

# GATT Analysis

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## Next steps

### To do

1. Create centralized documentation
  - Include history from Unsolved problems in coding.docx (OneDrive)
2. **Kennedy, Tokyo, Uruguay**
3. Choose other countries
  - Refine *Members.in.GATT.xlsx*
  - Focus on Benelux, Canada, Chile, France, India, U.K., Dominican Republic, Haiti, Italy, Germany, Peru, Japan
    - Matt is adding # of pages for each schedule
4. **Make list of accuracy checks, run them, fix typos in data**
  - Check for tariffs going up from round to round
5. **Figure out how to integrate “free” list**
  - For which rounds do we have the free list typed up? Just Torquay Free List.xlsx on G: drive
6. Condense data cleaning code
7. Go back to analysis that was thrown out ahead of CEA deadline
  - Look for gradualism in graphs
8. 10 lines in Dillon that have more than 2 years
9. Think about how variation in units affects specific summary stats
  - Look into trade-weighting
10. TOT analysis
11. Find implementation years (maybe get answer from Doug Irwin)
12. Are current Column 2 tariffs in 1962 Smoot Hawley or the 1946 tariffs?

### 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~~
5. ~~Resolve copyright issues, then (hopefully) post the correct schedules on Github~~
6. ~~Determine that TSUS tariffs were always at 5 digit, so we can just use the 5-digit tariff for all of the 7-digit subcategories~~
7. ~~Read and summarize “Two Centuries of Tariffs” (USITC, in G:drive folder)~~
8. ~~Consolidate various notes in Github / One Drive / G drive~~
9. ~~Read and summarize “Tariff negotiations and renegotiations under the GATT and the WTO” (hard copy at SU library)~~
10. ~~Read through Victor’s notes for ideas~~
11. ~~Add Schedule A tariff data from 1946 (last available before Geneva 1947)~~
12. ~~Resolve “complicated” paragraphs, including 4 that still have no tariffs~~
13. ~~Identify lines that switch between specific and ad valorem~~
14. ~~Get working draft together ASAP~~

## 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 still not as compact and readable as I want it to be. The chunk below calls that program to make the processed data available to the rest of the commands in this document.

### Sanity checks

0 rows have either a specific tariff and no unit or a unit with no specific tariff for some round.

## 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.r

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

	Summary Statistics of Specific Tariffs by Round						
	Min	1st Quartile	Mean	Median	3rd Quartile	Max	N
Smoot Hawley	0	0.12	14.45	0.38	2.50	3000	1554
1946	0	0.10	11.56	0.38	2.31	1500	1541
Geneva	0	0.07	9.12	0.31	1.88	1000	1543
Annecy	0	0.07	8.96	0.28	1.75	1000	1542
Torquay	0	0.06	8.06	0.24	1.56	750	1542
GenevaA	0	0.06	7.95	0.23	1.56	750	1542
GenevaB	0	0.06	7.85	0.22	1.56	750	1542
GenevaC	0	0.06	7.75	0.22	1.56	750	1539
DillonA	0	0.06	7.33	0.22	1.56	650	1541
DillonB	0	0.06	7.05	0.21	1.50	550	1541

### Ad valorem tariffs

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

- In Dillon, 1066 rows out of 3031 are missing, so there are 1965 ad valorem tariffs. So 64.83% of lines have *ad valorem* tariffs.

## Lines that switch between specific, ad valorem, and compound

Below are the lines that either change units or change between specific only, ad valorem only or both specific and ad valorem. Indicator variables for each round (G for Geneva, A for Annecy, etc.) show in which round the change(s) occurred. Variable “unit\_ch” equals 1 if the unit changed.

In all, 98 lines are affected by some change in the form of the tariff.

Summary Statistics of Ad Valorem Tariffs by Round							
	Min	1st Quartile	Mean	Median	3rd Quartile	Max	N
Smoot Hawley	5.00	25.0	38.97	35.00	50.00	105	1982
1946	2.50	20.0	33.95	30.00	45.00	105	1988
Geneva	2.50	15.0	26.46	25.00	35.00	105	1972
Annecy	2.50	12.5	25.56	20.00	33.33	105	1972
Torquay	1.88	12.5	22.14	18.75	27.50	90	1970
GenevaA	1.88	11.5	21.63	17.50	27.50	90	1970
GenevaB	1.88	11.0	21.36	17.50	27.00	90	1970
GenevaC	1.88	10.5	21.14	17.50	25.50	90	1971
DillonA	1.00	10.5	19.46	15.50	25.00	90	1965
DillonB	0.50	10.0	18.88	15.00	25.00	90	1965

##	Sched	Product	Paragraph	id	G	A	T	GA	GB	GC	DA	DB	Interval
##	1	16	28.a	148	NA	NA	NA	NA	NA	NA	NA	NA	1
##	1	10	53	254	1	NA	1	NA	NA	NA	NA	NA	1
##	1	6	72	326	NA	NA	NA	NA	NA	NA	NA	NA	1
##	2	4	210	485	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	2	212	495	NA	NA	NA	NA	NA	NA	NA	NA	1
##	2	4	212	497	NA	NA	NA	NA	NA	NA	NA	NA	1
##	2	10	212	503	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	11	212	504	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	12	212	505	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	13	212	506	NA	NA	1	NA	NA	NA	NA	NA	1
##	2	14	212	507	NA	NA	1	NA	NA	NA	NA	NA	1
##	2	15	212	508	NA	NA	NA	NA	NA	NA	NA	NA	1
##	2	4	213	512	NA	NA	NA	NA	NA	NA	NA	NA	1
##	2	2	218.d	541	1	NA	1	NA	NA	NA	NA	NA	1
##	2	5	218.d	544	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	7	218.f	560	1	NA	NA	NA	NA	NA	NA	NA	1
##	2	11	218.f	564	NA	NA	NA	NA	NA	NA	1	NA	1
##	2	4	226	598	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	3	302.d	660	NA	NA	1	NA	NA	NA	NA	NA	NA
##	3	3	304	699	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	4	304	700	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	5	304	701	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	11	304	707	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	12	304	708	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	13	304	709	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	21	304	717	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	22	304	718	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	23	304	719	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	24	304	720	1	NA	NA	NA	NA	NA	NA	NA	1
##	3	25	304	721	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	26	304	722	1	NA	NA	NA	NA	NA	NA	NA	1
##	3	30	304	726	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	38	304	734	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	39	304	735	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	40	304	736	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	41	304	737	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	46	304	742	NA	NA	NA	NA	NA	NA	NA	NA	1

##	3	47	304	743	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	48	304	744	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	1	308	755	1	NA	1	NA	NA	NA	NA	NA	1
##	3	3	308	757	1	NA	1	NA	NA	NA	NA	NA	1
##	3	12	316.a	796	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	4	318	805	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	7	318	808	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	1	357	989	NA	NA	NA	NA	NA	1	NA	NA	1
##	3	2	357	990	NA	NA	NA	NA	NA	1	NA	NA	1
##	3	7	358	1002	1	NA	NA	NA	NA	NA	NA	NA	1
##	3	1	368.c_2	1067	NA	NA	NA	NA	NA	NA	1	NA	NA
##	3	2	368.c_2	1068	NA	NA	NA	NA	NA	NA	1	NA	NA
##	3	1	368.c_17	1083	NA	NA	1	NA	NA	NA	NA	NA	NA
##	3	2	371	1102	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	5	371	1105	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	8	371	1108	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	11	371	1111	1	NA	NA	NA	NA	NA	NA	NA	1
##	3	14	371	1114	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	2	375	1194	NA	NA	NA	NA	NA	1	NA	NA	NA
##	3	4	382.a	1220	NA	NA	NA	NA	NA	NA	NA	NA	1
##	3	11	397	1283	NA	NA	NA	NA	NA	NA	NA	NA	1
##	7	4	726	1550	NA	NA	NA	NA	NA	NA	NA	NA	1
##	9	4	909	1933	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	7	909	1936	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	14	909	1943	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	2	910	1948	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	8	911.a	1957	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	2	915	1979	1	NA	NA	NA	NA	NA	NA	NA	1
##	9	9	923	2007	1	NA	NA	NA	NA	NA	NA	NA	1
##	11	9	1108	2167	NA	NA	NA	NA	NA	NA	1	NA	1
##	11	10	1108	2168	NA	NA	NA	NA	NA	NA	1	NA	1
##	11	13	1108	2171	NA	NA	NA	NA	NA	NA	1	NA	1
##	11	14	1108	2172	NA	NA	NA	NA	NA	NA	1	NA	1
##	11	2	1109.a	2175	NA	NA	NA	NA	NA	NA	1	NA	1
##	12	3	1208	2288	1	NA	NA	NA	NA	NA	NA	NA	1
##	14	6	1413	2484	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	5	1504.a	2527	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	10	1506	2556	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	1	1526.a	2692	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	2	1526.a	2693	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	3	1526.a	2694	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	4	1526.a	2695	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	5	1526.a	2696	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	6	1526.a	2697	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	7	1526.a	2698	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	8	1526.a	2699	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	1	1527.a.2	2704	NA	1	NA	NA	NA	NA	NA	NA	1
##	15	2	1527.a.2	2705	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	2	1527.b	2708	1	NA	NA	NA	NA	NA	NA	NA	NA
##	15	1	1527.c.2	2710	1	NA	NA	NA	NA	NA	NA	NA	NA
##	15	2	1527.c.2	2711	1	NA	NA	NA	NA	NA	NA	NA	NA
##	15	3	1527.c.2	2712	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	4	1527.c.2	2713	NA	NA	NA	NA	NA	NA	1	NA	1
##	15	5	1527.c.2	2714	1	NA	NA	NA	NA	NA	NA	NA	NA

##	15	3	1530.e	2816	NA	NA	NA	NA	NA	NA	NA	NA	1
##	15	4	1535	2869	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	8	1535	2873	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	11	1535	2876	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	5	1537.b	2889	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	8	1541.a	2919	1	NA	NA	NA	NA	NA	NA	NA	1
##	15	1	1548	2963	1	NA	1	NA	NA	NA	NA	NA	NA

## How did liberalization vary across Schedules?

First, descriptions of each schedule:

Smoot Hawley Schedule Titles				
Schedule	#	Lines	Abbreviation	Title
1		399	Chem	Chemicals, Oil, and Paints
2		247	Glass	Earths, Earthenware, and Glassware
3		660	Metals	Metals and Manufactures of
4		53	Wood	Wood and Manufactures of
5		17	Sugar	Sugar, Molasses, and Manufactures of
6		12	Tobacco	Tobacco and Manufactures of
7		471	Agri	Agricultural Products and Provisions
8		34	Spirits	Spirits, Wines, and other Beverages
9		118	Cotton	Cotton Manufactures
10		91	Flax	Flax, Hemp, Jute, and Manufactures of
11		161	Wool	Wool and Manufactures of
12		38	Silk	Silk Manufactures
13		48	Rayon	Manufactures of Rayon or Other Synthetic Textile
14		144	Paper	Papers and Books
15		538	Sundries	Sundries

## Summary stats for specific tariffs

The table below is exactly the same as the one above EXCEPT it drops the 98 lines that are impacted by the “switcher” issue

## Ignoring extra columns: Sched, Paragraph, Product, Interval, Specific\_SH, Specific\_1946\_after, Speci

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

Removing tax interval lines

## Summary stats for ad valorem tariffs

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.

Specific Tariffs, all items									
Sched	SH_mean	DB_mean	mean_chg	SH_med	DB_med	med_chg	SH_obs	DB_obs	n
1	1.17	0.68	42.25	0.25	0.13	46.88	265	265	399
2	5.59	3.56	36.29	0.50	0.33	33.33	111	107	247
3	45.40	22.06	51.42	0.25	0.19	22.50	316	306	660
4	0.46	0.21	54.61	0.49	0.17	64.29	6	6	53
5	0.15	0.06	62.44	0.11	0.03	75.00	11	11	17
6	9.22	3.89	57.84	3.28	1.47	55.24	12	12	12
7	11.84	3.50	70.41	0.19	0.09	50.00	356	355	471
8	2.07	0.62	70.19	0.98	0.33	66.40	33	33	34
9	0.80	1.71	-114.89	0.59	1.12	-91.49	8	15	118
10	0.38	0.24	36.38	0.17	0.12	31.82	42	42	91
11	3.15	2.14	32.07	2.50	2.06	17.50	143	143	161
12	NaN	12.50	NaN	NA	12.50	NA	0	1	38
13	2.50	1.45	42.06	2.81	1.56	44.44	34	34	48
14	0.85	0.49	42.23	0.31	0.12	60.00	84	85	144
15	16.20	14.29	11.81	2.00	1.00	50.00	133	126	538

Specific Tariffs, switchers removed									
Sched	SH_mean	DB_mean	mean_chg	SH_med	DB_med	med_chg	SH_obs	DB_obs	n
1	1.18	0.68	42.23	0.25	0.13	46.88	264	264	396
2	6.07	2.67	56.05	0.25	0.15	40.00	101	101	232
3	49.69	18.86	62.04	0.31	0.16	50.00	288	288	620
4	0.46	0.21	54.61	0.49	0.17	64.29	6	6	53
5	0.15	0.06	62.44	0.11	0.03	75.00	11	11	17
6	9.22	3.89	57.84	3.28	1.47	55.24	12	12	12
7	11.87	3.50	70.49	0.19	0.09	50.00	355	355	470
8	2.07	0.62	70.19	0.98	0.33	66.40	33	33	34
9	0.80	0.46	42.45	0.59	0.36	39.36	8	8	111
10	0.38	0.24	36.38	0.17	0.12	31.82	42	42	91
11	3.15	1.96	37.82	2.50	1.94	22.50	138	138	156
12	NaN	NaN	NaN	NA	NA	NA	0	0	37
13	2.50	1.45	42.06	2.81	1.56	44.44	34	34	48
14	0.85	0.49	41.57	0.31	0.12	60.00	84	84	143
15	13.64	8.25	39.52	1.56	1.00	36.00	116	116	513

## Ignoring extra columns: Sched, Paragraph, Product, Interval, Ad\_Valorem\_SH, Ad\_Valorem\_1946\_after, A

Mean of ad valorem tariffs by schedule and round

Removing switchers lines

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

Mean and median of specific tariffs in each round

Mean Specific Tariffs (no changers), by round													
Sched	SH	A	G1	An	To	GC	DB	chgA	chgG1	chgAn	chgTo	chgGC	chgDB
1	1.18	1.08	0.98	0.97	0.79	0.75	0.68	8.43	9.42	0.48	18.53	4.88	9.68
2	6.07	5.46	3.88	3.08	2.95	2.79	2.67	9.96	28.95	20.74	3.99	5.37	4.58
3	49.69	38.91	27.25	27.13	24.53	23.20	18.86	21.68	29.97	0.46	9.57	5.40	18.71
4	0.46	0.38	0.20	0.20	0.20	0.20	0.21	17.73	47.91	0.00	0.00	0.00	-5.91
5	0.15	0.09	0.07	0.06	0.06	0.06	0.06	42.86	14.75	14.46	3.23	3.11	3.85
6	9.22	7.11	5.91	5.40	4.20	3.92	3.89	22.88	16.89	8.59	22.18	6.85	0.73
7	11.87	6.89	5.20	5.19	4.12	4.11	3.50	41.93	24.60	0.16	20.58	0.42	14.65
8	2.07	1.51	1.12	0.98	0.75	0.67	0.62	27.26	25.52	12.28	23.83	10.11	8.39
9	0.80	0.64	0.52	0.52	0.47	0.47	0.46	19.60	18.77	0.00	10.69	0.00	1.34
10	0.38	0.31	0.25	0.25	0.25	0.25	0.24	17.32	19.17	1.33	0.17	0.15	3.21
11	3.15	2.85	2.03	2.03	1.97	1.97	1.96	9.78	28.62	0.33	2.49	0.00	0.65
12	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
13	2.50	2.41	1.71	1.64	1.48	1.46	1.45	3.68	28.82	4.29	9.52	1.80	0.63
14	0.85	0.83	0.69	0.68	0.55	0.55	0.49	2.05	16.62	0.97	18.96	0.76	10.17
15	13.64	12.15	10.14	10.11	9.16	8.82	8.25	10.89	16.56	0.31	9.38	3.71	6.49

Ad valorem Tariffs, all items									
Sched	SH_mean	DB_mean	mean_chg	SH_med	DB_med	med_chg	SH_obs	DB_obs	n
1	29.88	14.17	52.56	25.00	12.50	50.00	207	206	399
2	45.84	23.76	48.18	50.00	21.00	58.00	166	161	247
3	37.78	17.19	54.50	35.00	13.00	62.86	467	478	660
4	33.91	15.09	55.51	33.33	15.00	55.00	47	47	53
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	31.74	14.22	55.20	35.00	13.00	62.86	119	120	471
8	60.00	30.00	50.00	60.00	30.00	50.00	1	1	34
9	37.14	22.26	40.06	40.00	20.00	50.00	112	105	118
10	37.45	14.86	60.31	40.00	12.50	68.75	58	58	91
11	49.49	24.93	49.63	50.00	23.75	52.50	115	110	161
12	57.50	24.38	57.60	60.00	21.00	65.00	38	37	38
13	52.64	26.47	49.71	57.50	23.25	59.57	36	36	48
14	21.75	8.69	60.05	20.00	8.00	60.00	124	123	144
15	43.83	22.38	48.95	40.00	17.00	57.50	484	475	538

## 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: 505
- Geneva 1947: 484
- Annecy: 483
- Torquay: 481
- Geneva56A: 481



Ad valorem Tariffs, switchers removed									
Sched	SH_mean	DB_mean	mean_chg	SH_med	DB_med	med_chg	SH_obs	DB_obs	n
1	29.85	14.11	52.75	25.00	12.50	50.00	204	204	396
2	44.74	22.94	48.72	45.00	20.50	54.44	152	152	232
3	37.68	17.48	53.60	35.00	14.00	60.00	451	451	620
4	33.91	15.09	55.51	33.33	15.00	55.00	47	47	53
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	31.74	14.25	55.09	35.00	13.50	61.43	119	119	470
8	60.00	30.00	50.00	60.00	30.00	50.00	1	1	34
9	36.64	22.26	39.25	37.50	20.00	46.67	105	105	111
10	37.45	14.86	60.31	40.00	12.50	68.75	58	58	91
11	49.20	24.93	49.33	50.00	23.75	52.50	110	110	156
12	57.43	24.38	57.55	60.00	21.00	65.00	37	37	37
13	52.64	26.47	49.71	57.50	23.25	59.57	36	36	48
14	21.68	8.69	59.93	20.00	8.00	60.00	123	123	143
15	44.09	21.54	51.14	40.00	17.00	57.50	460	460	513

Mean Ad Valorem Tariffs, by round											
Sched	SH	G1	An	To	GC	DB	chgG1	chgAn	chgTo	chgGC	chgDB
1	29.85	21.03	20.62	16.93	16.06	14.11	29.56	1.92	17.92	5.16	12.14
2	44.74	30.88	29.45	25.48	24.35	22.94	30.97	4.63	13.47	4.45	5.78
3	37.68	26.89	25.86	21.12	19.92	17.48	28.64	3.83	18.34	5.67	12.23
4	33.91	23.17	21.45	19.86	18.33	15.09	31.67	7.42	7.40	7.71	17.70
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	31.74	20.83	19.53	16.90	16.03	14.25	34.39	6.24	13.45	5.12	11.10
8	60.00	60.00	60.00	30.00	30.00	30.00	0.00	0.00	50.00	0.00	0.00
9	36.64	25.44	25.04	22.92	22.70	22.26	30.57	1.59	8.44	0.96	1.95
10	37.45	19.96	19.74	19.31	18.08	14.86	46.71	1.08	2.18	6.38	17.79
11	49.20	26.33	26.15	24.57	23.86	24.93	46.48	0.69	6.03	2.87	-4.46
12	57.43	36.82	34.05	29.66	27.16	24.38	35.88	7.52	12.90	8.43	10.25
13	52.64	35.00	33.68	28.33	26.79	26.47	33.51	3.77	15.88	5.44	1.19
14	21.68	13.28	12.47	10.91	10.19	8.69	38.77	6.09	12.47	6.61	14.74
15	44.09	31.04	30.31	26.35	25.19	21.54	29.58	2.38	13.06	4.39	14.49

- Geneva56B: 481
- Geneva56C: 479
- DillonA: 475
- DillonB: 475

### 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.

Decrease in specific tariffs by round				
	Mean	% decrease	Median	% decrease
Smoot Hawley	14.45	0.00	0.38	0.00
1946	11.56	20.03	0.38	0.00
Geneva	9.12	21.10	0.31	16.67
Annecy	8.96	1.71	0.28	10.00
Torquay	8.06	10.08	0.24	14.93
GenevaA	7.95	1.35	0.23	2.04
GenevaB	7.85	1.30	0.22	4.00
GenevaC	7.75	1.25	0.22	2.78
DillonA	7.33	5.42	0.22	0.00
DillonB	7.05	3.79	0.21	2.86

Decrease in ad valorem tariffs by round				
	Mean	% decrease	Median	% decrease
Smoot Hawley	38.97	0.00	35.00	0.00
1946	33.95	12.88	30.00	14.29
Geneva	26.46	22.07	25.00	16.67
Annecy	25.56	3.40	20.00	20.00
Torquay	22.14	13.38	18.75	6.25
GenevaA	21.63	2.29	17.50	6.67
GenevaB	21.36	1.24	17.50	0.00
GenevaC	21.14	1.04	17.50	0.00
DillonA	19.46	7.95	15.50	11.43
DillonB	18.88	2.95	15.00	3.23

### Proportions of specific, ad valorem, mixed

A few lines in each round had neither specific nor ad valorem. These were all fixed as of 5/15/21, but we keep this here to check in case things pop up.

```
[1] "Smoot-Hawley"
```

```
[1] Sched      Product      Paragraph id
<0 rows> (or 0-length row.names)
```

```
[1] "Dillon B"
```

```
[1] Sched      Product      Paragraph id
<0 rows> (or 0-length row.names)
```

### Tariff Increases

Here we are looking round by round for lines that had an increase in either the ad valorem or specific tariff (or both). Later we will look at lines that switch from one type of tariff to the other.

```
## [1] "Increased tariff from Smoot Hawley to 1946 (Before Geneva)"
```

```
##      Para   id Prod av_pc sp_pc AV_SH AV_BG Sp_SH Sp_BG Un_SH Un_BG Int
##      41  198   9   20  -25   25   20  0.12  0.16   4    4  NA
##      318 802   1  -50   NA   50   75   NA   NA   NA   NA  NA
##      318 803   2  -50   NA   50   75   NA   NA   NA   NA  NA
##      318 811  10  -50   NA   50   75   NA   NA   NA   NA  NA
```

```
##      331 863 10 NA -50 NA NA 0.19 0.28 4 4 NA
##      364 1029 2 -40 NA 50 70 NA NA NA NA NA
##      396 1271 1 -44 NA 45 65 NA NA NA NA NA
##      397 1301 29 -47 NA 45 66 NA NA NA NA NA
##      397 1302 30 -47 NA 45 66 NA NA NA NA NA
##      397 1304 32 -11 NA 45 50 NA NA NA NA NA
##      397 1305 33 -33 NA 45 60 NA NA NA NA NA
##      412 1338 2 -50 NA 40 60 NA NA NA NA NA
##      713 1465 4 NA -50 NA NA 1.12 1.69 4 4 NA
##      717.a 1475 5 NA -50 NA NA 0.12 0.19 4 4 NA
##      718.a 1491 3 -47 NA 30 44 NA NA NA NA NA
## 1005.a.3 2048 1 NA -50 NA NA 0.20 0.30 4 4 NA
##      1022 2098 2 NA -50 NA NA 0.89 1.33 6 6 NA
##      1114.d 2211 4 -50 0 50 75 3.12 3.12 4 4 1
```

```
## [1] "Increased tariff from 1946 to Geneva"
```

```
##      Para id Prod av_pc sp_pc AV_BG AV_Ge Sp_BG Sp_Ge Un_BG Un_Ge Int
##      202.a 414 9 -20.0 NA 25.0 30 NA NA NA NA 1
##      412 1337 1 -33.3 NA 22.5 30 NA NA NA NA NA
##      718.a 1492 4 -46.7 NA 30.0 44 NA NA NA NA 1
##      904.a 1908 2 -266.7 NA 7.5 28 NA NA NA NA 1
##      904.a 1909 3 -266.7 NA 7.5 28 NA NA NA NA 1
##      904.b 1914 3 -50.0 NA 20.0 30 NA NA NA NA 1
##      904.c 1918 3 -39.1 NA 23.0 32 NA NA NA NA 1
##      911.a 1956 7 -37.5 NA 40.0 55 NA NA NA NA 1
##      917 1985 1 -16.7 NA 30.0 35 NA NA NA NA NA
##      923 2006 8 -16.7 NA 30.0 35 NA NA NA NA 1
##      1519.c 2668 1 -7.1 NA 35.0 38 NA NA NA NA NA
##      1529.a 2740 9 -33.3 NA 45.0 60 NA NA NA NA 1
##      1537.c 2899 2 42.9 -50 35.0 20 2 3 19 19 1
```

```
## [1] "Increased tariff from Geneva to Annecy"
```

```
## [1] Para id Prod av_pc sp_pc AV_Ge AV_An Sp_Ge Sp_An Un_Ge Un_An Int
## <0 rows> (or 0-length row.names)
```

```
## [1] "Increased tariff from Annecy to Torquay"
```

```
##      Para id Prod av_pc sp_pc AV_An AV_To Sp_An Sp_To Un_An Un_To Int
##      389 1256 4 -75.00 NA 5 8.8 NA NA NA NA NA
##      1114.d 2211 4 -0.67 0 37 37.5 2.3 2.3 4 4 1
```

```
## [1] "Increased tariff from Torquay to Geneva56_C"
```

```
##      Para id Prod av_pc sp_pc AV_To AV_GC Sp_To Sp_GC Un_To Un_GC Int
##      209 480 6 -71 NA 18 30 NA NA NA NA NA
##      214 520 7 -70 NA 20 34 NA NA NA NA NA
##      302.b 656 1 NA -71 NA NA 1.09 1.88 4 4 NA
##      360 1013 1 -13 NA 22 26 NA NA NA NA NA
##      701 1396 8 NA -67 NA NA 0.38 0.62 4 4 NA
##      778 1828 1 -112 NA 8 17 NA NA NA NA NA
```

```
## [1] "Increased tariff from Geneva56_C to Dillon_B"
```

```
##      Para id Prod av_pc sp_pc AV_GC AV_DB Sp_GC Sp_DB Un_GC Un_DB Int
##      24 102 6 -300.0 67 9.0 36 1.875 0.62 4 4 NA
##      24 103 7 -373.3 67 7.5 36 3.188 1.06 4 4 NA
##      209 481 7 -55.6 NA 22.5 35 NA NA NA NA NA
```

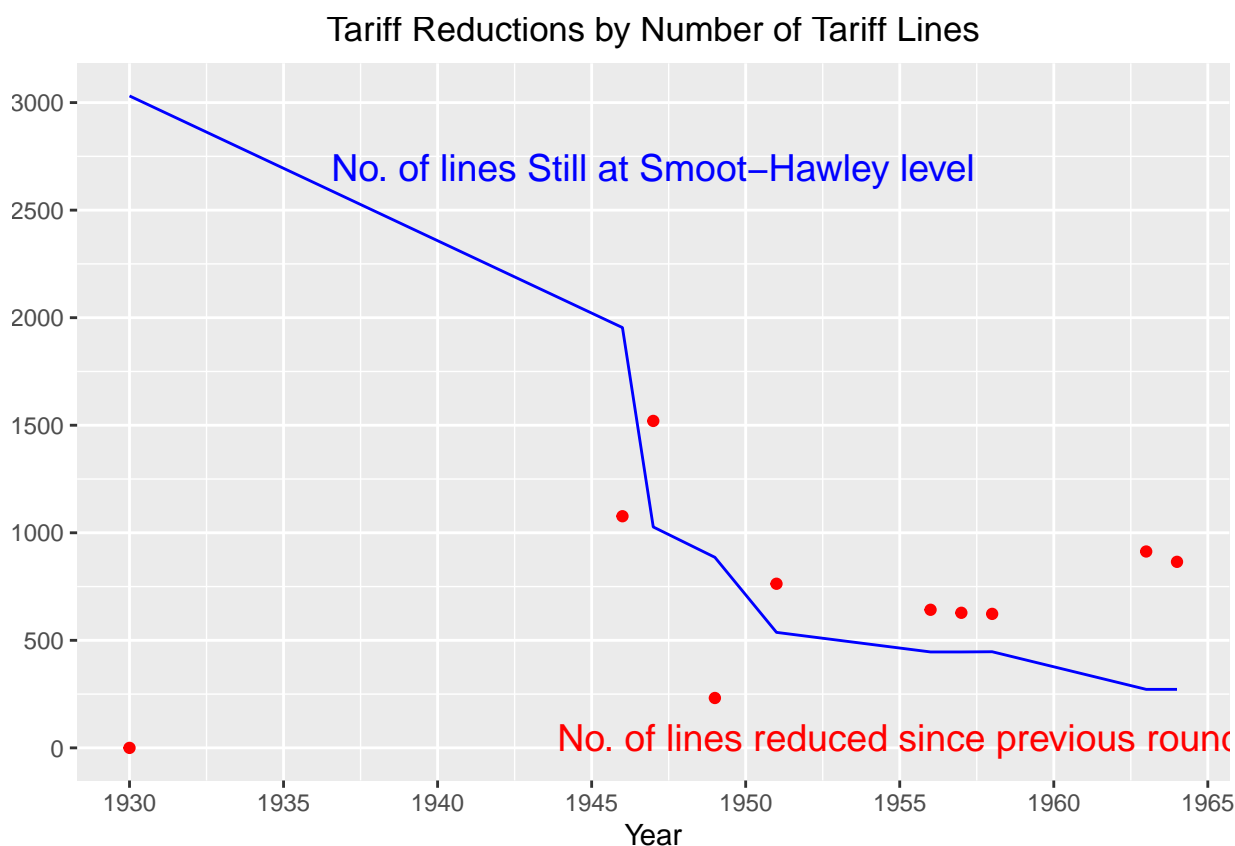
##	331	862	9	NA	-20	NA	NA	0.188	0.22	4	4	NA
##	354	957	1	-70.0	68	25.0	42	0.625	0.20	19	19	1
##	354	958	2	-70.0	68	25.0	42	2.500	0.80	19	19	1
##	354	959	3	-54.5	67	27.5	42	5.500	1.83	19	19	1
##	354	966	10	-54.5	67	27.5	42	7.500	2.50	19	19	1
##	354	967	11	-54.5	72	27.5	42	9.000	2.50	19	19	1
##	354	968	12	-70.0	80	25.0	42	12.500	2.50	19	19	1
##	354	969	13	-54.5	86	27.5	42	17.500	2.50	19	19	1
##	365	1038	9	-18.4	-18	19.0	22	425.000	500.00	19	19	1
##	365	1049	20	-140.0	NA	5.0	12	NA	NA	NA	NA	NA
##	371	1102	2	NA	-50	NA	NA	125.000	187.50	19	19	1
##	371	1103	3	-50.0	NA	15.0	22	NA	NA	NA	NA	1
##	371	1105	5	NA	-50	NA	NA	200.000	300.00	19	19	1
##	371	1106	6	-50.0	NA	15.0	22	NA	NA	NA	NA	1
##	371	1107	7	-50.0	NA	15.0	22	NA	NA	NA	NA	1
##	371	1108	8	NA	-50	NA	NA	125.000	187.50	19	19	1
##	371	1109	9	-50.0	NA	7.5	11	NA	NA	NA	NA	1
##	371	1111	11	NA	-50	NA	NA	250.000	375.00	19	19	1
##	371	1112	12	-50.0	NA	15.0	22	NA	NA	NA	NA	1
##	372	1119	3	-33.3	NA	10.5	14	NA	NA	NA	NA	NA
##	412	1343	7	NA	-100	NA	NA	0.069	0.14	19	19	NA
##	721.e	1536	1	NA	-12	NA	NA	0.250	0.28	4	4	NA
##	1108	2165	7	-140.0	0	25.0	60	1.875	1.88	4	4	1
##	1108	2166	8	-140.0	0	25.0	60	1.875	1.88	4	4	1
##	1108	2169	11	-52.0	0	25.0	38	1.875	1.88	4	4	1
##	1108	2170	12	-140.0	0	25.0	60	2.344	2.34	4	4	1
##	1108	2173	15	-52.0	0	25.0	38	2.344	2.34	4	4	1
##	1109.a	2174	1	-140.0	0	25.0	60	2.344	2.34	4	4	1
##	1109.a	2176	3	-52.0	0	25.0	38	2.344	2.34	4	4	1
##	1109.a	2177	4	-50.0	0	20.0	30	2.344	2.34	4	4	1
##	1109.a	2178	5	-50.0	0	20.0	30	2.344	2.34	4	4	1
##	1109.a	2179	6	-50.0	0	20.0	30	2.344	2.34	4	4	1
##	1114.d	2210	3	-28.0	0	25.0	32	2.344	2.34	4	4	1
##	1404	2366	9	-6.7	20	7.5	8	0.156	0.12	4	4	NA
##	1551	2983	7	NA	-60	NA	NA	0.500	0.80	55	55	NA
##	1551	2984	8	NA	-60	NA	NA	1.500	2.40	55	55	NA

## No changes

### No change from Smoot Hawley to Dillon B

The code above produces 272 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.)

No change from Smoot Hawley to Geneva



The code above produces lines that are the same in Smoot Hawley and Geneva.

## Summarizing the impact of tax intervals

PUT THIS BACK IN WHEN I'M AT HOME AND CAN FIGURE OUT THE BETTER WAY TO WORK WITH THE INTERVALS

## Implementation dates

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

## TOT analysis

We'll need measure of importer market power

1. inverse foreign supply elasticities are at HS6 level, are much more recent
  - Ross will look into the feasibility (data and code) of creating these measures for the 1930s/40s
  - Would we want Broda, Limao, Weinstein version (requires trade flows only) or Anson Soderbery's heterogeneous version?
  - Ross recalls he's seen a joint project between Anson Soderbery and Doug Irwin about the 1930s
2. product differentiation index (Rauch), also newer, but maybe less sensitive to changes over time
3. market share might be credible enough, and easier to get

We'll need to think about whether it's credible to try the identification strategy Ross has used in his work