trade-analysis-using-pandas

June 9, 2024

1 Trade Analysis

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

```
[2]: df = pd.read_csv(r'C:
      ↪\Users\hp\Downloads\effects-of-covid-19-on-trade-at-15-december-2021-provisional.
      ↪csv')
```

```
[3]: df
```

```
[3]:         Direction  Year        Date    Weekday Country Commodity  \
     0         Exports  2015  01/01/2015   Thursday     All       All
     1         Exports  2015  02/01/2015     Friday     All       All
     2         Exports  2015  03/01/2015   Saturday     All       All
     3         Exports  2015  04/01/2015     Sunday     All       All
     4         Exports  2015  05/01/2015     Monday     All       All
     …            …   …         …        …     …       …
     111433  Reimports  2021  11/12/2021   Saturday     All       All
     111434  Reimports  2021  12/12/2021     Sunday     All       All
     111435  Reimports  2021  13/12/2021     Monday     All       All
     111436  Reimports  2021  14/12/2021    Tuesday     All       All
     111437  Reimports  2021  15/12/2021  Wednesday     All       All

            Transport_Mode Measure      Value  Cumulative
     0                 All       $  104000000   104000000
     1                 All       $   96000000   200000000
     2                 All       $   61000000   262000000
     3                 All       $   74000000   336000000
     4                 All       $  105000000   442000000
     …                …     …        …         …
     111433            All       $          0   165000000
     111434            All       $          0   165000000
     111435            All       $    2000000   166000000
     111436            All       $    1000000   167000000
     111437            All       $    1000000   168000000

     [111438 rows x 10 columns]
```

[4]:
```
df.rename(columns= {'Transport_Mode' : 'Transport Mode'}, inplace = True )
```

[5]:
```
df.head()
```

[5]:
```
  Direction  Year        Date   Weekday Country Commodity Transport Mode  \
0   Exports  2015  01/01/2015  Thursday     All       All            All
1   Exports  2015  02/01/2015    Friday     All       All            All
2   Exports  2015  03/01/2015  Saturday     All       All            All
3   Exports  2015  04/01/2015    Sunday     All       All            All
4   Exports  2015  05/01/2015    Monday     All       All            All

  Measure      Value  Cumulative
0       $  104000000   104000000
1       $   96000000   200000000
2       $   61000000   262000000
3       $   74000000   336000000
4       $  105000000   442000000
```

[6]:
```
#Converting into datetime format
df['Date'] = pd.to_datetime(df['Date'])
```

```
C:\Users\hp\AppData\Local\Temp\ipykernel_18988\2394721818.py:1: UserWarning:
Parsing dates in DD/MM/YYYY format when dayfirst=False (the default) was
specified. This may lead to inconsistently parsed dates! Specify a format to
ensure consistent parsing.
  df['Date'] = pd.to_datetime(df['Date'])
```

[7]:
```
df.head()
```

[7]:
```
  Direction  Year       Date   Weekday Country Commodity Transport Mode  \
0   Exports  2015 2015-01-01  Thursday     All       All            All
1   Exports  2015 2015-02-01    Friday     All       All            All
2   Exports  2015 2015-03-01  Saturday     All       All            All
3   Exports  2015 2015-04-01    Sunday     All       All            All
4   Exports  2015 2015-05-01    Monday     All       All            All

  Measure      Value  Cumulative
0       $  104000000   104000000
1       $   96000000   200000000
2       $   61000000   262000000
3       $   74000000   336000000
4       $  105000000   442000000
```

[8]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 111438 entries, 0 to 111437
Data columns (total 10 columns):
 #   Column          Non-Null Count   Dtype
---  ------          --------------   -----
 0   Direction       111438 non-null  object
 1   Year            111438 non-null  int64
 2   Date            111438 non-null  datetime64[ns]
 3   Weekday         111438 non-null  object
 4   Country         111438 non-null  object
 5   Commodity       111438 non-null  object
 6   Transport Mode  111438 non-null  object
 7   Measure         111438 non-null  object
 8   Value           111438 non-null  int64
 9   Cumulative      111438 non-null  int64
dtypes: datetime64[ns](1), int64(3), object(6)
memory usage: 8.5+ MB
```

[9]:
```
df["Country"].describe()
```

[9]:
```
count     111438
unique         9
top          All
freq       50801
Name: Country, dtype: object
```

[10]:
```
print(df['Country'].unique())
```

```
['All' 'China' 'Australia' 'United States' 'Japan' 'United Kingdom'
 'European Union (27)' 'East Asia (excluding China)'
 'Total (excluding China)']
```

[11]:
```
df['Transport Mode'].unique()
```

[11]:
```
array(['All', 'Air', 'Sea'], dtype=object)
```

[12]:
```
print(df['Commodity'].unique())
```

```
['All' 'Milk powder, butter, and cheese' 'Meat and edible offal'
 'Logs, wood, and wood articles' 'Fish, crustaceans, and molluscs' 'Fruit'
 'Non-food manufactured goods' 'Mechanical machinery and equip'
 'Electrical machinery and equip']
```

[15]:
```
grouped_sum= df.groupby(['Country','Transport Mode'])['Value'].sum().
  ↪reset_index()
print(grouped_sum)
```

```
                        Country Transport Mode          Value
0                           All            Air   132602000000
1                           All            All  1514387349000
2                           All            Sea   668400000000
```

```
3                    Australia            All   107686000000
4                        China            All   282769573000
5   East Asia (excluding China)           All   116562137000
6            European Union (27)          All    26644000000
7                        Japan            All    23155000000
8        Total (excluding China)          All   291991000000
9               United Kingdom            All    21591000000
10               United States            All    52321338000
```

[16]:
```
grouped_avg = df.groupby(['Year'])[['Value','Cumulative']].mean().reset_index()
print(grouped_avg)
```

```
   Year         Value    Cumulative
0  2015  2.550866e+07  4.594115e+09
1  2016  2.518743e+07  4.591304e+09
2  2017  2.781532e+07  4.926312e+09
3  2018  3.015929e+07  5.392358e+09
4  2019  3.121065e+07  5.638055e+09
5  2020  2.987004e+07  5.447914e+09
6  2021  3.385023e+07  5.649061e+09
```

[17]:
```
df['Month Name'] = df['Date'].dt.month_name()
```

[19]:
```
df.head()
```

[19]:
```
  Direction  Year       Date   Weekday Country Commodity Transport Mode  \
0   Exports  2015 2015-01-01  Thursday     All       All            All
1   Exports  2015 2015-02-01    Friday     All       All            All
2   Exports  2015 2015-03-01  Saturday     All       All            All
3   Exports  2015 2015-04-01    Sunday     All       All            All
4   Exports  2015 2015-05-01    Monday     All       All            All

  Measure      Value  Cumulative Month Name
0       $  104000000   104000000    January
1       $   96000000   200000000   February
2       $   61000000   262000000      March
3       $   74000000   336000000      April
4       $  105000000   442000000        May
```

[20]:
```
total_count = df.groupby(['Weekday'])['Commodity'].count().reset_index()
print(total_count)
```

```
    Weekday  Commodity
0    Friday      15959
1    Monday      15931
2  Saturday      15873
3    Sunday      15925
4  Thursday      15919
```

```
5    Tuesday      15934
6  Wednesday      15897
```

```
[21]: sorted_total_count = total_count.sort_values(by = 'Commodity', ascending =␣
        ↪False)
      print(sorted_total_count)
```

```
     Weekday  Commodity
0     Friday      15959
5    Tuesday      15934
1     Monday      15931
3     Sunday      15925
4   Thursday      15919
6  Wednesday      15897
2   Saturday      15873
```

Q1- What was the total value of exports for each year?

```
[24]: total_export_per_year =df.loc[df['Direction'] == 'Exports',['Year','Value']].
        ↪groupby('Year')["Value"].sum()

      #filters the DataFrame to include only rows where the 'Direction' is 'Exports',␣
        ↪and selects the 'Year' and 'Value' columns.
      #groups the filtered data by the 'Year' column.
      # applies the sum aggregation function to the 'Value' column.

      print(total_export_per_year)
```

```
Year
2015    230137052000
2016    227086143000
2017    252018007000
2018    269370678000
2019    281446924000
2020    282173545000
2021    286428048000
Name: Value, dtype: int64
```

Q2. What was the average value of reimports on Saturdays?

```
[140]: avg_reimports_saturdays = df.loc[(df['Direction'] == 'Reimports') &␣
         ↪(df['Weekday'] == 'Saturday'),'Value'].mean()

       #filters the DataFrame to include only rows where the 'Direction' is␣
         ↪'Reimports' and the 'Weekday' is 'Saturday', and selects the 'Value' column.
       #calculates the mean (average) of the selected 'Value' column.

       print("The average value of reimports on saturday is :",avg_reimports_saturdays)
```

```
The average value of reimports on saturday is : 75000.0
```

Q3. Which country had the highest total value of exports for a given year?

[26]:
```
max_export_country = (
    df.loc[(df['Year']) & (df['Direction'] == 'Exports'),['Country','Value']]
    .groupby('Country')['Value']
    .sum()
    .idxmax()
)

print(f"The country with the highest total value of exports was:␣
  ↪{max_export_country}")
```

```
The country with the highest total value of exports was: All
```

[27]:
```
df['Year'].unique()
```

[27]:
```
array([2015, 2016, 2017, 2018, 2019, 2020, 2021], dtype=int64)
```

Annual Analysis :

Q4. What is the total value of transactions for each year?

[28]:
```
total_value_by_year = df.groupby('Year')['Value'].sum().reset_index()

#Group by the 'Year' column.
#apply aggregated Sum the 'Value' column for each year.

print(total_value_by_year)
```

```
   Year         Value
0  2015  408266052000
1  2016  403704143000
2  2017  444906007000
3  2018  483121678000
4  2019  499900924000
5  2020  478846545000
6  2021  519364048000
```

Q5. How has the cumulative value changed each year?

[29]:
```
cumulative_value_changes = df.groupby('Year')['Value'].cumsum().reset_index()

print(cumulative_value_changes)
```

```
         index         Value
0            0     104000000
1            1     200000000
2            2     261000000
```

```
3             3     335000000
4             4     440000000
…           …           …
111433  111433  519360048000
111434  111434  519360048000
111435  111435  519362048000
111436  111436  519363048000
111437  111437  519364048000

[111438 rows x 2 columns]
```

Trend Analysis :

Q6. What are the monthly trends in the value of exports and reimports?

[30]:

```python
#Combine year and month into a single 'Month-Year' column
df['Month-Year'] = df['Year'].astype(str) + '-' + df['Month Name'].astype(str)

# Calculate monthly totals for exports and reimports
monthly_totals = df.groupby(['Month-Year','Direction'])['Value'].sum().unstack()

# Print the monthly trends (assuming 'Value' represents trade value)
print(monthly_totals)
```

```
Direction           Exports      Imports  Reimports
Month-Year
2015-April      18214234000  13984000000   22000000
2015-August     17603933000  15728000000   23000000
2015-December   20438141000  14009000000   12000000
2015-February   18639135000  13677000000   19000000
2015-January    19872884000  15438000000   16000000
…                       …            …          …
2021-March      27230213000  19318000000   22000000
2021-May        26648683000  18401000000   10000000
2021-November   26314840000  20164000000   14000000
2021-October    24711720000  21929000000   13000000
2021-September  22385891000  22564000000   14000000

[84 rows x 3 columns]
```

Weekday Analysis:

Q7. What is the average value of transactions for each weekday?

[32]:

```python
avg_value_weekday = df.groupby('Weekday')['Value'].mean().reset_index()

print(avg_value_weekday)
```

```
     Weekday         Value
0     Friday  3.340671e+07
```

```
1      Monday  3.557595e+07
2    Saturday  1.627085e+07
3      Sunday  1.944868e+07
4    Thursday  3.343985e+07
5     Tuesday  3.266672e+07
6   Wednesday  3.254595e+07
```

Q8. How many transactions occur on each weekday?

[33]:

```python
weekday_count = df['Weekday'].value_counts()

print(weekday_count)
```

```
Friday       15959
Tuesday      15934
Monday       15931
Sunday       15925
Thursday     15919
Wednesday    15897
Saturday     15873
Name: Weekday, dtype: int64
```

Country-wise Analysis:

Q9. Which countries are most frequently involved in transactions?

[34]:

```python
#Count the number of transactions for each country
country_counts = df['Country'].value_counts()

# Print the results (sorted by count in descending order)
print(country_counts.sort_values(ascending = False))
```

```
All                               50801
China                             27736
East Asia (excluding China)        7617
United States                      7499
Australia                          5082
United Kingdom                     5080
Japan                              2541
European Union (27)                2541
Total (excluding China)            2541
Name: Country, dtype: int64
```

Q10. What is the total value of transactions per country?

[36]:

```python
country_totals = df.groupby('Country')['Value'].sum()

print(country_totals)
```

```
Country
```

```
All                             2315389349000
Australia                        107686000000
China                            282769573000
East Asia (excluding China)      116562137000
European Union (27)               26644000000
Japan                             23155000000
Total (excluding China)          291991000000
United Kingdom                    21591000000
United States                     52321338000
Name: Value, dtype: int64
```

Commodity Analysis:

Q11. What are the most frequently traded commodities?

[38]:
```
commodity_counts = df['Commodity'].value_counts()

print(commodity_counts.sort_values(ascending = False))
```

```
All                             45720
Milk powder, butter, and cheese 15132
Meat and edible offal           15100
Logs, wood, and wood articles   10108
Fish, crustaceans, and molluscs  7600
Non-food manufactured goods      5082
Electrical machinery and equip   5079
Mechanical machinery and equip   5076
Fruit                            2541
Name: Commodity, dtype: int64
```

Q12. What is the total value of transactions for each commodity?

[40]:
```
commodity_totals = df.groupby('Commodity')['Value'].sum().reset_index()

print(commodity_totals)
```

```
                         Commodity          Value
0                              All  2386667000000
1   Electrical machinery and equip    51554000000
2  Fish, crustaceans, and molluscs    15446832000
3                            Fruit    22197000000
4    Logs, wood, and wood articles    50645402000
5            Meat and edible offal    78522372000
6   Mechanical machinery and equip    72603000000
7  Milk powder, butter, and cheese   157319791000
8      Non-food manufactured goods   403154000000
```

Transport Mode Analysis:

Q13. How is the transaction value distributed across different transport modes?

[41]:

```
total_transport_mode_value = df.groupby('Transport Mode')['Value'].sum()

print(total_transport_mode_value)
```

```
Transport Mode
Air       132602000000
All      2437107397000
Sea       668400000000
Name: Value, dtype: int64
```

Q14. Which transport mode has the highest average transaction value?

[42]:

```
transport_mode_avg = df.groupby('Transport Mode')['Value'].mean()

print("The highest average value transport mode is:",transport_mode_avg.
  ↪idxmax())
```

```
The highest average value transport mode is: Sea
```

Measure Analysis:

Q15. What measures are most commonly used in transactions?

[43]:

```
df['Measure'].unique()
```

[43]:

```
array(['$', 'Tonnes'], dtype=object)
```

[46]:

```
count_measure = df['Measure'].value_counts()
mostly_used_measure = count_measure.idxmax()

print(mostly_used_measure)
```

```
$
```

Q16. What is the total value of transactions for each measure?

[48]:

```
measures_total_value = df.groupby('Measure')['Value'].sum().reset_index()

print(measures_total_value)
```

```
  Measure          Value
0       $  3237797000000
1  Tonnes      312397000
```

Cumulative Value Analysis:

Q17. How does the cumulative value change over time?

[49]:

```
yearly_cumulative_change = df.groupby('Year')['Cumulative'].sum()

print(yearly_cumulative_change)
```

```
Year
2015    73528808754000
2016    73589415681000
2017    78796366714000
2018    86380178521000
2019    90304728425000
2020    87335509776000
2021    86673544129000
Name: Cumulative, dtype: int64
```

Q18. What is the trend in cumulative values by year and by month?

```
[53]: #Combine year and month into a single 'Month-Year' column
      df['Month-Year'] = df['Year'].astype(str) + '-' + df['Month Name'].astype(str)

      #grouping month-year by cumulative trend
      month_year_cumulative = df.groupby('Month-Year')['Cumulative'].sum().
       ↪reset_index()

      print(month_year_cumulative)
```

```
        Month-Year      Cumulative
0       2015-April   4442095621000
1      2015-August   7204379821000
2    2015-December   9939298157000
3    2015-February   3065439668000
4     2015-January   2597636835000
..             …               …
79      2021-March   4906585737000
80        2021-May   6639819931000
81   2021-November  11606196900000
82    2021-October  11106851437000
83  2021-September   9822759372000

[84 rows x 2 columns]
```

Peak Analysis:

Q19. What are the peak periods (months/weeks) for transaction values?

```
[57]: df['Month-Weekday'] = df['Month Name'].astype(str) + '-' + df['Weekday'].
       ↪astype(str)

      month_Week_value = df.groupby('Month-Weekday')['Value'].sum().reset_index()

      print(month_Week_value)
```

```
          Month-Weekday        Value
0          April-Friday  41540645000
```

```
1           April-Monday  43645148000
2         April-Saturday  21895539000
3           April-Sunday  24844191000
4         April-Thursday  44251398000
..                   …            …
79    September-Saturday  19036132000
80      September-Sunday  21500704000
81    September-Thursday  46016850000
82     September-Tuesday  41864053000
83   September-Wednesday  39962283000

[84 rows x 2 columns]
```

Q20. How do transaction values vary across different seasons or quarters of the year?

[60]:
```
#crate a another column 'Season' and give seasons accordind to the month name
def get_season(month):
    if month in ['March']:
        return 'Spring'
    elif month in ['April', 'May']:
        return 'Summer'
    elif month in ['June', 'July', 'August', 'September']:
        return 'Monsoon'
    elif month in ['October', 'November']:
        return 'Autumn'
    elif month in ['December', 'January', 'February']:
        return 'Winter Season'

df['Season'] = df['Month Name'].apply(get_season)
```

[62]:
```
#create a another column for quater
df['Quarter'] = df['Date'].dt.quarter
```

[63]:
```
df.head()
```

[63]:
```
  Direction  Year       Date   Weekday Country Commodity Transport Mode  \
0   Exports  2015 2015-01-01  Thursday     All       All            All
1   Exports  2015 2015-02-01    Friday     All       All            All
2   Exports  2015 2015-03-01  Saturday     All       All            All
3   Exports  2015 2015-04-01    Sunday     All       All            All
4   Exports  2015 2015-05-01    Monday     All       All            All

  Measure      Value  Cumulative Month Name     Month-Year     Month-Weekday  \
0       $  104000000  104000000    January   2015-January  January-Thursday
1       $   96000000  200000000   February  2015-February   February-Friday
2       $   61000000  262000000      March     2015-March    March-Saturday
3       $   74000000  336000000      April     2015-April      April-Sunday
4       $  105000000  442000000        May       2015-May        May-Monday
```

```
          Season  Quarter
0  Winter Season        1
1  Winter Season        1
2         Spring        1
3         Summer        2
4         Summer        2
```

[68]:

```
season_transaction_value = df.groupby('Season')['Value'].sum().reset_index()
print("Seasonal Transaction Value:")
print(season_transaction_value)
```

```
Seasonal Transaction Value:
          Season          Value
0         Autumn   564086636000
1        Monsoon  1068945106000
2         Spring   273774866000
3         Summer   541455171000
4  Winter Season   789847618000
```

[69]:

```
quarter_transaction_value = df.groupby('Quarter')['Value'].sum().reset_index()
print("Quartrly Transaction value: ")
print(quarter_transaction_value)
```

```
Quartrly Transaction value:
   Quarter         Value
0        1  808501078000
1        2  806453297000
2        3  803946980000
3        4  819208042000
```

Comparative Analysis:

Q21. How do the values of exports compare to reimports over the same period?

[70]:

```
# Calculate total value for exports and reimports
total_exports = df[df['Direction'] == 'Exports']['Value'].sum()
total_reimports = df[df['Direction'] == 'Reimports']['Value'].sum()
```

[71]:

```
# Print the comparison
print("Total Value of Exports:", total_exports)
print("Total Value of Reimports:", total_reimports)
```

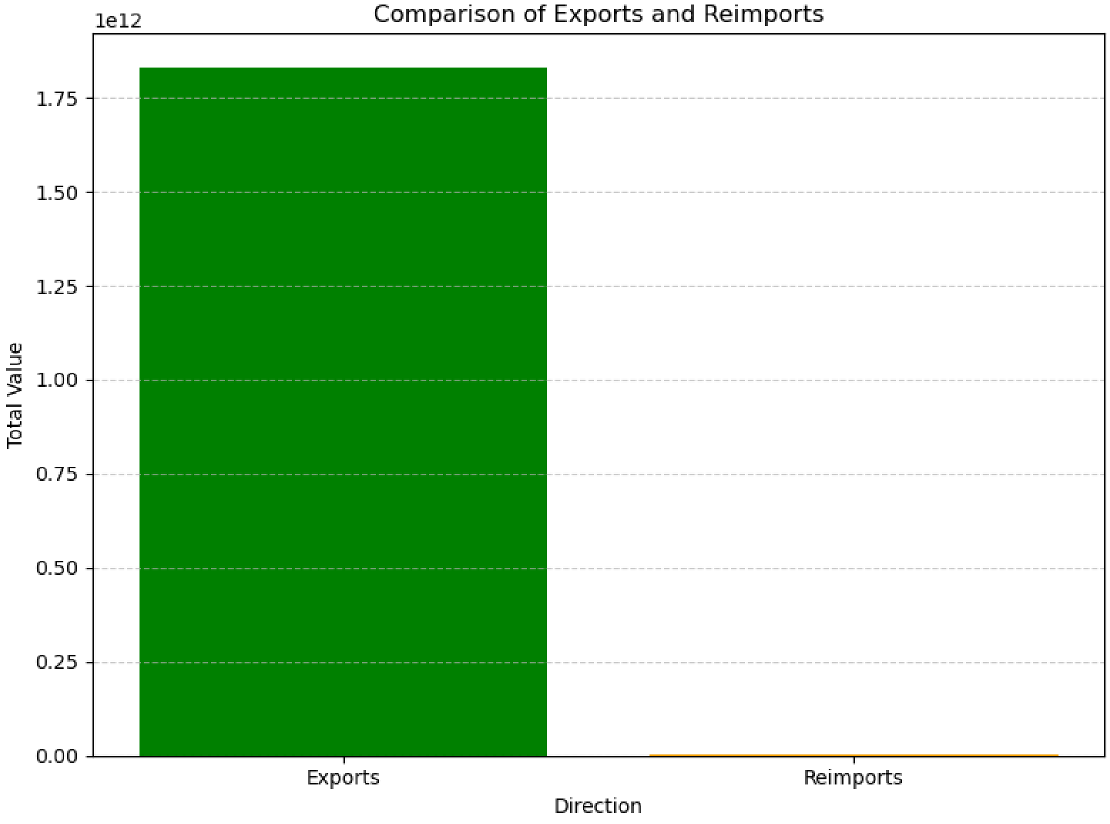
```
Total Value of Exports: 1828660397000
Total Value of Reimports: 1288000000
```

[73]:

```
# Prepare data for visualization
directions = ['Exports', 'Reimports']
values = [total_exports, total_reimports]
```

[74]:
```
import matplotlib.pyplot as plt
```

[81]:
```
# Create a bar chart
plt.figure(figsize=(8, 6))
plt.bar(directions, values, color=['green', 'orange'])
plt.xlabel('Direction')
plt.ylabel('Total Value')
plt.title('Comparison of Exports and Reimports')
plt.xticks(rotation=0)  # Rotate x-axis labels for better readability
plt.grid(axis='y', linestyle='--', alpha=0.7)  # Add gridlines for better␣
 ↪visualization

# Display the chart
plt.tight_layout()
plt.show()
```



Q22. What is the percentage change in transaction values year over year?

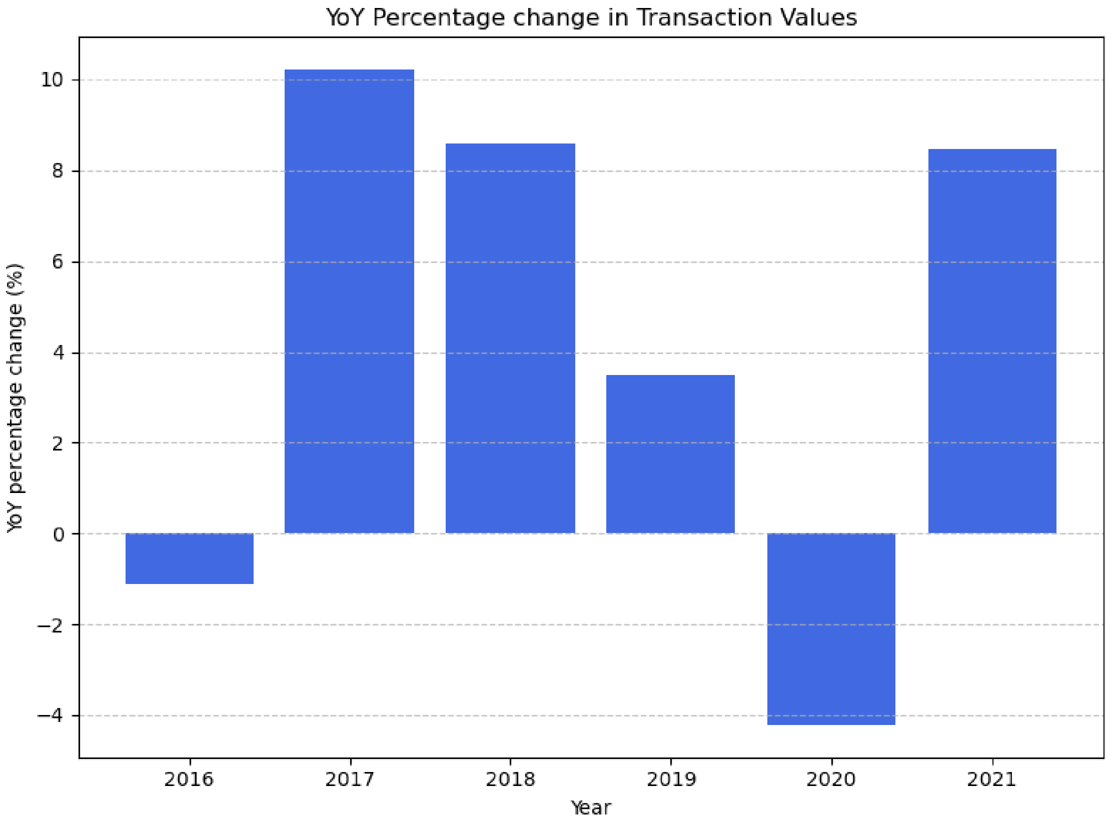
[89]:
```
# Calculate yearly sum of transaction values
df_yearly_sum = df.groupby('Year')['Value'].sum()
```

```
# Calculate YoY percentage change (assuming data starts from year 2022)
yoy_change = df_yearly_sum.pct_change(1) * 100  # Percentage change multiplied␣
 ↪by 100

# Prepare data for visualization (exclude the first year)
years = yoy_change.index[1:]  # Extract years starting from the second year
percentage_changes = yoy_change[1:].tolist()  # Extract percentage changes

print(years)
print(percentage_changes)
```

```
Int64Index([2016, 2017, 2018, 2019, 2020, 2021], dtype='int64', name='Year')
[-1.117386316509117, 10.205955206161965, 8.589605534366274, 3.4730890299648376,
-4.211710358831022, 8.46147965837365]
```

[85]:

```
# Create a bar chart
plt.figure(figsize =(8,6))
plt.bar(years, percentage_changes, color ='royalblue')
plt.xlabel('Year')
plt.ylabel('YoY percentage change (%)')
plt.title('YoY Percentage change in Transaction Values')
plt.xticks(rotation=0) # Rotate x-axis labels for better readability
plt.grid(axis='y', linestyle='--', alpha=0.7) # Add gridlines for better␣
 ↪visualization

#Display the chart
plt.tight_layout()
plt.show()
```



Correlation Analysis:

Q23. Is there any correlation between the day of the week and the transaction value?

[92]:
```python
import numpy as np
```

[98]:
```python
# Convert WeekDay to category and get category codes
weekday_codes = df['Weekday'].astype('category').cat.codes

#Calculate the correlation coefficient
correlation = weekday_codes.corr(df['Value'])

#print the correlation coefficient
print("Correlation Coefficient between Day of Week and Transaction Value: ",correlation)
```

```
Correlation Coefficient between Day of Week and Transaction Value:
0.011769086350185042
```

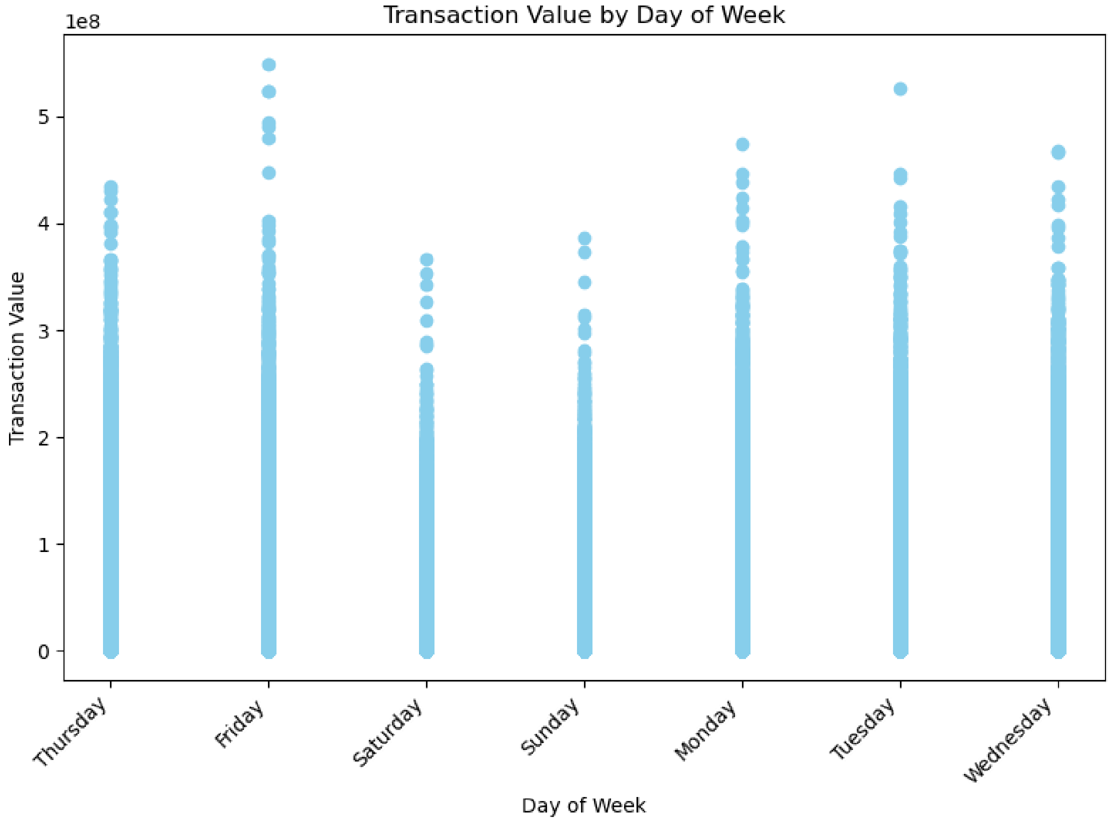
[99]:
```python
#Interpret the correlation
if abs(correlation) < 0.2:
    print("There is a weak or negligible correlation.")
```

```
elif 0.2 <= abs(correlation) < 0.5:
    print("There is a fair correlation.")
elif 0.5 <= abs(correlation) < 0.8:
    print("There is a moderate correlation.")
elif 0.8 <= abs(correlation) < 1:
    print("This is a very strong correlation.")
```

```
There is a weak or negligible correlation.
```

[102]:

```
# Create a scatter plot
plt.figure(figsize=(8, 6))
plt.scatter(df['Weekday'], df['Value'], color='skyblue')
plt.xlabel('Day of Week')
plt.ylabel('Transaction Value')
plt.title('Transaction Value by Day of Week')
plt.xticks(rotation=45, ha='right')  # Rotate x-axis labels for better␣
 ↪readability

# Display the chart
plt.tight_layout()
plt.show()
```



Q24. How do different variables (e.g., country, transport mode) correlate with the transaction value?

[131]:
```
# One-hot encode the categorical variables
df_encoded = pd.get_dummies(df, columns=['Country', 'Transport Mode'])
```

[132]:
```
# Calculate the correlation matrix
correlation_matrix = df_encoded.corr()
```

```
C:\Users\hp\AppData\Local\Temp\ipykernel_18988\3925830937.py:2: FutureWarning:
The default value of numeric_only in DataFrame.corr is deprecated. In a future
version, it will default to False. Select only valid columns or specify the
value of numeric_only to silence this warning.
  correlation_matrix = df_encoded.corr()
```

[133]:
```
# Extract only the correlations with 'transaction_value'
transaction_value_correlations = correlation_matrix[['Value']]
```

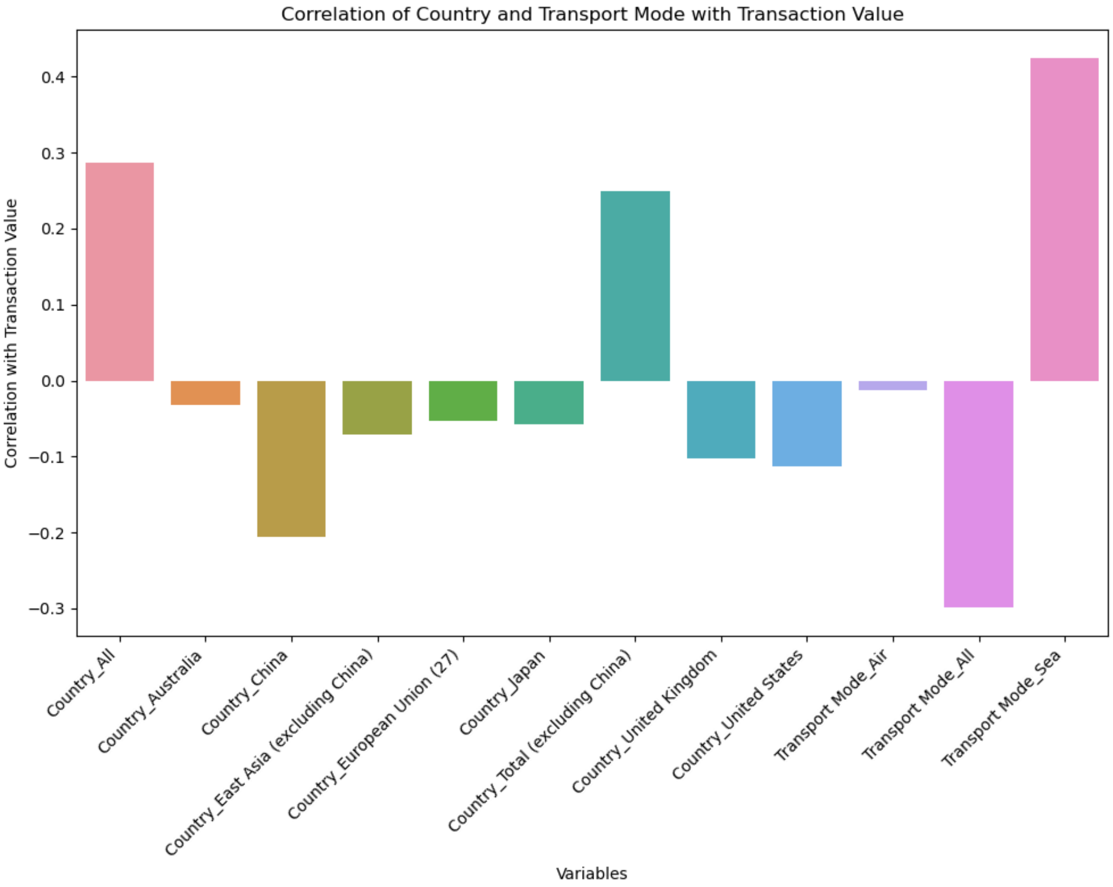
[134]:
```
# Filter the correlations to include only 'country' and 'transport_mode'
filtered_correlations = transaction_value_correlations[
    transaction_value_correlations.index.str.startswith('Country') |
    transaction_value_correlations.index.str.startswith('Transport Mode')
]
```

[135]:
```
print(filtered_correlations)
```

```
                                        Value
Country_All                          0.287077
Country_Australia                   -0.032652
Country_China                       -0.206144
Country_East Asia (excluding China) -0.070732
Country_European Union (27)         -0.053860
Country_Japan                       -0.057842
Country_Total (excluding China)      0.248986
Country_United Kingdom              -0.102931
Country_United States               -0.112600
Transport Mode_Air                  -0.012305
Transport Mode_All                  -0.299224
Transport Mode_Sea                   0.425238
```

[136]:
```
import seaborn as sns
```

[138]:
```
# Plot the filtered correlations
plt.figure(figsize=(10, 8))
sns.barplot(x=filtered_correlations.index, y=filtered_correlations['Value'])
plt.xticks(rotation=45, ha='right')
plt.xlabel('Variables')
plt.ylabel('Correlation with Transaction Value')
plt.title('Correlation of Country and Transport Mode with Transaction Value')
plt.tight_layout()
plt.show()
```



[139]:

```
#The above code will produce a bar chart showing the correlation of country and␣
  ↪transport_mode variables with transaction_value.
#Each bar represents the correlation value of a specific country or␣
  ↪transport_mode category with transaction_value.
#Adjust the data and plotting parameters as necessary to fit your dataset and␣
  ↪visualization preferences.
```

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[ ]:

```
```