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CHANGES IN U.S. TARIFFS: PRICES OR POLICIES?

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ABSTRACT

In the century after the Civil War, roughly two-thirds of U.S. dutiable imports were subject to specific duties whose ad valorem equivalent was inversely related to the price level. This paper finds that import price fluctuations easily dominate commercial policies (changes in rates of import duty) in bringing about changes in the average U.S. tariff from 1865-1973. About three-quarters of the post-Smoot Hawley decline in U.S. tariffs, for example, can be attributed to higher import prices, the remainder to negotiated reductions in tariff rates.

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I. Introduction

A curious feature of the U.S. tariff code from 1789 to the present has been its mixture of ad valorem duties, specific duties, and compound duties (which are a combination of both).[1] It has long been recognized that changes in import prices affect the average ad valorem equivalent of the specific duties; inflation (deflation) will reduce (increase) the ad valorem equivalent of the specific duties and thus affect import demand. The use of specific duties has meant that, during certain periods, price-level changes have had an important impact on the average tariff.[2] What remains unclear is the degree to which fluctuations in import prices and adjustments to tariff rates (enacted by Congress or resulting from trade negotiations) have been responsible for movements in the average tariff over the course of U.S. history.

This paper attempts to determine the relative importance of import prices and tariff rate adjustments to changes in the average ad valorem U.S. tariff from the Civil War until the early 1970s. This paper finds that import price movements account for a much greater proportion of the change in the average U.S. tariff than commercial policies that directly altered tariff rates. About three-quarters of the post-Smoot Hawley decline in the average tariff, for example, can be attributed to higher import prices and only about a quarter due to cuts in import duties. As a result, it may be misleading to attribute or interpret observed movements in average tariffs as

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[1] Ad valorem duties are assessed as a percentage of the value of imports whereas specific duties are a nominal dollar amount per imported quantity.

[2] This aspect of the tariff has been explored in the post-Civil War period by McGuire (1990), the interwar period by Crucini (1994), and the 1970s by Van Cott and Wipf (1983).

mostly reflecting changes in commercial policy.

Section II discusses general issues relating to tariff measurement and the role of (and rationale for) specific duties in the U.S. tariff code. Specific duties were levied on roughly two-thirds of dutiable U.S. imports for much of the century after the Civil War and were justified on administrative grounds (for simplicity and to prevent underinvoicing). Section III develops an econometric model of the determinants of the average ad valorem tariff rate from 1865-1973 and uses the estimated parameters to distinguish the effects of import prices and commercial policies on the average tariff. Import prices consistently account for over two-thirds of the major swings in the tariff during the twentieth century, implying that passive changes in the tariff due to price movements have been more important than active changes in tariff rates. Section IV briefly examines the pre-Civil War period from 1821-60 and finds that price-level effects on the average tariff were much less important. Section V discusses some of the implications of the results.

II. Tariff Measurement and Specific Duties

The most frequently used measure of the average ad valorem tariff rate is the ratio of total revenue from import duties to the value of dutiable imports. Figure 1 presents these data for the United States from 1865-1973.[3] This readily available series is usually interpreted as reflecting the average height of the tariff and thus the stance of a country's commercial policy. The high tariff period from 1865-1913, for example, is said to reflect the political dominance of protectionist Republicans. The brief period of liberalization under the Democrats around World War I was followed by a return to protection in which the Republican Fordney-McCumber and

[3] Sources for all the data used in this study are described in the data appendix.

Smoot-Hawley tariffs of 1922 and 1930 are thought to have pushed the average tariff over 50 percent. Successive negotiations under the Reciprocal Trade Agreement Act of 1934 and the General Agreement on Tariffs and Trade (GATT) after 1947, it is believed, then brought the tariff down to about 10 percent.

As a measure of the "average" tariff, this ratio has several conceptual shortcomings. The most serious drawback is its downward bias as a indicator of tariffs: imports subject to high or prohibitive tariffs receive little or no weight in the index. This problem can be surmounted by the laborious task of calculating the average tariff with some appropriate weights other than the current value of imports and keeping these weights fixed over periods in which tariff policy changes.[4] Yet this bias may not be so extensive as to make the tariff revenue measure completely unreliable. Lerdau (1957) calculated an average U.S. tariff index annually from 1909-46 using weights from the wholesale price index. He reported a correlation of 0.88 (which I was able to confirm) between his index and tariff revenue as a share of dutiable imports. This correlation, he concludes (p. 239), "in view of the absence of a significant trend and in view of the considerable amplitude of the fluctuations, must be considered surprisingly high. The use of this cruder index as an indication of changes in the tariff over time is therefore far less suspect than it would appear to be on purely theoretical grounds."[5]

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[4] See, however, the recent approach proposed by Anderson and Neary (1994).

[5] Other fixed-weight indicators of tariff changes yield results that are just slightly higher than those evident from the tariff revenue measure. For the Smoot-Hawley tariff of 1930, for example, the tariff revenue measure increased 17.4 percent between the second halves of 1929 and 1930, a fixed weight calculation by the U.S. Tariff Commission suggests an average increase of 22.7 percent, while Lerdau's index rises 21.0 percent between 1929 and 1931. See Irwin (1996), pp. 3-4.

As an indicator of commercial policy, in terms of legislative or executive changes in rates of import duty, this measure of the average ad valorem tariff rate suffers from spurious volatility: the series moves, sometimes substantially, during periods in which there are no changes in the actual tariff rates. This problem is often thought to be less serious than the bias noted above, but could be more serious if the aim of using the average tariff measure is to identify the effects of commercial policy. This volatility could be due to the dependence of the ad valorem equivalent of specific duties on the level of import prices. That fluctuations in import prices are a plausible source of variation in the average tariff is also illustrated in Figure 1, which includes an index of U.S. import prices. Large changes in import prices are inversely related to major swings in the tariff (the correlation between the two series is -0.93). The substantial increase in import prices during World War I and during and just after World War II coincides with dramatic reductions in the average tariff, for example, while plunging import prices in the early 1920s and again in early 1930s are associated with large increases in the tariff.

Is the highly negative correlation between import prices and the average tariff explained by the use of specific duties? Although data on the importance of specific duties in the U.S. tariff code is difficult to come by, Table 1 presents some limited information compiled from various sources. The table indicates that, from the late 1860s until the 1950s, roughly two-thirds of dutiable U.S. imports were subject to specific or compound duties (with compound duties usually constituting less than 5 percent of dutiable imports). This proportion fell to half by the mid-1960s and to less than 40 percent by the early 1970s. Specific duties raised approximately 40-50 percent of tariff revenue from the late 1860s until 1920, but this share shot up in the early 1920s. By the

1970s, about a quarter of tariff revenue was derived from specific and compound duties.[6] The Tokyo Round of GATT negotiations, concluded in 1979, converted many specific duties to ad valorem duties in the U.S. tariff code.

What explains the heavy reliance on specific duties?[7] The main rationale was apparently administrative simplicity, to avoid the tricky issue of valuing imports and to prevent underinvoicing fraud. However, just as the political parties differed as to the proper height of the tariff for much of this period (Republicans favoring high, protective tariffs, Democrats advocating moderate, revenue tariffs), they differed in their preference for specific and ad valorem duties. From the Morrill Act of 1861, Republicans ensured that most import duties were specific, not ad valorem. In 1888, the House of Representatives (controlled by Democrats) tried to include more ad valorem duties in the tariff code, but the Senate (controlled by Republicans) prevented this action.

The Democrats incorporated more ad valorem rates into the Wilson-Gorman tariff of 1894, but Republicans promptly reversed this move three years later. Democrats again included more ad valorem duties in the Underwood tariff of 1913. Table 1 indicates that the share of specific or compound duties fell from 63 to 42 percent of dutiable imports between 1913 and 1914. But the Republican Fordney-McCumber tariff of 1922 restored and extended the use of specific duties. These specific duties were locked into the tariff code by the Smoot-Hawley tariff

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[6] Roessler (1977) reports that 34 percent of the lines in the U.S. tariff code had specific duties in 1973.

[7] The following paragraphs draw on Taussig (1931) and U.S. Congress (1909), a compilation of numerous Congressional committee reports on tariff legislation during the late nineteenth century.

of 1930, the last tariff act passed by Congress. This act fixed specific duties at nominal amounts circa 1930, and hence their ad valorem equivalent was ripe for an increase through deflation or erosion through inflation in subsequent years.

What issues were involved in the debate over the merits of specific and ad valorem duties? The main Republican argument against ad valorem duties, what they once called "the objection . . . most important," was the incentive given to importers to underinvoice: "Inasmuch as the duty depends on the price, a cheat on the price is a cheat on the duty."[8] Specific duties avoided this problem, which Republicans evidently believed to be rampant, and "have been advocated by all our Secretaries of the Treasury" (with one exception) for their "simplicity and certainty in execution."[9]

Democrats pointed out that specific duties too could be subject to evasion and proposed coupling ad valorem duties with strong enforcement measures.[10] The main Democratic argument against specific duties and in favor of ad valorem duties was equity: that fixed nominal duties placed a heavier burden on lower priced items in any given tariff category and therefore

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[8] U.S. Congress (1913), p. lvii, and U.S. Congress (1909), p. 300. "Through undervaluations [ad valorem duties] invite evasions of the law and reward dishonest importers, while they destroy the businesses alike of honest importers and domestic manufacturers" and enable the fraudulent importer to "escape his fair share of taxation." U.S. Congress (1909), p. 52, and U.S. Congress (1913), p. lvii.

[9] Meanwhile, according to Republicans, the ad valorem tariff "has been condemned by the experience of every commercial nation in the world, by the judgment of those who have been intrusted with the responsibility of customs administration, and by honest importers and merchants, as well as by intelligent political economists and legislators of every shade of economic belief." U.S. Congress (1909), p. 52.

[10] Specific duties require more tariff classifications and "permit slight changes in industrial processes made for the purpose of shifting goods from one classification into another, and thereby avoid the necessity of paying a higher rate of duty." U.S. Congress (1913), p. xxxii.

constituted a regressive tax on consumers.[11] Republicans did not dispute that specific duties were regressive, but saw a silver lining in their "beneficial tendency to exclude from the country inferior, adulterated, and worthless goods."[12] Democrats also believed the lack of transparency of specific duties abetted excessive protectionism.[13]

Both parties recognized that the ad valorem equivalent of specific duties was inversely related to import prices, but thought this a secondary consideration to judge from the Congressional committee reports on the various tariff bills. Republicans liked the protective insurance provided by specific duties against low prices. "When business is depressed and foreign prices abnormally low, when foreign competition is most to be dreaded, and when a defensive barrier is most needed by domestic producers, then ad valorem rates are lowest, production is reduced, and depression intensified." Democrats saw an "injustice" in this feature of a specific duty in that it "fails to take account of fluctuations in value, and it therefore imposes a relatively low rate when prices are high and a relative high rate when prices are low, notwithstanding the

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[11] "A duty which taxes according to kind, pound, weight, measure, or the like, without regard to value, always oppressed the less wealthy consumer and lightens the burden on his richer fellow-citizen." U.S. Congress (1909), p. 292. Democrats once complained that a Republican effort "to restore specific instead of ad valorem rates simply means, no matter what pretenses may be set up, that the goods used by the poor shall be taxed out of all proportion to those used by the rich." U.S. Congress (1909), p. 132.

[12] U.S. Congress (1909), p. 54.

[13] A specific duty "strongly tends to mask the real character and burden of the tariff, and thereby to keep the consumer who pays the cost in ignorance of his real contributions." U.S. Congress (1913), p. xxxii. Democrats once complained that the shift toward more specific duties "render it difficult for the minority to approximate with satisfactory certainty the extent to which tariff taxation is increased or diminished upon the articles included in the various schedules or what effect these changes will probably have upon the amounts of revenues to result from such changes." U.S. Congress (1909), p. 123.

undesirability of such a method."[14]

Whatever their rationale, specific duties have clearly loomed large in the U.S. tariff code over the past century. The next question is one of determining the extent to which changes in the tariff arise from changes in import prices, commercial policies, or other sources of variation.

III. Changes in the Tariff: Prices or Policies?

The aim of this section is to determine the degree to which the changes in U.S. tariffs observed in Figure 1 are due to import price movements or to changes in the actual rates of import duty.

To motivate the issue conceptually, suppose there are two classes of imports, M_1 subject to ad valorem duties and M_2 subject to specific duties (and their associated prices, p_1 and p_2). The average ad valorem tariff rate τ is then defined as $(tp_1M_1 + sM_2)/pM$, or $(1-\alpha)t + \alpha s/p_2$, where t is the ad valorem tariff, s is the specific duty, α is the weight of imports (by value) subject to specific duties, and pM is the total value of (dutiable) imports. It is straightforward to show that if all imports are subject to ad valorem duties alone ($\alpha = 0$), then a change in import prices will not affect the average tariff (i.e., $\partial\tau/\partial p = 0$). If all imports are specific ($\alpha = 1$), then $\partial\tau/\partial p = -s/p^2$. When imports are subject to a combination of duties, and assuming for simplicity that p_2 is perfectly correlated with the overall import price index p, the result is $\partial\tau/\partial p = -\alpha s/p^2$.

Plugging values into this last formula can give an indication of the expected magnitude of the elasticity of the average tariff with respect to import prices. Table 1 suggests that α can be approximated as .65, while the mean value of τ (from 1865-1973, multiplied by 100) is 34. Data

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[14] U.S. Congress (1909), p. 52, and U.S. Congress (1913), p. xxxii.

on s/p, the ad valorem equivalent of specific duties, is less clear: U.S. Tariff Commission estimates for select years during 1913-25 range from a high of 43.06 in 1914 to a low of 10.45 in 1920. The elasticity of the average tariff rate with respect to import prices -- calculated as $(\partial\tau/\tau)/(\partial p/p) = -\alpha s/p\tau$ -- would be about -0.48 if s/p = 25, -0.67 if s/p = 35, -0.86 if s/p = 45.

To separate out the effects of import prices and commercial policies on the average tariff, the econometric approach proposed here is to estimate the following equation:

$$\tau_i = \beta_0 + \beta_1 \ln(p_i) + \Sigma\beta_j D_{ji} + u_i,$$

where $\Sigma\beta_j D_j$ is a series of dummy variables representing various tariff regimes. The semi-log specification allows the elasticity of the tariff with respect to price to be easily determined by dividing β_1 by the mean of τ. This specification also preserves an easy interpretation of the coefficients on the dummy variables in terms of their impact of the average tariff level.

The problem with this specification is that import prices enter directly into the calculation of τ_i and therefore p_i and u_i will be negatively correlated. While this works to reduce β_1, thereby understating the role of prices, it can be corrected by using an appropriate instrument for p_i. Because relative price movements between domestic and imported goods tend not to be very large, domestic wholesale prices might be expected to be a useful instrument.

Table 2 presents econometric results from various regressions in which the dependent variable is always the average ad valorem tariff (multiplied by 100). The sample consists of 109 observations from the years 1865-1973.[15] There are 12 dummy variables representing

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[15] The sample ends just after the Kennedy Round of tariff reductions had been implemented. After 1973, import prices explode while there is virtually no change in the average tariff because inflation over the post-war period had eroded the specific duties to negligible levels. See also Van Cott and Wipf (1983).

administrative changes in tariff rates. The first nine variables are acts of legislation passed by the Congress in which rates of import duty in the tariff code were changed. These span the (unnamed) Tariff Act of 1872 to the Smoot-Hawley tariff of 1930, the last time Congress directly changed the schedule of import duties. The last three dummy variables represent rate reductions resulting from executive agreements with foreign countries: the Reciprocal Trade Agreements Act of 1934 (considered here to be effective from 1936), the General Agreement on Tariffs and Trade (from 1948), and the Kennedy Round (from 1968).[16]

In the first regression (column 1) of Table 2, the dummy variables representing tariff legislation and negotiated trade agreements are taken to be the only factors determining the average tariff. The coefficients indicate the deviation of the average tariff during a given period from the regression intercept. For example, when the McKinley tariff was in effect from 1890-1893, the average tariff was about 47.5 percent ($\beta_0 + \beta_{MK}$). The Democratic Wilson-Gorman tariff (in effect from 1894-96) dropped the tariff nearly 6 percentage points ($\beta_{WG} - \beta_{MK}$) to 41.6 percent, although the Republicans prompted erased this reduction with the Dingley tariff (1897-1908). The Underwood tariff (1913-21) pushed the average tariff to 28.5 percent, a dramatic 13 percentage point drop from the Payne-Aldrich tariff (1909-1912), or 9 percentage points from the Dingley tariff. According to these results, the Fordney-McCumber tariff raised duties about 10 percentage points while Smoot-Hawley added another 11 percentage points, pushing the tariff up to an average 50 percent. The RTAA brought about a 17 percentage point tariff reduction (to 33

[16] While the RTAA involved negotiations with numerous countries over several years, the most important tariff reductions were implemented in 1936-38, with virtually no negotiations thereafter. Similarly, while three GATT negotiating rounds were held between the first at Geneva in 1947 and the Kennedy Round (1962-67), they were held mainly to add new members and resulted in negligible reductions in U.S. tariffs.

percent), the GATT added another 21 percentage point reduction (to 12 percent), and the Kennedy Round another 2 percentage points to 10 percent. But in attributing all changes in the tariff to rate changes and none to import price fluctuations, this regression attributes too much to these acts of policy.

The regression in column 2 introduces import prices. The coefficient on the log of import prices is negative, reflecting the inverse relationship between import prices and the ad valorem equivalent of specific duties, and is highly significant with a t-ratio of over 10. Import prices boost the explained variation of tariffs (adjusted R^2) from 0.94 to 0.98. The coefficient on import prices implies an elasticity of the average tariff with respect to import prices of -0.61, within the expected range calculated above. This elasticity indicates that a 1 percent increase in import prices will reduce the average tariff by 0.61 percent. Consequently, changes in import prices can bring about substantial changes in the average tariff, particularly in view of the magnitude of the observed swings in import prices.

The addition of import prices also changes the sign, magnitude, and significance of several of the commercial policy dummy variables as prices absorb what was wrongly attributed to changes in tariff rates in the initial regression. For example, the coefficient on Underwood falls from -19.0 to -15.3, implying a 6 percentage point tariff reduction from Payne-Aldrich rather than the 13 percent estimated without import prices. Similarly, the coefficient on the GATT period falls from -35.4 to -21.6, suggesting a modest 5 percentage point reduction in tariffs beyond import price increases rather than the 21 percent reduction mentioned earlier.

As previously noted, however, import prices may be correlated with the error term, biasing β_1 downward. The regression in column 3 uses U.S. wholesale prices as an instrument for

import prices. IV estimation raises the coefficient on price to an implied elasticity of -0.67. There is little change in the size or significance of the commercial policy dummy variables from the previous specification. There are indications of autocorrelation, and while this does not introduce bias it results in less efficient estimates. The regression in column 4, which instruments for import prices and estimates the equation using Cochrane-Orcutt generalized least squares, yields virtually an identical elasticity estimate.[17]

Figure 2 plots the actual tariff and predicted tariff from the column 1 regression (which includes just commercial policies) and the actual tariff and the predicted tariff from the column 3 regression (which includes commercial policies and import prices). The top panel illustrates how significant variation in the tariff is not captured by Congressional or negotiated tariff policies alone. The addition of import prices, shown in the bottom panel, improves the fit of the model by accounting for important variations in the tariff that the commercial policy variables could not.

The regression in column 3 can be used to decompose the relative contribution of import prices and commercial policies to four dramatic swings in the average tariff -- the increase from 38.1 percent in 1873 to 52.4 percent in 1899, the subsequent decrease to 16.4 percent in 1920, the following increase to 59.1 percent in 1932, and finally the decrease to 11.6 percent in 1954. Tables 3 and 4 present results from the following exercise: using the estimated coefficients from the column 3 regression, calculate the predicted tariff holding import prices constant (but allowing the tariff acts to continue), and then again holding the initial tariff in place (but allowing import prices to fluctuate). In other words, calculate the predicted tariff between 1873-99, 1899-1920, 1920-32, and 1932-51 assuming, first, no change in import prices and then, second, no change in

[17] In a first-difference specification (not reported), the implied elasticity is -0.53.

tariff rates within the period under consideration. Table 3 shows the predicted tariff and the forecast standard error (in terms of the 95 percent confidence interval). The first thing to note is that import prices and commercial policies are not offsetting but are reinforcing influences on the average tariff. That is, the average tariff fell during 1899-1920 and 1932-54 due both to reductions in tariff rates and rising import prices, with the opposite the case in 1873-99 and 1920-32.

Table 4 shows the relative contribution of import prices and commercial policies to the tariff. The model does not fit the trough and peak of the tariff well in 1873-99, but does indicate that the tariff's rise was almost entirely due to falling import prices. The results from 1899-1920 indicate that about three-quarters of the almost 70 percent fall in the tariff can be attributed to rising import prices. Had there been no change in import prices, legislative tariff changes would have resulted in only a 20 percent drop in the tariff. One problem with considering the counterfactual in this way is that the timing and extent of changes brought about by tariff legislation may be dependent upon changes in prices. If import price inflation had not significantly reduced the average tariff, for example, then perhaps the legislated tariff reductions would have been more substantial.

With this caveat in mind, the results are similar for the dramatic tariff increase observed over 1920-32. Over two-thirds of the increase can be attributed to falling import prices during the early 1920s and again in the early 1930s.[18] Legislated tariff changes, the Fordney-McCumber tariff of 1922 and the Smoot-Hawley tariff of 1930, raised the tariff only about 44 percent

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[18] This result is close to the Irwin (1996) estimate on the relative contributions of the Smoot-Hawley rates and deflation to the tariff's rise during 1929-32.

according to these results. Another remarkable finding is that most (again roughly two-thirds) of the subsequent drop in the tariff from 1932-54 can be attributed to rising import prices. The RTAA and the GATT made important contributions to tariff reduction, but it was mostly accomplished by rising import prices during the 1940s and early 1950s. Furthermore, the average tariff was quite low, about 11 percent, by the early 1950s and was significantly reduced again only in the early 1970s (to about 5-6 percent) when import prices skyrocketed. Table 4 also reports that, over the postwar period from 1945-67, higher import prices account for over 80 percent of the fall in tariffs.

The U.S. Tariff Commission recognized that the erosion of specific duties during the 1940s contributed significantly to tariff reduction. In a report published just after the formation of the GATT, the USTC (1948, p. 18) observed that "prices of import goods have risen greatly during the last two decades, and this fact alone would have cause a marked reduction in the average rate of duties actually collected in recent years compared with earlier years because of the effects of higher prices on the ad valorem equivalents of the specific and compound duties. (Imports subject to such duties together account for about two-thirds of total dutiable imports.)"

The USTC (1948, pp. 19-20) also attempted to determine the relative importance of trade agreements and higher import prices in reducing the U.S. tariff from 1930-33 to 1948:

> "Two major factors have been chiefly (if not wholly) responsible for this reduction in the average rate of duty -- the trade agreements concessions and the advance in prices of articles subject to specific or compound duties. (Changes in the composition of imports may have affected the averages to some extent, but the direction of the effect is not known.) It is impossible to determine exactly the relative importance of these two main factors, but it seems probable that they have been not far from equal in their effects."

The USTC then presented a crude calculation to substantiate the judgment that higher import

prices and negotiated duty reductions contributed equally in bringing the average tariff to its 1948 level.

The econometric model estimated here confirms the USTC's judgment about the relative effects of trade agreements and higher import prices for the period they considered (1930-33 to 1948). The coefficients from the column 3 regression in Table 2 imply that the RTAA and GATT (holding import prices constant) would have reduced the tariff by 34 percent from 1931 (close to the average 1930-33) to 1948, while higher import prices (holding the Smoot-Hawley tariff in place) would have reduced the tariff by 32 percent. Thus, trade agreements contributed just as much as higher import prices (in fact slightly more) to tariff reduction from the early 1930s to 1948.[19]

The changes in 1947-48 alone dramatize the impact of higher import prices and lower negotiated duties on the average tariff. The USTC (1948, p. 18) calculated that had the tariff cuts from the first GATT round in Geneva (finalized in October 1947, implemented in January 1948) been applied to actual imports in 1947, the average tariff would have declined 21 percent, from 19.4 percent to 15.3 percent. The average tariff in 1948 turned out to be 13.9 percent and higher import prices fully account for the difference. Import prices rose 10.5 percent between 1947 and 1948, which -- given our estimated elasticity of -0.67 -- would have reduced the tariff by 7.0 percent. Applying both the 21 percent reduction due to the GATT negotiations and the 7 percent reduction due to higher import prices to the 1947 tariff of 19.4 percent yields exactly 13.9

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[19] The calculations in Tables 3-4 attribute more to rising import prices because they start from the tariff peak in 1932 and end in the mid-1950s, allowing more time for higher import prices to reduce the tariff further below its 1948 level. By the chosen endpoint of 1954, import price inflation had stabilized and the average tariff leveled off at about 10-11 percent, where it remained until the early 1970s.

percent. So in this one pivotal year, fully a third of the U.S. tariff reduction was due to higher import prices. Over time, of course, the cumulative effect of higher import prices dominated the sporadic, negotiated rate reductions in bringing about lower U.S. tariffs after 1932.

Because it was widely believed that a return to the early 1930s-style deflation could not be ruled out after the war, Congress and import-competing interests probably did not fully anticipate the inflation-induced reduction in tariffs. The USTC (1948, p. 20) thought it "impossible to forecast, even roughly, the prices of imported goods a few years hence." Yet import prices rose 81.4 percent between 1945 and 1955, most of which occurred in the five years after the end of the war, making the lower tariff a fait accompli by 1950. Were policymakers aware of the erosion of specific duties due to import price inflation? The USTC's discussion was not buried deep in its report, but neither was it highlighted. During the late 1940s and early 1950s, trade policy debates in Congress mainly focused on the type of constraints that should be included in legislation extending the President's negotiating authority. I have been unable to find evidence that Congress was generally aware or deeply concerned about the erosion of the specific duties, as might be suggested by proposals to offset the impact of inflation by enacting higher tariffs or to stem its effects by converting specific duties into ad valorem duties.

These findings must, to some extent, change our view of the postwar U.S. trade liberalization. The bulk of the U.S. tariff reduction was brought about not through the arduous task of negotiating rate reductions at the bargaining table, but through the silent and gradual erosion of specific tariffs through inflation. Although this erosion was permitted to run its course without interference, the resulting tariff reductions were not the result of deliberate policy decisions, but a by-product of the century-old Republican preference for specific over ad valorem

duties that was frozen into the tariff code by the Smoot-Hawley tariff of 1930.

IV. The Antebellum Tariff, 1821-1860

The overwhelming importance of import prices in determining the average tariff in the century after the Civil War raises the question of its importance in the antebellum period. Specific duties were used extensively from the first tariff in 1789 until the Walker tariff of 1846, which replaced all specific duties with lower ad valorem duties. The tariff act of 1857 retained the exclusive use of ad valorem duties, although the Morrill tariff of 1861 reintroduced specific duties in the tariff code. For this reason, import prices were probably not as important a determinant of the average tariff in the antebellum period.

Table 5 confirms this suspicion. Using data from 1821-60, regressions similar to those performed above yield a coefficient on the log of import prices similar to that found for the century after the Civil War, but it is statistically insignificant. When the sample period 1821-45 is considered, the coefficient is -64.5 (with a standard error of 49.2); when the sample period is 1847-60 (when ad valorem duties were used exclusively) the coefficient is -0.3 (with a standard error of 3.4). This last finding illustrates that import prices are not a source of variation in the tariff when they are comprised of just ad valorem duties.

V. Conclusions and Implications

For most of the century following the Civil War, roughly two-thirds of dutiable U.S. imports were subject to specific duties whose ad valorem equivalent was inversely related to the level of import prices. This paper finds that changes in import prices were three to four times

more important than changes in the actual rates of import duty in altering the tariff over the course of the century. Tariff changes were not determined as much by the policy actions of legislators and negotiators, but by fluctuations in import prices. One possible reason for the benign neglect of policymakers is that changes in import prices were pushing the tariff in the same direction as policy. The deflation of the early 1920s and 1930s coincides with the higher tariff rates in the Fordney-McCumber and Smoot-Hawley tariffs, while the inflation from the mid-1930s coincides with a trade agreements program designed to reduce tariffs. Policymakers did not need to take actions offsetting the effects of import prices on the tariff because price movements did not conflict with the direction in which policy was pushing tariff rates.

"Tariff cycles," the negative correlation between the tariff and the business cycle, is an empirical regularity in the literature on the political economy of trade policy (see, for example, Bohara and Kaempfer [1991]). The standard interpretation is to view the tendency of tariffs to rise when unemployment rises and real GNP and the GNP deflator fall as reflecting the endogenous determination of tariff rates in the political market, where politicians are responding to the pressures of import-competing interests. This paper implies that this correlation is not entirely the result from political pressures that endogenously determine the tariff (particularly since the tariff was changed only every seven years, on average, between 1865 and 1930), but more from the use of specific duties which automatically gives rise to this phenomena. Thus, the tariff cycle partly reflects a form of "path dependence" in which a political choice was made decades ago to favor specific rather than ad valorem rates of duty as the principal method of levying taxes on imports.

Data Appendix

Average Tariff (tariff revenue as share of dutiable imports):

1821-1970, series U 212 from U.S. Bureau of the Census (1975).

1971-73, from U.S. Bureau of the Census (1974), p. 801.

Import Prices (unit value of imports):

1821-1860, from North (1960), pp. 607-608.

1865-1878, from Simon (1960), p. 652.

1879-1970, series U 238 from U.S. Bureau of the Census (1975).

1971-1973, from U.S. Bureau of the Census (1974), p. 791.

Wholesale Prices:

1821-1889, series E 52 from U.S. Bureau of the Census (1975).

1890-1970, series E 23 from U.S. Bureau of the Census (1975).

1971-1973, from U.S. Bureau of the Census (1974), p. 407.

Years of Tariff Acts:

1821-1930, from Taussig (1931).

Table 1: Specific Duties in U.S. Imports

Year	Share of Dutiable Imports subject to specific or compound duty	Share of Tariff Revenue from specific and compound duties	Equivalent Ad Valorem Rate of Specific Duties	Source
1867	55.5	58.0	N.A.	McGuire (1990, p. 635)
1876	63.4	46.3	N.A.	Ibid.
1913	63.3	42.8	23.5	USTC (1924, p. 14)
1914	42.2	51.8	43.1	Ibid.
1920	69.0	45.7	10.5	Ibid.
1925	64.9	64.8	35.8	USTC (1927)
1939	67	N.A.	N.A.	Durand (1964, p. 14)
1951	75	N.A.	N.A.	Ibid.
1964	52.2	N.A.	N.A.	USTC (1966)
1972	37.0	26.1	5.9	Van Cott and Wipf (1983, p. 729)

Note: Data for 1913 are for the fiscal year when the 1909 tariff was in effect. Data for 1914 are when for the Underwood tariff was in effect.

Table 2: Determinants of the Average Ad Valorem U.S. Tariff Rate

Dependent Variable: Tariff Revenue/Dutiable Imports X 100.

	(1) OLS	(2) OLS	(3) IV	(4) IV-GLS
Constant	47.51 (0.63)	128.87 (6.68)	135.9 (8.82)	91.63 (6.54)
Log of Import Price	--	-20.91 (1.71)	-22.71 (2.21)	-22.53 (2.42)
Act of 1872	-5.48 (0.91)	-6.41 (0.96)	-6.49 (1.04)	-5.48 (1.56)
Act of 1883	-2.46 (1.01)	-6.47 (1.01)	-6.81 (1.17)	-5.73 (1.75)
McKinley (1890)	-0.05 (1.25)	-4.22 (1.29)	-4.58 (1.42)	-3.42 (2.18)
Wilson-Gorman (1894)	-5.92 (0.88)	-13.23 (1.07)	-13.86 (1.34)	-12.19 (1.66)
Dingley (1897)	0.13 (1.19)	-5.29 (1.13)	-5.76 (1.31)	-5.14 (1.80)
Payne-Aldrich (1909)	-5.96 (0.85)	-9.38 (0.82)	-9.67 (0.99)	-8.89 (1.75)
Underwood (1913)	-18.95 (2.61)	-15.32 (1.24)	-15.01 (1.23)	-13.72 (2.05)
Fordney-McCumber (1922)	-9.34 (0.79)	-5.42 (1.04)	-5.09 (1.07)	-4.62 (1.77)
Smoot-Hawley (1930)	2.51 (2.55)	-6.43 (2.21)	-7.20 (2.51)	-6.79 (2.77)
RTAA (1936)	-14.58 (1.91)	-16.64 (0.94)	-16.82 (1.02)	-15.62 (1.65)
GATT (1948)	-35.44 (0.65)	-21.60 (1.42)	-20.41 (1.57)	-19.59 (2.19)
Kennedy Round (1968)	-37.66 (0.79)	-19.42 (1.78)	-17.85 (2.01)	-18.18 (2.53)
Adj.R^2	0.94	0.98	0.98	0.96
DW	1.06	1.33	1.34	1.63

Note: Time period: 1865-1973. N = 109. The mean of the dependent variable is 34.13. Standard errors (corrected for heterskedasticity) in parenthesis.

Table 3: Actual and Predicted Tariffs

Year	Actual Tariff	Predicted Tariff	Predicted Tariff (Tariff Acts Alone, Import Prices Constant)	Predicted Tariff (Import Prices Alone, Tariff Acts Constant)
1873	38.1	40.6	--	--
1899	52.4	48.9	41.2 (36.7-45.7)	48.3 (43.4-53.2)
1920	16.4	16.9	39.9 (35.6-44.0)	25.9 (21.3-30.5)
1932	59.1	54.0	24.3 (19.0-29.4)	46.6 (41.4-51.7)
1954	11.6	11.2	41.5 (37.4-45.6)	23.8 (19.9-27.8)

Note: 95 percent confidence interval in parenthesis below predicted tariffs.

Table 4: Contribution of Regressors to Major U.S. Tariff Changes

Time Period		Actual Tariffs	Fitted Tariffs	Tariff Acts Alone (import prices constant)	Import Prices Alone (tariff acts constant)
1873-1899	Percentage Change	+38	+20	+1	+19
	Fraction Explained	100	54	4	51
1899-1920	Percentage Change	-69	-66	-20	-47
	Fraction Explained	100	96	29	68
1920-1932	Percentage Change	+260	+223	+46	+180
	Fraction Explained	100	86	17	69
1932-1954	Percentage Change	-80	-80	-23	-56
	Fraction Explained	100	99	29	70
1945-1967	Percentage Change	-60	-62	-13	-49
	Fraction Explained	100	108	22	86

Note: Figures may not add due to rounding.

Table 5: Determinants of the Average Ad Valorem U.S. Tariff Rate

Dependent Variable: Tariff Revenue/Dutiable Imports X 100

	(1) OLS	(2) IV
Constant	42.73 (2.56)	148.88 (68.83)
Log of Import Price	--	-21.78 (14.13)
Act of 1824	8.22 (2.72)	5.31 (3.02)
Act of 1828	9.97 (4.15)	4.68 (4.95)
Act of 1832	0.23 (2.56)	-6.51 (4.86)
Act of 1833	-6.62 (2.95)	-13.67 (5.63)
Act of 1842	-11.15 (3.52)	-22.00 (7.71)
Act of 1846	-15.52 (2.65)	-26.64 (7.32)
Act of 1857	-21.70 (2.68)	-30.45 (6.27)
Adj. R^2	0.87	0.86
DW	2.25	2.04

Note: Time Period: 1821-1860. N = 40. The mean of the dependent variable is 35.51. Standard errors (corrected for heteroskedasticity) in parenthesis.

Figure 1

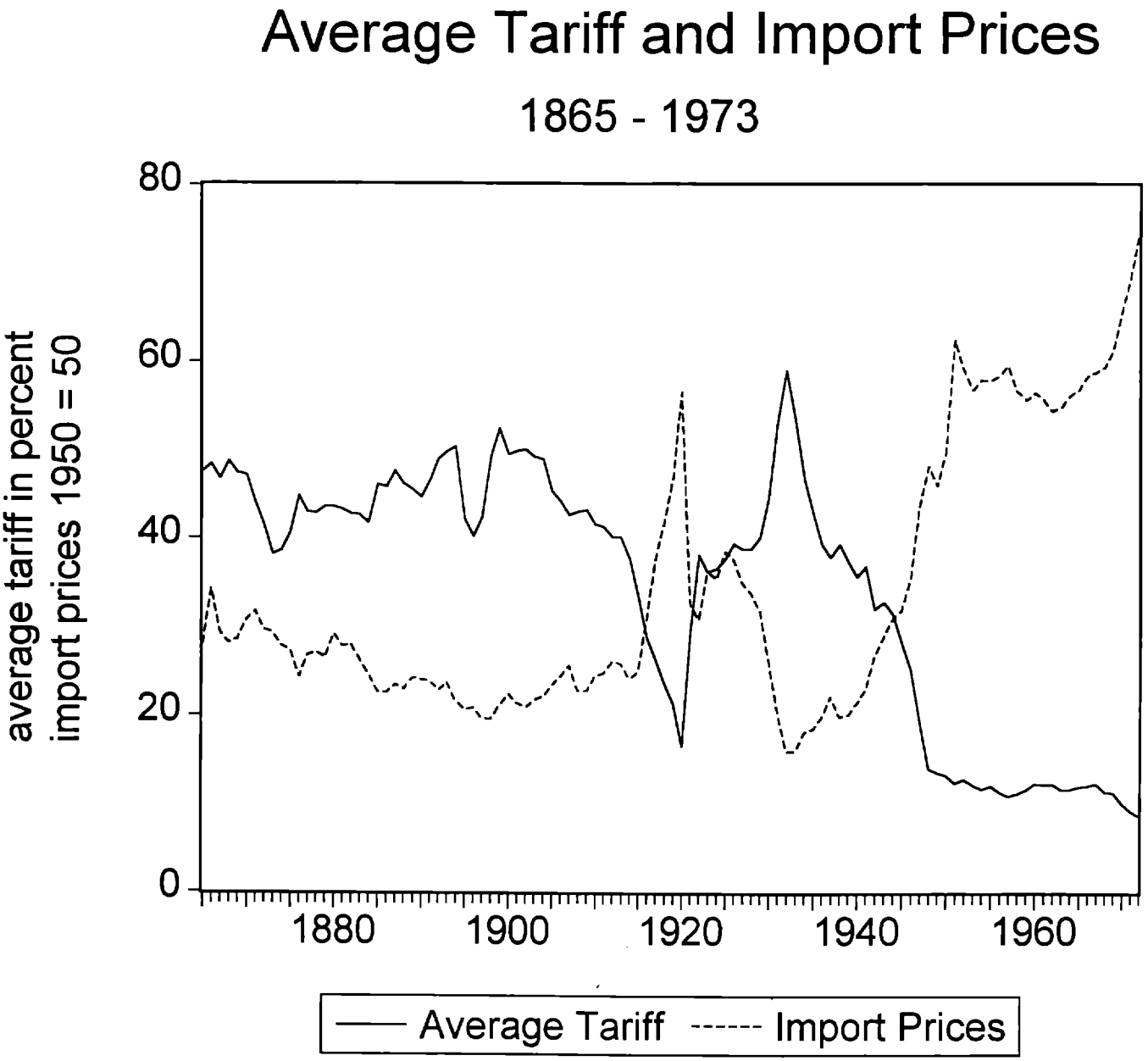
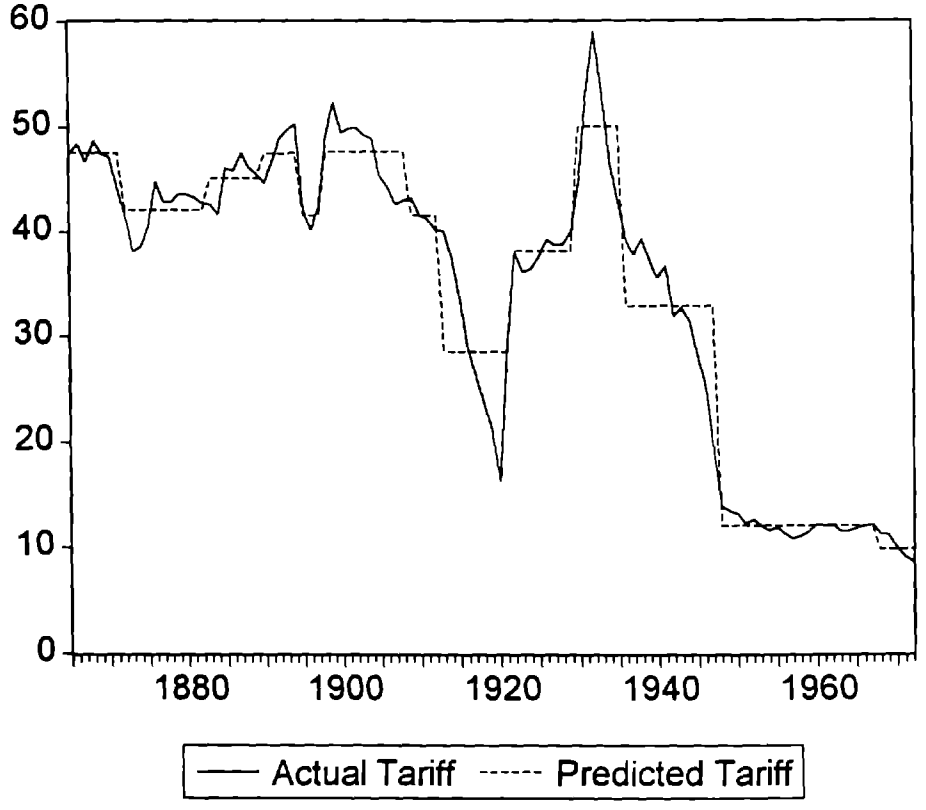
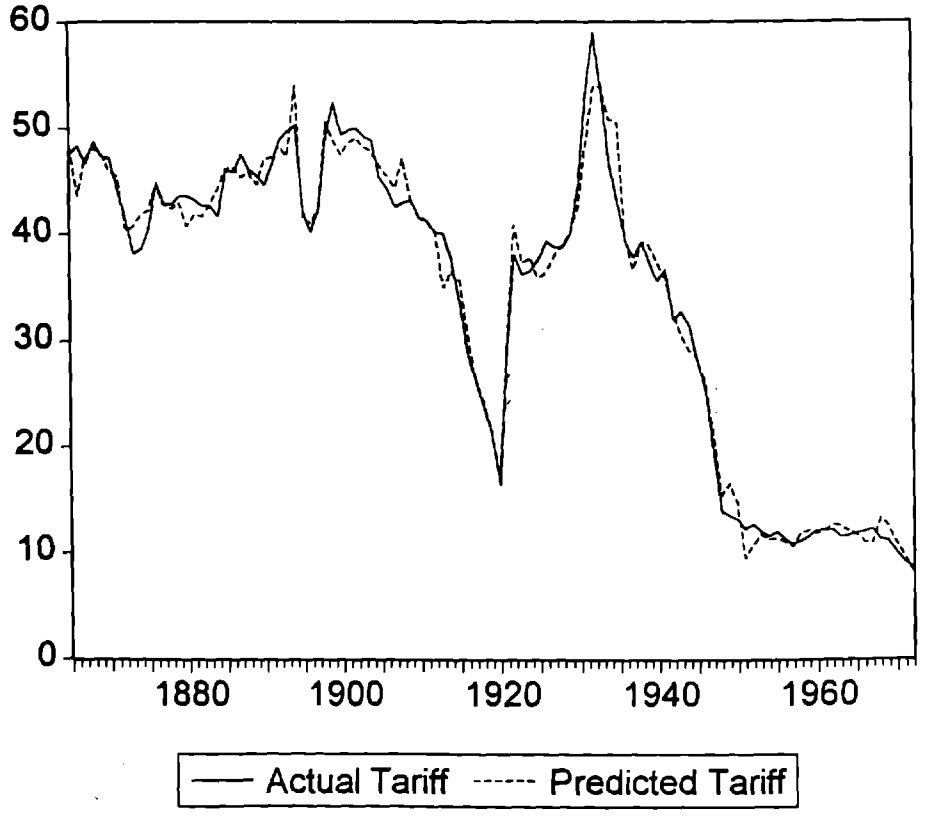

Average Tariff and Import Prices
1865 - 1973
average tariff in percent
import prices 1950 = 50
80
60
40
20
0
1880
1900
1920
1940
1960
Average Tariff
Import Prices

Figure 2: Actual and Predicted Average Tariff





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