Descriptive Analysis to understand the Import Dependence of SAARC *countries on India, China, and the rest of the World*

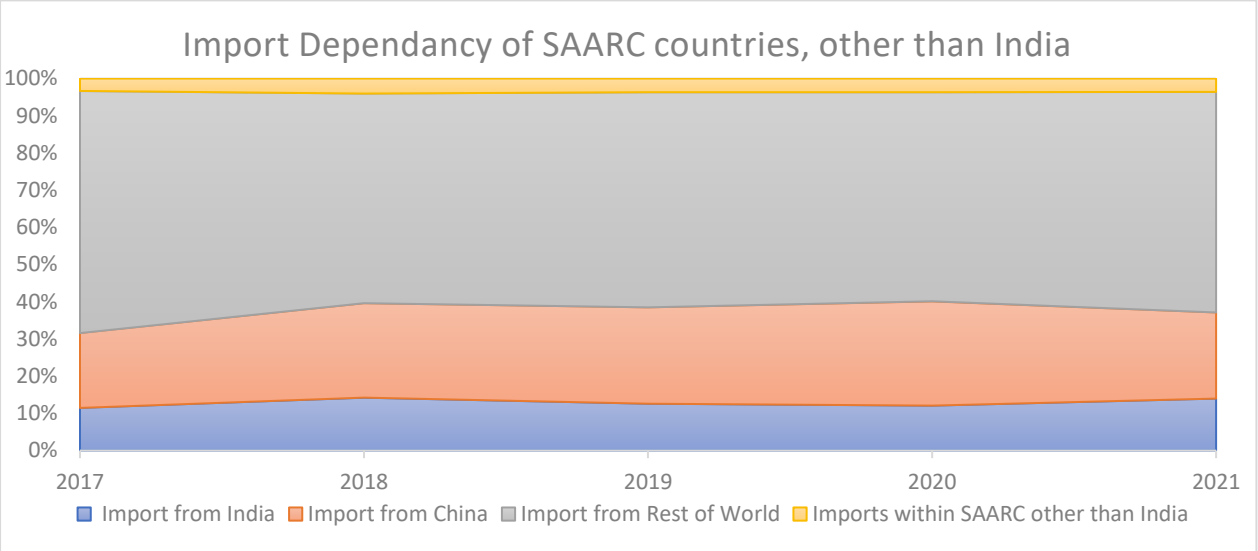
Sohom Acharya, June 2022

The South Asian Association for Regional Cooperation (SAARC) is an economic and political organization of eight countries in South Asia, comprising Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. These countries are part of the South Asian Free Trade Area (SAFTA) which was set up to boost trade and economic cooperation, but has not been successful and is declining every year.

This analysis tries to describe the trade dynamics of SAARC in the last five years.

A broad overview of the percentage of imports by SAARC countries for the last five years

- Internal trade within SAARC , other than from India, forms a very small percentage of the total trade, making the economic cooperation among the countries weaker with each passing year
- >India accounts to about 10 percent of the total trade of SAARC
- >China dominates the trade with an approximate 48.93 percent more than the total internal trade of SAARC countries combined



In [1]:
```
import pandas as pd

df = pd.read_excel (r'C:\Users\achar\OneDrive\Desktop\Trade Analysis\SAARC.xlsx', sheet_name='Sheet2')
df.set_index('Year', inplace=True)
df.head()
```

Out[1]:

Year	Import_from_India	Import_from_China	Import_from_Rest_of_World	Imports_within_other_than_India
2017	20.189499	35.459619	114.664505	5.892664
2018	24.711504	44.184085	97.951943	7.016940
2019	22.576472	46.566089	103.889938	6.570501
2020	18.948431	44.154498	88.505626	5.754639
2021	30.706383	50.613982	129.894708	7.943074

```
lst=[]
for i in [0,1,2,3,4]:
    x = ((df.iloc[i,2] - df.iloc[i,1] - df.iloc[i,4])/(df.iloc[i,1] + df.iloc[i,4]))
    lst.append(x)

lst
sum(lst)/len(lst)
```

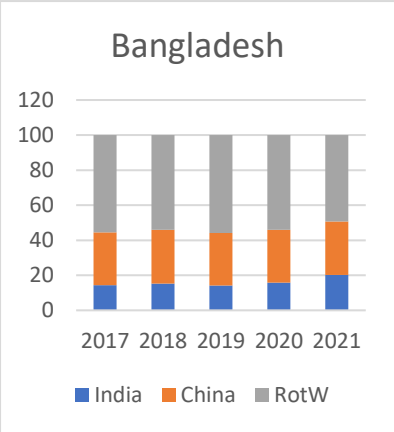
```
0.48934204865287356
```

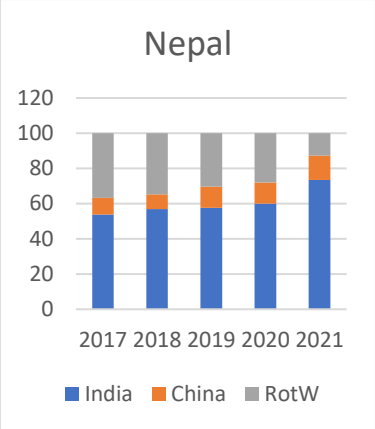
A detailed analysis of import dependence of SAARC countries other than India

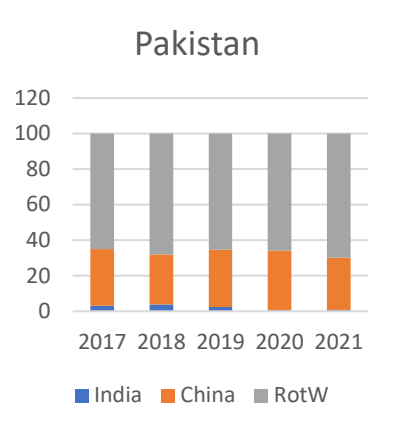
```
fig, axs = plt.subplots(nrows=2, ncols=4, figsize=(15, 8))
df_bhu = df.iloc[0:5]
df_bhu.set_index('Year', inplace=True)
df_pak= df.iloc[5:10]
df_pak.set_index('Year', inplace=True)
df_ban= df.iloc[10:15]
df_ban.set_index('Year', inplace=True)
df_nep= df.iloc[15:20]
df_nep.set_index('Year', inplace=True)
df_sri= df.iloc[20:25]
df_sri.set_index('Year', inplace=True)
df_mal= df.iloc[25:30]
df_mal.set_index('Year', inplace=True)
df_afg= df.iloc[30:35]
df_afg.set_index('Year', inplace=True)

fig.suptitle('Import Dependancy of SAARC Countries')
axs[0,0].set_title('Bhutan')
axs[0,1].set_title('Pakistan')
axs[0,2].set_title('Bangladesh')
axs[0,3].set_title('Nepal')
axs[1,0].set_title('Sri Lanka')
axs[1,1].set_title('Maldives')
axs[1,2].set_title('Afghansitan')



ax1 = df_bhu.plot(ax=axs[0,0], kind='bar', stacked=True)
ax2 = df_pak.plot(ax=axs[0][1], kind='bar', stacked=True)
ax3 = df_ban.plot(ax=axs[0][2], kind='bar', stacked=True)
ax4 = df_nep.plot(ax=axs[0][3], kind='bar', stacked=True)
ax5 = df_sri.plot(ax=axs[1][0], kind='bar', stacked=True)
ax6 = df_mal.plot(ax=axs[1][1], kind='bar', stacked=True)
ax7 = df_afg.plot(ax=axs[1][2], kind='bar', stacked=True)
fig
```

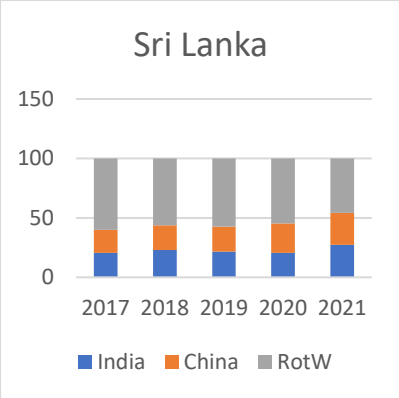
- Apart from Bhutan and Nepal, India does not have a stronghold in any other SAARC Countries, also, both Bhutan and Nepal have shown a steady increase in China imports recently

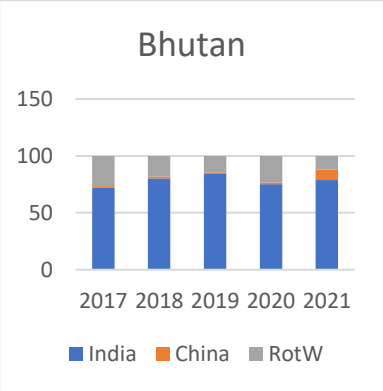
- India has managed to increase its percentage in the total imports of countries like Bangladesh, Maldives, and Afghanistan compared to China, which is a positive

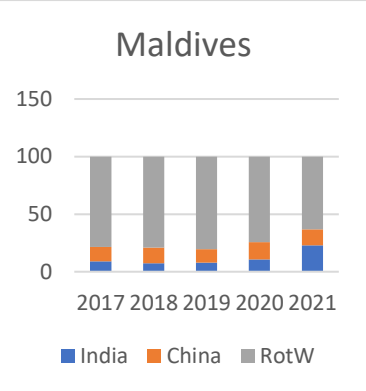


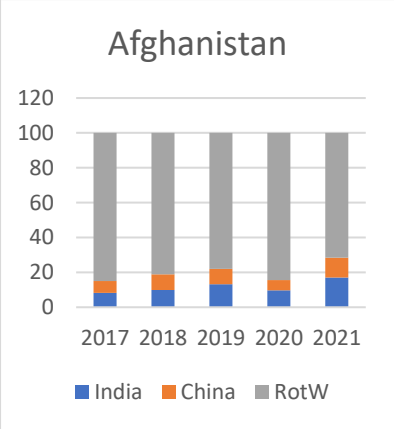










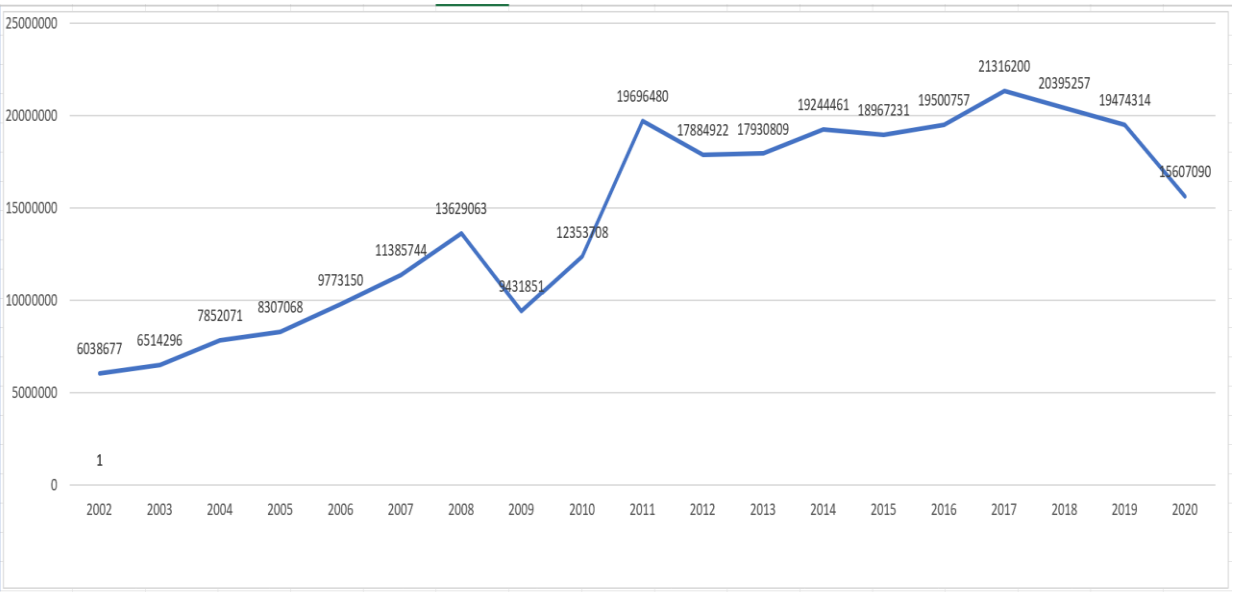


Stacked Percentage Chart for Import Dependency of SAARC Countries

Raw Data Source: www.trademap.org

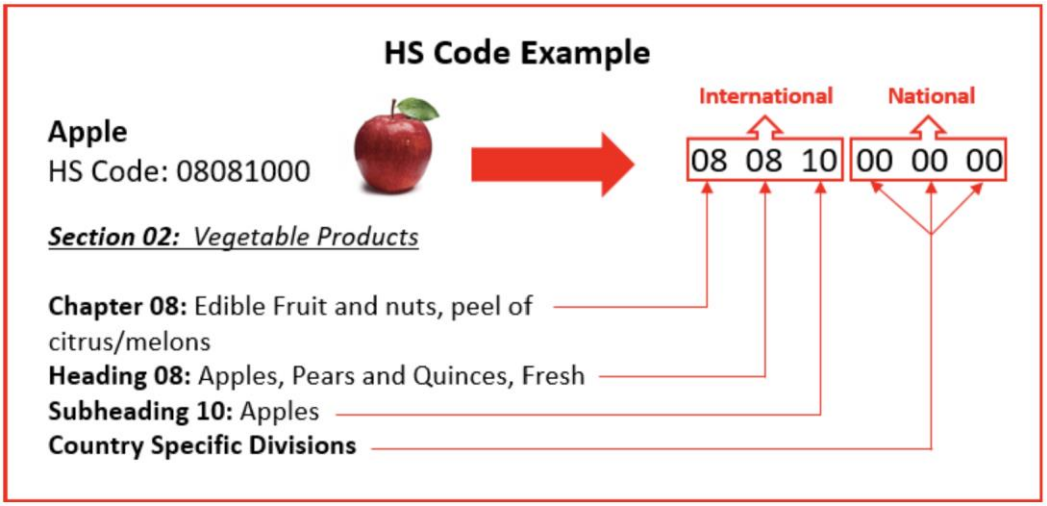
The Data for Sri Lanka for the year 2018 was missing as there has been no official report of the same, and hence, I have interpolated the same using the past ten years' historical data.

Timeline	Values
2002	6038677
2003	6514296
2004	7852071
2005	8307068
2006	9773150
2007	11385744
2008	13629063
2009	9431851
2010	12353708
2011	19696480
2012	17884922
2013	17930809
2014	19244461
2015	18967231
2016	19500757
2017	21316200
2018	20395257
2019	19474314
2020	15607090



Major Items for SAARC Internal Trade based on HS Codes and the role of India

HS Code: The Harmonized System (HS) of tariff nomenclature is an internationally standardized system of names and numbers to classify traded products. It consists of 6-10 digits and each pair of digits from the left signify a particular classification, from broad to narrow as you move towards the right.




```
import pandas as pd
df = pd.read_excel (r'C:\Users\achar\OneDrive\Desktop\Trade Analysis\SAARC.xlsx', sheet_name='Sheet4')
df.set_index('HS_Code', inplace=True)
df.head()
```

HS_Code	2017	2018	2019	2020	2021
Total	27231405	32114039	29343063	25040753	38312882
52	3091793	3532545	2774784	2615520	5051778
27	3030515	4194173	3637517	2554479	4732886
87	2229683	2558148	2047994	1261128	2058675
72	1808008	2150584	2038545	1608408	2558098

```
df['mean'] = df.mean(axis=1)
df.head(8)
```

HS_Code	2017	2018	2019	2020	2021	mean
Total	27231405	32114039	29343063	25040753	38312882	30408428.4
52	3091793	3532545	2774784	2615520	5051778	3413284.0
27	3030515	4194173	3637517	2554479	4732886	3629914.0
87	2229683	2558148	2047994	1261128	2058675	2031125.6
72	1808008	2150584	2038545	1608408	2558098	2032728.6
84	1608912	1858926	1873770	1278779	1781036	1680284.6
10	1283065	1288123	696824	1196485	3362142	1565327.8
Others	14179429	16531540	16273629	14525954	18768267	16055763.8

HS Code tagging for this dataset:

52->Cotton

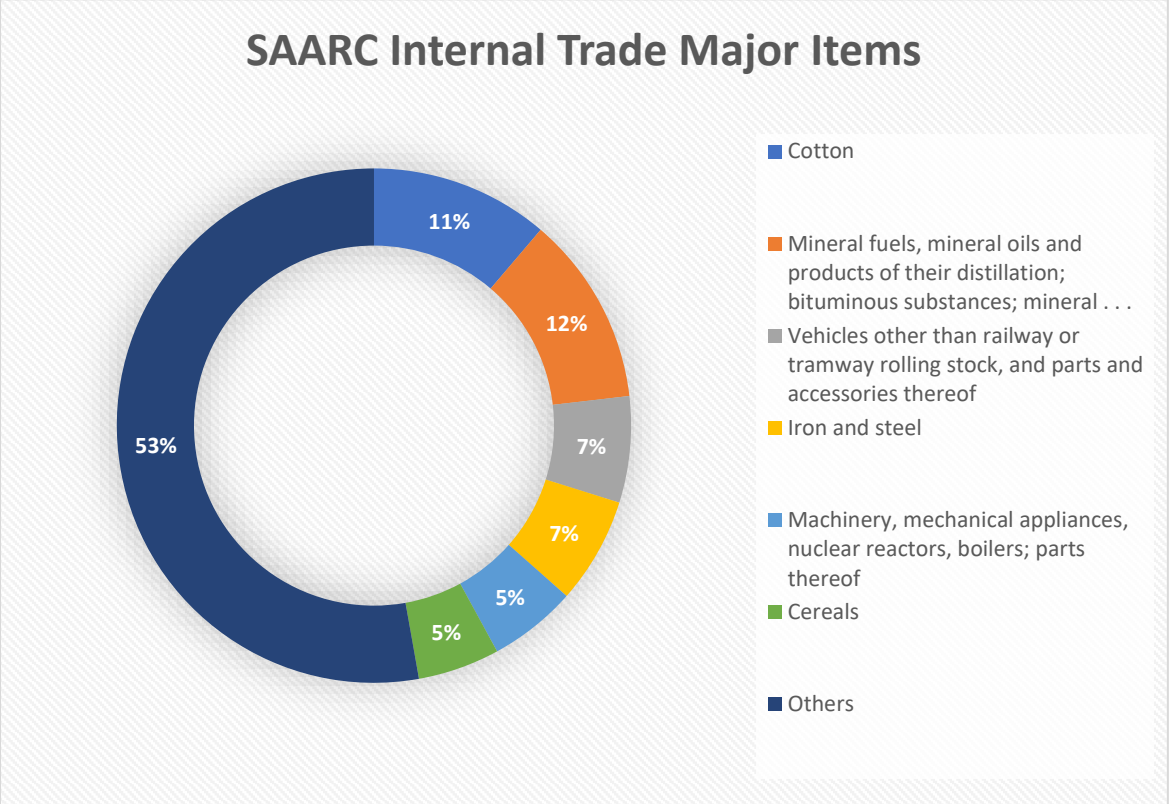
27-> Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral . . .

87-> Vehicles other than railway or tramway rolling stock, and parts and accessories thereof

72-> Iron and steel

84-> Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof

10->Cereals

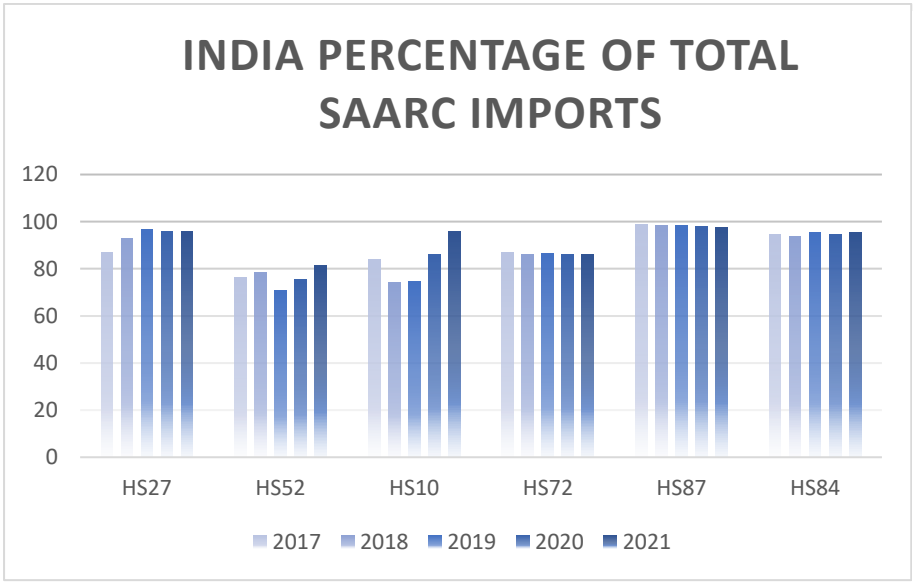


Cotton and Mineral Fuels make up about 23 percent of the total internal trade of SAARC countries, followed by vehicles, iron and steel, heavy machinery and cereals. These items account for almost 50 percent of the total internal trade

Contribution of India in the major traded items of SAARC

```
df = pd.read_excel (r'C:\Users\achar\OneDrive\Desktop\Trade Analysis\SAARC.xlsx', sheet_name='Sheet3')
df.set_index('HS_Code', inplace=True)

df.head()
```

HS_Code	2017	2018	2019	2020	2021
HS27	86.893647	92.835131	96.628827	95.756238	95.957921
HS52	76.190935	78.590223	70.973056	75.241902	81.193196
HS10	84.007513	73.983929	74.807412	86.246380	95.877866
HS72	86.879870	86.226997	86.621684	85.984340	86.235437
HS87	98.637833	98.574125	98.515035	98.017172	97.511312



Observations:

India accounts for a substantial percentage of the major traded items within SAARC countries, particularly Vehicles, Heavy Machinery and Mineral Fuels

However, the total trade happening within SAARC countries is very less and the data in this analysis shows that SAFTA has not been an influential economic partnership as was intended.

China has seized the opportunity and has created a dependency on the SAARC nations; even countries like Bhutan and Nepal have steadily increased their imports from China in the last years.

Thank You