

Documentation: Cleaning HS 3542 UN Comtrade USA Exports Dataset

My Goal:

The purpose of this cleaning step was to simplify the dataset so that it focuses on the variables that actually matter for analysis of U.S. semiconductor exports. I wanted to remove redundant or misleading fields, convert critical columns to numeric types, and produce a file that is lean, transparent, and ready for budgetary or trade-partner analysis.

Steps Taken

1. Reading the raw dataset

```
df = pd.read_csv('HS 3542 Un Comtrade USA Exports.csv')
```

I loaded the original UN Comtrade export dataset into a pandas DataFrame. This file contained many fields, some of which were either redundant or consistently empty.

2. Converting key columns to numeric

```
for col in ['partnerCode', 'cmdCode', 'qty', 'qtyUnitCode', 'altQtyUnitCode', 'altQty',  
'fobvalue', 'primaryValue']: df[col] = pd.to_numeric(df[col], errors='coerce')
```

I explicitly converted important fields (partner codes, commodity codes, quantities, and values) into numeric types. This ensures that calculations and aggregations won't break due to string formatting issues. Using errors='coerce' safely turns invalid entries into NaN, which is easier to handle than inconsistent text.

3. Dropping redundant or misleading columns

```
cols_to_drop = [ 'flowCode', 'partner2Code', 'partner2ISO', 'mosCode', 'motCode',  
'netWgt', 'grossWgt', 'legacyEstimationFlag', 'cifvalue', 'primaryValue', 'altQtyUnitCode',  
'altQtyUnitAbbr', 'altQty' ] df = df.drop(columns=cols_to_drop)
```

I removed columns that either:

- Added no analytical value (partner2Code, partner2ISO, mosCode).
- Were consistently empty or zero (netWgt, grossWgt).

- Were redundant (primaryValue duplicated fobvalue; altQty duplicated qty).
- Introduced unnecessary complexity (motCode, cifvalue).

This step was about clarity: keeping only the fields that contribute meaningfully to trade analysis.

4. Saving the cleaned dataset

```
df.to_csv('Cleaned_HS_3542_Un_Comtrade_USA_Exports.csv', index=False)
```

Finally, I exported the cleaned dataset. The result is a leaner file that highlights the essentials: reporter, partner, commodity code, quantity, and FOB value.

Key Decisions and Rationale

- Weights dropped: Since netWgt and grossWgt were always zero, I removed them to avoid misleading interpretations.
- Logistics ignored: Transport mode (motCode) was not detailed enough to support meaningful logistics analysis, so I focused instead on value and partner data.
- Redundancy reduced: Columns like primaryValue and altQty duplicated existing information, so I eliminated them for simplicity.
- Focus sharpened: By cleaning aggressively, I ensured the dataset is ready for budgetary analysis and partner comparisons, which are the most relevant insights here.

Data Source: [UN Comtrade](#)