THE GATT'S STARTING POINT:
TARIFF LEVELS CIRCA 1947

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ABSTRACT

How high were import tariffs when GATT participants began negotiations to reduce them in 1947? Establishing this starting point is key to determining how successful the GATT has been in bringing down trade barriers. If the average tariff level was about 40 percent, as commonly reported, the implied early tariff reductions were substantial, but this number has never been verified. This paper examines the evidence on tariff levels in the late 1940s and early 1950s and finds that the average tariff level going into the first Geneva Round of 1947 was about 22 percent. We also find that tariffs fell by relatively more in the late 1940s and early 1950s for a core group of GATT participants (the United States, United Kingdom, Canada and Australia) than they did for many other important countries, including the set of other (non-core) GATT participants.

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1. Introduction

The General Agreement on Tariffs and Trade (GATT) is usually given substantial credit for the liberalization of world trade that took place after World War II. At the time it was formed in 1947, barriers to world trade were considerable. The Great Depression of the 1930s saw the imposition of higher tariffs, tighter import quotas, foreign exchange controls, and discriminatory trade arrangements around the world (Irwin 2012). World War II brought additional governmental controls on foreign trade. Had they remained in place, these restrictions would have stifled the growth of world trade in the postwar period, and presumably slowed the economic recovery from the war.

Of course, as is well known, leading countries met in Geneva in 1947 to address this state of affairs. They negotiated tariff reductions and reached an agreement regulating the use of trade policies. Three subsequent negotiating rounds expanded the number of GATT participants (notably adding Germany and Japan) and reduced tariffs further. By the start of the Kennedy Round in 1964, average tariffs for the major players in the GATT – the United States, the European Economic Community (EEC), Japan, and the United Kingdom – were about 15 percent.

But what were the average tariff levels immediately prior to the establishment of the GATT at the eve of the Geneva conference in 1947? Because tariff compilations from this period do not exist, the starting point of the GATT has never really been determined. A frequently cited figure is that average tariffs in 1947 were 40 percent; this figure can be traced back as far as the World Bank's flagship *World Development Report* for 1987, which stated

> From the end of World War II until 1974, protectionism seemed to be in decline. Successive rounds of negotiations in the GATT had cut tariffs on trade in manufactures – from an average level of 40 percent in 1947 to between 6 and 8 percent for most of the industrial countries – even before the last round of multilateral trade negotiations (the Tokyo Round, 1974-79) had taken place. (World Bank 1987, 134-35)

A 40 percent figure for average tariffs in 1947 would imply that the first 15 years of GATT negotiations made enormous progress in reducing applied tariffs. Unfortunately, although this figure has been widely cited, no source was provided and it has never been verified. By

contrast, the World Trade Organization (2007, 207) later suggested average tariffs at the time of the GATT's founding were "situated in a range between 20 and 30 per cent," implying that early applied tariff reductions were more modest.

The initial level of the average applied tariff matters for how we assess the GATT's early success in reducing tariffs. Going from 40 percent in 1947 to 15 percent in 1964 is quite different from going from 20 percent to 15 percent.

Determining the GATT's actual starting point is also relevant to a growing body of contemporary research, both theoretical and empirical, that seeks to provide conceptual foundations for the role and impact of the GATT and WTO, as well as to provide empirically-based estimates of their impact.[1] First, such pre-GATT tariff estimates may be a useful benchmark to compare against the non-cooperative Nash tariff that one might calculate in a computational model as the outcome of a multi-country "trade war." For example, Ossa (2014, p. 4122) finds in his seven-country computational model that the "median Nash tariff across all countries is 58.1 percent which is remarkably close to the average tariff of 50 percent typically reported for the trade war following the Smoot-Hawley Tariff Act of 1930." Second, such estimates are important for understanding and contextualizing the outcomes of negotiations under the early GATT Rounds, the micro-level bargaining analysis of which is subject to research given newly available de-classified data (for the Torquay Round of 1951, see Bagwell, Staiger and Yurukoglu 2015).

In this paper we review the scattered and incomplete evidence on tariff levels circa 1947 in an attempt to pin down the GATT's starting point. We provide some new evidence on tariff levels and perform some new calculations (such as backcasting tariff rates from the 1960s) to shed light on the likely height of tariff barriers in place at this time. Our results indicate that average tariff levels for the major GATT participants were about 22 percent, much lower than the oft-cited 40 percent figure. This leads us to the conclusion that the tariff reductions negotiated in the initial GATT rounds had a modest impact on average tariff levels. We also provide statistical evidence on whether the early GATT participants experienced noticeable reductions in their average tariffs as a result of the first negotiating rounds. Here we find some

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[1] Recent surveys include Bagwell, Bown and Staiger (forthcoming) and Anderson (forthcoming).

evidence of lower tariffs resulting for the GATT core of the United States, United Kingdom, Canada, and Australia, relative to other contracting parties and non-GATT participants.

Finally, and although we find that the reduction in the average applied tariff before the Kennedy Round was apparently modest, this does not lead us to conclude that the GATT's early contribution to trade liberalization was unimportant. For in addition to facilitating applied tariff reductions, the early GATT accomplished many things, most of which are arguably much more difficult to measure and thus to capture empirically in summary statistics. These would include binding the negotiated tariff reductions for an extended period (made more permanent in 1955), establishing the generality of nondiscrimination through most-favored nation (MFN) treatment and national treatment, ensuring increased transparency of trade policy measures, and providing a forum for future negotiations and for the peaceful resolution of bilateral disputes. All of these elements contributed to the rationalization of trade policy and the reduction of trade barriers and policy uncertainty. The focus of this paper is simply on one element of the GATT's contribution, the reduction in average applied tariff levels.

2. Methods for measuring average tariff levels

Before presenting data on tariff levels for the period, the term "average tariffs" deserves discussion. There is no unique way of measuring the level of a country's tariff or comparing tariff levels across countries. In this section we therefore introduce the predominant approaches and discuss the tradeoffs associated with each.

2.1 Trade-weighted average tariffs

The easiest method for calculating average tariffs is to simply use the weighted average tariff, where the weights are the value of imports. This average tariff measure is straightforward to construct because it can be readily calculated from only two pieces of aggregate-level data for a country: it is defined as the value of a country's total customs revenue divided by the value of its total imports. Because data on these two components are frequently available, this measure can be easily calculated even without requiring access to the individual, product-specific rates of

duty in the country's tariff code. For the United States, for example, data is reported on both the trade-weighted average tariff on total imports and the trade-weighted average tariff on dutiable imports.[2]

The most important problem with the import-weighted average tariff measure is its downward bias. Because imports of goods subject to high duties will be very small, those duties will receive low weights in the index; prohibitive duties will receive no weight in the calculation at all. An alternative approach to trade-weighting would be to use the imports of 'someone else' (e.g., the rest of the world) as opposed to the importing country itself, in order to construct the weights used in the measure. Of course, the major problem concern introduced by such an approach is that the measure is then no longer easily calculable from the readily available, aggregate-level customs revenue and total import value data. That is, such an approach would require detailed information on product-level tariff rates and product-level imports (of the 'someone else') and this would also require that the products be categorized under the same classification scheme across countries. As we describe in more detail below, achieving a product-level classification scheme consistently defined across countries is a relatively recent (late twentieth century) historical phenomenon.

Second, in comparing the tariff levels of two countries, a higher trade-weighted average tariff does not necessarily mean that trade is more restricted or that it imposes a greater welfare cost than a lower tariff. The Anderson and Neary (2005) "trade restrictiveness index" is an alternative method, albeit a fairly complicated and computationally challenging one, that attempts to deal with these problems in order to draw economic inference from measures of import protection.[3]

Third, for the inter-temporal assessment of tariff policy changes, another problem with relying on trade-weighted averaging especially is that the weights (imports) may change from year-to-year for reasons that are completely independent of *policy* changes. For example, a

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[2] These two measures often diverge substantially because many imports are given duty free status in the tariff code. Unfortunately, other countries do not report the average tariff on dutiable imports, which might be a more accurate indication of a country's protective duties on imported manufactures. Lloyd (2008) reports such data for Australia.

[3] Empirical applications and estimating such trade restrictiveness indices on contemporary tariff data include Kee, Nicita and Olarreaga (2008, 2009) and Kee, Neagu and Nicita (2013) and on US historical tariff data includes Irwin (2010).

negative supply shock abroad (drought, floods, etc.) could lead to a severe decline in imported quantities of certain products that will affect the relative weighting. This could similarly result from product- or industry-specific (positive or negative) demand shocks at home. For this reason, it is often difficult to interpret changes in the import-weighted average tariff as necessarily reflecting a change in commercial policy that would arise through changes to the official tariff rates.

2.2 Simple average tariffs

A second approach is to simply take an unweighted average of all tariff rates across all products within a country. However, unlike the trade-weighted average which can be calculated solely from data on customs revenue and the total value of imports, calculation of even the simple average requires much additional information. Furthermore, even if the problems of the availability of such additional information can be overcome (so that the measure can be constructed), there remain difficulties in drawing inference from cross-country and inter-temporal comparisons of simple average tariffs.

The first requirement for construction of a simple average tariff is the conversion of all non-ad valorem tariffs – e.g., specific duties, compound rates, etc. – into ad valorem equivalent rates. This requires, at a minimum, additional information on import prices.

The second requirement is of access to detailed, consistently-defined, product-level tariff rates listed in the tariff code. If the unweighted average is simply an arithmetic average of the duties in the individual lines in the tariff code, the calculation is potentially misleading if there are many rates for a small number of imports and few rates for the broadest base of imports.[4] Thus it may be difficult to compare across countries if two countries do not have the same nomenclature defining the scope of products and tariff lines. The Brussels tariff nomenclature (BTN) was not established by the Customs Co-operation Council until December 1950 and slowly came into use during that decade. It is only after this time that disaggregated tariff averages could be usefully compared across countries. The lack of something comparable for the

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[4] To take an extreme example, if a country has only two tariff lines and two rates of duties, 100 percent on imported rhinoceroses and 0 percent on everything else, the average duty is 50 percent because every duty gets a weight of 1/n in the calculation where n is simply the number of tariff lines.

early post-war era is likely to severely hamper any "bottoms up" effort to generate average tariff measures that would build from the product level. And, of course, the United States never adopted the BTN.

The concerns associated with this second requirement are particularly relevant for trade policy analysis even until 1988, the point at which the major trading economies finally introduced and adopted the common, Harmonized System (HS) for product-level tariff classification.[5] One of the resulting benefits has been to make such accounting exercises for constructing measures of average tariffs potentially more meaningful across countries and over time; however, it is important to note that this innovation did not arise until relatively late in the twentieth century.

Finally, in addition to there being no ideal weighting scheme to comprise a tariff index or tariff average, it is also important to note that even basic information on tariffs was not readily available in the 1930s and 1940s.[6] While the United States was transparent about its tariff code, this was not the case for most other countries. And for the tariff schedules of the leading countries that may have existed, no government or international organization made the effort to present a compilation of rates that are comparable across countries. Only by the Kennedy Round in the 1960s did GATT negotiators have access to detailed figures about average tariffs using various weighting schemes. We will show later how the different calculations under these schemes affect the reported tariff averages.

3. Initial evidence based on trade-weighted and simple average tariffs

Unlike today, there was no GATT or WTO secretariat in 1947 that could present compilations and summary statistics on the tariff codes of the participating governments. In addition, it is only recently that official, declassified documents have begun to be made publicly available so as to

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[5] Since 1988, the Harmonized System has adopted a definition of roughly 5200 products that are common at the 6-digit level across all countries. The products at the 6-digit level are also consistently defined over time, subject to revisions – e.g., taking place in 1996, 2002, 2007, and 2007 – that have changed the definition of upwards of 200 products at each revision.

[6] The League of Nations (1927) presented some tariff index numbers in preparation for the 1927 World Economic Conference.

allow researchers to potentially judge the results of the first few GATT rounds.[7] Thus this section describes some sources that we can use to fill in the gaps in our knowledge until such tariff schedules of different countries are analyzed in greater detail.

3.1   Trade-weighted average tariffs in 1947 and peak tariffs over 1929-1947

Table 1 presents the first set of evidence, which is based on the import-weighted average tariffs for 1947 and other selected years over the 1929-1964 period for the main GATT participants as well as a number of other major economies for which data is available.[8]

The column for 1947 (Geneva) lists the average tariff in that year and indicates relatively low tariffs of under 10 percent for most of the countries. By this measure, India and Canada have tariffs of about 11 percent, New Zealand at about 20 percent, Australia nearly 30 percent, and the United Kingdom at more than 40 percent.

The average tariff levels were lower in 1947 (even before the first GATT tariff reductions had been negotiated and implemented) than in 1939 for all reported countries with the exception of New Zealand, Peru, Spain and the United Kingdom. Thus, in terms of tariffs, the situation appears to have improved in the immediate postwar period relative to the prewar period. The lower postwar duties may be due to inflation and specific duties; this is certainly the case for the United States, but the degree to which other countries used specific duties is not as well known. Of the exceptions, the substantially higher average tariffs for the UK may be due to fiscal reasons. However, and with the exception of the UK, the data presented in Table 1 do not suggest average tariffs in 1947 were close to 40 percent for any of these countries.

Another possibility is that countries had already reduced their average tariffs substantially by 1947, and so scholarly reference to "pre-GATT" tariffs at rates of 40 percent or more had in mind the peak levels that took place either during, or in the aftermath of, the Great Depression.

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[7] The results of the first bilateral negotiations have recently been posted on the WTO website: https://www.wto.org/english/docs_e/gattbilaterals_e/indexbyround_e.htm . Nevertheless, even eventual analysis of detailed tariff schedules in place at the time will still run into the averaging "problems" described in the last section that are associated with inconsistent product nomenclatures across countries and over time.

[8] The average tariff is calculated as the value of customs revenue divided by the value of imports. Like Clemens and Williamson (2004), our source is *International Historical Statistics* (Palgrave Macmillan, 2013) originally compiled by Brian Mitchell and now edited and updated by Palgrave Macmillan.

We examine this possibility as Table 1 also reports the peak level for the trade-weighted average tariff by country over the 1929-1947 period. However, while the peak levels were significantly higher than 1947 (or even 1939) levels for most all countries, for only five (Australia, India, New Zealand, Portugal and UK) of the 25 countries in Table 1 did the peak average tariff even reach 40 percent.

For the United States, the average import-weighted tariff on total imports was 8.2 percent in 1947 and the peak trade-weighted tariff in the United States over the 1929-1947 period reached 24.4 percent in 1932. One contributing explanation as to why the U.S. average tariff in 1947 is so low is because 61 percent of imports (by value) at the time were duty free (USITC, 2014). The U.S. International Trade Commission also reports the average tariff on dutiable imports, which is calculated as collected duties divided by dutiable imports. The U.S. average tariff on dutiable imports alone in 1947 was 20.1 percent,[9] and this measure of tariffs for the U.S. peaked at 59.1 percent in 1932. While this particular data series is not, to our knowledge, systematically available for all GATT countries for this time period, it is possible that scholars could be making reference to this series (at least for the United States) when they are describing pre-GATT average tariffs at 40 percent or above.

Of course, as already noted, the import-weighted average tariff may also be downward biased. Later figures will allow us to assess the extent of that potential bias.

3.2   Later evidence: simple average tariffs

While the trade-weighted average tariff data contained in Table 1 are the only broad tariff measures that exist, to our knowledge, for the period just prior to the first GATT negotiations in 1947, the discussions that eventually led to the European Common Market meant that more attention was paid to European tariff levels throughout the 1950s. As a result, published reports of tariff averages become available, although still relatively infrequently.

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[9] The US International Trade Commission (USITC 2014, Table 1) reports values for the trade-weighted average tariff data that are slightly different from that reported in the International Historical Statistics and which we report in Table 1. In particular, they find the US trade weighted average tariff to be 7.9 percent as opposed to 8.2 percent in 1947.

One of the first compilations was in Woytinsky and Woytinsky (1955), which is presented in Table 2 as an unweighted tariff average for 1949 (after the first Geneva Round but before the second Annecy Round).[10] While Benelux and Scandinavian countries have low tariffs at under 10 percent, the larger continental European countries of France, Germany, and Italy as well as the United Kingdom have higher tariffs ranging from 16 to 27 percent.[11] Furthermore, a comparison of these simple averages in Table 4 with the 1949 trade-weighted averages reported in Table 1 reveals mixed results – for Denmark, Sweden, and UK the simple average is lower, whereas for Benelux, Norway, France, and Portugal the simple average is substantially higher.

Table 3 presents two sources of data on tariff levels in 1952 and 1955. The 1952 data originally appeared in a 1953 GATT report, although unfortunately the report provides no details on how it was calculated. The 1955 data are from two German publications as reported by Balassa (1961) and show the difference between the import-weighted average and the unweighted average. The difference in levels between these two figures indicates that the 1952 tariffs reported by the GATT are unweighted averages. These sources also indicate that the average tariff across Western Europe was about 16 percent in the early 1950s.

Table 4 presents disaggregated tariff data (based on the Brussels product classification) compiled by the GATT in 1953 for use in future tariff negotiations. This table reveals that the unweighted average of tariffs was about 12-13 percent for Germany and France and 7-8 percent for Benelux, Canada, and the United States.

This exhausts our findings for tariff averages that were compiled for the late 1940s and early 1950s. The general conclusion that emerges is that European tariff levels were in the 15-20 percent range during this period, although Benelux and the Scandinavian countries had lower tariffs than the larger continental European countries and the UK.

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[10] The source for the Woytinsky data is given as Groupe d'Études pour l'Union Douanière Européenne, Comité Spécial Restreint de la Nomenclature, *Average Rates of Duty* dated 31 August 1949 and *Draft Revised Tariff Nomenclature* in two volumes published in Brussels in 1950.

[11] However, the WTO (2007, 206) reports: "A recalculation of the Woytinski results showed several inaccuracies. For some of the low rate countries errors in the averaging calculations were found which imply that the, relatively low, average rate for Denmark and Norway had been actually somewhat higher than reported. For Austria, Germany and Greece, however, the estimates are upward biased, as the underlying trade flows (and prices) refer not to 1950 but to pre-World War II imports with their much lower average prices. Therefore the actual average tariff rates of Austria and Germany (both not yet Contracting Parties in 1950) had been far less above the country group average than indicated by Woytinski and Woytinski (1955)."

Once we move into the late 1950s and especially the early 1960s, published data on average tariff levels are more readily available.[12] In 1958, the EEC was formed with its common external tariff, which required extensive tariff harmonization among the six European participants. In addition, the United States was preparing to launch the Kennedy Round, whose purpose was to reduce the external tariff of the EEC and hence the margin of preference for intra-EEC trade. Tables 5, 6 and 7 present average tariffs for the late 1950s and early 1960s prior to the Kennedy Round negotiations. Table 5 shows the average U.S. and EEC tariff before the 1961-62 Dillon Round. This table also reveals the bias of import-weighted versus unweighted tariff averages. In both the U.S. and EEC, the import-weighted tariff is about 8 percent whereas the unweighted tariff is about 14 percent. Therefore, the unweighted average tariff is about double the weighted average tariff.

Tables 6 and 7 show the pre-Kennedy Round average tariffs that are, once again, in the low teens. However, these tariffs are for dutiable imports, meaning that duty free imports have not been included in the calculation. Still, the unweighted tariffs are in the mid-teens for both the U.S. and EEC; the weighting scheme seems to be much less important in considering only dutiable imports.

In sum, from the evidence that we have been able to compile, the average tariff in the mid-1950s for the major players in the GATT was in the range of about 15 percent.

4. United States: evidence on levels and cuts

This section provides additional information on the tariff level and reductions in U.S. tariffs during this period. As the World Trade Organization (2007, 205) reports: "To our knowledge the only comprehensive estimate concerning the average tariff reduction rate in the first GATT Round of tariff negotiations is provided by the United States Tariff Commission for U.S. tariffs."

The United States is the most transparent country in terms of its tariff policy, and also the country with the best information on its average tariff. In 1947, the average U.S. tariff on total imports was 7.9 percent and the average tariff on dutiable imports was 20.1 percent. This had

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[12] For a look at European tariff levels pre-EEC, but unfortunately highly disaggregated without import weights, see Political and Economic Planning (1959).

already come down sharply from pre-war levels; the rates were 14.4 percent and 37.3 percent, respectively, in 1939. As Irwin (1998) points out, this decline is mainly due to the impact of higher inflation during and after the war in reducing the ad valorem equivalent of the many specific duties in the tariff code.[13] Throughout the 1950s, the average tariff on imports was about 6 percent and the average tariff on dutiable imports was about 12 percent; neither of these figures changes much over the course of the decade.

The Tariff Commission (1948) also presented clear details on the degree to which U.S. tariffs were reduced in the reciprocal trade agreements reached in the 1930s as well as the 1947 Geneva negotiations. Table 8 reports the average pre-agreement rates (those established in the Tariff Act of 1930, the infamous Smoot-Hawley tariff), those that prevailed in 1947 prior to the Geneva conference, and those implemented in 1948, the year after the GATT was created. As Table 8 reports, the average tariff on goods (subject to negotiated rate changes) was 32 percent in 1947 and 25 percent in 1948, an average reduction associated with the timing of the Geneva Round of 21 percent.

Furthermore, Table 8 also suggests that while the average pre-agreement tariff for the United States was 48 percent, the bilateral agreements under the Reciprocal Trade Agreements Act of 1934 reduced those tariffs by a third, cutting them to 32 percent by 1947. These tariff changes are based on fixed weights (imports in 1939) and therefore focus exclusively on change in tariff rates as a result of trade negotiations. The calculation does not take into account the impact of higher import prices or changing import composition in changing the import-weighted average tariff during this period.

Finally, Table 8 also provides useful information on the variation in tariff reductions across different tariff schedule categories for the United States during this period. Some schedules saw large reductions (duties on flax, hemp, and jute manufactures were cut by 47 percent), while others were cut very little (chemicals and oils were cut by only 3 percent) in the first round.

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[13] See also Crucini (1994).

5. Backcasting to 1947

Given the lack of any official information on tariff levels circa 1947, one way to ascertain those levels is to take later tariff levels known with confidence and to "backcast" (as opposed to forecast) the 1947 tariff levels based on the tariff reductions that are thought to have taken place.

As we have seen, the earliest, most solid estimates of the post-war average tariff come from calculations done during the Kennedy Round. Around 1964, before the Kennedy Round tariff cuts had been negotiated, the average combined tariff for the United States, European Economic Community (EEC-6), the United Kingdom, and Japan – the four major players – was 14 percent. This figure is based on the import-weighted average of tariff rates in each of the four. The country tariff averages are from Preeg (1970, 208-11), also presented here as column 1 of Table 6 and column 2 of Table 7. These are combined together in one figure by weighting the four tariffs by the region's value of imports in 1964; these weights are 0.4 for the EEC, 0.3 for the United States, 0.175 for the UK, and 0.125 for Japan (WTO 2007, p. 208).

Table 7 reveals two main results. First, the average tariffs were roughly comparable across countries, ranging from 12.8 for the EEC to 16.6 for the UK. Second, the weighting scheme (whether unweighted or weighted by world imports or the country's imports) does not make a large difference to these country averages.

If we therefore accept that the average tariff was about 14 percent before the Kennedy Round – something that Table 7 seems to confirm – what does this imply about the average tariff prior to the 1947 Geneva Round? Fortunately, the percentage average tariff reduction – but not the average tariff level – in each of the previous GATT rounds is widely reported. As Table 9 reports, the average tariff reduction in the first Geneva Round was estimated to be 26 percent, followed by 3 percent in the Annecy Round, 4 percent in the Torquay Round, 3 percent in the Geneva Round, and then 4 percent in the Dillon Round. This amounts to a cumulative tariff reduction of 36 percent. Where do the figures on the tariff cuts by round come from? These figures are based on the concessions made by the United States, the country with the most transparent trade policy of the period, and reported by the Tariff Commission.[14] However, this figure may exaggerate the amount by which all average tariffs were reduced because the United

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[14] See Finger (1979, Table 1 and 10) for a discussion of the tariff reductions and information on the Tariff Commission reports.

States was thought to have made most of the concessions in the first negotiating round.[15] In addition, the 26 percent reduction excludes U.S. agricultural tariffs; for all products, as we have seen, the average tariff reduction was 21 percent (Table 8, last column).

If the United States made the most significant tariff reductions during this period, as is commonly thought, applying these cuts to other countries should give us an upper bound of the level of the tariff in 1947. Thus, applying these tariff reductions to the 14 percent pre-Kennedy Round average tariff implies that the average tariff was 21.8 percent in 1947, and fell to 16.8 percent following the first Geneva conference. This is depicted in Figure 1, which shows two paths for average tariffs, one starting at 40 percent and the other at 21.8 percent. If tariffs had in fact been at 40 percent in 1947, the average tariff level would have been subject to enormous cuts prior to the Kennedy Round. The calculation presented here, in which the average tariff was about 22 percent in 1947, shows that the downward path of average tariffs was slower but smoother. If the tariff going into the 1947 GATT negotiation was as high as 40 percent, then given the degree of tariff cutting that took place, the average tariff should have been about 26 percent prior to the Kennedy Round instead of the actual figure of 14 percent.

One way to verify this calculation is to take the GATT's calculated average tariffs for 1952, presented in Table 5, and see if it matches that which emerges from the backcast. The Table 3 average is 18.4 percent for 1952; the average is about 15.3 after the Torquay Round (not weighted across countries). According to our backcasting exercise, the average tariff should have been 15.0 after the Torquay Round, suggesting that this approach is reasonably accurate.

This exercise was based on a 26 percent tariff cut in the first round, but as noted earlier, that excluded agriculture; the average reduction for all products including agriculture was 21 percent. If that figure is taken to represent the cuts, then the backcast suggests the average tariff in 1947 was 20.5 percent.

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[15] As the WTO (2007, 181) notes: "We lack appropriate data to gauge the precise extent of the tariff cuts. Only for the United States is a detailed analysis available. However, it is generally recognized that the United States made the most generous tariff concessions reflecting its strong economic situation and relatively high level of tariff protection." The WTO (2007, 206) also states: "For France and the United Kingdom, no average rate of reduction has been provided in the various government reports dealing with the results of these negotiations. The tariffs of the Benelux countries at the time had been recognized to be well below the average prevailing in the other industrial countries and therefore these countries made concessions principally by binding most of their tariffs at the already low levels. It is therefore plausible to assume that the average tariff reduction on industrial products of all industrial countries achieved in 1947 was somewhat less than the reduction observed for the United States."

We can also back out the average tariffs for the United States, EEC, and Japan for 1947. Using the 26 percent cut for the first round, the backcast 1947 tariff would be 21 percent for the U.S., 20 percent for the EEC, and 23 percent for Japan. (The figures would be slightly lower taking the first round cut as 21 percent; in this case, the results would be 20 percent for the U.S., 19 percent for the EEC, and 21 percent for Japan.) The one check that we can do on this result is for the United States: in 1947, the average (import-weighted) tariff on dutiable imports was 20 percent, essentially the same as our backcast result for that year.

6. Assessing the average tariff data: is the time path meaningful?

Having established the average unweighted level of the tariff in 1947 at about 22 percent, we next return to our data on the import-weighted tariff average in order to examine empirically whether there are discernable reductions to this particular measure of tariffs following the initial GATT negotiating rounds. One way to assess whether the data on trade-weighted average tariffs presented in Table 1 is at all informative, for example, is to examine whether it is at least consistent with other accounts of the results of the GATT tariff negotiations taking place at the time. It is worth recalling our discussion in Section 2, however, that these particular tariff measures are probably inferior to the unweighted tariff averages: they are downward biased, changes in these particular tariff measures may reflect factors other than changes in official tariff rates, and these other factors include import prices and the composition of imports, both of which were changing rapidly in the immediate postwar period. Nevertheless, the advantage of these measures is that they are available on an annual basis; thus we examine whether they reveal evidence on the tariff reductions undertaken during this period.

We perform a set of difference-in-difference regressions to help assess whether the inter-temporal patterns in the import-weighted average tariff data over the 1944-1959 period of the first few GATT Rounds provide useful information. In particular, we examine whether the average tariffs for the active GATT participants at the 1947 inception – what we refer to as the "core" GATT Contracting Parties of Australia, Canada, United Kingdom, and United States – had larger subsequent reductions in their average tariffs during the initial rounds than "other" (comparison group) countries. We consider two definitions for the set of other comparison group countries: the first definition includes all other countries listed in Table 1, a mix of initial GATT

1947 Contracting Parties and countries that only joined later; the second definition is only the eight other initial GATT 1947 Contracting Parties listed in Table 1 (Belgium, Brazil, Chile, France, India, Netherlands, New Zealand, and Norway).

Table 10 presents our regression estimates on average tariff data covering the years 1944-1959. The data are in "long-differences" in which the dependent variable is defined as the three-year difference in trade-weighted average tariffs.[16] The two main sets of regressors are dummy variables for the years (1947, 1950, 1953, 1956, and 1959) and year dummies *interacted* with an indicator for the importer being one of the four "core" GATT Contracting Parties. In columns (1) and (2), the comparison group of countries includes all of the other countries listed in Table 1 for which there is available data, and in columns (3) and (4) the comparison set of countries is only the other initial (non-core) GATT 1947 Contracting Parties. In columns (1) and (3), the annual percent change in average tariffs is constructed using conventional methods, whereas the robustness checks provided in columns (2) and (4) use log differences in trade-weighted average tariffs.

Columns (1) and (2) of Table 10 suggest that, when looking at three-year differences in tariffs, there is no (robust) statistically significant change in average tariffs across the full sample of countries arising in 1947, 1950, 1953, 1956, or 1959. For the smaller sample of just GATT 1947 Contracting Parties (columns 3 and 4), there is evidence of a statistically significant *increase* in average tariffs across those countries arising in 1953 relative to their levels in 1950.

The main result of interest in Table 10 is found in the bottom set of rows, which presents estimates of the *interaction* of the year dummies with an indicator for whether the country was one of the core GATT 1947 Contracting Parties of Australia, Canada, UK, and United States. Indeed, relative to the full sample of countries (columns 1 and 2), there is a negative and statistically significant differential estimate (-0.55 and -0.48, respectively) for the changes in the average tariffs for those four countries in 1950 relative to their average tariff levels in 1947. In particular, whereas the average tariff across the entire sample of countries was 29 percent higher in 1950 than 1947, the statistically significant differential estimate in column (1) implies that the

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[16] This is opposed to a regression framework analyzing annual changes in tariffs, which yields qualitatively similar results. Focusing on three year changes may better reflect the cumulative effective of a given tariff cut over a couple of years. Finally, while the utilized data cover 1944-1959, because the regressions examine three year changes in average tariffs, the regressions ultimately cover changes in tariffs over the 1947-1959 period.

average tariff was 26 percent lower (=0.29-0.55) for the four core GATT Contracting Parties in 1950 relative to 1947. This statistically significant differential for these four countries is robust across model specifications of Table 10, and the estimates are of a cumulative average tariff reduction from 1947 to 1950 for the four countries ranging between 26 and 31 percent.

Furthermore, for the regressions on the subsample of only GATT 1947 Contracting Parties (columns 3 and 4), a second result is that average tariffs increased across the sample by an average of 16-20 percent between 1950 and 1953. However, relative to only these other GATT 1947 Contracting Parties, average tariff changes for the four core GATT Contracting Parties were statistically different from the sample average in columns (3) and (4), with differential estimates of -0.65 and -0.49, respectively. Overall, despite tariffs for the GATT Contracting Parties increasing on average between 1950 and 1953, average tariffs for Australia, Canada, UK, and United States managed to remain flat between 1950 and 1953.

Combined, the estimates for the changes in 1950 and 1953 reflect the *cumulative* effect of tariff liberalization *differentials* arising for these four countries (relative to the other GATT 1947 Contracting Parties) after the Geneva (1947), Annecy (1949), and Torquay (1951) Rounds of GATT negotiations. Thus we conclude that, relative to other 1947 GATT Contracting Parties as well as a wider sample of countries, average tariffs for the four core GATT Contracting Parties were significantly lower by 1953 than their 1947 levels.

Finally, it is also worth noting for the core countries that, relative to the average across both the full sample of countries (columns 1 and 2) and the smaller sample of GATT 1947 Contracting Parties (columns 3 and 4), their pre-GATT "starting point" trade-weighted tariffs were significantly higher in 1947 than they had been three years earlier (in 1944). In particular, the column (1) estimate indicates that average tariffs for Australia, Canada, UK, and United States were 129 percent higher in 1947 than in 1944.[17] Nevertheless, it is extremely doubtful that these tariff increases reflected changes in applied tariff *rates* as opposed to changes in the composition of trade as a result of the end of World War II. For example, Canada did not change the rates in its tariff code during this period (Hart 2003).

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[17] Between 1944 and 1947, trade-weighted average tariffs in Australia increased from 8.6 to 27.9 percent, in Canada from 6.5 to 11.4 percent, and in the UK from 24.5 to 44.0 percent. Among the Core countries, only in the US did the tariffs fall between 1944 and 1947, from 10.6 to 8.2 percent. Lloyd (2008) offers strong caution in interpreting the tariff figures for Australia during this period.

7. Conclusion

This paper has attempted to shed light on the height of tariff barriers on the eve of the 1947 Geneva conference that established the GATT and negotiated the first postwar tariff reductions. We find that the average tariff among the key GATT participants – the United States, Western Europe, and Japan – was about 22 percent at the time of the first Geneva conference, significantly lower than the oft-reported 40 percent figure (World Bank, 1987). This figure refers to the unweighted tariff average; the import-weighted tariff average would be much lower than this. In addition, we report limited econometric evidence of significant tariff reductions by the key early GATT participants – the core of the United States, United Kingdom, Canada, and Australia – but not for others in the late 1940s and early 1950s.

While it is beyond the scope of this paper to determine the economic effect of these tariff reductions, we should point out that the early tariff reductions were thought to have a muted impact on world trade flows, largely due to the presence of other nontariff barriers in place at the time. In particular, the co-existence of import quotas and foreign exchange controls (European currencies were not fully convertible into dollars until 1958) meant that tariff reductions by themselves may have had little impact on trade.[18] Nevertheless, Goldstein, Rivers, and Tomz (2007) use a gravity equation and provide some evidence that the early GATT had a positive and significant effect on world trade. Pinning down exactly how the GATT boosted early postwar trade is thus an important topic for further research.

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[18] As Curzon (1965, 80-81) notes: "It must also be remembered that principally only in the United States (and Canada) were tariff cuts effective during the 1950s. In other countries quotas and exchange controls interfered sufficiently with the trade flow to make any measurement meaningless." And Brusse (1997) adds: "While the average depth of the tariff cuts negotiated in 1947 stands out quite favorably compared to those of the subsequent rounds, the reductions themselves hardly affected levels of protection. Many rates contained 'extra margins' that could easily be cut without changing effective protection levels."

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Table 1: Weighted-Average Tariff Levels 1929-1964, Selected Years

	GATT CP year	Peak year, 1929-1947	Peak level, 1929-1947	1939	Customs revenue / Total value of imports					
					1947 (Geneva)	1949 (Annecy)	1951 (Torquay)	1956 (Geneva)	1960 (Dillon)	1964 (Kennedy)
GATT 1947 Contracting Parties (CPs)										
Australia	1947	1932	41.2	31.0	27.9	18.8	15.4	8.4	10.6*	9.5*
Belgium	1947	1934	10.7	7.3	4.3	4.1	3.1	--	--	--
Brazil	1947	1933	35.0	20.6	8.2	--	--	--	--	--
Canada	1947	1931	16.6	13.8	11.4	8.2	8.5	9.6	9.1	8.3
Chile	1947	1933	6.2	5.7	4.7	7.5	9.4	--	--	--
France	1947	1935	29.4	23.3	9.3	10.9	12.6	20.0	22.6	22.1
India	1947	1933	40.0	25.8	11.7	19.1	23.9	21.1	18.0	29.8
Netherlands	1947	1935	9.1	7.9	1.6	4.8	4.2	5.1	5.6	6.1
New Zealand	1947	1946	46.1	20.2	20.9	23.3	14.1	10.8	--	11.8*
Norway	1947	1940	15.8	11.3	5.7	3.6	2.8	3.8	4.2	3.7
UK	1947	1946	47.7	29.6	44.0	35.7	25.6	30.7	32.4	36.5
US	1947	1932	24.4	13.3	8.2	5.5	5.5	5.3	6.6	5.3
Other countries										
Argentina	1967	1932	28.8	22.5*	9.7	--	--	--	--	--
Austria	1951	1963	--	--	--	--		4.3*	8.2	8.3
Denmark	1950	1935	8.2	7.1	3.3	3.0	--	--	--	--
Finland	1950	1931	32.7	20.6	9.7	18.8	10.0	20.5	13.5	--
Italy	1950	1933	25.2	11.2	--	--	4.2	6.7	6.3	6.0
Japan	1955	1931	6.8	3.6	0.0	0.4	1.6	4.0	6.8	7.7
Mexico	1986	1943	34.5	29.7	14.9	25.0	19.6	19.1	20.8	17.6
Peru	1951	1933	28.0	19.5	26.1	12.6	26.8	--	--	--
Portugal	1962	1935	50.7	37.1	16.1	17.3	20.5	19.2	20.1	17.0
Spain	1963	1946	26.9	10.0*	18.5	14.4	23.8	23.8	13.9	10.4
Sweden	1950	1932	11.9	8.3	5.7	5.6	4.0	4.9	5.4	4.8
Switzerland	1966	1935	23.3	17.5	9.1	10.2	8.4	9.7	11.1	10.9
Turkey	1951	1945	24.6	--	16.6	14.8	17.1	30.1	--	--
(W.) Germany	1951	1938	33.4	32.6	--	--	6.8	7.1	7.0	5.1

Source: Compiled by the authors with data from Palgrave Macmillan (2013). Data not available for 1947 GATT Contracting Parties Burma (Myanmar), Ceylon (Sri Lanka), China, Cuba, Czechoslovakia, Lebanon, Luxembourg, Pakistan, South Africa, Southern Rhodesia (Zimbabwe), and Syria. *Indicates data replaced with that from a nearby year, i.e., Argentina: 1939 is 1938; Australia: 1960 is 1959 and 1964 is 1965; Austria 1956 is 1955; New Zealand: 1964 is 1965; and Spain: 1939 is 1940.

Table 2: European Tariff Levels in 1949

	Unweighted Average	Agricultural Products	Industrial Products
Denmark	2	0.7	3.4
Sweden	7	4.6	8.5
Benelux	9	7.1	11.2
Norway	9	7.8	10.8
United Kingdom	16	9.3	23.3
France	22	26.5	17.9
Italy	23	21.6	25.3
Germany	27	26.7	26.4
Austria	27	36.3	18.0
Portugal	30	41.5	18.0
Greece	42	44.8	39.0

Source: Woytinsky and Woytinsky (1955, 284-85).

Table 3: Tariff Levels in 1952 and 1955

	1952	1955	
		Unweighted Average	Weighted Average
France	19	18.1	5.1
Germany	16	15.5	5.6
Italy	24	17.3	7.1
Belgium-Luxembourg	-	9.5	4.3
Netherlands	-	9.5	5.5
United Kingdom	17	-	-
United States	16	-	-

Source: 1952 data from GATT (1953a, 62). 1955 data from Balassa (1961, 46).

Table 4: Weighted Average Tariffs by Country and Sector, 1953

	Austria	Benelux	Canada	Denmark	France	Germany	Italy	Norway	Sweden	United States
Primary Products, Food	30	1	4	1	11	11	27	2	5	2
Manufactured Food	21	5	7	1	9	21	23	3	3	10
Fish and Fish Products	1	14	9	0	9	15	19	1	2	6
Raw Materials, including Petroleum	1	0	2	0	2	2	2	1	0	4
Products of Chemical and allied industries	9	4	7	1	17	15	20	6	3	6
Leather and Products of Leather, Fur Skins, Rubber, Wood, Cork, Paper, and Printed Matter	10	10	11	4	15	14	21	8	5	2
Textile Products and Clothing	21	13	14	4	18	18	22	13	6	18
Base Metals and Manufactures	11	4	10	1	6	10	22	3	3	6
Machinery, Electric and Transport Equipment	23	10	9	4	16	12	23	6	10	6
Miscellaneous Manufactures	11	9	11	5	14	8	20	13	6	16
Average of Above (Unweighted)	14	7	8	2	12	13	20	6	4	8

Source: GATT (1953b, 22).

Table 5: Pre-Dillion Round (pre-1960) Tariff Levels

	Unweighted	Weighted	
		By own imports	By combined imports
United States	14.0	7.6	8.1
EEC	14.8	8.3	10.2

Source: Committee for Economic Development (1964, 70-1).

Table 6: Tariff Averages, Pre- and Post-Kennedy Round, dutiable nonagricultural imports

	Total		Manufactures	
	Before	After	Before	After
United States	13.5	9.6	14.3	9.9
EEC	12.8	8.1	13.5	8.6
United Kingdom	16.6	10.6	17.8	10.8
Japan	15.5	9.5	17.6	10.7

Source: Preeg (1970, 208-11)

Table 7: Pre-Kennedy Round Average Tariff, by weighting scheme, dutiable nonagricultural products (other than mineral fuels)

	Unweighted Tariff	Weighted by	
		Own imports	World imports
United States	16.5	13.5	14.5
EEC	13.1	12.8	13.4
United Kingdom	18.2	16.7	17.0
Japan	18.0	15.5	19.0

Source: Preeg (1970, 277-78).

Table 8: Imports of Commodities subject to Rates of Duty reduced by Trade Agreements, by tariff schedule
Based on reductions in effect Jan. 1, 1948.

Tariff Schedule	Value of dutiable imports, 1939 (millions of US dollars)	Proportion Subject to reduced rates Equivalent ad valorem on imports subject to reduced rates (percent)			Average reduction in rates (percent)		
		Pre-Agreement rates	As of 1947 (pre-Geneva)	As of Jan. 1, 1948 (Post-Geneva)	Pre-Agreement to Pre-Geneva	Pre-Agreement to Post Geneva	Pre-Geneva to Post-Geneva
1. Chemicals, oils, and paints	56.6	37.2	31.5	30.4	15	18	3
2. Earths, earthenwares, and glassware	25.4	43.0	40.3	34.9	6	19	13
3. Metals and manufactures of	89.7	40.3	27.7	21.4	31	47	23
4. Wood and manufactures of	17.0	16.8	10.6	7.0	37	58	34
5. Sugar, molasses, and manufactures of	90.5	69.4	35.2	24.4	49	65	31
6. Tobacco and manufactures of	36.0	77.5	58.6	55.2	24	29	6
7. Agricultural products and provisions	173.8	36.8	23.1	21.3	37	42	8
8. Spirits, wines, and other beverages	59.1	109.8	56.0	34.7	49	68	38
9. Cotton manufactures	27.3	38.3	33.8	28.9	12	25	14
10. Flax, hemp, jute, and manufactures of	54.8	24.7	18.5	9.8	25	60	47
11. Wool manufactures	49.3	76.3	60.8	47.7	20	37	22
12 & 13. Silk manufactures and rayon and synthetics	15.5	37.6	35.2	28.5	6	24	19
14. Paper and books	11.5	21.8	17.3	14.3	21	34	17
15. Sundries	133.3	28.8	24.3	19.2	16	33	21
Free list subject to excise tax on importation	38.1	31.3	21.1	16.7	33	47	21
Total	877.7	48.2	32.2	25.4	33	47	21

Source: U.S. Tariff Commission, Operation of the Trade Agreements Program, June 1934-April 1948, Part III. Trade-Agreement Concessions Granted by the United States, Report No. 160 (Washington, D.C.: GPO, 1948), p. 37.

Table 9: GATT Tariff Reductions

| Implementation Period	Round Covered	Weighted Tariff Reduction	Weights based on MFN imports (year)
1948	Geneva (1947)	-26	1939
1950	Annecy (1949)	-3	1947
1952	Torquay (1950-51)	-4	1949
1956-58	Geneva (1955-56)	-3	1954
1962-64	Dillon Round (1961-62)	-4	1960
1968-72	Kennedy Round (1964-67)	-38	1964
1980-87	Tokyo Round (1973-79)	-33	1976/77
1995-99	Uruguay Round (1986-94)	-38	1988/1989

Source: WTO (2007), p. 207.

Table 10. Three Year Tariff Differences across Countries, 1947-1959

Explanatory variables	Baseline (1)	Use log differences (2)	GATT CPs only (3)	GATT CPs and log differences (4)
	Dependent variable: long difference (3yr change) in customs revenue / imports			
Year = 1947	-0.04	-0.07	-0.03	-0.06
	(0.06)	(0.06)	(0.11)	(0.10)
1950	**0.29****	0.17	0.39	0.19
	(0.15)	(0.11)	(0.29)	(0.21)
1953	0.33	0.11	**0.20***	**0.16***
	(0.31)	(0.13)	**(0.10)**	**(0.08)**
1956	0.12	0.06	-0.12	-0.17
	(0.10)	(0.08)	(0.10)	(0.12)
1959	0.10	0.03	0.20	0.15
	(0.09)	(0.11)	(0.13)	(0.11)
GATT core x 1947	**1.29*****	**0.84*****	**1.28*****	**0.83*****
	(0.42)	**(0.18)**	**(0.46)**	**(0.21)**
GATT core x 1950	**-0.55*****	**-0.48*****	**-0.65****	**-0.49****
	(0.16)	**(0.13)**	**(0.30)**	**(0.23)**
GATT core x 1953	-0.33	-0.11	**-0.20***	**-0.17***
	(0.31)	(0.13)	**(0.11)**	**(0.09)**
GATT core x 1956	-0.30	-0.32	-0.05	-0.09
	(0.19)	(0.24)	(0.20)	(0.27)
GATT core x 1959	0.02	0.08	-0.09	-0.05
	(0.11)	(0.13)	(0.15)	(0.13)
Observations	96	96	51	51
R-squared	0.19	0.20	0.46	0.40

Notes: Model estimated without a constant term. Robust standard errors in parentheses, with ***, **, and * indicating estimates statistically different from zero at the 1, 5, and 10 percent level, respectively. Definition of dependent variable in (1) and (3) is $(X_t-X_{t-3})/X_{t-3}$ and in (2) and (4) it is $\ln(X_t)-\ln(X_{t-3})$, where X is the ratio of customs revenue to imports. Years are 1947-1959, and full sample of 25 countries includes 12 of the original GATT Contracting Parties ("GATT CPs") of Australia, Belgium, Brazil, Canada, Chile, France, India, Netherlands, New Zealand, Norway, United Kingdom, United States and 13 of the non-original GATT Contracting Parties of Argentina, Denmark, Finland, Italy, Japan, Mexico, Peru, Portugal, Spain, Sweden, Switzerland, Turkey, and West Germany. The core GATT countries defined as Australia, Canada, United Kingdom and United States. Columns (3) and (4) drop all countries that were not original 1947 GATT Contracting Parties.

Figure 1: Path of Average Tariffs: Pre-Geneva to Post-Uruguay Round
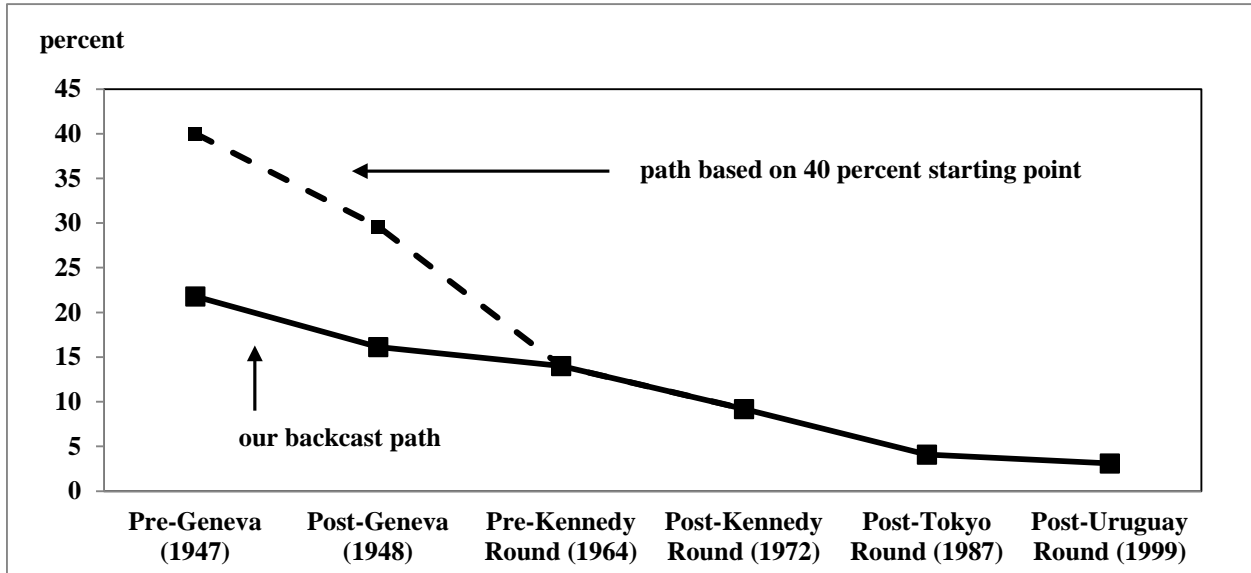
Source: constructed by the authors, based on average tariff levels for United States, European Community/Union and Japan. See text for discussion. Backcast estimate of pre-GATT 1947 average tariff level of 21.8 percent based on upper bound assumption of 26 percent tariff cut in the first (Geneva) Round. Assuming a 21 percent tariff cut in the first (Geneva) Round would imply a backcast estimate of pre-GATT 1947 average tariff level of 20.5 percent.