alpha=1,
    color = 'Navy',
    #marker = 'o',
    ax = ax[0,1]
)

g3 = sns.barplot(
    data = df,
    x = 'Date',y = 'Transporte',alpha=1,
    color = '#965786',
    #marker = 'o',
    ax = ax[1,0]
)

g4 = sns.barplot(
    data = df,
    x = 'Date',y = 'Salud',alpha=1,
    color = 'orange',
    #marker = 'o',
```

```
    ax = ax[1,1]
)

g5 = sns.barplot(
    data = df,
    x = 'Date',y = 'Prendas de Vestir y Calzados',alpha=1,
    color = 'sienna',
    #marker = 'o',
    ax = ax[2,0]
)

g6 = sns.barplot(
    data = df,
    x = 'Date',y = 'Alojamiento, Agua, Electricidad, Gas, y Otros␣
 ↪Combustibles',alpha=1,
    color = 'tomato',
    #marker = 'o',
    ax = ax[2,1]
)

ax[0,0].yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/
 ↪100)))
ax[0,1].yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/
 ↪100)))

ax[0,0].set_xticks(x + 0.6 / 2)
#ax[0,0].set_xticklabels(df.Date.unique(),rotation=90)
ax[0,0].set_xticklabels(['','','','','','','','','','','','',''])
ax[0,0].spines['top'].set_visible(False)
ax[0,0].spines['right'].set_visible(False)
ax[0,0].spines['left'].set_visible(False)
ax[0,0].spines['bottom'].set_color('#DDDDDD')
ax[0,0].tick_params(bottom=False, left=False)
ax[0,0].set_axisbelow(True)
ax[0,0].yaxis.grid(True, color='#EEEEEE')
ax[0,0].xaxis.grid(False)

#label_comma_bar_porcentaje_line(ax[0,0], typ = 'bar')
add_value_labels2(ax[0,0], typ = 'bar')
add_value_labels2(ax[0,1], typ = 'bar')
add_value_labels2(ax[1,0], typ = 'bar')
add_value_labels2(ax[1,1], typ = 'bar')
add_value_labels2(ax[2,0], typ = 'bar')
add_value_labels2(ax[2,1], typ = 'bar')
fig.tight_layout()

ax[0,0].set_xlabel('')
```

```
ax[0,0].set_ylabel('')
ax[0,1].set_ylabel('')
ax[0,1].set_xlabel('')
ax[1,0].set_xlabel('')
ax[1,0].set_ylabel('')
ax[1,1].set_xlabel('')
ax[1,1].set_ylabel('')
ax[2,0].set_xlabel('')
ax[2,0].set_ylabel('')
ax[2,1].set_xlabel('')
ax[2,1].set_ylabel('')
ax[0,0].set_title('Inflación Total\n'
'(en puntos Porcentuales)', pad=15)
ax[0,1].set_title('Alimentos y Bebidas no Alcoholicas\n'
'(en puntos Porcentuales)', pad=15)
# ---------------------------------------
ax[0,1].set_xticks(x + 0.6 / 2)
ax[0,1].set_xticklabels(['','','','','','','','','','','',''])
ax[0,1].spines['top'].set_visible(False)
ax[0,1].spines['right'].set_visible(False)
ax[0,1].spines['left'].set_visible(False)
ax[0,1].spines['bottom'].set_color('#DDDDDD')
ax[0,1].tick_params(bottom=False, left=False)
ax[0,1].set_axisbelow(True)
ax[0,1].yaxis.grid(True, color='#EEEEEE')
ax[0,1].xaxis.grid(False)
# ---------------------------------------
ax[1,0].set_xticks(x + 0.6 / 2)
ax[1,0].set_xticklabels(['','','','','','','','','','','',''])
ax[1,0].spines['top'].set_visible(False)
ax[1,0].spines['right'].set_visible(False)
ax[1,0].spines['left'].set_visible(False)
ax[1,0].spines['bottom'].set_color('#DDDDDD')
ax[1,0].tick_params(bottom=False, left=False)
ax[1,0].set_axisbelow(True)
ax[1,0].yaxis.grid(True, color='#EEEEEE')
ax[1,0].xaxis.grid(False)
ax[1,0].set_title('Transporte\n'
'(en puntos Porcentuales)', pad=15)
# ---------------------------------------
ax[1,1].set_xticks(x + 0.6 / 2)
ax[1,1].set_xticklabels(['','','','','','','','','','','',''])
ax[1,1].spines['top'].set_visible(False)
ax[1,1].spines['right'].set_visible(False)
ax[1,1].spines['left'].set_visible(False)
ax[1,1].spines['bottom'].set_color('#DDDDDD')
ax[1,1].tick_params(bottom=False, left=False)
```

```
ax[1,1].set_axisbelow(True)
ax[1,1].yaxis.grid(True, color='#EEEEEE')
ax[1,1].xaxis.grid(False)
ax[1,1].set_title('Salud\n'
'(en puntos Porcentuales)', pad=15)
# ------------------------------------
ax[2,0].set_xticks(x + 0.6 / 2)
ax[2,0].set_xticklabels(df.Date.unique(),rotation = 45)
ax[2,0].spines['top'].set_visible(False)
ax[2,0].spines['right'].set_visible(False)
ax[2,0].spines['left'].set_visible(False)
ax[2,0].spines['bottom'].set_color('#DDDDDD')
ax[2,0].tick_params(bottom=False, left=False)
ax[2,0].set_axisbelow(True)
ax[2,0].yaxis.grid(True, color='#EEEEEE')
ax[2,0].xaxis.grid(False)
ax[2,0].set_title('Prendas de Vestir y Calzados\n'
'(en puntos Porcentuales)', pad=15)
# ------------------------------------
ax[2,1].set_xticks(x + 0.6 / 2)
ax[2,1].set_xticklabels(df.Date.unique(),rotation = 45)
ax[2,1].spines['top'].set_visible(False)
ax[2,1].spines['right'].set_visible(False)
ax[2,1].spines['left'].set_visible(False)
ax[2,1].spines['bottom'].set_color('#DDDDDD')
ax[2,1].tick_params(bottom=False, left=False)
ax[2,1].set_axisbelow(True)
ax[2,1].yaxis.grid(True, color='#EEEEEE')
ax[2,1].xaxis.grid(False)
ax[2,1].set_title('Alojamiento, Agua, Electricidad, Gas, y Otros Combustibles\n'
'(en puntos Porcentuales)', pad=15)

plt.savefig('Inflacion_PRT.eps', format = 'eps', pdi = 1000,bbox_inches =␣
 ↪"tight")
plt.show()
```



14 Plot - Balanza de Pagos

[73]:
```
from google.colab import files
uploaded = files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving Balanza_Pagos.csv to Balanza_Pagos.csv
```

[ ]:
```
df = pd.read_csv(io.BytesIO(uploaded['Balanza_Pagos.csv']))
print(df)
```

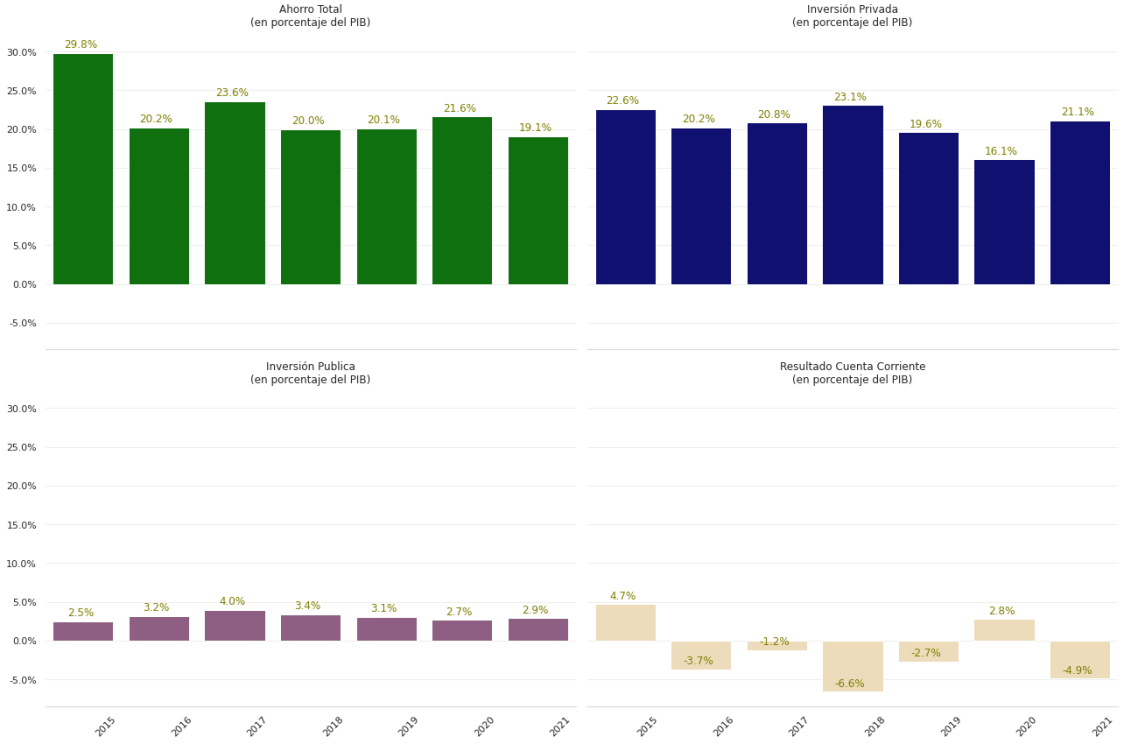
[95]:
```
# Funcion a necesitar

import math
def add_value_labels2(ax, typ, spacing=5):
    space = spacing
    va = 'bottom'

    if typ == 'bar':
        for i in ax.patches:
            y_value = i.get_height()
```

```
            x_value = i.get_x() + i.get_width() / 2

            label = '{:.1%}'.format(y_value/100)
            ax.annotate(label,(x_value, y_value), xytext=(-3, 3),
                    textcoords="offset points", ha='center', va=va,
                    color = 'olive')
```

[100]:
```
sns.set_context("talk")
sns.set_style("whitegrid")
sns.set(style="white", rc={"lines.linewidth": 3})

fig, ax = plt.subplots(2,2,sharey = True,figsize = (18,12))
x = np.arange(len(df.Date.unique()))
g1 = sns.barplot(
    data = df,
    x = 'Date',y = 'Ahorro Total',alpha=1,
    color = 'green',
    #marker = 'o',
    ax = ax[0,0]
)

g2 = sns.barplot(
    data = df,
    x = 'Date',y = 'Inversion Privada',alpha=1,
    color = 'Navy',
    #marker = 'o',
    ax = ax[0,1]
)

g3 = sns.barplot(
    data = df,
    x = 'Date',y = 'Inversion Publica',alpha=1,
    color = '#965786',
    #marker = 'o',
    ax = ax[1,0]
)

g4 = sns.barplot(
    data = df,
    x = 'Date',y = 'Resultado cuenta corriente',alpha=1,
    color = 'wheat',
    #marker = 'o',
    ax = ax[1,1]
)

ax[0,0].yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/
 ↪100)))
```

```
ax[0,1].yaxis.set_major_formatter(FuncFormatter(lambda y, _: '{:.1%}'.format(y/
 ↪100)))


# ------------------------------------------------
ax[0,0].set_xlabel('')
ax[0,0].set_ylabel('')
ax[0,1].set_ylabel('')
ax[0,1].set_xlabel('')
ax[1,0].set_xlabel('')
ax[1,0].set_ylabel('')
ax[1,1].set_xlabel('')
ax[1,1].set_ylabel('')
# ------------------------------------------------
ax[0,0].set_xticks(x + 0.6 / 2)
ax[0,0].set_xticklabels(['','','','','','','',''])
ax[0,0].spines['top'].set_visible(False)
ax[0,0].spines['right'].set_visible(False)
ax[0,0].spines['left'].set_visible(False)
ax[0,0].spines['bottom'].set_color('#DDDDDD')
ax[0,0].tick_params(bottom=False, left=False)
ax[0,0].set_axisbelow(True)
ax[0,0].yaxis.grid(True, color='#EEEEEE')
ax[0,0].xaxis.grid(False)
ax[0,0].set_title('Ahorro Total\n'
'(en porcentaje del PIB)', pad=15)
# ------------------------------------------------
ax[0,1].set_xticks(x + 0.6 / 2)
ax[0,1].set_xticklabels(['','','','','','','',''])
ax[0,1].spines['top'].set_visible(False)
ax[0,1].spines['right'].set_visible(False)
ax[0,1].spines['left'].set_visible(False)
ax[0,1].spines['bottom'].set_color('#DDDDDD')
ax[0,1].tick_params(bottom=False, left=False)
ax[0,1].set_axisbelow(True)
ax[0,1].yaxis.grid(True, color='#EEEEEE')
ax[0,1].xaxis.grid(False)
ax[0,1].set_title('Inversión Privada\n'
'(en porcentaje del PIB)', pad=15)
# ------------------------------------------------
ax[1,0].set_xticks(x + 0.6 / 2)
ax[1,0].set_xticklabels(df.Date.unique(),rotation = 45)
ax[1,0].spines['top'].set_visible(False)
ax[1,0].spines['right'].set_visible(False)
ax[1,0].spines['left'].set_visible(False)
ax[1,0].spines['bottom'].set_color('#DDDDDD')
ax[1,0].tick_params(bottom=False, left=False)
```

```
ax[1,0].set_axisbelow(True)
ax[1,0].yaxis.grid(True, color='#EEEEEE')
ax[1,0].xaxis.grid(False)
ax[1,0].set_title('Inversión Publica\n'
'(en porcentaje del PIB)', pad=15)
# -----------------------------------------------
ax[1,1].set_xticks(x + 0.6 / 2)
ax[1,1].set_xticklabels(df.Date.unique(),rotation = 45)
ax[1,1].spines['top'].set_visible(False)
ax[1,1].spines['right'].set_visible(False)
ax[1,1].spines['left'].set_visible(False)
ax[1,1].spines['bottom'].set_color('#DDDDDD')
ax[1,1].tick_params(bottom=False, left=False)
ax[1,1].set_axisbelow(True)
ax[1,1].yaxis.grid(True, color='#EEEEEE')
ax[1,1].xaxis.grid(False)
ax[1,1].set_title('Resultado Cuenta Corriente\n'
'(en porcentaje del PIB)', pad=15)

# -----------------------------------------------
add_value_labels2(ax[0,0], typ = 'bar')
add_value_labels2(ax[0,1], typ = 'bar')
add_value_labels2(ax[1,0], typ = 'bar')
add_value_labels2(ax[1,1], typ = 'bar')
fig.tight_layout()

plt.savefig('Brecha_Ahorro_Inversion.eps', format = 'eps', pdi =␣
 ↪1000,bbox_inches = "tight")
```


Ahorro Total
(en porcentaje del PIB)
29.8%
20.2%
23.6%
20.0%
20.1%
21.6%
19.1%
Inversión Privada
(en porcentaje del PIB)
22.6%
20.2%
20.8%
23.1%
19.6%
16.1%
21.1%
Inversión Publica
(en porcentaje del PIB)
2.5%
3.2%
4.0%
3.4%
3.1%
2.7%
2.9%
Resultado Cuenta Corriente
(en porcentaje del PIB)
4.7%
-3.7%
-1.2%
-6.6%
-2.7%
2.8%
-4.9%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
-5.0%
2015
2016
2017
2018
2019
2020
2021