Analysis of IPC thresholds at a national level

This notebook examines the conditions under which the trigger mechanism threshold of 20% of the population or more in or above IPC Phase 3 was reached in Somalia.

In [9]:
```
# imports
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
import numpy as np
from matplotlib.pyplot import figure
import warnings
warnings.filterwarnings('ignore')

import ipc_pop_data as ipd
```

In [10]:
```
input_file = 'IPC Population Figures Tracking Sheet.xlsx'
country = "Somalia"
somalia_ipc = ipd.xl_pop_sheet_extract(input_file, country)
```

In [11]:
```
somalia_ipc.columns
```

Out[11]:
```
Index(['country', 'pop', 'date', 'dt-str', 'rev_pop', '%pop', 'period'
,
       'period-str', 'IPC1-pop', 'IPC1-%rev_pop', 'IPC2-pop', 'IPC2-%r
ev_pop',
       'IPC3-pop', 'IPC3-%rev_pop', 'IPC4-pop', 'IPC4-%rev_pop', 'IPC5
-pop',
       'IPC5-%rev_pop', 'IPC3>-pop', 'IPC3>-%rev_pop', 'P-st-period',
       'P-st-period-str', 'P-end-period', 'P-end-period-str', 'P-IPC1-
pop',
       'P-IPC1-%rev_pop', 'P-IPC2-pop', 'P-IPC2-%rev_pop', 'P-IPC3-pop
',
       'P-IPC3-%rev_pop', 'P-IPC4-pop', 'P-IPC4-%rev_pop', 'P-IPC5-pop
',
       'P-IPC5-%rev_pop', 'P-IPC3>-pop', 'P-IPC3>-%rev_pop'],
      dtype='object')
```

Thresholds

According to the actual data collected, the threshold was reached in August 2017. However, the thresholds were triggered by projections for two periods - February 2017 to June 2017 and August 2017 to December 2017.

In [12]:
```
# Print dates when CERF threshold reached of 20% of total population (as
threshold = somalia_ipc.loc[somalia_ipc['IPC3>-pop']/somalia_ipc['pop'] >
print("Actual threshold reached")
print(threshold['date'])
```

```
Actual threshold reached
215   2017-08-01
Name: date, dtype: datetime64[ns]
```

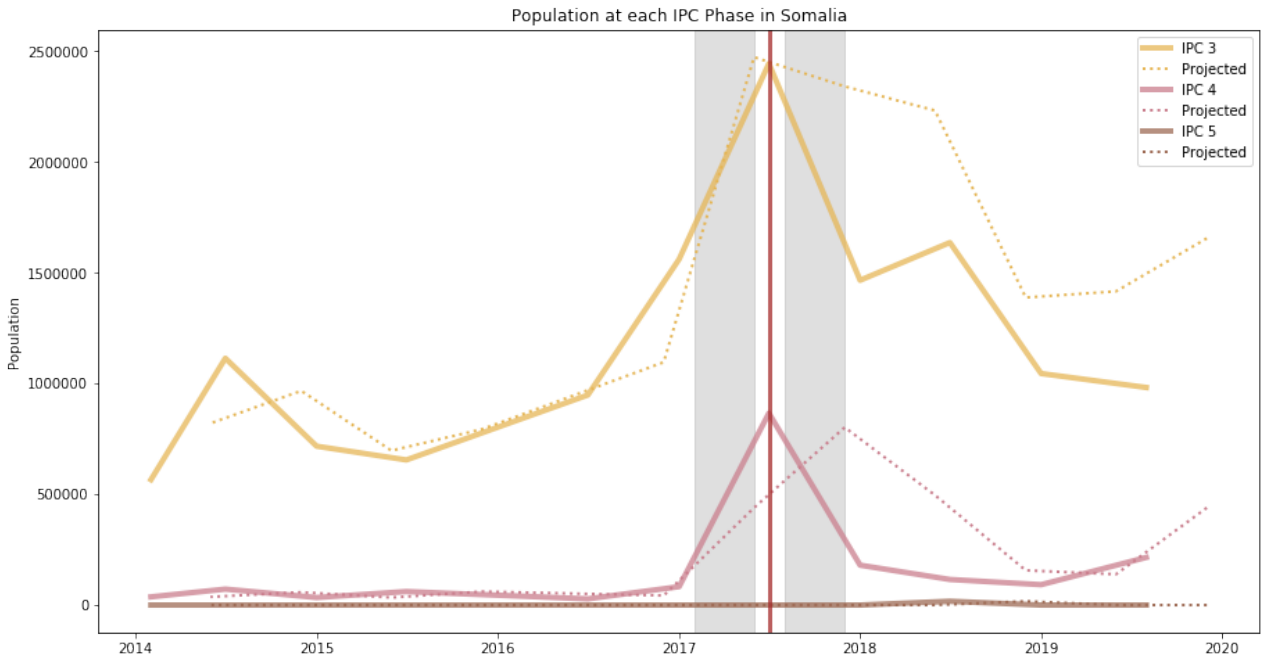
In [13]:
```
# Find projected thresholds, if any
proj_threshold = somalia_ipc.loc[somalia_ipc['P-IPC3>-pop']/somalia_ipc[
print("Projected threshold reached")
print(proj_threshold[['P-st-period', 'P-end-period']])
```

```
Projected threshold reached
    P-st-period P-end-period
215  2017-08-01   2017-12-01
216  2017-02-01   2017-06-01
```

Timeseries

The plot below shows the actual and projected IPC phases in Somalia from 2014 to the end of 2019, along with the periods during which the advance funding mechanism would have been triggered. The projected thresholds are shown in grey, and actual threshold is shown in red.

In [14]:
```
ipd.line_chart(somalia_ipc, [False, False, True, True, True])
```



Next steps

1. Can the accuracy of the projections be improved by using external indicators, such as World Food Prices or WSRI?
2. How often were the thresholds predicted at a sub-national level?

In [ ]:
```

```