Project: Economic Power vs. Life Expectancy

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Introduction

> This project will analyze the potential correlation between a country's economic engine and the life expectancy of its populace. The independent variables will be; service as percent of GDP, industry as a percent of GDP, agriculture as a percent of GDP, exports as a percent of GDP, imports as a percent of GDP and GDP per each employee. I futher modified they imported files to exclude countries not the group of eight plus five (G8+5). Finally I isolated the country of South Africa (G8+5 member) and Burundi (non G8+5 coutnry)

In [7]:
```
# Use this cell to set up import statements for all of the packages that you
#   plan to use.

# Remember to include a 'magic word' so that your visualizations are plotted
#   inline with the notebook. See this page for more:
#   http://ipython.readthedocs.io/en/stable/interactive/magics.html
import csv
import pandas as pd
import matplotlib.pyplot as plt
from IPython.display import Image
from IPython.display import display
from IPython.core.interactiveshell import InteractiveShell
InteractiveShell.ast_node_interactivity = "all"
import matplotlib.lines as mlines
import seaborn as sns
```

Data Wrangling

> I used these codes are used to read the entirety of the csv into python as dataframes. Initial review of this data shows that all dataframes contain different amounts of recorded data.

Inital Dataset

In [93]:
```
life1 = pd.read_csv('life_expectancy_years.csv')
agri1 = pd.read_csv('agriculture_percent_of_gdp.csv')
industry1 = pd.read_csv('industry_percent_of_gdp.csv')
service1 = pd.read_csv('services_percent_of_gdp.csv')
exports1 = pd.read_csv('exports_percent_of_gdp.csv')
imports1 = pd.read_csv('imports_percent_of_gdp.csv')

life = pd.read_csv('life_expectancy_years.csv')
agri = pd.read_csv('agriculture_percent_of_gdp.csv')
industry = pd.read_csv('industry_percent_of_gdp.csv')
service = pd.read_csv('services_percent_of_gdp.csv')
exports = pd.read_csv('exports_percent_of_gdp.csv')
imports = pd.read_csv('imports_percent_of_gdp.csv')

life2 = pd.read_csv('life_expectancy_years.csv')
```

Initial Review:

In [ ]:
```
# These lines of code shows the structure of the data present in the dataframe
s

life.info()
industry.info()
agri.info()
service.info()
exports.info()
imports.info()
```

In [6]:
```
# These lines of code show the first three lines of the dataframes

life.head(3)
industry.head(3)
agri.head(3)
service.head(3)
exports.head(3)
imports.head(3)
```

Intial Data set Results:

> The data contained in these datasets were clean upon upload. Values were in the correct type. I paid close attention to the actual values to insure they were float and not string. This allowed me to do plotting and mathematical equations on values associated to each country.

Refinement for baseline analysis

> Based on the dataset with the least amount of years I trimmed the rest of the datasets. This ensured that all the dataframes had the same dimensions (two decades). I changed the naming of multiple countries to allow ease of calling specific rows based off countries.

Restricting data to focus on smaller subset

> I decided to restrict the number of countries from 173 to 14. This provides for easier dataframe manipulation. To narrow this dataframe I will be using the G8+5 countries these countries are:
>
> Canada, France, Germany, Italy, Japan, Russia, UK, USA, EU - not included, Brazil, China, India, Mexico, South Africa (RSA).
>
> Upon further investigation Burundi was selected as a country to compare to South Africa.

In [94]:
```
life1.columns.get_loc('1996')
life1.columns.get_loc('2018')

life1.drop(life1.columns[1:198],axis=1,inplace=True)
life1.drop(life1.columns[22:], axis=1, inplace = True)
```

Out[94]: 197

Out[94]: 219

In [95]:
```
agri1.columns.get_loc('1997')

# This code drops columns not being used for analysis
agri1.drop(agri1.columns[1:38], axis=1,inplace=True)
```

Out[95]: 38

In [96]:
```
# This code finds the location of the years not included in the analysis
industry1.columns.get_loc('1997')

# This code drops columns not being used for analysis
industry1.drop(industry1.columns[1:38], axis=1,inplace=True)
```

Out[96]: 38

In [97]:
```
# This code finds the location of the years not included in the analysis
service1.columns.get_loc('1997')

# This code drops columns not being used for analysis
service1.drop(service1.columns[1:38], axis=1,inplace=True)
```

Out[97]: 38

In [98]:
```
# This code finds the location of the years not included in the analysis
exports1.columns.get_loc('1997')

# This code drops columns not being used for analysis
exports1.drop(exports1.columns[1:38], axis=1, inplace=True)
```

Out[98]: 38

In [99]:
```
# This code finds the location of the years not included in the analysis
imports1.columns.get_loc('1997')

# This code drops columns not being used for analysis
imports1.drop(imports1.columns[1:38],axis=1,inplace=True)
```

Out[99]: 38

In [102]:
```
life1
```

Out[102]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	2010
0	Afghanistan	53.7	52.8	54.4	54.6	54.8	55.6	56.4	56.9	57.4	...	58.8	59.3	59.9
1	Albania	72.5	74.5	74.6	74.9	75.2	75.3	75.4	75.6	76.0	...	77.0	77.5	77.6
2	Algeria	73.2	73.5	73.9	74.0	74.2	74.5	74.6	75.0	75.3	...	75.9	76.1	76.3
3	Andorra	80.3	80.6	80.9	81.2	81.4	81.6	81.7	81.7	81.8	...	82.2	82.2	82.3
4	Angola	50.2	49.3	50.7	51.7	52.4	53.5	54.2	54.8	55.7	...	58.4	59.1	59.9
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
182	Venezuela	73.7	73.7	70.1	74.0	74.0	74.0	73.5	74.7	75.2	...	74.7	74.8	75.3
183	Vietnam	70.7	71.1	71.3	71.5	71.7	71.9	72.1	72.3	72.5	...	73.0	73.2	73.5
184	Yemen	61.7	62.2	62.8	63.3	63.9	64.4	64.8	65.3	65.9	...	67.2	67.5	68.0
185	Zambia	45.5	45.5	45.6	46.0	46.1	47.0	47.6	48.4	49.3	...	53.0	54.5	56.0
186	Zimbabwe	49.6	48.5	47.5	46.6	46.2	45.6	45.4	45.1	45.1	...	46.3	47.2	49.7

187 rows × 22 columns

In [103]:
```
# This code finds the location of the years not included in the analysis
life.columns.get_loc('1996')
life.columns.get_loc('2018')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(life)
```

Out[103]: 197

Out[103]: 219

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
0	Afghanistan	28.2	28.2	28.2	28.2	...	77.1	77.3	77.4	77.5	77.7
1	Albania	35.4	35.4	35.4	35.4	...	87.9	88.0	88.1	88.2	88.3
2	Algeria	28.8	28.8	28.8	28.8	...	88.8	88.9	89.0	89.1	89.2
3	Andorra	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
4	Angola	27.0	27.0	27.0	27.0	...	79.4	79.5	79.7	79.8	79.9
5	Antigua and Barbuda	33.5	33.5	33.5	33.5	...	86.6	86.7	86.8	86.9	87.0
6	Argentina	33.2	33.2	33.2	33.2	...	87.2	87.3	87.4	87.5	87.6
7	Armenia	34.0	34.0	34.0	34.0	...	85.9	86.0	86.2	86.3	86.4
8	Australia	34.0	34.0	34.0	34.0	...	91.6	91.7	91.8	91.9	92.0
9	Austria	34.4	34.4	34.4	34.4	...	91.3	91.5	91.6	91.7	91.8
10	Azerbaijan	29.2	29.2	29.2	29.2	...	80.3	80.5	80.6	80.7	80.9
11	Bahamas	35.2	35.2	35.2	35.2	...	83.5	83.6	83.7	83.8	84.0
12	Bahrain	30.3	30.3	30.3	30.3	...	89.0	89.1	89.2	89.3	89.4
13	Bangladesh	25.5	25.5	25.5	25.5	...	87.2	87.3	87.4	87.5	87.6
14	Barbados	32.1	32.1	32.1	32.1	...	86.3	86.4	86.5	86.6	86.7
15	Belarus	36.2	36.2	36.2	36.2	...	84.4	84.5	84.6	84.7	84.8
16	Belgium	40.0	40.0	40.0	40.0	...	91.0	91.1	91.2	91.3	91.4
17	Belize	26.5	26.5	26.5	26.5	...	85.0	85.1	85.2	85.3	85.4
18	Benin	31.0	31.0	31.0	31.0	...	78.3	78.4	78.5	78.7	78.8
19	Bhutan	28.8	28.8	28.8	28.8	...	87.7	87.8	87.9	88.0	88.1
20	Bolivia	33.0	33.0	33.0	33.0	...	86.2	86.3	86.4	86.5	86.6
21	Bosnia and Herzegovina	35.1	35.1	35.1	35.1	...	87.0	87.1	87.2	87.3	87.4
22	Botswana	33.6	33.6	33.6	33.6	...	79.8	79.9	80.0	80.2	80.3
23	Brazil	32.0	32.0	32.0	32.0	...	87.6	87.7	87.8	87.9	88.0
24	Brunei	29.2	29.2	29.2	29.2	...	85.3	85.4	85.5	85.6	85.7
25	Bulgaria	35.8	35.8	35.9	35.9	...	84.9	85.0	85.1	85.2	85.3
26	Burkina Faso	29.2	29.2	29.2	29.2	...	77.8	78.0	78.1	78.2	78.4
27	Burundi	31.5	31.5	31.5	31.5	...	77.5	77.7	77.8	78.0	78.1
28	Cambodia	35.0	35.0	35.0	35.0	...	82.1	82.2	82.3	82.5	82.6
29	Cameroon	28.8	28.8	28.8	28.8	...	79.0	79.1	79.2	79.3	79.5
30	Canada	39.0	39.0	39.0	39.0	...	91.2	91.3	91.4	91.5	91.6
31	Cape Verde	33.8	33.8	33.8	33.8	...	88.4	88.5	88.6	88.8	88.9
32	Central African Republic	30.0	30.0	30.0	30.0	...	67.7	67.8	67.9	68.0	68.1
33	Chad	30.9	30.9	30.9	30.9	...	77.4	77.5	77.7	77.8	77.9
34	Chile	32.0	32.0	32.0	32.0	...	90.1	90.2	90.3	90.4	90.5

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
35	China	32.0	32.0	32.0	32.0	...	88.1	88.2	88.3	88.5	88.6
36	Colombia	32.0	32.0	32.0	32.0	...	91.5	91.7	91.8	91.9	92.0
37	Comoros	32.1	32.1	32.1	32.1	...	80.2	80.3	80.4	80.5	80.7
38	Congo, Dem. Rep.	31.6	31.6	31.6	31.6	...	76.2	76.3	76.4	76.5	76.7
39	Congo, Rep.	32.7	32.7	32.7	32.7	...	73.5	73.6	73.7	73.8	73.9
40	Costa Rica	30.2	30.2	30.2	30.2	...	89.8	89.9	90.0	90.1	90.2
41	Cote d'Ivoire	31.2	31.2	31.2	31.2	...	76.6	76.7	76.9	77.0	77.1
42	Croatia	36.1	36.1	36.1	36.1	...	88.8	88.9	89.0	89.2	89.3
43	Cuba	32.2	32.3	32.5	32.6	...	88.2	88.3	88.4	88.5	88.6
44	Cyprus	38.5	38.5	38.5	38.5	...	91.4	91.5	91.6	91.7	91.8
45	Czech Republic	35.0	35.0	35.0	35.0	...	88.9	89.0	89.1	89.2	89.3
46	Denmark	37.4	38.5	44.4	44.8	...	90.2	90.3	90.4	90.5	90.6
47	Djibouti	29.9	29.9	29.9	29.9	...	81.7	81.9	82.0	82.2	82.3
48	Dominica	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
49	Dominican Republic	29.9	29.9	29.9	29.9	...	84.7	84.8	84.9	85.0	85.1
50	Ecuador	32.9	32.9	32.9	32.9	...	88.5	88.6	88.7	88.8	88.9
51	Egypt	33.0	33.0	33.0	33.0	...	81.8	82.0	82.1	82.2	82.3
52	El Salvador	28.7	28.7	28.7	28.7	...	87.0	87.1	87.2	87.3	87.4
53	Equatorial Guinea	29.8	29.8	29.8	29.8	...	81.3	81.4	81.5	81.6	81.8
54	Eritrea	30.2	30.2	30.2	30.2	...	77.0	77.2	77.3	77.5	77.6
55	Estonia	36.1	35.7	35.3	34.8	...	87.8	87.9	88.0	88.1	88.2
56	Ethiopia	29.7	29.7	29.7	29.7	...	84.5	84.6	84.8	84.9	85.1
57	Fiji	26.1	26.1	26.1	26.1	...	78.4	78.6	78.7	78.8	79.0
58	Finland	36.6	40.3	39.2	28.5	...	90.9	91.0	91.1	91.2	91.3
59	France	34.0	36.4	34.4	30.6	...	92.1	92.2	92.3	92.4	92.5
60	Gabon	30.6	30.6	30.6	30.6	...	79.8	79.9	80.0	80.2	80.3
61	Gambia	28.8	28.8	28.8	28.8	...	80.0	80.2	80.3	80.4	80.6
62	Georgia	31.9	31.9	31.9	31.9	...	83.7	83.8	83.9	84.0	84.1
63	Germany	38.4	38.4	38.4	38.4	...	90.2	90.3	90.4	90.5	90.7
64	Ghana	28.0	28.0	28.0	28.0	...	78.4	78.6	78.7	78.8	79.0
65	Greece	36.6	36.6	36.6	36.6	...	90.4	90.5	90.6	90.7	90.8
66	Grenada	31.4	31.4	31.4	31.4	...	84.3	84.4	84.6	84.7	84.8
67	Guatemala	25.8	25.8	25.8	25.8	...	85.2	85.3	85.4	85.5	85.6
68	Guinea	29.5	29.5	29.5	29.5	...	74.2	74.3	74.4	74.5	74.6
69	Guinea-Bissau	32.0	32.0	32.0	32.0	...	75.0	75.1	75.2	75.4	75.5
70	Guyana	31.1	31.1	31.1	31.1	...	78.6	78.8	78.9	79.0	79.2

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
71	Haiti	29.0	29.0	29.0	29.0	...	78.8	79.0	79.1	79.3	79.4
72	Honduras	33.9	33.9	33.9	33.9	...	85.2	85.3	85.4	85.5	85.6
73	Hungary	36.0	36.0	36.0	36.0	...	87.0	87.2	87.3	87.4	87.5
74	Iceland	42.9	33.9	27.6	19.6	...	91.8	91.9	92.0	92.1	92.2
75	India	25.4	25.4	25.0	24.0	...	81.2	81.4	81.5	81.7	81.8
76	Indonesia	30.0	30.0	30.0	30.0	...	83.7	83.9	84.0	84.1	84.3
77	Iran	25.6	25.6	25.6	25.6	...	88.7	88.8	88.9	89.0	89.1
78	Iraq	31.2	31.2	31.2	31.2	...	87.7	87.8	88.0	88.1	88.3
79	Ireland	38.3	38.3	38.3	38.3	...	91.4	91.5	91.6	91.7	91.8
80	Israel	32.0	32.0	32.0	32.0	...	92.3	92.4	92.5	92.6	92.7
81	Italy	29.7	29.7	29.7	29.7	...	92.4	92.5	92.6	92.8	92.9
82	Jamaica	34.2	34.2	34.2	34.2	...	84.4	84.5	84.6	84.7	84.8
83	Japan	36.4	36.4	36.4	36.4	...	93.2	93.3	93.4	93.5	93.7
84	Jordan	31.7	31.7	31.7	31.7	...	90.3	90.4	90.5	90.7	90.8
85	Kazakhstan	26.2	26.2	26.2	26.2	...	83.2	83.3	83.4	83.5	83.6
86	Kenya	25.5	25.5	25.5	25.5	...	79.5	79.6	79.8	79.9	80.1
87	Kiribati	24.9	24.9	24.9	24.9	...	74.8	74.9	75.1	75.2	75.3
88	Kuwait	26.0	26.0	26.0	26.0	...	93.4	93.5	93.6	93.7	93.8
89	Kyrgyz Republic	23.9	23.9	23.9	23.9	...	84.1	84.2	84.4	84.5	84.6
90	Lao	31.9	31.9	31.9	31.9	...	80.9	81.1	81.2	81.3	81.5
91	Latvia	33.0	33.0	33.0	33.0	...	85.3	85.4	85.5	85.6	85.7
92	Lebanon	29.7	29.7	29.7	29.7	...	87.9	88.0	88.2	88.3	88.4
93	Lesotho	32.8	32.8	32.8	32.8	...	74.5	74.6	74.7	74.9	75.0
94	Liberia	31.1	31.1	31.1	31.1	...	77.1	77.2	77.3	77.4	77.6
95	Libya	33.1	33.1	33.1	33.1	...	84.4	84.5	84.6	84.7	84.8
96	Lithuania	28.9	28.9	28.9	28.9	...	85.3	85.4	85.5	85.6	85.7
97	Luxembourg	36.9	36.9	36.9	36.9	...	91.2	91.3	91.4	91.5	91.6
98	Madagascar	30.5	30.5	30.5	30.5	...	78.0	78.1	78.3	78.4	78.5
99	Malawi	30.3	30.3	30.3	30.3	...	80.8	81.0	81.1	81.3	81.4
100	Malaysia	30.6	30.6	30.6	30.6	...	85.0	85.1	85.2	85.3	85.4
101	Maldives	32.6	32.6	32.6	32.6	...	94.3	94.4	94.5	94.7	94.8
102	Mali	26.4	26.4	26.4	26.4	...	76.1	76.2	76.3	76.4	76.5
103	Malta	28.7	28.7	28.7	28.7	...	90.2	90.3	90.5	90.6	90.7
104	Marshall Islands	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
105	Mauritania	32.0	32.0	32.0	32.0	...	81.7	81.8	82.0	82.1	82.2
106	Mauritius	28.7	28.7	28.7	28.7	...	85.8	85.9	86.0	86.1	86.2

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
107	Mexico	26.9	26.9	26.9	26.9	...	86.8	86.9	87.0	87.1	87.2
108	Micronesia, Fed. Sts.	26.7	26.7	26.7	26.7	...	75.5	75.6	75.7	75.8	76.0
109	Moldova	33.1	33.1	33.1	33.1	...	83.5	83.7	83.8	83.9	84.1
110	Mongolia	31.8	31.8	31.8	31.8	...	81.9	82.1	82.2	82.3	82.5
111	Montenegro	35.4	35.4	35.4	35.4	...	86.3	86.4	86.5	86.6	86.7
112	Morocco	33.1	33.1	33.1	33.1	...	85.4	85.5	85.6	85.7	85.8
113	Mozambique	30.3	30.3	30.3	30.3	...	76.3	76.4	76.6	76.8	76.9
114	Myanmar	30.8	30.8	30.8	30.8	...	80.6	80.7	80.9	81.0	81.1
115	Namibia	32.4	32.4	32.4	32.4	...	81.8	82.0	82.1	82.3	82.5
116	Nepal	32.8	32.8	32.8	32.8	...	84.4	84.5	84.6	84.7	84.9
117	Netherlands	39.9	39.9	39.9	39.9	...	90.6	90.7	90.8	90.9	91.0
118	New Zealand	34.0	34.0	34.0	34.0	...	91.0	91.1	91.2	91.3	91.5
119	Nicaragua	25.4	25.4	25.4	25.4	...	92.2	92.3	92.4	92.5	92.6
120	Niger	30.8	30.8	30.8	30.8	...	76.9	77.0	77.1	77.2	77.3
121	Nigeria	30.4	30.4	30.4	30.4	...	83.2	83.3	83.4	83.6	83.7
122	North Korea	26.0	26.0	26.0	26.0	...	84.5	84.6	84.7	84.8	84.9
123	North Macedonia	36.1	36.1	36.1	36.1	...	86.8	86.9	87.0	87.1	87.2
124	Norway	37.9	35.8	38.4	38.7	...	91.5	91.6	91.7	91.8	91.9
125	Oman	32.3	32.3	32.3	32.3	...	88.7	88.8	88.9	89.0	89.1
126	Pakistan	25.8	25.8	25.8	25.8	...	77.1	77.2	77.3	77.5	77.6
127	Palestine	32.1	32.1	32.1	32.1	...	88.3	88.4	88.5	88.6	88.7
128	Panama	32.9	32.9	32.9	32.9	...	90.1	90.2	90.3	90.4	90.5
129	Papua New Guinea	31.5	31.5	31.5	31.5	...	68.1	68.2	68.3	68.5	68.6
130	Paraguay	35.5	35.5	35.5	35.5	...	86.1	86.3	86.4	86.5	86.6
131	Peru	35.7	35.7	35.7	35.7	...	93.1	93.2	93.3	93.5	93.6
132	Philippines	30.9	30.9	30.9	30.9	...	80.4	80.5	80.7	80.8	80.9
133	Poland	35.9	35.9	35.9	35.9	...	88.2	88.3	88.4	88.5	88.6
134	Portugal	35.6	35.6	35.6	35.6	...	91.2	91.3	91.4	91.5	91.6
135	Qatar	30.8	30.8	30.8	30.8	...	89.9	90.0	90.2	90.3	90.4
136	Romania	35.7	35.7	35.7	35.7	...	85.5	85.6	85.7	85.8	85.9
137	Russia	29.6	29.6	29.6	29.6	...	83.3	83.4	83.5	83.6	83.7
138	Rwanda	31.8	25.0	25.0	31.8	...	83.2	83.3	83.5	83.6	83.7
139	Samoa	25.4	25.4	25.4	25.4	...	83.4	83.5	83.7	83.8	83.9
140	Sao Tome and Principe	31.0	31.0	31.0	31.0	...	78.8	78.9	79.0	79.2	79.3
141	Saudi Arabia	32.1	32.1	32.1	32.1	...	87.8	87.9	88.0	88.0	88.2
142	Senegal	25.2	25.2	25.2	25.2	...	81.6	81.8	81.9	82.0	82.2

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
143	Serbia	35.5	35.5	35.5	35.5	...	86.0	86.2	86.3	86.3	86.5
144	Seychelles	37.0	37.0	37.0	37.0	...	84.5	84.6	84.8	84.9	85.0
145	Sierra Leone	25.1	25.1	25.1	25.1	...	79.2	79.3	79.4	79.5	79.7
146	Singapore	29.1	29.1	29.1	29.1	...	94.3	94.4	94.5	94.6	94.7
147	Slovak Republic	36.4	36.4	36.4	36.4	...	87.4	87.5	87.6	87.7	87.8
148	Slovenia	36.6	36.6	36.6	36.6	...	90.7	90.8	90.9	91.0	91.2
149	Solomon Islands	25.1	25.1	25.1	25.1	...	78.3	78.4	78.5	78.6	78.7
150	Somalia	29.4	29.4	29.4	29.4	...	73.4	73.5	73.6	73.8	73.9
151	South Africa	33.5	33.5	33.5	33.5	...	79.2	79.4	79.5	79.7	79.8
152	South Korea	25.8	25.8	25.8	25.8	...	92.3	92.5	92.6	92.7	92.8
153	South Sudan	26.7	26.7	26.7	26.7	...	72.8	73.0	73.1	73.2	73.3
154	Spain	29.5	29.5	29.5	29.5	...	92.2	92.3	92.4	92.5	92.6
155	Sri Lanka	32.6	32.6	32.6	32.6	...	88.5	88.7	88.8	88.9	89.0
156	St. Lucia	28.0	28.0	28.0	28.0	...	85.3	85.4	85.5	85.6	85.7
157	St. Vincent and the Grenadines	26.0	26.0	26.0	26.0	...	82.5	82.7	82.8	82.9	83.0
158	Sudan	31.4	31.4	31.4	31.4	...	83.8	84.0	84.1	84.3	84.4
159	Suriname	32.9	32.9	32.9	32.9	...	82.8	82.9	83.0	83.2	83.3
160	Swaziland	32.3	32.3	32.3	32.3	...	75.7	75.8	76.0	76.1	76.2
161	Sweden	32.2	36.9	40.2	40.3	...	91.7	91.8	91.9	92.0	92.1
162	Switzerland	38.0	38.0	38.0	38.0	...	93.1	93.3	93.4	93.5	93.6
163	Syria	31.1	31.1	31.1	31.1	...	84.6	84.7	84.8	84.9	85.0
164	Tajikistan	24.2	24.2	24.2	24.2	...	82.2	82.3	82.4	82.5	82.7
165	Tanzania	32.2	32.2	32.2	32.2	...	82.0	82.2	82.3	82.5	82.7
166	Thailand	30.4	30.4	30.4	30.4	...	89.6	89.7	89.8	89.9	90.0
167	Timor-Leste	28.9	28.9	28.9	28.9	...	82.7	82.8	83.0	83.1	83.2
168	Togo	31.3	31.3	31.3	31.3	...	78.5	78.6	78.8	78.9	79.0
169	Tonga	28.2	28.2	28.2	28.2	...	81.1	81.2	81.3	81.5	81.6
170	Trinidad and Tobago	32.9	32.9	32.9	32.9	...	84.7	84.8	85.0	85.1	85.2
171	Tunisia	28.8	28.8	28.8	28.8	...	89.7	89.8	89.9	90.0	90.1
172	Turkey	35.0	35.0	35.0	35.0	...	91.4	91.5	91.6	91.7	91.8
173	Turkmenistan	24.0	24.0	24.0	24.0	...	80.2	80.4	80.5	80.6	80.8
174	Uganda	25.3	25.3	25.3	25.3	...	81.6	81.8	81.9	82.1	82.2
175	Ukraine	36.6	36.6	36.6	36.6	...	81.1	81.3	81.4	81.5	81.6
176	United Arab Emirates	30.7	30.7	30.7	30.7	...	82.6	82.7	82.8	82.9	83.0
177	United Kingdom	38.6	37.4	38.6	37.3	...	90.2	90.3	90.4	90.5	90.6
178	United States	39.4	39.4	39.4	39.4	...	88.1	88.2	88.3	88.4	88.5

	country	1800	1801	1802	1803	...	2096	2097	2098	2099	2100
179	Uruguay	32.9	32.9	32.9	32.9	...	87.1	87.2	87.3	87.4	87.5
180	Uzbekistan	26.9	26.9	26.9	26.9	...	79.5	79.6	79.8	79.9	80.0
181	Vanuatu	24.3	24.3	24.3	24.3	...	74.0	74.2	74.3	74.4	74.5
182	Venezuela	32.2	32.2	32.2	32.2	...	86.9	87.0	87.1	87.2	87.3
183	Vietnam	32.0	32.0	32.0	32.0	...	84.8	84.9	85.0	85.2	85.3
184	Yemen	23.4	23.4	23.4	23.4	...	77.9	78.0	78.2	78.3	78.4
185	Zambia	32.6	32.6	32.6	32.6	...	77.6	77.7	77.8	78.0	78.1
186	Zimbabwe	33.7	33.7	33.7	33.7	...	75.1	75.3	75.4	75.5	75.7

187 rows × 302 columns

In [210]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

life_r = life.drop(life.index[179:])
life_r = life_r.drop(life.index[152:177])
life_r = life_r.drop(life.index[138:151])
life_r = life_r.drop(life.index[108:137])
life_r = life_r.drop(life.index[84:107])
life_r = life_r.drop(life.index[82:83])
life_r = life_r.drop(life.index[76:81])
life_r = life_r.drop(life.index[64:75])
life_r = life_r.drop(life.index[60:63])
life_r = life_r.drop(life.index[36:59])
life_r = life_r.drop(life.index[31:35])
life_r = life_r.drop(life.index[28:30])
life_r = life_r.drop(life.index[24:27])
life_r = life_r.drop(life.index[:23])
life_r.drop(life_r.columns[1:198],axis=1,inplace=True)
life_r.drop(life_r.columns[22 :],axis=1,inplace=True)
life_r = life_r.set_index('country')
life_r
```

Out[210]:

country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	...	2008	2009	2010	2
Brazil	70.2	70.6	71.0	71.4	71.8	72.1	72.3	72.6	73.1	73.5	...	74.0	74.2	74.4	
Burundi	43.6	44.3	44.6	44.9	45.7	46.6	47.5	48.7	49.7	53.8	...	56.0	56.9	57.8	
Canada	78.5	78.7	78.9	79.2	79.5	79.6	79.8	80.1	80.2	80.6	...	80.8	81.1	81.4	
China	70.8	71.3	71.7	72.1	72.6	73.0	73.4	73.7	74.2	74.9	...	75.4	75.7	75.8	
France	78.7	78.6	78.8	79.1	79.2	79.4	79.6	80.2	80.4	80.7	...	81.1	81.2	81.4	
Germany	77.4	77.8	78.0	78.3	78.6	78.7	78.8	79.4	79.7	79.9	...	80.2	80.3	80.4	
India	62.0	62.1	62.6	62.9	63.3	63.9	64.5	65.2	65.5	65.8	...	66.2	66.5	66.7	
Italy	78.7	78.8	79.2	79.6	79.8	80.1	80.1	80.7	80.9	81.2	...	81.5	81.7	82.0	
Japan	80.8	80.8	81.0	81.4	81.7	82.0	82.1	82.3	82.3	82.6	...	82.9	83.1	83.1	
Mexico	73.4	73.6	74.1	74.6	74.9	75.0	75.0	75.4	75.3	75.7	...	75.5	75.2	75.2	
Russia	67.1	67.4	66.2	65.5	65.5	65.3	65.1	65.3	64.8	66.3	...	67.5	68.4	68.1	
South Africa	60.8	59.3	57.7	55.6	54.9	53.8	52.8	52.3	52.0	52.0	...	53.4	54.5	56.1	
United Kingdom	77.2	77.4	77.6	78.0	78.2	78.3	78.5	79.0	79.3	79.4	...	79.8	80.2	80.4	
United States	76.6	76.8	76.8	76.9	76.9	77.0	77.2	77.5	77.6	77.8	...	78.2	78.4	78.7	

14 rows × 21 columns

In [105]:
```
# This code finds the location of the years not included in the analysis
agri.columns.get_loc('1997')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(agri)
```

Out[105]: 38

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
0	Afghanistan	NaN	NaN	NaN	NaN	...	22.6000	22.000	20.5000	21.0000	NaN
1	Albania	NaN	NaN	NaN	NaN	...	19.6000	20.000	19.8000	19.9000	19.0000
2	Algeria	18.60	17.80	18.10	15.40	...	9.8500	10.300	11.6000	12.3000	12.3000
3	Andorra	NaN	NaN	NaN	NaN	...	0.5770	0.496	0.4700	0.4920	NaN
4	Angola	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
5	Antigua and Barbuda	NaN	NaN	NaN	NaN	...	2.0000	1.570	1.6700	1.6400	1.6300
6	Argentina	NaN	NaN	NaN	NaN	...	6.0500	6.710	5.1600	6.3500	5.6100
7	Armenia	NaN	NaN	NaN	NaN	...	18.4000	18.100	17.2000	16.4000	14.9000
8	Australia	NaN	NaN	NaN	NaN	...	2.2800	2.220	2.3700	2.4300	2.7700
9	Austria	NaN	NaN	NaN	NaN	...	1.2500	1.200	1.1100	1.1000	1.1300
10	Azerbaijan	NaN	NaN	NaN	NaN	...	5.3700	5.300	6.2000	5.6000	5.6300
11	Bahamas	NaN	NaN	NaN	NaN	...	0.9150	0.852	0.8180	0.8800	1.0000
12	Bahrain	NaN	NaN	NaN	NaN	...	0.2750	0.300	0.3150	0.3330	0.2920
13	Bangladesh	57.50	58.00	57.00	57.10	...	15.5000	15.400	14.8000	14.0000	13.4000
14	Barbados	NaN	NaN	NaN	NaN	...	1.4400	1.380	1.3400	1.3800	NaN
15	Belarus	NaN	NaN	NaN	NaN	...	6.8100	7.300	6.2800	6.9000	7.7700
16	Belgium	NaN	NaN	NaN	NaN	...	0.6880	0.649	0.6830	0.6170	0.6180
17	Belize	NaN	NaN	NaN	NaN	...	13.4000	13.500	12.6000	10.6000	10.9000
18	Benin	46.20	46.20	44.70	43.70	...	21.3000	21.500	22.5000	23.2000	22.4000
19	Bhutan	NaN	NaN	NaN	NaN	...	16.1000	16.800	16.7000	16.5000	15.2000
20	Bolivia	NaN	NaN	NaN	NaN	...	9.9700	9.740	10.2000	11.2000	11.6000
21	Bosnia and Herzegovina	NaN	NaN	NaN	NaN	...	6.8400	5.950	6.2400	6.3700	5.8200
22	Botswana	43.20	41.90	40.70	39.70	...	2.3000	2.090	2.2000	2.0500	1.9900
23	Brazil	17.70	17.10	15.50	15.10	...	4.5100	4.330	4.3200	4.8900	4.5700
24	Brunei	NaN	NaN	NaN	NaN	...	0.6850	0.863	1.1000	1.2000	1.0900
25	Bulgaria	NaN	NaN	NaN	NaN	...	4.6000	4.570	4.1400	4.0500	3.7400
26	Burkina Faso	38.50	38.30	37.90	38.50	...	31.7000	31.400	30.3000	29.0000	27.8000
27	Burundi	NaN	NaN	NaN	NaN	...	36.3000	35.700	37.1000	36.4000	NaN
28	Cambodia	NaN	NaN	NaN	NaN	...	31.6000	28.900	26.6000	24.7000	23.4000
29	Cameroon	NaN	NaN	NaN	NaN	...	13.9000	14.200	14.8000	15.3000	15.3000
30	Canada	NaN	NaN	NaN	NaN	...	1.7300	1.420	NaN	NaN	NaN
31	Cape Verde	NaN	NaN	NaN	NaN	...	8.2800	8.020	8.7400	8.4600	6.4100
32	Central African Republic	NaN	NaN	NaN	NaN	...	43.8000	40.600	40.0000	40.5000	39.6000
33	Chad	39.70	38.70	38.50	38.00	...	50.0000	50.600	50.2000	49.5000	48.6000

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
34	Chile	9.91	9.55	8.73	7.58	...	3.3800	3.930	3.7600	4.0300	3.8300
35	China	23.20	35.80	39.00	39.90	...	9.3000	9.060	8.8300	8.5600	7.9200
36	Colombia	NaN	NaN	NaN	NaN	...	5.5900	5.660	6.0400	6.6700	6.4600
37	Comoros	NaN	NaN	NaN	NaN	...	35.9000	34.500	33.6000	NaN	NaN
38	Congo, Dem. Rep.	NaN	NaN	NaN	NaN	...	19.3000	18.600	18.4000	18.6000	19.9000
39	Congo, Rep.	23.60	20.50	19.80	21.00	...	4.3600	4.830	7.2400	8.7300	7.2400
40	Costa Rica	26.00	25.70	25.80	24.50	...	5.0400	5.120	4.9600	5.1900	5.2000
41	Cote d'Ivoire	47.90	46.40	45.90	44.20	...	21.0000	21.100	22.7000	20.9000	20.5000
42	Croatia	NaN	NaN	NaN	NaN	...	3.7100	3.500	3.5200	3.4300	3.2900
43	Cuba	NaN	NaN	NaN	NaN	...	3.9200	3.940	3.8400	NaN	NaN
44	Cyprus	NaN	NaN	NaN	NaN	...	2.0100	1.820	1.8500	1.8100	NaN
45	Czech Republic	NaN	NaN	NaN	NaN	...	2.4000	2.470	2.2300	2.2100	2.1900
46	Denmark	NaN	NaN	NaN	NaN	...	1.3000	1.380	0.8030	0.8010	1.1500
47	Djibouti	NaN	NaN	NaN	NaN	...	1.8400	1.870	1.7800	1.9400	2.1900
48	Dominica	NaN	NaN	NaN	NaN	...	13.9000	13.400	14.2000	16.1000	15.7000
49	Dominican Republic	NaN	NaN	NaN	NaN	...	5.3000	5.240	5.6000	5.7800	5.6700
50	Ecuador	29.10	29.70	30.80	29.80	...	8.7700	9.130	9.4500	9.5400	9.4900
51	Egypt	NaN	NaN	NaN	NaN	...	11.3000	11.300	11.4000	11.8000	11.5000
52	El Salvador	NaN	NaN	NaN	NaN	...	5.6200	5.870	5.8100	5.9500	5.8000
53	Equatorial Guinea	NaN	NaN	NaN	NaN	...	1.1900	1.290	1.8900	2.3700	2.2900
54	Eritrea	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
55	Estonia	NaN	NaN	NaN	NaN	...	2.9900	3.050	2.7100	2.2000	2.4600
56	Ethiopia	NaN	NaN	NaN	NaN	...	41.2000	38.500	36.1000	34.8000	34.1000
57	Fiji	NaN	NaN	NaN	37.80	...	10.1000	9.840	9.4200	11.1000	NaN
58	Finland	NaN	NaN	NaN	NaN	...	2.5700	2.400	2.2300	2.3100	2.3200
59	France	10.50	9.01	9.79	8.79	...	1.4600	1.560	1.6100	1.4500	1.5100
60	Gabon	32.20	35.20	35.90	44.10	...	3.3300	3.620	4.3100	4.9700	5.5500
61	Gambia	NaN	NaN	NaN	NaN	...	18.9000	17.400	17.3000	17.0000	16.9000
62	Georgia	NaN	NaN	NaN	NaN	...	8.1800	7.990	7.9000	7.7300	7.0200
63	Germany	NaN	NaN	NaN	NaN	...	0.8790	0.690	0.5550	0.5530	0.6340
64	Ghana	40.90	35.40	37.90	35.90	...	21.7000	20.500	19.1000	17.7000	17.0000
65	Greece	NaN	NaN	NaN	NaN	...	3.2100	3.400	3.7500	3.4600	3.5300
66	Grenada	NaN	NaN	NaN	NaN	...	4.8400	6.100	7.4300	6.2400	5.7700
67	Guatemala	NaN	NaN	NaN	NaN	...	10.6000	10.700	10.5000	10.0000	10.1000
68	Guinea	NaN	NaN	NaN	NaN	...	17.5000	17.500	18.5000	17.8000	16.2000

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
69	Guinea-Bissau	NaN	NaN	NaN	NaN	...	44.1000	41.100	46.8000	46.3000	49.2000
70	Guyana	23.60	23.90	23.50	24.50	...	16.5000	16.500	17.1000	13.3000	12.7000
71	Haiti	NaN	NaN	NaN	NaN	...	18.2000	17.600	17.1000	17.5000	17.6000
72	Honduras	33.80	35.30	35.40	34.40	...	12.2000	12.500	12.2000	12.1000	12.9000
73	Hungary	NaN	NaN	NaN	NaN	...	3.8500	3.970	3.7100	3.7200	3.3100
74	Iceland	NaN	NaN	NaN	NaN	...	6.0000	5.260	5.4500	5.1100	NaN
75	India	41.80	40.90	38.80	39.80	...	17.1000	16.800	16.2000	16.3000	15.5000
76	Indonesia	NaN	NaN	NaN	NaN	...	13.4000	13.300	13.5000	13.5000	13.1000
77	Iran	25.90	24.90	23.80	22.30	...	9.7500	9.780	10.5000	9.6400	10.1000
78	Iraq	NaN	NaN	NaN	NaN	...	4.7700	4.900	4.7500	5.1000	4.7000
79	Ireland	NaN	NaN	NaN	NaN	...	1.1200	1.290	0.8930	0.9250	NaN
80	Israel	NaN	NaN	NaN	NaN	...	1.2000	1.140	1.1700	1.1700	NaN
81	Italy	NaN	NaN	NaN	NaN	...	2.0900	1.940	2.0200	1.8900	1.9200
82	Jamaica	NaN	NaN	NaN	NaN	...	5.9700	5.970	6.3000	6.6300	6.4500
83	Japan	NaN	NaN	NaN	NaN	...	1.1000	1.060	1.1100	1.1500	NaN
84	Jordan	NaN	NaN	NaN	NaN	...	2.9900	3.320	3.6800	3.7900	4.0100
85	Kazakhstan	NaN	NaN	NaN	NaN	...	4.5000	4.330	4.7100	4.5600	4.4300
86	Kenya	35.30	34.10	37.60	38.40	...	26.4000	27.500	30.2000	32.1000	31.5000
87	Kiribati	NaN	NaN	NaN	NaN	...	22.2000	NaN	NaN	NaN	NaN
88	Kuwait	NaN	NaN	NaN	NaN	...	0.3550	0.451	0.5380	0.5680	NaN
89	Kyrgyz Republic	NaN	NaN	NaN	NaN	...	14.6000	14.700	14.1000	12.8000	12.3000
90	Lao	NaN	NaN	NaN	NaN	...	17.9000	17.800	17.6000	17.2000	16.2000
91	Latvia	NaN	NaN	NaN	NaN	...	3.2800	3.340	3.6400	3.4200	3.4000
92	Lebanon	NaN	NaN	NaN	NaN	...	3.9800	4.080	3.4500	3.4500	3.5300
93	Lesotho	88.20	89.40	88.20	83.80	...	5.9200	5.620	4.9700	5.2000	NaN
94	Liberia	NaN	NaN	NaN	NaN	...	37.2000	35.800	34.4000	34.2000	34.2000
95	Libya	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
96	Lithuania	NaN	NaN	NaN	NaN	...	3.5800	3.420	3.4400	2.9900	3.0900
97	Luxembourg	NaN	NaN	NaN	NaN	...	0.2770	0.265	0.2300	0.2420	0.2820
98	Madagascar	NaN	NaN	NaN	NaN	...	24.3000	24.300	23.5000	21.3000	NaN
99	Malawi	48.40	48.60	48.60	49.20	...	28.7000	28.700	27.5000	25.9000	26.1000
100	Malaysia	43.70	45.40	43.00	35.10	...	9.1100	8.870	8.4600	8.6600	8.7800
101	Maldives	NaN	NaN	NaN	NaN	...	5.4100	5.310	5.7000	5.8800	NaN
102	Mali	NaN	NaN	NaN	NaN	...	36.7000	37.300	37.7000	38.4000	38.3000
103	Malta	NaN	NaN	NaN	NaN	...	1.1900	1.140	1.1000	1.1600	NaN

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
104	Marshall Islands	NaN	NaN	NaN	NaN	...	20.3000	15.700	14.3000	15.9000	NaN
105	Mauritania	46.00	40.60	39.70	40.10	...	18.0000	21.900	24.5000	24.0000	22.9000
106	Mauritius	NaN	NaN	NaN	NaN	...	3.3800	3.260	3.1500	3.1900	3.1100
107	Mexico	NaN	NaN	NaN	NaN	...	3.1400	3.140	3.2000	3.3500	3.4200
108	Micronesia, Fed. Sts.	NaN	NaN	NaN	NaN	...	26.3000	24.800	26.1000	27.1000	NaN
109	Moldova	NaN	NaN	NaN	NaN	...	12.3000	13.000	12.2000	12.1000	12.2000
110	Mongolia	NaN	NaN	NaN	NaN	...	13.4000	13.300	13.4000	11.7000	10.4000
111	Montenegro	NaN	NaN	NaN	NaN	...	8.0300	8.100	8.0600	7.4700	7.6200
112	Morocco	NaN	NaN	NaN	NaN	...	13.4000	11.700	12.8000	12.0000	13.1000
113	Mozambique	NaN	NaN	NaN	NaN	...	24.1000	22.800	22.9000	22.5000	21.8000
114	Myanmar	NaN	NaN	NaN	NaN	...	29.5000	27.800	26.8000	25.5000	26.2000
115	Namibia	NaN	NaN	NaN	NaN	...	6.3400	6.690	5.8800	6.1000	6.9200
116	Nauru	NaN	NaN	NaN	NaN	...	3.3700	3.150	3.6400	NaN	NaN
117	Nepal	NaN	NaN	NaN	NaN	...	31.5000	30.300	29.4000	29.2000	27.0000
118	Netherlands	NaN	NaN	NaN	NaN	...	1.7200	1.660	1.6200	1.6400	1.8600
119	New Zealand	NaN	NaN	NaN	NaN	...	8.5800	6.270	5.4900	NaN	NaN
120	Nicaragua	NaN	NaN	NaN	NaN	...	16.5000	16.700	16.0000	14.9000	15.5000
121	Niger	75.30	73.90	76.00	72.90	...	35.8000	36.700	36.0000	39.0000	39.7000
122	Nigeria	NaN	NaN	NaN	NaN	...	20.8000	20.000	20.6000	21.0000	20.8000
123	North Macedonia	NaN	NaN	NaN	NaN	...	10.0000	10.200	9.7400	9.1100	9.4200
124	Norway	NaN	NaN	NaN	NaN	...	1.3100	1.440	1.5300	2.1300	2.0000
125	Oman	NaN	74.20	61.20	60.30	...	1.3000	1.270	1.6400	1.9700	NaN
126	Pakistan	43.70	42.40	40.80	39.60	...	23.8000	23.700	23.8000	23.2000	22.9000
127	Palau	NaN	NaN	NaN	NaN	...	3.6600	3.280	2.7900	2.9000	3.1500
128	Palestine	NaN	NaN	NaN	NaN	...	4.1500	3.880	3.5500	3.1600	NaN
129	Panama	NaN	NaN	NaN	NaN	...	2.9400	2.850	2.7200	2.4900	2.3600
130	Papua New Guinea	NaN	49.00	47.40	44.00	...	19.3000	17.800	NaN	NaN	NaN
131	Paraguay	NaN	NaN	NaN	NaN	...	19.5000	18.500	17.4000	18.1000	18.1000
132	Peru	19.10	19.20	18.20	17.10	...	6.6700	6.790	7.0400	7.0000	NaN
133	Philippines	26.90	26.80	26.90	27.40	...	11.3000	11.300	10.3000	9.6600	9.6600
134	Poland	NaN	NaN	NaN	NaN	...	2.8700	2.610	2.2000	2.3800	1.6800
135	Portugal	NaN	NaN	NaN	NaN	...	2.0800	2.030	2.0500	1.9000	1.9000
136	Qatar	NaN	NaN	NaN	NaN	...	0.0961	0.117	0.1600	0.1830	0.1850
137	Romania	NaN	NaN	NaN	NaN	...	5.4000	4.720	4.1900	4.0900	4.3700

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
138	Russia	NaN	NaN	NaN	NaN	...	3.1600	3.540	4.1300	4.1800	4.0100
139	Rwanda	NaN	NaN	NaN	NaN	...	28.9000	28.800	28.0000	29.3000	31.0000
140	Samoa	NaN	NaN	NaN	NaN	...	9.6600	9.430	9.5200	9.5900	11.1000
141	Sao Tome and Principe	NaN	NaN	NaN	NaN	...	12.0000	11.400	12.0000	11.9000	11.5000
142	Saudi Arabia	NaN	NaN	NaN	NaN	...	2.1600	2.230	2.6200	2.6900	2.5400
143	Senegal	22.10	22.50	21.40	22.10	...	13.7000	13.500	14.8000	15.2000	15.4000
144	Serbia	NaN	NaN	NaN	NaN	...	7.8800	7.730	6.7700	6.4900	6.0100
145	Seychelles	NaN	NaN	NaN	NaN	...	2.6700	2.370	2.0500	2.0100	NaN
146	Sierra Leone	NaN	NaN	NaN	NaN	...	48.0000	51.800	58.7000	58.2000	60.3000
147	Singapore	3.71	3.51	3.59	3.25	...	0.0340	0.035	0.0311	0.0299	0.0265
148	Slovak Republic	NaN	NaN	NaN	NaN	...	3.6200	4.040	3.3900	3.3200	3.2500
149	Slovenia	NaN	NaN	NaN	NaN	...	1.8000	2.020	2.0300	1.8800	1.8200
150	Solomon Islands	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
151	Somalia	64.40	64.20	64.90	64.00	...	NaN	NaN	NaN	NaN	NaN
152	South Africa	10.70	11.00	10.60	10.40	...	2.1000	2.170	2.0800	2.1800	2.2900
153	South Korea	36.20	38.40	36.30	42.80	...	2.1300	2.120	2.0900	1.9300	1.9600
154	Spain	NaN	NaN	NaN	NaN	...	2.5100	2.430	2.5200	2.5100	2.5900
155	Sri Lanka	32.10	32.90	31.10	32.30	...	7.6700	8.010	8.1800	7.4800	7.7100
156	St. Kitts and Nevis	NaN	NaN	NaN	NaN	...	1.3100	1.140	1.0300	0.9510	1.0700
157	St. Lucia	NaN	NaN	NaN	NaN	...	2.3600	2.040	2.0600	2.0700	1.8800
158	St. Vincent and the Grenadines	NaN	NaN	NaN	NaN	...	6.4800	6.630	6.2400	6.9600	6.9200
159	Sudan	51.40	51.50	49.90	44.80	...	33.8000	31.900	31.4000	31.2000	30.5000
160	Suriname	10.10	10.20	9.86	10.00	...	8.6900	9.380	9.2100	9.3300	8.7400
161	Swaziland	31.50	30.30	34.80	38.80	...	10.3000	9.460	9.5900	9.4600	NaN
162	Sweden	NaN	NaN	NaN	NaN	...	1.2300	1.190	1.2000	1.1500	1.1000
163	Switzerland	NaN	NaN	NaN	NaN	...	0.6930	0.721	0.6510	0.6530	0.6470
164	Syria	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
165	Tajikistan	NaN	NaN	NaN	NaN	...	20.4000	23.400	21.9000	20.4000	NaN
166	Tanzania	NaN	NaN	NaN	NaN	...	31.2000	28.800	29.0000	29.2000	30.1000
167	Thailand	36.40	35.80	34.00	33.10	...	11.3000	10.100	8.9900	8.5000	8.6600
168	Timor-Leste	NaN	NaN	NaN	NaN	...	5.2300	7.360	8.9300	11.4000	NaN
169	Togo	54.90	55.20	53.40	51.90	...	39.7000	42.000	40.7000	41.4000	41.3000
170	Tonga	NaN	NaN	NaN	NaN	...	17.6000	17.100	17.6000	17.2000	NaN

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
171	Trinidad and Tobago	NaN	NaN	NaN	NaN	...	0.3720	0.349	0.4470	0.4970	0.4780
172	Tunisia	NaN	NaN	NaN	NaN	...	8.8900	9.060	10.2000	9.2200	NaN
173	Turkey	54.90	51.50	52.80	53.30	...	6.7300	6.590	6.9000	6.1800	6.0800
174	Turkmenistan	NaN	NaN	NaN	NaN	...	8.4700	8.300	9.3000	NaN	NaN
175	Tuvalu	NaN	NaN	NaN	NaN	...	19.6000	19.000	16.5000	NaN	NaN
176	Uganda	49.90	49.90	49.20	47.50	...	25.5000	25.100	24.0000	23.7000	24.9000
177	Ukraine	NaN	NaN	NaN	NaN	...	8.7900	10.200	12.1000	11.6000	10.2000
178	United Arab Emirates	NaN	NaN	NaN	NaN	...	0.6440	0.639	0.7410	0.7760	0.7630
179	United Kingdom	NaN	NaN	NaN	NaN	...	0.6540	0.639	0.5930	0.5370	0.5170
180	United States	NaN	NaN	NaN	NaN	...	1.3800	1.220	1.0700	1.0100	NaN
181	Uruguay	NaN	NaN	NaN	NaN	...	7.6200	6.740	6.1300	5.8900	5.1600
182	Uzbekistan	NaN	NaN	NaN	NaN	...	17.4000	17.100	16.6000	16.1000	17.3000
183	Vanuatu	NaN	NaN	NaN	NaN	...	25.0000	25.200	26.6000	NaN	NaN
184	Venezuela	NaN	NaN	NaN	NaN	...	4.9000	5.030	NaN	NaN	NaN
185	Vietnam	NaN	NaN	NaN	NaN	...	18.0000	17.700	17.0000	16.3000	15.3000
186	Yemen	NaN	NaN	NaN	NaN	...	7.8700	7.820	10.3000	15.9000	NaN
187	Zambia	11.50	12.80	12.30	13.00	...	8.2300	6.780	4.9800	6.2300	7.1600
188	Zimbabwe	NaN	NaN	NaN	NaN	...	8.8300	10.700	10.1000	9.7400	10.5000

189 rows × 59 columns

In [223]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

agri_r = agri.drop(agri.index[181:])
agri_r = agri_r.drop(agri.index[153:179])
agri_r = agri_r.drop(agri.index[139:152])
agri_r = agri_r.drop(agri.index[108:138])
agri_r = agri_r.drop(agri.index[84:107])
agri_r = agri_r.drop(agri.index[82:83])
agri_r = agri_r.drop(agri.index[76:81])
agri_r = agri_r.drop(agri.index[64:75])
agri_r = agri_r.drop(agri.index[60:63])
agri_r = agri_r.drop(agri.index[36:59])
agri_r = agri_r.drop(agri.index[31:35])
agri_r = agri_r.drop(agri.index[28:30])
agri_r = agri_r.drop(agri.index[24:27])
agri_r = agri_r.drop(agri.index[:23])
agri_r.drop(agri_r.columns[1:38], axis=1,inplace=True)
agri_r
```

Out[223]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008
23	Brazil	4.690	4.750	4.650	4.750	4.800	5.480	6.170	5.670	4.650	...	4.570
27	Burundi	42.400	44.500	47.600	44.100	43.800	43.300	42.800	41.900	40.800	...	37.200
30	Canada	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	1.600
35	China	17.900	17.200	16.100	14.700	14.000	13.300	12.300	12.900	11.600	...	10.300
59	France	2.340	2.360	2.240	2.100	2.110	2.010	1.850	1.820	1.680	...	1.520
63	Germany	0.983	0.932	0.913	0.953	1.040	0.856	0.783	0.908	0.687	...	0.805
75	India	24.600	24.700	23.300	21.900	21.900	19.800	19.800	18.000	17.800	...	17.300
81	Italy	2.840	2.750	2.710	2.550	2.480	2.360	2.350	2.340	2.030	...	1.870
83	Japan	1.560	1.630	1.600	1.540	1.380	1.390	1.310	1.240	1.130	...	1.060
107	Mexico	4.450	4.160	3.680	3.320	3.400	3.280	3.390	3.340	3.070	...	3.160
138	Russia	5.870	5.100	6.580	5.750	5.880	5.570	5.500	4.900	4.260	...	3.750
152	South Africa	3.690	3.450	3.240	2.990	3.220	3.380	3.050	2.760	2.390	...	2.860
179	United Kingdom	0.999	0.906	0.847	0.782	0.748	0.728	0.767	0.775	0.579	...	0.633
180	United States	1.330	1.210	1.150	1.150	1.130	0.969	1.130	1.250	1.140	...	1.120

14 rows × 22 columns

In [107]:
```
# This code finds the location of the years not included in the analysis
industry.columns.get_loc('1997')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(industry)
```

Out[107]: 38

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
0	Afghanistan	NaN	NaN	NaN	NaN	...	20.40	21.10	22.00	21.70	NaN
1	Albania	NaN	NaN	NaN	NaN	...	23.10	21.50	21.80	21.10	21.10
2	Algeria	29.40	29.50	31.70	40.80	...	44.30	42.30	35.70	34.90	36.30
3	Andorra	NaN	NaN	NaN	NaN	...	10.30	9.91	9.78	9.84	NaN
4	Angola	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
5	Antigua and Barbuda	NaN	NaN	NaN	NaN	...	15.50	15.80	16.10	17.50	18.20
6	Argentina	NaN	NaN	NaN	NaN	...	24.00	24.30	23.20	22.20	21.70
7	Armenia	NaN	NaN	NaN	NaN	...	26.70	25.30	25.70	25.60	25.30
8	Australia	NaN	NaN	NaN	NaN	...	25.00	25.40	23.50	22.30	23.00
9	Austria	NaN	NaN	NaN	NaN	...	25.50	25.40	25.00	24.70	25.30
10	Azerbaijan	NaN	NaN	NaN	NaN	...	57.10	53.60	45.00	47.50	49.60
11	Bahamas	NaN	NaN	NaN	NaN	...	13.00	13.90	11.10	12.30	13.30
12	Bahrain	NaN	NaN	NaN	NaN	...	47.90	46.50	40.30	39.40	41.50
13	Bangladesh	6.97	6.79	7.96	7.80	...	26.30	26.30	26.80	27.30	27.80
14	Barbados	NaN	NaN	NaN	NaN	...	14.20	13.90	13.90	12.70	NaN
15	Belarus	NaN	NaN	NaN	NaN	...	35.90	35.40	32.70	31.00	32.10
16	Belgium	NaN	NaN	NaN	NaN	...	19.90	19.70	19.90	19.80	19.80
17	Belize	NaN	NaN	NaN	NaN	...	16.60	16.20	14.20	14.10	14.30
18	Benin	10.20	9.81	9.79	11.50	...	20.80	20.80	20.60	20.10	21.40
19	Bhutan	NaN	NaN	NaN	NaN	...	42.40	40.60	41.30	41.50	39.00
20	Bolivia	NaN	NaN	NaN	NaN	...	28.50	27.60	25.20	25.30	26.40
21	Bosnia and Herzegovina	NaN	NaN	NaN	NaN	...	22.20	22.10	22.50	23.20	23.40
22	Botswana	13.30	12.30	11.40	10.60	...	31.50	33.10	30.00	32.10	30.30
23	Brazil	31.80	36.60	29.80	34.80	...	21.20	20.50	19.40	18.30	18.50
24	Brunei	NaN	NaN	NaN	NaN	...	70.00	67.80	61.40	57.30	59.70
25	Bulgaria	NaN	NaN	NaN	NaN	...	23.80	23.60	24.10	24.40	24.50
26	Burkina Faso	19.90	19.90	19.40	20.60	...	18.80	19.80	19.00	20.80	21.40
27	Burundi	NaN	NaN	NaN	NaN	...	16.20	16.60	15.10	15.10	NaN
28	Cambodia	NaN	NaN	NaN	NaN	...	24.10	25.60	27.70	29.50	30.90
29	Cameroon	NaN	NaN	NaN	NaN	...	27.60	27.10	25.20	24.50	24.00
30	Canada	NaN	NaN	NaN	NaN	...	27.00	27.50	NaN	NaN	NaN
31	Cape Verde	NaN	NaN	NaN	NaN	...	17.50	18.70	18.10	17.40	18.50
32	Central African Republic	NaN	NaN	NaN	NaN	...	15.90	16.00	15.50	15.10	15.40
33	Chad	9.19	9.78	8.87	9.38	...	13.30	14.50	13.60	14.60	14.60
34	Chile	33.80	33.80	35.80	37.70	...	31.20	30.80	29.70	28.90	30.00

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
35	China	44.40	31.90	31.30	33.10	...	44.00	43.10	40.90	39.90	40.50
36	Colombia	NaN	NaN	NaN	NaN	...	34.20	32.70	30.50	29.70	29.20
37	Comoros	NaN	NaN	NaN	NaN	...	11.10	10.90	10.80	NaN	NaN
38	Congo, Dem. Rep.	NaN	NaN	NaN	NaN	...	41.30	43.00	41.70	41.20	41.60
39	Congo, Rep.	17.00	18.00	17.90	17.80	...	72.00	69.40	54.70	50.20	54.30
40	Costa Rica	19.70	20.20	20.40	21.40	...	20.80	20.20	19.40	18.90	18.60
41	Cote d'Ivoire	13.10	13.90	14.00	14.70	...	26.00	27.40	25.80	27.50	27.40
42	Croatia	NaN	NaN	NaN	NaN	...	22.50	22.50	22.30	22.10	21.80
43	Cuba	NaN	NaN	NaN	NaN	...	23.20	22.20	22.40	NaN	NaN
44	Cyprus	NaN	NaN	NaN	NaN	...	10.00	9.38	9.75	9.92	NaN
45	Czech Republic	NaN	NaN	NaN	NaN	...	32.90	34.20	34.00	33.80	33.50
46	Denmark	NaN	NaN	NaN	NaN	...	20.10	19.80	19.70	20.30	19.90
47	Djibouti	NaN	NaN	NaN	NaN	...	17.40	17.50	16.80	15.70	15.50
48	Dominica	NaN	NaN	NaN	NaN	...	12.20	12.40	11.30	11.50	11.50
49	Dominican Republic	NaN	NaN	NaN	NaN	...	26.60	27.10	25.70	24.40	24.80
50	Ecuador	19.90	20.60	20.50	20.80	...	37.10	36.80	31.90	32.30	31.40
51	Egypt	NaN	NaN	NaN	NaN	...	39.90	39.90	36.60	32.50	33.80
52	El Salvador	NaN	NaN	NaN	NaN	...	26.10	25.80	24.40	24.10	24.80
53	Equatorial Guinea	NaN	NaN	NaN	NaN	...	72.40	70.20	59.10	52.00	55.90
54	Eritrea	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
55	Estonia	NaN	NaN	NaN	NaN	...	25.20	24.90	24.00	23.10	23.50
56	Ethiopia	NaN	NaN	NaN	NaN	...	10.90	13.50	16.30	22.10	22.90
57	Fiji	NaN	NaN	NaN	22.90	...	16.30	15.10	14.90	14.30	NaN
58	Finland	NaN	NaN	NaN	NaN	...	23.30	23.10	23.30	23.40	24.00
59	France	29.80	30.00	29.50	29.20	...	18.00	17.70	17.70	17.60	17.40
60	Gabon	33.90	31.60	30.60	38.10	...	56.60	52.70	48.20	45.20	44.60
61	Gambia	NaN	NaN	NaN	NaN	...	12.70	12.90	13.50	12.80	12.20
62	Georgia	NaN	NaN	NaN	NaN	...	20.90	20.60	21.30	21.50	22.10
63	Germany	NaN	NaN	NaN	NaN	...	27.10	27.40	27.50	27.50	27.60
64	Ghana	NaN	NaN	NaN	NaN	...	26.90	25.40	23.60	22.70	23.70
65	Greece	NaN	NaN	NaN	NaN	...	14.70	14.10	13.80	14.20	14.80
66	Grenada	NaN	NaN	NaN	NaN	...	13.40	12.80	12.30	12.20	13.20
67	Guatemala	NaN	NaN	NaN	NaN	...	27.30	27.30	26.50	26.00	25.30
68	Guinea	NaN	NaN	NaN	NaN	...	29.60	29.70	26.30	31.00	32.80
69	Guinea-Bissau	NaN	NaN	NaN	NaN	...	14.40	14.40	12.30	12.60	12.60
70	Guyana	27.90	28.10	31.80	29.60	...	31.30	29.70	29.90	36.40	35.40

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
71	Haiti	NaN	NaN	NaN	NaN	...	55.30	55.90	57.00	56.70	56.80
72	Honduras	17.10	16.70	17.80	18.00	...	25.40	24.50	25.60	25.70	26.20
73	Hungary	NaN	NaN	NaN	NaN	...	25.20	25.80	26.60	25.80	26.40
74	Iceland	NaN	NaN	NaN	NaN	...	20.80	19.90	19.50	19.70	NaN
75	India	21.80	22.40	23.10	22.90	...	28.40	27.70	27.20	26.60	26.20
76	Indonesia	NaN	NaN	NaN	NaN	...	42.60	41.90	40.00	39.30	39.40
77	Iran	25.70	27.80	29.50	30.90	...	42.90	39.60	33.00	33.90	21.20
78	Iraq	NaN	NaN	NaN	NaN	...	57.70	56.50	41.50	37.30	41.80
79	Ireland	NaN	NaN	NaN	NaN	...	25.20	25.30	38.40	36.40	NaN
80	Israel	NaN	NaN	NaN	NaN	...	19.80	19.60	18.80	18.70	NaN
81	Italy	NaN	NaN	NaN	NaN	...	21.30	21.00	21.20	21.40	21.40
82	Jamaica	NaN	NaN	NaN	NaN	...	18.00	18.30	19.20	19.00	19.50
83	Japan	NaN	NaN	NaN	NaN	...	26.90	27.70	28.90	29.30	NaN
84	Jordan	NaN	NaN	NaN	NaN	...	26.10	26.20	26.10	25.50	25.40
85	Kazakhstan	NaN	NaN	NaN	NaN	...	33.70	33.20	30.90	32.00	32.00
86	Kenya	16.90	17.10	15.40	14.00	...	18.00	17.40	17.30	17.50	17.50
87	Kiribati	NaN	NaN	NaN	NaN	...	6.71	NaN	NaN	NaN	NaN
88	Kuwait	NaN	NaN	NaN	NaN	...	73.10	70.50	55.90	51.60	NaN
89	Kyrgyz Republic	NaN	NaN	NaN	NaN	...	24.80	23.90	25.10	26.50	26.50
90	Lao	NaN	NaN	NaN	NaN	...	30.40	28.80	27.70	28.80	30.90
91	Latvia	NaN	NaN	NaN	NaN	...	20.40	19.70	19.60	18.60	19.50
92	Lebanon	NaN	NaN	NaN	NaN	...	17.80	17.60	15.40	15.40	12.00
93	Lesotho	NaN	NaN	NaN	2.37	...	28.00	30.90	32.80	33.00	NaN
94	Liberia	NaN	NaN	NaN	NaN	...	15.80	15.70	12.50	13.00	12.20
95	Libya	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
96	Liechtenstein	NaN	NaN	NaN	NaN	...	39.30	39.60	37.20	NaN	NaN
97	Lithuania	NaN	NaN	NaN	NaN	...	27.30	27.50	26.70	25.80	26.40
98	Luxembourg	NaN	NaN	NaN	NaN	...	10.90	11.30	11.40	11.70	11.60
99	Madagascar	NaN	NaN	NaN	NaN	...	14.70	14.70	14.40	16.70	NaN
100	Malawi	9.97	10.10	9.71	8.88	...	14.80	14.60	14.80	14.60	14.40
101	Malaysia	24.70	27.10	30.80	27.00	...	39.90	39.90	39.10	38.30	38.80
102	Maldives	NaN	NaN	NaN	NaN	...	8.06	8.41	9.07	9.69	NaN
103	Mali	NaN	NaN	NaN	NaN	...	18.60	18.90	17.50	16.50	16.60
104	Malta	NaN	NaN	NaN	NaN	...	14.90	13.80	13.00	12.50	NaN
105	Marshall Islands	NaN	NaN	NaN	NaN	...	10.40	10.50	10.50	14.10	NaN
106	Mauritania	18.70	26.80	22.70	19.20	...	41.30	33.00	25.30	26.30	28.70

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
107	Mauritius	NaN	NaN	NaN	NaN	...	20.60	19.80	19.20	18.60	18.20
108	Mexico	NaN	NaN	NaN	NaN	...	31.90	31.50	30.00	29.30	29.90
109	Micronesia, Fed. Sts.	NaN	NaN	NaN	NaN	...	7.38	6.06	6.16	6.08	NaN
110	Moldova	NaN	NaN	NaN	NaN	...	18.10	18.70	18.80	18.50	17.90
111	Mongolia	NaN	NaN	NaN	NaN	...	30.50	31.50	31.00	33.70	33.00
112	Montenegro	NaN	NaN	NaN	NaN	...	15.50	14.30	14.40	15.80	17.40
113	Morocco	NaN	NaN	NaN	NaN	...	26.20	26.40	25.80	26.10	25.60
114	Mozambique	NaN	NaN	NaN	NaN	...	17.00	18.80	19.60	19.70	17.60
115	Myanmar	NaN	NaN	NaN	NaN	...	32.40	34.50	34.50	35.00	31.60
116	Namibia	NaN	NaN	NaN	NaN	...	30.00	29.20	28.50	29.30	28.40
117	Nauru	NaN	NaN	NaN	NaN	...	36.70	21.90	5.50	NaN	NaN
118	Nepal	NaN	NaN	NaN	NaN	...	14.20	13.80	13.70	13.10	13.50
119	Netherlands	NaN	NaN	NaN	NaN	...	19.30	18.50	18.20	18.00	17.50
120	New Zealand	NaN	NaN	NaN	NaN	...	18.80	20.00	20.40	NaN	NaN
121	Nicaragua	NaN	NaN	NaN	NaN	...	25.40	25.10	24.50	24.30	23.60
122	Niger	3.89	3.45	3.52	3.61	...	21.60	19.40	18.00	16.70	15.90
123	Nigeria	NaN	NaN	NaN	NaN	...	25.70	24.60	20.20	18.20	22.30
124	North Macedonia	NaN	NaN	NaN	NaN	...	22.10	22.80	24.00	24.70	23.10
125	Norway	NaN	NaN	NaN	NaN	...	35.60	34.00	30.90	28.30	29.90
126	Oman	NaN	7.98	23.40	24.30	...	67.50	64.00	54.70	47.20	NaN
127	Pakistan	14.70	15.80	16.90	18.50	...	20.20	20.00	19.10	18.30	17.90
128	Palau	NaN	NaN	NaN	NaN	...	7.57	7.18	6.69	8.91	8.67
129	Palestine	NaN	NaN	NaN	NaN	...	20.20	20.00	18.90	19.60	NaN
130	Panama	NaN	NaN	NaN	NaN	...	25.10	26.60	27.80	28.20	28.70
131	Papua New Guinea	NaN	13.40	14.20	15.40	...	26.50	31.90	NaN	NaN	NaN
132	Paraguay	NaN	NaN	NaN	NaN	...	25.70	26.00	26.70	27.50	27.00
133	Peru	28.20	27.70	27.70	26.00	...	33.90	31.60	29.80	30.00	NaN
134	Philippines	31.30	31.60	31.10	31.60	...	31.10	31.30	30.90	30.70	30.50
135	Poland	NaN	NaN	NaN	NaN	...	28.60	29.40	30.30	29.80	27.90
136	Portugal	NaN	NaN	NaN	NaN	...	18.90	18.90	19.50	19.40	19.40
137	Qatar	NaN	NaN	NaN	NaN	...	71.80	69.80	58.50	51.90	NaN
138	Romania	NaN	NaN	NaN	NaN	...	32.20	31.50	29.90	30.20	30.10
139	Russia	NaN	NaN	NaN	NaN	...	28.20	27.90	29.80	29.30	30.00
140	Rwanda	NaN	NaN	NaN	NaN	...	17.20	17.20	17.00	16.40	15.80
141	Samoa	NaN	NaN	NaN	NaN	...	25.60	26.60	24.30	23.90	22.50
142	Sao Tome and Principe	NaN	NaN	NaN	NaN	...	15.70	16.90	14.60	15.50	15.10

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
143	Saudi Arabia	NaN	NaN	NaN	NaN	...	59.90	57.20	45.30	43.20	45.00
144	Senegal	12.00	12.80	13.20	12.90	...	20.80	20.90	20.80	20.30	20.50
145	Serbia	NaN	NaN	NaN	NaN	...	26.70	25.20	26.00	25.80	26.40
146	Seychelles	NaN	NaN	NaN	NaN	...	12.60	12.20	11.80	11.40	NaN
147	Sierra Leone	NaN	NaN	NaN	NaN	...	21.20	15.60	4.56	5.61	5.14
148	Singapore	16.30	16.80	17.60	18.70	...	23.20	24.00	24.20	23.70	23.20
149	Slovak Republic	NaN	NaN	NaN	NaN	...	30.10	31.30	31.10	31.40	31.00
150	Slovenia	NaN	NaN	NaN	NaN	...	27.60	28.40	28.20	28.00	28.80
151	Somalia	6.97	6.56	6.18	5.82	...	NaN	NaN	NaN	NaN	NaN
152	South Africa	35.90	36.20	36.20	36.30	...	26.70	26.50	26.00	26.00	25.90
153	South Korea	17.10	17.60	17.60	17.90	...	35.00	34.70	34.90	35.10	35.90
154	Spain	NaN	NaN	NaN	NaN	...	21.20	21.10	21.40	21.30	21.60
155	Sri Lanka	20.70	20.60	21.10	20.70	...	29.20	28.30	27.20	27.30	27.20
156	St. Kitts and Nevis	NaN	NaN	NaN	NaN	...	21.90	23.30	24.20	24.30	25.50
157	St. Lucia	NaN	NaN	NaN	NaN	...	12.20	11.10	11.20	11.40	11.50
158	St. Vincent and the Grenadines	NaN	NaN	NaN	NaN	...	15.30	14.80	15.30	14.80	15.00
159	Sudan	12.60	11.80	11.70	12.90	...	2.69	2.53	2.07	2.32	2.31
160	Suriname	44.30	41.90	40.40	40.00	...	32.40	30.20	25.40	29.90	31.70
161	Swaziland	NaN	NaN	NaN	NaN	...	35.90	35.80	35.70	35.50	NaN
162	Sweden	NaN	NaN	NaN	NaN	...	23.10	22.80	21.70	21.70	22.10
163	Switzerland	NaN	NaN	NaN	NaN	...	25.50	25.20	25.10	25.00	25.20
164	Syria	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
165	Tajikistan	NaN	NaN	NaN	NaN	...	23.00	22.30	24.40	27.20	NaN
166	Tanzania	NaN	NaN	NaN	NaN	...	22.70	23.20	24.30	24.90	26.40
167	Thailand	18.50	19.20	20.90	21.00	...	37.00	36.80	36.20	35.80	35.00
168	Timor-Leste	NaN	NaN	NaN	NaN	...	79.80	69.80	56.90	44.80	NaN
169	Togo	15.50	15.50	14.20	18.20	...	18.70	17.30	17.70	17.00	16.80
170	Tonga	NaN	NaN	NaN	NaN	...	16.40	16.10	16.90	17.30	NaN
171	Trinidad and Tobago	NaN	NaN	NaN	NaN	...	48.00	47.50	37.00	35.40	38.20
172	Tunisia	NaN	NaN	NaN	NaN	...	28.80	26.90	25.20	24.40	NaN
173	Turkey	17.30	17.20	17.10	17.00	...	27.70	28.20	27.90	28.20	29.20
174	Turkmenistan	NaN	NaN	NaN	NaN	...	63.40	60.70	57.00	NaN	NaN
175	Tuvalu	NaN	NaN	NaN	NaN	...	7.71	7.68	7.28	NaN	NaN
176	Uganda	12.80	12.80	12.10	13.40	...	20.60	20.40	20.00	20.70	20.00
177	Ukraine	NaN	NaN	NaN	NaN	...	22.60	22.80	21.80	23.00	24.00
178	United Arab Emirates	NaN	NaN	NaN	NaN	...	55.00	52.80	43.90	41.40	43.60

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
179	United Kingdom	NaN	NaN	NaN	NaN	...	18.20	17.80	17.80	18.00	18.60
180	United States	NaN	NaN	NaN	NaN	...	20.10	20.20	19.40	18.90	NaN
181	Uruguay	NaN	NaN	NaN	NaN	...	23.70	24.70	25.40	25.50	24.30
182	Uzbekistan	NaN	NaN	NaN	NaN	...	30.50	30.60	31.50	30.10	30.10
183	Vanuatu	NaN	NaN	NaN	NaN	...	7.87	8.13	11.40	NaN	NaN
184	Venezuela	NaN	NaN	NaN	NaN	...	44.70	37.20	NaN	NaN	NaN
185	Vietnam	NaN	NaN	NaN	NaN	...	33.20	33.20	33.30	32.70	33.30
186	Yemen	NaN	NaN	NaN	NaN	...	43.90	44.00	58.80	91.20	NaN
187	Zambia	62.20	59.40	58.00	57.70	...	32.60	32.90	33.70	34.90	35.70
188	Zimbabwe	NaN	NaN	NaN	NaN	...	22.90	22.50	21.20	20.20	21.50

189 rows × 59 columns

In [222]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

industry_r = industry.drop(industry.index[181:])
industry_r = industry_r.drop(industry.index[153:179])
industry_r = industry_r.drop(industry.index[140:152])
industry_r = industry_r.drop(industry.index[109:139])
industry_r = industry_r.drop(industry.index[84:108])
industry_r = industry_r.drop(industry.index[82:83])
industry_r = industry_r.drop(industry.index[76:81])
industry_r = industry_r.drop(industry.index[64:75])
industry_r = industry_r.drop(industry.index[60:63])
industry_r = industry_r.drop(industry.index[36:59])
industry_r = industry_r.drop(industry.index[31:35])
industry_r = industry_r.drop(industry.index[28:30])
industry_r = industry_r.drop(industry.index[24:27])
industry_r = industry_r.drop(industry.index[:23])
industry_r.drop(industry_r.columns[1:38], axis=1,inplace=True)
industry_r
```

Out[222]:

country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	...	2008	2009	2010	2
Brazil	22.6	22.1	21.7	23.0	22.6	22.5	23.1	24.3	24.2	23.5	...	23.1	21.9	23.3	
Burundi	13.9	14.7	16.1	15.5	15.6	15.8	15.7	16.3	16.9	15.3	...	14.7	15.2	15.3	
Canada	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	29.7	25.4	26.7	
China	47.1	45.8	45.4	45.5	44.8	44.5	45.6	45.9	47.0	47.6	...	46.9	45.9	46.4	
France	21.5	21.4	21.2	21.3	20.9	20.6	20.2	20.0	19.6	19.3	...	18.8	18.3	17.8	
Germany	28.6	28.4	27.8	27.9	27.2	26.6	26.4	26.7	26.6	27.3	...	27.0	24.9	27.1	
India	28.9	28.3	27.6	28.4	27.6	28.8	28.6	30.4	30.7	31.6	...	31.7	31.1	30.1	
Italy	25.5	25.3	24.7	24.3	24.2	24.0	23.5	23.5	23.3	23.4	...	23.6	21.9	21.9	
Japan	34.1	33.5	33.0	32.8	31.3	30.5	30.4	30.3	30.2	30.0	...	29.0	27.3	28.4	
Mexico	34.2	33.9	34.1	34.2	33.2	32.7	31.2	32.9	32.8	34.2	...	34.8	31.9	32.4	
Russia	34.7	33.9	33.5	33.9	31.8	29.0	28.7	31.7	32.6	31.8	...	30.8	29.3	30.0	
South Africa	30.1	29.5	28.5	29.1	29.6	29.7	28.0	27.3	27.1	26.2	...	28.3	27.6	27.4	
United Kingdom	24.1	23.2	22.1	22.5	21.4	21.1	20.3	19.5	19.7	19.7	...	19.0	18.0	18.0	
United States	23.1	22.6	22.5	22.4	21.5	20.6	20.7	21.0	21.2	21.6	...	21.0	19.6	19.8	

14 rows × 21 columns

Out[222]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	2010	20
23	Brazil	22.6	22.1	21.7	23.0	22.6	22.5	23.1	24.3	24.2	...	23.1	21.9	23.3	23
27	Burundi	13.9	14.7	16.1	15.5	15.6	15.8	15.7	16.3	16.9	...	14.7	15.2	15.3	15
30	Canada	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	29.7	25.4	26.7	27
35	China	47.1	45.8	45.4	45.5	44.8	44.5	45.6	45.9	47.0	...	46.9	45.9	46.4	46
59	France	21.5	21.4	21.2	21.3	20.9	20.6	20.2	20.0	19.6	...	18.8	18.3	17.8	18
63	Germany	28.6	28.4	27.8	27.9	27.2	26.6	26.4	26.7	26.6	...	27.0	24.9	27.1	27
75	India	28.9	28.3	27.6	28.4	27.6	28.8	28.6	30.4	30.7	...	31.7	31.1	30.1	30
81	Italy	25.5	25.3	24.7	24.3	24.2	24.0	23.5	23.5	23.3	...	23.6	21.9	21.9	21
83	Japan	34.1	33.5	33.0	32.8	31.3	30.5	30.4	30.3	30.2	...	29.0	27.3	28.4	26
108	Mexico	34.2	33.9	34.1	34.2	33.2	32.7	31.2	32.9	32.8	...	34.8	31.9	32.4	33
139	Russia	34.7	33.9	33.5	33.9	31.8	29.0	28.7	31.7	32.6	...	30.8	29.3	30.0	29
152	South Africa	30.1	29.5	28.5	29.1	29.6	29.7	28.0	27.3	27.1	...	28.3	27.6	27.4	26
179	United Kingdom	24.1	23.2	22.1	22.5	21.4	21.1	20.3	19.5	19.7	...	19.0	18.0	18.0	18
180	United States	23.1	22.6	22.5	22.4	21.5	20.6	20.7	21.0	21.2	...	21.0	19.6	19.8	20

14 rows × 22 columns

In [109]:
```
# This code finds the location of the years not included in the analysis
service.columns.get_loc('1997')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(service)
```

Out[109]: 38

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
0	Afghanistan	NaN	NaN	NaN	NaN	...	53.00	53.20	53.40	53.00	NaN
1	Albania	NaN	NaN	NaN	NaN	...	44.60	45.80	46.30	46.70	47.3
2	Algeria	NaN	NaN	NaN	NaN	...	NaN	NaN	44.60	45.10	44.1
3	Andorra	NaN	NaN	NaN	NaN	...	79.30	79.50	80.00	79.20	NaN
4	Angola	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
5	Antigua and Barbuda	NaN	NaN	NaN	NaN	...	71.30	71.20	70.50	69.10	69.2
6	Argentina	NaN	NaN	NaN	NaN	...	53.90	52.90	55.80	55.90	56.9
7	Armenia	NaN	NaN	NaN	NaN	...	45.70	47.40	48.20	49.90	51.3
8	Australia	NaN	NaN	NaN	NaN	...	66.40	65.80	67.40	68.30	67.0
9	Austria	NaN	NaN	NaN	NaN	...	62.30	62.70	63.10	63.30	62.8
10	Azerbaijan	NaN	NaN	NaN	NaN	...	30.90	33.60	39.90	38.80	37.5
11	Bahamas	NaN	NaN	NaN	NaN	...	78.80	79.10	78.00	76.80	74.9
12	Bahrain	NaN	NaN	NaN	NaN	...	50.80	52.50	58.50	59.40	57.0
13	Bangladesh	35.60	35.20	35.00	35.00	...	53.40	53.60	53.70	53.70	53.5
14	Barbados	NaN	NaN	NaN	NaN	...	73.20	72.70	74.10	74.90	NaN
15	Belarus	NaN	NaN	NaN	NaN	...	45.40	45.70	47.70	48.50	46.9
16	Belgium	NaN	NaN	NaN	NaN	...	68.90	69.10	69.00	68.90	68.8
17	Belize	NaN	NaN	NaN	NaN	...	60.10	59.90	60.80	62.40	58.4
18	Benin	43.60	44.00	45.50	44.80	...	47.50	47.50	47.20	47.60	46.9
19	Bhutan	NaN	NaN	NaN	NaN	...	36.30	37.20	37.60	37.40	39.3
20	Bolivia	NaN	NaN	NaN	NaN	...	40.20	41.50	46.00	49.80	48.7
21	Bosnia and Herzegovina	NaN	NaN	NaN	NaN	...	56.20	56.90	56.20	55.50	55.8
22	Botswana	43.10	45.90	48.50	50.50	...	49.10	49.00	50.50	50.30	58.7
23	Brazil	36.30	34.00	44.20	40.20	...	59.70	61.30	62.30	63.20	63.1
24	Brunei	NaN	NaN	NaN	NaN	...	29.30	31.40	37.50	43.00	40.9
25	Bulgaria	NaN	NaN	NaN	NaN	...	57.80	58.70	58.20	57.80	58.3
26	Burkina Faso	38.30	38.50	38.70	36.90	...	40.10	40.30	42.00	42.10	42.0
27	Cambodia	NaN	NaN	NaN	NaN	...	38.50	39.70	39.80	39.90	39.7
28	Cameroon	NaN	NaN	NaN	NaN	...	52.50	51.80	52.10	52.20	52.7
29	Canada	NaN	NaN	NaN	NaN	...	64.90	64.70	NaN	NaN	NaN
30	Cape Verde	NaN	NaN	NaN	NaN	...	61.80	61.20	60.50	61.00	61.3
31	Central African Republic	NaN	NaN	NaN	NaN	...	34.60	39.70	38.90	38.80	39.3
32	Chad	48.10	48.60	49.30	48.30	...	33.00	31.10	32.90	32.70	33.5
33	Chile	47.90	48.30	47.60	47.50	...	56.90	56.70	57.90	58.50	57.6
34	China	NaN	NaN	NaN	NaN	...	46.70	47.80	50.20	51.60	51.6

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
35	Colombia	NaN	NaN	NaN	NaN	...	52.20	53.20	54.80	55.40	55.7
36	Comoros	NaN	NaN	NaN	NaN	...	53.00	54.50	55.70	NaN	NaN
37	Congo, Dem. Rep.	NaN	NaN	NaN	NaN	...	32.30	31.70	33.10	33.80	34.1
38	Congo, Rep.	59.40	61.50	62.30	61.30	...	23.60	25.70	38.10	41.10	38.5
39	Costa Rica	54.30	54.10	53.80	54.20	...	65.70	66.40	67.40	67.70	68.3
40	Cote d'Ivoire	39.00	39.70	40.10	41.10	...	42.90	41.10	40.60	40.90	41.6
41	Croatia	NaN	NaN	NaN	NaN	...	58.40	58.80	58.60	58.80	58.5
42	Cyprus	NaN	NaN	NaN	NaN	...	76.90	76.50	76.30	75.70	NaN
43	Czech Republic	NaN	NaN	NaN	NaN	...	54.30	53.70	53.80	53.90	54.2
44	Denmark	NaN	NaN	NaN	NaN	...	65.20	65.60	66.30	65.50	65.9
45	Djibouti	NaN	NaN	NaN	NaN	...	70.20	70.30	70.40	71.80	71.9
46	Dominica	NaN	NaN	NaN	NaN	...	59.40	59.30	59.60	57.70	58.0
47	Dominican Republic	85.70	86.90	86.70	87.30	...	61.60	61.10	61.40	62.30	62.0
48	Ecuador	40.10	39.60	39.30	38.80	...	49.30	49.30	51.40	51.30	52.1
49	El Salvador	NaN	NaN	NaN	NaN	...	59.60	59.60	60.40	60.50	60.0
50	Equatorial Guinea	NaN	NaN	NaN	NaN	...	26.20	27.90	37.80	44.10	40.7
51	Estonia	NaN	NaN	NaN	NaN	...	59.50	59.10	59.80	60.50	60.4
52	Ethiopia	NaN	NaN	NaN	NaN	...	39.70	39.90	39.50	36.50	36.9
53	Fiji	NaN	NaN	NaN	30.60	...	56.90	58.60	58.80	56.40	NaN
54	Finland	NaN	NaN	NaN	NaN	...	60.20	60.70	60.70	60.40	60.1
55	France	NaN	NaN	NaN	NaN	...	70.30	70.30	70.20	70.30	70.2
56	Gabon	33.90	33.20	33.50	17.80	...	33.30	36.60	40.30	43.00	43.0
57	Gambia	NaN	NaN	NaN	NaN	...	62.00	64.50	64.00	65.70	65.8
58	Georgia	NaN	NaN	NaN	NaN	...	57.90	57.50	57.30	57.00	56.6
59	Germany	NaN	NaN	NaN	NaN	...	62.00	61.90	62.00	62.10	61.9
60	Ghana	NaN	NaN	NaN	NaN	...	48.10	49.60	51.20	53.10	52.2
61	Greece	NaN	NaN	NaN	NaN	...	70.80	70.80	70.80	69.50	68.9
62	Grenada	NaN	NaN	NaN	NaN	...	69.70	68.30	66.80	66.80	66.2
63	Guatemala	NaN	NaN	NaN	NaN	...	59.20	59.20	60.40	61.50	62.1
64	Guinea	NaN	NaN	NaN	NaN	...	45.10	43.40	45.50	41.50	40.7
65	Guinea-Bissau	NaN	NaN	NaN	NaN	...	40.10	41.90	36.40	36.40	32.3
66	Guyana	38.50	38.40	36.10	36.50	...	43.20	44.60	43.80	41.10	41.8
67	Haiti	NaN	NaN	NaN	NaN	...	24.10	23.80	23.30	22.90	22.5
68	Honduras	39.50	39.00	38.10	39.10	...	55.30	54.50	53.20	52.90	51.7
69	Hungary	NaN	NaN	NaN	NaN	...	55.30	54.60	53.60	55.00	54.9
70	Iceland	NaN	NaN	NaN	NaN	...	61.30	61.30	62.00	63.00	NaN

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
71	India	31.10	31.00	31.90	30.70	...	46.70	47.80	47.90	47.90	48.9
72	Indonesia	NaN	NaN	NaN	NaN	...	41.50	42.20	43.30	43.70	43.6
73	Iran	43.50	42.90	42.50	42.70	...	48.30	49.90	55.90	55.20	65.4
74	Ireland	NaN	NaN	NaN	NaN	...	65.60	65.20	53.60	55.30	NaN
75	Israel	NaN	NaN	NaN	NaN	...	68.50	68.50	69.60	69.80	NaN
76	Italy	NaN	NaN	NaN	NaN	...	66.60	66.90	66.70	66.40	66.3
77	Jamaica	NaN	NaN	NaN	NaN	...	64.30	63.70	61.90	61.30	59.9
78	Japan	NaN	NaN	NaN	NaN	...	71.30	70.50	69.10	68.80	NaN
79	Jordan	NaN	NaN	NaN	NaN	...	58.90	58.40	58.30	58.80	58.8
80	Kazakhstan	NaN	NaN	NaN	NaN	...	53.20	54.80	59.30	57.90	57.4
81	Kenya	40.30	41.30	39.50	40.10	...	48.00	48.00	46.20	44.70	45.4
82	Kiribati	NaN	NaN	NaN	NaN	...	67.50	NaN	NaN	NaN	NaN
83	Kuwait	NaN	NaN	NaN	NaN	...	NaN	42.20	58.40	61.40	NaN
84	Kyrgyz Republic	NaN	NaN	NaN	NaN	...	49.60	50.60	52.10	50.10	50.4
85	Lao	NaN	NaN	NaN	NaN	...	42.50	44.20	44.20	42.50	41.5
86	Latvia	NaN	NaN	NaN	NaN	...	64.40	65.00	64.60	65.00	64.4
87	Lebanon	NaN	NaN	NaN	NaN	...	72.00	72.80	73.00	73.00	76.0
88	Lesotho	6.55	5.49	4.79	7.31	...	56.60	54.40	52.90	52.60	NaN
89	Liberia	NaN	NaN	NaN	NaN	...	47.00	48.50	53.10	52.80	53.6
90	Lithuania	NaN	NaN	NaN	NaN	...	59.80	59.50	59.90	61.20	60.3
91	Luxembourg	NaN	NaN	NaN	NaN	...	78.10	77.60	79.00	78.60	78.9
92	Madagascar	NaN	NaN	NaN	NaN	...	52.90	53.00	54.00	48.40	NaN
93	Malawi	38.30	37.90	38.30	38.50	...	49.70	49.80	50.20	51.90	52.4
94	Malaysia	NaN	NaN	NaN	NaN	...	49.90	50.10	51.20	51.70	51.0
95	Maldives	NaN	NaN	NaN	NaN	...	75.60	75.40	73.50	70.70	NaN
96	Mali	NaN	NaN	NaN	NaN	...	36.90	36.30	36.10	36.60	36.7
97	Malta	NaN	NaN	NaN	NaN	...	71.80	72.70	71.40	72.00	NaN
98	Marshall Islands	NaN	NaN	NaN	NaN	...	66.10	70.50	74.10	68.90	NaN
99	Mauritania	32.10	26.30	29.90	32.20	...	33.40	37.30	38.60	37.30	35.4
100	Mauritius	NaN	NaN	NaN	NaN	...	64.40	65.70	66.30	67.00	66.9
101	Mexico	NaN	NaN	NaN	NaN	...	61.10	60.20	61.00	61.10	60.9
102	Moldova	NaN	NaN	NaN	NaN	...	54.60	54.50	56.90	56.10	55.4
103	Montenegro	NaN	NaN	NaN	NaN	...	58.60	58.60	60.30	59.40	54.5
104	Morocco	NaN	NaN	NaN	NaN	...	51.60	51.70	49.80	50.10	49.5
105	Mozambique	NaN	NaN	NaN	NaN	...	52.00	51.40	50.80	51.20	54.2
106	Myanmar	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	42.2

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
107	Namibia	NaN	NaN	NaN	NaN	...	57.30	57.90	59.10	58.10	58.4
108	Nauru	NaN	NaN	NaN	NaN	...	52.60	63.40	81.60	NaN	NaN
109	Nepal	98.60	98.60	98.60	98.60	...	47.60	48.70	49.50	50.00	51.5
110	Netherlands	NaN	NaN	NaN	NaN	...	69.10	70.00	70.10	70.20	70.4
111	New Zealand	NaN	NaN	NaN	NaN	...	64.30	65.40	65.60	NaN	NaN
112	Nicaragua	NaN	NaN	NaN	NaN	...	48.40	48.50	49.80	50.90	51.0
113	Niger	20.80	22.70	20.50	23.40	...	36.40	37.60	38.90	38.60	39.0
114	Nigeria	NaN	NaN	NaN	NaN	...	52.40	54.20	58.10	59.80	55.8
115	North Macedonia	NaN	NaN	NaN	NaN	...	54.80	53.80	53.80	53.10	54.2
116	Norway	NaN	NaN	NaN	NaN	...	52.60	54.00	56.50	58.10	56.8
117	Oman	NaN	87.70	74.10	72.40	...	26.30	30.60	39.90	43.70	NaN
118	Pakistan	36.10	35.90	36.40	35.90	...	52.00	51.70	52.20	52.80	53.1
119	Palestine	NaN	NaN	NaN	NaN	...	63.40	64.10	64.00	63.40	NaN
120	Panama	NaN	NaN	NaN	NaN	...	68.10	66.60	65.70	65.30	65.2
121	Paraguay	NaN	NaN	NaN	NaN	...	45.50	45.70	46.20	45.10	45.5
122	Peru	44.30	44.10	45.20	47.50	...	50.50	52.50	53.90	55.20	NaN
123	Philippines	41.80	41.60	42.10	41.00	...	57.60	57.30	58.80	59.60	59.9
124	Poland	NaN	NaN	NaN	NaN	...	57.30	56.60	56.20	56.30	58.3
125	Portugal	NaN	NaN	NaN	NaN	...	67.00	66.50	65.60	65.60	65.2
126	Qatar	NaN	NaN	NaN	NaN	...	28.10	30.10	41.30	47.90	NaN
127	Romania	NaN	NaN	NaN	NaN	...	50.40	52.20	53.80	55.40	56.2
128	Russia	NaN	NaN	NaN	NaN	...	56.00	55.60	55.90	56.60	56.2
129	Rwanda	NaN	NaN	NaN	NaN	...	47.70	47.20	47.90	47.30	46.4
130	Sao Tome and Principe	NaN	NaN	NaN	NaN	...	69.80	69.40	71.00	70.80	71.4
131	Saudi Arabia	NaN	NaN	NaN	NaN	...	38.00	40.60	52.10	54.20	52.5
132	Senegal	NaN	NaN	NaN	NaN	...	55.70	55.20	54.20	54.20	53.8
133	Serbia	NaN	NaN	NaN	NaN	...	49.70	50.40	50.00	50.10	50.0
134	Seychelles	NaN	NaN	NaN	NaN	...	69.70	69.10	70.60	71.00	NaN
135	Sierra Leone	NaN	NaN	NaN	NaN	...	28.50	29.80	33.90	33.30	32.4
136	Singapore	74.50	74.60	73.90	73.50	...	71.00	70.40	69.90	70.00	70.4
137	Slovak Republic	NaN	NaN	NaN	NaN	...	57.30	55.20	55.70	55.60	55.9
138	Slovenia	NaN	NaN	NaN	NaN	...	57.00	56.10	56.30	56.80	56.4
139	South Africa	48.40	48.20	48.60	48.60	...	61.20	61.00	61.40	61.00	61.5
140	South Korea	39.60	38.10	39.00	33.70	...	54.00	54.30	54.00	53.70	52.8
141	Spain	NaN	NaN	NaN	NaN	...	67.50	67.50	66.80	66.90	66.4
142	Sri Lanka	47.20	46.50	47.80	47.00	...	56.40	56.90	57.40	56.90	55.8

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
143	St. Kitts and Nevis	NaN	NaN	NaN	NaN	...	63.30	61.10	60.70	61.50	60.9
144	St. Lucia	NaN	NaN	NaN	NaN	...	73.80	74.60	74.40	73.60	74.2
145	St. Vincent and the Grenadines	NaN	NaN	NaN	NaN	...	64.70	64.50	63.70	63.10	62.3
146	Sudan	NaN	NaN	NaN	NaN	...	44.50	45.50	46.40	46.50	46.8
147	Suriname	41.70	44.60	46.60	46.70	...	50.40	52.30	55.80	54.30	53.2
148	Swaziland	NaN	NaN	NaN	NaN	...	49.00	49.80	49.70	51.00	NaN
149	Sweden	NaN	NaN	NaN	NaN	...	64.10	64.60	65.70	65.60	65.2
150	Switzerland	NaN	NaN	NaN	NaN	...	70.40	70.80	71.10	71.30	71.2
151	Tajikistan	NaN	NaN	NaN	NaN	...	45.10	41.60	42.50	42.30	NaN
152	Tanzania	NaN	NaN	NaN	NaN	...	41.00	40.90	40.00	39.20	37.5
153	Thailand	NaN	NaN	NaN	NaN	...	51.70	53.10	54.80	55.70	56.3
154	Timor-Leste	NaN	NaN	NaN	NaN	...	15.20	22.70	32.70	43.30	NaN
155	Togo	29.60	29.40	32.40	29.90	...	32.70	31.60	31.30	30.80	29.8
156	Trinidad and Tobago	NaN	NaN	NaN	NaN	...	50.10	50.70	59.60	62.00	59.6
157	Turkey	25.80	28.80	28.10	27.80	...	53.20	53.70	53.30	53.80	53.3
158	Turkmenistan	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
159	Uganda	33.70	33.70	34.80	32.80	...	46.70	47.10	47.90	47.60	47.1
160	Ukraine	NaN	NaN	NaN	NaN	...	56.30	54.20	51.10	50.20	50.3
161	United Arab Emirates	NaN	NaN	NaN	NaN	...	36.80	38.80	46.50	48.80	46.9
162	United Kingdom	NaN	NaN	NaN	NaN	...	70.50	70.70	70.80	70.60	70.1
163	United States	NaN	NaN	NaN	NaN	...	75.30	75.40	76.30	77.00	NaN
164	Uruguay	NaN	NaN	NaN	NaN	...	59.10	59.10	59.30	59.70	61.2
165	Uzbekistan	NaN	NaN	NaN	NaN	...	43.80	43.30	43.10	45.40	42.5
166	Venezuela	NaN	NaN	NaN	NaN	...	41.70	46.80	NaN	NaN	NaN
167	Vietnam	NaN	NaN	NaN	NaN	...	38.70	39.00	39.70	40.90	NaN
168	Yemen	NaN	NaN	NaN	NaN	...	5.59	5.23	6.53	9.52	NaN
169	Zambia	NaN	NaN	NaN	NaN	...	53.10	53.50	56.20	54.20	52.7
170	Zimbabwe	NaN	NaN	NaN	NaN	...	55.00	54.50	55.60	58.20	56.3

171 rows × 59 columns

In [188]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

service_r = service.drop(service.index[164:])
service_r = service_r.drop(service_r.index[140:162])
service_r = service_r.drop(service_r.index[129:139])
service_r = service_r.drop(service_r.index[102:128])
service_r = service_r.drop(service_r.index[79:101])
service_r = service_r.drop(service_r.index[77:78])
service_r = service_r.drop(service_r.index[72:76])
service_r = service_r.drop(service_r.index[60:71])
service_r = service_r.drop(service_r.index[56:59])
service_r = service_r.drop(service_r.index[35:55])
service_r = service_r.drop(service_r.index[30:34])
service_r = service_r.drop(service_r.index[24:29])
service_r = service_r.drop(service_r.index[:23])
service_r.drop(service_r.columns[1:38], axis=1,inplace=True)
service_r
```

Out[188]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	2010	20
23	Brazil	60.6	61.1	60.2	58.3	57.7	57.3	56.4	54.9	56.1	...	56.8	59.1	57.6	5
29	Canada	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	62.5	66.7	65.5	6
34	China	NaN	NaN	NaN	NaN	NaN	NaN	NaN	41.2	41.3	...	42.8	44.3	44.1	4
55	France	65.4	65.5	65.9	66.3	66.9	67.4	68.1	68.2	68.5	...	69.7	70.8	70.7	7
59	Germany	61.2	61.3	61.5	61.4	62.1	63.0	63.1	63.1	63.2	...	62.1	64.1	62.2	6
71	India	38.2	39.2	40.7	41.3	42.6	43.5	43.7	42.8	42.9	...	44.8	45.5	45.2	4
76	Italy	61.8	61.7	62.1	62.7	63.5	63.8	64.6	64.5	64.9	...	64.8	66.7	66.3	6
78	Japan	64.2	64.9	65.8	65.9	66.9	68.1	68.4	68.5	69.0	...	69.8	71.5	70.2	7
101	Mexico	56.9	56.9	57.0	57.8	58.4	58.8	60.4	59.4	60.0	...	59.5	60.7	60.4	5
128	Russia	50.6	51.8	49.9	49.7	51.5	53.9	53.8	50.7	48.8	...	50.7	53.8	53.1	5
139	South Africa	57.8	58.2	59.3	59.1	58.5	58.3	60.1	60.1	60.1	...	59.1	60.5	61.0	6
162	United Kingdom	65.2	66.0	66.7	66.4	67.7	68.2	69.0	69.6	69.8	...	70.8	72.5	71.4	7
163	United States	72.1	72.7	73.0	73.1	74.3	75.2	74.9	74.5	74.3	...	74.7	76.4	76.0	7

13 rows × 22 columns

In [111]:
```
# This code finds the location of the years not included in the analysis
exports.columns.get_loc('1997')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(exports)
```

Out[111]: 38

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
0	Afghanistan	4.13	4.45	4.88	9.17	...	6.31	6.57	7.00	6.90	NaN
1	Albania	NaN	NaN	NaN	NaN	...	28.90	28.20	27.30	28.90	31.50
2	Algeria	39.00	46.20	19.80	24.70	...	33.20	30.20	23.20	21.00	24.00
3	Angola	NaN	NaN	NaN	NaN	...	55.70	48.00	33.40	30.00	29.90
4	Antigua and Barbuda	NaN	NaN	NaN	NaN	...	45.70	46.10	44.10	41.70	NaN
5	Argentina	7.60	5.99	4.69	7.89	...	14.60	14.40	10.70	12.60	11.20
6	Armenia	NaN	NaN	NaN	NaN	...	28.40	28.60	29.70	33.10	38.10
7	Australia	13.00	12.40	13.90	13.00	...	20.00	21.10	20.00	19.30	21.30
8	Austria	23.20	23.00	23.40	23.40	...	53.40	53.40	52.90	52.30	53.90
9	Azerbaijan	NaN	NaN	NaN	NaN	...	48.30	43.30	37.80	46.40	48.70
10	Bahamas	NaN	NaN	NaN	NaN	...	39.90	37.90	35.00	35.80	33.70
11	Bahrain	NaN	NaN	NaN	NaN	...	105.00	96.10	82.40	74.00	NaN
12	Bangladesh	10.00	10.80	10.70	9.98	...	19.50	19.00	17.30	16.60	15.00
13	Barbados	NaN	NaN	NaN	NaN	...	41.50	40.80	35.20	36.40	37.00
14	Belarus	NaN	NaN	NaN	NaN	...	58.30	54.90	58.00	62.50	66.60
15	Belgium	37.80	39.00	40.60	41.70	...	81.70	82.70	80.80	82.90	85.10
16	Belize	NaN	NaN	NaN	NaN	...	61.30	60.60	57.20	49.70	52.00
17	Benin	6.12	4.58	3.52	3.82	...	28.20	32.10	28.20	28.70	30.90
18	Bhutan	NaN	NaN	NaN	NaN	...	40.50	36.30	33.20	29.70	26.00
19	Bolivia	13.30	13.60	12.50	13.90	...	44.10	43.30	30.90	24.50	24.90
20	Bosnia and Herzegovina	NaN	NaN	NaN	NaN	...	33.70	34.00	34.60	35.40	36.00
21	Botswana	26.30	27.20	27.90	29.00	...	61.50	60.80	52.20	55.10	NaN
22	Brazil	7.06	7.28	3.87	9.04	...	11.60	11.00	12.90	12.50	12.60
23	Brunei	NaN	NaN	NaN	NaN	...	68.00	68.70	52.20	49.60	49.60
24	Bulgaria	NaN	NaN	NaN	NaN	...	64.70	65.00	64.10	64.00	66.30
25	Burkina Faso	4.86	5.43	5.53	5.58	...	26.20	25.90	26.00	28.50	28.40
26	Burundi	12.50	12.90	13.10	7.52	...	7.40	7.77	6.25	6.24	NaN
27	Cambodia	13.90	12.90	13.90	17.30	...	62.40	62.60	61.70	61.30	60.70
28	Cameroon	NaN	NaN	NaN	NaN	...	25.60	24.90	22.30	18.60	17.00
29	Canada	17.00	17.80	17.80	18.30	...	30.20	31.50	31.50	31.00	30.90
30	Cape Verde	NaN	NaN	NaN	NaN	...	40.50	40.40	44.90	38.50	39.10
31	Central African Republic	23.30	26.50	24.60	25.20	...	14.50	13.00	12.60	12.70	12.50
32	Chad	13.40	13.90	14.00	12.90	...	33.60	34.20	29.90	28.20	33.90
33	Chile	13.10	11.40	11.40	12.30	...	32.20	33.10	29.40	28.20	28.70

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
34	China	4.31	3.87	4.05	4.01	...	24.50	23.50	21.30	19.70	19.80
35	Colombia	15.70	13.00	12.20	12.00	...	17.60	15.90	15.20	14.80	14.80
36	Comoros	NaN	NaN	NaN	NaN	...	16.30	16.90	17.80	15.90	17.70
37	Congo, Dem. Rep.	18.90	9.86	7.75	31.80	...	36.40	36.80	27.70	27.20	35.60
38	Congo, Rep.	20.50	19.50	30.50	36.50	...	76.50	73.00	69.30	57.10	79.80
39	Costa Rica	21.40	21.80	23.60	22.90	...	31.30	32.30	30.80	32.80	34.20
40	Cote d'Ivoire	34.20	35.30	34.40	33.90	...	41.50	36.70	35.40	29.40	29.20
41	Croatia	NaN	NaN	NaN	NaN	...	42.80	45.30	48.20	49.00	51.30
42	Cuba	NaN	NaN	NaN	NaN	...	24.10	22.10	17.10	NaN	NaN
43	Cyprus	NaN	NaN	NaN	NaN	...	58.60	62.10	64.50	64.70	63.80
44	Czech Republic	NaN	NaN	NaN	NaN	...	76.90	82.50	81.00	79.50	79.50
45	Denmark	32.30	30.00	28.60	30.40	...	54.80	54.60	55.70	53.60	55.20
46	Djibouti	NaN	NaN	NaN	NaN	...	36.60	34.90	38.70	33.70	34.20
47	Dominica	NaN	NaN	NaN	NaN	...	38.50	52.10	50.10	48.30	44.20
48	Dominican Republic	25.60	23.30	23.90	20.70	...	25.20	25.40	24.50	24.90	24.80
49	Ecuador	16.90	16.50	17.90	16.20	...	28.60	28.10	21.30	19.70	20.80
50	Egypt	NaN	NaN	NaN	NaN	...	17.00	14.20	13.20	10.30	16.30
51	El Salvador	NaN	NaN	NaN	NaN	...	29.20	28.90	29.00	27.90	27.60
52	Equatorial Guinea	NaN	NaN	68.10	62.80	...	67.70	66.00	56.70	51.30	56.50
53	Eritrea	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
54	Estonia	NaN	NaN	NaN	NaN	...	84.30	82.60	78.60	79.00	78.00
55	Ethiopia	NaN	NaN	NaN	NaN	...	12.50	11.60	9.36	7.95	7.74
56	Fiji	38.10	30.70	35.70	51.10	...	59.10	52.60	49.90	26.40	NaN
57	Finland	21.10	20.00	19.90	19.10	...	38.80	37.20	36.50	36.00	38.60
58	France	14.40	13.90	12.80	12.60	...	29.40	29.70	30.60	30.20	30.90
59	Gabon	34.20	31.20	31.70	47.10	...	57.40	44.50	45.90	44.10	43.70
60	Gambia	NaN	NaN	NaN	NaN	...	29.40	29.20	24.70	23.00	20.80
61	Georgia	NaN	NaN	NaN	NaN	...	44.70	42.90	44.70	43.60	50.40
62	Germany	NaN	NaN	NaN	NaN	...	45.40	45.70	46.90	46.10	47.20
63	Ghana	28.20	26.10	24.20	21.20	...	34.20	39.50	44.40	41.10	39.90
64	Greece	8.51	8.65	9.06	9.35	...	30.40	32.40	31.70	30.50	33.20
65	Grenada	NaN	NaN	NaN	NaN	...	25.40	60.20	58.00	56.10	NaN
66	Guatemala	12.60	12.00	11.80	14.30	...	23.70	23.20	21.20	19.50	18.80
67	Guinea	NaN	NaN	NaN	NaN	...	26.50	26.30	23.10	29.40	42.90
68	Guinea-Bissau	NaN	NaN	NaN	NaN	...	18.30	20.20	27.50	26.50	27.40

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
69	Guyana	48.70	52.10	56.60	62.90	...	51.50	43.80	41.30	45.80	43.70
70	Haiti	NaN	NaN	NaN	NaN	...	18.30	18.50	20.00	20.70	18.80
71	Honduras	21.40	22.30	22.50	22.10	...	47.90	47.60	45.20	42.60	43.60
72	Hungary	NaN	NaN	NaN	NaN	...	85.70	87.70	90.20	89.50	90.10
73	Iceland	41.30	41.40	45.00	41.20	...	55.20	52.90	53.20	48.40	47.00
74	India	4.51	4.35	4.21	4.33	...	25.40	23.00	19.80	19.30	18.90
75	Indonesia	11.50	11.10	5.17	9.07	...	23.90	23.70	21.20	19.10	20.40
76	Iran	13.80	13.70	14.50	15.30	...	26.90	23.10	19.70	22.40	23.80
77	Iraq	NaN	NaN	NaN	NaN	...	39.70	41.30	34.90	32.50	37.60
78	Ireland	29.50	32.10	29.90	31.10	...	106.00	113.00	125.00	122.00	120.00
79	Israel	11.90	11.50	17.80	18.60	...	33.30	32.20	31.30	30.30	NaN
80	Italy	12.50	12.80	12.70	12.20	...	28.90	29.30	29.90	29.80	31.30
81	Jamaica	33.20	33.30	33.00	34.20	...	30.60	31.30	29.90	31.40	31.50
82	Japan	10.70	9.28	9.43	9.04	...	15.90	17.50	17.60	16.10	NaN
83	Jordan	NaN	NaN	NaN	NaN	...	42.40	43.30	37.60	35.10	35.60
84	Kazakhstan	NaN	NaN	NaN	NaN	...	38.60	39.30	28.50	31.80	NaN
85	Kenya	31.10	32.70	32.00	32.00	...	19.90	18.30	16.60	14.00	13.90
86	Kiribati	NaN	NaN	NaN	NaN	...	12.50	12.90	9.82	11.10	9.92
87	Kuwait	NaN	NaN	NaN	NaN	...	70.90	68.50	53.80	48.20	NaN
88	Kyrgyz Republic	NaN	NaN	NaN	NaN	...	42.30	37.40	35.20	35.80	35.40
89	Lao	NaN	NaN	NaN	NaN	...	38.20	40.80	34.00	33.20	34.30
90	Latvia	NaN	NaN	NaN	NaN	...	60.30	60.70	60.40	60.00	60.50
91	Lebanon	NaN	NaN	NaN	NaN	...	31.80	27.60	26.90	25.50	23.60
92	Lesotho	11.70	12.50	14.40	14.90	...	35.80	35.60	40.40	42.20	NaN
93	Liberia	45.80	34.60	36.60	38.70	...	34.60	28.40	19.50	21.40	NaN
94	Libya	NaN	NaN	NaN	NaN	...	70.40	47.00	38.00	NaN	NaN
95	Lithuania	NaN	NaN	NaN	NaN	...	84.10	81.10	75.80	74.50	81.30
96	Luxembourg	88.70	89.00	81.80	79.50	...	191.00	208.00	223.00	221.00	230.00
97	Madagascar	10.00	14.60	13.80	12.80	...	30.10	32.80	32.10	33.50	35.40
98	Malawi	22.10	20.60	21.40	21.90	...	35.70	33.70	29.20	33.00	29.20
99	Malaysia	64.50	58.70	56.10	45.90	...	75.60	73.80	70.60	67.70	71.50
100	Maldives	NaN	NaN	NaN	NaN	...	88.40	89.30	78.50	74.50	72.80
101	Mali	NaN	NaN	NaN	NaN	...	24.90	22.50	24.00	22.90	22.10
102	Malta	NaN	NaN	NaN	NaN	...	157.00	149.00	139.00	136.00	NaN
103	Marshall Islands	NaN	NaN	NaN	NaN	...	42.20	39.70	37.20	27.50	NaN
104	Mauritania	15.30	14.30	14.50	25.20	...	49.80	39.10	37.10	37.20	43.20

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
105	Mauritius	NaN	NaN	NaN	NaN	...	48.40	51.10	48.80	44.60	42.10
106	Mexico	8.51	8.41	8.57	8.32	...	31.30	31.90	34.60	37.10	37.90
107	Micronesia, Fed. Sts.	NaN	NaN	NaN	NaN	...	29.60	26.10	26.30	26.60	NaN
108	Moldova	NaN	NaN	NaN	NaN	...	43.30	41.50	42.80	43.30	42.50
109	Mongolia	NaN	NaN	NaN	NaN	...	38.90	52.20	45.60	50.20	59.50
110	Montenegro	NaN	NaN	NaN	NaN	...	41.30	40.10	42.10	40.50	41.00
111	Morocco	23.60	21.80	18.00	17.90	...	32.80	34.30	34.30	35.10	36.80
112	Mozambique	NaN	NaN	NaN	NaN	...	30.40	33.40	32.20	36.70	38.30
113	Myanmar	NaN	NaN	NaN	NaN	...	19.60	20.10	20.80	17.10	NaN
114	Namibia	NaN	NaN	NaN	NaN	...	41.20	38.70	38.40	41.10	36.70
115	Nauru	NaN	NaN	NaN	NaN	...	75.50	57.30	45.40	48.80	NaN
116	Nepal	NaN	NaN	NaN	NaN	...	10.70	11.50	11.60	9.49	9.76
117	Netherlands	48.90	46.60	45.90	46.00	...	82.00	82.60	83.40	82.40	86.50
118	New Zealand	NaN	NaN	NaN	NaN	...	28.80	27.90	27.60	25.80	NaN
119	Nicaragua	23.70	23.40	26.40	28.80	...	45.20	45.00	40.60	39.10	41.20
120	Niger	7.10	8.12	9.28	9.31	...	22.60	21.00	18.20	16.20	16.60
121	Nigeria	9.24	9.19	8.27	8.78	...	18.00	18.40	10.70	9.22	NaN
122	North Macedonia	NaN	NaN	NaN	NaN	...	43.40	47.70	48.80	50.00	55.10
123	Norway	36.30	35.00	33.80	34.50	...	39.10	38.80	37.70	34.10	35.50
124	Oman	NaN	NaN	NaN	NaN	...	71.50	66.10	51.80	41.20	NaN
125	Pakistan	NaN	NaN	NaN	NaN	...	13.30	12.20	10.60	9.15	8.24
126	Palau	NaN	NaN	NaN	NaN	...	58.80	62.60	57.60	54.00	50.20
127	Palestine	NaN	NaN	NaN	NaN	...	16.60	17.10	18.40	17.70	18.60
128	Panama	45.80	47.20	53.20	52.70	...	65.20	55.40	47.50	41.40	NaN
129	Papua New Guinea	NaN	16.10	16.20	17.40	...	NaN	NaN	NaN	NaN	NaN
130	Paraguay	NaN	NaN	NaN	NaN	...	49.60	45.20	42.30	41.70	41.80
131	Peru	20.20	20.80	20.00	18.40	...	24.80	22.60	21.30	22.40	24.30
132	Philippines	11.90	12.60	16.90	18.60	...	28.00	28.90	28.40	28.00	30.60
133	Poland	NaN	NaN	NaN	NaN	...	46.30	47.60	49.50	52.30	53.40
134	Portugal	14.30	13.50	15.30	15.90	...	39.50	40.10	40.40	40.10	43.10
135	Qatar	NaN	NaN	NaN	NaN	...	72.70	68.00	56.10	47.50	NaN
136	Romania	NaN	NaN	NaN	NaN	...	39.70	41.20	41.00	41.30	41.40
137	Russia	NaN	NaN	NaN	NaN	...	25.80	27.10	28.60	25.70	26.00
138	Rwanda	12.40	11.50	9.28	5.94	...	14.10	14.70	14.20	14.90	18.20
139	Samoa	NaN	NaN	NaN	NaN	...	29.00	27.80	27.50	29.30	NaN

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
140	Saudi Arabia	NaN	NaN	NaN	NaN	...	51.90	46.90	33.30	31.10	33.50
141	Senegal	16.80	21.20	20.30	17.60	...	28.30	28.10	29.40	29.00	27.00
142	Serbia	NaN	NaN	NaN	NaN	...	41.20	43.40	46.70	50.00	52.40
143	Seychelles	NaN	NaN	NaN	NaN	...	90.80	88.00	NaN	NaN	NaN
144	Sierra Leone	NaN	NaN	NaN	NaN	...	28.60	30.80	19.40	24.90	NaN
145	Singapore	163.00	142.00	138.00	141.00	...	194.00	191.00	177.00	168.00	173.00
146	Slovak Republic	NaN	NaN	NaN	NaN	...	93.80	91.90	93.00	94.60	96.30
147	Slovenia	NaN	NaN	NaN	NaN	...	74.50	75.80	77.00	77.70	82.20
148	Solomon Islands	NaN	NaN	NaN	NaN	...	52.90	50.80	45.10	NaN	NaN
149	Somalia	12.70	16.00	12.80	15.90	...	14.50	14.40	15.70	15.10	13.50
150	South Africa	29.60	29.30	29.40	28.60	...	31.00	31.50	30.20	30.70	29.80
151	South Korea	2.62	4.04	3.87	3.95	...	53.90	50.30	45.30	42.30	43.10
152	South Sudan	NaN	NaN	NaN	NaN	...	28.00	34.00	21.00	54.90	NaN
153	Spain	8.37	7.97	8.30	7.71	...	32.20	32.70	32.90	32.90	34.10
154	Sri Lanka	30.00	27.50	27.80	25.80	...	20.30	21.10	21.00	21.30	21.90
155	St. Kitts and Nevis	NaN	NaN	NaN	NaN	...	41.20	64.00	60.50	57.00	NaN
156	St. Vincent and the Grenadines	NaN	NaN	NaN	NaN	...	25.20	25.60	36.90	37.30	34.50
157	Sudan	14.60	13.30	14.60	16.70	...	8.84	8.15	8.18	9.83	9.69
158	Suriname	54.80	50.30	48.00	49.40	...	50.40	45.00	38.50	49.80	68.90
159	Swaziland	48.30	42.00	47.90	59.20	...	46.70	50.20	49.60	49.50	NaN
160	Sweden	23.00	22.30	21.90	21.90	...	43.80	45.00	45.60	44.30	45.30
161	Switzerland	27.80	27.20	26.90	26.60	...	71.90	64.30	62.10	65.80	65.00
162	Syria	21.40	17.60	20.90	19.40	...	NaN	NaN	NaN	NaN	NaN
163	Tajikistan	NaN	NaN	NaN	NaN	...	11.30	9.05	10.50	13.30	15.70
164	Tanzania	NaN	NaN	NaN	NaN	...	17.70	19.40	21.60	19.60	NaN
165	Thailand	16.10	17.30	15.70	15.10	...	68.10	69.30	68.70	68.10	NaN
166	Timor-Leste	NaN	NaN	NaN	NaN	...	1.66	1.83	1.63	2.28	NaN
167	Togo	31.10	39.20	35.00	25.40	...	52.70	44.50	42.20	42.80	40.50
168	Tonga	NaN	NaN	NaN	NaN	...	20.40	16.80	17.00	21.30	NaN
169	Tunisia	NaN	NaN	NaN	NaN	...	47.70	45.60	40.70	40.40	43.80
170	Turkey	2.06	5.12	5.60	4.18	...	22.30	23.80	23.30	22.00	24.80
171	Turkmenistan	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
172	Uganda	27.30	24.40	24.10	28.30	...	20.30	18.20	18.40	18.60	18.50
173	Ukraine	NaN	NaN	NaN	NaN	...	43.00	48.60	52.60	49.30	47.90
174	United Arab Emirates	NaN	NaN	NaN	NaN	...	101.00	99.10	101.00	101.00	100.00

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
175	United Kingdom	20.20	19.90	19.40	19.30	...	29.70	28.20	27.40	28.30	30.50
176	United States	4.97	4.90	4.81	4.87	...	13.60	13.60	12.50	11.90	NaN
177	Uruguay	13.80	14.20	11.30	12.00	...	23.40	23.50	22.50	21.40	21.60
178	Uzbekistan	NaN	NaN	NaN	NaN	...	26.60	23.10	19.50	18.90	28.50
179	Vanuatu	NaN	NaN	NaN	NaN	...	47.80	48.60	NaN	NaN	NaN
180	Venezuela	27.10	28.70	29.20	28.90	...	24.80	16.70	NaN	NaN	NaN
181	Vietnam	NaN	NaN	NaN	NaN	...	83.60	86.40	89.80	93.60	102.00
182	Yemen	NaN	NaN	NaN	NaN	...	22.40	21.50	10.90	3.58	NaN
183	Zambia	NaN	NaN	NaN	NaN	...	40.50	38.80	37.10	35.30	35.20
184	Zimbabwe	NaN	NaN	NaN	NaN	...	27.20	25.70	23.50	24.70	24.10

185 rows × 59 columns

In [187]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

exports_r = exports.drop(exports.index[177:])
exports_r = exports_r.drop(exports.index[151:175])
exports_r = exports_r.drop(exports.index[138:150])
exports_r = exports_r.drop(exports.index[107:137])
exports_r = exports_r.drop(exports.index[83:106])
exports_r = exports_r.drop(exports.index[81:82])
exports_r = exports_r.drop(exports.index[75:80])
exports_r = exports_r.drop(exports.index[63:74])
exports_r = exports_r.drop(exports.index[59:62])
exports_r = exports_r.drop(exports.index[35:58])
exports_r = exports_r.drop(exports.index[30:34])
exports_r = exports_r.drop(exports.index[27:29])
exports_r = exports_r.drop(exports.index[23:26])
exports_r = exports_r.drop(exports.index[:22])
exports_r.drop(exports_r.columns[1:38], axis=1, inplace=True)
exports_r
```

Out[187]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	20
22	Brazil	6.98	7.03	9.56	10.20	12.40	14.20	15.20	16.50	15.2	...	13.50	10.9	10
26	Burundi	9.84	8.00	7.58	6.32	5.18	4.69	6.38	6.95	8.2	...	9.49	6.8	8
29	Canada	38.10	40.00	41.90	44.20	42.00	40.00	36.80	37.30	36.8	...	34.30	28.4	29
34	China	19.50	18.30	18.20	20.90	20.30	22.60	27.00	31.10	33.8	...	32.50	24.5	26
58	France	25.50	26.10	26.10	28.60	28.30	27.50	26.10	26.50	27.0	...	28.10	24.8	26
62	Germany	25.40	26.50	27.00	30.80	31.90	32.60	32.60	35.40	37.7	...	43.50	37.8	42
74	India	10.80	11.10	11.60	13.10	12.70	14.40	15.10	18.00	19.8	...	24.30	20.6	22
80	Italy	24.20	24.10	23.30	25.70	25.70	24.50	23.40	24.10	24.7	...	27.00	22.5	25
82	Japan	10.50	10.50	9.95	10.60	10.20	11.00	11.60	13.00	14.0	...	17.40	12.5	15
106	Mexico	24.30	24.60	24.60	25.40	22.70	22.60	24.40	28.40	30.4	...	27.70	27.2	29
137	Russia	24.70	31.20	43.20	44.10	36.90	35.20	35.20	34.40	35.2	...	31.30	27.9	29
150	South Africa	24.00	25.00	24.70	27.20	29.40	31.80	26.90	25.50	26.4	...	35.60	27.9	28
175	United Kingdom	25.30	23.70	23.60	24.80	24.70	23.80	23.50	23.40	24.7	...	26.80	26.1	28
176	United States	11.10	10.50	10.30	10.70	9.67	9.13	9.04	9.63	10.0	...	12.50	11.0	12

14 rows × 22 columns

In [113]:
```
# This code finds the location of the years not included in the analysis
imports.columns.get_loc('1997')

# This code was used to find the original index for the countries I intended t
o use
with pd.option_context('display.max_rows',500, 'display.max_columns', 10):
    display(imports)
```

Out[113]: 38

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
0	Afghanistan	7.02	8.10	9.35	16.90	...	49.8	45.8	48.8	49.0	NaN
1	Albania	NaN	NaN	NaN	NaN	...	47.0	47.2	44.5	45.7	46.6
2	Algeria	67.10	67.50	20.80	36.80	...	30.4	31.9	36.5	35.3	36.3
3	Angola	NaN	NaN	NaN	NaN	...	39.4	42.2	36.9	29.4	27.7
4	Antigua and Barbuda	NaN	NaN	NaN	NaN	...	60.4	58.0	49.1	47.0	NaN
5	Argentina	7.60	5.99	9.38	7.89	...	14.7	14.0	11.8	13.5	13.8
6	Armenia	NaN	NaN	NaN	NaN	...	48.2	47.0	41.9	42.8	50.4
7	Australia	14.10	15.00	12.60	13.80	...	21.3	21.5	21.5	21.5	20.6
8	Austria	23.30	21.90	22.20	22.90	...	50.6	50.1	49.2	48.9	50.8
9	Azerbaijan	NaN	NaN	NaN	NaN	...	26.7	26.2	34.8	43.6	42.0
10	Bahamas	NaN	NaN	NaN	NaN	...	45.6	49.8	38.7	37.7	41.8
11	Bahrain	NaN	NaN	NaN	NaN	...	87.1	79.5	71.7	65.6	NaN
12	Bangladesh	9.31	11.70	10.80	11.70	...	26.8	25.5	24.7	21.3	20.3
13	Barbados	NaN	NaN	NaN	NaN	...	52.0	50.7	43.8	46.2	43.7
14	Belarus	NaN	NaN	NaN	NaN	...	61.5	55.7	57.9	62.7	67.0
15	Belgium	38.50	39.80	40.60	42.70	...	80.5	82.0	79.4	81.6	84.3
16	Belize	NaN	NaN	NaN	NaN	...	66.8	66.1	66.3	60.5	60.8
17	Benin	12.10	9.53	9.96	11.60	...	41.3	44.5	39.8	42.6	48.5
18	Bhutan	NaN	NaN	NaN	NaN	...	62.3	57.3	61.7	53.1	48.0
19	Bolivia	19.30	17.70	19.90	20.80	...	37.1	42.0	37.1	31.9	31.8
20	Bosnia and Herzegovina	NaN	NaN	NaN	NaN	...	54.1	56.6	53.2	52.3	51.0
21	Botswana	39.60	42.50	44.80	47.30	...	61.4	53.9	53.5	42.0	NaN
22	Brazil	7.12	7.34	5.19	9.11	...	13.9	13.7	14.1	12.1	11.6
23	Brunei	NaN	NaN	NaN	NaN	...	42.9	30.7	32.7	37.7	35.6
24	Bulgaria	NaN	NaN	NaN	NaN	...	65.1	66.0	64.0	59.7	64.8
25	Burkina Faso	15.80	15.80	15.70	15.70	...	41.1	34.9	36.3	33.5	34.4
26	Burundi	13.40	14.70	16.40	14.30	...	34.2	33.5	29.7	31.9	NaN
27	Cambodia	22.00	18.70	22.90	20.80	...	67.7	67.0	66.1	65.7	64.2
28	Cameroon	NaN	NaN	NaN	NaN	...	30.0	30.1	27.6	23.4	20.0
29	Canada	18.10	18.10	17.80	17.40	...	31.8	32.5	34.0	33.4	33.2
30	Cape Verde	NaN	NaN	NaN	NaN	...	54.8	60.7	59.2	59.5	63.9
31	Central African Republic	34.20	35.80	37.70	38.50	...	25.0	37.6	34.6	30.0	31.8
32	Chad	17.00	18.60	19.60	19.20	...	39.1	42.5	36.4	39.7	39.7
33	Chile	15.80	15.50	12.80	14.80	...	32.8	32.2	29.6	27.3	27.0

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
34	China	4.43	3.49	2.91	2.86	...	22.1	21.4	18.1	17.4	18.0
35	Colombia	14.70	13.80	12.20	12.30	...	20.1	21.4	23.4	21.7	20.1
36	Comoros	NaN	NaN	NaN	NaN	...	59.9	60.3	47.3	43.7	44.2
37	Congo, Dem. Rep.	19.40	9.39	7.44	31.70	...	41.0	41.9	31.6	32.4	39.4
38	Congo, Rep.	85.60	83.70	63.00	57.80	...	66.1	70.3	96.4	79.4	58.8
39	Costa Rica	26.20	25.40	26.30	27.40	...	34.3	34.8	31.7	32.0	33.4
40	Cote d'Ivoire	22.90	28.10	25.70	23.50	...	38.6	25.7	25.8	20.2	19.4
41	Croatia	NaN	NaN	NaN	NaN	...	42.3	43.4	45.9	46.2	49.1
42	Cuba	NaN	NaN	NaN	NaN	...	20.2	17.2	14.5	NaN	NaN
43	Cyprus	NaN	NaN	NaN	NaN	...	56.8	60.0	63.7	65.5	67.8
44	Czech Republic	NaN	NaN	NaN	NaN	...	71.1	76.2	75.1	72.1	72.2
45	Denmark	34.30	32.30	32.50	30.80	...	48.2	47.7	48.4	47.4	48.2
46	Djibouti	NaN	NaN	NaN	NaN	...	55.4	58.0	68.8	50.9	74.3
47	Dominica	NaN	NaN	NaN	NaN	...	48.5	63.9	58.8	54.0	56.2
48	Dominican Republic	18.80	16.30	24.20	26.00	...	31.5	30.7	29.4	28.9	28.1
49	Ecuador	19.50	20.50	20.60	18.90	...	31.0	29.7	24.0	19.1	21.3
50	Egypt	NaN	NaN	NaN	NaN	...	23.4	22.7	21.7	19.7	28.5
51	El Salvador	NaN	NaN	NaN	NaN	...	50.5	48.2	47.1	44.1	44.9
52	Equatorial Guinea	NaN	NaN	51.40	34.50	...	39.2	38.4	42.2	41.2	37.9
53	Eritrea	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
54	Estonia	NaN	NaN	NaN	NaN	...	81.5	79.7	74.6	75.1	73.5
55	Ethiopia	NaN	NaN	NaN	NaN	...	29.0	29.1	30.3	27.6	23.7
56	Fiji	39.90	40.80	38.80	48.60	...	69.5	63.4	55.6	51.6	NaN
57	Finland	22.20	21.40	21.40	19.40	...	39.7	38.2	37.0	36.8	38.1
58	France	12.60	12.30	12.10	12.50	...	30.4	30.8	31.2	31.0	32.0
59	Gabon	32.60	31.70	30.80	45.40	...	33.3	29.0	27.9	27.0	26.7
60	Gambia	NaN	NaN	NaN	NaN	...	41.1	48.5	50.4	41.9	40.0
61	Georgia	NaN	NaN	NaN	NaN	...	57.6	60.5	62.3	59.3	62.2
62	Germany	NaN	NaN	NaN	NaN	...	39.4	38.8	38.9	38.1	39.7
63	Ghana	35.40	36.50	28.50	27.50	...	47.5	48.9	56.1	48.3	50.7
64	Greece	16.20	15.90	16.30	17.40	...	33.2	34.8	31.7	31.2	34.3
65	Grenada	NaN	NaN	NaN	NaN	...	50.4	58.9	56.7	52.4	NaN
66	Guatemala	14.50	13.50	13.40	15.90	...	34.8	33.6	30.1	27.5	26.9
67	Guinea	NaN	NaN	NaN	NaN	...	54.0	49.5	49.1	81.5	104.0
68	Guinea-Bissau	NaN	NaN	NaN	NaN	...	25.8	31.4	32.2	31.3	31.6
69	Guyana	57.00	53.00	44.90	46.10	...	78.5	72.1	60.0	54.5	57.1

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
70	Haiti	NaN	NaN	NaN	NaN	...	52.3	52.7	50.5	52.6	56.5
71	Honduras	23.00	21.90	22.10	24.70	...	68.4	65.4	62.1	57.9	58.9
72	Hungary	NaN	NaN	NaN	NaN	...	78.7	81.3	81.4	79.5	82.3
73	Iceland	45.60	38.30	41.60	42.40	...	47.2	46.7	45.9	42.0	42.8
74	India	6.91	6.02	6.10	5.97	...	28.4	26.0	22.1	21.0	21.8
75	Indonesia	12.60	13.60	5.39	9.35	...	24.7	24.4	20.8	18.3	19.2
76	Iran	17.40	15.90	13.70	12.50	...	23.4	21.5	19.3	20.8	22.3
77	Iraq	NaN	NaN	NaN	NaN	...	36.0	36.9	40.9	40.9	36.3
78	Ireland	35.30	37.70	36.80	38.60	...	87.3	95.2	91.5	99.6	87.9
79	Israel	11.10	11.20	16.70	16.00	...	31.5	30.8	28.3	28.2	NaN
80	Italy	12.90	12.90	13.20	14.30	...	26.6	26.5	27.0	26.5	28.2
81	Jamaica	38.10	35.00	34.90	34.00	...	52.7	53.5	46.2	44.9	45.5
82	Japan	10.30	10.90	9.29	9.88	...	18.2	20.0	18.0	15.1	NaN
83	Jordan	NaN	NaN	NaN	NaN	...	72.0	69.7	60.5	56.2	57.0
84	Kazakhstan	NaN	NaN	NaN	NaN	...	26.8	25.6	24.5	28.5	NaN
85	Kenya	33.70	31.10	30.10	29.00	...	33.2	33.0	27.6	22.8	25.5
86	Kiribati	NaN	NaN	NaN	NaN	...	92.8	94.9	103.0	95.6	95.4
87	Kuwait	NaN	NaN	NaN	NaN	...	26.7	31.5	44.9	46.4	NaN
88	Kyrgyz Republic	NaN	NaN	NaN	NaN	...	91.8	87.7	75.8	70.0	66.8
89	Lao	NaN	NaN	NaN	NaN	...	60.0	58.3	51.8	41.9	41.5
90	Latvia	NaN	NaN	NaN	NaN	...	63.9	62.2	60.9	59.1	61.8
91	Lebanon	NaN	NaN	NaN	NaN	...	58.5	53.9	47.2	47.1	46.4
92	Lesotho	38.50	45.50	47.80	50.90	...	89.1	82.3	81.8	83.1	NaN
93	Liberia	38.30	52.00	72.40	56.80	...	96.4	109.0	107.0	100.0	NaN
94	Libya	NaN	NaN	NaN	NaN	...	64.8	91.9	70.6	NaN	NaN
95	Lithuania	NaN	NaN	NaN	NaN	...	82.8	79.0	76.3	73.2	79.3
96	Luxembourg	69.00	75.10	74.20	72.60	...	159.0	174.0	187.0	186.0	194.0
97	Madagascar	16.60	19.50	18.40	19.90	...	38.8	37.1	35.5	35.8	39.0
98	Malawi	38.40	36.20	35.00	37.50	...	42.6	39.6	35.8	44.9	36.2
99	Malaysia	49.00	52.10	53.10	44.10	...	67.1	64.5	62.9	61.0	64.4
100	Maldives	NaN	NaN	NaN	NaN	...	72.9	74.5	69.1	75.7	77.6
101	Mali	NaN	NaN	NaN	NaN	...	39.9	38.0	39.6	39.5	41.1
102	Malta	NaN	NaN	NaN	NaN	...	151.0	137.0	132.0	125.0	NaN
103	Marshall Islands	NaN	NaN	NaN	NaN	...	101.0	95.6	91.5	83.9	NaN
104	Mauritania	23.00	27.00	31.10	29.50	...	72.0	65.8	72.3	63.4	66.1
105	Mauritius	NaN	NaN	NaN	NaN	...	61.6	62.2	58.8	53.8	55.1

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
106	Mexico	11.70	10.60	10.10	9.95	...	32.5	33.1	36.6	39.1	39.7
107	Micronesia, Fed. Sts.	NaN	NaN	NaN	NaN	...	82.4	73.5	77.5	72.4	NaN
108	Moldova	NaN	NaN	NaN	NaN	...	80.6	78.5	73.9	71.3	70.7
109	Mongolia	NaN	NaN	NaN	NaN	...	61.4	57.1	44.6	45.4	57.1
110	Montenegro	NaN	NaN	NaN	NaN	...	61.4	60.0	60.6	62.9	65.2
111	Morocco	22.70	24.80	21.10	20.10	...	47.2	46.8	42.1	45.3	46.7
112	Mozambique	NaN	NaN	NaN	NaN	...	84.0	84.8	72.0	74.1	70.6
113	Myanmar	NaN	NaN	NaN	NaN	...	18.9	22.2	26.6	22.0	NaN
114	Namibia	NaN	NaN	NaN	NaN	...	58.0	63.4	68.7	64.0	47.5
115	Nauru	NaN	NaN	NaN	NaN	...	78.6	108.0	102.0	102.0	NaN
116	Nepal	NaN	NaN	NaN	NaN	...	37.5	40.8	41.5	39.4	42.0
117	Netherlands	47.00	46.50	45.50	46.70	...	71.3	71.7	72.9	71.4	74.8
118	New Zealand	NaN	NaN	NaN	NaN	...	27.2	27.2	26.8	25.5	NaN
119	Nicaragua	26.20	24.60	28.90	30.20	...	65.8	61.7	58.9	56.0	55.4
120	Niger	7.41	9.71	12.90	10.30	...	39.1	39.3	40.7	33.2	33.0
121	Nigeria	16.90	16.30	13.60	13.50	...	13.0	12.5	10.7	11.5	NaN
122	North Macedonia	NaN	NaN	NaN	NaN	...	61.5	64.9	65.0	64.7	68.8
123	Norway	37.30	37.10	35.50	35.90	...	28.4	29.8	32.1	33.3	33.1
124	Oman	NaN	NaN	NaN	NaN	...	45.1	38.2	43.1	35.6	NaN
125	Pakistan	NaN	NaN	NaN	NaN	...	20.1	18.7	17.1	16.2	17.6
126	Palau	NaN	NaN	NaN	NaN	...	84.0	91.0	71.2	72.2	76.4
127	Palestine	NaN	NaN	NaN	NaN	...	54.5	56.7	59.5	56.8	55.6
128	Panama	54.40	53.70	57.20	60.10	...	72.5	63.7	52.2	45.9	NaN
129	Papua New Guinea	NaN	28.10	27.90	31.00	...	NaN	NaN	NaN	NaN	NaN
130	Paraguay	NaN	NaN	NaN	NaN	...	44.8	42.9	41.5	39.5	42.8
131	Peru	20.30	22.20	22.00	21.60	...	25.0	24.2	23.9	22.8	22.6
132	Philippines	11.50	14.00	19.20	17.00	...	32.2	32.6	34.3	36.9	40.1
133	Poland	NaN	NaN	NaN	NaN	...	44.4	46.1	46.4	48.2	49.4
134	Portugal	19.20	22.60	19.00	19.90	...	38.5	39.9	39.8	39.0	42.1
135	Qatar	NaN	NaN	NaN	NaN	...	29.7	31.0	36.0	41.6	NaN
136	Romania	NaN	NaN	NaN	NaN	...	40.5	41.6	41.6	42.2	43.6
137	Russia	NaN	NaN	NaN	NaN	...	20.4	20.6	20.6	20.5	20.7
138	Rwanda	10.10	9.84	12.80	12.70	...	31.9	32.9	38.3	33.1	32.8
139	Samoa	NaN	NaN	NaN	NaN	...	49.4	52.5	48.7	49.9	NaN
140	Saudi Arabia	NaN	NaN	NaN	NaN	...	30.8	33.8	38.8	30.7	28.1
141	Senegal	14.30	18.70	18.10	18.00	...	49.2	47.3	46.3	43.9	42.8

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
142	Serbia	NaN	NaN	NaN	NaN	...	51.9	54.2	56.4	57.5	61.3
143	Seychelles	NaN	NaN	NaN	NaN	...	98.6	104.0	NaN	NaN	NaN
144	Sierra Leone	NaN	NaN	NaN	NaN	...	58.8	52.4	47.4	54.5	NaN
145	Singapore	177.00	157.00	149.00	156.00	...	172.0	168.0	152.0	142.0	149.0
146	Slovak Republic	NaN	NaN	NaN	NaN	...	89.6	88.4	91.4	91.1	92.9
147	Slovenia	NaN	NaN	NaN	NaN	...	69.0	68.4	68.4	68.5	72.6
148	Solomon Islands	NaN	NaN	NaN	NaN	...	62.7	61.2	53.3	NaN	NaN
149	Somalia	17.10	23.10	27.50	26.00	...	54.9	59.4	60.9	62.2	64.2
150	South Africa	24.60	21.30	20.70	23.20	...	33.3	33.0	31.4	30.1	28.4
151	South Korea	12.00	14.00	15.60	14.70	...	48.9	45.0	38.4	35.4	37.7
152	South Sudan	NaN	NaN	NaN	NaN	...	29.9	31.6	28.9	61.7	NaN
153	Spain	6.90	8.60	10.10	10.80	...	29.0	30.3	30.7	29.9	31.4
154	Sri Lanka	32.90	28.50	29.20	27.50	...	28.9	29.2	28.5	28.7	29.1
155	St. Kitts and Nevis	NaN	NaN	NaN	NaN	...	48.2	58.7	59.0	56.5	NaN
156	St. Vincent and the Grenadines	NaN	NaN	NaN	NaN	...	58.0	56.8	54.4	54.0	49.1
157	Sudan	13.00	14.30	15.00	18.00	...	14.9	11.3	10.9	12.5	11.8
158	Suriname	63.40	60.90	60.00	61.00	...	53.0	52.9	56.0	54.3	60.6
159	Swaziland	34.30	34.80	45.70	53.50	...	52.8	55.1	50.1	52.7	NaN
160	Sweden	23.40	21.70	21.40	21.50	...	39.3	40.7	40.7	39.4	41.1
161	Switzerland	26.70	28.60	28.90	28.30	...	59.9	52.6	50.6	54.6	53.9
162	Syria	27.80	22.40	21.60	21.20	...	NaN	NaN	NaN	NaN	NaN
163	Tajikistan	NaN	NaN	NaN	NaN	...	61.8	44.9	42.3	42.8	40.9
164	Tanzania	NaN	NaN	NaN	NaN	...	31.1	29.8	24.8	22.7	NaN
165	Thailand	17.40	17.10	17.60	18.40	...	65.3	62.5	57.2	53.5	NaN
166	Timor-Leste	NaN	NaN	NaN	NaN	...	18.2	28.0	29.1	37.0	NaN
167	Togo	31.50	30.20	30.40	29.80	...	72.3	62.9	67.6	62.8	59.5
168	Tonga	NaN	NaN	NaN	NaN	...	62.6	57.4	64.7	68.1	NaN
169	Tunisia	NaN	NaN	NaN	NaN	...	57.1	56.6	51.6	51.1	56.1
170	Turkey	3.67	6.79	7.97	6.97	...	28.1	27.6	26.0	24.9	29.3
171	Turkmenistan	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN
172	Uganda	21.80	21.60	21.40	23.90	...	30.6	28.1	29.2	28.6	25.9
173	Ukraine	NaN	NaN	NaN	NaN	...	52.2	52.1	54.5	55.5	54.3
174	United Arab Emirates	NaN	NaN	NaN	NaN	...	64.9	68.9	74.4	75.7	72.4
175	United Kingdom	21.60	20.20	19.60	19.70	...	31.7	30.3	29.1	30.3	31.9
176	United States	4.20	4.03	4.13	4.09	...	16.6	16.5	15.4	14.7	NaN
177	Uruguay	18.60	14.80	14.40	12.00	...	26.4	25.5	22.9	19.9	18.4

	country	1960	1961	1962	1963	...	2013	2014	2015	2016	2017
178	Uzbekistan	NaN	NaN	NaN	NaN	...	30.9	27.1	21.3	20.7	29.5
179	Vanuatu	NaN	NaN	NaN	NaN	...	51.3	49.4	NaN	NaN	NaN
180	Venezuela	16.20	15.30	15.10	13.70	...	29.5	31.4	NaN	NaN	NaN
181	Vietnam	NaN	NaN	NaN	NaN	...	81.5	83.1	89.0	91.1	98.8
182	Yemen	NaN	NaN	NaN	NaN	...	30.2	28.4	24.8	30.0	NaN
183	Zambia	NaN	NaN	NaN	NaN	...	44.1	41.2	42.7	38.6	36.4
184	Zimbabwe	NaN	NaN	NaN	NaN	...	45.3	41.4	46.0	38.7	37.4

185 rows × 59 columns

In [183]:
```
# This code will drop the unwanted rows, unwanted columns, set the 'country' c
olumn as the index
# and return the end result

imports_r = imports.drop(imports.index[177:])
imports_r = imports_r.drop(imports.index[151:175])
imports_r = imports_r.drop(imports.index[138:150])
imports_r = imports_r.drop(imports.index[107:137])
imports_r = imports_r.drop(imports.index[83:106])
imports_r = imports_r.drop(imports.index[81:82])
imports_r = imports_r.drop(imports.index[75:80])
imports_r = imports_r.drop(imports.index[63:74])
imports_r = imports_r.drop(imports.index[59:62])
imports_r = imports_r.drop(imports.index[35:58])
imports_r = imports_r.drop(imports.index[30:34])
imports_r = imports_r.drop(imports.index[27:29])
imports_r = imports_r.drop(imports.index[23:26])
imports_r = imports_r.drop(imports.index[:22])
imports_r.drop(imports_r.columns[1:38],axis=1,inplace=True)
imports_r
```

Out[183]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	2010
22	Brazil	9.59	9.41	11.4	12.5	14.60	13.40	13.00	13.1	11.8	...	13.7	11.3	11.8
26	Burundi	14.40	19.40	16.0	16.2	15.80	17.00	21.00	24.6	33.4	...	37.9	43.1	39.2
29	Canada	36.20	38.10	38.3	38.6	36.40	35.70	33.00	32.9	32.9	...	32.6	29.9	31.0
34	China	15.00	14.10	15.4	18.5	18.20	20.10	24.80	28.4	28.4	...	24.9	20.1	22.6
58	France	22.50	23.40	23.7	27.3	26.70	25.50	24.70	25.5	26.9	...	29.3	25.6	28.1
62	Germany	24.20	25.10	26.3	30.6	30.10	28.20	28.90	30.4	32.7	...	37.5	32.9	37.1
74	India	12.10	12.80	13.5	14.1	13.60	15.40	15.80	19.9	22.7	...	29.5	26.2	27.1
80	Italy	20.50	21.10	21.5	24.8	24.50	23.70	22.90	23.5	24.8	...	27.8	23.1	27.2
82	Japan	9.49	8.71	8.4	9.2	9.57	9.67	9.94	11.0	12.5	...	17.0	12.0	13.6
106	Mexico	24.40	26.40	26.0	27.0	24.50	24.10	25.80	30.0	32.0	...	30.1	28.8	31.1
137	Russia	22.50	24.60	26.2	24.0	24.20	24.50	23.90	22.2	21.5	...	22.1	20.5	21.1
150	South Africa	22.90	23.90	22.2	24.3	25.40	28.00	24.50	25.6	26.7	...	37.2	27.5	27.4
175	United Kingdom	24.90	24.50	25.2	26.7	27.00	26.60	25.90	26.1	27.3	...	29.7	28.3	30.8
176	United States	12.30	12.30	12.9	14.3	13.10	13.00	13.40	14.7	15.5	...	17.4	13.8	15.8

14 rows × 22 columns

In [191]:
```
life_r2 = life_r.drop(life_r.index[1])
life_r2
```

Out[191]:

	country	1997	1998	1999	2000	2001	2002	2003	2004	2005	...	2008	2009	2010	20
23	Brazil	70.2	70.6	71.0	71.4	71.8	72.1	72.3	72.6	73.1	...	74.0	74.2	74.4	7
30	Canada	78.5	78.7	78.9	79.2	79.5	79.6	79.8	80.1	80.2	...	80.8	81.1	81.4	8
35	China	70.8	71.3	71.7	72.1	72.6	73.0	73.4	73.7	74.2	...	75.4	75.7	75.8	7
59	France	78.7	78.6	78.8	79.1	79.2	79.4	79.6	80.2	80.4	...	81.1	81.2	81.4	8
63	Germany	77.4	77.8	78.0	78.3	78.6	78.7	78.8	79.4	79.7	...	80.2	80.3	80.4	8
75	India	62.0	62.1	62.6	62.9	63.3	63.9	64.5	65.2	65.5	...	66.2	66.5	66.7	6
81	Italy	78.7	78.8	79.2	79.6	79.8	80.1	80.1	80.7	80.9	...	81.5	81.7	82.0	8
83	Japan	80.8	80.8	81.0	81.4	81.7	82.0	82.1	82.3	82.3	...	82.9	83.1	83.1	8
107	Mexico	73.4	73.6	74.1	74.6	74.9	75.0	75.0	75.4	75.3	...	75.5	75.2	75.2	7
137	Russia	67.1	67.4	66.2	65.5	65.5	65.3	65.1	65.3	64.8	...	67.5	68.4	68.1	6
151	South Africa	60.8	59.3	57.7	55.6	54.9	53.8	52.8	52.3	52.0	...	53.4	54.5	56.1	5
177	United Kingdom	77.2	77.4	77.6	78.0	78.2	78.3	78.5	79.0	79.3	...	79.8	80.2	80.4	8
178	United States	76.6	76.8	76.8	76.9	76.9	77.0	77.2	77.5	77.6	...	78.2	78.4	78.7	7

13 rows × 22 columns

Exploratory Data Analysis

Background: "The Group of Eight (G8) refers to the group of eight highly industrialized nations—France, Germany, Italy, the United Kingdom, Japan, the United States, Canada, and Russia—that hold an annual meeting to foster consensus on global issues like economic growth and crisis management, global security, energy, and terrorism. The forum enables presidents and prime ministers, as well as their finance and foreign ministers, to candidly discuss pressing international issues. Its small and static membership, however, excludes emerging powers from important talks concerning the global economy and international security, and as an informal grouping, states have little leverage over other members with which to secure compliance on agreements beyond imposing reputational costs." ("The Group of Eight (G8) Industrialized Nations," March 2014)

Question 1: What are the World's Life Expectancy trends?

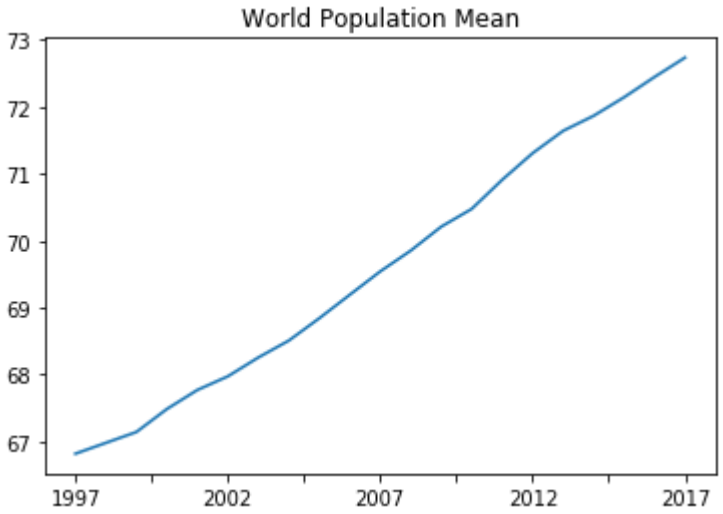
To get a base line, I took the median, Standard Deviation, and mean over the two decades, to get the base line of how the world as whole Life Expectancy measures.#This is showing that the life expectancy of all countries are becoming more concentrated together

The graphs in figure 1.1 and figure 1.2 show that average life expectancy is increasing around the globe. This is shown especailly in figure 1.2 which is depicting the median life expectancy. The number of countries serving as a constant, the median life expectancy increase indicate all countries are having an increase in life expectancy. Figure 1.3, the standard deviation, further inidcates that countries which had previously low life expectancy is increasing while historically high life expectancy countries maintain.

Figure 1.1: World Population Mean

```
In [303]: life1.mean(axis=0).plot(title = 'World Population Mean')
```

```
Out[303]: <matplotlib.axes._subplots.AxesSubplot at 0x25909924e08>
```



The mean in Figure 1.1 shows a steady increase of the average life expectancy for the world. No countries are added no deleted to the list during the queried time frame indicating that all countries or the majority of countries are increasing the life expectancy of its respective population.

Figure 1.2: World Population Median

In [305]:
```
life1.median().plot(title='World Population Median')
```

Out[305]: <matplotlib.axes._subplots.AxesSubplot at 0x25909a0da08>

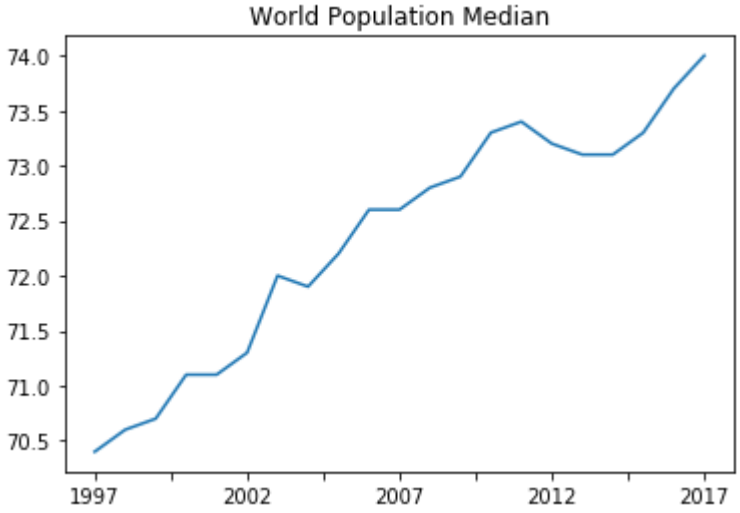


Figure 1.2 indicates that the world has a whole is move towards longer life for all citizen. As the median life expectancy increases this could be sign that either the top life expectancy countries are increase faster than bottom life expectancy countries or that the gap between the countries is shrinking. The standard deviation in figure 1.3 add more authority to the latter conclusion.

Figure 1.3: World Population Standard Deviation

In [306]:
```
life1.std().plot(title="World Population Deviation")
```

Out[306]: <matplotlib.axes._subplots.AxesSubplot at 0x25909a80bc8>

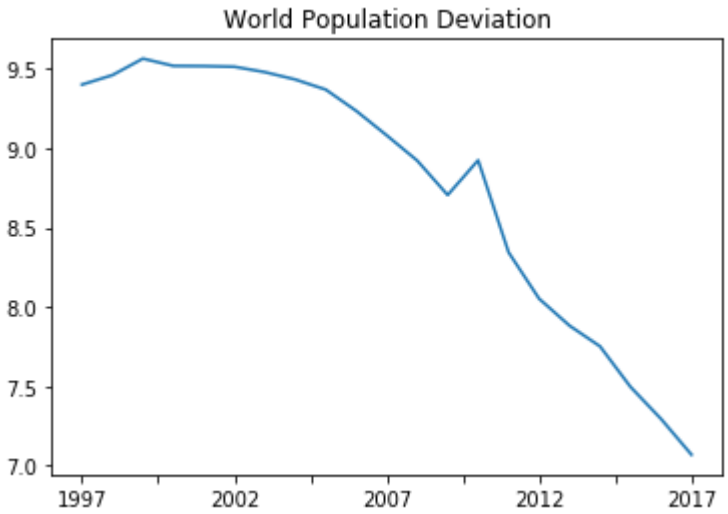


Figure 1.3 shows the standard deviation of the world life expectancy. This graph indicates that the countries of the world are steadily moving closer to a single expected life expectancy for the world.

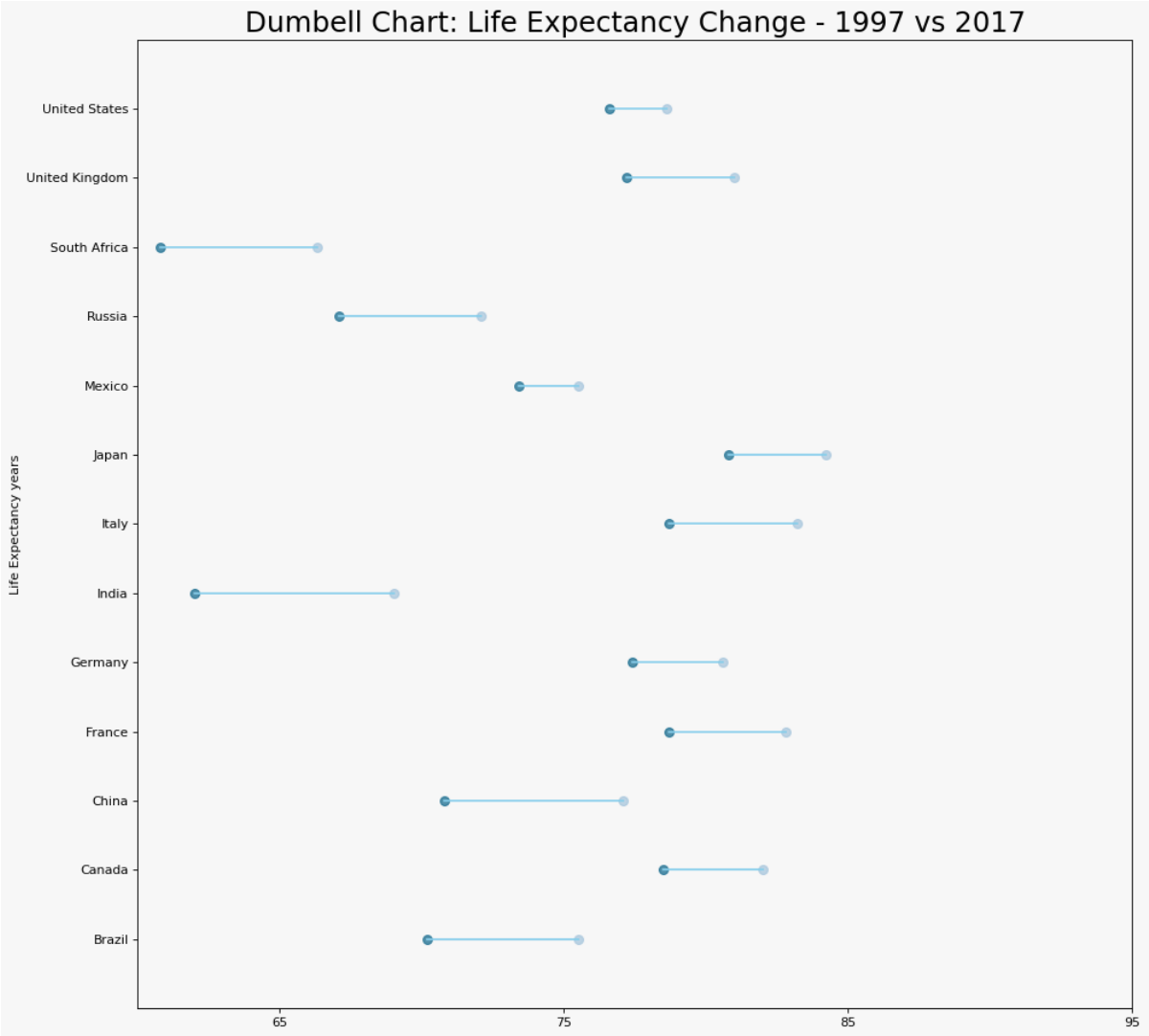
Question 2: How do G8+5 Country's trends compare to World Life Expectancy trends?

G8+5 Countries Life Expectancy Comparisons

Countries on average show a higher life expectancy than the the mean World life expectancy. Figure 2.1 shows a difference in mean life expectancy between G8+5 countries and world expectancy of about six years (Blue line - G8+5/ Orange line - World). The graph in Figure 2.2 shows the median age difference between the world and G8+5. However, the most intriguing graph is the Figure 2.3. This graph shows that although G8+5 countries are more similiar in life expectancy throughout the two decades, the disaparity between the countires start in 1997. This disparity peaked around 2005 and has continued to close through 2017. Upon further analysis I discovered that this large standard deviation was caused by the life expectancy trend of South Africa.

In [177]:
```
# Func to draw line segment
def newline(p1, p2, color='black'):
    ax = plt.gca()
    l = mlines.Line2D([p1[0],p2[0]], [p1[1],p2[1]], color='skyblue')
    ax.add_line(l)
    return l

# Figure and Axes
fig, ax = plt.subplots(1,1,figsize=(14,14), facecolor='#f7f7f7', dpi= 80)

# Vertical Lines
ax.vlines(x=.05, ymin=0, ymax=26, color='black', alpha=1, linewidth=1, linesty
les='dotted')
ax.vlines(x=.10, ymin=0, ymax=26, color='black', alpha=1, linewidth=1, linesty
les='dotted')
ax.vlines(x=.15, ymin=0, ymax=26, color='black', alpha=1, linewidth=1, linesty
les='dotted')
ax.vlines(x=.20, ymin=0, ymax=26, color='black', alpha=1, linewidth=1, linesty
les='dotted')

# Points
ax.scatter(y=life_r2['country'], x=life_r2['1997'], s=50, color='#0e668b', alp
ha=0.7)
ax.scatter(y=life_r2['country'], x=life_r2['2017'], s=50, color='#a3c4dc', alp
ha=0.7)

# Line Segments
for i, p1, p2 in zip(life_r2['country'], life_r2['1997'], life_r2['2017']):
    newline([p1, i], [p2, i])

# Decoration
ax.set_facecolor('#f7f7f7')
ax.set_title("Dumbell Chart: Life Expectancy Change - 1997 vs 2017", fontdict=
{'size':22})
ax.set(xlim=(60,65), ylim=(-1, 13), ylabel='Life Expectancy years')
ax.set_xticks([65, 75, 85, 95])
ax.set_xticklabels(['65', '75', '85', '95'])
ax.set_xticklabels(['65', '75', '85', '95'])
plt.show()
```

```
Out[177]: <matplotlib.collections.LineCollection at 0x2597de9cc88>

Out[177]: <matplotlib.collections.LineCollection at 0x2597ebf2ac8>

Out[177]: <matplotlib.collections.LineCollection at 0x2597ec00408>

Out[177]: <matplotlib.collections.LineCollection at 0x2597de3b248>

Out[177]: <matplotlib.collections.PathCollection at 0x2597e372548>

Out[177]: <matplotlib.collections.PathCollection at 0x2597e374b88>

Out[177]: <matplotlib.lines.Line2D at 0x2597e373a48>

Out[177]: <matplotlib.lines.Line2D at 0x2597e378548>

Out[177]: <matplotlib.lines.Line2D at 0x2597e378d08>

Out[177]: <matplotlib.lines.Line2D at 0x2597e37c3c8>

Out[177]: <matplotlib.lines.Line2D at 0x2597e37ca08>

Out[177]: <matplotlib.lines.Line2D at 0x2597e37cb88>

Out[177]: <matplotlib.lines.Line2D at 0x2597e37cd88>

Out[177]: <matplotlib.lines.Line2D at 0x2597e373cc8>

Out[177]: <matplotlib.lines.Line2D at 0x2597e386448>

Out[177]: <matplotlib.lines.Line2D at 0x2597e386b48>

Out[177]: <matplotlib.lines.Line2D at 0x2597e38c348>

Out[177]: <matplotlib.lines.Line2D at 0x2597e38cdc8>

Out[177]: <matplotlib.lines.Line2D at 0x2597e3868c8>

Out[177]: Text(0.5, 1.0, 'Dumbell Chart: Life Expectancy Change - 1997 vs 2017')

Out[177]: [(-1, 13), Text(0, 0.5, 'Life Expectancy years'), (60, 65)]

Out[177]: [<matplotlib.axis.XTick at 0x2597ebea148>,
           <matplotlib.axis.XTick at 0x2597ebed788>,
           <matplotlib.axis.XTick at 0x2597ebed388>,
           <matplotlib.axis.XTick at 0x2597e3920c8>]

Out[177]: [Text(0, 0, '65'), Text(0, 0, '75'), Text(0, 0, '85'), Text(0, 0, '95')]

Out[177]: [Text(0, 0, '65'), Text(0, 0, '75'), Text(0, 0, '85'), Text(0, 0, '95')]
```



The graph above shows the change in life expectancy in the refined country list. In the graph South Africa, India, China and Brazil (four of the +5 countries) show the greatest increase of population. The +5 countries are the world's emerging dominant economies.

Figure 2.1: Comparison of Life Expectancy between G8+5 and World (Mean)

In [192]:
```
lifermean = life_r2.mean()
ax = lifemean.plot(legend=True)
lifermean.plot(ax=ax, kind= 'line',figsize=(10,8),title="Mean Age Comparison")
ax.legend(['World','G8+5'], loc = 'lower right')
```

Out[192]: <matplotlib.axes._subplots.AxesSubplot at 0x2597ec2c488>

Out[192]: <matplotlib.legend.Legend at 0x2597ec4ff88>

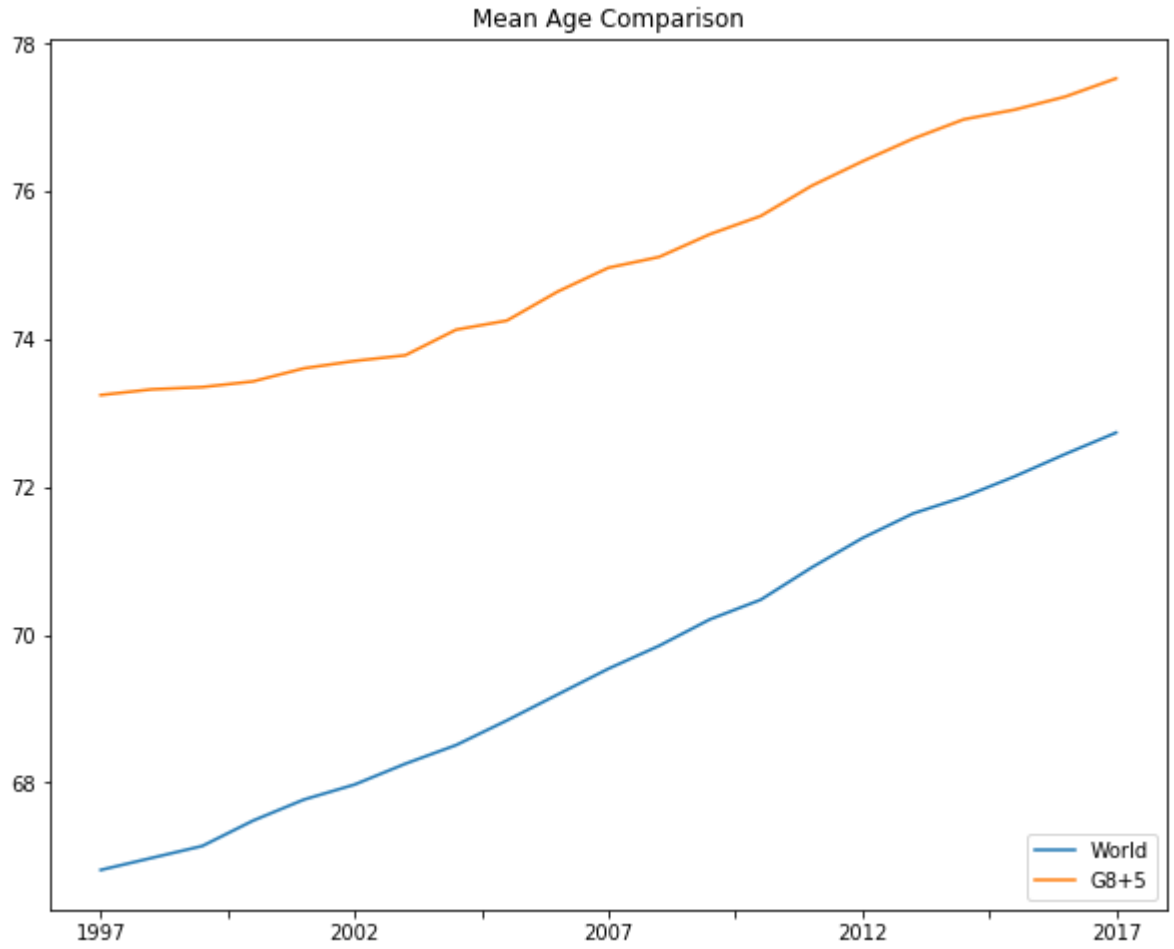


Figure 2.1 shows the median age of the G8+5 countries (Blue) and the world (orange). This graph indicates that on average the countries with the strongest economies (G8) and emgering economies(+5) have a higher expectancy of life than the total world as a whole.

Figure 2.2: Comparison of Life Expectancy between G8+5 and World (Median)

In [193]:
```
lifermed = life_r2.median()
ax = lifemed.plot(legend=True)
lifermed.plot(ax=ax, kind= 'line',figsize=(10,8),title="Median Age Comparison"
)
ax.legend(['World','G8+5'], loc = 'lower right')
```

Out[193]: <matplotlib.axes._subplots.AxesSubplot at 0x2597ed8ca48>

Out[193]: <matplotlib.legend.Legend at 0x2597f255408>

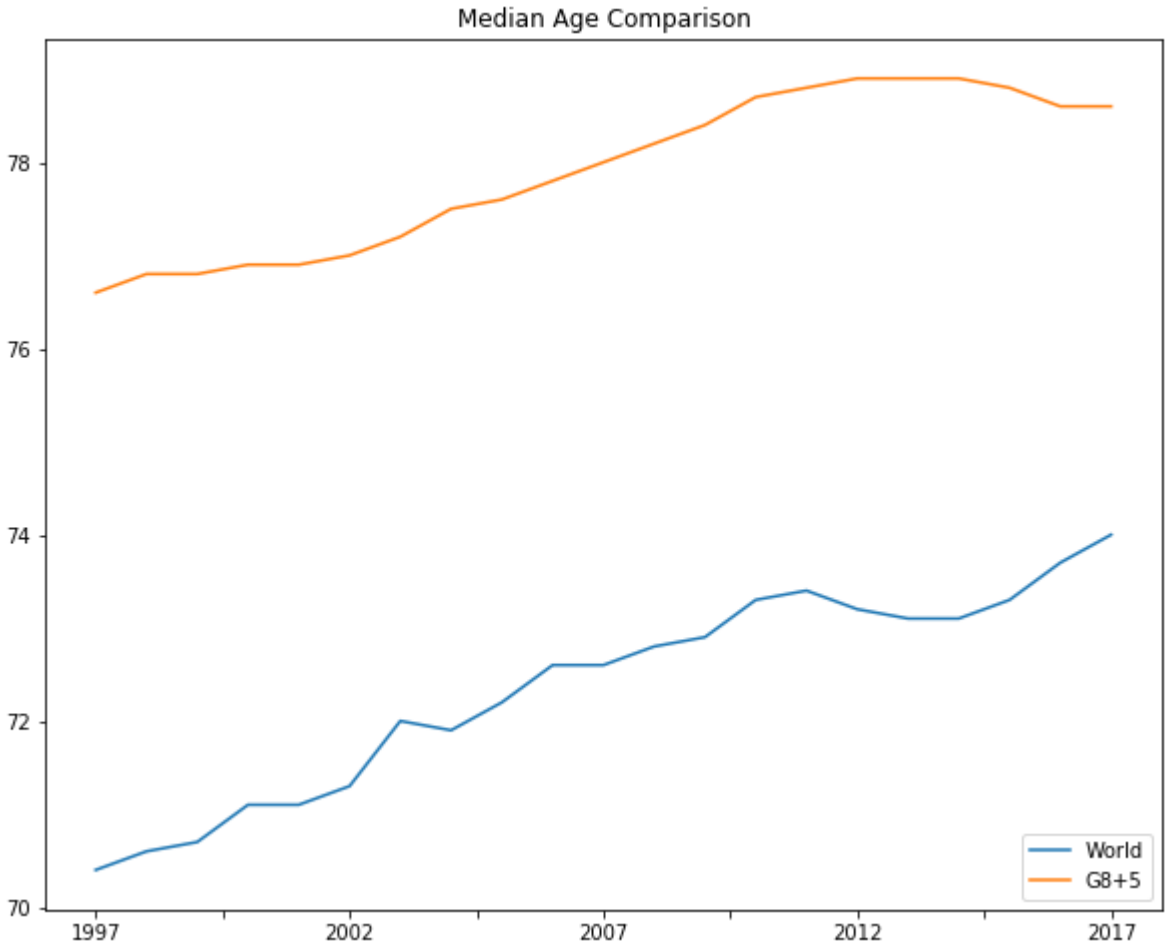


Figure 2.2 shows the median life expectancy between the G8+5 countries (Blue) and the world (orange). The graph indicates that countries in the G8+5 enjoy a higher life expectancy than the rest of the world. Becuase median age is an age that is in the middle of the group of ages, this graph does not provide any more insight to the problem set as the G8 countries are included in the world's median.

Figure 2.3: Comparison of Life Expectancy between G8+5 and World (STD)

In [194]:
```
liferstd = life_r2.std()
ax = lifestd.plot(legend=True)
liferstd.plot(ax=ax, kind= 'line',figsize=(10,8),title="Median Age Comparison"
)
ax.legend(['World','G8+5'], loc = 'lower right')
```

Out[194]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f096788>

Out[194]: <matplotlib.legend.Legend at 0x2597f076308>

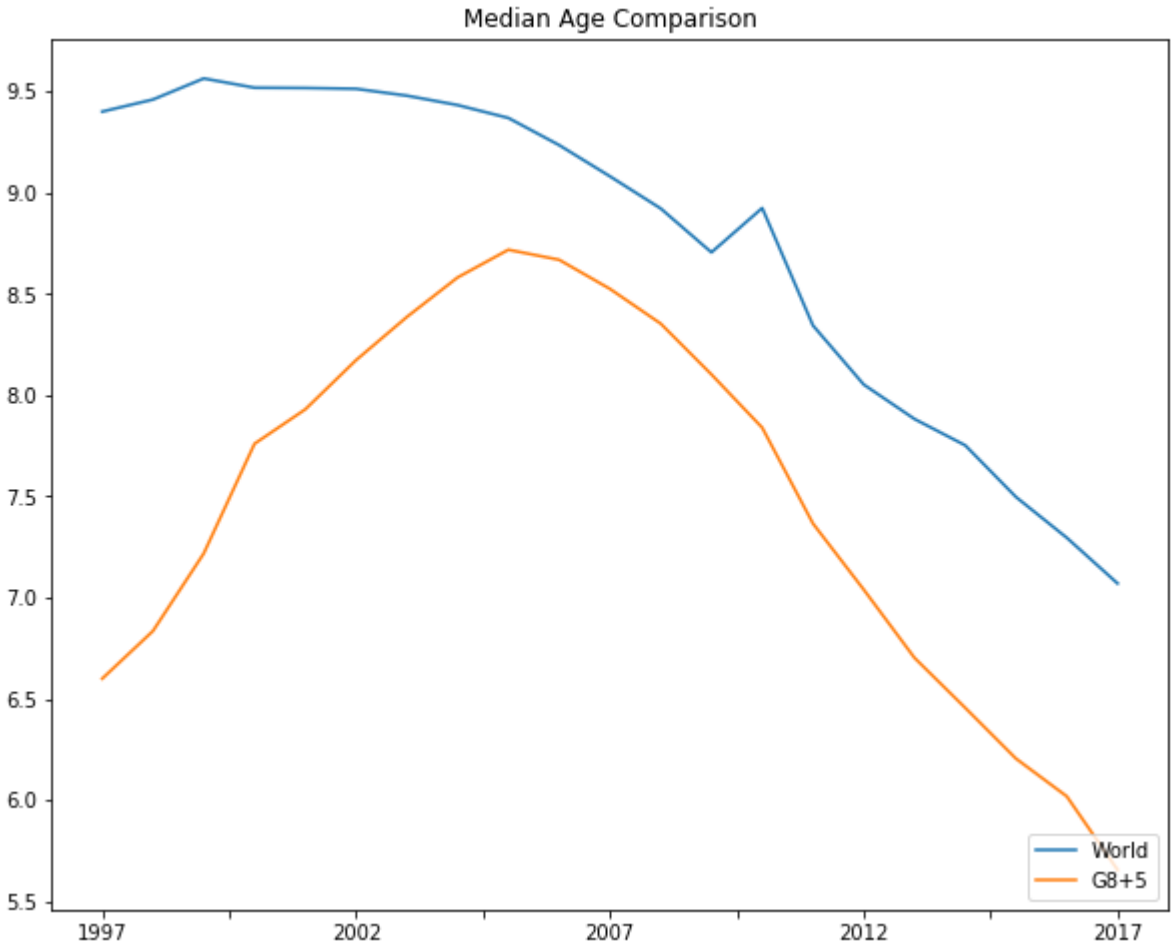


Figure 2.3 shows the standard deviation between the world (orange) and G8+5 countries (blue). The standard deviation of the G8+5 countries increase from 1997 until the decline about 2005-2006. This indicates that something happened to either one country or mulitply countries. Either a country or multiple countries severely increased their respective life expectancy or converserly a country or multiple countries significantly decrease the life expectancy.

Question 3: What Caused the significant increase to the Standard Deviation for G8+5 Countries

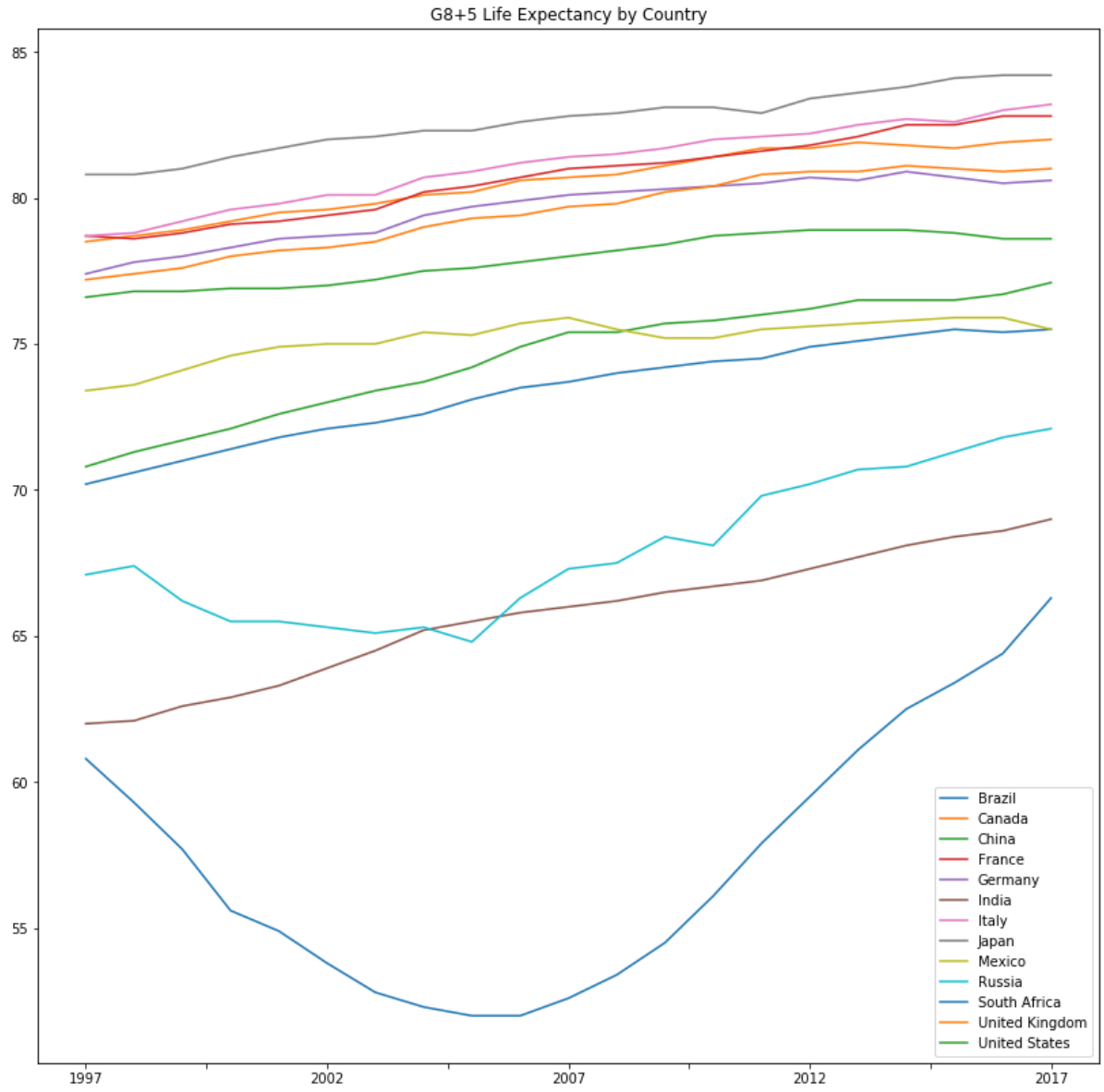
I used the below code to single out the cause of the increase to the G8+5 Countries Standard Deviation.

In [213]:
```
a=life_r.xs('Brazil')
b=life_r.xs('Canada')
c=life_r.xs('China')
d=life_r.xs('France')
e=life_r.xs('Germany')
f=life_r.xs('India')
g=life_r.xs('Italy')
h=life_r.xs('Japan')
i=life_r.xs('Mexico')
j=life_r.xs('Russia')
k=life_r.xs('South Africa')
l=life_r.xs('United Kingdom')
m=life_r.xs('United States')
```

Figure 3.1: Life Expectancy by country in G8+5

In [219]:
```
a.plot(legend=True)
b.plot(legend=True)
c.plot(legend=True)
d.plot(legend=True)
e.plot(legend=True)
f.plot(legend=True)
g.plot(legend=True)
h.plot(legend=True)
i.plot(legend=True)
j.plot(legend=True)
k.plot(legend=True)
l.plot(legend=True)
m.plot(figsize=(14,14),title = "G8+5 Life Expectancy by Country",legend=True)
```

```
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
Out[219]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f49b848>
```



In this graph South Africa can be clearly seen as the country to cause the significant increase in the standard deviation. The beginning of the time period to about 2006 a decrease in the population's life expectancy is seen. Beginning around 2007 the countries life expectancy begins increase, eventually surpassing the previous high in 1997

Question 4: Did independent variable assist in increasing South Africa's Life Expectancy after the drop?

After isolating South Africa as a country that had a significant drop in life expectancy, I explored the country's data to see if there was any correlation between idedpendent variables an life expectancy.

Figure 4.1: Life Expectancy of South Africa

```
In [220]: k.plot(legend=True, title ="South Africa 1997-2017")
```

```
Out[220]: <matplotlib.axes._subplots.AxesSubplot at 0x2597f98da88>
```

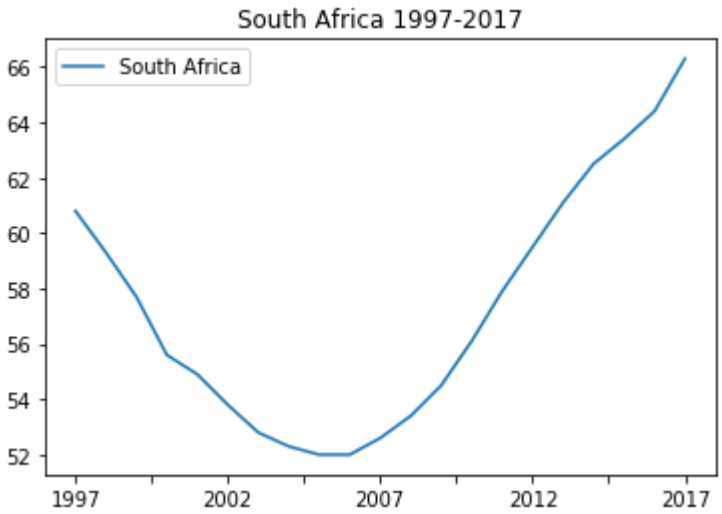


Figure 4.1 shows a clear decrease in the life expectancy of South Africans.

Figure 4.2: South Africa Agriculture percentage

In [296]:
```
sa_agri= agri_r.set_index('country')
plt.figure()
ax = k.plot(secondary_y=True, style ='g', figsize=(15,8),title = "South Africa: Life Expectancy vs Agriculture")
ax2 = sa_agri.xs('South Africa').plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Agriculture Percent')
ax2.legend(['Agriculture'], loc = 'best')
```

Out[296]:
```
<Figure size 432x288 with 0 Axes>
```

Out[296]:
```
Text(0, 0.5, 'Life Expectancy')
```

Out[296]:
```
<matplotlib.legend.Legend at 0x259080a85c8>
```

Out[296]:
```
Text(0, 0.5, 'Agriculture Percent')
```

Out[296]:
```
<matplotlib.legend.Legend at 0x259090f3808>
```

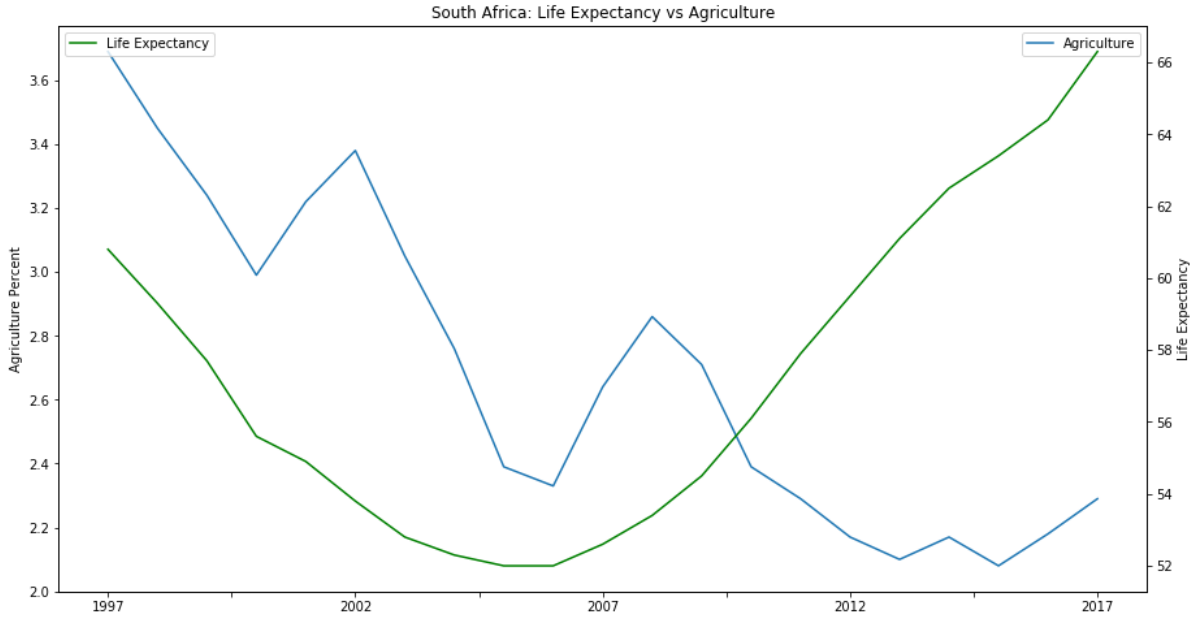


Figure 4.2 shows a clear decline also of South Africa's agriculture sector percentage. For the entirety of the time queried the general slope of the graph indicates that South Africa has a decline over all.

Figure 4.3: South Africa Life expectancy vs. Service percentage

In [235]:
```
sa_service= service_r.set_index('country')
sa_service=sa_service.xs('South Africa')
ax = sa_service.plot(legend=True)
k.plot(ax=ax, kind= 'line',figsize=(10,8),title="South Africa: Life Expectancy vs Service")
ax.legend(['Service','Life Expectancy'], loc = 'lower right')

# Image('South_africa_life_expectancy_Service.png')
```

Out[235]: <matplotlib.axes._subplots.AxesSubplot at 0x259013615c8>

Out[235]: <matplotlib.legend.Legend at 0x25901366dc8>

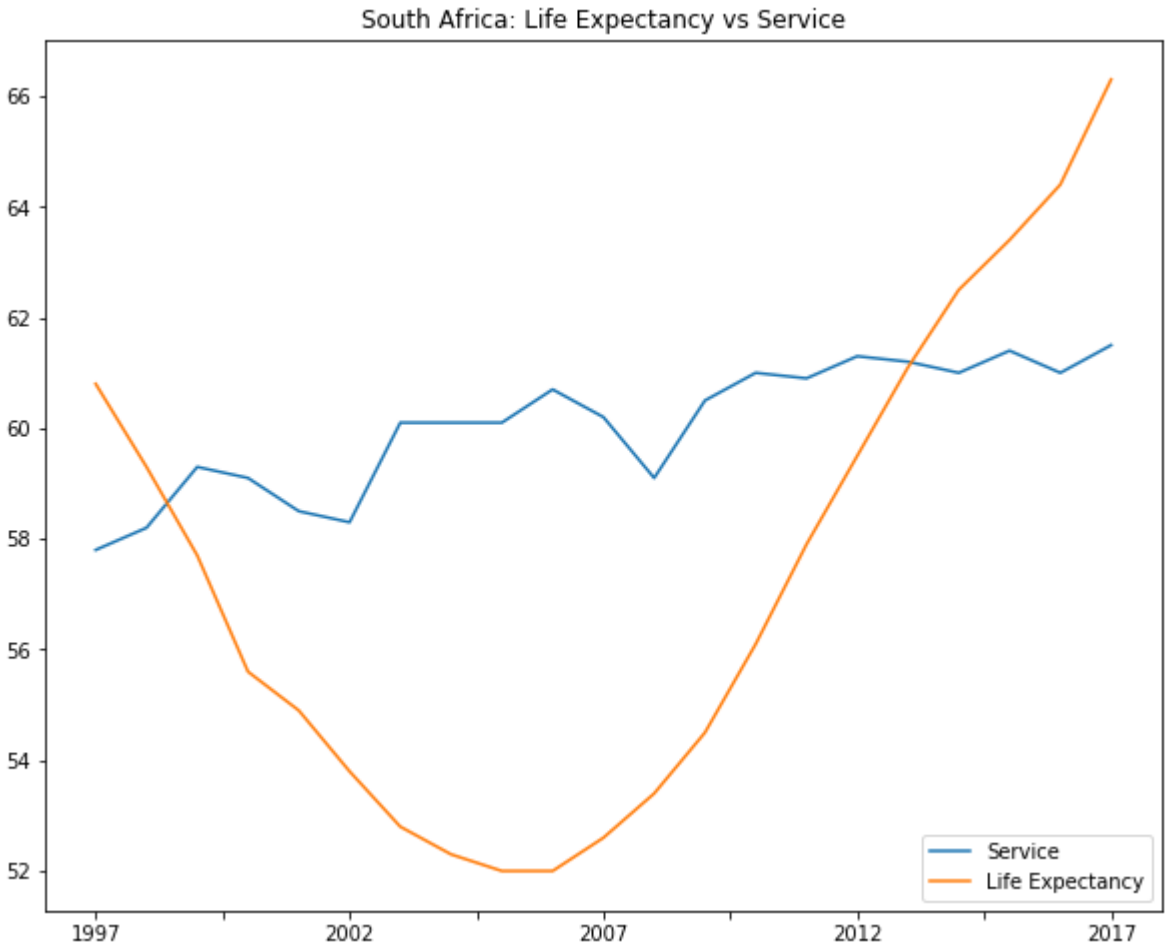


Figure 4.3 show the comparison of the service sector (Orange) and the life expectancy (blue) over the queried time frame. The service sector show an over all positive trend. The increases and decrease of service show correlation to the life expectancy of South Africa.

Figure 4.4: South Africa Life expectancy vs. Industry percentage

In [276]:
```
sa_industry= industry_r.set_index('country')
sa_industry=sa_industry.xs('South Africa')
plt.figure()
ax = k.plot(secondary_y=True, style ='g', figsize=(15,8),title = "South Africa: Life Expectancy vs Industry")
ax2 = sa_industry.plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Industry Percent')
ax2.legend(['Industry'], loc = 'best')
```

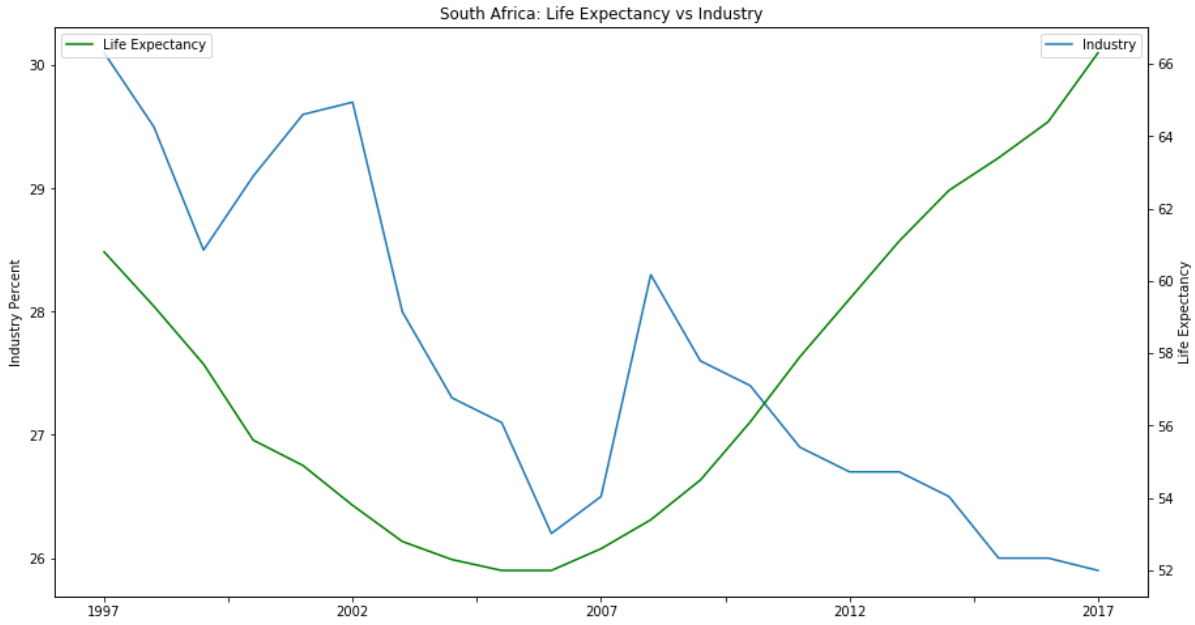
Out[276]: <Figure size 432x288 with 0 Axes>

Out[276]: Text(0, 0.5, 'Life Expectancy')

Out[276]: <matplotlib.legend.Legend at 0x259062b4ac8>

Out[276]: Text(0, 0.5, 'Industry Percent')

Out[276]: <matplotlib.legend.Legend at 0x259062ad688>



Figuer 4.4 show a gradual decline in industry (Orange) compared to the life expectancy from 1997 to 2017. A minor correlation can be seen between the drop in life expectancy and industry from 2002 to 2008.

Figure 4.5: South Africa Life expectancy vs. Export percentage

In [273]:
```
sa_exports= exports_r.set_index('country')
sa_exports=sa_exports.xs('South Africa')
plt.figure()
ax = k.plot(secondary_y=True, style ='g', figsize=(15,8), title = "South Africa: Life Expectancy vs Exports")
ax2 = sa_exports.plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Exports Percent')
ax2.legend(['Exports'], loc = 'best')
```

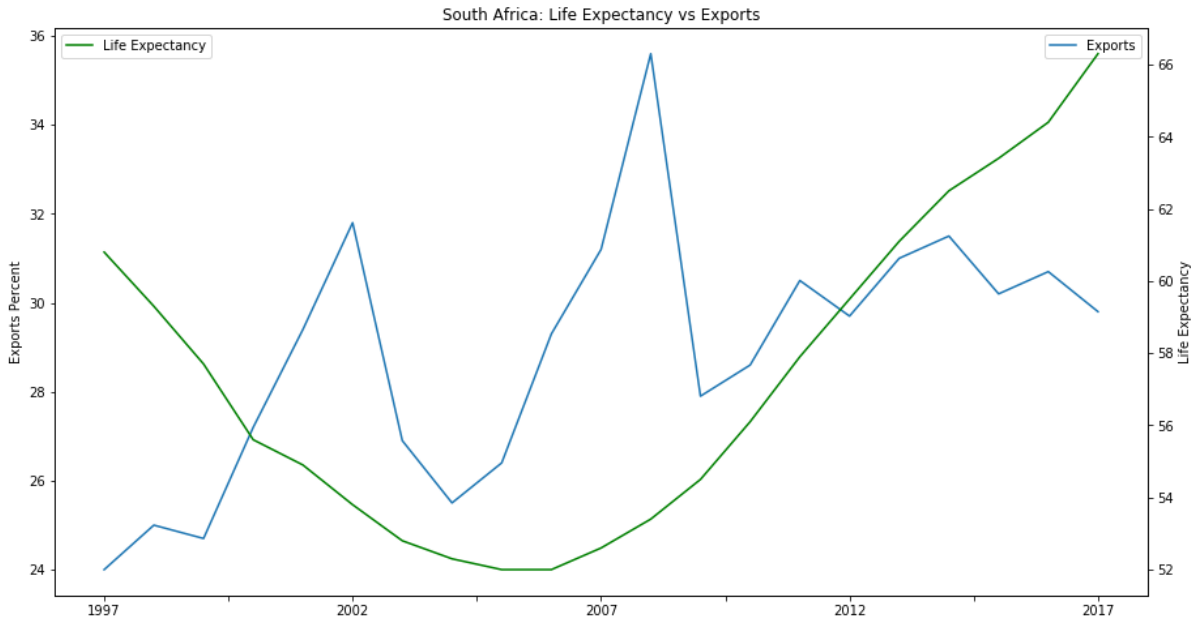
Out[273]: <Figure size 432x288 with 0 Axes>

Out[273]: Text(0, 0.5, 'Life Expectancy')

Out[273]: <matplotlib.legend.Legend at 0x25905356788>

Out[273]: Text(0, 0.5, 'Exports Percent')

Out[273]: <matplotlib.legend.Legend at 0x25905d9b088>



In figure 4.5 we see another correlation between exports (blue) and life expectancy (green). During the time of decline life expectancy for South Africa the exports were at its lowest. A spike in exports around 2007 is a potential prelude to the increase in life expectancy we see the same year and later.

Figure 4.6: South Africa Life expectancy vs. Imports percentage

In [272]:
```
sa_imports= imports_r.set_index('country')
sa_imports=sa_imports.xs('South Africa')
plt.figure()
ax = k.plot(secondary_y=True, style ='g', figsize=(15,8), title = "South Africa: Life Expectancy vs Imports")
ax2 = sa_imports.plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Imports Percent')
ax2.legend(['Imports'], loc = 'best')
```

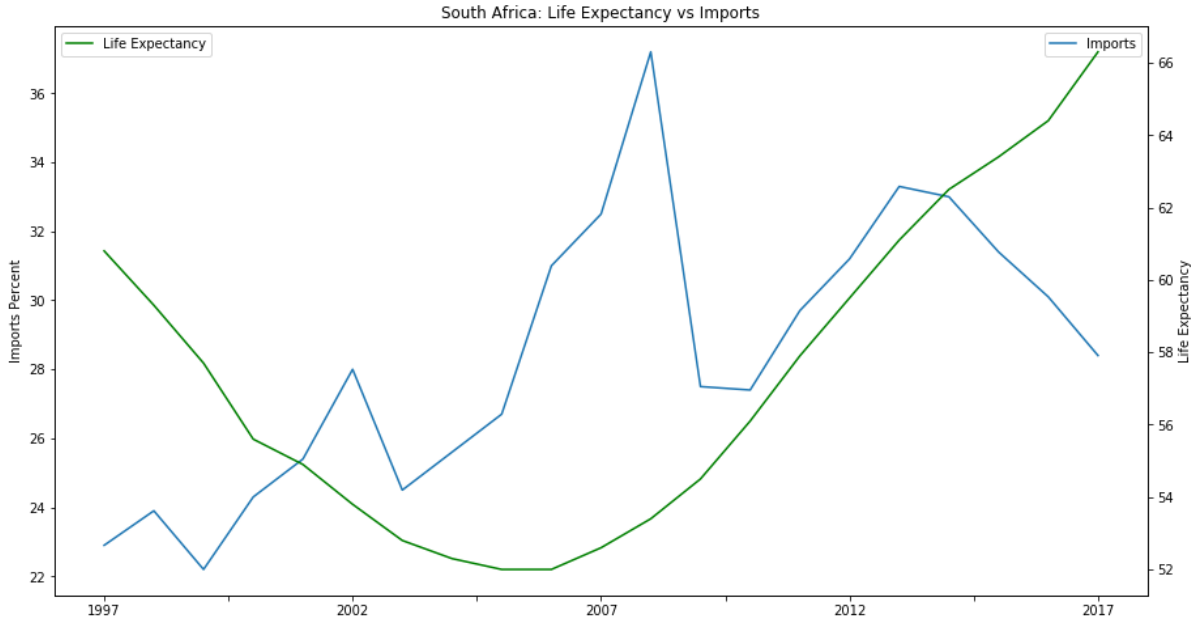
Out[272]: <Figure size 432x288 with 0 Axes>

Out[272]: Text(0, 0.5, 'Life Expectancy')

Out[272]: <matplotlib.legend.Legend at 0x2590536f9c8>

Out[272]: Text(0, 0.5, 'Imports Percent')

Out[272]: <matplotlib.legend.Legend at 0x25905374c48>



As seen in figure 4.5, in figure 4.6 a spike in imports seems to be the prelude to the increase in life expectancy for the country of South Africa. However, imports appears to maintain a generally positive trend throughout the entirety of the time period.

Summation of South Africa

South Africa's life expectancy dropped by approximately 8 years. Over the time period (1997-2017) South Africa had approximately +5 net. I did a search of the original life expectancy dataframe and found that Burundi had a net gain of 18. I decided to compare Burundi's data versus what South Africa's data show.

Exploring Burundi

During initial data exploration Burundi was identified as a country that had the largest increase of Life Expectancy. Using Burundi to compare to South Africa should allow me to see if the independent variables if any can be correlated to increase of life expectancy.

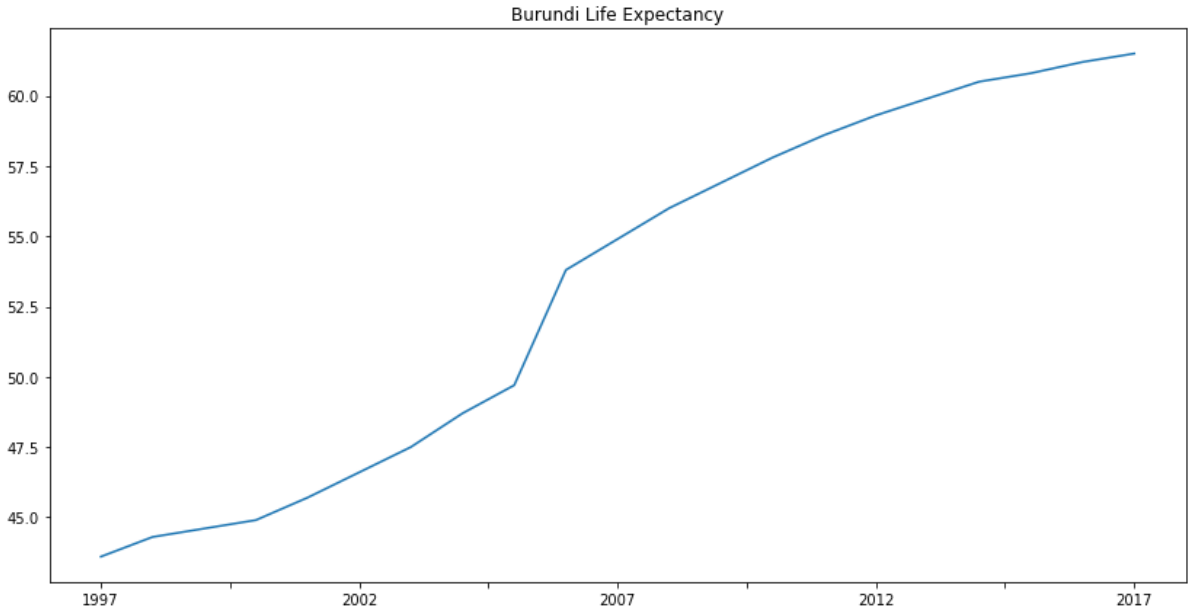
Burundi's life expectancy vs economic sectors

In [239]:
```
lifeb = pd.read_csv('life_low.csv',index_col='country')
agrib = pd.read_csv('agriculture_Burundi.csv',index_col='country')
industryb = pd.read_csv('industry_Burundicsv.csv',index_col='country')
exportsb = pd.read_csv('exports_Burundi.csv',index_col='country')
importsb = pd.read_csv('imports_Burundi.csv',index_col='country')

x1=lifeb.xs('Burundi')
x2=agrib.xs('Burundi')
x3=industryb.xs('Burundi')
x4=exportsb.xs('Burundi')
x5=importsb.xs('Burundi')
```

Figure 5.1: Burundi Life Expectancy

In [283]:
```
life_r.xs('Burundi').plot(figsize=(14,7), title="Burundi Life Expectancy")
```

Out[283]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2590684e748>
```



In figure 5.1 shows the life expectancy for Burundi. In the graph there is a sharp increase of life expectancy around 2005.

Figure 5.2: Burundi Life expectancy vs.Agriculture percentage

In [288]:
```
b_agri= agri_r.set_index('country')
b_agri=b_agri.xs('Burundi')
plt.figure()
ax = life_r.xs('Burundi').plot(secondary_y=True, style ='g', figsize=(15,8), t
itle = "Burundi: Life Expectancy vs Agriculture Percent")
ax2 = b_agri.plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Agriculture')
ax2.legend(['Agriculture'], loc = 'best')
```

Out[288]: <Figure size 432x288 with 0 Axes>

Out[288]: Text(0, 0.5, 'Life Expectancy')

Out[288]: <matplotlib.legend.Legend at 0x25906e1ff48>

Out[288]: Text(0, 0.5, 'Agriculture')

Out[288]: <matplotlib.legend.Legend at 0x25906e4bcc8>

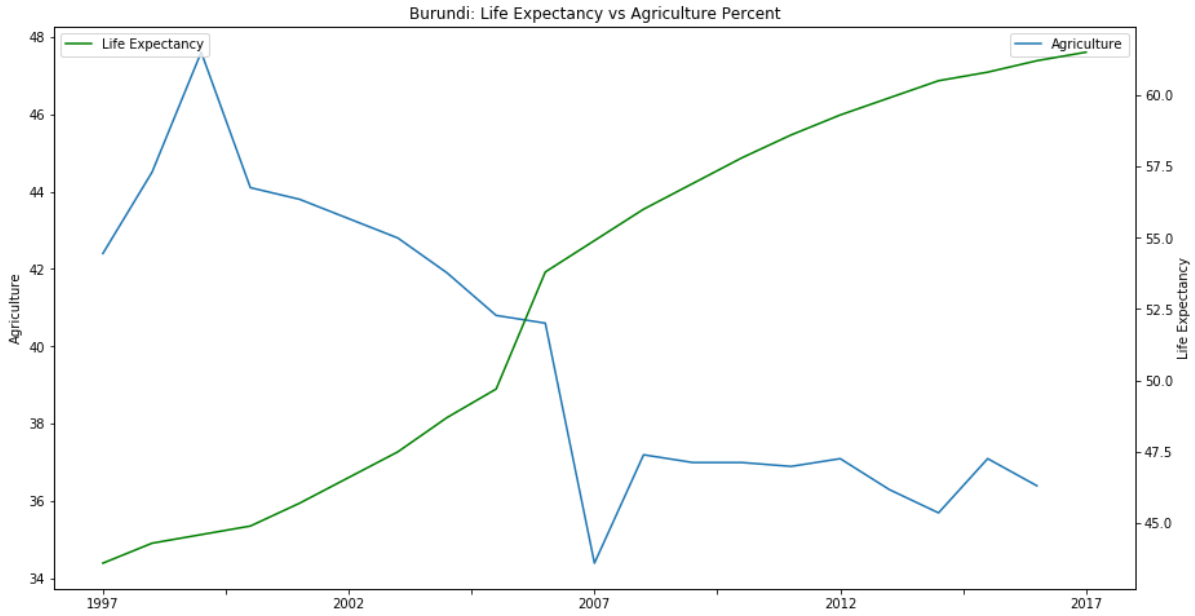


Figure 5.2 is a comparison between agriculture (blue) and life expectancy (green). Agriculture experienced a general decline over the queried time. The sharp increase in life expectancy preluded the sharp decrease in agriculture. It is likely that the GDP as whole increased in value and thus the 5% decrease could still be the same dollar amount used.

Figure 5.3 Burundi Life expectancy vs. Imports percentage

In [290]:
```
b_imports= imports_r.set_index('country')
plt.figure()
ax = life_r.xs('Burundi').plot(secondary_y=True, style ='g', figsize=(15,8), t
itle = "Burundi: Life Expectancy vs Import Percent")
ax2 = b_imports.xs('Burundi').plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Imports')
ax2.legend(['Imports'], loc = 'best')
```

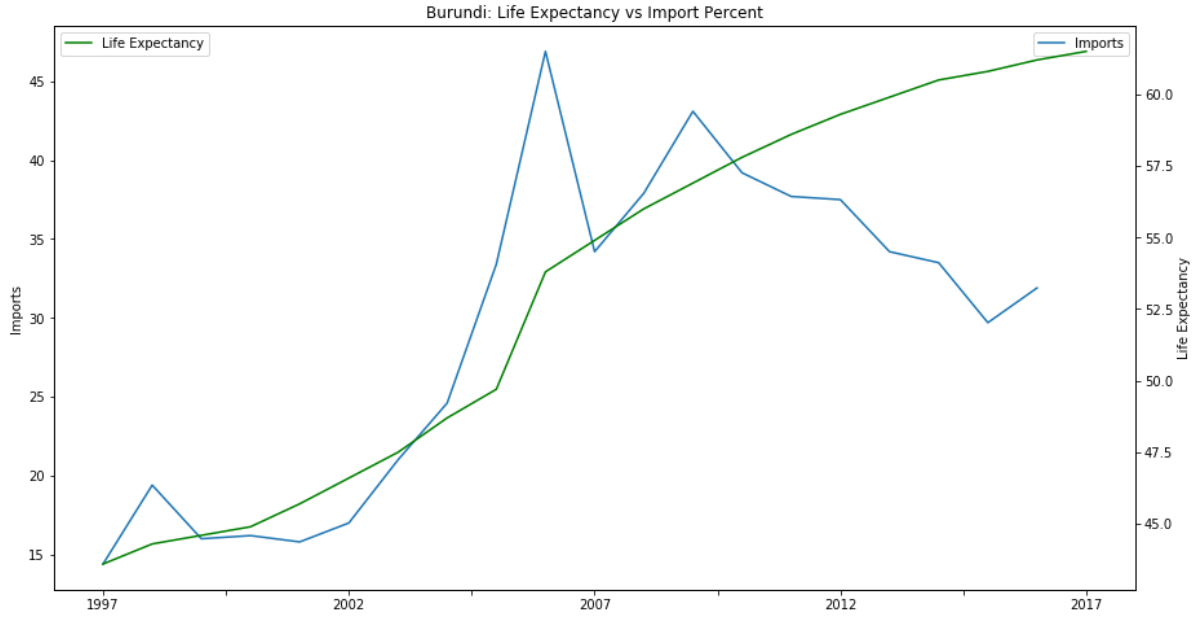
Out[290]:
```
<Figure size 432x288 with 0 Axes>
```

Out[290]:
```
Text(0, 0.5, 'Life Expectancy')
```

Out[290]:
```
<matplotlib.legend.Legend at 0x2590713a808>
```

Out[290]:
```
Text(0, 0.5, 'Imports')
```

Out[290]:
```
<matplotlib.legend.Legend at 0x25906f6d288>
```



In figure 5.3 a potential correlation between imports (blue) and life expectancy (green) can be seen during life expectancy's sharp increase. Imports over all increase begins to spike around 2002 and culminates in 2006. The increase in imports can be a prelude to the the sharp increase of population.

Figure 5.4 Burundi Life expectancy vs. Industry percentage

In [292]:
```
b_industry= industry_r.set_index('country')
plt.figure()
ax = life_r.xs('Burundi').plot(secondary_y=True, style ='g', figsize=(15,8), t
itle = "Burundi: Life Expectancy vs Industry Percent")
ax2 = b_industry.xs('Burundi').plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Industry')
ax2.legend(['Industry'], loc = 'best')
```

Out[292]: <Figure size 432x288 with 0 Axes>

Out[292]: Text(0, 0.5, 'Life Expectancy')

Out[292]: <matplotlib.legend.Legend at 0x259072e0588>

Out[292]: Text(0, 0.5, 'Industry')

Out[292]: <matplotlib.legend.Legend at 0x25907340388>

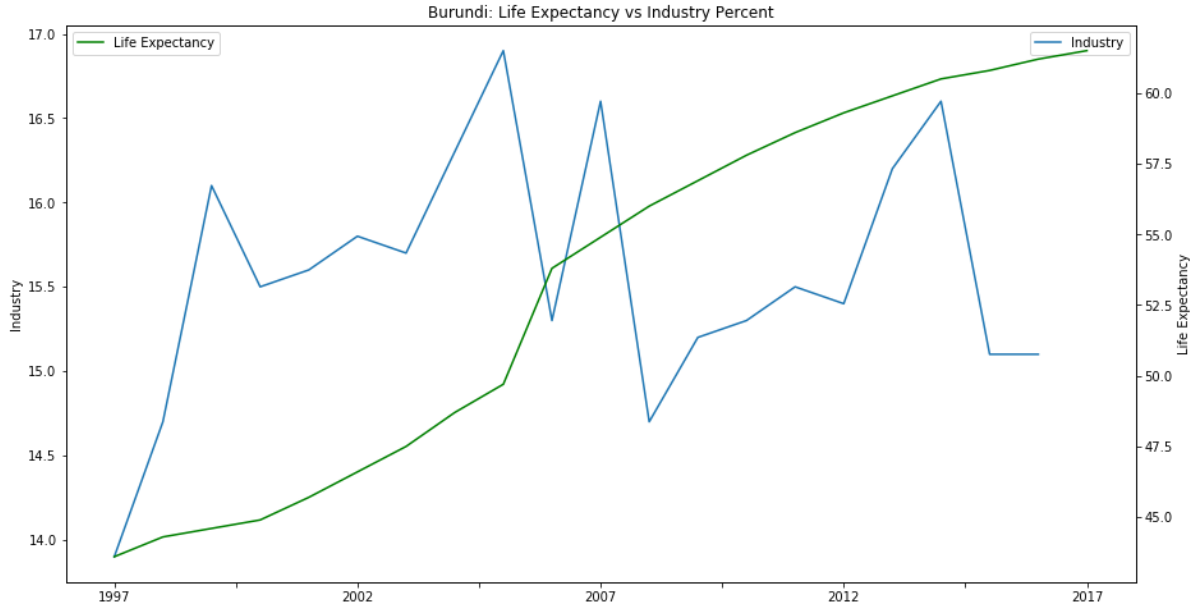


Figure 5.4 shows the industry as percentage from 1997 to 2017. Industry overall had an increase but was not a steady increase over time. Around 2005 industry experienced the greatest increase. At this time the life expectancy and imports also experience an increase.

Figure 5.5 Burundi Life expectancy vs. Exports percentage

In [293]:
```
b_exports= exports_r.set_index('country')
plt.figure()
ax = life_r.xs('Burundi').plot(secondary_y=True, style ='g', figsize=(15,8), t
itle = "Burundi: Life Expectancy vs Export Percent")
ax2 = b_exports.xs('Burundi').plot()
ax.set_ylabel('Life Expectancy')
ax.legend(['Life Expectancy'], loc = 'best')
ax2.set_ylabel('Exports')
ax2.legend(['Exports'], loc = 'best')
```

Out[293]: <Figure size 432x288 with 0 Axes>

Out[293]: Text(0, 0.5, 'Life Expectancy')

Out[293]: <matplotlib.legend.Legend at 0x25907af9248>

Out[293]: Text(0, 0.5, 'Exports')

Out[293]: <matplotlib.legend.Legend at 0x25907edb348>

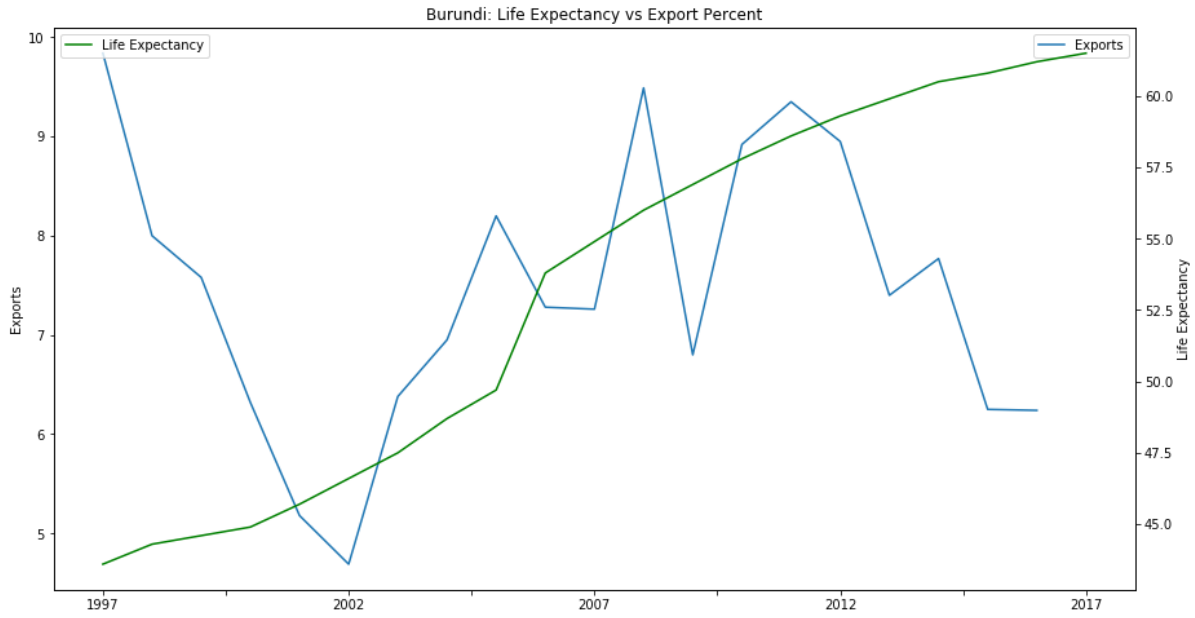


Figure 5.5 shows a overall decrease of exports. Of note, at the same time of figure 5.3 imports significant increase exports began a comparable increase. However, exports' increase stops short of the life expectancy sharp increase. This fact does not exclude exports role in Burundi's life expectancy growth.

Conclusions

Australian Health Department's defined aspect of increasing Life Expectancy:

The Australian department of heath states, "Life expectancy is affected by many factors such as: socioeconomic status, including employment, income, education and economic wellbeing"("Tier 1—Life expectancy and wellbeing—1.19 Life expectancy at birth", Novemeber 2012)

The premise of using G8+5 Countries

This project's goal only explored economic wellbeing of the country and not the individual. None of the independent variables showed to have any affect on the life expectancy of the population based off of percent. Each independent variable showed a reduction in the percent of the GDP utilized in the respective sector. The G8 countries were used because they are the most dominant economic countries, while the plus 5 are the top five emerging countries. South Africa was further isolated because of the significant drop in life expectacny identified in the mid to late 1990s.

Identified pit falls in selected data

The information retrieved and presented is likely misleading. The gradual reduction in GDP percentage spent by each country does not equate to the actual amount of money that was used. For example, the US GDP in 2002 was 10.9 Trillion dollars while in 2017 it was 19.49 Trillion. The US spent approximately 20.8% on the industry sector of the economy in 2002 which is about 4 trillion dollars. Conversely the US spent 3.7 trillion (19%) of 19 Trillion in 2017. The countries selected have GDPs larger than most other countries in the world and the trend of reduction of precentage points in the each sector exhibits the same patterns as the US.

Final analysis:

South Africa and Burundi were both selected for further analysis. South Africa experienced a significant drop in life expectancy reaching the bottom at 52 years. South Africa over the entire time frame had a net positive increase of 5 years culiminating at 66 years. Burundi, another African country, had a gain of 18 years to the life expectancy of its citizens. Burundi had a sharp increase between 2005 and 2007 at the same time South Africa reached its lowest point. During

In [ ]: