Lecture 4 Macroeconomics Data

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1 Implied inflation rate

1.1 Download data from FRED

[1]:
```
import numpy as np
import pandas as pd
import pandas_datareader as pdr

TR5Y = pdr.data.DataReader('GS5','fred')
TIPS5Y = pdr.data.DataReader('FII5','fred')

TIPS = pd.DataFrame(index=TIPS5Y.index)
TIPS['TR5Y'] = TR5Y
TIPS['TIPS5Y'] = TIPS5Y
TIPS.tail()
```

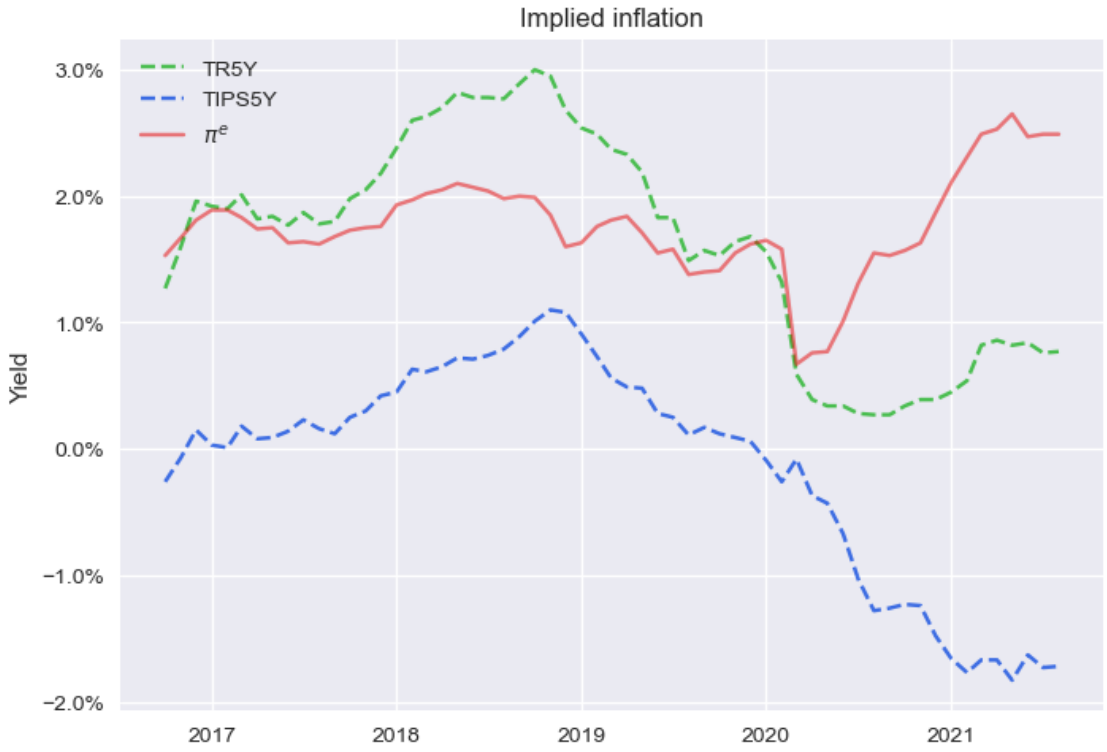
[1]:

DATE	TR5Y	TIPS5Y
2021-04-01	0.86	-1.67
2021-05-01	0.82	-1.83
2021-06-01	0.84	-1.63
2021-07-01	0.76	-1.73
2021-08-01	0.77	-1.72

1.2 Compute and plot implied inflation

[5]:
```
import matplotlib.pyplot as plt
import matplotlib.ticker as mtick
import seaborn as sns

plt.style.use('seaborn')

fig = plt.figure()
ax = fig.add_subplot(1, 1, 1)
plt.ylabel('Yield')
plt.plot(TIPS.index, TIPS['TR5Y'], '--', color='xkcd:green', alpha=0.75)
```

```
plt.plot(TIPS.index, TIPS['TIPS5Y'], '--', color='xkcd:blue', alpha=0.75)
plt.plot(TIPS.index, TIPS['TR5Y'] - TIPS['TIPS5Y'], '-', color='xkcd:red',␣
 ↪alpha=0.5)
plt.legend(['TR5Y', 'TIPS5Y','$\pi^{e}$'])
ax.yaxis.set_major_formatter(mtick.PercentFormatter())
plt.title('Implied inflation')
plt.show()
```



2 Policy rates

2.1 Download data from DBnomics

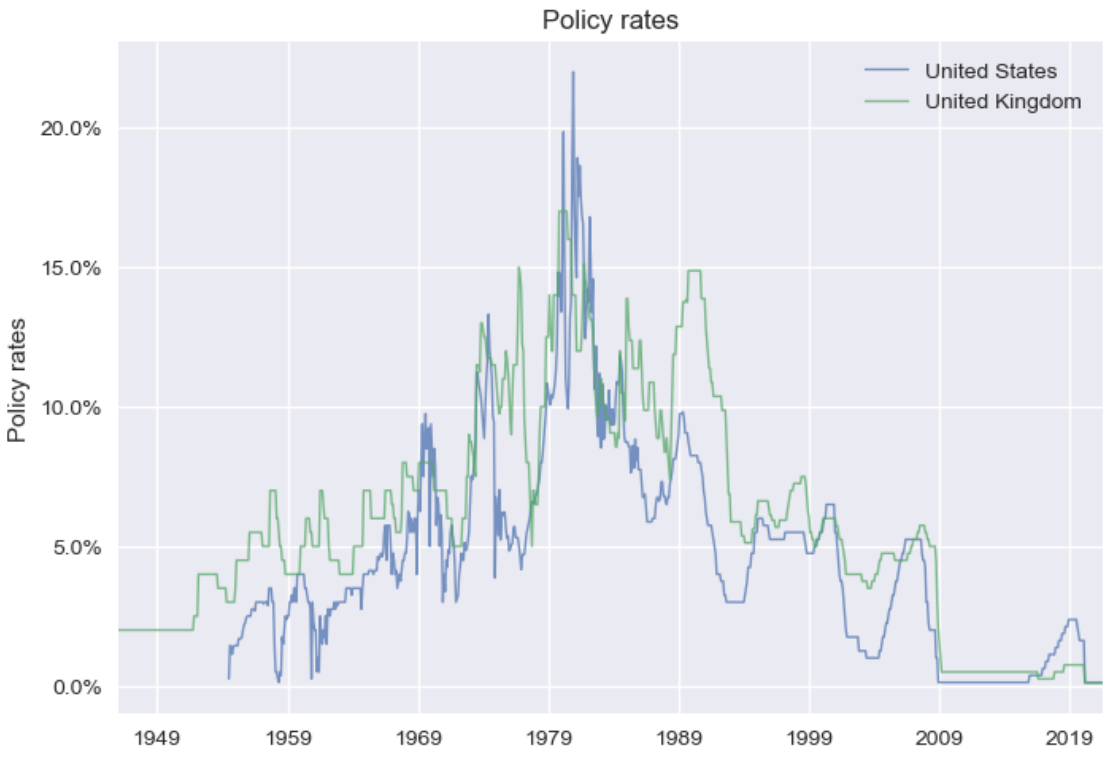
[3]:
```
from dbnomics import fetch_series, fetch_series_by_api_link
source = 'BIS/cbpol/M.'

countries = ['US', 'GB']
label=['United States', 'United Kingdom']
ctr = 0
for i in countries:
    print(i)
    ticker = source + i
    rate = fetch_series(ticker)
    rate[label[ctr]] = rate['value']
    rate = rate[['period', label[ctr]]]
    rate = rate.set_index('period')
    rate.fillna(method='ffill', inplace=True)
    try:
        prate = pd.concat([prate, rate],axis=1)
    except:
        prate = rate
    ctr += 1
prate.head()
```

```
US
GB
```

[3]:

period	United States	United Kingdom
1946-01-01	NaN	2.0
1946-02-01	NaN	2.0
1946-03-01	NaN	2.0
1946-04-01	NaN	2.0
1946-05-01	NaN	2.0

[6]:
```
fig = plt.figure()
ax = prate.plot( alpha=0.75, linewidth=1)
ax.yaxis.set_major_formatter(mtick.PercentFormatter())
plt.ylabel('Policy rates')
plt.xlabel('')
plt.legend(loc='best')
plt.title('Policy rates')
plt.show()
```


Policy rates
United States
United Kingdom
Policy rates
20.0%
15.0%
10.0%
5.0%
0.0%
1949
1959
1969
1979
1989
1999
2009
2019