The Consumer Cost of U.S. Trade Restraints

Record U.S. trade deficits and the four-year rise in the value of the dollar have led to strong pressures for changes in U S. trade policy Trade protection has now become a major political issue affecting both exports and imports. At the recent Bonn Economic Summit, for example, the United States pressed for a new round of multilateral trade liberalization, which would greatly help the U.S. agricultural and services export industries as well as world trade in general. In Congress, both the House and the Senate passed resolutions calling for Japanese action to increase access to its markets.

At the same time, however, U S industries ranging from costume jewelry to tuna have been requesting protection from international competition. Thus, for example, the U.S. steel industry recently obtained a major increase in restraints on imports of steel products while U.S clothing producers are asking for much tighter import limits to be set under the 1986 renewal of the international apparel trade agreement (negotiations begin this summer) In Congress, legislation has been introduced for an across-the-board import surcharge to be levied on all imports.

Against this background, existing U.S. trade restraints call for careful examination It is especially critical to understand the cost U S consumers are currently paying for protectionist measures if they are going to be asked to pay for further import restraint The fact that the United States is asking for freer trade elsewhere only intensifies the need for a careful analysis of current U S. import protectionist measures.

The consumer cost of U.S import trade restrictions must be compared with the benefits of those restrictions in order to evaluate the restrictions' overall impact Benefits include such considerations as jobs saved, producers' income gained, and tariff revenue earned. The consumer cost of trade protection, however, is not easily determined and requires complicated analysis in and of itself. Although there is an established theoretical framework for calculating this consumer cost, in practice many individual factors need to be considered and evaluated. In fact, estimates for the cost of earlier protectionist measures differ significantly and there are no estimates for recent protectionist actions.[1]

This article concentrates on the consumer cost of trade restraints rather than on their total effect. It makes consistent, up-to-date estimates of this cost for present major U.S. protectionist measures on clothing, sugar, and steel, as well as for recently ended automobile restrictions The clothing, sugar, and automobile cost calculations estimate how much U.S. consumers paid for trade protection in 1984. For the steel restraints, which were enacted at the end of last year, the steel cost calculation provides an estimate of how much this protectionist measure will cost consumers in 1985

[1]There are several reasons why consumer cost estimates for trade restrictions differ among analysts Since supply and demand factors change over time, consumer cost estimates made using the same methodology but calculated at different times,are apt to vary significantly Moreover, the methodologies of the estimates are often markedly different themselves Some analysts have compared U S import prices for protected goods with the prices these goods sell for in their own domestic markets However, the more countries whose U S sales are constrained and the greater the differences in taxes and other selling costs between these markets and the United States, the more difficult this method of analysis is to perform Other analysts have calculated the consumer cost of trade restrictions using tariff equivalents Factors that can cause differences among estimates which are all based on this methodology are discussed in the box

Surprising results emerge from this examination of protection's consumer costs. Although it is well known that consumers pay something for protection, the price turns out to be strikingly high. Conservatively estimated, trade restrictions on clothing, sugar, and automobiles alone forced U.S. consumers to spend $14 billion more on these products in 1984, albeit with some product quality-upgrading in return. The new steel restrictions will cost consumers $2 billion Even more surprising than this high overall cost, however, is the regressive income distribution effect caused by the restrictions. Clothing, sugar, and automobile restraints are conservatively calculated here as equivalent to à 23 percent "income tax surcharge" for low income families last year as opposed to a 3 percent "income tax surcharge" for high income families.[2]

U.S. import restraints

The United States is not generally perceived to have high import restrictions. Its average tariff rate is only 4.4 percent for all industrial products. This is comparable to the average rates of other industrialized countries. The relatively low average rates are the result of a series of multilateral tariff reductions since the 1950s, conducted under the auspices of the General Agreement on Tariffs and Trade.

But despite its low average tariff level, the United States still has costly import restrictions due to exceptionally high tariffs on some goods and, more significantly, quantitative controls applied to a small but very important list of products. Other industrialized countries also provide strong protection to selected products and, again, the degree of U.S. protection is not high in international comparison. Moreover, some countries have a much stronger cultural bias against buying foreign products than does the United States. These countries have barriers to trade which are higher and much more difficult to penetrate than is suggested by their explicit protectionist measures alone.

Even though the United States has this generally low level of trade restraints, U.S. protection must still be judged as fairly onerous to consumers in terms of the percentage of total domestic consumption expenditures it affects. The costliest U.S. import controls are placed on apparel, sugar, and steel, and have just recently been removed from automobiles. These products alone account for about 10 percent of total U.S. consumption purchases.

The United States also has significant quantity and/or considerable tariff restrictions on dairy and meat products, mushrooms, tobacco, fruit juices, some fresh vegetables, clothespins, motorcycles, books and magazines, gasohol, and some cookware items. These restrictions currently have much less of an effect on the U.S. economy than do the clothing, sugar, and steel restraints. Cheese quotas were enlarged in 1979 and only in 1982 and 1983 did growing cheese imports reach quota levels. Meat imports have also not always met quota levels, although in some years voluntary export restraints have been negotiated to prevent this. Other products which do face significant import restrictions represent only a relatively small part of total U.S. consumption expenditure

In recent years, however, there has been growing pressure to both deepen and widen restraints. The footwear, machine-tool, copper, shipbuilding, wine, costume jewelry, shrimp, and tuna industries, among others, have all requested additional protection. There are also proposals for a domestic content requirement for U.S. automobile sales and an across-the-board 20 percent import surcharge on imports of all goods. Taken together with the products listed above, a growing net of protection is suggested, touching many areas of U.S consumption, either directly or through intermediate products.

Estimates of the consumer cost of major U.S. trade protection

The consumer cost of major U S trade protection can be measured by calculating the effect trade restrictions have had on the average consumer price of the protected goods. The consumer cost of protection can then be calculated as equal to the extra amount consumers pay for goods because of this protection-induced price rise.

There are three aspects to the change in a protected good's average consumer price. The first is the rise in import prices that accompanies trade restrictions The second is the price differential some consumers pay when restraints cause them to shift from buying imports to buying higher-priced domestically-produced goods.[3] The third aspect is any rise in the price of domestically-produced goods which occurs because of reduced import competition.

[2]Low income families are defined as families whose income level is less than $10,000 a year High income families are families with an income greater than $60,000 a year

[3]This analysis assumes that trade protection does not change the total volume of purchases but only its distribution between domestically-produced goods and imports Given the broad commodity aggregates to which U S protection is applied, this is not an unreasonable assumption (If, instead, the total volume of purchases were altered by trade restraints, it would be necessary to undertake a detailed general equilibrium analysis of the lost consumer surplus due to protection) This analysis also assumes that consumers do not value their switched purchases to domestically-produced goods differently from their original import purchases If domestically-produced goods were generally valued more, the switchover cost of protection should be reduced by the amount of this extra value received by consumers If imports were generally valued more, then the switchover cost should be increased by this extra value cost

Tariffs versus Quotas and Calculation Specifics

Tariffs versus quotas

The consumer cost calculations described in the text apply to both tariffs and quotas, despite the fact that the two forms of trade protection have different effects on prices and, more obviously, on the cost of protection to society as a whole. The most striking difference between tariffs and quotas for society as a whole, although not affecting consumer costs, is the tariff revenue the protecting country could collect This revenue offsets some of the consumer cost of tariffs. When quotas are used, this revenue goes to foreign producers instead

The amount of tariff revenue lost last year because the United States employed quotas instead of tariffs was significant. The tariff equivalent of the quotas may be calculated to show the sum involved Conservatively estimated tariff equivalents* suggest that in 1984 the United States relinquished potential tariff revenue of $1 8 billion to foreign apparel producers, over $250 million to foreign sugar suppliers, and $1 billion to Japanese automobile companies because quotas were used instead of increased tariffs † With increased tariffs, this $3 billion could have been collected by the U S Government, offsetting 30 percent of the consumer cost of the quantitative restraints

With more liberally estimated tariff equivalents for clothing and sugar, the tariff revenue lost becomes much larger The liberal estimates suggest the total foregone tariff revenue reached over $7 billion last year This would have offset 40 percent of the more liberally estimated consumer cost of the quantitative restraints

Aside from this lost tariff revenue, tariffs and quotas also have different effects on prices because of their differing impact on market structure ‡ Under tariffs, foreign producers have an incentive to cut costs as much as possible in order to compete Under quotas, foreign competition is muted by a limit to new entrants to the market. Quotas also tighten automatically as demand grows over time. For both reasons prices react differently to quotas than to tariffs Nevertheless, these price differences should already be incorporated into the observed price increases used to calculate protection's consumer costs

Quality-upgrading

One difference between tariffs and quotas which affects the consumer cost calculations is quality-upgrading Quality-upgrading often occurs when quotas are introduced This is because the producers of quota-restricted goods raise the price of these goods in proportion to the price elasticity of demand, allowing the producers to capture the goods' increased scarcity-value Assuming that the price-elasticity of demand is constant, there will be a higher absolute price rise for more expensive, better-quality products Producers, consequently, will earn a higher profit on these better goods and will ship more of them. Stated slightly differently, profit margins generally tend to be higher on more expensive goods With supply limited by quotas, producers will sell more of these higher-priced items

It is argued in the text that any quality-upgrading price rise should be included in the consumer cost of protection if consumers have no choice but to purchase that quality-upgrading This is because, while marginal consumers may be willing to pay the added cost for improved quality, strictly low-price buyers are forced to pay it Where goods of a lower quality are still available to consumers, the extra cost for quality-upgraded imports should not be considered an unavoidable cost of protection (even though some consumers may pay for some added quality they would have preferred not to purchase). The distinction in the latter case is that no one is forced to pay the higher price. To remove the quality-upgrading component of the observed rise in import price in this case, tariff equivalents can be calculated

Tariff equivalents

Tariff equivalents of quantitative restrictions show the tariff rate that would be needed in order to cut import demand to the restricted supply level if no quantity restrictions were set The tariff equivalent reflects the pure scarcity-value price rise that the quota-restricted producers are abie to demand The difference between the tariff-equivalent price rise and the actually observed price rise under a quota can, then, be attributed to quality-upgrading

There are several considerations that should be noted

*The tariff equivalents of the sugar and automobile restraints are given in the text The conservative clothing tariff equivalent, based on a 17 percent fall in imports and an import price elasticity of demand of −1, as discussed in footnote 5, is 20 percent The more liberal clothing tariff equivalent, based on a 40 percent import fall, is 50 percent

†These figures are calculated by multiplying the value of imports (excluding the extra cost due to protection) by the tariff equivalents of each product The tariff equivalent for sugar equals the total estimated price increase due to quotas.

‡Quotas also make international trade, which is normally a countercyclical buffer to the domestic business cycle, procyclical This is because quantitatively restricted imports do not rise during an upturn With supply limited, price rises This contrasts sharply to the classic textbook example of free trade which has imports service residual demand and domestic production totally immune to the business cycle These extra consumer costs of quotas vary over time and, consequently, may not be incorporated into the observed price changes used to calculate the costs of protection at any given point in time

Actual computation of the change in average consumer prices due to trade restrictions is complicated by the fact that the individual price rises and amount of purchases shifted from imports to domestically-produced goods are not directly observable. For instance, to measure the current cost of shifting purchases, the

Tariffs versus Quotas and Calculation Specifics *(continued)*

concerning the tariff equivalent approach to estimating the cost of restrictions. The tariff equivalent is calculated by dividing the protectionist-reduction of the quantity of imports purchased (multiplied by any tariff rate) by the import price elasticity of demand. It, consequently, depends very heavily on both the import price elasticity used and the assumption of how much the restriction has cut imports from what they otherwise would have been. Different studies have used different figures for each of these values, particularly when analyzing clothing restrictions. Their calculated tariff equivalents have, therefore, been very different

Another consideration of import price elasticity estimates is that, even if correct, they are generally calculated from import regressions based on marginal changes. Since marginal purchasers usually have higher price elasticities of demand, such calculations may overestimate the elasticities relevant to large price and quantity changes. The resulting tariff equivalents will, consequently, be underestimated. Again, this is a particularly important problem for clothing tariff equivalent calculations.

The average price formula

The three price factors affected by protection—the change in import price, the switchover cost of some purchases from imports to domestically-produced goods selling for a different price, and the rise in the price of domestically-produced goods—can all be incorporated into an average consumer price formula. This formula shows the impact of each of these factors on the average price consumers pay for the good in question. The average price formula is

$$\%P_{aver} = \frac{M\Delta P_m + P_m\Delta M + \Delta P_m\Delta M + D\Delta P_D + P_D\Delta D + \Delta P_D\Delta D}{P_mM + P_DD}$$

$$= \Theta(\%P_m) + \Theta(\%M) + \Theta(\%P_m)(\%M) + (1-\Theta)(\%P_D) + (1-\Theta)(-\%M)\frac{M}{D} + (1-\Theta)(-\%M)(\%P_D)\frac{M}{D}$$

with $\%P_{aver}$ = percentage change in average consumption price
M = import volume
ΔM = change in M due to restrictions
$\%M$ = percentage change in M
P_m = import price
ΔP_m = change in P_m due to restrictions
$\%P_m$ = percentage change in P_m
D = domestic production volume
ΔD = change in D due to restrictions
P_D = domestic production price
ΔP_D = change in P_D due to restrictions
$\%P_D$ = percentage change in P_D
Θ = import value share of total consumption

In this formula the total volume of purchases is assumed unaffected by trade restrictions. Consequently $\Delta M = -\Delta D$ (explaining the substitutions in the second equation above).

If information is available for the current levels of Θ and $\frac{M}{D}$ (after protection has been put in place) then the average price formula can be used to calculate the average price fall that would occur if restrictions were ended. This price fall can then be converted forward to give the implicit price rise which is attributable to the restrictions. This is generally the procedure that was followed in the text §

In accordance with this procedure, the average price formula can be separated into its price components. The term $\Theta(\%P_m)$ shows the impact on average price of a change in import price. The terms involving a change in import demand,

$$\Theta(\%M) + \Theta(\%P_m)(\%M) + (1-\Theta)(-\%M)\frac{M}{D} +$$

$$(1-\Theta)(-\%M)(\%P_D)\frac{M}{D}$$

show the impact of the switchover cost.

(They equal $\frac{(P_m + \Delta P_m - P_D - \Delta P_D)(\Delta M)}{P_mM + P_DD}$.)

The term $(1-\Theta)(\%P_D)$ shows the impact of the change in domestic price.

§Using the current levels of Θ and $\frac{M}{D}$ and working backward avoids the necessity of estimating what levels these ratios would have reached under free trade. Since the changes in price and quantities reported in the study are large, all percentages calculations are calculated from the midpoint between old and new levels, *i.e.*,

$$\%A = \frac{A_1 - A_0}{(A_1 + A_0)/2}$$

with $\%A$ = percentage change in A
A_1 = new A value
A_0 = old A value

Standard percentage changes from the original base level, rather than these midpoint calculated percentage changes, are reported in the text. This has been done by rebasing percentage changes derived from midpoint calculations to the original base level.

amount of demand presently being switched from imports to domestically-produced goods must be estimated This amount will vary over time. Its current estimate must be based on the difference between current actual import demand and the level that demand would have reached under free trade (rather than the level of imports that occurred when restrictions were first put in place). An assumption, consequently, has to be made as to how much imports would have increased under free trade in order to calculate this aspect of the trade restrictions' cost

A further complication in estimating trade protection's consumer cost is that changes in import price may reflect both increased scarcity-value due to restrictions as well as increased value due to an improvement in import quality. Import quality-upgrading sometimes occurs when quotas are placed on import sales This quality-upgrading cannot automatically be assumed as a cost of protection because the consumer does receive a better product in return for the added expense. However, it is not clear whether the consumer would freely choose to pay for this extra quality or that he feels totally compensated for it.

This article assumes that the extra price consumers have to pay for increased quality is part of the cost of protection if consumers have no choice but to accept the added quality because cheaper, lower-quality products are not available. When cheaper products are available, the price rise due to quality-upgrading will not be considered a part of protection's consumer cost For these latter goods, the tariff equivalents of the quotas will be calculated (box). They will provide an estimate of the price rise which is due solely to a protection-induced increase in scarcity-value.

Following are consumer cost estimates for the major U.S protectionist measures affecting clothing, sugar, and steel and for the recently lifted measures on Japanese automobiles. These estimates are based on the methodology just described. In each case the effect of protection on the average consumer price of each product is first calculated, incorporating the three price factors listed above. An average price formula, described in the box, is used to do the calculations. It should be noted that this price formula requires information on the difference between the market volume and value shares of imports and domestically-produced goods, rather than their explicit price differential figure, to calculate the switchover cost Therefore, volume and value shares, rather than their derived price differential figures, are given for the four protected commodities discussed in this article.

After the effect of protection on the average consumer price of each good is calculated according to the average price formula, the associated consumer cost due to this price rise is discussed. The consumer cost in each case depends directly on both the extent of the protection-induced price increase and on the total amount consumers spend on the protected good.

Clothing

U.S clothing trade is conducted within the framework of the International Multi-Fiber Agreement (MFA). This agreement sets the guidelines for bilateral negotiations on import quotas During the 1970s the United States negotiated MFA quotas with all of the world's major apparel producers, limiting the annual volume growth rates of most U S. clothing imports. Up until 1983, growth rates were set at around 6 percent, but tighter limits, averaging 2 percent and under, were set in 1983 for the very large exporters—Hong Kong, Singapore, South Korea, and Taiwan. The clothing industry in the United States is currently pressing for even tighter restraints. On top of these quota agreements, the United States also imposes an average clothing tariff rate of 26 percent.[4]

The most obvious effect of clothing trade restrictions has been on import prices Our estimates suggest current restrictions have led to a more than 108 percent increase in import prices above the level that would occur if the United States allowed the free entry of apparel. This 108 percent figure is based on a 65 percent rise in price due to quotas, with the remainder due to the clothing tariff. The 65 percent rise is calculated by taking the price increase in U.S. clothing imports from 1971, the year trade restraints were broadly put in place, until 1984 and then adjusting to leave out the effects of average U.S clothing price inflation (as measured by the U.S. textile and apparel wholesale price index).[5] The resulting 65 percent import price increase is on top of the average U.S. clothing price inflation over 1971-84, and may be attributed directly to our import quotas.[6]

[4]This average clothing tariff rate is calculated by the U S International Trade Commission, as reported in Murray L Weidenbaum, *Toward a More Open Trade Policy* (January 1983)

[5]It is assumed that exchange rate movements compensated for inflation rate differentials between the United States and its clothing trade partners This is likely since U S imported manufactured goods prices in U S dollar terms in general rose about the same as U S domestic manufactured goods prices during this time period Deflating by the U S apparel wholesale price index should understate the relative clothing import price rise to the extent that import prices are themselves incorporated in this index

[6]Tariffs do not affect this 65 percent figure as they were set prior to 1971 Import value data is from *Highlights of U S Export and Import Trade*, FT990, United States Department of Commerce Import volume growth is from information supplied by the United States Department of Commerce The U S textile and apparel wholesale price index is from the *Survey of Current Business* Imported and domestic manufactured goods prices are from *International Economic Indicators*, United States Department of Commerce

The 65 percent quota price rise incorporates both the rise due to increased import scarcity-value as well as the rise due to quality-upgrading In the case of clothing, both price increases should be included in the consumer cost of protection This is because imports have remained the least expensive apparel available to U.S consumers even after the imposition of trade restrictions Consumers who buy the strictly lowest-price goods available have, consequently, had no choice but to accept paying for upgraded quality[7]

The 108 percent tariff and quota import price rise alone has been responsible for a large increase in average U S clothing prices Using the average price formula discussed in the box, the clothing import price rise alone accounts for a 12 percent increase in average U S clothing costs

The second aspect of protection's effect on clothing prices is the switched purchase cost because some consumers now buy higher-priced domestic goods in place of imports This cost can be calculated from the difference between the volume and value ratios of imports to domestically-produced clothes The difference between the two ratios shows the implied price differential between the two competing clothing supplies. Clothing imports equal about 25 percent of domestically-produced clothes in value terms versus about 45 percent in volume terms This suggests a large price differential between imports and domestically-produced apparel.

An estimate of the total amount of purchases switched is required, along with these ratios, to calculate the switchover cost of protection Since the volume of clothing purchases is assumed unaffected, this switchover amount is directly equal to the amount of the import reduction due to trade restrictions. A conservative estimate of this import reduction figure may be made by assuming that during the period from 1971 to 1984, real clothing imports would have grown at the same rate as real total manufactured goods imports if there were no clothing trade restrictions. Clothing imports actually grew 17 percent less, suggesting restrictions cut imports by at least 17 percent.

Table 1

The Effect of Clothing Restrictions

Restrictions	26 percent tariff plus a quantitatively-restricted growth rate
Impact on import price	108 percent increase
Volume ratio of imports to domestic production	45 percent
Value ratio of imports to domestic production	25 percent
Implied price ratio of imports to domestic production	55 percent
Impact on domestic production price	None
Low average price rise estimate	17 percent
Low consumer cost estimate	$8½ billion
High average price rise estimate	25 percent
High consumer cost estimate	$12 billion

A more liberal but equally reasonable assumption about likely clothing import growth would be that clothing imports would have increased their U S market share to the same extent as did non-rubber shoe imports, or two and one-half times, in the absence of trade restrictions.[8] This assumption implies clothing imports have been cut almost 40 percent, with a much higher associated switchover cost of protection

Using the conservative assumption about likely import growth with the 45 percent volume and 25 percent value ratios in the average price formula suggests that the switchover cost alone has led to a 5 percent rise in average U S. clothing prices The more liberal assumption about likely import growth with the same value and volume ratios translates into a 13 percent average price increase due to protection's switchover cost

The final price factor that must be considered is protection's impact on domestically-produced clothing prices. A conservative assumption would be that sharp domestic competition has kept domestic prices in line with production costs despite trade restraints. Consequently, no domestic price rise will be attributed to the trade restrictions.

Using the average price formula to calculate protection's overall effect, the 108 percent tariff and quota

[7]The 65 percent price rise may be divided into its scarcity-value and quality-upgrading components by calculating the tariff equivalent of the quotas For this tariff equivalent calculation an import price elasticity of -1, as estimated by Kreinen, is used (Mordechai E Kreinin, "Disaggregated Import Demand Functions—Further Results", *Southern Economic Journal*, Volume 40 [July 1973], pages 19-25) Using a conservative assumption about the likely reduction of imports due to trade restraints, as is discussed later, quantity restrictions are assumed to have cut imports by 17 percent The tariff equivalent resulting from this assumption is over 20 percent, implying a scarcity-induced price rise of this amount Quality-upgrading, then, becomes responsible for the remaining 35 percent (equal to 1 65 divided by 1 20) of the price increase in imported clothes A more liberal assumption about the likely reduction of imports is that they fell almost 40 percent This changes the tariff equivalent scarcity-price increase to about 50 percent Quality-upgrading is, then, responsible for only about 10 percent of the total price rise

[8]Clothing and footwear both require about the same amount of capital and skilled labor to produce Both also face similar demand conditions

import price rise coupled with the conservative assumption about protection's switchover cost has resulted in a 17 percent rise in average U.S. clothing prices. Using the more liberal assumption about the switchover cost raises this figure to 25 percent.[9]

U S. consumers spent about $60 billion on clothing in 1984. Consequently, the consumer cost associated with the protection-induced increase in average clothing prices was very high last year. Under the conservative growth assumption, consumers paid 17 percent or $8½ billion—calculated as ($60 billion / 1.17) × 17—more than they would have to if the United States had allowed the free entry of clothing imports. With the more liberal switchover cost assumption, this consumer cost goes up to 25 percent or $12 billion (Table 1).

Sugar

Sugar sales to the United States are controlled by a U S sugar quota imposed in 1982.[10] As a result of this quota the domestic U.S. sugar price rose to over 20¢ a pound last year while the world sugar price averaged a depressed 5¢. Since sugar is a fairly homogenous commodity, selling at a uniform price regardless of whether it is imported or domestically-produced, computing the price effect of the sugar quota is very straightforward There is no need to calculate switched purchase costs, quality-upgrading effects, or different import and domestic price changes. Trade restraints simply raised the U.S. (import and domestic) sugar price by 400 percent.[11]

This 400 percent price effect may be somewhat misleading from a longer-term perspective, however. Wide cyclical price swings are normal in the international sugar market. The current international sugar price is very low If this price follows past cyclical behavior it is likely to rise in the future. Although many factors will influence future supply and demand conditions as well as price, a conservative long-term price effect estimate of sugar protection may be made by using a base year price which appears relatively normal compared to sugar's high and low price extremes The most appropriate year for this purpose is 1977.[12] Using the 1977 base world price for sugar and allowing for inflation since then, a reasonable estimate of a cyclically-adjusted international sugar price would currently be around 15¢ a pound.

If 15¢ a pound is taken as a conservative normal "long-run" world sugar price, then U.S. import quotas have raised U.S. sugar prices over 30 percent. Since U.S consumers spent over $4 billion on sugar in 1984, restrictions cost them about $1 billion last year—calculated as ($4 billion/1.30) × 0 30. If the same calculation is done using the actual rather than the cyclically-adjusted world price level, trade restrictions would be held accountable for $3 billion in added consumer cost.

Steel

In the case of steel, the United States signed a quota agreement with the European Community in October 1982 This limited European steel imports to roughly 5½ percent of the U.S market (down from 7.3 percent). At the same time, Japan initiated a system of voluntary steel export restraint in order to avoid more direct American trade action It, too, aimed at a U S market share around 5 percent (down from 6.8 percent)

While these measures substantially reduced European and Japanese steel sales to the United States, steel sales by developing countries soared in their place. The latter sales elicited charges by U.S steel producers of dumping and other unfair trade practices. In September 1984, the United States announced its intention to negotiate voluntary export restraint agreements with its other steel suppliers to limit imported steel to the United States to 18.5 percent of the U S. market.[13] During 1984 steel imports averaged 25 percent of the market.

Since these negotiations are still going on, the price effect of steel restraint has not yet been estimated from observed price changes Nevertheless, tariff equivalent calculations may be used to gain an idea as to what the effect on import price is likely to be. The tariff equivalent

[9]Earlier studies, employing different methodologies, give estimates of the import price rise due to clothing protection during the 1970s By comparing U S clothing import prices with the prices of clothes in several Asian domestic markets, Mintz estimated that protection raised U S import prices about 5 percent in 1972 and Turner estimated the rise at between 6 and 43 percent from 1970-77, depending on the year Based on tariff equivalents, the Council on Wage and Price Stability estimated imported clothing prices rose about 3 percent during the first year of restraint while Morici and Megna estimated they rose 15 percent by 1978
Ilse Mintz, *U S Import Quotas Costs and Consequences*, American Enterprise Institute for Public Policy Research (1973), Charlie G Turner, "Voluntary Export Restraints on Trade Going to the United States", *Southern Economic Journal*, Volume 49, No 3 (January 1983), Council on Wage and Price Stability, *A Study of the Textile and Apparel Industries* (1978), Peter Morici and Laura L Megna, *U S Economic Policies Affecting Industrial Trade*, National Planning Association Committee on Changing International Realities (1983)

[10]Prior to 1982, U S domestic sugar producers were aided by government price supports

[11]This assumes that the end of U S trade restrictions would not raise world sugar prices Given the current world surplus of sugar, this is not an unreasonable assumption It should be noted that the production costs of U S domestic sugar producers are much higher than 5¢ a pound

[12]Morris E Morkre and David G Tarr suggest 1977 as an equilibrium year in *Staff Report on Effects of Restrictions on United States Imports*, Federal Trade Commission (1980)

[13]This does not include unfinished steel slabs Including these slabs, imports are allowed a 20 5 percent market share

Table 2

The Effect of Steel Restrictions

Restrictions	Imports quantitatively restricted to an 18 5 percent market share
Impact on import price	5 percent increase
Impact on domestic production price	4 percent increase
Average price rise estimate	5 percent
Consumer cost estimate	$2 billion

Table 3

The Effect of Automobile Restrictions

Restrictions	Quantitative limit of 1 85 million Japanese car imports allowed a year
Impact on import price	10 percent increase
Impact on domestic production price	4 percent increase
Average price rise estimate	5 percent
Consumer cost estimate	$4 1/2 billion

will show only the import price rise due to increased scarcity-value. No estimate will be made for a possible quality-upgrading price increase. The estimated import price rise, consequently, may be lower than the actual rise that will occur.

To compute the tariff equivalent of the steel restraint, the likely level of steel imports in the absence of restrictions must be estimated. It will conservatively be assumed to be that level which would maintain imported steel's 1984 U.S. market share of 25 percent. This is a conservative estimate because imported steel has been rapidly gaining sales as steel plants come on line in many developing countries The tariff equivalent of the steel restraint, based on this volume assumption and a $-4\frac{1}{2}$ percent import price elasticity of demand as estimated by Crandall, is approximately 5 percent.[14] Steel restrictions will raise imported steel's price about 5 percent. Using the average price formula, the average consumer price rise due to this factor alone is 1 percent

Sufficient data is not yet available to calculate the purchase switchover cost of the new steel restrictions [15] Consequently, this cost will not be estimated. The overall consumer cost of steel protection will be understated to this extent.

The third price factor to consider is a rise in the price of U.S. domestically-produced steel. Donald Trautlein, the chairman of Bethlehem Steel, has stated that an 18 1/2 percent quota would probably result in a 5 percent increase in total (domestic and imported) U.S. steel prices due to a sharp rise in the price of domestically-produced steel.[16] This suggests a domestically-produced steel price rise of about 4 percent.

U S. steel purchasers currently spend about $40 billion a year for steel. An overall average steel price rise of 5 percent would be a heavy consumer cost for these purchasers to pay It would add $2 billion annually to their steel bill (Table 2).

Automobiles

U.S. import restrictions on Japanese automobiles expired at the end of March. These restrictions, in the form of a voluntary export restraint agreement the United States negotiated with Japan, had been in place since April 1981. The agreement limited Japanese sales to the United States to 1 85 million cars a year. This was down about 10 percent from the number sold during the year before the agreement, and down much more from what would have been the likely sales level in the resuscitated U S. automobile market in 1984. Japanese car sales last year accounted for about 17 percent of the total volume of U.S. car purchases.

Japanese car export prices increased substantially due to the quota. These prices were about $2,200 or 53 percent greater in 1984 than in 1980. During that same time the dollar price of other Japanese manufactured goods exports actually fell about 3 percent Consequently, the quota may be held responsible for all of the increase in Japanese automobile prices.

The 53 percent price rise for Japanese cars reflects both increased prices due to higher scarcity-value and quality-upgrading However, since higher-quality Japanese cars are no longer the lowest-priced cars available in the United States, their quality-upgrading price rise cannot simply be assumed to have been forced upon consumers who buy the strictly lowest-priced units possible. That part of the Japanese car price rise which

[14]Robert W Crandall, *The U S Steel Industry in Recurrent Crisis*, The Brookings Institution (1981)

[15]The Department of the Census has not yet published 1984 data on the value of U S domestically-produced steel shipments The 1983 numbers on domestic and foreign shipments are an inappropriate base for calculations because of significant price changes last year Data for 1983 does suggest the switchover cost at that time would have raised average steel prices in the United States by 1 percent

[16]*The New York Times* (October 9, 1984), Section D, page 1

was due to quality-upgrading should, therefore, be subtracted out in order to conservatively estimate the consumer cost of the trade restrictions [17]

Again, the tariff equivalent may be calculated to estimate the increased scarcity-value component of the total rise in import price For this calculation an import volume reduction figure of 30 percent will be used This 30 percent reduction is based on the assumption that Japanese automobile sales would have grown at the same rate as total (domestic and foreign) U S automobile purchases in the absence of trade restraint Their actual level was 30 percent less Combining this 30 percent import fall with an import price elasticity of demand of −2 53, as reported by Cline, Kawanabe, Kronsjo, and Williams, results in a tariff equivalent of 10 percent [18] Increased scarcity-value, then, accounts for 10 percent of the total rise in Japanese automobile prices Quality-upgrading is responsible for the remaining 40 percent [19]

The purchase switchover cost of the automobile trade restriction will not be calculated because a valid comparison cannot be made between the price of imported Japanese cars and the average price of U S domestically-produced cars Size differences are too great Imported Japanese cars are generally small whereas the average U S domestically-produced car price will be based on cars of all sizes, including some very large vehicles Without specific information on the price differential between Japanese cars and the actual domestically-produced small cars that consumers view as their substitute, no legitimate switchover cost estimate can be made

A significant estimate, however, can be given for the quota-inspired rise in the price of U S domestically-produced cars The oligopolistic nature of the U S automobile industry allowed this domestic price rise to occur Robert Crandall estimated that U S domestically-produced automobile prices rose over 3 percent by 1983 due to import restrictions [20] Following his methodology of comparing relative changes in U S car prices with relative changes in the U S Consumer Price Index, by 1984 the car quota raised U S domestically-produced car prices by 4 percent

Combining both the 10 percent import and the 4 percent domestically-produced car price rises in the average price formula suggests that trade restrictions increased average U S car prices by 5 percent last year (with the import price rise alone responsible for a 1 percent average price increase) U S consumers spent about $100 billion in 1984 on automobiles If prices were 5 percent higher due to restrictions, then $4½ billion of this amount was the consumer cost of automobile trade restraint (Table 3)

Summary of consumer cost calculations

The above calculations suggest that the total consumer cost of U S trade restrictions is very high Conservatively estimated, it summed to $14 billion in 1984 for clothing, sugar, and automobile restraints alone (Table 4). More liberal estimates raise this figure to almost $20 billion This year the consumer cost of clothing and sugar protection will likely increase even further as growing demand tightens the impact of the quota restraints The 1985 cost of automobile protection is unclear, depending on both the level of exports Japan may set and the growth of U S automobile demand [21] But, consumers will begin paying an additional $2 billion a year in 1985 for increased steel protection If the

[17]Removing the quality-upgrading price rise will underestimate the true consumer cost to the extent that lower-priced domestically-produced cars are perceived to be of lower quality than the pre-restriction Japanese imports

[18]William R Cline, Noburu Kawanabe, T O M Kronsjo, and Thomas Williams, *Trade Negotiations in the Tokyo Round*, The Brookings Institution, Washington, D C (1978)

[19]Feenstra provides a detailed examination of automobile quality changes following the introduction of restraints using data showing car weights, type of transmission, presence of air-conditioning, etc Robert C Feenstra, "Voluntary Export Restraints in U S Autos, 1980-81 Quality, Employment, and Welfare Effects", National Bureau of Economic Research Conference on the Structure and Evolution of U S Trade Policy (December 1982) He concludes that these changed characteristics accounted for about two-thirds of the rise in Japanese automobile prices above that of U S domestically-produced car prices during the first year of quotas

[20]Crandall provides a thorough discussion of the impact of the car import restrictions on the U S domestic automobile industry through 1983 Robert Crandall, "Import Quotas and the Automobile Industry The Costs of Protectionism", *The Brookings Review* (Summer 1984)

[21]Since this export ceiling level is set by the Japanese government, it does not violate U S anti-trust regulations

Table 4

The Consumer Cost of Trade Restrictions

Commodity protected	Total consumer purchases	Assumptions	Effect on average consumer prices of the restrictions	Consumer cost of the restrictions
Clothing	$60 billion	low	17%	$8½ billion
		high	25%	$12 billion
Sugar	$4 billion	low	30%	$1 billion
		high	400%	$3 billion
Steel	$40 billion	*	5%	$2 billion
Automobiles	$100 billion	*	5%	$4½ billion

*Not applicable

consumer cost of other U S. trade restraints not discussed here is added, the overall consumer cost of trade restraints goes even higher Clearly, U S trade protection is very expensive

The consumer cost of trade protection and income distribution

The consumer cost of U.S trade protection is more than just expensive, however Its income distribution effect must also be considered Import restraints are sales taxes on the products protected and, as is the usual case with sales taxes, they are regressive Their regressiveness can be measured by examining the "income tax surcharge" equivalents of the consumer costs to various income groups

The "income tax surcharge" equivalents are calculated by weighting the price increases of the protected goods by the average share each item commands in the average income of various income groups [22] The weighted figures show the cost of protection as a per-

[22]The latest detailed breakdown of consumer expenditure by commodity is the *Consumer Expenditure Survey of 1972-73* It is assumed here that expenditure patterns have not changed since then Steel is not included because the table refers to 1984 trade protection and also because a consumer breakdown of steel purchases, in the form of automobiles and appliances, etc , is not available Table 5 provides the income ranges listed in the *Survey* and their approximate 1984 equivalents The latter are derived from inflating 1973 levels by the CPI Incomes below $7,000 are not considered because non-monetary receipts, such as charity donations, distort the calculations

Table 5

Tax Effect on Major U.S. Import Restrictions in 1984 Under Conservative Assumptions

Income group	Income range in 1972-73 consumer expenditure survey†	Cost of protection as a percent of income*			
		Clothing‡	Sugar	Automobiles	Total
1	$3,000-$3 999	1 06	0 20	0 30	1 56
2	$4,000-$4,999	0 94	0 17	0 33	1 44
3	$5,000-$5 999	0 94	0 16	0 29	1.39
4	$6,000-$6,999	0 88	0 14	0 36	1 38
5	$7,000-$7,999	0 90	0 12	0 34	1 36
6	$8,000-$9,999	0 86	0 11	0 33	1 30
7	$10 000-$11,999	0 84	0 10	0 36	1 30
8	$12,000-$14,999	0 78	0 10	0 32	1 20
9	$15,000-$19,999	0 78	0 08	0 30	1 16
10	$20,000-$24,999	0 76	0 07	0 28	1.11
11	$25,000 and over	0 64	0 04	0 20	0 88

Income group	Approximate 1984 equivalent income range based on consumer price inflation§	Applicable federal income tax rate‖	Income tax surcharge equivalent to cost of protection¶
1	$7,000-$9,350	6 90	23%
2	$9 350-$11,700	8 48	17%
3	$11,700-$14,050	9 64	14%
4	$14,050-$16,400	10 62	13%
5	$16,400-$18,700	11 49	12%
6	$18,700-$23,400	12 73	10%
7	$23,400-$28,050	14 56	9%
8	$28,050-$35,100	16 66	7%
9	$35,100-$46,800	19 93	6%
10	$46,800-$58,500	23 50	5%
11	$58,500 and over	30 70	3%

*The percent increases in prices due to protection multiplied by percentage of income spent on each product as calculated from the *Consumer Expenditure Survey*, multiplied by 100

†*Consumer Expenditure Survey Integrated Diary and Interview Survey Data, 1972-1973*, U S Department of Labor, Bulletin 1992 (1978)

‡The *Consumer Expenditure Survey* includes footwear with clothing However, the United States has a 12 percent tariff on imported footwear which accounts for over 70 percent of total U S sales Consequently the inclusion of footwear here does not seriously affect the results

§See text footnote

‖Married persons tax rate, filing jointly, calculated for the 1984 equivalent of the average income in each income group as listed in the *Consumer Expenditure Survey*, calculation based on IRS 1040 tax tables, assuming only standard deductions; married persons tax rate is used because the average family size in the *Survey* is three people

¶Cost of protection as a percent of income divided by applicable federal income tax rate

centage of income for each group These protection "sales" tax rates are then expressed as a percentage of the federal income tax applicable to each income level to yield the "income tax surcharge" equivalent of protection [23] Details are provided in Table 5

The "income tax surcharge" calculations show that under the conservative price estimates discussed above—a 17 percent rise in clothing costs, a 30 percent rise in sugar costs, and a 5 percent rise in automobile costs—clothing restrictions, the sugar quota, and automobile restraint alone were equivalent to a 23 percent income tax surcharge on the lowest income group (incomes under $10,000 a year) in the United States last year versus a 3 percent income tax surcharge on the highest income group (incomes over $60,000 a year). This is a highly regressive result [24]

[23]Three other studies have looked at the regressiveness of U S trade restraints Norman Fieleke found U S tariff rates in 1967 and 1972 to be slightly regressive in "The Incidence of the U S Tariff Structure on Consumption", *Public Policy* (1971) He did not look at quantitative restrictions David Richardson looked at the income distribution effect of tariff cutting proposals made during the Tokyo Round in *The Impact of Multilateral Trade Liberalization on U S Labor* written for the Committee on Finance, United States Senate (May 1977) Given the relatively low tariff rates at that time, he, not surprisingly, found the income distribution effect to be quite small Don Clark looked at the distribution effects of both tariffs and quantity restrictions in "How Regressive are United States Distortions of International Trade?", *National Tax Journal* (June 1982) He found these restraints to be fairly regressive However, he used a 1971 tariff and quantity restraint schedule The major restrictions on sugar and clothing have either been put in place or significantly tightened since then

[24]Since the estimated clothing price rise due to protection includes the effect of quality-upgrading, the "income tax surcharges" may be overstated by the value consumers place on extra quality However, because low-income consumers are apt to value this quality less the regressiveness of the restrictions is likely to be understated

Using other reasonable assumptions about the price effect of protection leads to an even more highly inequitable income distribution effect As shown in Table 6, import restrictions may have amounted to as much as a 66 percent surcharge on low income families while representing only a 5 percent income tax surcharge on higher-income individuals These calculations are based on a 25 percent rise in clothing costs, the actual (rather than calculated cyclically-adjusted) 400 percent rise in sugar prices, and the same 5 percent rise in automobile costs The actual sugar price rise gives a truer picture of the current inequitable tax burden being borne by lower income families

Some final observations

The cost U S consumers are paying for trade protection on clothing, sugar, and automobiles has been shown to be both very high and very regressive Conservatively estimated at $14 billion in 1984, it amounted to over 8 percent of total consumer spending on those goods As an income tax surcharge, the consumer cost of protection was seven times as large for low-income consumers as it was for those with high incomes

Trade protection, of course, cannot be evaluated only on the basis of the high costs to consumers. A detailed comparison must be made between these costs and any benefits in order to judge the overall impact of protectionist measures As with costs, this requires a detailed and careful analysis of benefits on a case-by-case basis, which is beyond the scope of this article However, a few observations may be helpful in considering benefits

The two points usually made in favor of protection are that it is necessary to ensure fair competition in the face

Table 6

Tax Effect of Major U.S. Import Restrictions in 1984 Under Alternative Assumptions

Income group	1984 income range	Cost of protection as a percent of income				Income tax surcharge equivalent to cost of protection
		Clothing	Sugar	Automobiles	Total	
1	$7,000-$9,350	1 56	2 67	0 30	4 53	66%
2	$9,350-$11,700	1 38	2 27	0 33	3 98	47%
3	$11,700-$14,050	1 38	2 13	0 29	3 80	39%
4	$14,050-$16,400	1 30	1 87	0 36	3 53	33%
5	$16,400-$18,700	1 32	1 60	0 34	3 26	28%
6	$18,700-$23,400	1 26	1 47	0 33	3 06	24%
7	$23,400-$28,050	1 23	1 33	0 36	2 92	20%
8	$28,050-$35,100	1 14	1 33	0 32	2 79	17%
9	$35,100-$46,800	1 15	1 07	0 30	2 52	13%
10	$46,800-$58,500	1 12	0 93	0 28	2 33	10%
11	$58,500 and over	0 95	0 53	0 20	1 68	5%

of foreign subsidies and that it saves jobs The notion of fair competition is vague since it is virtually impossible to determine what is fair Different countries use different tax systems and provide various degrees of public services The question of unfair subsidies is really a question of where to draw the line between these different policies.

The complexity of this issue is shown in the case of subsidized intermediate products used in manufactured goods exports One such input, energy derived from local natural resources, is often sold at non-market prices to meet various domestic objectives. Such energy sales generally do not lead to trade partner complaints But the provision of other subsidized intermediate products, such as domestically mined metals and other minerals, frequently raises strong protectionist objections.

As for the generally more widespread argument that trade protection saves jobs, several caveats are worth mentioning The first is that protection does not guarantee that protected industries will not sacrifice the jobs of specific employees by moving to lower wage areas or by replacing these employees with machines [25] The second is that foreign retaliation may decrease employment in U S export industries while protection is preserving jobs in import-competing industries Finally, since protection raises prices, tighter macroeconomic policy aimed at reducing inflation may lead to a fall in employment for the economy as a whole even if some protected-industry jobs are saved [26]

These observations suggest that the total economic benefits of trade protection may be less than frequently assumed, and perhaps not sufficiently large to offset the very high consumer cost. However, given the complex nature of the issues involved and the limited available evidence, it is difficult to reach firm conclusions on benefits associated with trade protection Indeed, there is considerable room for more analysis in this area

[25]Clothing protection did not have the benefit of saving many specific clothing jobs in the 1970s because much of the U S apparel

Footnote 25, continued

industry moved from New England to the southern states during that time This finding is reported in Anne O Krueger, "Protectionist Pressures, Imports and Employment in the United States", *Scandinavian Journal of Economics* (1980)

[26]Econometric studies by both Cable and Aislable suggest this negative overall impact of protection on employment Their results are given in V Cable, *Protectionism and Industrial Decline*, London (1983), and E J Aislable, "The Australian Tariff as a Selective Employment Policy Instrument An Empirical Study", *Australian Economic Papers* (June 1984)