In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

In [2]:
```
coffee_production = pd.read_csv("../Maven Python Course/total-production.csv").T
coffee_production.columns=coffee_production.iloc[0]
coffee_production.drop("total_production" , inplace=True)
```

In [3]:
```
coffee_production.head()
```

Out[3]:

total_production	Angola	Bolivia (Plurinational State of)	Brazil	Burundi	Ecuador	Indonesia	Madagascar	Mala
1990	50.345	122.777	27285.6286	487.393	1503.815	7441.383	982.447	104.6
1991	79.331	103.536	27293.4934	667.199	2123.824	8493.196	932.513	124.2
1992	77.52	120.235	34603.3542	620.238	1185.48	5569.478	1121.684	137.1
1993	32.608	50.823	28166.9786	393.354	2069.007	6743.288	441.859	62.1
1994	76.802	116.944	28192.047	664.143	2375.766	5367.878	641.372	84.1

5 rows × 56 columns

In [4]:
```
axes_settings = {
    "spines.top":False,
    "spines.right" : False ,

}
plt.rc("axes" , **axes_settings)
```

In [5]:
```
brazil_vs_others = (coffee_production
                    .assign(rest_of_world = coffee_production.drop("Brazil" , axis=1).
                    .loc[: , ["Brazil" , "rest_of_world"]]
                   )
brazil_vs_others.head()
```

Out[5]:

total_production	Brazil	rest_of_world
1990	27285.6286	65944.431
1991	27293.4934	73973.191
1992	34603.3542	63922.545
1993	28166.9786	63597.643
1994	28192.047	65121.147

In [6]:
```
coffee_production["rest_of_world"] = coffee_production.drop([
    "Brazil" , "Viet Nam" , "Colombia","Indonesia","Ethiopia"],
    axis=1).sum(axis=1)
coffee_production_top5_2018 = coffee_production.loc['2018' ,
                                                    ["Brazil" , "Viet Nam" , "Colombia"
```

```
                                                    "Ethiopia","rest_of_world"]]
pd.DataFrame(coffee_production_top5_2018)
```

Out[6]:

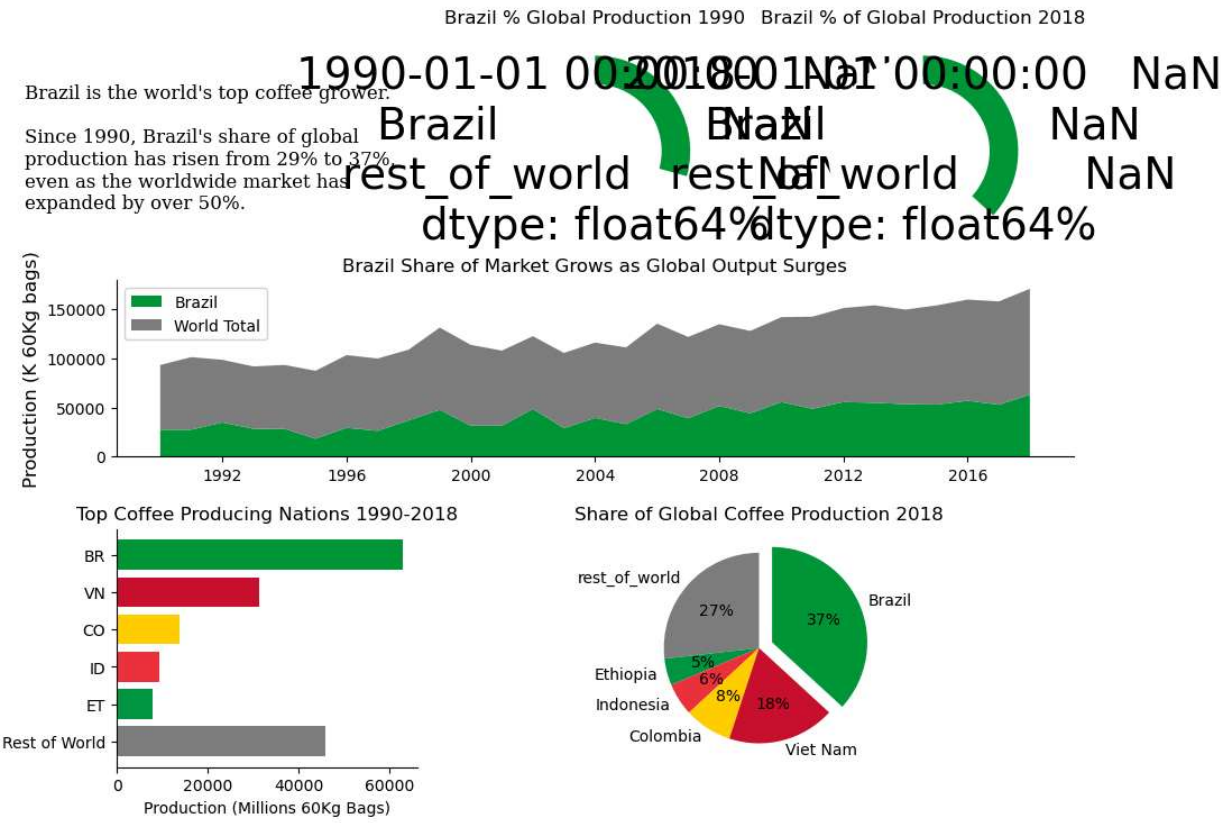
	2018
total_production	
Brazil	62924.8836
Viet Nam	31174.0742
Colombia	13857.962
Indonesia	9417.5942
Ethiopia	7776.2234
rest_of_world	45786.0003

In [7]:
```
brazil_vs_others.index = pd.to_datetime(brazil_vs_others.index, errors='coerce')
brazil_vs_others["Brazil"] = pd.to_numeric(brazil_vs_others["Brazil"], errors='coerce'
brazil_vs_others["rest_of_world"] = pd.to_numeric(brazil_vs_others["rest_of_world"], e

brazil_vs_others.dropna(inplace=True)
```

In [8]:
```
import matplotlib.gridspec as gridspec

fig = plt.figure(figsize=(11, 8.5))
gs = gridspec.GridSpec(nrows=12, ncols=6)

fig.suptitle("Brazil Extends its Dominance in Growing Coffee Market", fontsize=20, for
fig.text(.05, .695,
'''Brazil is the world's top coffee grower.

Since 1990, Brazil's share of global
production has risen from 29% to 37%,
even as the worldwide market has
expanded by over 50%.''', fontsize=12, fontweight='light', fontfamily='serif')

ax1 = fig.add_subplot(gs[0:4, 2:4])
ax1.pie(
    brazil_vs_others.iloc[0].sort_values(ascending=False),
    startangle=90,
    labels=["", ""],
    pctdistance=.85,
    colors=["white", "#009639"]
)
center_circle = plt.Circle((0, 0), 0.70, fc='white')
fig.gca().add_artist(center_circle)
plt.text(
    0, 0,
    f"{round((brazil_vs_others.loc['1990', 'Brazil'] / brazil_vs_others.loc['1990'].su
    ha='center', va='center', fontsize=28
)
ax1.set_title("Brazil % Global Production 1990", fontsize=12)

ax2 = fig.add_subplot(gs[0:4, 4:])
ax2.pie(
    brazil_vs_others.iloc[-1].sort_values(ascending=False),
    startangle=90,
```

```
    labels=["", ""],
    pctdistance=.85,
    colors=["white", "#009639"]
)
center_circle = plt.Circle((0, 0), 0.70, fc='white')
fig.gca().add_artist(center_circle)
plt.text(
    0, 0,
    f"{round((brazil_vs_others.loc['2018', 'Brazil'] / brazil_vs_others.loc['2018'].su
    ha='center', va='center', fontsize=28
)
ax2.set_title("Brazil % of Global Production 2018", fontsize=12)

ax3 = fig.add_subplot(gs[4:7, :])
ax3.stackplot(
    brazil_vs_others.index,
    brazil_vs_others["Brazil"],
    brazil_vs_others["rest_of_world"],
    labels=["Brazil", "World Total"],
    colors=["#009639", "grey"]
)
ax3.set_title("Brazil Share of Market Grows as Global Output Surges")
ax3.set_ylabel("Production (K 60Kg bags)", fontsize=12)
ax3.legend(loc="upper left")

ax4 = fig.add_subplot(gs[8:, 0:2])
ax4.barh(
    y=coffee_production_top5_2018.index[::-1],
    width=coffee_production_top5_2018.iloc[::-1],
    color=["grey", "#009A44", "#EF3340", "#FFCD00", "#C8102E", "#009639"]
)
positions = list(range(6))
labels = ["BR", "VN", "CO", "ID", "ET", "Rest of World"][::-1]
ax4.set_title("Top Coffee Producing Nations 1990-2018")
ax4.set_xlabel("Production (Millions 60Kg Bags)", fontsize=10)
ax4.set_yticks(positions)
ax4.set_yticklabels(labels)

ax5 = fig.add_subplot(gs[8:, 2:])
ax5.pie(
    coffee_production_top5_2018[::-1],
    autopct="%.0f%%",
    labels=list(coffee_production_top5_2018.index[::-1]),
    startangle=90,
    colors=["grey", "#009A44", "#EF3340", "#FFCD00", "#C8102E", "#009639"],
    explode=(0, 0, 0, 0, 0, .15)
)
ax5.set_title("Share of Global Coffee Production 2018")

plt.show()
fig.savefig('brazil_stats.png', bbox_inches='tight', facecolor="white")
```

Brazil Extends its Dominance in Growing Coffee Market



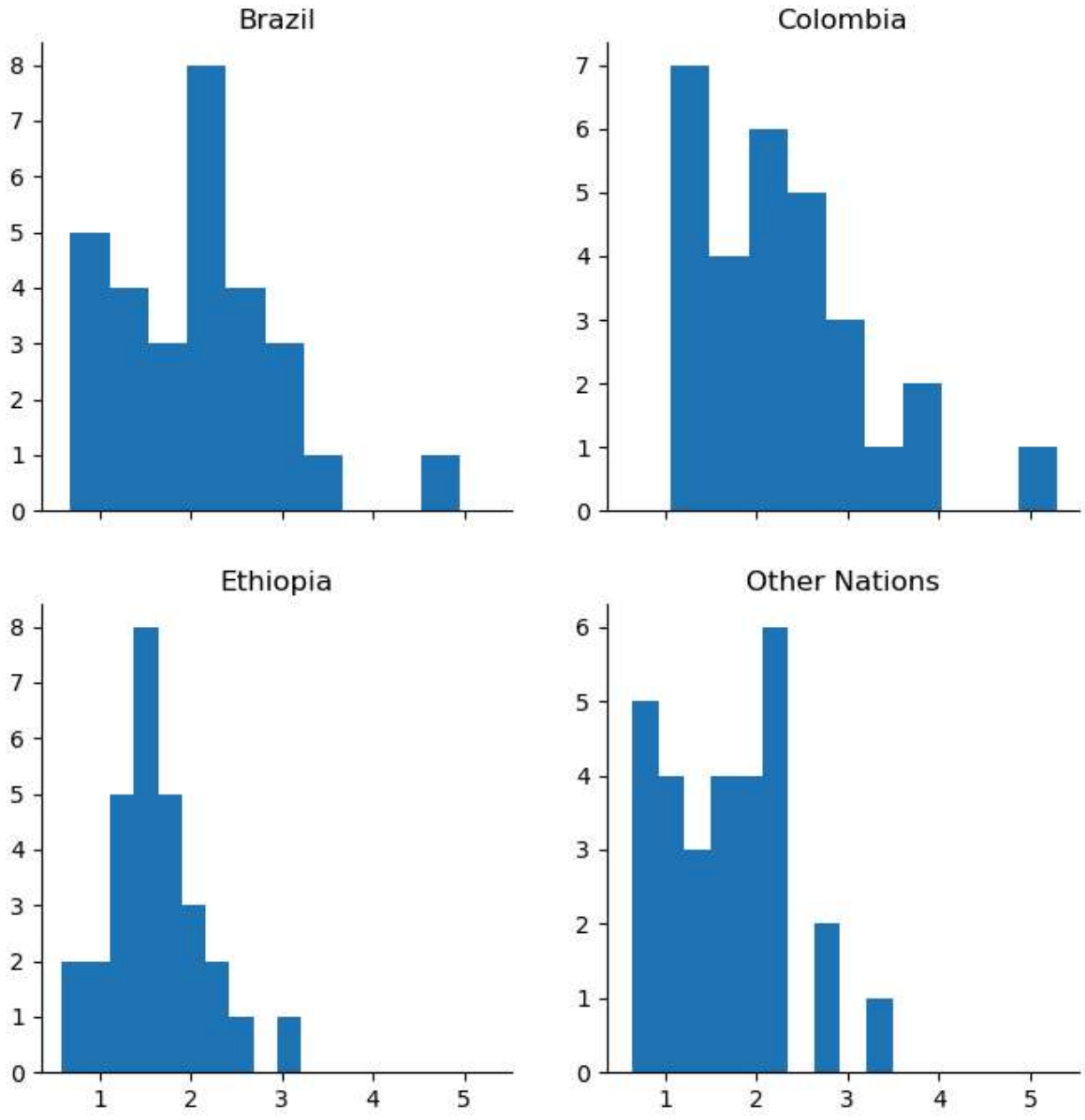
In [11]:
```
prices_paid_to_growers = pd.read_csv("../Maven Python Course/prices-paid-to-growers.cs

prices_paid_to_growers.columns=prices_paid_to_growers.iloc[0]

prices_paid_to_growers.drop("prices_paid_to_growers" , inplace=True)

prices_paid_to_growers["Other Nations"]=prices_paid_to_growers.drop(["Colombia" , "Bra

prices_paid_to_growers.head()
```

Out[11]:

prices_paid_to_growers	Colombia	Dominican Republic	El Salvador	Guatemala	Honduras	India	Uganda	
1990	1.534724	1.458168	1.116194	1.204956	1.11147	1.473558	0.337598	1.1
1991	1.48179	1.382845	0.983322	1.270086	1.238947	1.358371	0.654322	0
1992	1.204656	1.027841	0.682322	0.888099	0.886057	1.191159	0.441397	0.9
1993	1.106477	1.172704	0.780397	0.914552	0.828746	1.278669	0.552298	1.1
1994	1.898327	2.478234	2.191177	1.662711	1.800576	1.73081	1.666651	2

In [14]:
```
fig , ax = plt.subplots(2,2,sharex='all' , figsize=(8,8))

ax[0][0].set_title("Brazil")
ax[0][0].hist(prices_paid_to_growers["Brazil"])

ax[0][1].set_title("Colombia")
ax[0][1].hist(prices_paid_to_growers["Colombia"])
```

```
ax[1][0].set_title("Ethiopia")
ax[1][0].hist(prices_paid_to_growers["Ethiopia"])

ax[1][1].set_title("Other Nations")
ax[1][1].hist(prices_paid_to_growers["Other Nations"])

plt.show()
```



In [ ]: