# GATT Analysis

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# Contents

# Next steps

## To do

1. Can we add TOT analysis? Talk to Ross. If not, some other analysis? *Kristy meets with Ross on 3/3/21*

2. Kennedy, Tokyo, Uruguay

   - Go back to questions in *Plan.docx* when last three rounds are finished

3. Choose other countries – first add # of pages for each schedule

   - Refine *Members.in.GATT.xlsx*

- Focus on Benelux, Canada, Chile, France, India, U.K., Dominican Republic, Haiti, Italy, Germany, Peru, Japan

4. Consolidate various notes in Github / One Drive / G drive – create centralized documentation

   - Clean up Github repo
   - ~~Resolve copyright issues, then (hopefully) post the correct schedules on Github~~
   - Read through Victor's notes for ideas (what is status of emailed files from last week?)

5. Make list of accuracy checks, run them, fix typos in data

   - Resolve "complicated" paragraphs, including 9 that still have no tariffs
   - Check for tariffs going up from round to round
   - 30-40 more lines have both specific and ad valorem than they did at the beginning of last week. Why?

6. Figure out how to integrate "free" list

7. Condense data cleaning code

8. Read and summarize "Tariff negotiations and renegotiations under the GATT and the WTO" (hard copy at SU library)

9. Read and summarize "Two Centuries of Tariffs" (USITC, in G:drive folder)

10. Identify lines that switch between specific and ad valorem

11. Look for gradualism in graphs

12. 10 lines in Dillon that have more than 2 years

13. Think about how variation in units affects specific summary stats

    - Look into trade-weighting

14. Find implementation years (maybe get answer from Doug Irwin)

15. Get working draft together ASAP

## Done

1. ~~Make Github version for CEA abstract~~
2. ~~Contact Tricia Mueller (USITC) and Roy Santana (WTO) [Bob Staiger's suggestions] [Feb 24]~~
3. ~~Figure out how to source multiple code files~~
4. ~~Program stats into abstract, start at line 41~~

# Importing and cleaning the data

Importing and cleaning the data is done in "data_cleaning.rmd". It needs to be reprogrammed before being added here because it is nearly 1000 lines long. The chunk below calls that program to make the processed data available to the rest of the commands in this document.

# Basic summary statistics

## Specific tariffs

We see below that the specific tariffs come down by roughly half from Smoot Hawley.

- About half came in Geneva, the rest through Dillon. That is, Geneva did half the work and the following four rounds did the other half

But this could be deceptive since different lines use different units

- Victor has standardized everything to be in cents (per U.S. dollar) in UnitsKey.rmd

```
source('UnitsKey.r')
```

| | Summary Statistics of Specific Tariffs by Round | | | | | | |
|---|---|---|---|---|---|---|---|
| | Min | 1st Quartile | Mean | Median | 3rd Quartile | Max | N |
| Smoot Hawley | 0 | 2.00 | 47.90 | 6.00 | 30.0 | 3000 | 1527 |
| Geneva | 0 | 1.25 | 32.95 | 5.00 | 25.0 | 2000 | 1530 |
| Annecy | 0 | 1.14 | 31.97 | 4.08 | 25.0 | 2000 | 1526 |
| Torquay | 0 | 1.00 | 27.54 | 3.50 | 20.0 | 2000 | 1524 |
| GenevaA | 0 | 1.00 | 27.11 | 3.50 | 20.0 | 2000 | 1526 |
| GenevaB | 0 | 1.00 | 26.72 | 3.45 | 20.0 | 2000 | 1526 |
| GenevaC | 0 | 1.00 | 26.38 | 3.40 | 20.0 | 2000 | 1523 |
| DillonA | 0 | 1.00 | 25.42 | 3.00 | 19.0 | 2000 | 1521 |
| DillonB | 0 | 1.00 | 24.73 | 3.00 | 17.5 | 2000 | 1521 |

## Ad valorem tariffs

Strikingly, the reductions look to be of the same magnitude for Ad valorem, again with Geneva doing about half the work.

| | Summary Statistics of Ad Valorem Tariffs by Round | | | | | | |
|---|---|---|---|---|---|---|---|
| | Min | 1st Quartile | Mean | Median | 3rd Quartile | Max | N |
| Smoot Hawley | 5.00 | 25.0 | 38.79 | 35.00 | 50.00 | 90 | 1963 |
| Geneva | 2.50 | 15.0 | 27.51 | 25.00 | 35.00 | 90 | 1947 |
| Annecy | 2.50 | 15.0 | 26.37 | 22.50 | 35.00 | 90 | 1950 |
| Torquay | 1.88 | 12.5 | 22.44 | 20.00 | 30.00 | 90 | 1948 |
| GenevaA | 1.88 | 11.5 | 21.89 | 17.88 | 28.25 | 90 | 1946 |
| GenevaB | 1.88 | 11.0 | 21.67 | 17.75 | 27.50 | 118 | 1946 |
| GenevaC | 1.88 | 10.5 | 21.39 | 17.50 | 27.50 | 90 | 1947 |
| DillonA | 1.00 | 10.5 | 19.52 | 15.50 | 25.00 | 90 | 1943 |
| DillonB | 0.50 | 10.0 | 18.95 | 15.00 | 25.00 | 90 | 1943 |

- In Dillon, 1053 rows out of 2996 are missing, so there are 1943 ad valorem tariffs. So 64.85% of lines have *ad valorem* tariffs.

# How did liberalization vary across Schedules?

First, descriptions of each schedule:

| Smoot Hawley Schedule Titles | | |
|---|---|---|
| Schedule | # Lines | Title |
| 1 | 397 | Chemicals, Oil, and Paints |
| 2 | 243 | Earths, Earthenware, and Glassware |
| 3 | 662 | Metals and Manufactures of |
| 4 | 52 | Wood and Manufactures of |
| 5 | 17 | Sugar, Molasses, and Manufactures of |
| 6 | 12 | Tobacco and Manufactures of |
| 7 | 461 | Agricultural Products and Provisions |
| 8 | 33 | Spirits, Wines, and other Beverages |
| 9 | 116 | Cotton Manufactures |
| 10 | 84 | Flax, Hemp, Jute, and Manufactures of |
| 11 | 152 | Wool and Manufactures of |
| 12 | 36 | Silk Manufactures |
| 13 | 53 | Manufactures of Rayon or Other Synthetic Textile |
| 14 | 146 | Papers and Books |
| 15 | 532 | Sundries |

## Summary stats for specific tariffs

| Sched | SH_mean | DB_mean | mean_chg | SH_med | DB_med | med_chg | SH_obs | DB_obs | n |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.33 | 13.51 | 44.48 | 5.00 | 2.50 | 50.00 | 258 | 264 | 397 |
| 2 | 45.04 | 28.21 | 37.38 | 10.00 | 5.55 | 44.50 | 112 | 106 | 243 |
| 3 | 55.01 | 26.14 | 52.49 | 3.50 | 2.00 | 42.86 | 316 | 305 | 662 |
| 4 | 53.55 | 22.61 | 57.78 | 60.00 | 17.50 | 70.83 | 6 | 6 | 52 |
| 5 | 24.42 | 23.28 | 4.69 | 0.38 | 0.15 | 59.73 | 11 | 11 | 17 |
| 6 | 147.50 | 62.19 | 57.84 | 52.50 | 23.50 | 55.24 | 12 | 12 | 12 |
| 7 | 28.53 | 15.74 | 44.83 | 3.00 | 1.50 | 50.00 | 349 | 348 | 461 |
| 8 | 277.42 | 80.98 | 70.81 | 125.00 | 42.00 | 66.40 | 31 | 31 | 33 |
| 9 | 8.60 | 21.60 | -151.14 | 6.50 | 15.00 | -130.77 | 8 | 15 | 116 |
| 10 | 12.63 | 5.04 | 60.06 | 2.00 | 1.50 | 25.00 | 37 | 37 | 84 |
| 11 | 39.96 | 31.42 | 21.37 | 40.00 | 33.00 | 17.50 | 134 | 134 | 152 |
| 12 | NaN | NaN | NaN | NA | NA | NA | 0 | 0 | 36 |
| 13 | 41.03 | 25.58 | 37.67 | 45.00 | 25.00 | 44.44 | 34 | 40 | 53 |
| 14 | 11.66 | 12.84 | -10.16 | 5.00 | 2.00 | 60.00 | 85 | 86 | 146 |
| 15 | 113.80 | 56.48 | 50.37 | 10.00 | 7.00 | 30.00 | 134 | 126 | 532 |

The table below is exactly the same as the one above EXCEPT it drops the 218 lines that are impacted by the "tax interval" issue

| Sched | SH_mean | DB_mean | mean_chg | SH_med | DB_med | med_chg | SH_obs | DB_obs | n |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.47 | 13.59 | 44.45 | 5.00 | 2.50 | 50.00 | 256 | 262 | 389 |
| 2 | 53.99 | 29.96 | 44.50 | 10.00 | 5.25 | 47.50 | 90 | 90 | 199 |
| 3 | 58.20 | 23.53 | 59.57 | 4.00 | 2.00 | 50.00 | 298 | 288 | 610 |
| 4 | 53.55 | 22.61 | 57.78 | 60.00 | 17.50 | 70.83 | 6 | 6 | 52 |
| 5 | 24.42 | 23.28 | 4.69 | 0.38 | 0.15 | 59.73 | 11 | 11 | 17 |
| 6 | 147.50 | 62.19 | 57.84 | 52.50 | 23.50 | 55.24 | 12 | 12 | 12 |
| 7 | 28.78 | 15.83 | 44.99 | 3.00 | 1.50 | 50.00 | 346 | 346 | 458 |
| 8 | 277.42 | 80.98 | 70.81 | 125.00 | 42.00 | 66.40 | 31 | 31 | 33 |
| 9 | 11.30 | 6.75 | 40.23 | 10.00 | 6.06 | 39.38 | 6 | 6 | 89 |
| 10 | 12.63 | 5.04 | 60.06 | 2.00 | 1.50 | 25.00 | 37 | 37 | 84 |
| 11 | 39.30 | 28.30 | 27.99 | 40.00 | 33.00 | 17.50 | 121 | 121 | 137 |
| 12 | NaN | NaN | NaN | NA | NA | NA | 0 | 0 | 33 |
| 13 | 38.86 | 21.70 | 44.15 | 45.00 | 25.00 | 44.44 | 22 | 22 | 25 |
| 14 | 11.66 | 7.11 | 39.00 | 5.00 | 2.00 | 60.00 | 85 | 85 | 143 |
| 15 | 85.88 | 50.60 | 41.08 | 6.00 | 4.00 | 33.33 | 124 | 117 | 497 |

Notes:

- 8 (spirits) largest, and consistent across rounds (1 ad valorem only)
- 5 (sugar) unambiguously smallest cuts, had some of the highest ad-valorem
- Reduction in median vs. mean: split exactly half and half as to which reduction was smaller
- Schedule 12 must be all ad valorem

**Mean of specific tariffs by schedule and round**

| Sched | SH | G1 | An | To | GC | DB | chgG1 | chgAn | chgTo | chgGC | chgDB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.33 | 21.22 | 21.13 | 16.60 | 15.73 | 13.51 | 12.79 | 0.42 | 21.45 | 5.22 | 14.13 |
| 2 | 45.04 | 36.47 | 35.55 | 29.77 | 28.81 | 28.21 | 19.03 | 2.53 | 16.26 | 3.20 | 2.10 |
| 3 | 55.01 | 37.18 | 36.55 | 30.97 | 29.65 | 26.14 | 32.41 | 1.69 | 15.28 | 4.26 | 11.84 |
| 4 | 53.55 | 24.27 | 22.61 | 22.61 | 22.61 | 22.61 | 54.67 | 6.87 | 0.00 | 0.00 | 0.00 |
| 5 | 24.42 | 23.49 | 23.33 | 23.32 | 23.31 | 23.28 | 3.82 | 0.70 | 0.03 | 0.02 | 0.16 |
| 6 | 147.50 | 94.96 | 86.42 | 67.25 | 62.65 | 62.19 | 35.62 | 9.00 | 22.18 | 6.85 | 0.73 |
| 7 | 28.53 | 19.02 | 18.78 | 16.70 | 16.62 | 15.74 | 33.36 | 1.24 | 11.06 | 0.51 | 5.27 |
| 8 | 277.42 | 166.61 | 139.80 | 99.80 | 88.68 | 80.98 | 39.94 | 16.09 | 28.61 | 11.14 | 8.68 |
| 9 | 8.60 | 22.38 | 22.38 | 21.90 | 21.90 | 21.60 | -160.19 | 0.00 | 2.12 | 0.00 | 1.38 |
| 10 | 12.63 | 7.28 | 7.19 | 5.16 | 5.15 | 5.04 | 42.33 | 1.25 | 28.29 | 0.13 | 2.06 |
| 11 | 39.96 | 30.29 | 30.18 | 29.15 | 29.15 | 31.42 | 24.20 | 0.37 | 3.41 | 0.00 | -7.80 |
| 12 | NaN | 150.00 | 150.00 | 150.00 | 150.00 | NaN | NaN | 0.00 | 0.00 | 0.00 | NaN |
| 13 | 41.03 | 28.33 | 27.89 | 25.33 | 25.33 | 25.58 | 30.94 | 1.55 | 9.20 | -0.02 | -0.95 |
| 14 | 11.66 | 18.50 | 18.40 | 16.27 | 14.93 | 12.84 | -58.73 | 0.57 | 11.60 | 8.20 | 14.00 |
| 15 | 113.80 | 66.76 | 66.45 | 62.18 | 58.38 | 56.48 | 41.34 | 0.47 | 6.41 | 6.11 | 3.26 |

Removing tax interval lines

| Sched | SH | G1 | An | To | GC | DB | chgG1 | chgAn | chgTo | chgGC | chgDB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.47 | 21.47 | 21.38 | 16.72 | 15.85 | 13.59 | 12.26 | 0.43 | 21.76 | 5.24 | 14.25 |
| 2 | 53.99 | 40.71 | 39.36 | 31.94 | 30.82 | 29.96 | 24.61 | 3.30 | 18.84 | 3.53 | 2.77 |
| 3 | 58.20 | 36.46 | 35.44 | 29.80 | 28.47 | 23.53 | 37.36 | 2.79 | 15.92 | 4.47 | 17.35 |
| 4 | 53.55 | 24.27 | 22.61 | 22.61 | 22.61 | 22.61 | 54.67 | 6.87 | 0.00 | 0.00 | 0.00 |
| 5 | 24.42 | 23.49 | 23.33 | 23.32 | 23.31 | 23.28 | 3.82 | 0.70 | 0.03 | 0.02 | 0.16 |
| 6 | 147.50 | 94.96 | 86.42 | 67.25 | 62.65 | 62.19 | 35.62 | 9.00 | 22.18 | 6.85 | 0.73 |
| 7 | 28.78 | 19.12 | 18.88 | 16.80 | 16.71 | 15.83 | 33.55 | 1.24 | 11.06 | 0.51 | 5.27 |
| 8 | 277.42 | 166.61 | 139.80 | 99.80 | 88.68 | 80.98 | 39.94 | 16.09 | 28.61 | 11.14 | 8.68 |
| 9 | 11.30 | 7.94 | 7.94 | 6.75 | 6.75 | 6.75 | 29.72 | 0.00 | 14.95 | 0.00 | 0.00 |
| 10 | 12.63 | 7.28 | 7.19 | 5.16 | 5.15 | 5.04 | 42.33 | 1.25 | 28.29 | 0.13 | 2.06 |
| 11 | 39.30 | 30.20 | 30.07 | 28.95 | 28.95 | 28.30 | 23.15 | 0.41 | 3.72 | 0.00 | 2.27 |
| 12 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN |
| 13 | 38.86 | 24.77 | 24.77 | 21.70 | 21.70 | 21.70 | 36.26 | 0.00 | 12.39 | 0.00 | 0.00 |
| 14 | 11.66 | 10.19 | 10.09 | 7.93 | 7.86 | 7.11 | 12.57 | 1.04 | 21.40 | 0.84 | 9.55 |
| 15 | 85.88 | 60.69 | 60.64 | 56.09 | 52.28 | 50.60 | 29.33 | 0.09 | 7.49 | 6.80 | 3.22 |

## Summary stats for ad valorem tariffs

| Sched | SH_mean | DB_mean | mean_chg | SH_med | DB_med | med_chg | SH_obs | DB_obs | n |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 29.81 | 14.21 | 52.31 | 25.00 | 12.50 | 50.00 | 206 | 205 | 397 |
| 2 | 44.61 | 23.93 | 46.37 | 45.00 | 21.00 | 53.33 | 155 | 158 | 243 |
| 3 | 37.65 | 17.25 | 54.19 | 35.00 | 13.00 | 62.86 | 468 | 479 | 662 |
| 4 | 34.21 | 15.58 | 54.47 | 33.33 | 15.00 | 55.00 | 46 | 46 | 52 |
| 5 | 50.83 | 31.92 | 37.21 | 50.00 | 22.50 | 55.00 | 6 | 6 | 17 |
| 6 | 25.00 | 7.75 | 69.00 | 25.00 | 7.75 | 69.00 | 2 | 2 | 12 |
| 7 | 31.40 | 14.01 | 55.39 | 35.00 | 12.50 | 64.29 | 116 | 117 | 461 |
| 8 | 60.00 | 30.00 | 50.00 | 60.00 | 30.00 | 50.00 | 1 | 1 | 33 |
| 9 | 36.12 | 22.35 | 38.12 | 40.00 | 20.00 | 50.00 | 110 | 103 | 116 |
| 10 | 37.58 | 15.10 | 59.82 | 40.00 | 12.50 | 68.75 | 55 | 55 | 84 |
| 11 | 49.76 | 25.02 | 49.71 | 50.00 | 25.00 | 50.00 | 110 | 105 | 152 |
| 12 | 57.36 | 23.38 | 59.25 | 60.00 | 21.00 | 65.00 | 36 | 36 | 36 |
| 13 | 51.94 | 26.81 | 48.39 | 50.00 | 25.00 | 50.00 | 49 | 39 | 53 |
| 14 | 21.70 | 8.68 | 60.00 | 20.00 | 8.00 | 60.00 | 125 | 124 | 146 |
| 15 | 43.95 | 22.60 | 48.58 | 40.00 | 17.00 | 57.50 | 478 | 467 | 532 |

For several paragraphs, the maximum tariff for Dillon B changes when we get rid of the tax interval lines (2,9,11). Still I'm not going to print the tables with the maxes in them for now.

| Sched | SH_mean | DB_mean | mean_chg | SH_med | DB_med | med_chg | SH_obs | DB_obs | n |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 29.80 | 14.08 | 52.73 | 25.00 | 12.50 | 50.00 | 198 | 198 | 389 |
| 2 | 42.40 | 21.52 | 49.26 | 45.00 | 20.00 | 55.56 | 127 | 127 | 199 |
| 3 | 38.15 | 17.38 | 54.46 | 35.00 | 13.00 | 62.86 | 432 | 443 | 610 |
| 4 | 34.21 | 15.58 | 54.47 | 33.33 | 15.00 | 55.00 | 46 | 46 | 52 |
| 5 | 50.83 | 31.92 | 37.21 | 50.00 | 22.50 | 55.00 | 6 | 6 | 17 |
| 6 | 25.00 | 7.75 | 69.00 | 25.00 | 7.75 | 69.00 | 2 | 2 | 12 |
| 7 | 31.40 | 14.04 | 55.28 | 35.00 | 12.50 | 64.29 | 116 | 116 | 458 |
| 8 | 60.00 | 30.00 | 50.00 | 60.00 | 30.00 | 50.00 | 1 | 1 | 33 |
| 9 | 34.42 | 21.55 | 37.41 | 35.00 | 20.00 | 42.86 | 85 | 85 | 89 |
| 10 | 37.58 | 15.10 | 59.82 | 40.00 | 12.50 | 68.75 | 55 | 55 | 84 |
| 11 | 49.21 | 23.48 | 52.28 | 50.00 | 22.50 | 55.00 | 97 | 97 | 137 |
| 12 | 57.12 | 23.32 | 59.18 | 60.00 | 20.00 | 66.67 | 33 | 33 | 33 |
| 13 | 54.40 | 25.82 | 52.54 | 60.00 | 22.50 | 62.50 | 25 | 25 | 25 |
| 14 | 21.49 | 8.70 | 59.53 | 20.00 | 8.00 | 60.00 | 122 | 122 | 143 |
| 15 | 44.30 | 21.95 | 50.44 | 40.00 | 17.00 | 57.50 | 443 | 441 | 497 |

**Mean of ad valorem tariffs by schedule and round**

| Sched | SH | G1 | An | To | GC | DB | chgG1 | chgAn | chgTo | chgGC | chgDB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29.81 | 21.86 | 21.32 | 17.42 | 16.56 | 14.21 | 26.67 | 2.47 | 18.26 | 4.98 | 14.16 |
| 2 | 44.61 | 32.36 | 30.37 | 25.73 | 25.32 | 23.93 | 27.45 | 6.15 | 15.30 | 1.57 | 5.52 |
| 3 | 37.65 | 28.01 | 26.65 | 21.16 | 20.04 | 17.25 | 25.62 | 4.83 | 20.60 | 5.30 | 13.93 |
| 4 | 34.21 | 25.20 | 22.53 | 21.18 | 18.89 | 15.58 | 26.36 | 10.57 | 5.99 | 10.81 | 17.55 |
| 5 | 50.83 | 33.58 | 33.58 | 33.58 | 33.58 | 31.92 | 33.93 | 0.00 | 0.00 | 0.00 | 4.96 |
| 6 | 25.00 | 15.62 | 15.62 | 9.38 | 7.75 | 7.75 | 37.50 | 0.00 | 40.00 | 17.33 | 0.00 |
| 7 | 31.40 | 21.23 | 19.70 | 16.83 | 15.94 | 14.01 | 32.37 | 7.24 | 14.54 | 5.28 | 12.15 |
| 8 | 60.00 | 60.00 | 60.00 | 30.00 | 30.00 | 30.00 | 0.00 | 0.00 | 50.00 | 0.00 | 0.00 |
| 9 | 36.12 | 26.25 | 25.62 | 23.03 | 22.81 | 22.35 | 27.32 | 2.40 | 10.12 | 0.97 | 1.98 |
| 10 | 37.58 | 20.64 | 20.41 | 19.68 | 18.31 | 15.10 | 45.09 | 1.10 | 3.56 | 6.97 | 17.53 |
| 11 | 49.76 | 26.83 | 26.65 | 24.52 | 23.93 | 25.02 | 46.09 | 0.68 | 7.97 | 2.41 | -4.56 |
| 12 | 57.36 | 39.07 | 36.14 | 30.79 | 27.43 | 23.38 | 31.89 | 7.50 | 14.82 | 10.90 | 14.78 |
| 13 | 51.94 | 35.41 | 33.66 | 28.78 | 26.99 | 26.81 | 31.83 | 4.94 | 14.49 | 6.23 | 0.67 |
| 14 | 21.70 | 13.88 | 12.95 | 11.13 | 10.41 | 8.68 | 36.05 | 6.66 | 14.09 | 6.43 | 16.63 |
| 15 | 43.95 | 32.78 | 31.83 | 27.75 | 26.47 | 22.60 | 25.42 | 2.90 | 12.83 | 4.59 | 14.63 |

Removing tax interval lines

| Sched | SH | G1 | An | To | GC | DB | chgG1 | chgAn | chgTo | chgGC | chgDB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29.80 | 21.68 | 21.13 | 17.21 | 16.31 | 14.08 | 27.23 | 2.56 | 18.56 | 5.22 | 13.64 |
| 2 | 42.40 | 29.52 | 27.43 | 23.29 | 22.67 | 21.52 | 30.39 | 7.07 | 15.10 | 2.68 | 5.07 |
| 3 | 38.15 | 28.75 | 27.49 | 21.51 | 20.46 | 17.38 | 24.64 | 4.41 | 21.74 | 4.88 | 15.08 |
| 4 | 34.21 | 25.20 | 22.53 | 21.18 | 18.89 | 15.58 | 26.36 | 10.57 | 5.99 | 10.81 | 17.55 |
| 5 | 50.83 | 33.58 | 33.58 | 33.58 | 33.58 | 31.92 | 33.93 | 0.00 | 0.00 | 0.00 | 4.96 |
| 6 | 25.00 | 15.62 | 15.62 | 9.38 | 7.75 | 7.75 | 37.50 | 0.00 | 40.00 | 17.33 | 0.00 |
| 7 | 31.40 | 21.33 | 19.78 | 16.89 | 16.00 | 14.04 | 32.06 | 7.26 | 14.60 | 5.31 | 12.22 |
| 8 | 60.00 | 60.00 | 60.00 | 30.00 | 30.00 | 30.00 | 0.00 | 0.00 | 50.00 | 0.00 | 0.00 |
| 9 | 34.42 | 25.74 | 24.97 | 22.21 | 21.94 | 21.55 | 25.24 | 2.97 | 11.05 | 1.22 | 1.80 |
| 10 | 37.58 | 20.64 | 20.41 | 19.68 | 18.31 | 15.10 | 45.09 | 1.10 | 3.56 | 6.97 | 17.53 |
| 11 | 49.21 | 27.12 | 26.92 | 24.63 | 23.96 | 23.48 | 44.88 | 0.76 | 8.51 | 2.72 | 1.98 |
| 12 | 57.12 | 38.71 | 35.61 | 29.92 | 26.36 | 23.32 | 32.23 | 8.02 | 15.96 | 11.90 | 11.55 |
| 13 | 54.40 | 35.00 | 35.00 | 27.60 | 26.06 | 25.82 | 35.66 | 0.00 | 21.14 | 5.58 | 0.92 |
| 14 | 21.49 | 13.92 | 12.98 | 11.12 | 10.43 | 8.70 | 35.24 | 6.74 | 14.29 | 6.24 | 16.60 |
| 15 | 44.30 | 32.44 | 31.47 | 27.13 | 25.82 | 21.95 | 26.76 | 3.00 | 13.78 | 4.84 | 14.97 |

# What was the total reduction in negotiated tariffs under the GATT in each round?

Mean and median of specific tariffs in each round

| | Decrease in specific tariffs by round | | | |
|---|---|---|---|---|
| | Mean | % decrease | Median | % decrease |
| Smoot Hawley | 47.90 | 0.00 | 6.00 | 0.00 |
| Geneva | 32.95 | 31.22 | 5.00 | 16.67 |
| Annecy | 31.97 | 2.97 | 4.08 | 18.50 |
| Torquay | 27.54 | 13.86 | 3.50 | 14.11 |
| GenevaA | 27.11 | 1.56 | 3.50 | 0.00 |
| GenevaB | 26.72 | 1.44 | 3.45 | 1.43 |
| GenevaC | 26.38 | 1.28 | 3.40 | 1.45 |
| DillonA | 25.42 | 3.63 | 3.00 | 11.76 |
| DillonB | 24.73 | 2.71 | 3.00 | 0.00 |

| | Decrease in ad valorem tariffs by round | | | |
|---|---|---|---|---|
| | Mean | % decrease | Median | % decrease |
| Smoot Hawley | 38.79 | 0.00 | 35.00 | 0.00 |
| Geneva | 27.51 | 29.09 | 25.00 | 28.57 |
| Annecy | 26.37 | 4.13 | 22.50 | 10.00 |
| Torquay | 22.44 | 14.93 | 20.00 | 11.11 |
| GenevaA | 21.89 | 2.42 | 17.88 | 10.62 |
| GenevaB | 21.67 | 1.00 | 17.75 | 0.70 |
| GenevaC | 21.39 | 1.30 | 17.50 | 1.41 |
| DillonA | 19.52 | 8.76 | 15.50 | 11.43 |
| DillonB | 18.95 | 2.90 | 15.00 | 3.23 |

# Which lines were only ad valorem, only specific, or both?

## Mixed

Next we need to know about the lines that have both ad valorem and specific (or take them out from above); at least quantify them to start

How many lines have both ad valorem and specific in each round?

- Smoot Hawley: 498
- Geneva 1947: 485
- Annecy: 484
- Torquay: 480
- Geneva56A: 480
- Geneva56B: 480
- Geneva56C: 478
- DillonA: 472
- DillonB: 472

### Victor's intuition on mixed lines

I believe many of the changes from specific tax to ad valorem or otherwise is because of the tax intervals. You could search the keywords "tax boundaries" and "tax interval(s)" in Extra column of every round to locate them.

### Proportions of specific, ad valorem, mixed

A few lines in each round have neither specific nor ad valorem. Matt is working on fixing this

```
[1] "Smoot-Hawley"

 Sched Product Paragraph    id
     3       1  368.c_18 1078
     8       1       810 1877
    14       1      1408 2411
    15      17    1532.a 2831

[1] "Dillon B"

 Sched Product Paragraph    id
     3       1  368.c_18 1078
     8       1       810 1877
    14       1      1408 2411
    15      17    1532.a 2831
```

# How many lines see no change from Smoot Hawley to Dillon B?

```
lines <- data_set %>%
        mutate(av_pc =((Ad_Valorem_SH - Ad_Valorem_Dillon_B)/Ad_Valorem_SH)*100,sp_pc
        =((Specific_SH - Specific_Dillon_B)/Specific_SH)*100)

lines2 <- subset(lines,is.na(sp_pc) | sp_pc==0) %>% subset(is.na(av_pc) | av_pc==0)
```

The code above produces 371 lines that are the same in Smoot Hawley and Dillon B (i.e. that don't change at all through these five rounds of negotiations–we assume. We still need a check for rates going up.)

# Summarizing the impact of tax intervals

## Implementation dates

Geneva 1: January 1, 1948 (Irwin 2017, p. 486)