The Tariff on Dairy Products

by

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— Published by —
THE TARIFF RESEARCH COMMITTEE
MADISON, WISCONSIN
1933

AUTHOR'S PREFACE

This is a study of the effects of the tariff on the dairy industry. Part I is devoted to a brief review of some general considerations which should be kept in mind when studying the effects of recent tariff changes on prices, production, and trade. Part II is a study of the butter industry and the benefits and burdens of recent duties. Part III consists of an analysis of butter substitutes, the effect of substitution on butter prices, and the control of substitution. Part IV is an appraisal of recent cheese duties and their effects on the domestic cheese industry. Part V is devoted to an analysis of the effects of recent tariff changes on other dairy products, particularly milk, cream, casein, condensed and evaporated milk, and milk powders.

No attempt is made to use the highly deductive mathematical approach involved in the formula method of measuring the effects of a duty on price, imports, and domestic production of the taxed article. Many of the data required in the use of the formula method are too conjectural in the case of the principal dairy products to render the results obtained significant. The procedure followed in this study involves the principle of measuring the difference between domestic prices and foreign prices, and attributing the differential in favor of domestic prices to the influence of the tariff after the influence of other principal price-making factors has been considered. Changes in the butter, Swiss cheese, milk, and cream duties from 1920 to 1930 make it possible to compare price differentials existing before the duty was changed with those existing afterwards, while the period as a whole is characterized by relatively stable prices.

The author makes grateful acknowledgment to Professor John R. Commons, Professor B. H. Hibbard, and Professor W. A. Morton of the University of Wisconsin, under whose guidance this work has been prepared; and to Mr. W. T. Rawleigh, President of the Rawleigh Foundation, who made the study possible. For the many suggestions and criticisms offered by other members of the staff making the tariff investigations at the University of Wisconsin and to Miss Jane Greverus and Mr. R. B. Whiting, the author is gratefully indebted.

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Bozeman, Montana
September, 1933

THE AGRICULTURAL TARIFF SERIES

This volume, **The Tariff on Dairy Products,** represents the second of a series of monographs dealing with the most important agricultural duties in the United States and their effects upon prices, producers and consumers.

The first study of this series, **The Tariff on Sugar,** by Lippert S. Ellis, was published by The Rawleigh Foundation; the remaining stock of this monograph available for distribution has, however, been turned over to the Tariff Research Committee which, in addition to **The Tariff on Dairy Products,** will publish the following numbers of the series as rapidly as possible:

The Tariffs on Barley, Oats and Corn by Theodore W. Schultz, *Iowa State College, Ames,* Iowa. (Will be ready about December 1, 1933)

The Tariffs on Pork, Lard, Sheep, Lamb and Mutton, by Charles K. Alexander. (Will be ready about January 1, 1934)

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EDITORS' INTRODUCTION

This monograph by Professor Renne shows that while the duties on the different dairy products vary in their effects, they are on the whole of some benefit to the farmer. The extent to which a duty on any product tends to increase its price is, however, conditioned by the particular circumstances affecting the individual commodity on which it is levied. In recent years the possible benefit of the tariff has been somewhat reduced by the tendency toward increased dairy production throughout the United States. Owing to the profitableness of dairying in comparison with other lines of agriculture, many farmers in the South and West have shifted into this field. The increase in herds, together with better breeding and increased efficiency, has brought about a supply of dairy products more than adequate for present domestic needs. Since, however, dairy production has increased at about the same rate as population, there has been no general overproduction necessitating any large exports. Present low prices are primarily due not to overproduction, but to underconsumption due to the general public's lack of purchasing power.

Unlike sugar, the tariff on which is fully effective because we import one-half of our consumption, and the feed grains, the tariff on which is ineffective because they are on an export basis, the effectiveness of the duty on dairy products varies because their production and consumption is on a domestic basis. Since imports and exports are negligible, we are on the borderline between an import and an export basis; a little greater production will necessitate exports, and a little less will encourage imports. Prices are, consequently, contingent upon the potential demand and the buying power of the domestic market. The increasing favor which these commodities have been finding with the public in recent years shows that the American people are willing and anxious to consume a large volume of dairy products. The potential demand of many American families for milk and butter is in excess of their present purchasing power, and unlike some other products whose sales must be pushed, milk products need comparatively little advertising, although a certain amount of propaganda has resulted in the past in distinct increases in their consumption. At present the working people of America are not consuming enough dairy products to preserve their health.

Since production on a per capita basis is relatively stable, the recent price decline beyond all doubt is due primarily to unemployment and declining factory payrolls. A large volume of employment at good wages is, therefore, a more potent factor in creating good prices for dairy products than tariffs or legislation of other kinds. Whether or not, however, reasonable prices for dairy products will lead to increased production is dependent in part upon the prosperity of other agricultural enterprises. No portion of any industry is entirely free from the troubles of the others. Low prices for any given agricultural products create an incentive to shift into those lines in which the rewards appear greater, and this in turn tends to undermine prices of the latter. Dairy farmers are concerned both with employment and wages, and with prices of other agricultural products.

Butter. The present duty of 14 cents per pound on butter is partially effective in raising the price of butter above that existing in the world market. The effects of the tariff vary from time to time, but only occasionally does it raise prices by the full amount of the duty. The relative ineffectiveness of the duty at particular times can be readily surmised from the fact that there have been times during the depression when butter has sold as low as 15 cents a pound in retail stores. Those who say that the tariff is fully effective in raising the domestic price would, therefore, be forced to contend that in its absence butter would have been selling at one cent a pound.

Butter is definitely on the borderline between an export and an import basis. Consumption, though it varies from season to season, is relatively stable from year to year. The price at which butter is sold largely follows the general price level and business conditions. On the whole the same amount of butter is consumed from year to year, although the price paid varies with consumer purchasing power.

In this monograph Professor Renne has analyzed in detail the price effects of the tariff on butter during the past decade. Before the war our chief competitor was Canada. Now the small amount of butter imported (Imports have been less than exports each year since 1928, although neither exceeded .2 per cent of consumption during this time—Table 4) comes from Denmark and New Zealand. The comparison of butter prices in New York and London shows that the New York price tends to remain above London by an amount which is usually less than the duty.[1] It is not feasible to estimate to what extent this differential between London and New York is a real benefit to American producers in the sense that it is due to a rise in the New

[1] See Table 7.

York price and not to a fall in the London price. Such calculations would require a knowledge of foreign and domestic elasticities of supply and demand, information which is at best largely conjectural.

For all practical purposes it may be said that the tariff really creates an American market largely independent of the world market; i. e., that the tariff is high enough to make domestic supply and demand practically the sole determinants of price. This is not the case with commodities which are definitely on either an import or an export basis. The feed grains and other agricultural commodities, for instance, are on an export basis, and their price in spite of the tariff is largely determined by world conditions. Sugar, on the other hand, is on an import basis, and its domestic price is directly determined by and fluctuates with the world price, though it remains higher than the world level by the amount of the duty. Consequently, when a commodity is on an export basis the tariff is, except in certain incidental and unimportant instances, wholly ineffective, and the domestic price is related to and made in the world market; when on an import basis the tariff is effective, and though the domestic price is related to the world market, it is above the world price by the amount of the duty. Butter prices are, under present circumstances, practically unrelated to the world market. International economic price relationships are not so exact that the extremely small volume of imports relates our butter prices to the foreign market. The future effectiveness of the tariff is, therefore, largely dependent upon purely domestic conditions.

It is, of course, one of the protectionist theories that the function of a tariff is to give the domestic market entirely to domestic producers, and the benefit which those producers can get from the tariff is wholly dependent upon supply and demand in the domestic market. If producers can control supply, they may benefit; if not, the tariff speedily becomes ineffective. On the other hand, the public is presumably protected against exploitation by competition among producers. Producers may respond to these conditions in several ways: (1) They may increase their production to such an extent that competition among themselves may reduce prices to approximately the world level in spite of the tariff. In this case foreign and domestic prices, though determined in independent markets, may be approximately the same. (2) They may increase production moderately, so that domestic prices will be higher than world prices by only a part of the duty. In fact, the domestic forces of supply and demand have been such that the domestic price has been higher than the foreign

price by only a part of the duty. Since both exports and imports have been negligible, it appears that domestic forces will continue to determine the price of butter. The domestic price is related to the world price only during the winter season. (3) They may hold production in check to such an extent that domestic prices will rise by the full amount of the duty. In this case importation will be encouraged, and a rise greater than the amount of the duty will be prevented by foreign imports. Thus, in the latter case, the consumer may claim that he is exploited to the full extent of the tariff. As indicated above, however, the relation between production and price is not simple and direct, but is dependent upon the response of consumers to higher prices. Prices cannot be increased simply by control of production unless consumers are willing and able to pay these higher prices. There seems to be little doubt about the willingness of consumers to use more butter, but the prospects of great unemployment may make it difficult to increase the price materially in the near future. One of the checks upon rising butter prices is the power of consumers to substitute oleomargarine, and animal and vegetable oils.

Oleomargarine. Oleomargarine competes with butter not because of its intrinsic merits, but because of its low price. The purpose of oleomargarine legislation is the same as that of the butter tariff. The latter seeks to exclude the potential competition of foreign butter producers; the former seeks to render less effective the competition of domestic oleomargarine producers. The annual per capita consumption of butter is about 18 pounds, while that of oleomargarine is about 2 pounds. Oleomargarine prices are only about half those of butter. The effects of oleomargarine legislation have been negligible, chiefly because the penalties have not been sufficient to affect seriously production costs, and thus make oleomargarine relatively more expensive. If, however, as requested by some interests, legislation were enacted which would outlaw this product entirely, it is doubtful that the demand for butter would be proportionately increased. Many of the people who use oleomargarine do so because they cannot afford butter, and if they could not procure it, would resort to some other substitute, such as lard, or other animal or vegetable fats. If it were not available, some other types of fats and oils would be used as well as butter. The possibilities, therefore, of oleomargarine legislation are decidedly limited unless it is accompanied by higher purchasing power for those classes of our population who, because of limited means, are forced to use this substitute.

Animal and Vegetable Oils. Because animal and vegetable oils form both direct and indirect competition with butter, dairy producers have sought to limit their importation. These oils are used for various types of food products, shortenings, oleomargarine and soap. It is, however, only their use as food which has led the dairy interests to request a tariff on them.

At the present time the oils duties are largely ineffective because coconut oil, the chief import, enters the United States from the Philippines duty-free. So long as large quantities of this product can be so imported, tariffs on the other oils will probably be of little or no value. They will not burden consumers, injure soap or oleomargarine producers, nor help dairymen. This fact has led to an agitation among some interests to grant independence to the Philippines in order that their coconut oil (and sugar) may be subject to duty.

Even though the rate on coconut oil should be raised to prohibitory levels, the benefit to dairymen would be very small. Even the proposed duty of 45 per cent, if applied to the Philippines, would increase the cost of coconut oil only 2.4 cents per pound. This in turn would increase the cost of producing oleo about 1.3 cents per pound, and even if imports of coconut oil were prohibited entirely, there is enough oleo oil, neutral lard and other substitutes to permit the manufacture of all oleomargarine which can be sold. In fact, some of these products are now exported. When it is realized that the most important factor in the price of butter is consumer purchasing power, and that the prohibition of oleomargarine would not do a great deal for the dairy industry unless accompanied by greater purchasing power, the relative insignificance of the imports of copra and coconut oil can be readily seen. Furthermore, heavy duties on coconut oil would burden the soap industry and probably the soap consumers. This burden would fall largely on the poorer classes of the population, and would be of practically no value to the farmer.

Cheddar Cheese. More cheddar cheese than any other kind is produced and consumed in the United States. Since, however, it is almost wholly on a domestic basis, imports and exports being negligible, its price and the effectiveness of the tariff are largely dependent upon the same set of conditions as affect butter. Unlike the butter and milk markets, the demand for cheese is limited in this country by consumer habits, and cannot be easily increased. Our prices are sometimes above, sometimes below, the world price.

The present tariff of 7 cents per pound, not less than 35 per cent ad valorem, probably increases the price of cheese to domestic

consumers by a small amount, and the benefit to producers under the most favorable method of calculation fluctuates around 10 to 15 per cent of their total income from Cheddar cheese. On the basis of the most favorable interpretation possible, the American farmers in 1932 received about $9,687,000 from the Cheddar cheese tariff, whereas if it had been fully effective they would have received $30,000,000. These figures indicate not that the farmer is receiving a remunerative price, but merely that it is probably not quite so low as it might otherwise be.

Swiss Cheese. The price effect of the duty on imported Swiss cheese is not measurable, although it appears that it is effective in raising the price received for American Swiss. Since the consumer is willing to pay higher prices for Switzerland cheese than for American Swiss, it is possible for importers to pay the Basel price plus the 35 per cent American duty, and market this cheese in this country at a price higher than that of the domestic product. The domestic producer is, however, benefited to the extent that the higher price for the foreign product increases the price of his own. Since imports persist, however, the Switzerland cheese tariff is also a sales tax for the benefit of the Treasury.

Milk and Cream. The prices received by the farmer for milk and cream are largely dependent upon the prices of butter and other dairy products. Nevertheless, nearly one-half of all the milk produced is consumed in fluid form. The tariff on milk and cream has two purposes: to prevent importation of milk and cream for manufacture into butter and other dairy products on this side of the border; and to prevent the competition of fluid Canadian milk in the eastern markets. Owing to heavy freight costs, fluid milk cannot be transported over long distances. There is, therefore, little international commerce in milk. More Canadian milk would be shipped into Boston, New York and Philadelphia, were it not for the duty, and would have some slight effect on prices in these areas.

Whatever slight benefit accrues from the milk duty goes, therefore, to producers in a limited eastern territory. They and midwestern dairymen also probably receive a slight benefit from the cream duty, which has, in recent years, enabled the latter to ship some cream to the eastern markets. Since, however, part of the benefit is absorbed by freight rates, the value of the duty to midwestern farmers is clearly very small.

Casein. The casein tariff seems to have much more political than economic effect. From the viewpoint of the milk producer, it

is an insignificant and unimportant product, and its price has a practically negligible effect upon the prices received by farmers for their milk. Formerly the Argentine product was superior but in recent years domestic casein seems to be of equally good quality.

Since the principal use of casein is as a coating for paper, the extent to which its price can be raised is dependent upon the ability of the paper industry to use substitutes. On the most favorable interpretation possible, the maximum possible benefit of the casein duty to the milk producers is less than .07 per cent of the total value of all milk products, and if the increase in price received for casein were returned to the farmer in higher milk prices, he would have received about .08 cent more per hundred pounds of milk than he did in 1932.

In spite of these facts these microscopic benefits have been magnified for political purposes to such an extent that the public has gained a false idea of their importance.

Condensed and Evaporated Milk and Milk Powders. The domestic industry exports a portion of all these products. Imports are insignificant. A tariff is consequently of no importance, and even were it effective, the benefit would be insignificant compared with those received from the other duties.

CONCLUSIONS:

The conclusion that the dairy farmer receives some benefits from the tariff should not blind him to the fact that so long as the major farm products are in competition with the world, there is a constant tendency to undermine the small benefits he now receives. Nor are these apparent benefits compensatory for the loss suffered by him with all classes of society by the breakdown of world trade and the consequent internal economic disorganization. It affords little consolation to the domestic dairy industry to know that its present low and unremunerative prices are still a bit higher than those existing elsewhere. The farmer should, however, realize that he is now paying for the folly of that economic philosophy which believes in creating practically insurmountable trade barriers between those who would buy and sell. To the extent that these trade barriers have destroyed the foreign markets for grain and meat, they have given the dairy farmer new competitors. To the extent that they have helped to destroy the purchasing power of the grain and cotton farmers and have created unemployment in our export industries,

they have undermined agriculture as a whole, and with it the economic prosperity of the entire nation.

The logical consequences of our tariff policy were delayed by the process of credit inflation ending in 1929. By this process the creation of fictitious values in both foreign and domestic securities increased the purchasing power of the world. With the loans we made abroad, Europe was able to buy our products. When these loans stopped, our exports fell. Now we must face the decision of readjusting to a new, purely internal economy, or reviving world trade by the repeal of tariff barriers or perhaps by forgiving previous loans and making new ones.

Furthermore, it appears that the farmer is paying too high a price for the small benefits he receives. The last tariff bill raised the rates on many of the products the farmer buys, and while some of these rates are ineffective, he is obliged, because of the Hawley-Smoot tariff to pay higher prices on many manufactured goods. By the process of logrolling, the farmers' representatives exchanged purely nominal high agricultural duties for higher industrial schedules. So long as the proponents of tariffs could point out that the nation was prosperous, that workers were employed and could buy the farmer's products, little effective resistance could be offered in opposition to the steady paralysis of world trade by legislative action. Now it seems to be apparent that tariffs did not create prosperity, but helped to destroy it. If in the past they had had the beneficent influence claimed for them, then certainly their effects should now be felt, since world tariff barriers are at present higher than ever.

The picayune benefits obtained from the tariff on agricultural products considered singly are as nothing compared with the direct and indirect cost of the tariff system to the American farmer. The gains which would accrue to dairy as well as other farmers from a revival in world trade and industry far outweigh the small advantage received from rates on particular products. Yet since these small benefits are visible to the producer and the indirect losses are not, the farmer still appears to be a defender of a system which is contributing to his ruin.

John R. Commons
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Madison, Wisconsin
September, 1933

PART I. INTRODUCTORY

Chapter I. Aspects of the Dairy Tariff

Importance of Dairying

The importance of the dairy industry in the United States is attested by several significant facts: its geographical extent, the vast number of dairy cattle, the volume of milk production, and the farm income derived therefrom.

While this industry is more significant in some sections of the country than in others, nearly every farmer, with the exception of those living in the Cotton Belt, produces some milk. Thus 80 per cent of all farms in the United States keep dairy cattle, the total number of which now approximates 34,000,000 head. The estimated annual production of milk is 120 billion pounds, from which the American farmer derives 16 per cent of his total cash income. If allowance be made for the value of dairy products consumed at home, and for receipts from dairy cattle, it means that between 20 and 25 per cent of the income of farmers comes from the dairy. In 1930 farmers received for dairy products about $1,422,000,000, or approximately $250 per farmer. In addition, something like $75 worth of dairy products per farm are consumed at home. Thus the dairy, all told, ranks at the head of the list in the farmer's income. In view of the importance of the dairy industry it is clear that the working of dairy tariffs, or their failure to work, is a major consideration in the tariff issue as viewed by the farmers as a group. The annual cost of dairy products to the consumer exceeds three billion dollars, or $25 per person. This is a little over twice the sum paid to farmers for their products.

Foreign Trade of the United States in Dairy Products

From 1850 to 1905 the United States was on a strictly export basis in dairy products as a whole, with butter and cheese the principal exports. However, from 1881 to 1914 net exports gradually decreased, owing mainly to the increased importation of cheese during this period.

From 1914 to 1919, the War period, exports of dairy products were large. The heavy demand for condensed and evaporated milk

Excess of Exports or Imports, U. S. Dairy Products, 1851-1931

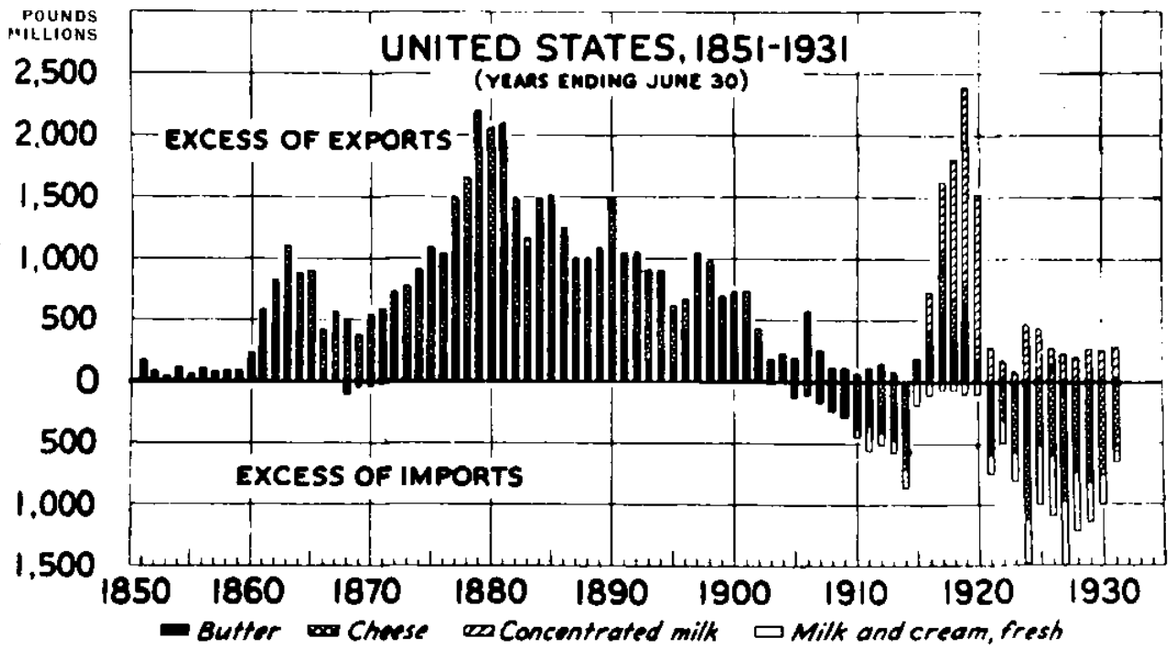

Figure 1. Prior to 1905 the United States was on an export basis in each of the principal dairy products with butter and cheese the principal exports. A heavy importation of cheese during the years 1905 to 1914 brought about a balance in favor of net imports during this period but the large demand for condensed and evaporated milk during the war caused the domestic industry to expand. The exports of these two products chiefly account for the large export balance from 1916 to 1920. The decrease in exports of condensed and evaporated milk and the increase in cheese imports chiefly account for the heavy import balance since that date. (Chart from U. S. Department of Agriculture, Bureau of Agricultural Economics.)

brought about a large expansion of the industry in the United States, and exports of these two products chiefly account for the large export balance from 1916 to 1920. Since 1920 exports of condensed and evaporated milk have greatly decreased. This decrease, combined with greatly increased cheese imports, is the chief factor in the heavy import balance from 1921 to 1928.

Figure 1 shows the excess of exports or imports of dairy products for the United States for 1851-1931.

Butter. The earliest data available showing foreign trade of the United States indicate that butter was exported even in colonial days. The years following 1790 show a gradual gain in exports until the peak year, 1880. After 1880 they declined more or less irregularly, but after 1907 turned sharply downward. Imports, which had ranged from 2 to 6 million pounds a year in the sixties, declined until at the opening of the present century they had become almost negligible. About 1910 larger amounts of butter began to come in from Denmark, Canada, and New Zealand, and by 1921 the United States was no longer on an export basis. From then until 1928 the United States failed to supply its own needs in butter, but since that time exports have exceeded imports.

Cheese. The United States was on an export basis in cheese until shortly after the beginning of the present century, reaching the high point in exports between 1875 and 1884. Imports turned sharply upward after 1890 and, with the exception of the World War period, have gradually increased until in 1929 about one-fifth of all the cheese consumed here was imported. Imports consist mainly of types not made in the United States or of certain less usual varieties in which our production falls below domestic demand.

Milk, Condensed, Evaporated, and Powdered. Foreign trade in condensed and evaporated milk was insignificant prior to 1910. Exports developed remarkably during the World War, reaching a half billion pounds in 1918. The peak was 853,000,000 pounds in 1919, since which time there has been a constant decline until now only about an eighth as much is being sold outside the country as then. About two-thirds of our total exports of canned milk are evaporated (unsweetened) milk.

Milk and Cream, Fresh. Prior to the World War imports of fresh milk and cream were rather insignificant. Then came a considerable increase, but since 1930 a low point has again been reached. Exports are unimportant.

Casein or Lacterene. Imports of casein are not recorded in official reports prior to 1904, but from then until 1930 they increas-

ed rapidly. Since 1930 imports have been very much smaller. No exports or re-exports of casein have been recorded since 1921.

Equivalent Tariff Rates

Milk may be marketed in several different forms. It may be sold as fluid milk or manufactured into whole milk powder, evaporated milk, sweetened condensed milk, or whole milk cheese. Also it may be separated into cream and skimmed milk and the cream sold as fluid cream or manufactured into butter or powdered cream. The skimmed milk may be sold either in its original liquid form, or manufactured into powdered skimmed milk, cheese, or casein.

Any or all of the above products may be produced in foreign countries and exported to the United States. The form in which milk will be shipped to the United States depends on the relative amount of the duty on the various products. If, for instance, there is a 14-cent per pound duty on butter and only a 20-cent per gallon duty on cream, butterfat from nearby territory will enter the United States not as butter but as cream since the 20-cent per gallon cream duty is equivalent to a duty of but 5 cents per pound on butter.

There are three different bases upon which tariff rates on dairy products may be equalized: (1) the amount of butterfat contained in the product; (2) the content of solids not fat; (3) manufacturing costs. The butterfat basis is the easiest method of calculating equivalent rates. It is almost sufficiently complete in itself to insure adequate protection to the dairy industry, since butterfat is the most valuable commercial element of milk. But skimmed milk is left after removing the cream. This skimmed milk is used to make powdered skimmed milk, casein, and other products and should carry an equivalent rate. The equivalent rates shown in Table I are computed on the basis of both the butterfat and the skimmed milk contained in the product. Especially in the case of such products as powdered whole milk and evaporated and condensed milk there undoubtedly are differences in manufacturing costs between the United States and foreign countries. Since no accurate analysis has been made of these costs, however, and because the United States exports considerable quantities of these products, indicating that she can meet competition on the world market basis, the manufacturing costs have not been included.

The equivalent rates shown in the table may or may not be necessary to keep out imports of the different dairy products. Theoretically, it would appear that these rates would be necessary to prevent the shipping of potential butter into this country in the form of milk,

or cheese in the form of milk or skimmed milk. But differences in manufacturing costs between the United States and foreign countries and other factors such as transportation costs and perishability may make a smaller rate on some products fully as effective as a larger equivalent rate on other products. In the following pages the effects of present rates on production, prices, and trade of each of the principal dairy products will indicate the need and probable effects of the equivalent rates determined in Table 1.

TABLE 1

Present Tariff Rates and Equivalent Rates of Specific Dairy Products

Product	Present Tariff Rate (Hawley-Smoot Tariff, 1930)[1]	Rate needed to equalize the tariff[2]
Butter	14c lb.	14c lb.
Milk	6.5c gal.	7c gal. (based on content of 3.5% butterfat and 85% skimmed milk, would equalize 14c lb. rate on butter and 3c lb. rate on powdered skimmed milk.)
Cheese	7c lb., not less than 35% ad val.	8c lb. (would equalize above rate of 7c gal. on milk. 100 lbs. milk make 10 lbs. cheese.)
Cream (40% butterfat)	56.6c gal.	56c gal. (would equalize 14c lb. rate on butter.)
Powdered whole milk	6.5c lb.	6.5c lb. (would equalize 7c gal. rate on whole milk. 100 lbs. of whole milk make 12½ lbs. of powdered whole milk.)
Evaporated or condensed whole milk	Unsweetened, 1.8c lb. Sweetened, 2.75c lb.	2c lb. (would equalize 7c gal. rate on whole milk. 2½ lbs. milk make 1 lb. evaporated or condensed milk. Calculated for unsweetened only, sugar content *not* included in above rate.)
Powdered cream (72% butterfat)	12.3c lb.	10c lb. (would equalize 14c lb. rate on butter.)
Casein	5.5c lb.	10c lb. (would equalize 3c lb. rate on powdered skimmed milk.)

Sources: [1] 71st Congress, 2nd Session, House Document No. 276, "*Tariff Act of 1930*". Copy of Public Law No. 361., Washington, D. C., 1930; [2] computed on basis of both the butterfat and skimmed milk contained in product.

History of Dairy Tariffs

The first tariff act of the United States, passed in 1789, made cheese dutiable at 4 cents per pound and "all other" dairy products

dutiable at 5 per cent ad valorem. Since that time all of our tariffs have included clauses prescribing rates on dairy products. The early tariffs applied specifically to cheese, but other products have been added as they have become more important in international trade. The present tariff applies to 13 specific dairy products. The last two tariff laws, the Fordney-McCumber Tariff of 1922 and the Hawley-Smoot Tariff of 1930, contain a "flexible clause" which makes all rates subject to change by the President of the United States. Table 2 shows the rates of duty on various dairy products under the tariff acts from 1909 to 1932 inclusive.

TABLE 2

United States Duties on Specific Dairy Products Under Tariff Acts, 1909-1932

Commodity	1930	1922	1921	1913	1909
Butter	14c lb.	8c lb.	6c lb.	2.5c lb.	6c lb.
Buttermilk	2.05c gal.	1c gal.	.....	.....	.....
Casein or Lacterene	5.5c lb.	2.5c lb.	.....	.....	.....
Cheese	7c lb.	5c lb.	23%	20%	6c lb.
Cream, fresh or sour	56.6c gal.	20c gal.	5c gal.	Free	5c gal.[a]
Milk, fresh or sour	6.5c gal.	2.5c gal.[a]	2c gal.[a]	Free	2c gal.[a]
Milk, condensed or evaporated[b] (in air-tight containers—unsweetened)	1.8c lb.	1c lb.	2c lb.	Free	2c lb.
Milk, same as above[b] (sweetened)	2.75c lb.	1.5c lb.	2c lb.	Free	2c lb.
Dried whole milk	6.08c lb.	3c lb.	.....	.....	.....
Dried cream	12.3c lb.	7c lb.	.....	.....	.....
Dried skimmed milk & buttermilk	3c lb.	1.5c lb.	.....	.....	.....
Malted milk	35%	20%	.....	.....	.....

a Fresh only.

b 1930 Act reads: "all other, 2.53 cents per lb."

Source: 1909, 1913, 1921, and 1922 rates taken from U. S. Department of Agriculture. separate from Yearbook, 1922, No. 879.

1930 rates taken from 71st Congress, 2nd Session, House Document No. 476. "Tariff Act of 1930", Copy of Public Law No. 361, Washington D. C., 1930.

Self-Sufficiency in Dairy Products

If a nation is to establish a high tariff barrier which will keep out certain products it must be reasonably certain that it can produce a sufficient supply of these goods to satisfy its needs, or that the products so shut out are not essential to the welfare of its people and can, therefore, be prohibited without ill effects on the citizens. For centuries, milk and its products have been recognized as an almost indispensable food for mankind. It is one of the most wholesome and valuable of all foods, and barring it would certainly result in ill effects on the nation if a sufficient supply could not be produced at home.

From all data available it would appear that the United States is able to produce dairy products sufficient to meet all domestic needs. The only important one in which the United States is not at present self-sufficing is cheese and, were it not for mere matters of taste, domestic production could easily satisfy the demand.

Dairy Tariffs and Farm Relief

When farmers in certain lines of agriculture receive relatively lower returns for their efforts than farmers in other lines there is a tendency to shift to the more profitable enterprises. For example, if beef is low in price and dairy products relatively high, there will be a noticeable shift to dairy products within a few years. When egg prices are low farmers will cut down on egg production. On the other hand, it is difficult for cotton or wheat farmers to shift to higher priced products, and consequently they do so more slowly.

The following pages will show the effects of present duties on prices of dairy products, the possibility of increasing prices by increasing the duties, and the possibilities of further enlargement of the domestic market through displacement of imported dairy products.

TABLE 3

United States Production of Creamery Butter by Months, 1922-1932
(in thousand pounds)

Month	1922	1923	1924	1925	1926	1927
Total	**1,153,515**	**1,242,214**	**1,356,080**	**1,361,526**	**1,451,766**	**1,466,852**
January	73,505	83,688	87,468	87,121	97,893	94,347
February	67,405	74,134	86,731	80,218	94.222	93,142
March	79,532	88,311	95,760	92,302	112,432	109,259
April	86,623	100,547	106,012	107,023	121,049	120,770
May	132,351	134,350	139,954	145,478	155,912	165,313
June	150,034	158,371	161,992	164,253	178,276	184,035
July	135,231	138,278	164,443	158,920	159.554	163,903
August	114,160	120,802	137,836	136,738	133,294	143,464
September	92,359	102,273	115,102	108,325	116,732	113,555
October	83,070	89,297	100,536	104,520	103,068	104,665
November	68,628	74,909	77,292	95,492	88,481	86,238
December	70,614	77,254	82,964	91,136	90,853	88,164

	1928	1929	1930	1931	1932 a
Total	**1,487,049**	**1,597,027**	**1,595,231**	**1,667,452**	**1,653,250**
January	101,045	103,519	108,382	118,354	121,685
February	99,394	99,963	102,252	109,596	119,404
March	111,777	114,404	115,679	126,792	129,198
April	118,849	133,684	133,271	145,367	137,923
May	156,294	174,341	184,385	183,783	184,134
June	181,037	192,869	189,788	194,256	186,736
July	167,601	185,317	167,559	161,296	159,162
August	145,430	152,192	137,420	140,395	143,763
September	119,499	123,582	122,580	120,936	124,012
October	105,894	118,116	120,247	126,569	119,327
November	87,745	97,186	101,974	117,035	108,927
December	92,484	101,854	111,694	123,073	118,979

a Preliminary.

Source: U. S. Department of Agriculture, **Handbook of Dairy Statistics**, 1928, p. 39 for data through 1926. From 1926 to 1932 from U. S. Department of Agriculture, Bureau of Agricultural Economics.

normal).[1] In general, production moves up from the low point of November and December until peak production is reached in June, from which there is again a decline until November.

Consumption. Normally our consumption is approximately equal to our production. Both exports and imports are small: from 1890-1915 exports amounted to less than 3 per cent and imports to less than one per cent of domestic consumption. Since 1923 the trend of both exports and imports has been downward.[2] (See Fig-

[1] Snodgrass, Katherine, **Margarine as a Butter Substitute**, Food Research Institute, Stanford University, California, December, 1930. p. 209.

[2] During the World War exports increased and remained large between 1919 and 1923, the period of relatively large imports. (A large proportion of our exports go to the West Indies and Central American Countries. Some of this movement is maintained in years of net imports because of permanent trade connections.)

U. S. Imports and Exports of Butter, 1890-1932

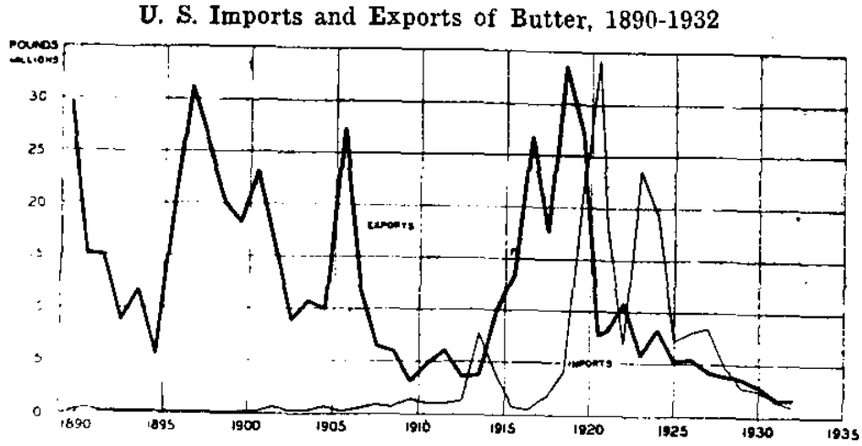

Figure 3. Normally our consumption of butter is approximately equal to our production. During the World War exports increased and remained large between 1919 and 1923, the period of relatively large imports, but since that time the trend of both exports and imports has been downward. Our exports go largely to the West Indies and Central American countries and even in years of net imports some of this movement is maintained because of permanent trade connections.

ure 3.) Table 4 shows U. S. total and per capita consumption of butter, net imports as absolute amounts and as a percentage of total butter consumption, and oleomargarine consumption as a percentage of the total butter and oleomargarine consumption for the years 1920-1932. From this table it can be seen that United States imports of butter amount to a very small percentage of our total consumption and in some years, especially those since 1929, were actually exceeded by exports. Table 4 brings out the significant fact that while the United States in 1932 actually exported more butter than she imported, oleomargarine consumption was more than 8 per cent of her total butter and oleomargarine consumption.

The consumption of butter is relatively stable from year to year, but there is a seasonal variation in both consumption and price. This indicates that the price at which varying quantities can be sold at different times changes considerably. Consumption, although it follows the same seasonal variation as production, does not fluctuate as widely. Thus consumption (based on the period 1917-1929) varies from 80 per cent of normal in February to 120 per cent in May.[3] Cold storage makes possible preservation from surplus to deficiency seasons and tends to lessen seasonal fluctuations in price. Much butter is put into storage during the summer months and taken out in the winter months.

[3] Snodgrass, Op. Cit., p. 216.

TABLE 4

U. S. Consumption of Butter, Total and Per Capita
Net Butter Imports, Total and as % of Consumption
Oleomargarine Consumption, Total and as % of Combined Butter and Oleomargarine Consumption, 1920-1932

Year	Butter Consumption		Net Imports		Oleomargarine Consumption	
	Amount (1,000 lbs.)	Per Capita	Amount (1,000 lbs.)	Per cent of total butter consumption	Amount (1,000 lbs.)	Per cent of total butter and oleomargarine consumption
1920	1,553,590	14.7	19,996	1.28	359,966	18.81
1921	1,725,733	16.1	10,544	.61	210,210	10.86
1922	1,796,053	16.5	3,980[a]	.22[a]	179,627	9.09
1923	1,876,770	17.0	17,895	.95	225,461	10.72
1924	1,976,905	17.4	11,148	.56	229,872	10.42
1925	2,006,303	17.4	1,869	.09	232,303	10.38
1926	2,088,150	17.8	2,546	.12	242,710	10.41
1927	1,990,842	17.6	4,017	.20	274,577	12.07
1928	2,080,316	17.3	761	.04	317,465	13.24
1929	2,111,530	17.6	951[a]	.05[a]	353,129	14.29
1930	2,119,452	17.8	482[a]	.02[a]	321,360	13.17
1931	2,173,066	18.3	102[a]	.004[a]	226,792	9.45
1932	2,198,335[b]	18.4[b]	591[a]	.03[a]	198,232	8.27

[a] Net exports.

[b] Preliminary.

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics; and U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

This seasonal variation in sales is not explained wholly by increases or decreases in oleomargarine consumption. It appears that the consumption of fats is relatively inelastic, and that when butter consumption is curtailed the consumption of other fats is increased. However, "it must be remembered in this connection that there are many other ways of obtaining fat in the diet than through spreads for bread. In winter the consumption of meat is relatively high, and gravies are used more freely than in summer. These are both important ways of increasing the fat in the diet. In summer, on the other hand, sandwiches and vegetables, both of which require butter or a similar spread, probably increase in use. These seasonal dietary variations help to explain the relatively low consumption of butter in the winter months. (If in a diet one must depend on the vitamins in the spreading materials, then butter must be chosen and not margarine.)

"But there can be no doubt that price plays a very important part in determining the rate of consumption of butter. Because of the inevitable seasonal characteristic of butter production, butter prices rise markedly in the winter, as compared with the summer. Primarily because of this rise, but for other reasons too, as noted above, consumption is much curtailed in winter. Among those families where butter is used as a spread it is spread thinner; among those who also use it for cooking it is used less generously than in summer."[4]

Factors Determining Prices. In view of the comparative stability of annual production and consumption the price movements, other than seasonal, are due chiefly to changes in general business conditions, price levels, and factory payrolls. Demand has been a more important factor than supply during the last few years, because the purchasing power of the public has changed more radically than has the production of butter. Approximately the same amount of butter per capita will be sold during good times as during bad times. It is the price, not the quantity, which varies.

There is a close correlation between butter prices and business conditions. This is true whether business conditions are measured by composite economic series in the form of an index of business activity, or an individual series such as factory payrolls. An examination of the movement of factory payrolls and butter prices shows that these two series move closely together.[5] This does not necessarily indicate that fluctuations in butter prices other than seasonal are due solely to fluctuations in factory payrolls. They are probably due to changes in business in general with all that they entail. Observation, however, does indicate that factory workers are affected much more by changes in their pay envelopes than are other more prosperous classes.

Another factor determining the price of butter, discussed more in detail hereafter, is the substitution of oleomargarine for butter.[6] Some substitution occurs normally among some people at all times and may, therefore, be termed "normal substitution". Additional substitution occurs when people who do not ordinarily use oleomargarine begin to substitute it for butter because (1) the price of butter has risen or (2) their purchasing power has been reduced due to business depression and unemployment. Substitution due to a rise in price

[4] Snodgrass, **Op. Cit.**, p. 252.

[5] See Vial, E. E. **The Dairy Situation and Outlook, December, 1932**, U. S. Department of Agriculture, Washington, D. C., Mimeographed Report, p. 3.

[6] See Chapter IV.

may be termed "price substitution" or "price competition", and substitution due to business depression may be termed "cyclical substitution", since it occurs with the business cycle.

Oleomargarine is used as a spread, not because it is preferred to butter, but because it is cheaper. Since it is also used for cooking, it does not follow that if the production of oleomargarine should be entirely prohibited the consumption of butter would be increased proportionally. Other oils or fats would be used more than now for cooking. Furthermore, since many laboring people use oleomargarine because they cannot afford butter, the price of butter would not be greatly and certainly increased merely by prohibiting the sale of oleomargarine. Higher butter prices are conditioned upon a higher income for the working population in order that the workers may have the ability as well as the desire to buy butter.

Competition

Before the World War, Canada was our chief competitor for the United States market. For the five year period, 1909-1913, over half of our butter imports came from Canada. Total imports during this period, however, were very small and were exceeded by exports. Since the War, Denmark and New Zealand have displaced Canada as the principal source of United States imports.

TABLE 5

United States Butter Imports from Principal Countries, Average 1909-1913 and annual 1920-1931

Period	Denmark	Canada	New Zealand	Australia	Argentina	Total all Countries
1909–1913[a]	232	545	8	54	.....	1,040
1920	19,935	9,236	645	3	4,049	37,454
1921	12,238	2,846	969	1,434	696	18,558
1922	2,805	2,151	995	641	202	6,957
1923	8,822	5,931	4,706	137	2,001	23,741
1924	7,192	2,807	4,313	89	3,189	19,405
1925	502	3,626	2,395	90	354	7,212
1926	1,497	340	2,088	456	1,024	8,029
1927	1,103	392	3,408	34	334	8,460
1928	722	354	2,728	139	84	4,659
1929	983	156	1,343	37	63	2,773
1930	911	188	970	129	.....	2,472
1931	197	664	844	4	2	1,882

[a] Average.

Source: U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, **Annual Reports.**

Canada. Canada continued to ship on the average about 5 million pounds of butter to the United States each year from 1920 to 1926. Between 1926 and 1931 Canada shifted to an import basis and during these years only negligible quantities were shipped to the United States. During 1931, however, Canada returned to an export basis, thereby increasing the competition between domestic and Canadian butter producers.[7] (See Table 5.)

Denmark. From 1920 to 1924 Denmark was the chief exporter to the United States, but since 1925 New Zealand has occupied first place. In 1931 nearly half of the United States butter imports came from New Zealand. Denmark can ship to England and Germany cheaper than to us. Moreover, Denmark secures the top quotation in London, which is the world's largest butter market. Since 1927 a strong British demand for Danish butter has kept shipments to the United States very low. On the other hand, New Zealand can ship to the United States just as cheaply as to England, and the possibility of diverting to the United States shipments en route for England, or vice versa, strengthens her competitive position.

New Zealand. Until the summer of 1930 New Zealand and Australia had preferential trade agreements with Canada which enabled them to ship butter into Canada with a duty of only one cent per pound. In 1929 New Zealand shipped 34 million pounds of butter to Canada. Considerable quantities of her butter were diverted to Canada during the period 1926-1930. However, on October 12, 1930, the Canadian tariff on New Zealand butter was raised to 4 cents per pound and later increased to 8 cents. These duties virtually checked New Zealand butter shipments to Canada and increased the relative importance of the United States as a market.

Imports from Denmark are spread throughout the year, while those from New Zealand are concentrated in the four winter months from December to March. It is during these four months that imports have their greatest effect on prices, because demand is very sensitive under the high prices characteristic of the winter season. Imports from New Zealand, therefore, because of their large total volume and concentration in a limited period, constitute the chief foreign competitive element in the United States industry.

Our imports of butter in 1932 were the lowest since 1918. Exports exceeded imports by approximately one million pounds in

[7] The Canadian balance of trade in butter shifted from a net importation of 34,300,000 pounds during the first eight months of 1930 to a net export balance of 3,400,000 pounds during the same period of 1931. See Olsen, Nils A., **The Outlook for the Dairy Industry**—Address given before the National Dairy Federation, Chicago, Illinois, December 3, 1931. Mimeographed publication of the U. S. Department of Agriculture, Bureau of Agricultural Economics, p. 7.

1929, by one-half million pounds in 1930, by one-tenth million pounds in 1931, and by one-half million pounds in 1932. (See Table 6). These data indicate that competition from foreign countries is comparatively small and that it is smaller now than it has been for several years. Table 5 shows the United States imports of butter from principal countries, average for the period 1909-1913 and annually from 1920 to 1931.

TABLE 6

U. S. Imports and Exports of Butter, 1890-1932 (in thousand pounds)

Year (Ending June 30)	Imports	Exports	Year (Ending June 30)	Imports	Exports
1890	76	29,748	1913	1,162	3,586
1891	381	15,187	1914	7,842	3,694
1892	114	15,047	1915	3,828	9,851
1893	73	8,920	1916	713	13,487
1894	144	11,812	1917	524	26,835
1895	72	5,599	1918	1,806	17,736
1896	52	19,374	1919	4,131	33,740
1897	38	31,345			
1898	32	25,690	1920	20,771	27,156
1899	24	20,248	1921	34,344	7,829
1900	50	18,266	Year Ending December 31		
1901	94	23,244	1921	18,558	8,615
1902	454	16,002	1922	6,957	10,938
1903	207	8,896	1923	23,741	5,846
1904	154	10,718	1924	19,405	8,257
1905	593	10,071	1925	7,212	5,343
1906	197	27,361	1926	8,029	5,483
1907	442	12,545	1927	8,460	4,343
1908	781	6,463	1928	4,659	3,898
1909	646	5,981	1929	2,773	3,724
1910	1,360	3,141	1930	2,472	2,954
1911	1,008	4,878	1931	1,882	1,984
1912	1,026	6,092	1932	1,014	1,605

Source: U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, **Monthly and Annual Reports.**

During the last few months of 1931 the unusual financial developments in several foreign countries changed the relationship between domestic and foreign prices and increased competition from foreign countries. The abandonment of the gold standard by England and other north European countries widened for a short time the margin of domestic over foreign prices to the extent of the import duty rates.[8]

[8] "In the middle of October, *the export prices of* butter at Copenhagen and No. 1 butter at Montreal were about 15 cents lower than the price of 92-score butter at New York, and several carloads of Canadian butter were imported over *our 14-cent tariff wall.* The decline in domestic prices during the latter part of October, however, reduced the margin of domestic over foreign prices and stopped imports." See Olsen, Nils A., **op. cit.**, p. 7.

Methods of Measuring the Effects of the Duty

It was indicated above that domestic production and consumption of butter are quite evenly balanced. Imports and exports are almost negligible. Consequently, unlike cotton, wheat, corn, and pork, which are definitely on an export basis, or sugar, which is definitely on an import basis, butter is practically on a domestic basis. With the exception of a few imports, principally from New Zealand, the American producer has the American market. To what extent is this due to the tariff? How much does it benefit the farmer? An attempt will be made to answer these questions in the following pages.

The purpose of the duty on butter is to protect domestic producers from foreign competition. Propagandists often assume, rather naively, that any increase in any duty will bring about an increase in price. The fallaciousness of this contention has been abundantly demonstrated in recent years. A duty may affect imports and prices greatly, moderately, or not at all.

Difficulties in Measuring the Effects of the Duty. While the effect of a duty on imports is partly revealed in the statistics of imports, its effect on price is not so easily discernible. Moreover, its effect on imports and prices is not necessarily correlative. A duty may prohibit or greatly restrict imports without significantly changing the domestic price. On the other hand, as in the case of sugar, 50 per cent of the domestic consumption may enter over the tariff wall and domestic prices increase by virtually the amount of the duty.

The effect of the butter tariff cannot be assumed; it must be demonstrated. It operates differently under different circumstances. Since many circumstances affect supply and demand and, therefore price, it is difficult if not impossible to determine to what extent these absolute price movements are due to the duty, or to say whether prices are absolutely higher than they would be if the tariff did not exist. It is possible, however, to ascertain to what extent prices are higher in this country than abroad and to make some estimate of how much of this difference is due to the tariff and of the benefits to the American producer. This analysis will show that during the last decade the butter duty has been to some extent the cause of higher prices. The price differential has usually been less than the amount of the duty and has varied from time to time.

The Price-differential Method. If there were no tariff barriers and if trade movements were free and undisturbed, prices for the same freely exchangeable commodities in the different markets of the world would tend to be equal. Any great differences

would result either in increased or in restricted movements of commodities from surplus to deficit areas until prices got back into line.

A comparison of the domestic price of 92-score butter in New York and the price of New Zealand butter in London will show whether or not American prices are lower, equal to, or higher than the world price. If the domestice price is below or equal to the world price, it is almost conclusive evidence that the tariff has had no direct effect upon domestic butter prices—it has neither raised nor lowered them. While the direct effect of a duty may be nil or negligible, it cannot, except under extraordinary circumstances, be negative. If the American price is higher than the world price after due allowance is made for other factors, the price differential may safely be attributed to the tariff.

Ascertaining the effect of a duty by measuring the difference between domestic and London prices and attributing the differential in favor of domestic prices to the influence of the duty, allowing for other price factors, may be called the price differential method. This method is particularly applicable in the case of butter. The duty on butter has been changed four times since the World War. Thus, price differentials existing before the tariff was changed may be compared with those existing afterwards, while the period as a whole is characterized by relatively stable prices.

The tariff on butter was raised from 2.5 to 6 cents per pound in 1921, to 8 cents in 1922, to 12 cents in 1926, and to 14 cents in 1930. As a result, the years 1923-1925 inclusive and 1927-1929 inclusive present two periods characterized by a relatively stable price level, the former with an 8-cent duty, the latter with a 12-cent duty. If the principal price-making forces during these two periods are analyzed and properly appraised, the approximate influence of the 8-cent and 12-cent duties on domestic butter prices can be determined.

After the appraisal of the price factors has been made, the resultant differential is not what might be expected. Usually a duty will create a full differential between foreign and domestic prices, if the product is on an import basis. Butter is imported, but the actual differential is an amount entirely different from the amount of the duty. Sometimes it exceeds the duty; at other times there is even a differential in favor of the foreign country; but most of the time the differential is equal to only a part of the duty.

This partial differential can be explained by the fact that we are virtually on a domestic basis. If we were on a definite import basis there should be a full differential (a differential equal to the amount of the duty), and if we were on a definite export basis there should

be no differential unless there were centralized control of the domestic market which could dump our surplus in the world market.

A little more domestic butter than normal puts us on an export basis or a little less puts us on an import basis. We are so close to the boundary line that we may be actually on an export basis for a given month as a whole and yet find it profitable on certain days during that month to import butter. Figure 4, which shows daily wholesale prices of 92-score butter at New York from November 1, 1930, to February 28, 1931, indicates that domestic prices fluctuated by as much as 9 cents a pound within a given month during this period.

Daily Wholesale Prices of Butter, New York

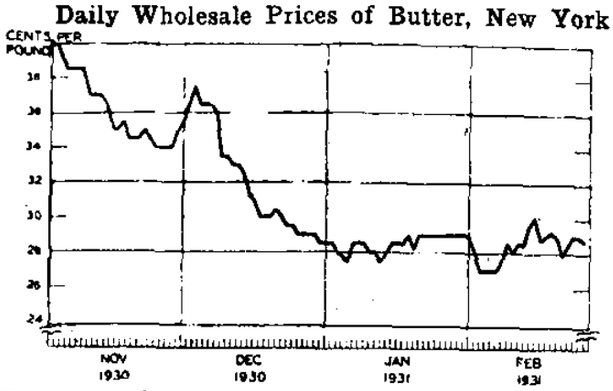

Figure 4. Domestic butter prices in our principal markets change considerably from day to day, fluctuating by as much as 9 cents a pound within a given month in the New York wholesale market during the period covered in the figure. Prices in foreign markets also show fairly wide short-time fluctuations, and since these do not always coincide with fluctuations in domestic prices alert traders find a profit in shipping butter to New York during some months when the average price would indicate a loss. Prices used in Figure 4 are for 92 score.

Prices in foreign markets also show fairly wide short-time fluctuations, and since these do not always coincide with the fluctuations in domestic prices alert traders find a profit in shipping butter to New York during some months when the average price would indicate a loss.[9] The author just cited, Mr. Wright, proceeds in pages 159 and 160 of his book to show clearly some of the factors causing prices in the domestic market to fluctuate widely within a given month. After considering daily receipts, daily prices, and all imports or expected imports in the New York market for the months from November to April, 1924-1927, he draws the following conclusions:

1. "Receipts from domestic sources vary greatly from week to week and even from day to day. The receipts on two successive days or for two successive weeks sometimes differ by as much as a million pounds. Imports for an entire week are generally less than the daily fluctuations in receipts from domestic sources.

2. "The daily fluctuations in price vary much less than the daily fluctuations in receipts from either domestic or foreign sources, and appear to have little or no connection with them. That

[9] "In 1924 though the average in New York was only 1.1 cent higher than the average price of Danish butter delivered in New York, and in spite of an eight-cent duty, imports of butter amounting in all to 19.3 million pounds, were received." See Wright, P. G., **The Tariff on Animal and Vegetable Oils**, New York, 1928, p. 156.

is, an increase in receipts is about as likely to be followed by an increase in price as by a decrease. The reason for this independence is to be found in the fact of cold storage. If the price shows a tendency to decline because of large receipts, butter goes into cold storage; if the price shows a tendency to rise because of small receipts, butter comes out of cold storage and appears on the market.

3. "The dominance of the New York market is not so great as is usually contemplated. Other markets, especially Chicago, have an independent price-determining influence. . . . .

4. "The fluctuations in price are not based simply on conditions of supply and demand in the New York market but are based on the varying estimates of New York dealers, estimates which take into account many factors—reports as to production, actual and prospective, in creameries; prices in Chicago and in foreign markets; receipts, immediate and prospective from domestic and foreign sources; stocks in the hands of the 'trade'; and the normal seasonal demand."

Weekly Wholesale Prices of 92 Score Butter at New York and of Finest New Zealand Butter at London—January-Dec., 1931

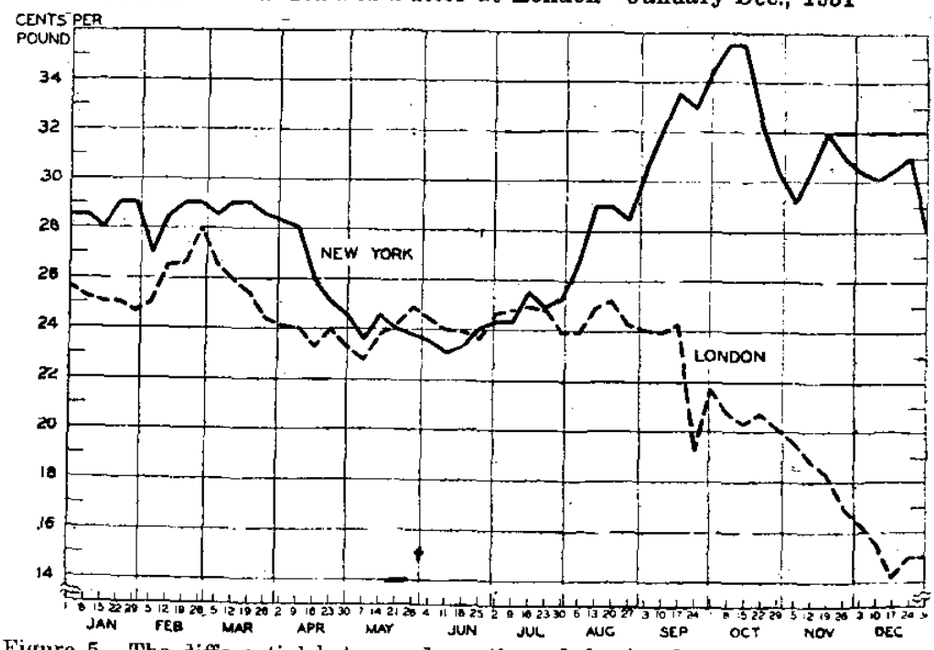

Figure 5. The differential between domestic and foreign butter prices fluctuates from day to day and from week to week within a given month. The fact that we are intermittently on an export and an import basis, keeps the differential in a constant state of flux and equal, on the average, to but a part of the duty.

Figure 5 shows weekly wholesale prices of 92-score butter at New York and of finest New Zealand butter at London, January-December, 1931. From this figure it can be seen that the differen-

tial between domestic and foreign prices fluctuates from week to week within a given month. Thus the relationship between prices in domestic and foreign markets is in a constant state of flux. For very short periods, prices in domestic markets may rise high enough above world market prices to permit profitable importation. But with increased receipts of domestic supplies we may be on an export basis the following week and domestic prices may fall to a point below the profitable importation level. If this condition lasted for any considerable length of time domestic prices would soon adjust themselves to the level of prices in the world market. Or if we stayed on an import basis for any considerable length of time, domestic prices would soon adjust themselves to a level above world market prices by the amount of the duty. But since we are intermittently on an export and an import basis, or so close to the neutral zone between the two that we are virtually on a domestic basis and our markets are, for a time at least, subject to purely domestic factors, an average differential equal to only a part of the duty usually prevails between domesic and foreign prices.[10]

As evidence for these conclusions the seasonal character of the differential may be cited. In the winter months when we are ordinarily on a much more decided import basis than during the summer months, the differential between domestic and world market prices is greatest. This indicates that when we are on an import basis for a considerable period, domestic prices tend to rise above foreign prices by the amount of the duty. But during the summer months when heavy domestic supplies may bring us to an export basis, domestic prices tend to equal world market prices, and in seasons of unusually heavy domestic supplies may go somewhat below them.

In the following chapter the effects of each of the recent duties on domestic butter prices will be discussed. The reader will find from these pages that during most of the time under each duty a differential between domestic and world market prices equal to only a portion of the duty was maintained. To explain this partial differential, not only will the factors causing fluctuations in domestic and foreign butter prices be analyzed, but also an attempt will be made to explain why prices in these markets do not by any means always fluctuate together, causing the differential to vary from time to time.

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[10] *In every month in the entire period* 1920-1932 there were both imports and exports. According to Wright, "some of this *trade is to be accounted for* by differences in quality and by established trade connections. Danish butter is somewhat different in its composition and flavor from 92-score creamery and is *imported in substantial quantities even when* its price is higher. Exports consist partly of canned butter for the tropics". Wright, P. G., *op cit.*, p. 155.

TABLE 7

Prices: 92-Score Butter at New York and Finest New Zealand Butter at London, by Months, 1922-1932

Month	1922			1923			1924			1925		
	N. Y.	London	N. Y. above London	N. Y.	London	N. Y. above London	N. Y.	London	N. Y. above London	N. Y.	London	N. Y. above London
Average	**40.7**	**37.3**	**3.4**	**46.8**	**37.7**	**9.1**	**42.6**	**38.7**	**3.9**	**45.3**	**41.3**	**4.0**
January	37.5	25.9	11.6	52.2	41.0	11.2	52.9	40.7	12.2	40.6	37.2	3.4
February	37.2	27.6	9.6	49.5	42.4	7.1	50.4	38.5	11.9	40.8	38.4	2.4
March	38.4	31.9	6.5	49.6	42.7	6.9	46.9	33.5	13.4	47.6	39.3	8.3
April	37.7	36.5	1.2	46.3	33.8	12.5	38.8	30.9	7.9	44.7	38.1	6.6
May	36.8	34.8	2.0	41.6	29.9	11.7	38.7	33.3	5.4	42.9	37.6	5.3
June	36.7	40.3	-3.6	38.4	31.6	6.8	41.5	34.2	7.3	42.6	40.8	1.8
July	36.2	43.4	-7.2	39.2	33.3	5.9	40.5	47.2	-0.7	42.4	42.8	-0.4
August	35.4	40.5	-5.1	43.9	36.8	7.1	38.4	41.0	-2.6	43.5	43.6	-0.1
September	41.0	42.7	-1.7	46.0	39.8	6.2	37.9	42.1	-4.2	47.6	45.0	2.6
October	46.0	42.8	3.2	47.5	39.6	7.9	38.5	45.0	-6.5	51.0	48.6	2.4
November	50.7	42.8	7.9	52.4	39.9	12.5	42.5	43.8	-1.3	50.6	45.5	5.1
December	54.2	38.1	16.1	54.7	42.0	12.7	44.7	44.1	.6	49.2	38.7	10.5
	1926			1927			1928			1929		
Average	**44.4**	**36.7**	**7.7**	**47.3**	**36.7**	**10.6**	**47.4**	**38.5**	**8.9**	**45.0**	**37.3**	**7.7**
January	44.8	38.0	6.8	49.2	37.7	11.5	48.8	35.0	13.8	47.9	40.1	7.8
February	44.8	38.2	6.6	51.5	38.0	13.5	46.6	35.9	10.7	49.9	37.6	12.3
March	43.1	37.9	5.2	50.2	34.9	15.3	49.4	37.9	11.5	48.5	36.3	12.2
April	39.6	37.9	1.7	50.3	33.0	17.3	45.5	37.4	8.1	45.4	35.8	9.6
May	40.9	37.2	3.7	43.5	35.0	8.5	44.9	37.3	7.6	43.5	36.1	7.4
June	41.2	38.3	2.9	42.5	36.2	6.3	44.1	38.6	5.5	43.5	36.8	6.7
July	40.5	37.2	3.3	41.7	35.4	6.3	44.9	40.4	4.5	42.4	37.2	5.2
August	41.6	37.9	3.7	41.9	36.8	5.1	46.9	40.6	6.3	43.5	37.4	6.1
September	44.3	35.8	8.5	46.5	39.9	6.6	48.8	40.3	8.5	46.2	38.6	7.6
October	46.7	32.1	14.6	48.4	38.7	9.7	47.8	39.9	7.9	45.6	39.3	6.3
November	50.3	32.6	17.7	49.8	38.5	11.3	50.6	38.9	11.7	42.7	37.5	5.2
December	54.5	37.3	17.2	51.9	36.7	15.2	50.5	40.0	10.5	41.1	35.2	5.9
	1930			1931			1932					
Average	**36.5**	**28.3**	**8.2**	**28.4**	**24.3**	**4.1**	**21.0**	**17.2**	**3.8**			
January	36.6	33.8	2.8	28.5	26.3	2.2	23.6	16.2	7.4			
February	35.7	32.7	3.0	28.4	27.2	1.2	22.5	17.2	5.3			
March	37.3	30.0	7.3	28.9	27.2	1.7	22.6	18.9	3.7			
April	38.5	27.4	11.1	26.1	25.1	1.0	20.1	19.2	.9			
May	34.8	28.0	6.8	23.7	24.8	-1.1	18.8	17.2	1.6			
June	32.9	28.8	4.1	23.3	25.5	-2.2	17.0	16.9	.1			
July	35.2	29.6	5.6	25.0	26.0	-1.0	18.2	17.4	.8			
August	38.9	29.0	9.9	28.1	25.8	2.3	20.3	17.8	2.5			
September	39.8	27.6	12.2	32.5	24.3	8.2	20.8	18.6	2.2			
October	40.0	24.9	15.1	33.8	22.2	11.6	20.7	18.1	2.6			
November	36.1	23.4	12.6	30.9	20.3	10.6	23.3	15.3	8.0			
December	32.2	24.0	8.0	30.6	17.3	13.3	24.1	13.7	10.4			

Source: New York Prices from U. S. Department of Agriculture, Bureau of Agricultural Economics. London prices from 1922-1928 inclusive from U. S. Tariff Commission, Annual Report, 1929, p. 188. London prices from 1929 to 1932 from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Chapter III. Effects of the Butter Duties, 1920-1932

This chapter will discuss the influence on prices, production, and trade, and the benefits to producers and burdens to consumers resulting from the butter duties.

Price Effects of Recent Duties

Comparable grades of butter quoted in New York and London will be used to make comparisons for the purpose of measuring the price effects of the tariff. New York prices are those quoted on 92-score butter and London prices are those quoted on finest New Zealand butter,[1] and reduced to American cents by using the average monthly rates of exchange as quoted in Federal Reserve Bulletins. The gross differential between these prices will be shown by a comparison of monthly average prices.[2] (See Table 7). This differential is plotted in Figure 6 and shows when New York prices are above London prices and when they are below.

Monthly Average Wholesale Prices
of 92-score Butter at N. Y. and of finest New Zealand Butter at London 1922-1932

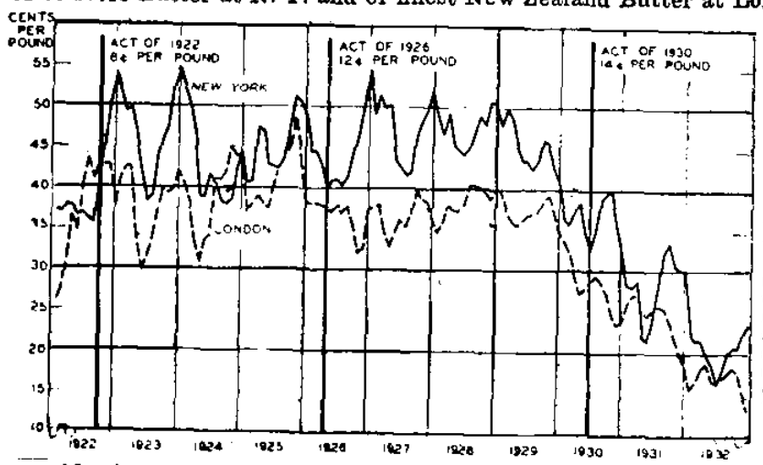

Figure 6. When New York prices are equal to or below London prices the tariff is wholly without direct effect on American prices. The tariff was virtually ineffective during the summer and fall months of 1924, the summer months of 1925, and the late spring and early summer months of 1931 and 1932.

[1] Members of the butter trade are divided on the question of the comparability of prices of best New Zealand butter in London and prices of 92-score butter in New York. New Zealand butter usually sells a little below 92-score butter prices in New York but a little above 91-score butter prices, so that prices of New Zealand butter in London are not exactly comparable with either 92-score or 91-score butter prices in New York. But since prices of 92-score butter in New York seem to be the standard or norm around which prices of all other domestic butters tend to fluctuate, New York prices for 92-score are used in preference to prices for 91-score.

[2] The reader should keep in mind the fact that the differential between domestic and world market prices varies greatly within the month. In spite of this shortcoming these data are the best obtainable since London daily quotations are not available.

When New York prices are equal to or below London prices, allowing for freight and other factors, it is obvious that the tariff is wholly without direct effect on American prices. As will be shown below, the tariff was virtually ineffective[3] from the summer months of 1924 until the latter part of 1925.

When New York prices are above London prices it is necessary to inquire whether the differential is due to the duty. It is clear of course, that the size of the differential may change from time to time for any one or a combination of the following four reasons:

1. A rise in the New York price due to—
    a. An increase in domestic demand.
    b. A decline in domestic supply.
2. A fall in the New York price due to—
    a. A decline in domestic demand.
    b. An increase in domestic supply.
3. A rise in the London price due to—
    a. A decline in the world supply.
    b. An increase in the world demand.
4. A fall in the London price due to—
    a. A decline in the world demand.
    b. An increase in the world supply.

It is possible that the influence of a combination of the above factors might cause the differential between domestic and world market prices to exceed the duty. Obviously, when the differential exceeds the duty it cannot be attributed wholly to the influence of the duty. For example, a duty of 12 cents cannot, in and of itself, maintain a differential greater than 12 cents. But a differential less than the duty may be taken as a measure of the direct or actual effect of the duty on domestic prices since without the duty prices in domestic markets would tend to equal prices in world markets. Insofar as various price-making influences affect the size of the differential so that it is less than the duty, they have, so to speak, "offset" in part the theoretical influence of the duty, which is to maintain a differential equal to itself.

The following discussion will point out the price factors that were at work in the domestic and world markets in order to determine the direct or actual effect of the butter duties in maintaining domestic prices above world market prices during 1920-1932.

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[3] By the term ineffective is meant that the duty had not sufficient influence to make domestic prices higher than foreign prices. In other words, in spite of a tariff wall, other price-making forces in the two markets exerted sufficient influence to either raise foreign prices or lower domestic prices so that no differential between New York and London prices occurred.

The Tariff of 1921. Because of disturbed market conditions, it is practically impossible to measure the influence of the duty in raising domestic prices above world prices between May, 1921, and September, 1922. Indications, however, are that the duty was probably more negligible than important.

The sudden drop in farm prices in 1921 was attributed by some to imports from foreign countries. Whatever the cause may have been, it was less simple and much more fundamental than a mere matter of importations. On May 27, 1921, the Emergency Tariff Act increased the duty on butter from 2.5 to 6 cents a pound. The average differential of New York over London prices for the remaining seven months of 1921 was 2.5 cents per pound, as compared with 8.5 cents per pound for the corresponding months of 1920.[4] Thus, New York prices in relation to London prices were actually lower under the 6-cent duty during 1921 than they were under the 2.5-cent duty during 1920. This lower differential was due chiefly to the fact that the decline in New York prices following the inflation of the World War period lagged behind the decline in London prices so far as to result in the wide differential noted for 1920. In 1921, when London prices had reached their lowest point and had begun to turn upward, New York prices were still falling, and the differential in favor of New York was continually decreasing. In other words, prices in the two markets were out of line during this readjustment period. During such periods, when prices in both markets are falling, but one more slowly than the other, a mere comparison of the differential gives no approximation of the influence of the duty. The differential cannot be attributed solely to the duty, because other known and unknown factors, largely incapable of measurement, were at least in part responsible for the price spread. The differential theory is, therefore, not easily applicable to this period.

The Tariff of 1922. On September 21, 1922, the Fordney-McCumber Tariff Act was passed, increasing the duty on butter from 6 to 8 cents a pound. At this time London prices were above New York by 1.5 cents a pound, but in October, one month after the duty was increased, New York prices were 3 cents a pound above London prices. In November they were 7 cents and in December, 16 cents above. In other words, New York prices moved decidedly upward following the increase in the duty. This does not prove that the in-

[4] These differentials represent the spread between prices of 92-score butter in New York and best Danish butter in London and are U. S. Department of Agriculture figures. (Denmark was our principal competing country during 1920, 1921, and 1922.)

crease in the duty caused New York prices to rise, since other factor may have determined the direct trend, although it may be that th duty kept New York prices above London prices by preventing th markets from equalizing.

Just before the enactment of the tariff, prices in both New Yorl and London had taken an upward trend, but the movement i New York was enough faster to put the two markets about on a pa by September. Conditions in the United States toward the latte part of 1922 were very favorable to better prices. The all-commod ity price index in the United States rose from 138.3 in January, 1920 to 156.2 in December, 1922, indicating that the United States wa recovering from depression and was embarking on a period of indus trial prosperity. England, although she had begun to recover from the effects of depression sooner than the United States, came upon a temporary slump already beginning to be evident toward the close of 1922. The pound sterling dropped from $4.65 in January, 1923, to $4.36 in December. In addition to this change in financial condi tions, net exports of butter of the principal exporting countries were much heavier in 1923 than in 1922, and Germany imported less than three million pounds, so that there was a relatively heavy supply in the London market which undoubtedly depressed London prices. Briefly, the improvement in domestic demand tended to increase New York prices at the same time that the increase in the world supply and a decrease in the world demand tended to decrease Lon don prices. These factors working behind the 8-cent tariff wall are principally responsible for the increase in the differential of New York prices over London prices in the autumn of 1922 and for their holding that increase during 1923.

If the tariff had not been raised in September, 1922, the differ ential probably could not have been as great as it was. The higher tariff wall kept the two markets from equalizing and maintained a greater average spread under these conditions than a lower tariff would have done. Nearly 24 million pounds of butter were imported into the United States in 1923 in spite of the increased duty, as com pared with approximately 7 million pounds imported in 1922. This relatively large importation was induced by the wide differential be tween New York and London prices, which averaged 9.1 cents dur ing 1923.[5] Obviously the duty was not the sole cause of such a large differential because an 8-cent tariff, in and of itself, could not

[5] During five months of 1923 (January, April, May, November, and December) the differential averaged more than 11 cents, and during three months (April, November, and December) it averaged more than 12 cents.

raise New York prices 9 cents above London prices. The above-mentioned price-making forces caused the differential to be as much as 12 cents during some months and as low as 6 cents during others. The 8-cent duty, however, helped to maintain an average differential of 9 cents by hindering the adjustment of the markets except at a differential higher than that at which they would have tended to adjust through importation with a lower duty.

During most of 1924 London prices equalled or exceeded those in New York. Consequently, it appears that the tariff had no important effect on American prices during that year. This change from a differential favorable to New York to none at all, or one in favor of London, was caused by certain factors tending to lower New York prices and by others tending to increase London prices. The factors tending to lower New York prices were an increase in domestic supply and a decrease in domestic demand. On the other hand, a decided increase in foreign demand, coupled with improved business conditions in England, tended to increase London prices.

The index for United States production of butter in 1924 rose to 151, with production in 1920 as 100. Butter in storage reached a new high point in September, which gives some indication of the glutted condition and increased domestic supplies in our markets in the last eight months of 1924. The all-commodity price index fell nearly 10 points from June, 1923, to June, 1924, and per capita butter consumption decreased slightly from the previous yearly increase over 1920.[6] This tapering off of the yearly increase in demand, coupled with the increase in domestic supplies, depressed New York prices so far that the influence of the tariff was completely nullified. No matter how high a tariff the American farmer had had during the last half of 1924, it would have been of no benefit. From May to December of that year, exports were greater than imports and for five months in a row (July-November) New York prices were actually below London prices.

In addition to the decline in New York prices due to the above factors, an improvement in general business conditions in England, together with an increase in the German demand for butter, tended to increase London prices. The improved condition of business in

[6] Per capita butter consumption was 17.38 pounds in 1924 as compared with 17.0 pounds in 1923, 16.5 pounds in 1922, 16.1 pounds in 1921, and 14.7 pounds in 1920. Thus, while the per capita consumption in 1924 was greater than per capita consumption of any of the previous four years, the increase from 1923 to 1924 was not as great as the yearly increase in any of the four previous years.

England is indicated by the rise in the rate of exchange of the pound sterling from $4.27 in January, 1924, to $4.70 in December, 1924. Evidence of the increase in the German demand is the increase in imports into Germany, which totalled 118 million pounds in 1924, as compared with an importation of less than 3 million pounds in 1923. Germany is the second largest butter-importing nation in the world, and increased demand there reduces accordingly the supplies which are likely to reach the English market. This increase accounted for much more than the increase in exports from the principal exporting countries and consequently decreased the amount shipped to England. These domestic and foreign conditions evidently were of sufficient importance to change the differential in the summer of 1924 from one in favor of New York to one in favor of London, so that the 8-cent tariff was wholly without direct effect on American prices.

During 1925 continued heavy production in the United States, with a static per capita consumption,[7] kept New York prices down close to the London level during 1925. On the other hand, London prices were strengthened by a great increase in German demand (the German market took nearly twice as much butter in 1925 as in 1924) which decreased the supply shipped to England, at the same time that exports from several of the leading exporting countries either remained static or decreased slightly.

New York prices averaged only 4 cents above London prices during 1925, and only 7 million pounds of butter were imported. During the greater part of the year the United States was virtually on a domestic basis, although for a short period in the summer months she was on an export basis and for short periods at other times throughout the year (especially during March and December) she was on an import basis. The differential ranged from 10.5 cents above London in December to .4 cent below in July.

The Flexible Tariff of 1926. On March 6, 1926, President Coolidge raised the duty on butter from 8 to 12 cents a pound, effective April 6, 1926. Under this 12-cent duty New York prices averaged 9.1 cents above London prices for the period of 1927-1929, as compared with an average differential of 5.7 cents for the three years 1923-1925 under an 8-cent duty. This amount should not be taken as the exact measurement of the direct or actual effect of the duty on domestic prices, however, because during three months in this three-year period, the differential exceeded the duty

[7] The production of butter in the United States increased from 1,356 million pounds in 1924 to 1,361 million pounds in 1925. Per capita consumption was approximately the same in 1925 as in 1924 so that the usual annual increase of about a half pound per person did not occur to strengthen prices.

by as much as 3 cents,[8] indicating that other factors were exerting a direct influence on the differential.

New York prices started upward immediately after the 4-cent increase in the duty became effective, and in November, 1926, were nearly 18 cents above London prices. The principal factors accounting for this increase in the differential are two: (1) the improvement in general business conditions and demand in the United States, and (2) the depressed business conditions and decreased demand in England and Germany.

Industrial prosperity marked the year 1926 in the United States. Wages and employment conditions were good, manufacturing enterprises showed an upward trend in production and profits, and the stock market was strong. The purchasing power of the masses was high and demand was firm. These factors tended to increase domestic butter prices.

On the other hand, 1926 witnessed a reversal in the London market from the strong demand and good prices typical of the latter part of 1924 and the early part of 1925 to weak demand and low prices. The English coal strike was a large factor bringing about this reversal. Great Britain did not increase her importations by anything like the rate of the previous year. The same can be said of Germany.[9] As a result, the demand for butter in these two markets was not as great in 1926 as it had been in 1925 and prices declined. World production was much heavier relative to the demand in 1926 than in 1925. Consequently, London prices tended to fall.

The 12-cent tariff did not keep out imports in the winter months of 1926-27. Two million pounds a month came in during December, 1926, and March and April, 1927. Just twice as much butter was imported during the five months of December, 1926, and January, February, March, and April, 1927, as was imported during the same months of the previous year. It is impossible to say how much would have been imported in 1927 had we had an 8-cent instead of a 12-cent tariff. It is significant, however, that imports dropped from more than two million pounds in April, 1927, to less than 300,000 pounds in May, when the differential dropped from 17 cents to 8.5 cents. It would still have been just about worth while to export to

[8] In March, 1927, the differential amounted to 15.3 cents, in April of the same year to 17.3 cents, and in the following December to 15.2 cents.

[9] In 1926 Germany increased her imports of butter by less than three million pounds, whereas in 1925 she had increased them more than 95 million pounds. Great Britain increased her imports but 10 million pounds in 1926, as against million pounds in 1925.

butter prices improved, increasing from 33 cents a pound in June, when the 14-cent tariff was passed, to 40 cents in September. The differential in favor of New York prices increased during the same period from 4.1 to 12.2 cents.

At the same time, prices of New Zealand butter in London declined, due principally to the accumulation of large stocks of this butter in London,[11] and to the withdrawal of Canada as a market for New Zealand butter.[12] Prices of 92-score butter in New York averaged 15.1 cents above prices of finest New Zealand butter in London in October, 1930. This price spread was such as to make sizable imports from the southern hemisphere possible over our 14-cent tariff wall. Domestic prices, however, receded before imports began coming in,[13] due principally to an increase in domestic supplies, coupled with continued business depression and unemployment, which weakened domestic demand.

During the winter of 1930-31, the differential in favor of New York was so small that the 14-cent tariff was almost wholly without direct effect on American prices. Continued business depression and a weak demand for butter together with a further increased domestic output[14] caused New York prices to fall at the same time that decreased world supplies[15] caused a rise in London prices.

In 1931 and 1932 the differential between New York prices and London prices averaged much less than the amount of the duty, and the slight United States foreign trade that occurred was predominantly export trade. The differential ranged from virtually

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[11] The spread between Danish and New Zealand butter prices in London on October 23, 1930, reached 9.1 cents per pound. The usual spread is from 2 to 4 cents.

[12] Increases in the Canadian tariff virtually checked New Zealand butter shipments to Canada. The Canadian tariff on New Zealand butter since 1920 had been one cent per pound but this was raised to 4 cents on October 12, 1930 and later increased to 8 cents.

[13] In November, 92-score butter in New York averaged but 12.5 cents above finest New Zealand butter in London and in December averaged but 8 cents above. New York prices further declined until they averaged but 3.5 cents above London prices in January and but 1.9 cents above in February, 1931. Prices of best Danish butter in London averaged 2 cents and 3.5 cents per pound above prices of 92-score butter in New York in January and February, respectively.

[14] From the beginning of November, 1930, domestic butter production showed a cumulative rate of increase each month over the preceding year because of the mild, open winter. The January, 1931, output was the largest on record up to that time.

[15] Stocks of butter held in Great Britain on January 24, 1931, amounted to 16,873,000 pounds, as compared with holdings of 25,975,000 pounds on January 25, 1930, a decrease of approximately 35 per cent.

nothing during the summer months[16] to nearly the full amount of the duty or even more than the duty during the late fall and early winter months.[17]

This seasonal character of the 1931 and 1932 differentials is quite characteristic of the average differential. In the fall and winter months we are ordinarily on a much more decided import basis than during the summer months when, because of the seasonal character of domestic production, we usually have a surplus of butter which is either put into cold storage or exported. When domestic supplies relative to demand are light, butter prices rise, and if domestic supplies are insufficient to meet home requirements, our prices rise above world market prices frequently by an amount more than the duty. Thus importation occurs, decreasing domestic prices and bringing them back into line with the world market. When domestic supplies are more than sufficient to meet domestic requirements some butter may be exported and prices fall to the level of, or even below, world market prices. The periods when the differential in favor of New York is more than the duty, or the periods when New York prices are just equal to or below London prices, are comparatively short, as will be seen from Figure 6. During most of the months shown in this figure there was a differential in favor of New York, but it amounted to only a part of the duty. This is because we are generally so close to the boundary line of supply and demand in butter that we are continually going from an import to an export basis and back again, with the result that the differential maintained by our butter prices during the period 1922-1932 has amounted, on the average, to only a part of the duty.

In summarizing the effect of the 14-cent duty it must be stated that the duty did not maintain an average differential in favor of New York prices by an amount equal to itself. There were times during 1931 when the duty was virtually ineffective, but there were other times when it was fully effective. The fact that New York prices maintained a differential above London prices of more than 12

[16] On June 26, 1931, 92-score butter in New York averaged 24.00 cents a pound and New Zealand butter in London averaged 23.58 cents. On July 23, 92-score butter in New York sold for 24.90 cents a pound and New Zealand butter in London for 24.80 cents. During June, 1932, New York prices averaged 17.0 cents a pound and London prices 16.9 cents.

[17] On November 5, 1931, 92-score butter in New York sold for 29.25 cents a pound and New Zealand butter in London for 19.58 cents a pound. On December 17, 1931, 92-score butter in New York sold for 30.50 cents and New Zealand butter in London for 14.19 cents a pound. In December, 1932, New York prices averaged 24.1 cents a pound and London prices 13.7 cents.

cents for four consecutive weeks[18] is proof that the 14-cent duty was more effective in increasing domestic prices than a 12-cent duty would have been. With a 12-cent duty importation would probably have occurred in sufficient amounts within the four or five weeks to cause a decline in domestic prices to within 12 cents of foreign prices. The 14-cent duty helped to maintain an average differential of nearly 15 cents during December, 1931, by preventing prices in domestic and foreign markets from adjusting to each other at a differential as low as that at which they would have adjusted through importation with a lower duty.[19]

Table 8 presents in a summarized form the differential of New York above London butter prices and the principal price-making influences in world and domestic markets for the three years 1923-1925, under an 8-cent duty, for the three years 1927-1929, under a 12-cent duty, and for the two years 1931 and 1932 under a 14-cent duty.

The above table shows that the periods 1923-1925 and 1927-1929 are strikingly similar, in that each begins with a large differential in favor of New York which grows smaller as the period draws to a close. However, the second period is characterized by a larger and more uniform spread between New York and London prices. This would indicate that supply and demand factors in the world and in the domestic markets did not offset the influence of the higher duty to the same extent that they did the influence of the lower duty in effect during the period 1923-1925. In other words, the 12-cent duty exerted a greater direct effect on American prices than the 8-cent duty. The differential between New York and London butter prices averaged 9.1 cents a pound from 1927 to 1929 with a 12-cent duty, as compared with a differential of 5.7 cents for the years 1923-1925 with an 8-cent duty.

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[18] New York prices on December 10, 1931, were 14.70 cents above London prices; on December 17, 16.31 cents; on December 24, 15.95 cents; and on December 31, 12.96 cents.

[19] The wide margin between New York prices and London prices, which reached 16.31 cents on December 17, 1931, can be attributed primarly to the unusually heavy supplies of New Zealand butter that arrived at London or were in prospect at that time. Shipments afloat from New Zealand, Australia, and Argentina totalled 59,637,000 pounds as of December 3, 1931, against 42,813,000 pounds on December 3, 1930, and 30,744,000 pounds on December 7, 1929. These heavy supplies coupled with very poor business conditions and weak demand caused New Zealand butter in London to fall to 14.19 cents per pound on December 17, 1931. (See U. S. Department of Agriculture, **Foreign Crops and Markets**, December 28, 1931, p. 1069).

TABLE 8 Summary of Butter Price Differential of New York above London and the Principal Price-making Influences in these Two Markets, 1923-1925 inclusive, 1927-1929 inclusive, 1931 and 1932

	Period	Differential (c lb.) (N. Y. above Lond.)	PRINCIPAL PRICE-MAKING INFLUENCES	
			In the London Market	In the N. Y. Market
Under 8c Tariff	1923	9.1	1. **Decreased demand** (a) Bad financial conditions in England. 2. **Increased supplies** (a) Increased exports from chief exporting countries. (b) German market dull, imported less than 3 million pounds and made the supplies available for the English market heavy.	1. **Increased demand** (a) Renewed prosperity and increased industrial activity. (b) Increased per capita consumption.
	1924	3.9	1. **Increased demand** (a) Improved general business conditions in England. 2. **Decreased supplies** (a) Marked recovery in German market which took 118 million lbs. and reduced the supplies available for English market.	1. **Decreased demand** (a) Temporary business depression. (b) Decline in rate of increase of per capita consumption. 2. **Increased supplies** (a) Increased production.
	1925	4.0	1. **Further decreased supplies** (a) German imports doubled, (213 million pounds) and reduced accordingly the supplies available for English market. (b) Exports of leading countries remained unchanged or declined.	1. **Continued dull demand** (a) Business activity dull. (b) No increase in consumption. 2. **Continued heavy supplies** (a) Continued heavy production.
	Aver.	**5.7**		
Under 12c Tariff	1927	10.6	1. **Decreased demand** (a) Depressed English market due to English coal strike. 2. **Increased supplies** (a) Heavy world production. (b) Decline in rate of increase of imports of Germany so that supplies available for London market were relatively heavier than in two preceding years.	1. **Increased demand** (a) Increased per capita consumption. (b) Increased industrial prosperity. 2. **Decreased supplies** (a) Decline in rate of increase of butter production.
	1928	8.9	1. **Increased demand** (a) Recovery of the English market. 2. **Decreased supplies** (a) Decline in rate of increase of production in leading exporting countries. (b) Increased imports by Germany reducing the supply available for English market.	1. **Decreased demand** (a) Decreased per capita consumption. (b) Increasing unemployment.
	1929	7.7	1. **Continued keen demand** (a) Continued keen demand in England. 2. **No increase in supplies** (a) Normal world production. (b) Continued keen demand in Germany so that available supplies for English market were not increased.	1. **Further decrease in demand** (a) Business depression. (b) Increased oleomargarine consumption. 2. **Increase in supplies** (a) Increased production.
	Aver.	**9.1**		
14c Tariff	1931	4.1	1. **Decreased demand** (a) General world-wide depression. (b) England's abandonment of gold standard latter part of 1931. 2. **No increase in supplies** (a) Normal world production.	1. **Further decrease in demand** (a) Increased unemployment, reduced purchasing power and severe business depression. 2. **Increased supplies** (a) Record production, especially during winter (1930-31) because of mild weather.
	1932	3.8	1. Continued world-wide depression. 2. World production normal.	1. Reduced purchasing power, increased unemployment and very low prices. 2. Continued heavy production.
	Aver.	**3.9**		

Benefits and Burdens of the Duties

Method of Calculation. The preceding pages have shown clearly the inadequacy of taking the average annual domestic production multiplied by the average annual differential between domestic and world market prices, as an accurate measure of the benefits of the butter duty. Production varies, on the average, from 70 per cent of normal in November and December to 150 per cent of normal in June. Consequently the heaviest production occurs when the differential is smallest, and the benefits must be calculated in such a way as to allow for the seasonality of production.

The most accurate method of measuring the benefits accruing to producers from the duty would involve using daily domestic production figures and the daily differential. But daily production data are not available. Moreover, to take the actual differential would give a very liberal or somewhat exaggerated measure of the benefits, since when the differential is greater than the duty, obviously the entire differential is not due to the duty. In the light of these shortcomings the best practical measure of the benefits resulting from the duty is obtained by using monthly production figures and the average monthly differential, except where the differential exceeds the duty, in which case the amount of the duty should be taken as the average differential attributable to the influence of the duty for that month. Of course, when no differential in favor of domestic prices existed for a given month, there was no price benefit to the farmer.

Similarly, the most accurate method of measuring the burdens to consumers resulting from the duty would be to use daily domestic consumption figures and the daily differential. But the same practical shortcomings confront us in measuring burdens as in measuring benefits. Therefore, the best practical measure of the burdens resulting from the butter duty is obtained by using monthly consumption figures and the average monthly differential except where the differential exceeds the duty, in which case the amount of the duty should be used.

Benefits to Producers. Using monthly production and the average monthly differential in those months when it did not exceed the duty and the amount of the duty in those when it did, the total annual benefits to farmers from the butter duties were computed for the 8 years 1923-1925, 1927-1929, 1931 and 1932. These years permit the comparison of the benefits accruing to farmers under the 8-cent duty, the 12-cent duty, and the 14-cent duty. These data are shown in Table 9.

TABLE 9

Benefits of the Butter Tariff to Producers in the United States

in Dollars and as a Percentage of the Total Income Received from Butter, by Months, 1923-1925, 1927-1929, 1931 and 1932.

Month	Butter Production [1] (million lbs.)	Price Paid Producers [2] (¢ lb.)	Total farm income from butter (million $)	Differential, New York above London [3] (¢ lb.)	Benefits due to duty (million $)	Tariff benefits as % of total farm income from butter	Month	Butter Production [1] (million lbs.)	Price Paid Producers [2] (¢ lb.)	Total farm income from butter (million $)	Differential, New York above London [3] (¢ lb.)	Benefits due to duty (million $)	Tariff benefits as % of total farm income from butter
			(1923)							(1924)			
Jan.	127.8	43.0	55.0	8.0a	10.2	18.6	Jan.	128.9	44.9	57.9	8.0a	10.3	17.8
Feb.	118.2	42.0	47.5	7.1	8.0	16.9	Feb.	127.8	44.4	56.7	8.0a	10.2	18.1
Mar.	135.3	41.6	56.3	6.9	9.3	16.6	Mar.	141.1	43.2	61.0	8.0a	11.3	18.5
Apr.	153.5	40.8	62.6	8.0a	12.3	19.6	Apr.	156.2	40.3	62.9	7.9	12.3	19.6
May	205.2	39.4	81.0	8.0a	16.4	20.3	May	206.3	38.3	79.1	5.4	11.1	14.1
June	242.0	37.9	91.7	6.8	16.5	17.9	June	238.7	36.3	86.7	7.3	17.4	20.1
July	211.3	37.0	78.2	5.9	12.5	15.9	July	242.4	37.0	89.7	b		
Aug.	184.5	38.0	70.1	7.1	13.1	18.8	Aug.	203.1	37.7	76.6	b		
Sept.	156.2	40.2	62.8	6.2	9.7	15.4	Sept.	169.7	38.2	64.8	b		
Oct.	135.9	42.2	57.3	7.9	10.7	18.7	Oct.	148.2	38.8	57.5	b		
Nov.	114.5	44.3	50.7	8.0a	9.2	18.0	Nov.	113.9	39.3	44.8	b		
Dec.	118.0	45.8	54.0	8.0a	9.4	17.5	Dec.	112.2	41.8	46.9	.6	.7	1.5
Total	**1,897.4**	**41.0**	**777.9**		**137.3**	**17.9**	**Total**	**1,988.5**	**40.0**	**794.4**		**73.4**	**9.2**
			(1925)							(1927)			
Jan.	127.4	41.3	52.6	3.4	4.3	8.2	Jan.	132.9	44.0	58.5	11.5	15.3	26.1
Feb.	117.3	38.7	45.4	2.4	2.8	6.2	Feb.	131.2	43.7	57.4	12.0a	15.7	27.5
Mar.	134.9	39.5	53.3	8.0a	10.8	20.3	Mar.	154.0	43.5	67.0	12.0a	18.5	27.6
Apr.	156.4	39.7	62.1	6.6	10.3	16.6	Apr.	170.2	43.4	73.9	12.0a	20.4	27.6
May	212.8	39.5	84.1	5.3	11.3	13.4	May	232.9	42.1	98.1	8.5	19.8	20.2
June	240.2	38.2	91.8	1.8	4.3	4.7	June	259.3	40.4	104.7	6.3	16.3	15.6
July	232.4	39.2	91.1	b			July	230.8	40.3	93.0	6.3	14.5	15.6
Aug.	200.0	40.0	80.0	b			Aug.	202.1	40.3	81.5	5.1	10.3	12.7
Sept.	158.4	41.1	65.1	2.6	4.1	6.3	Sept.	160.0	41.7	67.0	6.6	10.6	15.8
Oct.	152.8	44.2	67.5	2.4	3.7	5.4	Oct.	147.4	43.4	64.0	9.7	14.3	22.4
Nov.	139.6	46.1	64.4	5.1	7.1	11.1	Nov.	121.5	44.5	54.0	11.3	13.7	25.4
Dec.	133.1	46.0	61.2	8.0a	10.6	17.3	Dec.	124.2	45.7	56.8	12.0a	14.9	26.3
Total	**2,005.3**	**41.1**	**824.2**		**69.3**	**8.5**	**Total**	**2,066.5**	**42.8**	**875.9**		**184.3**	**26.8**
			(1928)							(1929)			
Jan.	140.7	45.2	63.6	12.0a	16.9	26.5	Jan.	141.1	45.3	63.9	7.8	11.0	17.2
Feb.	138.8	43.9	60.9	10.7	14.9	24.4	Feb.	136.3	45.2	61.6	12.0a	16.4	26.5
Mar.	156.1	43.9	68.5	11.5	17.9	26.2	Mar.	156.0	45.2	70.5	12.0a	18.7	26.5
Apr.	166.0	44.0	73.0	8.1	13.4	18.4	Apr.	182.2	44.4	80.9	9.6	17.5	21.6
May	218.3	42.9	93.7	7.6	16.6	17.7	May	237.6	43.6	103.6	7.4	17.6	17.0
June	252.8	42.2	106.7	5.5	13.9	13.0	June	262.9	42.5	111.7	6.7	17.6	15.8
July	234.1	42.4	99.2	4.5	10.5	10.6	July	252.6	42.6	107.6	5.2	13.1	12.2
Aug.	203.1	42.8	86.9	6.3	12.8	14.7	Aug.	195.5	42.9	83.9	6.1	11.9	14.2
Sept.	166.9	44.3	73.9	8.5	14.2	19.2	Sept.	168.2	43.7	73.5	7.6	12.8	17.4
Oct.	147.9	45.2	66.8	7.9	11.7	17.5	Oct.	161.0	44.9	72.3	6.3	10.1	14.0
Nov.	106.7	45.6	48.6	11.7	12.5	25.7	Nov.	132.5	44.4	58.8	5.2	6.9	11.7
Dec.	129.2	46.3	59.8	10.5	13.6	22.7	Dec.	138.9	43.0	59.7	5.9	8.2	13.7
Total	**2,060.6**	**44.1**	**908.7**		**168.9**	**18.7**	**Total**	**2,164.8**	**43.8**	**948.2**		**161.8**	**17.1**
			(1931)							(1932)			
Jan.	**156.7**	**31.0**	**48.6**	**2.2**	**3.4**	**7.1**	Jan.	161.4	26.3	42.4	7.4	11.9	28.1
Feb.	**145.1**	**28.1**	**40.8**	**1.2**	**1.7**	**4.3**	Feb.	158.4	23.4	37.1	5.3	8.4	22.7
Mar.	**167.9**	**29.4**	**49.4**	**1.7**	**2.9**	**5.8**	Mar.	171.4	23.0	39.4	3.7	6.3	16.1
Apr.	**192.5**	**29.2**	**56.2**	**1.0**	**1.9**	**3.4**	Apr.	183.0	21.9	40.1	.9	1.6	4.1
May	**243.3**	**25.9**	**63.0**	**b**			May	244.3	20.2	49.3	1.6	3.9	7.9
June	**257.2**	**24.4**	**62.8**	**b**			June	247.7	18.6	46.1	.1	.2	.5
July	**213.6**	**24.7**	**52.8**	**b**			July	211.2	18.4	38.9	.8	1.7	4.4
Aug.	**185.9**	**25.9**	**48.1**	**2.3**	**4.3**	**8.9**	Aug.	190.7	19.7	37.6	2.5	4.8	12.7
Sept.	**160.1**	**27.9**	**44.7**	**8.2**	**13.1**	**29.4**	Sept.	164.5	19.9	32.7	2.2	3.6	11.1
Oct.	**167.6**	**30.3**	**50.8**	**11.6**	**19.4**	**38.3**	Oct.	158.3	20.2	32.0	2.6	4.1	12.9
Nov.	**154.9**	**29.9**	**46.3**	**10.6**	**16.4**	**35.4**	Nov.	144.5	20.4	29.5	8.0	11.6	39.2
Dec.	**162.9**	**29.2**	**47.6**	**13.3**	**21.7**	**45.6**	Dec.	157.9	21.3	33.6	10.4	16.4	48.8
Total	**2,207.7**	**28.0**	**611.2**		**84.8**	**13.9**	**Total**	**2,193.3**	**21.1**	**458.7**		**74.5**	**16.3**

[1] Represents both farm and factory production. Monthly farm butter production was calculated by taking the percentage of the yearly total of factory butter which was produced each month during each year and multiplying this percentage by the total farm production to get the farm butter produced each month.

[2] Estimated price received by producers on the fifteenth of the month.

[3] The average differential is the actual average differential except in those cases where the average differential exceeds the duty, in which cases the amount of the duty is taken as the average differential attributable to the duty.

[a] Amount of the duty.

[b] No differential (New York prices below or only equal to London prices).

Sources: [1] U. S. Department of Agriculture, Bureau of Agricultural Economics; [2] U. S. Department of Agriculture, Bureau of Agricultural Economics, Crops and Markets.

According to the above method, farmers received benefits from the 8-cent tariff to the extent of $137,342,126, $73,408,212, and $69,420,267 or 17.9 per cent, 9.2 per cent, and 8.5 per cent of their total income from butter during 1923, 1924, and 1925, respectively. If the duty had been fully effective, they would have received $151,799,440, $159,881,440, and $160,428,720, or 19.5 per cent, 20.0 per cent, and 19.4 per cent for the same years. In 1927, 1928, and 1929, under the 12-cent duty, farmers received benefits totalling $234,405,757, $168,870,719, and $161,829,537, or 26.8 per cent, 18.7 per cent, and 17.1 per cent of their total income from butter. They would have received $247,986,600, $247,267,080, and $259,753,560, or 28.5 per cent, 27.2 per cent and 27.4 per cent, during the same years if the duty had been fully effective, that is, not offset at all by other supply and demand factors in world and domestic markets. In 1931 and 1932, under the 14-cent duty, farmers received benefits totalling $84,897,573, and $74,655,328, or 13.9 per cent and 16.3 per cent of their total income from butter. They would have received $309,043,280, and $307,055,000, or 50.6 per cent and 66.9 per cent during the same years if the duty had been fully effective.

In 1929 American farmers would have received nearly 100 million dollars, or 10.6 per cent more for their butter than they did receive, had the 12-cent duty been fully effective. This 100 million dollars was not secured, principally because a decrease in domestic demand due to the business depression which reduced purchasing power and induced increased oleomargarine consumption, coupled with an increase in domestic supplies due to heavy United States production, depressed American prices and materially reduced the direct effectiveness of the 12-cent duty. In 1931 and 1932 American farmers would have received 224 million and 232 million dollars or 36.7 and 50.6 per cent respectively more for their butter than they did receive had the 14-cent duty been fully effective.

The method of using the differential (when it does not exceed the duty) as a measure of the direct effect of the tariff, is based on the assumption that without a duty prices in domestic and foreign markets over a period of time would tend to be equal. This method makes no allowance for the fact that the United States duty when effective probably tends to depress the world price. Or, stated in other words, if our duty were removed, the London or world price (assuming that London and New York prices would be about equal) would be somewhat above the present price. If the American market were open to New Zealand and Danish producers, this market

could absorb more butter than it now does and London prices would not be forced to their present low level. United States per capita consumption of butter would rise, because while the per capita consumption of fats tends to remain fairly stable, more butter and less inferior grade fats would probably be consumed. Consequently, the figures obtained by the price differential method represent maximum possible benefits; the actual benefits to American producers may be, and probably are, somewhat less than those shown in Table 9.

In order to determine accurately the actual benefits of the butter duty to American producers it is necessary to show quantitatively how much of the spread between domestic and foreign prices is due to a decline in foreign prices and how much to an increase in domestic prices following the imposition of the duty. The data necessary for this are not available and it is impossible to ascertain just how much less the actual benefits would be than those computed in Table 9. This same shortcoming applies in the case of burdens. Thus, Table 10 shows the maximum possible burdens. The reader should, therefore, keep in mind that the benefits and burdens calculated by the price differential method in these pages represent the maximum possible, not the actual, benefits and burdens.

Burdens to Consumers. Using monthly consumption instead of monthly production, the annual burdens to consumers from the butter duties for the 8 years 1923-1925, 1927-1929 and 1931 and 1932 were computed by the same method as was used to compute benefits. These burdens are shown in Table 10.

Table 10 shows that under the 8-cent duty consumers paid $136,844,530, $72,004,690, and $73,826,800, or 13.2 per cent, 7.0 per cent, and 6.7 per cent more than they would have paid for their butter without a tariff in 1923, 1924, and 1925, respectively. If the duty had been fully effective it would have cost them $150,141,600, $158,152,400, and $160,504,240, or 14.4 per cent, 15.5 per cent and 14.6 per cent more than they would have paid in the absence of a tariff. During the years 1927, 1928, and 1929, under the 12-cent duty, consumers incurred burdens to the extent of $183,831,620, $177,311,270, and $158,158,740, or 16.6 per cent, 15.1 per cent and 13.6 per cent respectively more than they would have paid for their butter without a tariff. Had the duty been fully effective, they would have incurred burdens totalling $238,901,040, $249,637,920, and $253,383,600, or 21.6 per cent, 21.2 per cent, and 21.7 per cent. In 1931 and 1932 under the 14-cent duty consumers paid $91,104,940, and $78,456,060, or 11.9 and 13.2 per cent respectively more than they would have paid if there had been

TABLE 10

Costs of the Butter Tariff to all Consumers in the United States

in Dollars and as a Percentage of the Total *Amount Paid* for Butter, by Months, 1923-1925, 1927-1929 and 1931 and 1932.

Month	Butter consumption [1] (million lbs.)	Price paid by consumers [2] (c lb.)	Total paid by consumers (million $)	Differential, New York above London [3] (c lb.)	Costs due to duty (million $)	Tariff cost as per cent of total butter cost
			(1923)			
Jan.	133.0	59.1	78.6	8.0a	10.6	13.5
Feb.	116.8	57.7	67.4	7.1	8.3	12.3
Mar.	135.9	57.6	78.3	6.9	9.4	12.0
Apr.	148.1	57.3	84.9	8.0a	11.9	14.0
May	194.7	52.1	101.4	8.0a	15.6	15.4
June	186.5	50.0	93.2	6.8	12.7	13.6
July	181.8	49.1	89.3	5.9	10.7	12.0
Aug.	182.2	51.8	94.4	7.1	12.9	13.7
Sept.	161.1	55.0	88.6	6.2	10.0	11.3
Oct.	155.7	56.2	87.5	7.9	12.3	14.1
Nov.	141.3	58.9	83.2	8.0a	11.3	13.6
Dec.	139.7	60.3	84.2	8.0a	11.2	13.3
Total	1,876.8	55.4	1,039.7		136.9	13.2
			(1924)			
Jan.	145.9	61.3	89.4	8.0a	11.7	13.1
Feb.	133.4	60.2	80.3	8.0a	10.7	13.3
Mar.	143.9	58.0	83.5	8.0a	11.5	13.8
Apr.	158.3	50.1	79.3	7.9	12.5	15.8
May	196.8	46.1	90.7	5.4	10.6	11.7
June	192.5	48.6	93.6	7.3	14.1	15.0
July	181.4	49.5	89.8	b		
Aug.	179.8	48.3	86.8	b		
Sept.	171.1	48.5	83.0	b		
Oct.	163.9	47.9	78.5	b		
Nov.	151.0	48.9	73.8	b		
Dec.	158.8	52.5	83.4	.6	10.0	11.4
Total	1,976.8	51.7	1,022.0		72.1	7.0
			(1925)			
Jan.	145.7	52.3	76.2	3.4	5.0	6.5
Feb.	132.7	50.6	67.1	2.4	3.2	4.7
Mar.	154.1	55.5	85.5	8.0a	12.3	14.4
Apr.	162.7	53.3	86.7	6.6	10.7	12.4
May	205.1	51.9	106.4	5.3	10.9	10.2
June	194.4	52.7	102.4	1.8	3.5	3.4
July	187.3	53.2	99.6	b		
Aug.	181.1	54.1	98.0	b		
Sept.	175.2	55.8	97.8	2.6	4.6	4.7
Oct.	170.6	59.4	101.3	2.4	4.1	4.0
Nov.	144.5	59.7	86.3	5.1	7.4	8.5
Dec.	152.9	58.6	89.6	8.0a	12.2	13.7
Total	2,006.3	54.8	1,099.5		73.9	6.7
			(1927)			
Jan.	145.9	58.4	85.2	11.5	16.8	19.7
Feb.	136.0	58.8	80.0	12.0a	16.3	20.4
Mar.	154.3	59.2	91.3	12.0a	18.5	20.3
Apr.	165.8	58.4	96.8	12.0a	19.9	20.5
May	149.7	53.4	79.9	8.5	12.7	15.9
June	196.2	51.8	101.6	6.3	12.4	12.2
July	178.9	51.4	91.9	6.3	11.3	12.3
Aug.	186.1	51.4	95.7	5.1	9.5	9.9
Sept.	179.9	53.4	96.1	6.6	11.9	12.4
Oct.	176.2	55.7	98.1	9.7	17.1	17.4
Nov.	158.5	56.4	89.4	11.3	17.9	20.0
Dec.	163.3	58.4	95.4	12.0a	19.6	20.5
Total	1,990.8	55.6	1,106.9		183.9	16.6
			(1928)			
Jan.	156.6	57.8	90.5	12.0a	18.8	20.8
Feb.	146.5	56.3	82.5	10.7	15.7	19.0
Mar.	160.5	57.3	92.0	11.5	18.5	20.2
Apr.	164.4	55.1	90.6	8.1	13.3	14.7
May	209.8	54.6	114.5	7.6	15.9	13.9
June	202.8	53.9	109.3	5.5	11.2	10.2
July	185.9	54.3	100.9	4.5	8.4	8.3
Aug.	189.2	55.4	104.8	6.3	11.9	11.4
Sept.	176.9	57.6	101.9	8.5	15.0	14.8
Oct.	171.9	57.5	98.8	7.9	13.6	13.7
Nov.	158.9	58.3	92.6	11.7	18.6	20.0
Dec.	157.0	59.3	93.1	10.5	16.5	17.7
Total	2,080.4	56.5	1,175.4		177.4	15.1
			(1929)			
Jan.	157.5	57.7	90.9	7.8	12.3	13.5
Feb.	143.2	58.5	83.8	12.0a	17.2	20.5
Mar.	157.7	58.4	92.1	12.0a	18.9	20.5
Apr.	170.7	55.8	95.2	9.6	16.4	17.2
May	203.8	54.5	111.1	7.4	15.1	13.6
June	192.0	53.8	103.3	6.7	12.9	12.5
July	241.2	53.4	128.8	5.2	12.5	9.7
Aug.	185.7	53.8	99.9	6.1	11.3	11.3
Sept.	174.2	54.8	95.5	7.6	13.2	13.9
Oct.	172.9	55.7	96.3	6.3	10.9	11.3
Nov.	153.1	53.5	81.9	5.2	8.0	9.7
Dec.	160.5	51.6	82.8	5.9	9.5	11.4
Total	2,112.5	55.1	1,161.6		158.2	13.6
			(1931)			
Jan.	116.4	37.7	43.9	2.2	2.6	5.8
Feb.	155.8	36.3	56.6	1.2	1.9	3.3
Mar.	175.5	37.3	65.5	1.7	3.0	4.6
Apr.	186.0	35.2	65.5	1.0	1.9	2.8
May	220.8	31.2	68.9	b(0)		
June	208.0	30.9	64.3	b(0)		
July	197.7	31.8	62.9	b(0)		
Aug.	203.7	34.4	70.1	2.3	4.7	6.7
Sept.	189.5	36.8	69.7	8.2	15.5	22.3
Oct.	187.1	39.9	74.6	11.6	21.7	29.1
Nov.	160.6	37.3	59.9	10.6	17.0	28.4
Dec.	172.0	36.5	62.8	13.3	22.9	36.4
Total	2,173.1	35.4	764.7		91.2	11.9
			(1932)			
Jan.	157.1	32.3	50.7	7.4	11.6	22.9
Feb.	156.1	29.5	46.0	5.3	8.3	18.0
Mar.	170.5	29.5	50.3	3.7	6.3	12.5
Apr.	176.7	26.8	47.4	.9	1.6	3.4
May	223.9	25.1	56.2	1.6	3.6	6.4
June	202.4	24.1	48.8	.1	.2	.4
July	197.1	23.9	47.1	.8	1.6	3.4
Aug.	202.7	26.8	54.3	2.5	5.1	9.3
Sept.	187.7	26.9	50.5	2.2	4.1	8.2
Oct.	182.9	26.7	48.8	2.6	4.8	9.7
Nov.	172.5	27.6	47.6	8.0	13.8	29.0
Dec.	168.6	28.5	48.0	10.4	17.5	36.5
Total	2,198.2	27.3	595.7		78.6	13.2

[1] Represents apparent consumption and is the amount of product moved into consumption channels.

[2] Average retail prices.

[3] The average monthly differential is the actual differential except in those cases where the average differential exceeds the duty, in which cases the amount of the duty is taken as the average differential attributable to the duty.

a Amount of the duty.

b No differential (New York prices below or only equal to London prices).

Sources: [1] U. S. Department of Agriculture, Bureau of Agricultural Economics; [2] U. S. Department of Labor, Bureau of Labor Statistics.

no duty. Had the duty been fully effective they would have paid $304,229,240, and $307,766,900, or 39.8 and 51.6 per cent respectively more. These burdens are computed by the differential method on the assumption that without any duty there would have been no differential between domestic and world prices.

Net Benefits to Farmers. In calculating the net benefits accruing to American farmers as a class from the butter duties, the increased cost of butter resulting from the duties which is borne by farmer consumers must be subtracted from the benefits accruing to farmers from higher prices received for their butter. Table 11 shows these costs and benefits, together with net benefits to farmers for the years 1923-1925, 1927-1929, 1931, and 1932.

TABLE 11

Net Benefits to Farmers From the Butter Tariff
1923-1925, 1927-1929, 1931 and 1932

Year	Costs of the duty to all consumers	Costs of the duty to farmer consumers[1]	Benefits to producers from the duty	Net Benefits to farmers as a class	Net benefits as percentage of total farm income from butter
1923	$136,844,530	$38,863,847	$137,342,126	$ 98,478,279	12.7
1924	72,004,690	20,089,309	73,408,212	53,318,903	6.7
1925	73,826,800	20,228,543	69,420,267	49,191,724	6.0
1927	183,831,620	48,347,716	234,405,757	186,058,041	21.0
1928	177,311,270	45,746,308	168,870,719	123,131,411	13.6
1929	158,158,740	40,014,161	161,829,537	121,815,376	12.8
1931	91,104,940	22,594,025[b]	84,897,573	62,303,548	10.2
1932	78,456,060[a]	19,457,103[b]	74,655,328[c]	55,198,225	12.0

[1] Costs to farmer consumers were determined by taking that proportion of *the total costs to all* consumers which the farm population makes of the total United States population. According to the Bureau of the Census, the farm population comprised 29.9 per cent of the total population in 1920 and 24.8 per cent in 1930. The percentages for the years between these two census years were computed by straight interpolation.

[a] Estimated from preliminary consumption figures.

[b] On the basis that the farm population comprised 24.8 per cent of the total population. This is the 1930 census figure, the last year for which data are available.

[c] Estimated from preliminary production figures.

Table 11 shows that farmers received a net benefit of $98,478,279, $53,318,903, and $49,191,724, or 12.7 per cent, 6.7 per cent, and 6.0 per cent of their total income from butter during the years 1923, 1924, and 1925 respectively from the 8-cent duty; a net benefit of $186,058,041, $123,131,411, and $121,815,376, or 21.0 per cent, 13.6 per cent, and 12.8 per cent of their total income from butter during the years 1927, 1928, and 1929 respectively from the 12-

cent duty and a net benefit of $62,303,548, and $55,198,225, or 10.2 per cent and 12.0 per cent of their total income from butter during the years 1931 and 1932 respectively from the 14-cent duty. In other words, the 8-cent, 12-cent, and 14-cent duties were profitable to farmers as a class to the extent indicated by these net annual benefits.

Conclusions

The differential of domestic above foreign prices maintained by the butter duties during the period 1922-1932 has amounted, on the average, to only a part of the duties. The differential in favor of domestic prices under the 8-cent duty averaged 9.1 cents, 3.9 cents, and 4.0 cents for the years 1923, 1924, and 1925, respectively. Under the 12-cent duty it averaged 10.6 cents, 8.9 cents, and 7.7 cents for the years 1927, 1928, and 1929, respectively. In 1931, under a 14-cent duty, the differential averaged 4.3 cents and in 1932, 3.8 cents.

These partial differentials are due to the fact that we are virtually on a domestic basis in butter. We are so close to the boundary line, where a little more puts us on an export basis and a little less on an import basis, that most of the time we are oscillating from one to the other. Prices in domestic and foreign markets cannot adjust to each other promptly and accurately under these conditions; consequently a spread would obtain from time to time if for no other reason than sluggishness of adjustment.

The direct effects of the duties on domestic butter prices are decidedly seasonal. In the fall and winter months, when domestic production is lowest, we are ordinarily on a much more decided import basis, with the differential between domestic and world market prices greater than in the summer months when domestic production is heaviest. Thus, when we are on an import basis for any considerable period, domestic prices tend to seek a level above world market prices by the amount of the duty. When we are on an export basis for any considerable period, domestic prices tend to seek the level of world market prices, and in seasons of unusually heavy domestic supplies may even go somewhat below.

The butter tariffs of the past 10 years have been important factors in keeping domestic prices, on the average, somewhat above world market prices. During the summer months, when domestic supplies were sufficient or more than sufficient to meet domestic requirements and we were on an export basis, no duty could accom-

plish this. But in the fall and winter months, when domestic supplies were lowest, the duties have kept the differential higher than it would have been without them. The duties prevented adjustment of domestic to world prices by keeping out any considerable importation until the differential approached the height of the tariff wall. The effectiveness of the duties has made possible the maintenance of a differential above world prices, although the primary influences determining the trend of prices both here and abroad were the various demand and supply forces operating in domestic and world markets. In other words, operating behind the tariff wall, these demand and supply conditions have accounted for the differentials as has been shown. Consequently, the tariff is a complementary factor, and without the duties a similar differential would not have been possible.

It is only during the past 10 years that the United States has been as balanced as she now is between an export and import basis in butter. Increased domestic production has not been solely responsible for this condition; changes in the character of the demand from time to time have been important and, at times, the principal factors.

Butter production has increased during the period 1922-1932. Creamery butter production in 1932 was estimated at 1,653,250,000 pounds as compared with 1,153,515,000 pounds in 1922. But on the whole the increase from year to year has not greatly exceeded the amount required to maintain a stable per capita consumption.

The increase in production during the past 10 years has been due in part to the relatively high prices received for butter compared with prices received for many other agricultural products. The decreased demand on the part of foreign buyers since the World War has tended to keep domestic prices of such products as grain, cotton, pork, and lard (products largely absorbed by foreign markets) depressed to comparatively low levels. The domestic dairy industry is affected much less by foreign markets, and prices maintained a comparatively high level during the relatively prosperous period from 1923 to 1928. This high level brought about a shift on the part of some western and southern farmers into dairying. The tariff, insofar as it preserved the domestic market for American producers, increased this shift.

In the winters of 1929-30 and 1930-31 the domestic supply of butter was sufficiently heavy to cause our prices to fall to within 2 or 3 cents of the London level, and the possible benefits of the tariff were virtually nullified. The heavy supplies were due as much to

a drop in domestic demand as to an increase in our production. The business depression beginning in 1929, which reduced the purchasing power of the public, made it impossible to move domestic supplies except at greatly reduced prices. This radical change in purchasing power since 1929 has been much greater than the change in domestic production and has consequently been a more important factor in the decline of butter prices. Domestic production actually declined in 1930 but, because of the great drop in purchasing power resulting from depression and unemployment, 1930 butter prices averaged 8.5 cents a pound below 1929.

In spite of the low prices in the United States in 1932, American farmers received about $55,198,225, or 12.0 per cent of their total income from butter, in net benefits from the 14-cent duty. These benefits were secured mostly during the fall and winter months, as domestic prices were, on the average, about equal to world prices during the summer. This $55,198,225, or 12.0 per cent in net returns, indicates that the butter duty is of considerable importance to dairymen. The question remains whether in the future its importance will increase or decrease.

At the present time the United States is in a period of depression. Prices of all commodities are lower than they have been for years, and purchasing power is extremely weak. Domestic production during 1931 was more than sufficient to meet the demand even at the low prices prevailing. As long as such conditions exist our average annual prices will be too low to induce heavy importation. But during the fall and early winter months prices may, and probably will, be high enough to induce some importation. Prices throughout the world have fallen just as ours have. Moreover, the heaviest production of our principal competitor, New Zealand, comes in the winter months when the difference between New York and London prices is greatest. As a result, if the tariff were removed, imports, even under present domestic and world conditions, would tend to be greatest and depress prices most at the one season when American producers get their principal benefit from the duty.[20]

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[20] In considering competition from our three principal rivals, Denmark, Canada, and New Zealand, it may be said that Denmark is a comparatively small country and has already nearly reached her limit of production. Conditions of production in Canada are so much like ours that, while Canadian competition may be considerable, it is not likely to be ruinous. The case of New Zealand, our principal competitor, is quite different. Costs of production in that country are considerably less than ours, due principally to the mild climate which reduces the costs of winter feeding and shelter. Moreover, their peak season comes at the point of our lowest production. Finally, in spite of the long distance, transportation costs from New Zealand to the New York market are approximately the same as those from Minnesota. On the other hand, New Zealand is a small country with less than 6 per cent as many dairy cows as the United States, and it is estimated that about half of the area suitable for dairying is already being used for this purpose. (For a statement of prospective competitive conditions in butter see Wright, P. G., op. cit., pp. 224-228.)

If business conditions recover and the 14-cent duty is maintained, it seems that American farmers need have no apprehensions about losing their home market to foreign competitors. While our prices may be expected to improve materially with general recovery of business, world market prices will probably recover also. Moreover, the recent tendency of western and southern farmers to shift into dairying indicates that we may expect to continue virtually on a domestic basis in butter. If for any considerable period our supplies cannot meet the demand and our prices rise to a level above world prices by the amount of the duty, home production would undoubtedly increase promptly and our prices would decline. The seasonal fluctuations in the differential between domestic and foreign prices which have existed in the past may be expected to continue in the future, with the result that the differential will ordinarily average for any given year an amount considerable less than the duty.

PART III. BUTTER SUBSTITUTES

Chapter IV. Oleomargarine

The consumption of oleomargarine has averaged 13 per cent of butter consumption in the United States during the last ten years. This competition takes the form of substitution which may be classified as (1) "normal substitution" of oleomargarine for butter due to its normal cheapness in price, and (2) "price substitution", which occurs when the price of butter rises (either absolutely or relatively) so that those who normally use butter shift to oleomargarine.

The price of oleomargarine is usually but about half that of butter and many of our lower paid classes use the substitute because with their limited means it furnishes a rather significant method of economizing on the cost of the diet. These people ordinarily eat oleomargarine the year around and consider butter a luxury entirely beyond their means. Our wealthier classes do not eat oleomargarine regardless of how high the price of butter rises. They eat butter the year round. But in the fall and winter months, when butter prices rise to fairly high levels, many citizens of moderate means shift to oleomargarine and, with the decline in butter prices in the spring and summer, return to butter. It is in the effort to hold the patronage of this middle class that butter producers find the greatest competition with oleomargarine. Thus, the possible substitution of oleomargarine for butter among people of moderate means limits the extent tariff or other factors can raise domestic butter prices.

The purpose of the tariff on butter is to reduce or eliminate the competition of Danish and New Zealand butter producers so that higher domestic butter prices may be maintained. Oleomargarine taxes seek to achieve the same end by increasing the cost of producing and distributing oleomargarine, thereby lessening its price advantage and, consequently, its competitive advantage over butter. The following factors will, therefore, be considered in order: (1) domestic and foreign production and consumption of oleomargarine, (2) the effect of "normal" and "price" substitution on butter prices, and (3) an appraisal of the success of controlling oleomargarine competition by such legislation as taxes and duties.[1]

[1] The author is indebted to the publishers of the **Dairy Tribune** for permission to use some of the material in this chapter and Chapter V. A summary of some of the principal ideas in these two chapters, including Figure 8, was published in the **Dairy Tribune** for January, 1931.

Production and Consumption

Domestic Production and Consumption. The United States has produced, on the average, more than 300 million pounds of oleomargarine annually from 1927 to 1931. In 1932 production totalled 203 million pounds. Virtually the entire production is consumed within the United States, as exports have averaged less than one million pounds annually since 1926. Imports are insignificant.

The general trend of oleomargarine production during the 44 years from 1888 to 1932 has been decidedly upward, as indicated graphically in Figure 7.

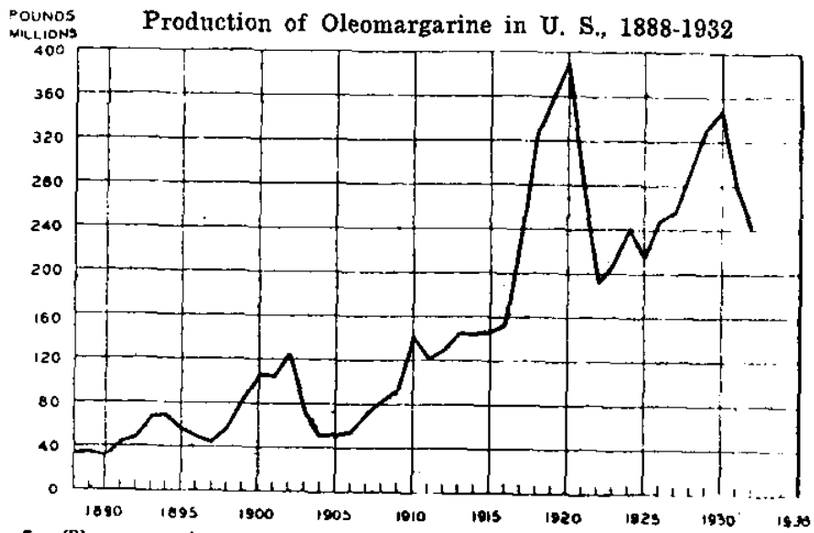

Figure 7. The general trend of oleomargarine production has been decidedly upward ever since it began to be manufactured in this country. The average output from 1927 to 1931 exceeded 300 million pounds. More than 80% of the United States production is produced in the five states of Illinois, California, New Jersey, Ohio and Kansas.

The five leading oleomargarine producing states are Illinois, California, New Jersey, Ohio, and Kansas. These five states produce more than 80 per cent of the total United States production, of which Illinois alone accounts for half.

Per capita consumption of oleomargarine in the United States amounted to less than 2½ pounds in 1932. This is small in comparison with European countries. Consumption varies considerably from one section of the United States to another. On the basis of the number of retail dealer licenses issued per capita, a recent study indicates that consumption is probably largest in the Middle and Far West and not so important in industrial New England or the other Eastern states except Delaware and Maine.[2] The explanation of this

[2] Snodgrass, Katherine, **Margarine as a Butter Substitute**, pp. 190-197.

condition is probably that under a system of commercial agriculture the farmer tends to sell his high-priced butterfat and purchase the cheaper product, oleomargarine, for his own use.

The production and consumption of oleomargarine in the United States is decidedly seasonal. For reasons which will be mentioned below, oleomargarine production and consumption tend to vary inversely with butter production and consumption. During those months when butter production and consumption is large, that of the substitute tends to be relatively small, and vice versa. Oleomargarine production and consumption are normally at a maximum in November and a minimum in July.

Foreign Production and Consumption. In recent years the total European consumption of oleomargarine has fully equalled that of butter. In the eight principal oleomargarine consuming countries of the world, excluding the United States, (Germany, Great Britain, the Netherlands, Denmark, Sweden, Norway, Belgium, and Finland) production of oleomargarine in 1928 is estimated to have been at least 2,240,000,000 pounds, while butter production in those same countries approximated 1,800,000,000.[3] The present volume of oleomargarine production is fully twice that of the last pre-war years.

Foreign consumption of oleomargarine affects American prices indirectly. It decreases the demand for New Zealand and Danish butter in Great Britain and Germany, so that there is more of this butter available for competition in the American market. At the present time, Danish and Dutch exportable surpluses of butter are considerably increased and the British and German demand considerably decreased by the extremely heavy oleomargarine consumption in these four countries.[4]

As long as a strong demand for butter in the British and German markets is maintained (Great Britain and Germany are the two largest butter importing nations of the world), less butter is available for shipment to the United States. It is possible that oleomargarine substitution in European countries may reach a point

[3] U. S. Department of Agriculture, Bureau of Agricultural Economics, **Foreign Crops and Markets**, August 10, 1931, p. 197.

[4] Consumption of oleomargarine in Denmark in 1930 totalled 50 pounds per person, or approximately four times butter consumption. The per capita consumption of oleomargarine in the Netherlands increased from 12 pounds in 1922 to approximately 20 pounds in 1930. In Germany in 1928 it amounted to 15 pounds, as compared with 12 pounds of butter. During the period 1920-1930 Great Britain imported, on the average, more than 114 million pounds of oleomargarine a year.

where the resulting heavy supplies and weakened demand may so reduce butter prices in foreign markets that the United States will receive large shipments of foreign butter. They have by no means gone so low as to make profitable the shipment of large foreign surpluses to the United States over our 14-cent tariff wall. At the beginning of 1933 butter prices in European markets were lower than they had been since 1913, affording, consequently, more effective competition with oleomargarine, and apparently checking expansion of the oleomargarine industry.

TABLE 12

Oleomargarine Consumption as a Percentage of Butter Consumption, 1889-1932.

Year	Per centage [a]	Year	Per centage [a]	Year	Per centage [a]	Year	Per centage [a]	Year	Per centage [a]
1889	3.1	1898	3.6	1907	4.4	1916	8.9	1925	11.6
1890	2.6	1899	5.5	1908	5.0	1917	15.0	1926	11.6
1891	3.6	1900	7.1	1909	5.6	1918	21.5	1927	13.1
1892	3.6	1901	6.7	1910	8.6	1919	22.6	1928	16.9
1893	5.1	1902	7.8	1911	7.5	1920	24.0	1929	16.7
1894	5.1	1903	4.2	1912	7.6	1921	12.2	1930	15.2
1895	3.5	1904	2.7	1913	8.9	1922	10.0	1931	10.4
1896	3.0	1905	2.7	1914	8.5	1923	12.1	1932	9.0
1897	3.1	1906	2.7	1915	8.5	1924	11.6		

[a] Butter figures apply to calendar years; those for oleomargarine to fiscal years up to and including 1920 and after that to calendar years.

Source: 1889-1920 data taken from Snodgrass, Katherine, **Margarine as a Butter Substitute**, Food Research Institute, Stanford University, California, December, 1930, p. 245. 1920-1932 data compiled from U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, **Survey of Current Business.**

Effects of Substitution on Butter Prices

Extent of Substitution in the United States. It is difficult to ascertain precisely the effect of oleomargarine consumption on butter prices. Oleomargarine consumption in the United States increased from 3.1 per cent of butter consumption in 1889 to 16.9 per cent in 1928. In 1931 it was 10.4 per cent and in 1932, 9.0 per cent. These data are presented in Table 12. At first glance it might be assumed that this substitution depresses the consumption and price of butter. The question may be asked, "Would the absolute prohibition of oleomargarine appreciably affect the price of butter?" This question cannot be answered definitely because it involves two unknown variables, (1) the purchasing power of oleomargarine consumers, and (2) the extent to which these consumers would substitute other fats rather than return to butter. Some oleomargarine consumers might find it impossible to purchase butter because of their low purchasing power. Therefore, their potential

demand would be ineffective, and the extent to which other fats would be substituted is unknown. If oleomargarine consumption were entirely prohibited, butter consumption would be increased, but it by no means follows that the increase would be proportionate. The dairy industry must still face the competition of other fats, and it will still be adversely affected by a general low level of purchasing power.

An examination of Table 12 shows that competition between oleomargarine and butter has been especially pronounced since 1917. During the period 1918-1920, under the influence of high war prices, per capita consumption of butter declined to the unusually low figure of 14 or 15 pounds annually, while that of oleomargarine increased from 1.5 pounds to 3 or 4 pounds. It has been said that during the war, butter interests lost to the oleomargarine industry approximately one-sixth of their potential market and more than one-tenth of their usual market.[5]

TABLE 13

Price of Butter and Per Capita Oleomargarine Consumption, 1887-1932.

Year ending June 30	Price of butter[a] (c lb.)	Per capita consumption of oleomargarine (lbs.)	Year ending June 30	Price of butter[a] (c lb.)	Per capita consumption of oleomargarine (lbs.)	Year ending June 30	Price of butter[a] (c lb.)	Per capita consumption of oleomargarine (lbs.)	Year ending June 30	Price of butter[a] (c lb.)	Per capita consumption of oleomargarine (lbs.)
1887[b]	26.3	0.35	1899	20.2	1.04	1911	26.7	1.26	1923	45.1	1.85
1888	27.3	.53	1900	23.0	1.36	1912	30.9	1.32	1924	46.1	2.11
1889	26.0	.54	1901	21.8	1.30	1913	32.2	1.48	1925	41.8	1.87
1890	23.3	.49	1902	23.8	1.54	1914	28.0	1.46	1926	45.0	2.12
1891	25.7	.67	1903	24.7	.81	1915	31.2	1.42	1927	47.3	2.17
1892	25.7	.72	1904	22.0	.54	1916	31.3	1.47	1928	46.6	2.46
1893	27.5	.97	1905	24.2	.53	1917	38.1	2.23	1929	45.0	2.79
1894	24.1	.97	1906	22.8	.51	1918	45.0	3.11	1930	39.9	2.84
1895	22.4	.68	1907	27.0	.76	1919	57.3	3.28	1931	28.3	2.20
1896	20.3	.64	1908	28.0	.89	1920	63.8	3.49	1932	21.0	1.92
1897	18.3	.57	1909	28.0	.99	1921	50.6	2.58			
1898	19.5	.73	1910	30.3	1.51	1922	40.6	1.73			

[a] Average wholesale price of 92-score butter at New York.

[b] Eight months, November 1, 1886, to June 30, 1887.

Source: U. S. Department of Agriculture, Statistical Bulletin, No. 25, **Dairy Statistics**, for both butter prices and oleomargarine consumption from 1887-1926. Oleomargarine consumption from 1926 to 1932 from U. S. Treasury Department, **Bureau of Internal Revenue, Annual Reports of the Commissioner.** Butter prices from 1926 to 1932 from U. S. Department of Agriculture, Bureau of Agricultural Economics.

[5] Snodgrass, Katherine, op cit., p. 246.

The hold which the oleomargarine industry secured during the war has been partially retained. In the last few years per capita consumption of oleomargarine has averaged between 2 and 3 pounds a year in the United States as compared with 1 to 1.5 pounds before the war. (See Table 13). The ratio of oleomargarine consumption to butter consumption has risen from about 8 per cent before the war to about 16 per cent during 1929 and 1930. The principal cause of this increased substitution will be found in the cheapening in the price of oleomargarine as compared with butter.

Cheapness of Oleomargine. The superior qualities of butter are everywhere recognized. The outstanding reason for oleomargarine consumption is not the instrinsic merit of the product, but its low price. Table 14 indicates that on the average for the 29 years, 1901-1929, oleomargarine prices have been only 55.8 per cent of butter prices. It also shows that after the war they declined in relation to butter prices, until in 1929 they were only 46.9 per cent of butter prices.

TABLE 14

Ratio of Wholesale Prices of Oleomargarine to Wholesale Prices of Butter, 1901-1929

(cents per pound)

Year	Oleomargarine[a] Prices	Butter[b] Prices	Ratio	Year	Oleomargarine[a] Prices	Butter[b] Prices	Ratio	Year	Oleomargarine[a] Prices	Butter[b] Prices	Ratio
1901	13.2	21.1	.626	1911	17.5	26.4	.663	1921	21.6	40.0	.540
1902	15.5	24.1	.643	1912	17.5	29.7	.589	1922	18.8	37.7	.499
1903	13.2	23.0	.574	1913	17.5	30.8	.568	1923	21.4	44.4	.482
1904	12.6	21.8	.578	1914	17.9	27.3	.656	1924	22.4	39.9	.561
1905	13.2	24.3	.543	1915	18.8	27.4	.686	1925	22.5	42.6	.528
1906	13.5	24.6	.549	1916	18.8	31.8	.591	1926	21.3	41.4	.514
1907	13.0	27.6	.471	1917	23.5	40.3	.583	1927	21.1	44.3	.476
1908	14.4	26.9	.535	1918	27.6	48.9	.564	1928	21.0	44.9	.468
1909	14.6	28.9	.505	1919	33.6	57.2	.587	1929	20.5	43.7	.469
1910	17.5	29.8	.587	1920	32.5	56.8	.572				

[a] Based on prices of butterine at Chicago prior to 1922, and of animal fat margarine since then.

[b] Based on wholesale prices of butter at Elgin, Illinois, 1900-1913, and of butter, extra, at Chicago, since 1914.

Source: Snodgrass, K., op. cit., p. 248.

The consumption of oleomargarine in 1932 amounted to 198,232,000 pounds as compared with 321,360,000 pounds during 1930. This decrease of more than 100 million pounds was due principally to the great decline in butter prices, which averaged more than 15 cents a pound lower in 1932 than in 1930.[6]

[6] Wholesale prices of 92-score butter at New York averaged 21.0 cents a pound during 1932 as compared with 36.5 cents and 28.4 cents during 1930 and 1931 respectively.

TABLE 15

Consumption of Oleomargarine and Price of Butter, by Months, 1920-1932

Month	Consumption of oleomargarine (000 lb)	Price of butter (c lb)	Consumption of oleomargarine (000 lb)	Price of butter (c lb)	Consumption of oleomargarine (000 lb)	Price of butter (c lb)	Consumption of oleomargarine (000 lb)	Price of butter (c lb)
	1920		1921		1922		1923	
January	34,643	65	22,688	52.5	16,887	37.4	20,633	52.2
February	34,000	66	20,297	47.2	12,195	37.3	19,722	49.5
March	36,548	67	21,361	48.1	15,262	38.2	19,722	49.6
April	33,947	71	20,814	45.5	13,686	37.8	18,033	46.3
May	32,295	61	12,317	31.8	12,765	36.6	18,454	41.6
June	22,310	57	7,614	32.7	10,040	36.9	14,261	38.4
July	24,046	57	11,120	40.4	14,974	36.3	11,616	39.2
August	28,141	55	17,803	42.7	11,754	35.6	18,081	43.9
September	29,819	59	17,723	43.1	16,113	41.2	19,854	46.0
October	28,249	60	21,497	47.0	16,180	45.7	21,236	47.5
November	32,099	63	17,565	44.9	19,806	50.8	24,101	52.4
December	23,869	55	19,411	43.8	19,965	54.3	19,748	54.7
	1924		1925		1926		1927	
January	23,841	52.9	19,109	40.6	21,501	44.8	21,859	49.2
February	23,616	50.4	15,846	40.8	21,481	44.8	20,356	51.5
March	23,345	46.9	20,125	47.6	21,268	43.1	27,234	50.2
April	20,083	38.8	17,090	44.7	20,445	39.6	23,267	50.3
May	17,493	38.7	18,542	42.9	16,646	40.9	20,799	43.5
June	14,011	41.5	14,623	42.6	17,901	41.2	21,171	42.5
July	15,095	40.5	14,704	42.4	15,906	40.5	16,727	41.7
August	15,857	38.4	17,068	43.5	17,294	41.6	19,387	41.9
September	20,202	37.9	20,057	47.6	20,172	44.3	23,981	46.5
October	19,217	38.5	25,612	51.0	21,766	46.7	26,823	48.4
November	17,115	42.5	24,974	50.6	23,800	50.3	26,256	49.8
December	19,997	44.7	24,553	49.2	24,530	54.5	26,717	51.9
	1928		1929		1930		1931	
January	27,729	48.8	27,847	47.9	30,309	36.6	27,237	28.5
February	26,327	46.6	32,713	49.9	30,793	35.7	19,751	28.4
March	27,427	49.4	28,260	48.5	23,890	37.3	19,573	28.9
April	22,800	45.5	27,067	45.3	29,654	38.5	17,150	26.1
May	23,381	44.9	29,008	43.5	22,526	34.8	15,460	23.7
June	23,926	44.1	23,379	43.5	22,178	32.9	13,180	23.3
July	20,490	44.9	24,972	42.4	18,782	35.2	9,289	25.0
August	24,965	46.9	25,788	43.5	24,672	38.9	16,483	28.1
September	29,002	48.8	31,423	46.2	27,194	39.8	19,499	32.5
October	30,137	47.8	34,591	45.6	33,138	40.0	23,401	33.8
November	32,755	50.6	35,281	42.7	30,631	36.1	22,838	30.9
December	28,526	50.5	32,800	41.1	27,593	32.2	22,831	30.6
	1932							
January	19,892	23.6						
February	18,351	22.5						
March	17,703	22.6						
April	16,769	20.1						
May	14,273	18.8						
June	10,945	17.0						
July	11,360	18.2						
August	15,020	20.3						
September	16,211	20.8						
October	19,391	20.7						
November	20,048	23.3						
December	18,269	24.1						

Source: Oleomargarine consumption from U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, Monthly Reports of the **Survey of Current Business.** Butter prices are for 92-score at New York City, secured from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Seasonal Character of Substitution. The competition of oleomargarine does not make itself felt uniformly throughout the calendar year, but is greatest during the months of relative scarcity of butter and least during the months of peak butter production. From Table 15, which shows butter prices and oleomargarine consumption in the United States by months, 1921-1932, it is evident that fluctuations in both series are decidedly seasonal, both rising in the winter and falling in the summer. (See Figure 8).

Consumption of Oleomargarine and the Price of Butter by Months, 1921-1932

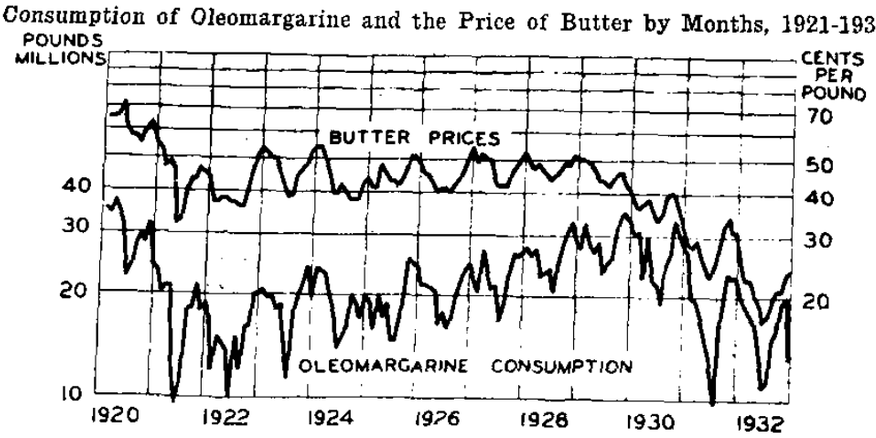

Figure. 8. The consumption of oleomargarine tends to fluctuate with the price of butter. During 1932 oleomargarine consumption was more than 100 million pounds less than during 1930 due principally to the great decline in butter prices which fell more than 15 cents a pound during this period.

Seasonal Consumption of Oleomargarine and the Seasonal Index of Butter Prices, 1920-1930

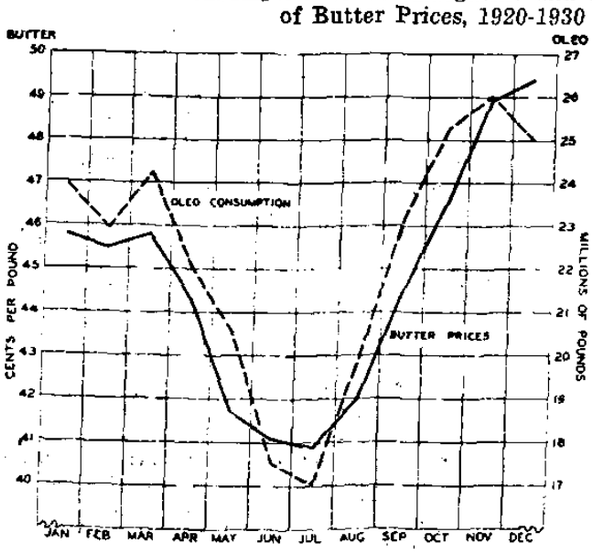

Figure 9. The competition of oleomargarine does not make itself felt *uniformly throughout* the calendar year, but is *greatest during the* months of relative scarcity of butter and least during the months of peak butter production. During the period covered by the figure, substitution in the fall and early winter months (October, November and December), averaged about eight million pounds a month more than in June and July.

The seasonal relationship between the two is further illustrated in Figure 9, which shows the average seasonal consumption of oleomargarine and the seasonal index of butter prices for the period 1920-1930. During the fall months, beginning in August and September, the price of butter rises considerably, reaching its peak in November and December. Oleomargarine consumption follows this rise very closely, and represents "price substitution", which occurs because people of limited means cannot or will not pay the high fall and winter prices. The price of butter is lowest in June and July and substitution drops off correspondingly. The oleomargarine consumption occurring in summer when butter prices are lowest represents "normal substitution" by those people with small incomes who consider butter a luxury at any time. "Normal substitution" has very little effect on butter prices because the people who eat oleomargarine the year round could buy only the cheapest grade of butter if they were to buy any at all. But "price substitution," which increases when butter prices rise in the winter, does definitely limit the height to which they can rise.

TABLE 16

Seasonal Consumption of Oleomargarine, 1920-1930

Month	Seasonal Base (lbs.)	Month	Seasonal Base (lbs.)	Month	Seasonal Base (lbs.)
January	23,961,800	May	20,548,200	September	23,180,900
February	22,935,500	June	17,514,000	October	25,255,800
March	24,274,200	July	17,067,800	November	26,014,400
April	22,087,700	August	19,878,900	December	25,010,400

Source: These seasonal indices were calculated by the modified median link relative method by Mr. Charles Alexander. Data taken from U. S. Department of Commerce, **Survey of Current Business.**

Table 16 shows the average seasonal consumption of oleomargarine during the period 1920-1930. This table shows that substitution in the fall and early winter months (October, November, and December) averaged about 8 million pounds a month more than in June and July. If production could be curtailed so that no more oleomargarine were consumed in the fall and winter months than is consumed in the summer, or if it were completely prohibited, would butter prices rise very much above their present fall and winter levels? This question will now be considered.

Effects on Butter Prices of Curtailing or Prohibiting Substitution. It is virtually impossible to state exactly what would happen to butter prices if the manufacture of oleomargarine were

curtailed or prohibited.[7] The immediate effect of a curtailment of the supply of oleomargarine would presumably be an increase in the price of butter as a result of increased demand. If butter prices rose high enough to make importation over the 14-cent tariff wall profitable, such imports would in time reduce the price. Prohibition of oleomargarine consumption would have little effect on butter prices if the tariff were low. If both a prohibitive tariff and a prohibitive oleomargarine law were effected, the only limitation on butter prices would be the domestic demand. But since butter under present living conditions is not an indispensable commodity, this demand is definitely limited. If oleomargarine were prohibited and our 14-cent tariff maintained, butter prices would at times rise high enough so that a large group of consumers could not afford to use butter. This group would probably turn to such substitutes as lard, jams or jellies, and the like. Elimination of oleomargarine would increase the demand for butter by only a portion of the amount of the oleomargarine consumed, but no one could forecast the exact net effect on butter demand or butter prices.[8]

The influence of oleomargarine substitution on butter prices is negligible in the spring and summer months when domestic butter output is so large as to put the United States on a domestic or even an export basis. But during the fall and winter months, when the 14-cent tariff is most effective, oleomargarine and foreign butter act as the two principal supply factors limiting the height of butter prices. Thus, it may be concluded that oleomargarine substitution is an important factor in butter prices but that there are other factors of equal and, at times, greater significance.

Control of Substitution by Legislation

Taxes and Import Duties on Oleomargarine. On August 2, 1886, Congress imposed a flat tax of 2 cents per pound on oleomargarine. Provision was made for tax-free exportation, and a 15-cent per pound internal tax was levied on imports.

The Federal Law of 1886 did not satisfy dairymen, since oleomargarine could go to market in a highly colored form and be sold as butter. They believed that oleomargarine should be sold in its

[7] A number of correlations were attempted in order to determine the quantitative relationship between the price of butter and the consumption of oleomargarine. These were not successful and no relationship other than seasonal was established. The other elements in the price and consumption relationship seem to be wholly capricious and do not lend themselves to quantitative analysis.

[8] See Snodgrass, Katherine, op. cit., pp. 255-256.

uncolored form so as to be easily distinguishable from butter, which they thought would discourage its use. In 1902 Congress imposed a 10-cent per pound tax on colored and a .25-cent per pound tax on uncolored oleomargarine. The provisions of the Law of 1886 for free exportation and an internal tax of 15 cents a pound on imports were retained.

That law was not changed until the passage of the Brigham-Townsend Bill on March 4, 1931, effective 90 days later. This new law states that all oleomargarine which fails to pass the Lovibond tintometer color limit test of 1.6 degrees will pay a tax of 10 cents a pound. The law was necessitated when on November 12, 1930, David Burnett, Commissioner of Internal Revenue, issued a ruling which permitted oleomargarine manufacturers to use unbleached, refined palm oil to color oleomargarine yellow in imitation of butter without payment of the 10-cent tax previously levied on artificially colored oleomargarine. This amendment in no way affects the other provisions of the Act of 1902.

Effects of Legislation on Substitution. The Federal Law of 1886 with its flat tax of 2 cents per pound was not the primary factor determining the amount of oleomargarine consumed during the period 1886-1902. The primary factor was the price of butter. In spite of the tax, fluctuations in oleomargarine consumption during this period followed quite closely fluctuations in butter prices. Figure 10, which shows the price of butter and the per capita consumption of oleomargarine for this period, indicates that in general butter price movement conditioned the movements of oleomargarine consumption. While the 2-cent tax may have tended to keep down the

Price of Butter and Oleomargarine Consumption in the U. S.

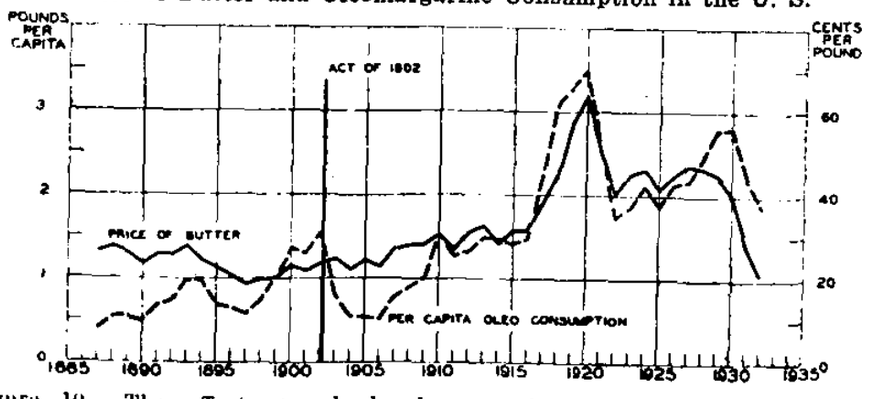

Figure 10. The efforts to check oleomargarine consumption by legislation (principally by taxes on the colored product) have not been successful and substitution has ordinarily followed fluctuations in butter prices, increasing when butter prices rise and decreasing when they fall.

consumption of oleomargarine, it did not check it materially. Oleomargarine consumption continued to vary with variations in butter prices.

The increase in the tax on colored oleomargarine in 1902, however, seems to have caused a temporary reduction in consumption. From 1903 to 1906, inclusive, oleomargarine consumption was exceptionally low, averaging about one-half the consumption of the previous four years. This reduction was not, as some believe, due to lower butter prices. The average yearly price of butter for the period 1903-1906 was more than a cent per pound higher than the average price for the period 1899 to 1902. Reduced substitution was due primarily to the great decline in the manufacture of colored oleomargarine caused by the 10-cent per pound tax on this product. A few years were required to get the consuming public adjusted to using white or uncolored oleomargarine in place of the colored product. However, once these adjustments had been made, oleomargarine consumption again tended to fluctuate with the fluctuations in butter prices.[9]

Oleomargarine consumption started upward in 1907, following fluctuations in butter prices quite closely until the war period, 1916-1920, when consumption was greatly increased. Extremely high butter prices and a general desire on the part of the consuming public to cooperate with the government in thrift and saving in order to help win the war were the chief causes of this sharp rise.

From 1920 to 1928 fluctuations in oleomargarine consumption followed butter prices, but between 1928 and 1931 consumption of the substitute greatly increased without proportional increases in butter prices. This increased consumption represents the additional substitution brought about by the reduction in purchasing power and increased unemployment which resulted from the present business depression. Substitution is likely to decline with a general recovery in business conditions which will increase the purchasing power of the consuming public and reduce unemployment. With such a recovery, substitution will probably decline to a level approximating that maintained during the period 1923-1928. Under ordinary circumstances the large majority of American consumers prefer butter to oleomargarine and, except in periods of severe business de-

[9] The 10-cent per pound tax has been effective in keeping the manufacture of colored oleomargarine to a minimum. Only 9 million pounds of colored as compared with 269 million pounds of uncolored oleomargarine, were manufactured in the United States in the year ending June, 1931. The .25-cent per pound tax on uncolored oleomargarine has had virtually no effect in checking the consumption of this product.

pression or wars, consumption of the substitute will probably average between 10 and 12 per cent of the domestic consumption of butter as it did during the relatively normal period, 1923-1928.

Oleomargarine manufacturers recently attempted to evade the 10-cent tax on colored oleomargarine, but dairymen believe the passage of the Brigham-Townsend Bill to be entirely sufficient to keep the production of colored oleomargarine to a minimum. The chances of fraudulent sale have been decidedly reduced and virtually all of the oleomargarine produced is consumed by those who use it knowingly and purposely as a substitute for butter.

In appraising the effect of legislation on the substitution of oleomargarine for butter it can be said that the taxes levied have, on the whole, had very little effect in checking substitution. They have not offset materially the price advantage of oleomargarine, and substitution has ordinarily followed fluctuations in butter prices, increasing when butter prices rise and decreasing when they fall.

Conclusions

Oleomargarine and foreign butter are the two principal supply factors affecting butter prices. Which is the more effective competitor of the dairy industry is difficult to say. Our small imports of butter are not sufficient proof that oleomargarine (consumption of which is many times greater than butter imports) is the stronger competitor. Imports of butter are small because of the tariff barrier. How large they would be without any tariff we do not know; but we do know that without a tariff our butter prices during the winter months would tend to approach the level of world prices.

The influence of oleomargarine substitution on butter prices is negligible in the spring and summer, when our butter production is ordinarily so large as to cause our prices to equal or go below world market prices. Thus, if no tariff existed, oleomargarine would have very little, if any, effect on butter prices. But with our 14-cent butter duty, which permits considerable spread between domestic and foreign prices in the fall and winter months, oleomargarine substitution increases as prices rise and tends to keep the differential less than the 14 cents intended by the tariff.

The attempts of the dairy interests to crush the oleomargarine industry by taxation have not been successful. The 10-cent tax on colored oleomargarine has kept production to less than 15 million pounds annually during the past five years, but production of uncolored oleomargarine, which is taxed only .25 cent a pound, averaged about 300 million pounds a year from 1927 to 1931 and in 1932

totalled 203 million pounds. Oleomargarine prices averaged about 21 cents a pound below butter prices from 1922 to 1929. The very small tax on the uncolored substitute has virtually no effect on oleomargarine production in the face of such a great price spread. Substitution under these conditions fluctuates with butter prices and taxation is a minor and, apparently, an ineffective factor.

If the manufacture of oleomargarine were prohibited, American butter prices with our 14-cent tariff would, during the fall and winter months, rise high enough so that many could not afford butter and would probably substitute other spreads. Thus, elimination of oleomargarine would increase the demand for butter by only a portion of the amount of oleomargarine now being consumed and the net effect on butter prices would be less than the amount of present oleomargarine consumption might indicate.

With our taxes on oleomargarine and our 14-cent butter tariff, the consumption of oleomargarine will probably average between 8 and 12 per cent of butter consumption in comparatively normal or ordinary periods, fluctuating above or below this range from year to year with fluctuations in butter prices. During war periods or business depressions it may change decidedly due to high butter prices, war thrift and saving, reduced purchasing power, or increased unemployment. The additional substitution of oleomargarine for butter during the present depression brought total consumption of the substitute to more than 15 per cent of total domestic butter consumption in 1930.

Virtually all the oleomargarine now consumed is used admittedly as a substitute for the higher priced butter. Dairymen can no longer rely on the fraudulent sale argument nor the inferior nutrition argument as weapons against oleomargarine competition.[10] But they can rely on the superior aroma and flavor of butter to make most Americans use it in preference to oleomargarine if it is not too much higher in price. While farmers should make every possible effort to produce high quality butter at low cost, this is not the whole solution of the problem of oleomargarine competition. Butter prices at the beginning of 1933 were the lowest in many years, 92-score butter at New York averaging but 20 cents a pound in January. The dairy farmer is injured by the general low purchasing power resulting from the depression. The substitution of oleomargarine in spite of ex-

[10] Existing legislation insures the sale of oleomargarine on its own merits, and oleomargarine has already been manufactured which has been demonstrated to contain Vitamin A, while Vitamin D can be contributed by the process of irradiation. Moreover, the average American's diet is so diversified that he does not have to depend on spreads for his vitamins.

traordinarily low butter prices is the result of consumers being forced, margarine. Ordinarily a difference between the two prices as small difference between oleomargarine and butter prices in favor of oleo- because of low purchasing power, to take advantage of any small as that existing at the beginning of 1933 would not induce wide- spread substitution. Not until the purchasing power of the masses is improved can the competition of oleomargarine be expected to be materially reduced and the general condition of the dairy farmer bettered.

Chapter V. Animal and Vegetable Oils

Duties on oils, like taxes on oleomargarine and the tariff on butter, are intended to benefit the dairy industry. They are intended primarily to increase the cost of oils to oleomargarine manufacturers, thereby increasing the cost of oleomargarine to consumers and lessening its price advantage over butter. As will be seen in the following pages, they have not achieved this purpose.

Oleomargarine is only one of several products made from animal and vegetable oils. Some of these products, such as lard compounds and salad oils, are used as food and compete indirectly with butter. Others, such as soap and paint, are inedible and do not compete directly or indirectly with butter. But because many of the fats and oils resemble each other so closely that they can, to a considerable extent, be substituted for one another[1] it is necessary to have a tariff on all oils and fats if any one of them is to be affected. Consequently, the following factors will be considered in order: (1) the chief types of oils and fats used in the United States and their sources, whether produced at home or imported; (2) effectiveness of the present duties on the various oils and fats; (3) the possibility of making tariffs on oils effective; and (4) the possible benefits and burdens of effective duties.

Domestic Production and Consumption

Present Use of Oils in the United States. According to present uses, the oils and fats may be conveniently divided into three groups:[2]

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[1] In general an oil or fat can be only partially replaced by another, or combination of others, because such characteristics in the finished product as taste, color, texture, hardness, etc., might be changed by the substitution. The hydrogenation process, i. e., hardening of the oils by chemical addition of hydrogen, enables the liquid oils, especially cottonseed, soy-bean, and marine animal oils to compete more directly with the solid animal fats, especially lard and tallow. (See U. S. Tariff Commission, **Summary of Tariff Information, Schedule 1, Chemicals, Oils, and Paints**, Washington, D. C., 1929, p. 254)

[2] There is no essential difference between a vegetable oil and animal fat. Both are glycerides, which are a combination of glycerine with various fatty acids such as stearic, oleic, palmitic, and others. The combinations which are liquid at ordinary temperatures are known as oils, while those which are solid at ordinary temperatures are called fats. **Ibid.**, p. 254.

(1) Edible: (a) lard compounds, (b) oleomargarine, (c) salad oils.

(2) Inedible: (a) soap, (b) paint.

(3) Specialties.

The principal oils and fats in the edible group are olive, cottonseed, coconut, peanut, corn, oleo oil, oleo stearine, palm kernel, and soya bean oils, and butter, lard, and beef tallow. In the inedible group the soap oils include all the edible oils of too low quality for edible purposes, and in addition low-grade tallow, vegetable oil foots,[3] marine animal oils, and greases, including garbage and tankage grease. The paint oils include linseed, china wood or tung, perilla,

TABLE 17

United States Factory Production of Animal and Vegetable Fats and Oils, 1927-1931 (in thousand pounds)

Fat or Oil[a]	1927	1928	1929	1930	1931
Cottonseed, crude	1,806,757	1,460,469	1,581,631	1,616,102	1,417,226
Cottonseed, refined	1,592,889	1,330,764	1,450,772	1,457,564	1,292,767
Peanut, crude and virgin	10,590	12,439	16,131	25,495	13,730
Peanut, refined	8,512	9,546	10,680	18,946	10,658
Coconut or copra, crude	281,654	311,181	352,654	352,727	303,434
Coconut or copra, refined	243,094	295,909	334,567	300,405	272,471
Corn, crude	117,441	124,327	133,680	120,747	113,145
Corn, refined	92,871	104,487	121,451	101,148	104,014
Soya bean, crude	3,088	4,716	11,009	14,387	39,129
Olive, edible	858	1,438	1,003	2,184	1,638
Palm kernel, crude	.....	.....	.....	712	18,542
Palm kernel, refined	5,356	16,607	15,567	32,151	25,150
Lard, neutral	48,116	52,991	43,508	26,957	22,965
Lard, other edible	1,608,195	1,799,976	1,813,354	1,575,548	1,658,445
Tallow, edible	48,892	41,047	43,727	41,676	66,771
Lard compounds and other lard substitutes	1,178,995	1,143,349	1,220,102	1,211,268	1,152,874
Oleo oil	127,594	124,105	122,527	116,430	98,372
Animal stearine, edible	67,325	61,262	59,753	55,815	46,614
Tallow oil	12,466	11,231	10,684	7,947	9,994
Lard oil	26,688	22,161	29,855	17,253	19,891
Oleomargarine[b]	257,157	294,699	333,121	349,124	274,461
Butter[c]	1,466,852	1,487,049	1,597,027	1,514,892	1,667,452

[a] The above figures include all production other than that of lard, tallow, and grease in households, on farms, and by small local butchers and meat markets.

[b] From Annual Reports of the Commissioner of Internal Revenue, year ending June 30.

[c] Creamery butter production, from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, **Foreign Crops and Markets**, July 25, 1932, p. 124.

[3] Foots are the residues resulting from the refining of better grade oils.

menhaden, and soya bean. The most important in the specialty group is castor oil, which is used in medicine, lubrication, and the textile industry. Others in the specialty group are croton, cod liver and rape oil.

Many of the oils are used for several purposes. Cottonseed oil is used in lard substitutes, salad oils, oleomargarine, and soap; coconut and peanut oils for lard substitutes, oleomargarine, and soap; soya bean oil for lard substitutes, oleomargarine, soap, and paint; oleo stearine in lard substitutes and oleomargarine; and corn oil in lard substitutes and salad oils, and to a limited extent in soap and oleomargarine. Thus many of these oils can to a limited extent be substituted for one another.

Table 17 shows the United States factory production of animal and vegetable fats and oils, 1927-1931.

Competitive Position of the United States. The United States is more than self-sufficient in its supply of animal fats and oils, but is by no means so in vegetable fats and oils. Table 18 shows that on the average for 1928-1931 we have exported nearly five times

TABLE 18

Total U. S. Imports and Exports of Animal and Vegetable Fats and Oils, 1928-1931 (Short Tons)

	1928		1929		1930		1931	
	Imports	*Exports*	*Imports*	*Exports*	*Imports*	*Exports*	*Imports*	*Exports*
Raw Materials								
Seeds, Nuts & Kernels	906,993	8,076	1,129,748	9,212	788,253	6,997	816,024	23,629
Oil Equiv.	401,277	3,515	485,104	3,778	373,037	3,388	363,730	11,944
Vegetable Fats & Oils	409,903	65,785	578,546	52,174	508,796	55,363	450,631	51,804
Total: Oil Equiv. of Raw Matls. plus Veg. Fats & Oils	811,180	69,300	1,063,650	55,952	881,833	58,751	814,361	63,748
Animal Fats & Oils	83,374	473,638	92,165	505,607	97,964	405,468	108,157	365,983
Total Veg. & Animal Fats & Oils	894,554	542,938	1,115,815	561,559	979,797	464,219	922,518	429,731

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, Foreign Crops and Markets, July 25, 1932, p. 129 and August 1, 1932, p. 163.

TABLE 19

U. S. Imports and Exports of the Principal Animal and Vegetable Fats and Oils, 1926-1931
(Short Tons)

Classification	1926		1927		1928		1929		1930		1931	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Seeds, Nuts and Kernels												
Total raw materials [a]	1,008,240	7,848	980,380	9,940	906,993	8,076	1,129,748	9,212	788,253	6,997	816,024	23,629
Oil equivalent	422,804	3,280	416,082	4,158	401,277	3,515	485,104	3,778	373,037	3,388	363,730	11,944
Vegetable Oils & Fats												
Chinese wood oil	41,502	2,790[c]	44,825	2,648[c]	54,611	3,093[c]	59,839	3,096[c]	63,162	3,130[c]	39,656	2,311
Coconut oil	122,564	4,811[d]	146,685	13,137[d]	145,218	15,592[d]	205,968	15,436[d]	158,960	13,437[d]	162,587	9,584
Cottonseed oil		20,450		33,991		25,851		13,038		14,149		11,289
Olive oil, edible & inedible	64,366		62,076		65,608		76,502		81,430		59,682	53
Palm & palm kernel oil	102,864		101,464		111,520		165,862		158,298		135,537	979
Soya bean oil	15,356	784	7,458	2,722	6,558	3,571	9,744	3,984	4,174	2,481	2,458	2,725
Peanut oil	4,140		1,424		2,324		1,616		7,782		7,443	2,551
Other expressed oils [b]	42,805	24,165	25,484	18,916	24,064	17,678	59,015	16,620	34,990	22,166	43,268	22,312
Total vegetable fats & oils	**393,597**	**53,000**	389,416	**71,416**	**409,903**	**65,785**	**578,546**	**52,174**	**508,796**	**55,363**	**450,631**	**51,804**
Animal Fats & Oils												
Oleo oil		48,451		39,390		31,400		34,104		28,242		23,661
Oleo stock		6,080		5,956		3,390		4,050		3,890		3,962
Tallow	6,824[d]	5,314	6,454[d]	3,305	7,119[d]	1,606	8,511[d]	1,920	312[d]	2,797	[e]	1,332
Lard & lard substitutes		363,829		355,344		394,092		425,750		329,226		289,971
Oleo & lard stearine	[e]	3,659	[e]	2,824	[e]	1,942	[e]	1,966	[e]	2,566	[e]	3,421
Oleomargarine		726		398		328		451		346		273
Butter	3,364	2,742	4,228	2,162	2,162	1,949	1,323	1,862	1,258	1,472	1,882	1,984
Other animal fats & oils [f]	58,380	41,281	78,668	46,786	74,093	38,943	88,130	35,504	96,394	36,929	106,275	41,379
Total animal fats & oils	68,568	472,082	89,350	456,165	83,374	473,638	97,964	505,607	97,964	405,468	108,157	365,983
Grand total	884,969	528,362	894,848	531,740	894,554	542,938	1,115,815	561,559	979,797	464,219	922,518	429,731

[a] Principally flaxseed and copra.

[b] Includes linseed, rapeseed, and perilla oil.

[c] Re-exports.

[d] From U. S. Department of Commerce, Bureau of Foreign & Domestic Commerce.

[e] If any, included in "Other animal fats and oils."

[f] Largely marine oils.

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, **Foreign Crops & Markets**, August 17, 1931, pp 246-250; July 25, 1932, p. 129; and August 1, 1932, p. 163.

as much animal fats and oils as we have imported. At the same time we imported nearly 15 times as much vegetable fats and oils as we exported. For the two combined imports were approximately twice as large as exports for these three years.

Table 19 shows the United States imports and exports of the principal animal and vegetable oils and fats, 1926-1931. Cottonseed oil, oleo oil, oleo stock, lard and lard substitutes, and oleo and lard stearine are decidedly on an export basis, and coconut oil, palm and palm kernel oils, soya bean oil, and peanut oil are decidedly on an import basis. The largest exportable surpluses are found in lard and lard substitutes, oleo oil, and cottonseed oil. The largest imports occur in coconut, palm, and palm kernel oils.

Oils Used in Oleomargarine Manufacture

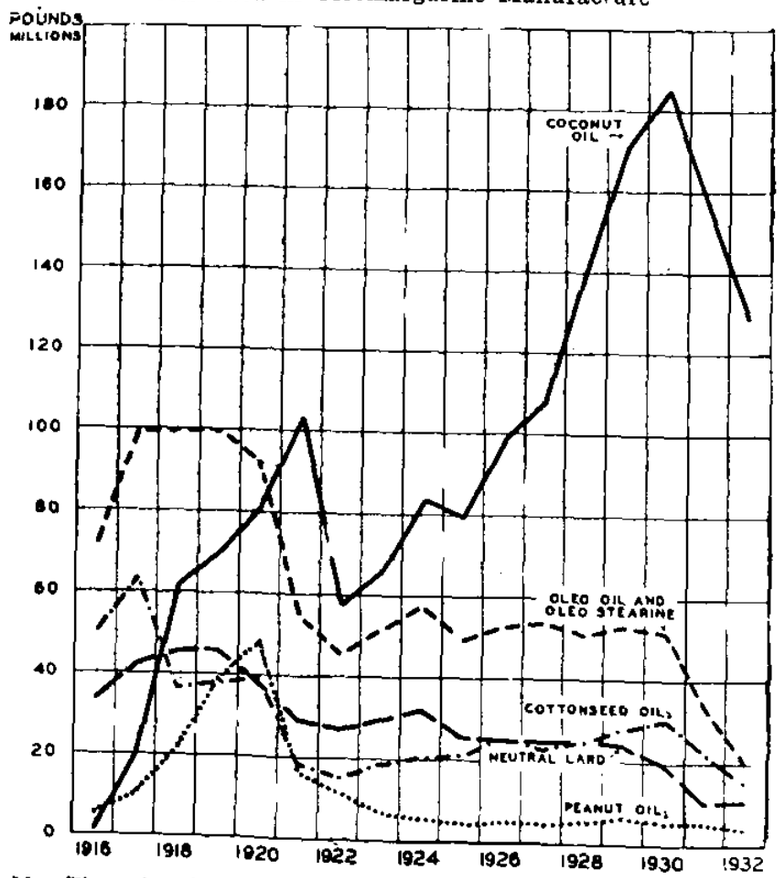

Figure 11. There has been a great increase in the use of coconut oil and a decline in the use of animal oils in oleomargarine manufacture since 1916. This shift to coconut oil has occurred largely for two reasons: (1) coconut oil has become progressively cheaper both absolutely and in relation to other oils due largely to the favored tariff position of the Philippines which encouraged them to increase their production, and (2) its physical characteristics make it preferable to other vegetable and many animal oils in oleomargarine manufacture.

Effectiveness of Present Duties

Tariff Rates, 1909-1932. Table 20 shows the rates of duty on the principal animal and vegetable oils, 1909-1932. The following oils, which undoubtedly compete with domestic oils, were left on the free list in the 1930 tariff: palm, inedible palm kernel, inedible olive, inedible seasame, inedible sunflower, inedible rapeseed, and Chinese wood oil. Copra and palm nuts and kernels were left on the free list. The rate on coconut oil is not applicable to imports from the Philippine Islands. Imports of Chinese wood, coconut, palm, and palm kernel oils constituted approximately three-fourths of the total United States imports of vegetable oils in 1930, and the continued free admission of these oils has tended to diminish the effectiveness of the duties on the other oils.

The Shift in Raw Materials Used in Oleomargarine Manufacture. Figure 11 shows the amount of each of the principal animal and vegetable oils used in oleomargarine manufacture from 1916 to 1932. This figure indicates a great increase in the use of coconut oil since 1916, and a decline in the use of animal oils (oleo oil,[4] oleo stearine,[4] and neutral lard[5]). In 1916 coconut oil comprised less than .3 per cent of the total materials used in oleomargarine, whereas in 1932 it made up 52 per cent. In 1916 the combined use of oleo oil, oleo stearine, and neutral lard comprised more than 55 per cent of the total, while in 1932 they made up but 12 per cent. In 1916 only 563,000 pounds of coconut oil were used in oleomargarine, as compared with 128 million in 1932, an increase of nearly 230 fold. During the same period the use of oleo oil, oleo stearine, and neutral lard declined from 104 million pounds to 30 million pounds, a decrease of more than 70 per cent. Since the output of oleomargarine more than doubled during this period, it is evident that oleomargarine manufacturers have relied upon the increased use of coconut oil to expand their production. (See Table 21.)

Explanation of the Shift in Raw Materials. The Tariff Act of 1922 removed crude coconut oil from the free list and made it dutiable at 2 cents per pound. Refined coconut oil also carried a duty of 2 cents per pound in this act. The Tariff of 1930 left these duties unchanged. But these rates did not apply to the Philippine Islands and, since they can ship in duty-free oil while other importations

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[4] Made from beef fat.

[5] Made from hog fat.

TABLE 20

United States Tariff Rates on the Principal Animal and Vegetable Oils and Raw Materials, 1909-1932

Commodity	Tariff Act				
	1930	1922	1921	1913	1909
Animal Oils:					
Oleo oil	1c lb.	1c lb.	.....	15%	25%
Oleo stearine	1c lb.	1c lb.	.....	Free	Free
Lard	3c lb.	1c lb.	.....	Free	1½c lb.
Lard comp. or substit's	5c lb.	4c lb.	.....	Free	Not provided *for*
Tallow	½c lb.	½c lb.	.....	Free	½c lb.
Grease	20%	20%	.....	Free	Free
Vegetable Oils:					
Castor	3c lb.	3c lb.	.....	1½c lb.	4⅔c lb.
Chinese nut	Free	Free	.....	Free	Free
Coconut, crude	2c lb.[a]	2c lb.[a]	2⅔c lb.[a]	Free	Free
Coconut, refined	2c lb.[a]	2c lb.[a]	2⅔c lb.[a]	3½c lb.[a]	3½c lb.
Cottonseed	3c lb.	3c lb.	2⅔c lb.	Free	Free
Linseed	4½c lb.	3.3c lb.	.....	1⅓c lb.	2c lb.
Olive, inedible	Free	Free	.....	Free	Free
Olive, edible, in bulk[b]	6½c lb.	6½c lb.	5⅓c lb.	2⅔c lb.	5⅓c lb.
Palm	Free	Free	.....	Free	Free
Palm kernel, edible	1c lb.	Free	.....	Free	Free
Palm kernel, inedible	Free	Free	.....	Free	Free
Peanut	4c lb.	4c lb.	3 7/15c lb.	⅘c lb.	Free
Perilla	Free	Free	.....	Free	25%
Rapeseed	⅘c lb.	⅘c lb.	.....	⅘c lb.	1⅓c lb.
Sesame	3c lb.	Free	.....	1c lb.	Free
Soya bean	3½c lb.	2½c lb.	2⅔c lb.	Free	Free
Raw Materials:					
Castor beans	½c lb.	½c lb.	.....	15c bu. of 50 lbs.	25c bu. of 50 lbs.
Copra	Free	Free	.....	Free	Free
Cottonseed	⅓c lb.	⅓c lb.	.....	Free	Free
Flaxseed	65c per bu. of 56 lbs.	40c per bu. of 56 lbs.	30c per bu. of 56 lbs.	20c bu. of 56 lbs.	25c bu. of 56 lbs.
Palm nuts	Free	Free	.....	Free	*Free*
Palm nut kernels	Free	Free	.....	Free	Free
Peanuts, shelled	7c lb.	4c lb.	3c lb.	¾c lb.	1c lb.
Peanuts, unshelled	4¼c lb.	3c lb.	3c lb.	3c lb.	½c lb.
Perilla seeds	Free	Free	.....	20c bu. of 56 lbs.[c]	25c bu. of 56 lbs.[c]
Rapeseed	Free	Free	.....	Free	Free
Sesame seeds	Free	Free	.....	20c bu. of 56 lbs.[c]	25c bu. of 56 lbs.[c]
Soya beans	2c lb.	½c lb.	.....	Free	45c bu. of 50 lbs.
Tung nuts	Free	Free	.....	1c lb.[c]	1c lb.[c]

[a] Not applicable to imports from the Philippines.

[b] The following amounts were considered not in bulk in the various acts and taxed as follows: Act of 1909, "In bottles, jars, kegs, tins, or other packages, containing less than 5 gallons each, 6⅔c per lb."; Acts of 1913 and 1921, 5 gallon limit similar to that of 1909 Act but carrying duty of 4 cents a pound in 1913 Act and 6⅔c a pound in 1921 Act; Act of 1922, "Weighing with the immediate container less than 40 pounds, 7½c *per pound*;" Act of 1930, 40 pound limit similar to that of 1922 Act but carrying duty of 9½ cents per pound.

[c] Not specially provided for.

Sources: 1922, 1921, 1913, and 1909 rates taken from Wright, P. G., **The Tariff on Animal and Vegetable Oils**, New York, 1928, p. 198. 1930 rates secured from 71st Congress, 2nd session, House Document No. 476, **Tariff Act of 1930** Copy of Public Law No. 361, *Washington*, D. C., 1930.

TABLE 21

Materials Used in U. S. Oleomargarine Manufacture 1916-1932
(In Thousand Pounds) (Year Ending June 30)

Material	1916	1917	1918	1919	1920	1921	1922	1923	1924
Total	**188,444**	**273,754**	**356,882**	**393,439**	**412,572**	**341,956**	**233,929**	**257,023**	**294,463**
Oleo oil	68,989	96,652	96,378	97,464	89,842	49,676	40,980	46,645	52,267
Coconut oil	563	19,763	61,773	69,640	80,784	103,112	57,394	65,656	83,059
Cottonseed oil	49,960	63,652	36,454	37,846	39,450	18,533	15,420	18,757	20,640
Milk	21,331	24,410	61,128	68,000	76,000	79,716	53,939	59,835	69,090
Peanut oil	5,335	10,498	21,593	38,764	48,346	16,332	11,625	6,922	5,656
Salt	4,088	6,115	18,279	21,432	24,864	25,365	16,262	17,998	20,593
Oleo stearine	2,036	2,494	3,427	2,456	2,132	4,858	4,574	4,815	5,317
Neutral lard	33,446	42,401	45,702	45,764	38,456	29,268	27,057	29,568	32,210
Oleo stock	397	3,458	7,526	6,342	5,804	2,065	2,143	2,322	2,756
Butter	2,152	3,303	4,548	5,680	6,845	1,499	1,107	1,576	1,900
Miscellaneous	147	1,008	7,474	51	49	11,532	3,417	2,999	977

Material	1925	1926	1927	1928	1929	1930	1931	1932
Total	**266,234**	**307,460**	**316,085**	**361,069**	**410,937**	**424,648**	**334,891**	**247,365**
Oleo oil	44,102	47,418	48,741	45,477	47,185	45,322	28,040	15,315
Coconut oil	79,449	98,307	107,654	141,000	171,412	185,066	155,954	127,967
Cottonseed oil	20,966	25,608	23,372	24,801	28,173	30,214	22,037	14,874
Milk	61,924	72,662	73,700	83,115	94,752	97,753	77,250	54,257
Peanut oil	4,392	5,257	4,872	5,459	6,617	5,714	5,291	3,780
Salt	18,725	20,593	21,683	25,024	27,311	28,890	22,981	14,659
Oleo stearine	5,250	5,314	5,145	5,532	5,834	6,269	5,485	4,337
Neutral lard	25,674	25,172	24,872	25,036	24,189	19,632	10,180	10,557
Oleo stock	3,183	3,082	2,552	1,738	1,294	1,189	1,025	641
Butter	1,509	2,330	2,070	2,484	2,611	2,616	1,013	39
Miscellaneous	1,060	1,751	1,424	1,403	1,559	1,983	5,635	839

Source: U. S. Department of Agriculture, **Year Books**—1916-1922: **1922 Year Book**, p. 852; 1923-1928: **1928 Year Book**, p. 999; 1929-1932 data from U. S. Treasury Department, Bureau of Internal Revenue, **Annual Reports of the Treasurer.**

must stand a 2-cent duty, the entire source of our supply of coconut oil has shifted to the Philippines.[6]

But the significant question is, why has coconut oil replaced animal oils and others in oleomargarine manufacture? There are two principal reasons: (1) Coconut oil has become progressively cheaper, both absolutely and in proportion to other oils, and (2) it is preferable to other vegetable oils and many animal oils in oleomargarine manufacture.

In 1913 and the early War years, the price of coconut oil was higher than that of cottonseed, peanut, soya bean, or oleo oils, or lard, but since the War has declined until in 1931 it was the cheapest

TABLE 22

Wholesale Price Per Pound of Some of the Principal Fats and Oils, 1913-1931

Year	Coconut oil crude at New York[a]	Cottonseed oil: Prime summer yellow (N.Y.)	Peanut oil crude F. O. B. mill	Soya bean oil crude at New York	Lard prime, at New York	Oleo oil extra at Chicago
1913	12.0	7.3	.....	6.1	11.0	11.5
1914	12.2	6.6	.....	6.3	10.4	10.9
1915	12.3	6.8	.....	6.3	9.4	12.2
1916	15.1	10.6	11.0	8.9	13.5	14.0
1917	17.1	15.4	15.3	14.2	21.7	21.7
1918	18.1	20.1	18.2	18.3	25.5	25.7
1919	17.4	24.1	18.7	16.7	29.0	30.6
1920	17.4	15.4	13.5	15.2	20.0	21.4
1921	10.1	7.9	6.9	7.9	11.1	11.3
1922	8.6	10.1	9.6	10.9	11.5	10.7
1923	9.5	11.3	13.1	11.7	12.3	12.8
1924	10.1	10.8	11.8	12.4	13.3	15.1
1925	11.5	10.8	10.6	13.2	16.8	13.8
1926	10.6	11.8	11.3	12.6	15.0	12.0
1927	9.7	9.7	11.3	12.0	12.9	13.4
1928	9.5	9.9	9.6	12.2	12.3	14.1
1929	8.5	9.7	9.0	12.0	12.0	10.9
1930	7.2	8.1	7.2	10.1	10.9	10.5
1931	5.3	6.0	6.2	6.6	8.0	6.4

[a] In tank cars up to and including 1921. After 1922, spot, in barrels.

Source: U. S. Department of Labor, Bureau of Labor Statistics, **Bulletin No. 367** for data from 1913-1923, and **Bulletin No. 493** for 1923-1928 data. 1929-1932 data taken from U. S. Department of Agriculture, Bureau of Agricultural Economics, **Foreign Crops and Markets**, August 10, 1931, p. 219 and July 25, 1932, p. 128.

[6] The United States imported 412 million pounds of coconut oil in 1929 and 318 million pounds in 1930. All of this came from the Philippines free of duty. In 1914 only 59 million pounds were imported and less than half of this came from the Islands.

of these oils (see Table 22). The great expansion of production in the Philippines,[7] which has been encouraged by their favored position compared with other producers, is the principal cause of the present low price of coconut oil. In addition, the admission of copra (dried coconut meat from which the oil is obtained) duty-free regardless of source is a further cause of the decline of prices below those of such oils as soya bean and peanut, which carry effective duties on both the oils and the raw materials.[8]

Coconut oil is peculiarly adapted to the production of butter substitutes, since in combination with such oils as cottonseed, peanut, corn, and soya bean it permits the manufacture of a satisfactory oleomargarine from purely vegetable oils. Cottonseed, peanut, corn, and soya bean oils are all liquid at ordinary temperatures, and oleomargarine manufactured from them would also be liquid. Coconut oil is solid at ordinary temperatures and, when combined with the vegetable oils of low melting points, produces a good quality of oleomargarine.

The increasing use of coconut oil in recent years is the principal reason for the cheapening of oleomargarine as compared with butter. In Chapter IV it was found that it was this cheapening which largely accounted for the increased consumption of the substitute since the war. Many high-grade oleomargarines are made from animal fats and oils which are much more expensive than the vegetable oils; but the cheaper grades use coconut oil chiefly and their low costs affect the average for all grades. This explains why the 1922 and 1930 tariff acts have failed to accomplish the purposes which dairymen anticipated. Production costs have not been increased by the oils duties and competition with butter has not been checked.

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[7] "Except in 1913, the Philippine area reported as cultivated in coconuts, the primary product yielding copra and coconut oil, increased annually in unbroken progression during the fiscal years 1910 to 1928. The area so cultivated increased from 514,936 acres in the fiscal year 1911 to 1,273,310 acres in 1928—a gain of 758,374 acres or 147 per cent." See U. S. Tariff Commission. Report No. 18, Second Series, **United States-Philippine Tariff and Trade Relations.** Washington, D. C., 1931, p. 33.

[8] P. G. Wright in **The Tariff on Animal and Vegetable Oils** concludes that the duties on soya beans and soya bean oil are virtually fully effective. Regarding the duties on peanuts and peanut oil, he concludes that these duties have kept imports to a minimum and have increased the price of domestic virgin peanut oil. Cottonseed oil, oleo oil, and lard all show large exportable surpluses, making the duties on these products ineffective.

Possibility of Making the Duties Effective

Proposed Duties. In the hearings on the 1930 tariff the dairy interests, through their representatives, requested Congress to impose a duty of 45 per cent ad valorem on all extracted oils and a duty of 40 per cent ad valorem on the raw materials regardless of the uses for which the oils were intended or of their country of origin. The Hawley-Smoot Tariff passed in June, 1930, made no substantial changes in the oil rates, however, and left coconut oil from the Philippines and copra from any source on the free list.

Possible Effects on Use of Coconut Oil. If a 45 per cent ad valorem duty were placed on coconut oil from any source and a 40 per cent duty on copra, it is doubtful that oleomargarine manufacturers would cease using coconut oil. In 1931, the wholesale price of coconut oil at New York averaged 5.3 cents per pound. Assuming that the 45 per cent duty were fully effective, the cost of coconut oil would be increased by about 2.4 cents per pound. In spite of this additional burden coconut oil would still be cheaper than lard but more expensive than peanut and soya bean oil. (The average wholesale prices of lard, peanut, and soya bean oil at New York in 1931, were 8.0 cents, 6.2 cents, and 6.6 cents per pound respectively.) Cottonseed and oleo oil would be but about 1.5 cents per pound cheaper. The use of cottonseed oil in oleomargarine manufacture is limited because it imparts its characteristic flavor to the finished product, but oleo, peanut, and soya bean oil would probably be used in larger quantities than at present. Nevertheless, it must not be forgotten that coconut oil is peculiarly adapted to the manufacture of oleomargarine, and would have to become considerably more expensive than these oils before its use would be discontinued or even greatly curtailed. The proposed duties would not be sufficient to do this.

Probable Effects on Oleomargarine Consumption. It is not likely that the possible increase in the cost of making oleomargarine resulting from the levy of the proposed duties discussed above would be sufficient to curtail oleomargarine consumption to any considerable degree. At the present time a pound of average grade nut oleomargarine is 52 per cent coconut oil. If the proposed duties were fully effective they would increase the cost of each pound

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[9] For the year ending June 30, 1932, a total of 247 million pounds of materials were used in manufacturing oleomargine in the United States. Of this amount 128 million pounds, or 52 per cent, was coconut oil. See Report of the Commissioner of Internal Revenue for the fiscal year 1932.

of oleomargarine by about 1.3 cents.[10] This figure is based on the assumption that the use of coconut oil would continue, since even with the 45 per cent duty it would still be nearly as cheap or cheaper than most of the other available oils and fats. However, if oleomargarine manufacturers ceased to use coconut oil and replaced the 128 million pounds used in 1932 with such products as oleo oil, neutral lard, and cottonseed oil, of which we have large exportable surpluses, the increased cost would, if anything, be less than 1.3 cents a pound. Certainly it would not be more, or the manufacturers would continue to use coconut oil. This 1.3 cents is but a very small proportion of the present or past price spread between butter and oleomargarine. During the eight years from 1922 to 1929, oleomargarine prices averaged about 21 cents a pound below butter prices. Chapter IV showed that a 2-cent per pound tax on oleomargarine apparently failed to decrease consumption, and it is difficult to believe that a possible increase in cost of 1.3 cents would accomplish what the 2-cent tax could not. Furthermore, it is possible that the manufacturers could absorb the proposed tariff charge and still sell oleomargarine at its present ratio to butter prices.

If the importation or use in oleomargarine manufacture of coconut oil were prohibited, it would not necessarily follow that oleomargarine consumption would be greatly or even slightly reduced. With large exportable surpluses of such prime first-class oleomargarine ingredients as oleo oil and neutral lard, oleomargarine manufacturers would have only to increase their use of these materials combined with increases in cottonseed oil, oleo stock, and tallow, all of which show exportable surpluses, in order to maintain the present output of oleomargarine. Our exportable surplus in lard alone is more than double the amount of coconut oil now used in oleomargarine. If oleomargarine were made entirely from animal fats and oils, the increased cost would not be as much as 3 cents per pound.[11] This maximum possible increase is about one-seventh of the average price

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[10] In 1931, the average wholesale price of coconut oil at New York was 5.3 cents per pound. At this price the 45 per cent duty would increase the cost of a pound of coconut oil 2.4 cents. Since oleomargine in 1932 was 52 per cent coconut oil, the increased cost of a pound of oleomargine would be 1.2 cents. Allowing 10 per cent profit on this additional cost, a pound of oleomargarine would cost not over 1.3 cents more than at present.

[11] In 1931, only one of the principal oils or fats used in oleomargarine was as much as 2.5 cents per pound higher than coconut oil. This was lard, which sold at wholesale in New York at 8.0 cents a pound, as compared with 5.3 cents for coconut oil. At the same time, oleo oil sold for 6.4 cents, peanut oil 6.2 cents, soya bean oil 6.6 cents, and cottonseed oil 6.0 cents. The average price of all these oils, excluding coconut, was 6.6 cents, or but 1.3 cents per pound more than the price of coconut oil.

spread between oleomargarine and butter. Oleomargarine would still be about half as expensive as butter and its consumption would probably not be materially decreased.

Possible Benefits and Burdens of Effective Duties

Possible Benefits. The possible benefits accruing to Americans from effective duties on oils and fats may be grouped under two heads: (1) benefits to dairymen, and (2) benefits to producers of domestic oils or their raw materials.

It seems evident from the preceding pages that the proposed duties would not secure the results dairymen hope for. A comparison of Figures 12 and 13 indicates the small possible reduction of the present spread between butter and oleomargarine prices as a result of a tariff on Philippine coconut oil or its elimination from oleomargarine manufacture. These figures also show clearly the relative importance of the tariff and oleomargarine substitution as butter price factors. It is obvious that the proposed duties on oils, which would

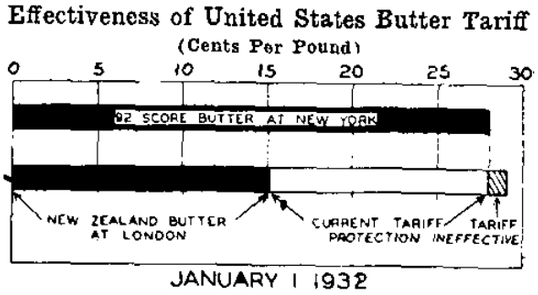

Figure 12. The average differential between domestic and foreign butter prices which is maintained by the tariff ordinarily averages only a part of the duty, but in the fall and winter months when domestic production is smallest the duty is frequently fully effective or nearly so. On January 1, 1932 this differential was almost 12 cents a pound (the duty is 14 cents a pound). The tariff is one of the principal factors enabling domestic butter prices to maintain a higher level than oleomargarine prices (see Figure 13).

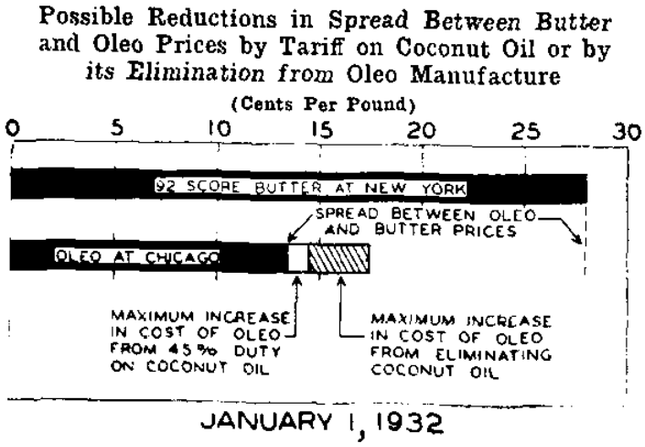

Figure 13. A prohibitive tariff on coconut oil eliminating it from oleomargarine manufacture would reduce but by about one-fourth the spread between butter and oleomargarine prices which ordinarily exist. The levying of a proposed duty of 45% ad valorem on coconut oil would reduce the spread by but about 10%. A comparison of this figure with Figure 12 shows clearly the relative importance of the tariff and oleomargarine substitution as butter price factors.

reduce by but about 10 per cent the present large spread between butter and oleomargarine prices, would be of comparatively insignificant benefit to American dairymen.

If the proposed duties raised the cost of coconut oil high enough to eliminate it from oleomargarine manufacture, or if its use were prohibited, the benefit to American producers of cottonseed, soya beans, and peanuts, or beef and pork is doubtful. Our exportable surplus of lard alone is more than twice the amount of coconut oil now used in oleomargarine. Cottonseed oil and oleo oil show exportable surpluses. Also, the use of cottonseed oil in oleomargarine is limited because its characteristic flavor cannot be neutralized. In the United States soya bean oil is a relatively unimportant by-product, and the great bulk of the domestic peanut crop is grown for purposes other than oil production. Any attempt to raise the price level of all domestic oils and fats by increasing the price of the 128 million pounds of oleomargarine ingredients represented by coconut oil will be futile if for no other reason than the existence of large exportable surpluses in the United States of such prime oleomargarine ingredients as oleo oil and lard.

Possible Burdens. The proposed duties on coconut oil and copra would result in burdens to the American public greatly in excess of any possible benefits derived from them. In 1931, 867,911,000 pounds of coconut oil[12] were used in the United States. Since more than 60 per cent of our consumption is in the manufacture of soap[13], at least 520,747,000 pounds of this oil were used in soap-making in 1931. Assuming that the 45 per cent ad valorem duty would be fully effective and increase the price of coconut oil by about 2.4 cents per pound[14], the burdens to consumers from the increased cost of soap would amount to approximately $12,500,000. Since the proposed duties would not materially check oleomargarine consumption nor benefit dairymen or producers of domestic oils and their raw materials, there is no benefit to any home group sufficient

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[12] Represents factory consumption. Taken from U. S. Department of Agriculture, Bureau of Agricultural Economics, **Foreign Crops and Markets**, July 25, 1932, p. 125.

[13] See Wright, P. G., **op. cit.**, p. 87, or U. S. Tariff Commission, **Summary of Tariff Information, 1929 Schedule I, Chemicals Oils, and Paints**, p. 277.

[14] Based on 1931 prices of crude coconut oil at New York of 5.3 cents per pound.

to offset this burden[15].

Out of the 868 million pounds of coconut oil imported, only 156 million were used in oleomargarine manufacture in 1931 and 521 million pounds in soap manufacture, leaving approximately 191 million pounds to be accounted for in other uses. About 5 per cent of our total consumption is used in making lard substitutes[16] and smaller quantities in the confectionery and baking industries, and in the preparation of emulsions, cosmetics, and perfumes[17]. The increased cost of these products resulting from the proposed duties would amount to about $4,584,000. In addition, the increased cost of oleomargarine in 1931 would have amounted to approximately $3,744,000. Consequently the total burdens to the American public in 1931 would have amounted to almost $21,000,000.

Conclusions

The duties on animal and vegetable oils in the tariffs of 1921, 1922, and 1930 have failed to fulfill the objects of dairymen in limiting the competition of oleomargarine. Access to adequate amounts of duty-free coconut oil and copra has largely offset any possible effectiveness of the duties on other fats and oils used in making butter substitutes. The favored position of the Philippines encouraged increased production of coconut oil, so that it has become progressively cheaper both absolutely and in relation to other oils. The resulting increase in its use in recent years is the principal reason for the relative cheapening of oleomargarine compared with butter, which in turn largely accounts for the increased consumption of the substitute since the War.

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[15] The argument has been advanced that if the price of coconut oil were increased by making all coconut oil and copra dutiable, soap manufacturers would shift to cottonseed oil and our southern cotton farmers would benefit. Soap manufacturers claim that they must have coconut oil to make a white soap with the best lathering qualities obtainable. In 1912 the laundry soap business was a yellow soap business and cottonseed oil was its most important single constituent. Since that time white soap has come to the fore and cottonseed oil is now used in very minor quantities. (See statement of F. M. Barnes in **Tariff Readjustment 1929, Vol. I, Schedule I, Chemicals, Oils and Paints,** Washington, D. C., 1929, p. 646). In 1912, 132 million pounds of cottonseed oil out of a total of 741 million pounds of oils were used in the United States soap kettle. In 1928 only 20 million pounds out of a total of 1,644 million pounds were used. At the present time about 95 per cent of the cottonseed oil used in the United States is used for edible purposes, chiefly in the manufacture of lard substitutes. As an edible oil it commands a better price than when used for soap, and since coconut oil is better adapted to our present white soap requirements, it is highly improbable that soap manufacturers would shift to cottonseed oil if an increased tariff should raise the price of coconut oil 2.4 cents a pound.

[16] See Wright, P. G., **op. cit.**, p. 92.

[17] See U. S. Tariff Commission, **op. cit.**, p. 277.

However, it is reasonable to believe that the consumption of coconut oil and oleomargarine would have been somewhat greater after the War than before even without this stimulus, since during the War oleomargarine consumption was greatly increased and a portion of its new users would probably have continued to use it. Nevertheless, the favored position of coconut oil and copra in our recent tariff acts has greatly stimulated consumption, and oleomargarine manufacturers have relied entirely upon it to expand their production.

In order to protect the dairy industry from the competition of cheaper fats and oils, particularly those of foreign origin, the restriction not only of coconut oil, but peanut, palm kernel, palm, soya bean, and other oils would be necessary. In addition, the seeds and nuts from which these are secured would have to be restricted. From a tariff viewpoint, it should be realized that the fats and oils, domestic and imported, form a series of overlapping products—a homogeneous group. To secure protection for dairymen from such competition involves many difficulties, since many other industrial groups—oil refiners, soap manufacturers, confectioners, bakers,—besides the consuming public, would be opposed to it. The fact that the 1930 tariff left copra and palm kernels, as well as Philippine coconut oil and several inedible oils on the free list is proof that this opposition was too powerful to be overcome.

Even if it were possible to secure such legislation, it is doubtful that an effective duty of 45 per cent ad valorem on coconut oil would cause manufacturers to shift to other oils or would raise the price of oleomargarine enough to reduce consumption materially, and if they should shift, it is very unlikely that either dairymen or domestic producers of oils and their raw materials would be benefited appreciably, because we now have large exportable surpluses of prime oleomargarine ingredients.

The burdens resulting from the proposed tariffs on coconut oil and copra would greatly outweigh any possible benefits received from them. In 1931 the total burdens to the American public resulting from the increased cost of those products in which coconut oil is used—principally soap, oleomargarine, and lard substitutes—would have amounted to at least $21,000,000, and moreover, these burdens would be borne chiefly by the poorer classes of our population.

PART IV. CHEESE

Chapter VI. Cheddar Cheese

Between 3.5 and 4 per cent of all the milk produced in the United States is manufactured into cheese. There are a great many varieties of cheese, and a considerable portion of the international trade in this product is in the nature of an exchange of varieties.

The amount of cheese made in the United States has increased steadily from about 100 million pounds annually during the Civil War period to between 400 and 500 million pounds in recent years. Imports since 1922 have ranged from 60 to 80 million pounds annually, with the trend generally upward to 1928 and downward since

TABLE 23

United States Imports and Exports of Cheese, 1890-1932
(In thousand pounds)

Year ended June 30	Imports	Exports	Year ended June 30	Imports	Exports
1890	9,264	95,376	1913	49,388	2,599
1891	8,864	82,134	1914	63,784	2,428
1892	8,305	82,100	1915	50,139	55,363
1893	10,196	81,351	1916	30,088	44,394
1894	8,743	73,852	1917	14,482	66,050
1895	10,276	60,448	1918	9,839	44,303
1896	10,728	36,777	1919	2,442	18,795
1897	12,319	50,945	1920	17,914	19,378
1898	10,012	53,167	1921	16,585	10,826
1899	11,826	38,199	Year Ending		
1900	13,456	48,419	December 31		
1901	15,329	39,814	1921	26,866	11,772
1902	17,068	27,203	1922	46,573	5,007
1903	20,671	18,987	1923	64,420	8,331
1904	22,707	23,335	1924	59,176	4,299
1905	23,096	10,134	1925	62,403	9,190
1906	27,287	16,562	1926	78,417	3,903
1907	33,849	17,285	1927	79,796	3,410
1908	32,531	8,439	1928	81,402	2,600
1909	33,548	6,823	1929	76,382	2,646
1910	40,818	2,847	1930	68,311	1,964
1911	45,569	10,367	1931	61,991	1,673
1912	46,542	6,338	1932	55,623	1,408

Source: U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, **Monthly and Annual Reports.**

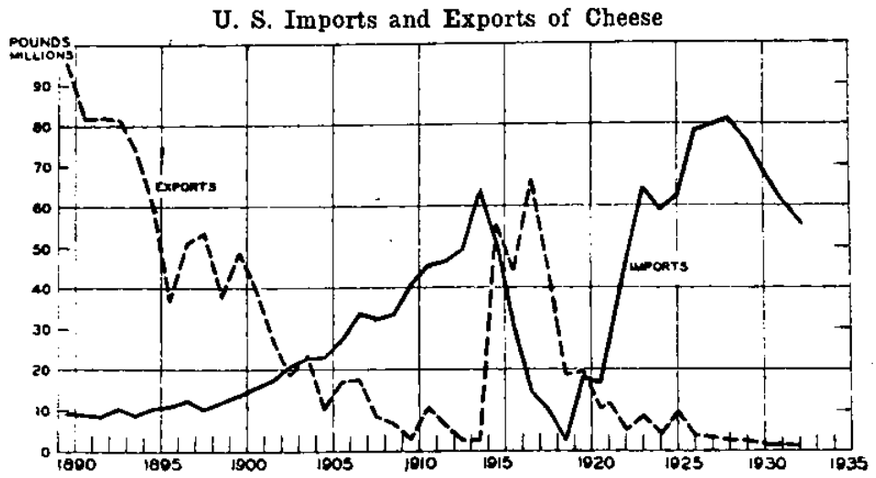

Figure 14. The United States was on an export basis in cheese until 1903. Since that time imports have exceeded exports except during the World War period when exports increased greatly. The increasing importation of such types as Gorgonzola, Caciocavallo, Edam, Gouda, Camembert, and Roquefort since the war has resulted in a heavy net import balance. These types are imported over our "7½ cents per pound, but not less than 35% ad valorem" tariff wall because we cannot, or at least have not, supplied them by domestic production and consumers are willing to pay a considerable premium to obtain them.

that time. Exports have steadily decreased from 66 million pounds in 1917 to less than 2 million pounds in 1932. (See Table 23 and Figure 14.)

The principal hard cheeses on the American market are Cheddar, Swiss, Italian Parmesan and Gorgonzola, Roquefort, and Dutch Edam and Gouda. The principal soft cheeses are Limburger, Camembert, Cream, and Neufchatel. Cottage cheese, although important, is, due to its perishability, chiefly a local product. In 1930 about 80 per cent of the total United States output consisted of the Cheddar or American type; about 6½ per cent consisted of Brick and Munster; about 6½ per cent Cream and Neufchatel; about 5 per cent Swiss; about 1½ per cent Limburger; about 1½ per cent Italian varieties; and about 1 per cent all others.

Americans have never been as large consumers of cheese as are the people of many European countries. The 4 pound per capita consumption in the United States is low compared with 24 pounds in Switzerland, 12 pounds in Italy, and 10 pounds or more in Norway, Germany, Denmark, and Great Britain. In Canada and New Zealand it is about 3½ pounds.[1] Thus, it would appear that

[1] These data are for either 1927 or 1928 and are taken from Pirtle, T. R., **Supplement to Handbook of Dairy Statistics**, Washington, D. C., April, 1930, p. 6.

TABLE 24

United States Cheese Imports, Classified by Country of Origin, 1922-1931
(In Thousand Pounds)

Year	Italy	Switzerland	France	Netherlands	Canada	Argentina	All Others	Total
1922	16,628	12,011	3,259	2,254	6,351	3,913	2,157	46,573
1923	28,034	16,982	5,121	2,498	3,105	4,343	4,337	64,420
1924	31,256	13,632	4,444	2,899	984	1,048	4,913	59,176
1925	33,829	15,993	5,567	2,937	210	89	3,778	62,403
1926	35,026	16,736	5,424	3,471	11,835	232	5,693	78,417
1927	31,938	19,066	4,678	3,696	13,268	595	6,555	79,796
1928	38,008	18,564	6,663	3,712	7,488	.....	6,968	81,403
1929	32,602	18,839	5,948	3,196	8,279	.....	7,518	76,382
1930	33,258	17,947	4,983	2,541	3,143	.....	6,438	68,311
1931	32,570	14,414	4,485	2,525	1,511	233	6,253	61,991

Source: U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, Monthly reports.

in the older European countries where many varieties are produced consumption is much greater than in the newer countries where production is largely confined to a few varieties.

From the standpoint of foreign competition (see Table 24) the numerous varieties of cheese consumed in the United States may be grouped into three general classes:

(1) Those types virtually the whole domestic consumption of which is produced in the United States. Such are American Cheddar, Limburger, block Swiss, and fancy processed cheese.

(2) Cheese of the Emmenthaler or round Swiss type, of which about half of our demand is supplied through imports and half through domestic production.

(3) Those types of cheese which are mainly imported, such as Italian Gorgonzola and Caciocavallo, Dutch Edam and Gouda, French Camembert and Roquefort. American production of these types amounted to less than 2 per cent of total domestic production in 1931. Imports are nearly three times as large as domestic production because there are people willing to pay a considerable premium to obtain them. They are imported over our tariff wall because we cannot, or at least have not, supplied them by domestic production. Although there is some direct competition between these types and corresponding types produced in the United States, they will not be considered in any greater detail here since they are of so little importance in domestic production. The two types most important from a tariff viewpoint are Cheddar and Swiss because both are pro-

duced in this country in considerable quantities and because imports of each are appreciable.[2] Cheddar will be discussed in this chapter and Swiss in Chapter VII.

The Domestic Industry

The Cheddar Process. The term "Cheddar" designates a particular kind of cheese, which is so named from the village of Cheddar, in Somersetshire, England, where it was first made. An important point in its manufacture is the fact that the milk is allowed to develop some degree of acidity before it is converted. Rennet extract is added to cause coagulation or curd formation and the curd is "cheddared," the chief distinctive feature of this method of manufacture. It consists essentially of two operations: (1) piling or matting and packing of curd and (2) cutting curd into strips and continuing the operation of piling and repiling. The object is two-fold: control of the moisture content by regulating the removal of whey, and formation of a characteristic body and texture in the curd.[3] Cheddar cheese is made in many sizes and shapes, some of which are called Flats, Twin Daisies, Single Daisies, Young Americas, and Long Horns.

Production. The United States produces more than twice as much Cheddar cheese as any other nation. It can be successfully made under our factory system, so that the United States has a greater competitive advantage than in the manufacture of some of the fancy varieties requiring more hand labor and skill.[4] Approximately two-thirds of the United States total production is Cheddar cheese, most of which is made from whole milk.

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[2] The U. S. Tariff Commission has recently completed a study of cheese "except of American or Cheddar and Swiss or Emmenthaler types" and the reader is referred to this report. See **Report of U. S. Tariff Commission No. 21, Second Series**, Washington, D. C., 1931.

[3] For a discussion of the science and practice of making American Cheddar Cheese, see Van Slyke, L. L., and Price, W. V., **Cheese**, New York, 1927. For a description of different varieties of cheese, including Cheddar, see U. S. Tariff Commission, **Tariff Information Surveys—Dairy Products**, Washington, D. C., 1921, p. 49.

[4] The manufacture of the highest quality of fancy varieties of cheese involves a difficult and delicate process calling for considerable patience and skill. There must be uniform and progressive development of the ripening agents, and proper conditions of humidity and temperature must be maintained, subject to regulation in order to develop the necessary bacteria, yeasts, and mold. In the case of Roquefort cheese, the peculiar interior mold is developed by interspersing layers of especially prepared moldy bread with cheese. (See U. S. Tariff Commission Report, **Tariff Information Surveys—Dairy Products**, 1921, p. 56). Certain sections in Europe are especially adapted to making some varieties of fancy cheese because they have favorable climatic conditions, wide dissemination of the necessary molds and bacteria, comparatively cheap labor skilled in the handling of the cheese, and natural caverns where the cheese can be properly and cheaply cured.

The Tariff Problem

Competitive Conditions. Cheese exports from the United States, in 1880 the largest in the world, have declined steadily, except for the War years, until in 1932 less than two million pounds were exported. The average annual exports for the period 1880-1884 were 123 million pounds. This very great decline was due largely to an increase of domestic consumption over production, but was also hastened by the export of filled cheese,[5] which, made mostly of oleo oil and skimmed milk, greatly injured the reputation of all American cheese in foreign markets. Canada and New Zealand have replaced the United States as the source of supply for Great Britain, the world's greatest cheese importing country.

What Cheddar cheese the United States imports comes chiefly from Canada. In 1931 the amount was about 1½ million pounds, or less than .4 per cent of our total production.

Unlike the United States, Canada does not consume her entire production. In 1931 she exported about 85 million pounds, most of which was shipped to Great Britain. However, while Canada is still on a decided export basis, her exports are declining.[6] Industrialization, with its attendant enlargement of the home market, was earlier and more complete in the United States than in Canada, but the process is still going on in Canada and domestic markets will continue to absorb more and more of the domestic output.

Canada is declining not only in total exports but also in relative importance as a source of our imports. In 1922 approximately 14 per cent of our imports came from Canada, but by 1931 they had dropped to less than 2½ per cent (see Figure 15). The increase in the United States tariff on butter from 8 to 12 cents per pound, effective in April, 1926, caused a temporary shift from butter to cheese in Canadian exports to this country in 1926 and 1927.[7]

A comparison of Montreal and New York prices alone is not sufficient to measure the effectiveness of the cheese tariff in checking imports. For instance, under our 7-cent tariff, if New York prices are 10 cents a pound above Montreal and London prices are only

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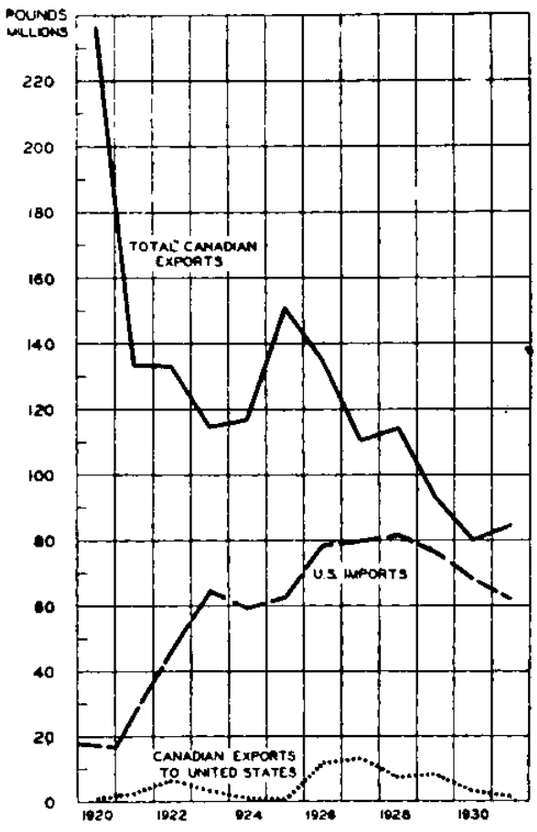
[5] U. S. Tariff Commission, op. cit., p. 53.

[6] In 1926 Canada exported 135 million pounds, while in 1930 she exported only 80 million pounds, the lowest figure since 1888. In 1931 exports rose to 85 million pounds.

[7] Total cheese imports from Canada for the last six months of 1926 amounted to 12 million pounds, as compared with 96,000 pounds for the first six months. This heavy importation continued throughout 1927 with a total for the year of 13 million pounds. In 1928, however, imports declined to 7 million pounds and in 1931 totalled only 1.5 million pounds.



Canadian Exports and U. S. Imports of Cheese

Figure 15. Canada is declining not only in cheese exports but also in relative importance as a source of our imports. Industrialization, with its attendant enlargement of the home market, began earlier and is more complete in the United States than in Canada, but Canada is continuing to develop her industries and her markets will continue to absorb more and more of her output.

7 cents above, Canada would ship her cheese to London, where she pays no duty.[8] Obviously, New York prices must be compared with London prices in order to determine at what periods the New York price is high enough to induce Canadian producers to export to us over our tariff wall instead of shipping to Great Britain.

Method of Measuring Effects of the Duties. Domestic production and consumption of Cheddar cheese about balance. Imports and exports are negligible. Consequently, the United States is for all practical purposes on a domestic basis in Cheddar cheese just as she is in butter. With the exception of a few imports from Canada the American producer has the American market. To what extent this is due to the duty and how much it benefits the producer will be considered in the following pages.

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[8] The American market is closer to Canada than the London market and the difference in shipping charges from Canada to New York and from Canada to London amounts to between 1 and 2 cents a pound. Assuming this difference to average about 1½ cents a pound, New York prices must average about 5½ cents above London prices in order to induce Canadian shippers to ship to New York and pay the 7-cent tariff, rather than to ship to London.

The reader will recall that in measuring the effects of the butter duties, the price differential existing between domestic prices and foreign prices for a period before the duty was changed was compared with that existing for a period after the duty was changed. It is not possible to measure the effects of the Cheddar cheese duty by the same method, since during the entire period of relatively stable prices from 1923 to 1929 the Cheddar cheese tariff was unchanged. Consequently, it will be necessary to attribute the price differential between domestic and foreign prices over a number of years to the influence of the tariff. The shortcomings of this method are set forth in Chapter III, where it is shown that since many circumstances affect the supply and demand and, therefore, the price of a product it is difficult, if not impossible, to determine to what extent price movements are due to the duty, or to say whether or not the prices are absolutely higher than they would be if the tariff did not exist. It is possible, however, to ascertain the extent to which domestic prices are relatively higher than foreign prices and to make some estimate of how much of the difference is due to the duty. The analysis will show that during the last decade the Cheddar cheese duty has been of some benefit to the American farmer. The benefit has been variable, and usually less than the amount of the duty. But the appraisal of the price-making factors is not the only problem involved in isolating the effect of the duty. It will be found that the differential between foreign and domestic prices has at different times been equal to, less than, or greater than the duty, and has at times disappeared entirely.

It will be recalled that a partial differential was also found in the case of butter, and that it was explained by the fact that our markets are so balanced between an import and export basis that they are subject, for a time at least, to purely domestic factors. A similar condition exists in the case of Cheddar cheese.[9] The seasonal character of the differential is not so pronounced as in the case of butter, although the differential in favor of domestic prices tends to be greatest in the fall and winter months when domestic supplies are

[9] The Cheddar cheese problem closely resembles the butter tariff problem in another respect, namely, that both exports and imports are ordinarily recorded for each month in the year. As in the case of butter, some of this trade is accounted for by established trade connections. Most of our exports go to Mexico, Panama, Cuba, and the Philippine Islands.

The reader should also keep in mind that there is a close relationship between prices of each of the principal dairy products, showing that changes in production from one product to another respond quite promptly from an oversupply of one product to a shortage of another. For short periods there may be a disparity between relative changes in butter prices compared with relative changes in cheese prices but over long periods of time they follow the same general trend.

lightest. During the spring and summer months our heavy domestic supplies may put us on an export basis and bring our prices to a level approximately equal to world market prices, or may even send them below.

In the following pages the effects of each of the recent duties on domestic Cheddar cheese prices will be analyzed. The factors causing fluctuations in domestic and foreign prices will be considered in an attempt to explain why these prices do not by any means always fluctuate together.

Effects of Recent Duties

The prices of comparable grades of Cheddar cheese in New York and London will be used to measure the price effects of the Cheddar cheese tariff. New York prices are quoted on No. 1 Fresh American Cheese (Single Daisies), and London prices are average top prices of Canadian cheese[10] converted to American cents at monthly average rates of exchange as published in the Federal Reserve Bulletins. The gross differential between these prices will be shown by a comparison of monthly average prices.[11] (See Table 25 and Figure 16.)

Wholesale Prices of Cheddar Cheese at New York and Canadian Cheese at London, 1921-1932

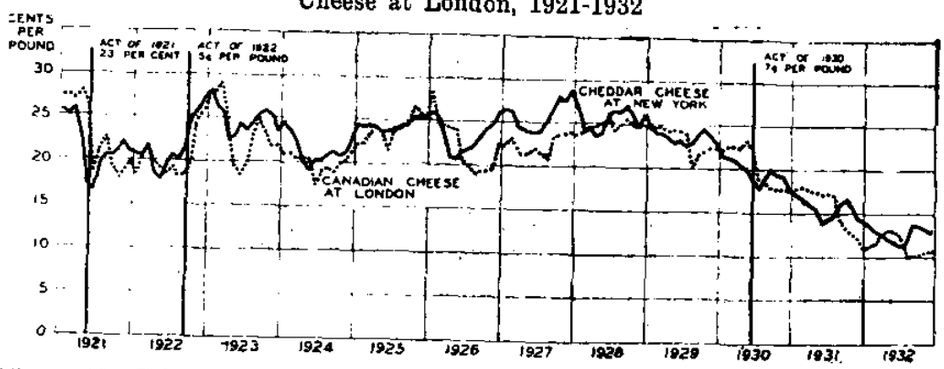

Figure 16. When New York prices are lower than London prices by an amount equal to or greater than 1.5 cents a pound the tariff is wholly without direct effect on American prices. (Shipping charges from Canada to New York and to London average about 1.5 cents a pound in favor of New York.) The tariff was virtually ineffective during the late winter and spring months of 1923, 1926, 1928, 1929, 1931 and 1932 and fully effective during the fall and early winter months of 1926 and 1927.

[10] Neither Canadian No. 1 or No. 2 is exactly comparable with American No. 1. Canadian No. 1 scores from 92 to 94, and Canadian No. 2 from 87 to 91. American No. 1 scores from 89 to 92. Also, American cheese, since it is cured differently from Canadian cheese, and for a shorter time, does not suit the highest class London trade as well as Canadian cheese.

[11] The reader should keep in mind the fact that the differential between domestic and world market prices varies considerably within the month. In spite of this shortcoming these are the best data available, since London daily quotations are not published.

TABLE 25

Wholesale Prices of Cheddar Cheese at New York and London, by Months, 1921-1932

(cents per pound)

Month	1921			1922			1923			1924		
	New York	London	N. Y. above London	New York	London	N. Y. above London	New York	London	N. Y. above London	New York	London	N. Y. above London
Average	**21.5**	**22.8**	**-1.3**	**21.6**	**21.2**	**.4**	**24.9**	**21.5**	**3.4**	**21.4**	**19.9**	**1.5**
January	25.7	27.4	-1.7	20.7	18.5	2.2	28.0[a]	27.7	.3	24.4	21.0	3.4
February	25.2	27.4	-2.2	20.4[a]	20.2	.2	26.2	28.0	-1.8	23.8	21.0	2.8
March	25.7	27.0	-1.3	21.7	21.6	.1	25.7	29.2	-3.5	22.6	20.5	2.1
April	22.4	27.8	-5.4	18.6	19.9	-1.3	22.7	.....	.....	20.2	20.6	-.4
May	17.2	26.4	-9.2	17.7	19.0	-1.3	22.8	19.5	3.3	19.1	20.4	-1.3
June	16.3	18.4	-2.1	19.5	18.4	1.1	24.3	18.5	5.8	20.4	17.4	3.0
July	19.7	20.9	-1.2	20.6	19.2	1.4	23.6	19.8	3.8	20.3	18.9	1.4
August	20.7	22.3	-1.6	20.1	18.0	2.1	24.5	22.8	1.7	20.8	19.4	1.4
September	20.6	19.3	1.3	21.6	18.4	3.2	25.6	25.2	.4	21.3	19.0	2.3
October	21.1	18.1	3.0	25.0	20.0	5.0	25.9	23.5	2.4	20.8	19.8	1.0
November	22.0	18.6	3.4	25.8	24.9	.9	25.4	21.7	3.7	21.1	20.1	1.0
December	20.9	19.8	1.1	27.4[a]	25.9	1.5	23.6[a]	21.9	1.7	22.5	21.0	1.5

Month	1925			1926			1927			1928		
Average	**24.4**	**24.0**	**.4**	**23.3**	**22.1**	**1.2**	**25.8**	**22.4**	**3.4**	**25.4**	**24.7**	**.7**
January	24.4	22.1	2.3	25.9	28.0	-2.1	26.4	22.3	4.1	26.8	23.6	3.2
February	24.2	22.2	2.0	25.5	24.6	.9	26.3	22.9	3.4	24.4	24.0	.4
March	24.4	23.4	1.0	23.3	24.5	-1.2	24.5	22.1	2.4	24.6	24.3	.3
April	24.3	24.3	0	20.8	24.3	-3.5	24.2	21.4	2.8	23.6	24.7	-1.1
May	23.7	23.7	0	20.7	24.1	-3.4	23.9	21.4	2.5	23.9	25.0	-1.1
June	23.8	21.6	2.2	21.4	20.4	1.0	23.8	21.9	1.9	25.9	25.7	.2
July	23.8	24.1	-.3	21.7	19.8	1.9	24.0	21.5	2.5	26.4	24.3	2.1
August	24.4	24.0	.4	22.1	19.2	2.9	25.3	20.9	4.4	26.3	24.8	1.5
September	24.4	24.6	-.2	23.2	19.4	3.8	26.7	23.1	3.6	27.0[a]	25.5	1.5
October	25.4	26.4	-1.0	24.2	19.4	4.8	28.1	23.7	4.4	26.2	25.1	1.1
November	25.3	26.1	-.8	24.6	19.6	5.0	27.5	23.8	3.7	24.7	24.8	-.1
December	25.3	25.2	.1	26.0	22.4	3.6	29.0[a]	24.0	5.0	26.0[a]	24.8	1.2

Month	1929			1930			1931			1932		
Average	**23.6**	**23.3**	**.3**	**19.7**	**20.3**	**-.6**	**15.4**	**15.4**	**0**	**12.8**	**11.4**	**1.1**
January	24.7	25.0	-.3	21.4	22.2	-.8	17.0	17.8	-.8	13.5	11.3	2.2
February	24.1	24.6	-.5	21.3	22.5	-1.2	16.5	17.9	-1.4	12.9	11.6	1.3
March	24.0	24.8	-.8	21.0	22.6	-1.6	16.0	17.6	-1.6	12.7	12.7	.0
April	23.6	24.5	.9	20.3	22.4	-2.1	15.4	17.4	-2.0	12.0	13.2	-1.2
May	23.0	24.5	-1.5	20.0	23.1	-3.1	13.8	17.2	-3.4	11.8	12.9	-1.1
June	23.3	24.3	-1.0	18.5	22.6	-4.1	14.2	17.3	-3.1	11.3	12.4	-1.1
July	22.6	24.1	-1.5	17.9	18.8	-.9	14.6	17.1	-2.5	11.8	10.0	-1.8
August	23.0	20.1	2.9	19.0	18.5	.5	16.1	14.1	2.0	13.8	10.0	3.8
September	23.9	21.4	2.5	20.0	18.0	2.0	16.6	13.2	3.4	13.7	10.2	3.5
October	24.5	22.0	2.5	19.4	17.8	1.6	15.9	12.6	3.3	13.4	10.5	2.9
November	23.9	22.3	1.6	19.2	17.7	1.5	14.6	12.1	2.5	12.9	10.6	2.3
December	23.0	22.3	.7	17.7	17.6	.1	14.3	10.9	3.4	13.4	10.7	2.7

[a] Flats

Source: New York prices are wholesale prices of No. 1 Fresh American Cheese (Single Daisies) and London prices are average top prices of Canadian cheese. Data from 1921-1926 for both New York and London prices from U. S. Department of Agriculture, **Statistical Bulletin No. 25**, pp. 152-154. 1926-1932 data from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Since New York is closer than London to Canada, shipping charges from Canada are lower. They average about 1.5 cents a pound in favor of New York, and as a result, in the absence of tariff barriers, New York Cheddar cheese prices would normally average about 1.5 cents a pound below London. Consquently, whenever New York prices are below London prices by more than 1.5 cents a pound it is obvious that the tariff is wholly without direct effect on American prices. Whenever the differential in favor of London is less than 1.5 cents, or is actually in favor of New York, it is necessary to determine, if possible, whether or not the higher New York prices are due to the duty.

The Tariff of 1921. During the period in which the 1921 duty of 23 per cent ad valorem was in effect (May 27, 1921, to September 21, 1922) prices in New York and London were out of line due to readjustments following the World War. In the discussion of the influence of the 1921 butter duty in Chapter III it was shown that during such periods, when prices in both markets are falling but one more slowly than the other, a mere comparison of the differential between prices in the two markets gives no approximation of the influence of the duty. Not until after 1922 did conditions in the United States and England become sufficiently readjusted to permit a fair evaluation of the price effects of the duty.

The Tariff of 1922. On September 21, 1922, the Fordney-McCumber Tariff Act was passed, increasing the duty on cheese from 23 per cent ad valorem to 5 cents a pound but not less than 25 per cent ad valorem. This duty was maintained until the passage of the Hawley-Smoot Tariff on June 17, 1930.

For the entire seven years, 1923-1929 inclusive, under the 5-cent tariff, New York prices averaged approximately 1.5 cents a pound above London prices, whereas under normal conditions and in the absence of any tariff barriers they would have averaged about 1.5 cents a pound below. Consequently, it would appear that the tariff was about 60 per cent effective, on the average, in securing higher prices for American producers.

The differential between domestic and foreign prices varied greatly from year to year within this seven-year period and from month to month within each year. In 1923 New York prices averaged 3.4 cents a pound above London prices; in 1924, 1.5 cents; in 1925, .4 cent; in 1926, 1.2 cents; in 1927, 3.4 cents; in 1928, .7 cent; and in 1929, .3 cent. From these average yearly differentials it would appear that the duty was partially effective during these

years and for two years fully so.[12] In order to determine why the differential varied as it did for these years and how much of the differential is due to the duty, it is necessary to analyze the domestic and foreign price factors at work during this period.

The average differential of 3.4 cents a pound in favor of New York prices during 1923 was due principally to a fall in London prices coupled with an increase in New York prices. Early in 1923 London prices were higher than New York prices, but a relatively great fall in London prices without a corresponding decline in New York[13] caused a spread in favor of New York of as much as 5.8 cents a pound in June. Increases in New York prices over the 1922 level[14] kept them above London prices throughout the remainder of 1923. The United States was recovering from depression and was embarking on a period of industrial prosperity, while England, although she had begun to recover sooner than we, came upon a temporary slump in 1923. The improved business conditions in the United States tended to increase domestic prices, while poorer business conditions in London were tending to lower London prices. These factors largely account for the wide spread between cheese prices at home and abroad during 1923. Obviously the 5-cent duty was not the sole cause of the 5.8-cent differential which existed during June.

The decline in the differential in favor of New York from 3.4 cents in 1923 to 1.5 cents in 1924 was chiefly due to a drop in domestic prices. New York prices averaged 3.5 cents per pound lower in 1924 than in 1923, while London prices averaged only 1.5 cents lower. The decline in New York prices was primarily due to a decline in business conditions in the United States in 1924.[15] At the same time an improvement in general business conditions in England, coupled with a decided improvement in the German market, tended to keep

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[12] The 3.4 cents average differential in favor of New York prices plus the 1.5 cents a pound transportation differential makes the total spread between prices at home and abroad approximately 5 cents a pound.

[13] London prices fell from 29.2 cents a pound in March to 18.5 cents in June, while New York prices during the same period fell only from 25.7 cents to 24.3 cents.

[14] New York prices averaged 24.9 cents a pound in 1923, as compared with 21.6 cents in 1922.

[15] The all-commodity price index fell nearly 10 points from June, 1923, to June, 1924.

London prices from falling.[16] These domestic and foreign factors evidently were sufficiently important to reduce the direct effect of the tariff in 1924 by approximately 2 cents a pound.

The further decline in the differential during 1925 to an average of less than .5 cent in favor of New York prices was due largely to a relatively great increase in London prices compared with New York prices. New York prices were approximately 3 cents a pound higher in 1925 than in 1924, but London prices were more than 4 cents a pound higher. The higher London prices were in turn due largely to the great strength shown by the German market,[17] although general business conditions in England contributed to the rise. In response to the declining differential, Canadian shipments to the United States declined from 3 million pounds in 1923 to 210,000 pounds in 1925. The small 1924 and 1925 differentials with a 5-cent duty were not sufficient to induce Canadian producers to ship to us.

In the summer of 1926 London prices dropped and New York prices rose, until in November there was a 5-cent differential in favor of New York. During the last six months of 1926 New York prices averaged 3.7 cents above London and during 1927, 3.4 cents above. The principal factors in this increase are three: (1) the improvement in general business conditions and demand in the United States, (2) a decrease in domestic supplies, and (3) the depressed business conditions and decreased demand in England and Germany.

Business conditions in the United States improved in 1926 and a period of industrial prosperity set in which continued through all of 1927. General purchasing power was high and demand firm. At the same time domestic production of Cheddar cheese declined.[18] On the other hand, 1926 witnessed a depression in the London market. The English coal strike was a large factor in this reversal, which continued through 1927. In addition the German market was decidedly weak; instead of continuing the increase of 1924 and 1925, imports in 1926 were actually lower than in 1925.

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[16] The improved condition of English business is indicated by the rise in sterling exchange during 1924 from $4.27 in January to $4.70 in December. Evidence of the improvement in the German market is the increase in cheese imports which totalled nearly 97 million pounds in 1924, as compared with less than 25 million pounds the previous year. More specifically and immediately, the prospect of resumption of government payments, brought about by United States loans made to Germany which enabled her to stabilize prices and return to the gold standard, was the major influence. Germany is the second largest cheese importing nation in the world and an increase in her demand reduces accordingly the supplies which are likely to reach the English market.

[17] Germany imported 149 million pounds of cheese in 1925 as compared with 97 million pounds in 1924.

[18] United States Cheddar cheese production declined from 347,240,000 pounds in 1925 to 335,915,000 pounds in 1926 and to 307,777,000 pounds in 1927.

In response to the increased differential between New York and London prices during 1926 and 1927, Canadian cheese shipments to the United States increased from the 210,000 pounds shipped in 1925 to about 12 million pounds in 1926, and more than 13 million in 1927. Also, the increase in the United States duty on butter from 8 to 12 cents a pound in April, 1926, caused a shift in Canadian exports to the United States from butter to cheese.[19]

The average differential of New York above London prices declined to .7 cent in 1928 and to .3 cent in 1929. The principal factors accounting for this decrease are: (1) an increase in domestic production,[20] (2) a decrease in domestic demand,[21] (3) a marked recovery of the English market, and (4) more favorable quotations for Canadian cheese than for other types in the London market.[22] The first two of these factors tended to lower New York prices, the last two to raise London prices.[23]

With the decreased differential between New York and London prices during 1928 and 1929, caused largely by the above four factors, Canadian shipments to the United States declined from more than 13 million pounds in 1927 to 7.5 and 8 million pounds in 1928 and 1929 respectively.

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[19] The decline in Canadian butter exports to the United States from 3,626,000 pounds in 1925 to 340,000 pounds in 1926 would tend to confirm the contention that the increase in the butter duty caused a shift in Canadian exports from butter to cheese. The duty on cheese had remained unchanged. Moreover, the increase in the butter tariff helped to keep out butter from other countries which undoubtedly would have come in under the 8-cent duty, in view of the depressed condition of the London market during the latter part of 1926 and all of 1927. This shutting out of butter imports permitted prices to be higher than would have been possible with the previous 8-cent duty. Higher butter prices tended to increase United States cheese prices, because ordinarily there is a close relationship between prices of each of the principal dairy products, and an increase in butter prices is usually reflected in an increase in cheese prices.

[20] United States production of Cheddar cheese increased from 307,777,000 pounds in 1927 to 335,253,000 pounds in 1928 and to 370,314,000 pounds in 1929.

[21] Per capita consumption of cheese of all varieties in the United States declined from 4.14 pounds in 1927 to 4.11 pounds in 1928 and to 3.79 pounds in 1929.

[22] The increased consumption of milk, cream, and ice cream in the United Kingdom in the last few years has reduced the production of English and Scotch Cheddar cheese, and the quality of Canadian cheese is such as to make it more suitable for supplying this shortage than other imported cheese, so that its prices in the last two or three years have risen. In 1927 the spread between the prices of Canadian cheese and prices of New Zealand cheese in London (New Zealand is Canada's greatest competitor) averaged 1.7 cents a pound, while in 1929 it averaged 2.6 cents a pound.

[23] The increased spread between prices of Canadian and other cheese is a factor explaining the decreased differential between New York and London prices during 1928 and 1929, because the cheese used for the London price in the analysis is Canadian.

The Tariff of 1930. The Hawley-Smoot Tariff passed in June, 1930, increased the duty on Cheddar cheese from "5 cents a pound, not less than 25 per cent ad valorem," to "7 cents a pound, not less than 35 per cent ad valorem." This increase has not raised domestic prices, nor has it increased the spread between domestic and foreign prices. New York Cheddar cheese prices declined from 18.5 cents a pound in June, 1930, to 11.3 cents in June, 1932, averaged about equal to London prices during 1931, and about one cent above in 1932.

The decline in domestic prices in spite of the increase in the duty was due primarily to the depression which began in 1929. The purchasing power of the public was so reduced that it was impossible to move domestic supplies except at greatly reduced prices. This radical change in purchasing power was much more important in the price decline than was the slight increase in domestic production which occurred during 1930 and 1931. Prices of Canadian cheese in London were consistently higher than New York prices until the latter part of 1931, primarily because of the continued shortage of high quality Cheddar cheese in England. For the first eight months of 1931, New York prices averaged 2.1 cents a pound below London prices. In other words, the 7-cent duty was completely ineffective in maintaining a differential in favor of domestic prices during this period.[24]

For the last four months of 1931, New York prices averaged 3.2 cents a pound above London. This sudden change in the differential is due chiefly to England's abandonment of the gold standard in September, which resulted in a decline in sterling exchange, and low London prices in terms of gold. The margin between New York and London prices was more influenced by fluctuations in exchange rates than by changes in prices in foreign countries.[25] This condition continued during 1932 and, with reduced domestic production, enabled New York to average between 2 and 3 cents above London during the winter and fall months.

While New York prices were low, and the spread between domestic and foreign prices was narrow, Canadian shipments to the United States declined from 8 million pounds in 1929 to 1½ million pounds in 1931. New York prices were not enough higher than

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[24] The reader should keep in mind that ordinarily, in the absence of any tariff barriers, New York prices would average about 1.5 cents a pound below London prices.

[25] The extent to which exchange rates entered into margins between domestic and foreign prices during this period is indicated by the fact that the pound sterling on December 17, 1931, was quoted at $3.39, or 70 per cent of par ($4.87).

London prices to attract Canadian cheese over our 7-cent tariff wall and Canadian producers shipped the bulk of their cheese to London *duty-free.*[26]

Benefits and Burdens of the Duties

There have been times during the years 1922-1932 when the price factors discussed above have so lowered domestic prices in relation to London prices that the tariff has been completely without direct effect. At other times they have raised domestic above foreign prices by more than the duty. Obviously at such times the entire differential cannot be attributed to the duty. But a differential equal to or less than the duty can be taken as a measure of the direct or actual effect of the duty on domestic prices, since without the duty prices in domestic markets would tend to equal prices in world markets. From 1922 to 1932 the differential in favor of domestic prices was usually less than the amount of the duty.

Method of Calculation. The method of calculating benefits and burdens of the Cheddar cheese duty will be the same as that used for the butter duty in Chapter III. This method involves using monthly production or consumption figures and the average monthly differential except where the differential exceeds the duty, in which case the amount of the duty is taken as the average differential attributable to the influence of the duty, with due allowance for transportation costs. However, the reader should appreciate the shortcomings of this method[27] and realize that the results obtained by its use represent the maximum possible, not the exact benefits and burdens.

Benefits to Producers. The monthly and annual benefits to American farmers from the 1922 Cheddar cheese duty were computed for the 9 years 1923-1929, 1931 and 1932, according to the above method. These benefits are shown in Table 26, pages 116-118.

On the basis of these assumptions, farmers received an average annual benefit of $8,923,000, or 11.3 per cent of their total yearly income from Cheddar cheese from the 5-cent tariff in effect from 1923 to 1929. They would have received $16,638,000, or 20.8 per cent during the same period if the duty had been fully effective, that is, not offset by other supply and demand factors in the world and

[26] With the present tariff rate of 7 cents a pound, New York prices must be approximately 5.5 cents a pound above London prices in order to make it as profitable for Canadian producers to ship to New York as to London with the 1.5 cent transportation costs.

[27] See the analysis of **Benefits and Burdens of the Butter Duties** in Chapter III.

TABLE 26

Benefits of the Cheddar Cheese Tariff to Farmers in the United States in Dollars and as a Percentage of the Total Income Received from Cheddar Cheese, by Months, 1923-1929, 1931 and 1932

Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from cheddar cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits due to duty $	Tariff benefits as % of total farm income from cheddar cheese
			1923			
Jan.	15,092	28.0[a]	$ 4,225,760	1.8	$ 271,656	6.4
Feb.	15,326	26.2	4,015,412	[b]		
Mar.	20,184	25.7	5,187,288	[b]		
April	24,014	22.7	5,451,178	[c]		
May	32,942	22.8	7,510,776	4.8	1,580,616	21.0
June	41,382	24.3	10,055,826	5.0[d]	2,069,100	20.6
July	38,288	23.6	9,035,968	5.0[d]	1,914,400	21.2
August	31,822	24.5	7,796,390	3.2	1,018,304	13.1
Sept.	28,648	25.6	7,333,888	1.9	544,312	7.4
Oct.	25,566	25.9	6,621,594	3.9	997,074	15.1
Nov.	18,236	25.4	4,631,944	5.0[d]	911,800	19.7
Dec.	16,608	23.6[a]	3,919,488	3.2	531,456	13.6
	308,108	**24.9**	**$76,718,892**		**$9,838,718**	**12.8**
			1924			
Jan.	17,718	24.4	$ 4,323,192	4.9	$ 868,182	20.1
Feb.	18,886	23.8	4,494,868	4.3	812,098	18.1
Mar.	22,955	22.6	5,187,830	3.6	826,380	15.9
April	24,597	20.2	4,968,594	1.1	270,567	5.4
May	33,657	19.1	6,428,487	.2	67,314	1.0
June	43,517	20.4	8,877,468	4.5	1,958,265	22.1
July	40,716	20.3	8,265,348	2.9	1,180,764	14.3
August	33,602	20.8	6,989,216	2.9	974,458	13.9
Sept.	30,539	21.3	6,504,807	3.8	1,160,482	17.8
Oct.	26,210	20.8	5,451,680	2.5	655,250	12.0
Nov.	17,252	21.1	3,640,172	2.5	431,300	11.8
Dec.	15,046	22.5	3,385,350	3.0	451,380	13.3
	324,695	**21.4**	**$69,484,730**		**$9,656,440**	**13.9**
			1925			
Jan.	16,834	24.4	$ 4,107,496	3.8	$ 639,692	15.6
Feb.	17,991	24.2	4,353,822	3.5	629,685	14.5
Mar.	21,598	24.4	5,269,912	2.5	539,950	10.2
April	26,889	24.3	6,534,027	1.5	403,335	6.2
May	38,012	23.7	9,008,844	1.5	570,180	6.3
June	45,782	23.8	10,896,116	3.7	1,693,934	15.5
July	43,706	23.8	10,402,028	1.2	524,472	5.0
August	37,659	24.4	9,188,796	1.9	715,521	7.8
Sept.	31,548	24.4	7,697,712	1.3	410,124	5.3
Oct.	28,253	25.4	7,176,262	.5	141,265	2.0
Nov.	20,349	25.3	5,148,297	.7	142,443	2.8
Dec.	18,619	25.3	4,710,607	1.6	297,904	6.3
	347,240	**24.4**	**$84,726,560**		**$6,708,505**	**7.9**

[1] Represents whole milk American cheese. Data obtained from U. S. Department of Agriculture Yearbook, 1931, p. 923.

[2] Represents wholesale prices of No. 1 fresh American cheese (Single Daisies) at New York. Data obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics.

[3] Wholesale prices are used to compute total farm income. Farm prices of cheddar cheese are not available.

[4] The differential is the actual average differential between No. 1 fresh American cheese (Single Daisies) at New York and average top prices of Canadian cheese at London (both New York and London prices obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics) plus 1.5 cents (transportation costs) except in those cases where the differential plus 1.5 cents exceeds the duty, in which case the amount of the duty is taken as the differential attributable to the duty.

[a] Flats. [b] No differential (New York prices below London prices by more than 1.5 cents a pound).

[c] No London quotation available. [d] Amount of the duty.

TABLE 26 (Continued)

Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from cheddar cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits due to duty $	Tariff benefits as % of total farm income from cheddar cheese
			1926			
Jan.	19,519	25.9	$ 5,055,421	b	$	
Feb.	19,984	25.5	5,095,920	2.4	479,616	9.4
Mar.	25,216	23.3	5,875,328	.3	75,648	1.3
April	29,221	20.8	6,077,968	b		
May	38,598	20.7	7,989,786	b		
June	46,320	21.4	9,912,480	2.5	1,158,000	11.7
July	40,164	21.7	8,715,588	3.4	1,365,576	15.7
August	33,239	22.1	7,345,819	4.4	1,462,516	19.9
Sept.	28,809	23.2	6,683,688	5.0[d]	1,440,450	21.6
Oct.	23,164	24.2	5,605,688	5.0[d]	1,158,200	20.7
Nov.	16,386	24.6	4,030,956	5.0[d]	819,300	20.3
Dec.	15,295	26.0	3,976,700	5.0[d]	764,750	19.2
	335,915	**23.3**	**$78,268,195**		**$8,724,056**	**11.1**
			1928			
Jan.	18,010	26.8	$ 4,826,680	4.7	$ 846,470	17.5
Feb.	19,005	24.4	4,637,220	1.9	361,095	7.8
Mar.	23,451	24.6	5,768,946	1.8	422,118	7.3
April	28,221	23.6	6,660,156	.4	112,884	1.7
May	37,324	23.9	8,920,436	.4	149,296	1.7
June	45,012	25.9	11,658,108	1.7	765,204	6.6
July	40,072	26.4	10,579,008	3.6	1,442,592	13.6
August	34,229	26.3	9,002,227	3.0	1,026,870	11.4
Sept.	30,342	27.0[a]	8,192,340	3.0	910,260	11.1
Oct.	25,134	26.2	6,585,108	2.6	653,484	9.9
Nov.	18,013	24.7	4,449,211	1.4	252,182	5.7
Dec.	16,440	26.0[a]	4,274,400	2.7	443,880	10.4
	335,253	**25.4**	**$85,154,262**		**$7,386,335**	**8.7**

Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from cheddar cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits due to duty $	Tariff benefits as % of total farm income from cheddar cheese
			1927			
Jan.	16,660	26.4	$ 4,398,240	5.0[d]	$ 833,000	18.9
Feb.	17,085	26.3	4,493,355	4.9	837,165	18.6
Mar.	21,318	24.5	5,222,910	3.9	831,402	15.9
April	24,533	24.2	5,936,986	4.3	1,054,919	17.8
May	34,704	23.9	8,294,256	4.0	1,388,160	16.7
June	41,489	23.8	9,874,382	3.4	1,410,626	14.3
July	38,195	24.0	9,166,800	4.0	1,527,800	16.7
August	31,944	25.3	8,081,832	5.0[d]	1,597,200	19.8
Sept.	25,783	26.7	6,884,061	5.0[d]	1,289,150	18.7
Oct.	23,012	28.1	6,466,372	5.0[d]	1,150,600	17.8
Nov.	16,717	27.5	4,597,175	5.0[d]	835,850	18.2
Dec.	16,337	29.0[a]	4,737,730	5.0[d]	816,850	17.2
	307,777	**25.8**	**$79,406,466**		**$13,572,722**	**17.1**
			1929			
Jan.	19,925	24.7	$ 4,921,475	1.2	$ 239,100	4.8
Feb.	19,522	24.1	4,704,802	1.0	195,220	4.1
Mar.	24,059	24.0	5,774,160	.7	168,413	2.9
April	30,181	23.6	7,122,716	2.4	724,344	10.2
May	42,483	23.0	9,771,090	0		
June	51,702	23.3	12,046,566	.5	258,510	2.1
July	48,007	22.6	10,849,582	0		
August	37,811	23.0	8,696,530	4.4	1,663,684	19.1
Sept.	30,824	23.9	7,366,936	4.0	1,232,960	16.7
Oct.	25,961	24.5	6,360,445	4.0	1,038,440	16.3
Nov.	19,655	23.9	4,697,545	3.1	609,305	13.0
Dec.	20,184	23.0	4,642,320	2.2	444,048	9.6
	370,314	**23.6**	**$87,394,104**		**$6,574,024**	**7.5**

TABLE 26 (Continued)

Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from cheddar cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits due to duty $	Tariff benefits as % of total farm income from cheddar cheese	Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from cheddar cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits due to duty $	Tariff benefits as % of total farm income from cheddar cheese
			1931							1932			
Jan.	22,069	17.0	$ 3,751,730	.7	$ 154,483	4.1	Jan.	20,202	13.5	$ 2,727,270	3.7	$ 747,474	27.4
Feb.	21,395	16.5	3,530,175	.1	21,395	0.6	Feb.	21,569	12.9	2,782,401	2.8	603,932	21.7
Mar.	28,068	16.0	4,490,880				Mar.	25,337	12.7	3,217,799	1.5	380,055	11.8
April	32,865	15.4	5,061,210				April	27,686	12.0	3,322,320	.3	83,058	2.5
May	42,787	13.8	5,904,606				May	38,942	11.8	4,595,156	.4	155,769	3.4
June	50,698	14.2	7,199,116				June	45,718	11.3	5,166,134	.4	182,872	3.5
July	41,871	14.6	6,113,166				July	35,924	11.8	4,239,032	3.3	1,185,492	28.0
August	34,023	16.1	5,477,703	3.5	1,190,805	21.7	August	33,503	13.8	4,623,414	5.3	1,775,695	38.4
Sept.	28,332	16.6	4,703,112	4.9	1,388,268	29.5	Sept.	31,089	13.7	4,259,193	5.0	1,544,450	36.5
Oct.	29,218	15.9	4,645,662	4.8	1,402,464	30.2	Oct.	27,584	13.4	3,696,256	4.4	1,213,696	32.8
Nov.	23,016	14.6	3,360,336	4.0	920,640	27.4	Nov.	21,880	12.9	2,822,520	3.8	831,440	29.5
Dec.	20,050	14.3	2,867,150	4.9	982,450	34.3	Dec.	23,172	13.4	3,105,058	4.2	973,224	31.3
	374,392	**15.4**	**$57,104,846**		**$6,060,505**	**10.6**		**352,606**	**12.8**	**$44,556,543**		**$9,687,121**	**21.7**

[1] Represents whole milk American cheese. Data obtained from U. S. Department of Agriculture Yearbook, 1931, p. 923.

[2] Represents wholesale prices of No. 1 fresh American cheese (Single Daisies) at New York. Data obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics.

[3] Wholesale prices are used to compute total farm income. Farm prices of cheddar cheese are not available.

[4] The differential is the actual average differential between No. 1 fresh American Cheese (Single Daisies) at New York and average top prices of Canadian cheese at London (both New York and London prices obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics), plus 1.5 cents (transportation costs) except in those cases where the differential plus 1.5 cents exceeds the duty, in which case the amount of the duty is taken as the differential attributable to the duty.

[a] Flats. [b] No differential (New York prices below London prices by more than 1.5 cents a pound).

[c] No London quotation available. [d] Amount of the duty.

Source: Most of the data obtained from the U. S. Department of Agriculture, Bureau of Agricultural Economics.

Total Costs of the Cheddar Cheese Tariff to Consumers in the United States, in Dollars and as a Percentage of Total Amount Paid for Cheddar Cheese, by Months, 1923-1929, 1931 and 1932

Month	Consumption 1 (000 lbs.)	Price per Pound 2 (c lb.)	Total paid by consumers $	Direct effect of duty (c lb.) 3	Costs of the duty $	Tariff costs as % of total
			1923			
Jan.	22,414	37.3	$ 8,360,422	1.8	$ 403,452	4.8
Feb.	21,167	37.5	7,937,625	a		
Mar.	23,783	37.1	8,823,493	a		
April	23,828	36.3	8,649,564	b		
May	29,290	35.5	10,397,950	4.8	1,405,920	13.5
June	25,816	36.1	9,319,576	5.0 c	1,290,800	13.8
July	22,278	36.2	8,064,636	5.0 c	1,113,900	13.8
August	25,817	36.3	9,371,571	3.2	826,144	8.8
Sept.	31,017	37.0	11,476,290	1.9	589,323	5.1
Oct.	33,765	38.5	12,999,525	3.9	1,316,835	10.1
Nov.	24,557	37.7	9,257,989	5.0 c	1,227,850	13.3
Dec.	25,004	37.7	9,426,508	3.2	800,128	8.5
	308,735	**36.9**	**$113,923,215**		**$8,974,352**	**7.9**
			1925			
Jan.	23,910	35.9	$ 8,583,690	3.8	$ 908,580	10.6
Feb.	23,335	36.4	8,493,940	3.5	816,725	9.6
Mar.	27,709	36.5	10,113,785	2.5	692,725	6.8
April	28,163	36.5	10,279,495	1.5	422,445	4.1
May	34,556	36.3	12,543,828	1.5	518,340	4.1
June	31,034	36.5	11,327,410	3.7	1,148,258	10.1
July	25,631	36.6	9,380,946	1.2	307,572	3.3
August	27,319	36.8	10,053,392	1.9	519,061	5.2
Sept.	29,715	37.0	10,994,550	1.3	386,295	3.5
Oct.	34,986	37.2	13,014,792	.5	174,930	1.3
Nov.	28,101	37.4	10,509,774	.7	196,707	1.9
Dec.	26,886	37.5	10,082,250	1.6	430,176	4.3
	341,345	**36.7**	**$125,273,615**		**$6,521,814**	**5.2**
			1924			
Jan.	25,289	37.4	$ 9,458,086	4.9	$ 1,239,161	13.1
Feb.	23,423	37.2	8,713,356	4.3	1,007,189	11.6
Mar.	28,665	36.7	10,520,055	3.6	1,031,940	9.8
April	28,386	35.6	10,105,416	1.1	312,246	3.1
May	31,349	34.6	10,846,754	.2	62,698	.6
June	27,854	34.4	9,581,776	4.5	1,253,430	13.1
July	22,449	34.4	7,722,456	2.9	651,021	8.4
August	24,025	34.4	8,264,600	2.9	696,725	8.4
Sept.	33,785	34.6	11,689,610	3.8	1,283,830	11.0
Oct.	30,242	34.8	10,524,216	2.5	756,050	7.2
Nov.	27,473	34.7	9,533,131	2.5	686,825	7.2
Dec.	24,334	34.9	8,492,566	3.0	730,020	8.6
	327,235	**35.3**	**$115,513,955**		**$9,711,135**	**8.4**

[a] No differential (New York prices below London prices by more than 1.5 cents a pound).

[b] No London quotation available.

[c] Amount of the duty.

Sources:

[1] Data showing consumption of cheddar cheese separate from consumption of other cheeses are not available. The monthly figures representing consumption of cheddar cheese were calculated by taking that proportion of the monthly consumption of all cheese which the annual production of cheddar cheese makes to the annual production of cheese of all varieties. For the seven years 1923-1929 inclusive, the production of cheddar cheese amounted to 72 per cent, 70 per cent, 70 per cent, 68 per cent, 64 per cent, 64 per cent, and 64 per cent, respectively, of all cheese produced. Consequently, to obtain monthly cheddar cheese consumption during 1923, the monthly consumption figures of all cheese are multiplied by 72 per cent. Consumption data for all cheese secured from U. S. Department of Agriculture, Bureau of Agricultural Economics.

[2] Average retail prices secured from U. S. Department of Labor, Bureau of Labor Statistics.

[3] The differential is the actual average differential between No. 1 fresh American Cheese (Single Daisies) at New York and average top prices of Canadian Cheese at London (both New York and London prices obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics), plus the 1.5 cent transportation cost except in those cases where the actual differential plus 1.5 cents exceeds the duty, in which case the amount of the duty is taken as the differential attributable to the duty.

TABLE 27 (Continued)

Month	Consumption 1 (000 lbs.)	Price per Pound 2 (c lb.)	Total paid by consumers $	Direct effect of duty (c lb.)3	Costs of the duty $	Tariff costs as % of total
			1926			
Jan.	26,298	37.6	$ 9,888,048	a	$	
Feb.	27,912	37.5	10,466,990	2.4	669,888	6.4
Mar.	29,250	37.2	10,881,000	.3	87,750	.8
April	30,837	36.5	11,255,505	a		
May	33,305	36.0	11,989,800	a		
June	22,522	35.7	8,040,354	2.5	563,050	7.0
July	27,065	35.6	9,635,140	3.4	920,210	9.6
August	29,347	35.7	10,476,879	4.4	1,291,268	12.3
Sept.	31,469	36.1	11,360,309	5.0c	1,573,450	13.8
Oct.	31,362	36.7	11,509,854	5.0c	1,568,100	13.6
Nov.	28,766	36.9	10,614,654	5.0c	1,438,300	13.6
Dec.	26,507	37.4	9,913,618	5.0c	1,325,350	13.4
	347,126	**36.6**	**$127,048,116**		**$9,437,366**	**7.4**
			1928			
Jan.	24,476	39.2	$ 9,594,592	4.7	$ 1,150,372	12.0
Feb.	24,457	39.2	9,587,144	1.9	464,683	4.8
Mar.	26,608	38.5	10,244,080	1.8	478,944	4.7
April	28,098	38.2	10,733,436	.4	112,392	1.0
May	29,729	38.1	11,326,749	.4	118,916	1.0
June	27,529	38.1	10,488,549	1.7	467,993	4.5
July	22,055	38.3	8,447,065	3.6	793,980	9.4
August	23,386	38.4	8,980,224	3.0	701,580	7.8
Sept.	31,142	38.7	12,051,954	3.0	934,260	7.8
Oct.	27,854	38.8	10,807,352	2.6	724,204	6.7
Nov.	27,204	38.5	10,473,540	1.4	380,856	3.6
Dec.	23,402	38.5	9,009,770	2.7	631,854	7.0
	315,940	**38.5**	**$121,636,900**		**$6,960,034**	**5.7**

Month	Consumption 1 (000 lbs.)	Price per Pound 2 (c lb.)	Total paid by consumers $	Direct effect of duty (c lb.)3	Costs of the duty $	Tariff costs as % of total
			1927			
Jan.	37,492	37.6	$14,096,992	5.0c	$ 1,874,600	13.3
Feb.	35,047	37.6	13,177,672	4.9	1,717,303	13.0
Mar.	41,747	37.3	15,571,631	3.9	1,628,133	10.5
April	41,588	37.1	15,429,148	4.3	1,788,284	11.6
May	47,233	37.0	17,476,210	4.0	1,889,320	10.8
June	44,352	37.0	16,410,240	3.4	1,507,968	9.2
July	33,957	36.9	12,530,133	4.0	1,358,280	10.8
August	41,956	37.0	15,523,720	5.0c	2,097,800	13.5
Sept.	43,641	37.7	16,452,657	5.0c	2,182,050	13.3
Oct.	47,212	38.3	18,082,196	5.0c	2,360,600	13.1
Nov.	39,777	38.6	15,353,922	5.0c	1,988,850	13.0
Dec.	37,101	39.0	14,469,390	5.0c	1,855,050	12.8
	491,100	**37.6**	**$184,653,600**		**$22,248,238**	**12.0**
			1929			
Jan.	25,723	38.4	$ 9,877,632	1.2	$ 308,676	3.1
Feb.	23,328	38.2	8,911,296	1.0	233,280	2.6
Mar.	22,152	38.2	8,462,064	.7	155,064	1.8
April	25,527	38.1	9,725,787	2.4	612,648	6.3
May	26,009	38.0	9,883,420	0		
June	24,720	38.0	9,393,600	.5	123,600	1.3
July	23,428	37.9	8,879,212	0		
August	25,250	37.8	9,544,500	4.4	1,111,000	11.6
Sept.	24,585	38.0	9,342,300	4.0	983,400	10.5
Oct.	27,091	37.9	10,267,489	4.0	1,083,640	10.6
Nov.	23,752	37.8	8,978,256	3.1	736,312	8.2
Dec.	22,845	37.7	8,612,565	2.2	502,590	5.8
	294,413	**38.0**	**$111,876,940**		**$5,850,210**	**5.2**

TABLE 27 (Continued)

Month	Consumption 1 (000 lbs.)	Price per Pound 2 (c lb.)	Total paid by consumers $	Direct effect of duty (c lb.)3	Costs of the duty $	Tariff costs as % of total	Month	Consumption 1 (000 lbs.)	Price per Pound 2 (c lb.)	Total paid by consumers $	Direct effect of duty (c lb.)3	Costs of the duty $	Tariff costs as % of total
			1931							1932			
Jan.	31,702	32.1	$10,176,342	.7	$ 221,914	21.8	Jan.	28,897	25.5	$ 7,364,145	3.7	$ 1,068,523	14.5
Feb.	29,266	31.2	9,130,992	.1	29,266	0.3	Feb.	32,040	24.4	7,817,760	2.8	897,120	11.5
Mar.	36,273	30.3	10,990,719				Mar.	24,241	23.8	8,149,358	1.5	513,615	6.3
April	36,593	29.3	10,721,749				April	33,623	23.3	7,149,358	.3	100,869	1.3
May	42,159	27.4	11,551,566				May	40,375	22.5	9,084,375	.4	161,500	1.8
June	38,053	26.5	10,084,045				June	35,541	22.3	7,925,643	.4	142,164	1.8
July	33,419	26.2	8,755,778				July	31,170	22.0	6,857,400	3.3	1,028,610	15.0
August	34,659	26.5	9,184,635	3.5	1,213,065	13.2	August	34,371	22.6	7,767,846	5.3	1,821,663	23.5
Sept.	34,884	27.0	9,418,680	4.9	1,709,316	18.1	Sept.	34,099	22.7	7,740,473	5.0	1,704,950	22.0
Oct.	36,959	27.1	10,015,889	4.8	1,774,032	17.7	Oct.	34,588	22.6	7,816,888	4.4	1,521,872	19.5
Nov.	30,117	26.8	8,071,356	4.0	1,204,680	14.9	Nov.	31,476	22.4	7,050,624	3.8	1,196,088	17.0
Dec.	28,326	26.2	7,421,412	4.9	1,387,974	18.7	Dec.	31,295	23.3[a]	7,291,735	4.2	1,314,390	18.0
	412,411	**28.1**	**$115,523,163**		**$7,540,247**	**6.5**		**401,699**	**23.1**	**$92,700,406**		**$11,471,364**	**12.4**

[a] No differential (New York prices below London prices by more than 1.5 cents a pound).

[b] No London quotation available. [c] Amount of the duty.

Sources:

[1] Data showing consumption of cheddar cheese separate from consumption of other cheeses are not available. The monthly figures representing consumption of cheddar cheese were calculated by taking that proportion of the monthly consumption of all cheese which the annual production of cheddar cheese makes to the annual production of cheese of all varieties. For the seven years 1923-1929 inclusive, the production of cheddar cheese amounted to 72 per cent, 70 per cent, 70 per cent, 68 per cent, 64 per cent, 64 per cent, and 64 per cent, respectively, of all cheese produced. Consequently, to obtain monthly cheddar cheese consumption during 1923, the monthly consumption figures of all cheese are multiplied by 72 per cent. Consumption data for all cheese secured from U. S. Department of Agriculture, Bureau of Agricultural Economics.

[2] Average retail prices secured from U. S. Department of Labor, Bureau of Labor Statistics.

[3] The differential is the actual average differential between No. 1 fresh American Cheese (Single Daisies) at New York and average top prices of Canadian Cheese at London (both New York and London prices obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics), plus the 1.5 cent transportation cost except in those cases where the actual differential plus 1.5 cents exceeds the duty, in which case the amount of the duty is taken as the differential attributable to the duty.

domestic markets.[28] In 1931 and 1932 American farmers received benefits from the 7-cent tariff to the extent of $6,060,505, and $9,687,121, or 10.6 and 21.7 per cent respectively of their total income from Cheddar cheese. They would have received $31,823,320, and $29,971,510, or 55.7 and 67.3 per cent respectively during these same years had the duty been fully effective.

Burdens to Consumers. The monthly and annual burdens to American consumers from the 1922 Cheddar cheese duty, computed for the 9 years 1923-1929, 1931 and 1932 according to the method discussed above, are shown in Table 27.

The 5-cent duty cost consumers an average of $9,958,000, or 7.4 per cent of the total cost of their Cheddar cheese annually during the period 1923-1929. It would have cost them $17,328,000, or 13.5 per cent, had the duty been fully effective. In 1931 and 1932 the 7-cent duty cost consumers $7,540,247, and $11,471,364, or 6.5 and 12.4 per cent respectively of the total cost of their Cheddar cheese. It would have cost them $35,054,935, and $34,144,415, or 30.3 and 36.8 per cent, had the duty been fully effective.

Net Benefits to Producers. In calculating the net benefits accruing to American farmers as a class from the duty, that part of the increased cost resulting from the duty borne by farmer consumers must be subtracted from the benefits accruing to them from the higher prices they receive because of the duties. Table 28 shows these costs and benefits, together with net benefits to farmers for the years 1923-1929, 1931 and 1932.

Farmers received an average annual net benefit of $6,510,000, or 8.2 per cent of their total income from Cheddar cheese, for the period 1923-1929 from the 5-cent duty. They received a net benefit of $4,190,524, and $6,842,223, or 7.3 and 15.4 per cent of their total income from cheese, during 1931 and 1932 respectively from the 7-cent duty. In other words, these are the profits accruing to farmers as a class from the 5- and 7-cent duties.

Conclusions

The differentials of domestic over foreign prices maintained by the duties from 1922 to 1932 have amounted, on the average, to only a part of the duties. We are so nearly on a domestic basis in Cheddar cheese that for the greater part of the year our prices are determined by purely domestic factors, and the tariff is not completely effective.

[28] This full effect would have been possible only with New York prices constantly 3.5 cents above London.

TABLE 28

Net Benefits to Farmers from the Cheddar Cheese Tariff 1923-1929, 1931 and 1932

Year	Costs of the Duty		Benefits to Farmers from the Duty	Net benefits to farmers as a class	Net benefits as % of total farm income from Cheddar cheese
	To All Consumers	To Farmer Consumers [1]			
1923	$ 8,974,352	$2,548,716	$ 9,838,718	$7,290,002	9.5
1924	9,711,135	2,709,407	9,656,440	6,947,033	10.0
1925	6,521,814	1,786,977	6,708,505	4,921,528	5.8
1926	9,437,366	2,529,214	8,724,056	6,194,842	7.9
1927	22,248,238	5,851,287	13,572,722	7,721,435	9.7
1928	6,960,034	1,795,689	7,386 335	5,590,646	6.6
1929	5,850,210	1,480,103	6,574,024	5,093,921	5.8
1931	5,601,000	1,869,981[b]	6,060,505	4,190,524	7.3
1932	11,471,364[a]	2,844,898[b]	9,687,121[c]	6,842,223	15.4

[a] *Estimated from preliminary consumption figures, obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics.*

[b] Assuming that the farm population comprised 24.8 per cent of the total. This is the 1930 census figure, the last year for which data are available.

[c] Estimated from preliminary production figures obtained from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Sources: [1] The cost to farmer consumers was determined by taking that proportion of the total cost which the farm population is of the total United States population. According to the Bureau of the Census, the farm population comprised 29.9 per cent of the total population in 1920 and 24.8 per cent in 1930. The percentages for the years between these two census years were computed by straight interpolation.

The duties tend to affect cheese prices most in the fall and winter months and least in the spring and summer months, although the seasonal characteristic of the differential is much less pronounced than in the case of butter.

The 1922 tariff of 5 cents a pound was an important factor in keeping domestic prices, on the average, somewhat above world market prices while it was in effect. During months when domestic supplies were not sufficient to meet domestic requirements (usually in the fall and winter) the duty kept domestic prices higher above world market prices than they would have been without the duty. It prevented domestic and world prices from adjusting to each other by restricting importation until domestic prices were above world market prices by approximately the amount of the tariff minus 1½ cents. This restriction kept domestic prices above world prices much of the time from 1923 to 1929, even though the principal factors in each market were local demand and supply. The duty was a complementary factor, which together with demand and supply conditions made possible the differential.

The 1930 duty of 7 cents a pound was ineffective in maintaining a differential during the first eight months of 1931, principally

because the depression in the United States made it impossible to move domestic supplies except at greatly reduced prices. Reduced purchasing power resulting from this depression was a much greater factor in the lower cheese prices than was the increase in production, which was very slight. Better prices are dependent upon increased general purchasing power and not until normal purchasing power is restored can demand and supply relationships bring the 7-cent duty again into full play.

In September, 1931, England's abandonment of the gold standard resulted in a decline in sterling exchange, and New York prices were high in relation to London in terms of gold. Without the 7-cent duty Canada would have diverted shipments of cheese from London to New York in order to take advantage of the higher New York prices, thereby increasing domestic supplies, which would have tended to pull domestic prices down even to the level of London prices. But the 7-cent duty did restrict importation, with the result that New York prices averaged considerably above London prices for the last part of 1931.

The effectiveness of the duty in 1932 enabled American farmers to receive about $9,687,000, or 27.8 per cent more than they would have received for their Cheddar cheese without the duty. They received net benefits to the extent of $6,842,223, or 15.4 per cent of their total 1932 income from Cheddar cheese. The question remains whether in the future the duty will be of greater, or less, importance to dairymen.

Business conditions all over the world are unsettled, apparently in the process of adjusting to lower general price levels. England, the leading cheese importing nation, has left the gold standard, and as a result her prices in terms of gold are considerably below ours. If our tariff were removed, therefore, United States imports of Cheddar cheese, principally from Canada, would undoubtedly greatly increase.

If, in the future when general business conditions have recovered, the present 7-cent cheese duty is maintained, it may be said that American farmers need have no apprehensions about losing their home market to foreign producers. Canadian exports of cheese are declining and will probably continue to do so as the process of industrialization continues in that country. Moreover, those to the United States have declined sharply in the past few years because of the increasingly favorable quotations in London. The increasing consumption of milk, cream, and ice cream in England is reducing the production of English and Scotch Cheddar cheese and opening up a relatively large market for the Canadian product. Under these

conditions it would seem that competition from Canada will continue to decline.

New Zealand, the largest cheese exporting country in the world, appears to be a source of great potential competition, although at present most of her cheese goes to England. Our tariff has been sufficient to keep out imports from this source but in the absence of a duty New Zealand would probably export to us, especially when English markets were depressed.

The tendency of western and southern farmers to shift into dairying in the past few years indicates that we may expect to continue virtually on a domestic basis in Cheddar cheese, particularly since the special adaptation of this variety to our factory methods gives us a greater relative advantage in competition with other countries than we have in the manufacture of any other variety. If for any considerable period our production does not meet domestic demands and our prices should rise above world market prices by the amount of the duty, production would undoubtedly increase in response to such a stimulus, which would lead back to a lower level. Under average conditions, however, we are likely to be very close to the boundary line between an export and an import basis, so that the differential for any given year will tend to equal only a part of the duty, or disappear altogether.

TABLE 29

United States Swiss Cheese Production by States, 1923-1931
(In thousand pounds)

State	1923	1924	1925	1926	1927	1928	1929	1930	1931
Wisconsin	18,277	15,870	19,321	17,260	14,891	13,761	16,419	23,744	22,844
Ohio	2,864	2,810	2,308	1,809	2,184	1,659	1,053	914	2,483
New York	1,590	1,305	753	504	383	436	381	271	128
Illinois	859	1,175	789	846	294	346	519	702	592
California	518	94	176	179	163	234	239	.....	.....
Pennsylvania	411	303	110	6	5	8	79	76	78
Indiana	12	10	.....	1	.....	47	245	226	18
Oregon	4	.....	.....	.....	.....	.....	.....	.....	104
Idaho	.....	.....	.....	260	168	227	337	420	887
Michigan	.....	.....	.....	.....	.....	.....	35	.....	.....
Texas	.....	.....	.....	.....	.....	.....	99	.....	.....
No. Carolina	.....	.....	.....	.....	.....	.....	.....	40	205
Wyoming	.....	.....	.....	.....	.....	.....	.....	.....	742
Total U. S.	**24,555**	**21,844**	**23,457**	**20,883**	**18,141**	**16,718**	**19,406**	**26,393**	**28,234**

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics.

Chapter VII. Swiss Cheese

The most important cheese imported into the United States is the Emmenthaler type, known in this country as Schweitzer or Swiss cheese. It is distinguished by its large holes, or eyes, which are about the size of a dime and are from one to three inches apart. These eyes are caused by the action of certain bacteria, which also give the cheese its peculiarly mild, sweetish flavor.

The Domestic Industry

Production. Swiss cheese is produced in the United States in two forms—the original round or millstone shape and the rectangular block. The entire production in Switzerland and the bulk of that in the United States is of the round or millstone type. The block form is considered a lower grade and commands a much lower price than round cheese of good quality.

An industry has developed for the processing of Swiss as well as other varieties. In this process, cracked, "blind", or otherwise deficient cheese may be remixed, pressed into small forms, wrapped in tin-foil, and marketed under a trade name.

About 5 per cent of the total United States production is Swiss cheese, which is manufactured from less than .2 per cent of the total milk produced. Domestic production in 1928 amounted to less than 17 million pounds, the smallest annual output since 1917, but since then has increased until it reached more than 28 million pounds in 1931.

United States production is concentrated in Wisconsin. In 1931 this state produced approximately 81 per cent of the domestic output; the remaining 19 per cent was produced in varying amounts in Ohio, Illinois, Idaho, Wyoming, New York, Indiana, Pennsylvania, and North Carolina. (See Table 29).

Consumption. Domestic consumption far exceeds production. Large importations are necessary, therefore, to supply domestic requirements. Consumption in 1930, the largest year on record, amounted to more than 44 million pounds,[1] of which approximately

[1] Represents domestic production plus net imports, or the supplies available for consumption during that year.

18 million pounds, or 68 per cent, was imported from Switzerland. In 1927 and 1928 imports actually exceeded domestic production, and in 1929 were approximately equal to the amount produced at home. (See Table 30).

The principal markets for Swiss cheese in the United States are Chicago and New York. Domestic cheese predominates on the Chicago market and imported cheese on the New York market. It is in New York that domestic and imported Swiss cheese meet in competition in greatest volume.

TABLE 30

Production of Swiss Cheese in the United States and General Imports of Cheese from Switzerland, 1909-1931

Year (Fiscal)	Production	Total Imports from Switzerland	Consumption (Production plus Imports)	Imports as percentage of production
1909	[a]	12,438,000	.....	.....
1910	[a]	14,105,000	.....	.....
1911	[a]	15,508,000	.....	.....
1912	[a]	15,147,000	.....	.....
1913	[a]	17,372,000	.....	.....
1914	[a]	22,490,000	.....	.....
1915	[a]	14,767,000	.....	.....
1916	15,317,000[b]	9,514,000	24,831,000	62.11
1917	15,434,000[b]	1,641,000	17,075,000	10.63
(Calendar)				
1918	19,363,000	.....	19,363,000	.....
1919	21,602,000	12,000	21,614,000	.06
1920	20,430,000	802,000	21,232,000	3.92
1921	22,678,000	2,359,000	25,037,000	10.40
1922	19,983,000	12,011,000	31,994,000	60.11
1923	24,555,000	16,982,000	41,537,000	69.16
1924	21,844,000	13,632,000	35,476,000	62.41
1925	23,457,000	15,993,000	39,450,000	68.18
1926	20,883,000	16,736,000	37,619,000	80.14
1927	18,144,000	19,066,000	37,210,000	105.09
1928	16,718,000	18,564,000	35,282,000	112.69
1929	19,406,000	18,839,000	38,245,000	97.08
1930	26,393,000	17,947,000	44,340,000	68.00
1931	28,234,000	14,414,000[c]	42,648,000	51.05

[a] Production figures not available prior to 1916.

[b] Calendar years.

[c] A total of 15,683,108 pounds of cheese of the Emmenthaler or Swiss type were imported in 1931, the first complete year for which data are available showing imports of this variety. Approximately 13 million pounds were imported from Switzerland and the balance from Germany, Finland, Denmark, Austria and France.

Source: Production data from U. S. Department of Agriculture, Bureau of Agricultural Economics. Import data from U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

The Tariff Problem

Competitive Conditions. Although some cheese of the Swiss or Emmenthaler type is produced in France, Italy, Finland, Sweden, Germany, Austria, and perhaps in a few other countries, it is imported into the United States in substantial quantities only from Switzerland.

In spite of her small area, Switzerland is one of the leading cheese exporting countries of the world, being surpassed only by the Netherlands, New Zealand, Canada, and Italy. The United States and Germany are her principal markets, usually absorbing more than half her total exports, which average from 60 to 70 million pounds annually. While each country imports about the same quantity, the American market takes a larger proportion of the higher grades.

Switzerland offers very strong competition to the United States industry. Italy is the only country exporting more cheese to this country than does Switzerland. The Swiss dairy industry is to a large extent devoted to cheese production; the output amounts to approximately five times that of butter, whereas in the United States about four pounds of butter are produced for every one of cheese.[2]

Since 1905 the Swiss have increased their output of dairy products about 25 per cent, more because of increased yield per cow than a rise in the total number of cows.[3] The Central Union of Swiss Milk Producers and the Swiss Cheese Union together have a great influence on the price of both milk and cheese in Switzerland. Swiss producers make special efforts to satisfy the American market by exporting only the best of their cheese, which is high in quality, light in color, with large "eyes" and a mild, sweet flavor.

Imported Swiss cheese regularly sells on the American market at a price materially higher than that of the most nearly comparable domestic grade, chiefly because it is superior in flavor, color, and texture. This quality differential results from more uniform feeding,[4] better care of the raw milk used,[5] and longer aging of the cheese.

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[2] See U. S. Tariff Commission, **Report to the President of the United States—Swiss Cheese**, Washington, D. C., 1927, p. 6.

[3] **Ibid.**, p. 6.

[4] In the United States cows are usually kept in pasture during most of the year, while Swiss cows are stable-fed almost the year round, permitting a more careful selection of feed, and especially the elimination of pasture weeds and plants that injure the flavor of the cheese. **Ibid.**, p. 9.

[5] In Switzerland, more frequently than in the United States, the milk is hauled to the cheese factory immediately after both morning and evening milking in order to prevent the growth of undesirable bacteria. **Ibid.**, p. 9.

Method of Measuring Tariff Effectiveness. The method of measuring the effects of the duty by comparing the spread between domestic and foreign prices before and after the duty was changed seems particularly applicable in the case of Swiss cheese, since the four changes made in tariff rates within a few years serve to make the influence of the duties discernible.

The tariff on Swiss cheese was raised from 20 per cent ad valorem to 23 per cent ad valorem in 1921; to 5 cents a pound, but not less than 25 per cent ad valorem in 1922; to 7.5 cents a pound, but not less than 37.5 per cent ad valorem in 1927; and dropped to 7 cents a pound, but not less than 35 per cent ad valorem in 1930. The years 1923-1926 and 1928-1929 represent two periods of relatively stable price levels. The duty during the first of these periods was 5 cents, and in the latter 7.5 cents. An appraisal of the principal price-making forces during these two periods should determine the approximate influence on domestic prices of each duty.

In the case of both butter and Cheddar cheese, the United States is virtually on a domestic basis, but Swiss cheese is distinctly on an import basis. The favorable differential between domestic and foreign butter prices represents, on the average, only a portion of the duty, since during the spring and summer months the United States ordinarily produces more than enough to satisfy domestic requirements, while during the fall and winter months she does not. On the other hand, we are dependent upon foreign sources for a large part of our supply of Swiss cheese throughout the year. Under such conditions a constant differential between domestic and foreign prices equal to the amount of the duty plus transportation costs, about 2 cents a pound from Basel to New York,[6] would ordinarily be expected to prevail. An analysis of prices will show whether or not this has actually been the case under the duties in effect from 1922 to 1931.

But the differential in this case is not the measure of the benefit secured by producers from the duty, because Swiss cheese continues to come in over the tariff wall. The tariff does not establish two independent markets as it would if it were prohibitive, nor does the continuance of imports insure that the American price will be higher by the amount of the duty. The duty does shut out some imports

[6] The U. S. Tariff Commission in 1923 found the total cost of shipping cheese from Switzerland to New York amounted to 2.3 cents a pound. This total was divided among the following items: (1) packing cost, .7 cent; (2) internal rail freight to Basel (Berne, Switzerland, is the chief concentrating and exporting center for Swiss cheese, although practically all of it goes out of the country through Basel), .2 cent; (3) ocean freight, 1.3 cents; (4) insurance, .1 cent. Ibid.,p.13.

which might otherwise come in because it raises the price of Switzerland cheese. This in turn enables American producers to get a higher price, although just how much higher is difficult to say. However, if there were no tariff whatever, it is not likely that Switzerland and American Swiss cheese would sell at the same price in New York, plus the cost of transporting the imported product. Switzerland cheese under these conditions would undoubtedly sell at a premium because of its superior quality. Therefore, the differential measures the greatest possible benefit of the duty which actually is probably smaller than the differential.

Effects of Recent Duties

Comparable grades of Swiss cheese quoted in New York and Basel are used for price comparisons to measure the effect of the Swiss cheese tariff on domestic prices. Both prices are quoted on round fancy large-eyed cheese, which is the highest grade both in the United States and Switzerland, and is also the grade usually imported. Basel prices are converted to American cents by using monthly average rates of exchange as quoted in the Federal Reserve Bulletin. The gross differential is shown by a comparison of monthly average prices.[7] (See Table 31 and Figure 17.)

Prices of Swiss Cheese at New York

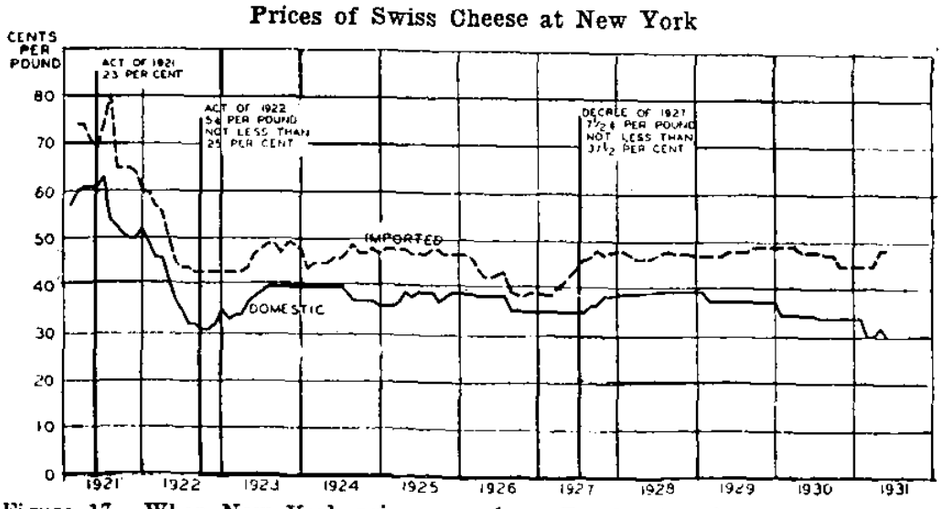

Figure 17. When New York prices are above Basel prices by an amount only equal to or less than 2 cents a pound the tariff is wholly without direct effect on American prices. (Shipping charges from Switzerland to New York average about 2 cents a pound.) While the duty has been less than 50% effective, on the average, during the period covered by the figure, it has been fully ineffective, with the exception of an occasional month or two, in only two periods: (1) the fall and late summer months of 1922, and (2) the late winter and spring months of 1931.

[7] The reader should keep in mind the fact that the differential between New York and Basel prices may vary considerably within the month, but daily quotations in these markets are not available.

TABLE 31

Comparison of New York and Basel Prices of Swiss Cheese, 1921-1931

Month	1921			1922			1923			1924		
	New York	Basel	N. Y. above Basel	New York	Basel	N. Y. above Basel	New York	Basel	N. Y. above Basel	New York	Basel	N. Y. above Basel
January	57	54	3	49	44	5	33	31	2	40	33	7
February	60	56	4	46	44	2	34	31	3	40	33	7
March	61	58	3	46	44	2	34	31	3	40	33	7
April	61	57	4	41	32	9	37	31	6	40	34	6
May	61	58	3	37	32	5	38	30	8	40	34	6
June	63	56	7	35	32	3	39	31	8	40	34	6
July	54	46	8	32	32	0	40	32	8	39	35	4
August	53	46	7	32	32	0	40	33	7	37	36	1
September	51	47	4	31	31	0	40	33	7	37	33	4
October	50	47	3	31	31	0	40	34	6	37	34	3
November	50	48	2	32	31	1	40	34	6	37	34	3
December	52	49	3	35	32	3	40	33	7	36	34	2
	1925			1926			1927			1928		
January	36	34	2	39.0	34	5.0	35.00	28.2	6.8	39.00	31.50	7.50
February	36	34	2	39.0	34	5.0	35.00	28.0	7.0	39.00	31.50	7.50
March	37	34	3	38.5	31	7.5	35.00	28.0	7.0	39.00	31.50	7.50
April	39	34	5	38.5	31	7.5	35.00	29.7	5.3	39.00	31.50	7.50
May	38	34	4	38.5	31	7.5	35.00	31.5	3.5	39.00	31.50	7.50
June	39	34	5	38.5	31	7.5	35.00	31.5	3.5	39.25	31.50	7.75
July	39	34	5	38.5	31	7.5	35.00	31.5	3.5	39.50	31.50	8.00
August	39	34	5	35.0	26	9.0	36.50	31.5	5.0	39.50	31.50	8.00
September	37	34	3	35.3	26	9.3	36.62	31.5	5.1	39.50	31.50	8.00
October	38	34	4	35.0	26	9.0	38.12	31.5	6.6	39.50	31.50	8.00
November	39	34	5	35.0	27	8.0	38.50	31.5	7.0	39.50	31.50	8.00
December	39	34	5	35.0	27	8.0	38.75	31.5	7.1	39.50	31.50	8.00
	1929			1930			1931					
January	39.50	31.50	8	34.50	31.50	3	34.0	28.6	5.4			
February	37.50	31.50	6	34.50	31.50	3	30.0	28.5	1.5			
March	37.50	31.50	6	34.50	31.50	3	30.0	28.4	1.6			
April	37.50	31.50	6	34.50	31.50	3	32.0	31.1	.9			
May	37.50	31.50	6	34.50	31.50	3	30.0	31.1	-1.1			
June	37.50	31.50	6	34.50	31.50	3						
July	37.50	31.50	6	34.00	31.00	3						
August	37.50	31.50	6	34.00	31.00	3						
September	37.50	31.50	6	34.00	28.60	5.4						
October	37.50	31.50	6	34.00	28.70	5.3						
November	37.50	31.50	6	34.00	28.60	5.4						
December	37.50	31.50	6	34.00	28.60	5.4						

Source: New York and Basel prices from 1921-1928 secured from U. S. Tariff Commission. New York prices from 1929 to 1931 from U. S. Department of Agriculture, Bureau of Agricultural Economics. Basel prices from 1929 to 1931 from Emmanthal Cheese Corporation, 6 Harrison Street, New York City. This source is also the original source of U. S. Tariff Commission's Basel price data. (Data not available after May, 1931.)

The Tariff of 1922. The Fordney-McCumber Tariff of 1922 increased the duty on all varieties of cheese from 23 per cent ad valorem to 5 cents a pound, but not less than 25 per cent ad valorem. This duty applied to Swiss cheese until President Coolidge, under the provisions of the flexible tariff clause, increased the duty to 7.5 cents a pound, but not less than 37.5% ad valorem, effective July 8, 1927.[8]

For the four year period 1923-1926 inclusive, under the 1922 duty, New York prices averaged about 5.5 cents above Basel prices. In the absence of any tariff, transportation costs would ordinarily raise them about 2 cents above, so that about 3.5 cents can be attributed to the influence of the tariff. Since a duty of approximately 8 cents a pound was in effect during this period,[9] the tariff was less than 50 per cent effective in maintaining a differential.

This small differential can be explained by the fact that domestic Swiss cheese regularly sells at a considerably lower price than the most nearly comparable imported variety. During the four years 1923-1926 the Swiss product ranged from 3 to 12 cents a pound above the American in the New York market, averaging about 7.5 cents higher (see Table 32 and Figure 18). A tariff of about 8 cents a

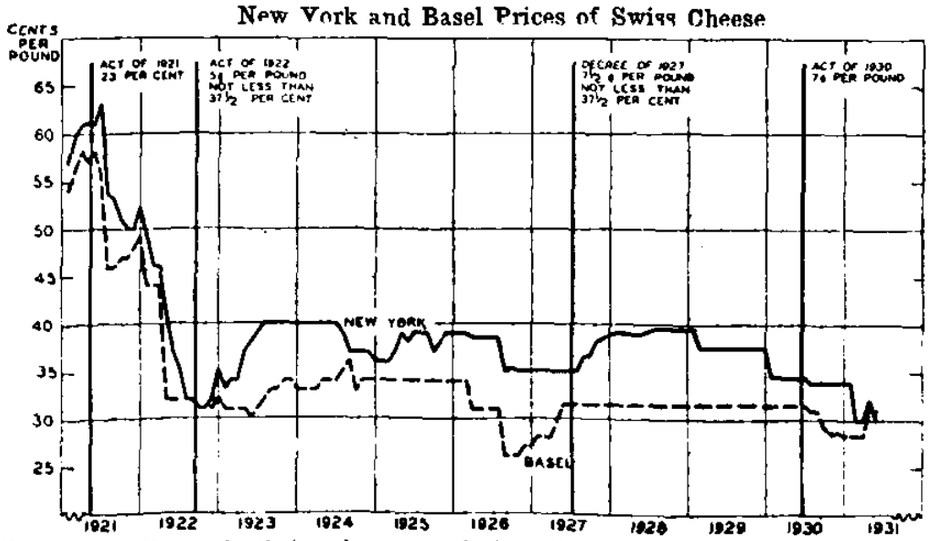

Figure 18. Domestic Swiss cheese regularly sells at a considerably lower price than the most nearly comparable imported variety. Prices of the imported product averaged 8 cents a pound above the domestic product from 1923 to 1930 and correspondingly reduced the effectiveness of the duties in maintaining a differential in favor of domestic prices.

[8] This is the only time that a duty has been provided which did not apply to all varieties of cheese. The rate *proclaimed* by President Coolidge applied only to cheese of the Swiss or Emmenthaler type. The **Hawley-Smoot Tariff** of June, 1930, did not differentiate between varieties.

[9] The average Basel price during the period 1923-1926 was about 32 cents and the 25 per cent ad valorem rate made the duty approximately 8c a lb.

TABLE 32

Comparison of Prices of Imported and Domestic Swiss Cheese at New York, 1921-1931

Month	1921			1922			1923			1924		
	Imp.	Dom.	Imp. Above Dom.	Imp.	Dom.	Imp. Above Dom.	Imp.	Dom.	Imp. Above Dom.	Imp.	Dom.	Imp. Above Dom.
Average	**65.5**	**56.1**	**9.4**	**47.6**	**37.2**	**10.4**	**46.6**	**37.9**	**8.7**	**46.3**	**38.6**	**7.7**
January	....	57	....	60	49	11	43	33	10	44	40	4
February	74	60	14	57	46	11	43	34	9	45	40	5
March	74	61	13	56	46	10	43	34	9	45	40	5
April	71	61	10	50	41	9	44	37	7	45	40	5
May	69	61	8	45	37	8	47	38	9	46	40	6
June	74	63	9	44	35	9	48	39	9	46	40	6
July	80	54	26	44	32	12	49	40	9	47	39	8
August	65	53	12	43	32	11	49	40	9	49	37	12
September	65	51	14	43	31	12	47	40	7	47	37	10
October	65	50	15	43	31	12	49	40	9	47	37	10
November	64	50	14	43	32	11	49	40	9	48	37	11
December	60	52	8	43	35	8	48	40	8	47	36	11
	1925			1926			1927			1928		
Average	**47.5**	**38.0**	**9.5**	**42.0**	**37.1**	**4.9**	**44.1**	**36.1**	**8.0**	**47.2**	**39.3**	**7.9**
January	48	36	12	47.0	39.0	8.0	38.8	35.0	3.8	48.0	39.0	9.0
February	48	36	12	46.5	38.8	7.7	38.5	35.0	3.5	47.2	39.0	8.2
March	48	37	11	44.0	38.5	5.5	39.9	35.0	4.9	46.5	39.0	7.5
April	48	39	9	42.5	38.5	4.0	41.3	35.0	6.7	46.5	39.0	7.5
May	47	38	9	42.5	38.5	4.0	43.0	35.0	8.0	46.5	39.0	7.5
June	47	39	8	42.9	38.5	4.4	44.6	35.0	9.6	46.8	39.3	7.5
July	47	39	8	43.5	38.5	4.0	46.1	35.0	11.1	47.8	39.5	8.3
August	48	39	9	39.5	35.0	4.5	46.7	36.5	10.2	48.0	39.5	8.5
September	48	37	11	38.6	35.3	3.3	48.0	36.6	12.4	47.5	39.5	8.0
October	47	38	9	38.5	35.0	3.5	47.0	38.1	8.9	47.5	39.5	8.0
November	47	39	8	39.0	35.0	4.0	47.7	38.5	9.2	47.5	39.5	8.0
December	47	39	8	39.0	35.0	4.0	48.0	38.8	9.2	47.0	39.5	7.5
	1929			1930			1931					
Average	**48.5**	**37.7**	**10.8**	**47.3**	**34.2**	**13.1**						
January	47	39.5	7.5	49.0	34.5	14.5	45.0	34.0	11.0			
February	47	37.5	9.5	49.0	34.5	14.5	45.0	30.0	15.0			
March	47	37.5	9.5	49.0	34.5	14.5	45.0	30.0	15.0			
April	47	37.5	9.5	48.0	34.5	13.5	48.5	32.0	16.5			
May	48	37.5	10.5	48.0	34.5	13.5	48.5	30.0	18.5			
June	48	37.5	10.5	48.0	34.5	13.5						
July	48	37.5	10.5	48.0	34.0	14.0						
August	48	37.5	10.5	47.5	34.0	13.5						
September	49	37.5	11.5	47.5	34.0	13.5						
October	49	37.5	11.5	45.0	34.0	11.0						
November	49	37.5	11.5	45.0	34.0	11.0						
December	49	37.5	11.5	45.0	34.0	11.0						

Source: Data to August, 1929, from U. S. Tariff Commission, and from that date to May, 1931, from U. S. Department of Agriculture, Bureau of Agricultural Economics. Data not available after May, 1931.

pound was in effect during this period, but because of the 7½-cent spread in favor of the Swiss product, American importers could pay nearly as much for foreign as for American Swiss, pay the duty and transportation charges, and still make a profit. In other words, approximately 7.5 cents of the total duty plus transportation charges was ineffective in causing a differential, because American consumers were willing to pay that much more for the imported product. This premium, amounting to more than half of the duty, explains why the 1922 tariff was less than half effective in maintaining a differential from 1923 to 1926.[10] It also explains why the duty did not reduce imports. Swiss producers found it profitable to export to the United States in spite of the tariff. Imports from Switzerland during this period averaged nearly 16 million pounds annually, or approximately 70 per cent of home production.

The differential between New York and Basel prices varied greatly from year to year within this four-year period. In 1923 New York prices averaged 6 cents above Basel; in 1924, 4.7 cents; in 1925, 4 cents; and in 1926, 7.6 cents. These fluctuations were largely the result of fluctuations in domestic prices compared with relatively stable Switzerland prices (see Figure 18). Not until the latter part of 1926, when they fell from 31 to 26 cents a pound, was there any considerable variation in Basel prices. This fall was due largely to the weakening in European markets, principally Great Britain and Germany (see the discussion of the 1922 butter duty in Chapter III).

New York prices show greater fluctuations than Basel prices because: (1) the industry in Switzerland is much more highly organized than that in the United States; and (2) the Swiss product enjoys a higher reputation for quality than the American.

Swiss producers are powerfully organized under one centralized group—the Swiss Cheese Union. This organization and the Central Union of Swiss Milk Producers together have a large influence on the prices of both milk and cheese in Switzerland. In some years the producers get a small premium or dividend above the determined

[10] The statement that that portion of the duty equal to the amount of the premium could have no possible effect in increasing American Swiss cheese prices can be challenged on the grounds that if there had been no duty more foreign Swiss cheese would have been imported and the increased supplies in the domestic market would have depressed American prices. Relatively good business conditions and high purchasing power enabled Americans to purchase the foreign product at the higher prices during the years 1923-1926, but this does not disprove the argument that without the duty and the resulting lower prices more of the product would have been consumed. Nevertheless, the superior quality of the imported product largely accounts for the partial differential between New York and Basel prices.

price; in other years the central organizations must draw upon reserve funds established to maintain prices in periods of depression.[11] The Swiss are able to hold their prices at certain levels for long periods, which tends to greatly reduce wide year-to-year variations. In the United States no such central organization exists and prices tend to fluctuate within a wider range, rising when general business and demand conditions are good, and falling to comparatively low levels with business depression and reduced purchasing power.

Only the highest grade cheese, which runs very uniform in flavor, color, and texture, is exported by the Swiss Cheese Union. This uniform product has established itself among American consumers and sells at a much more stable price than the domestic product, which has not been standardized as to quality and grade. This, together with the operations of the Swiss central organizations, explains the greater stability of Basel prices and the resulting fluctuations in the differential between New York and Basel.

The Flexible Tariff of 1927. The tariff on Swiss cheese was increased by presidential proclamation to 7.5 cents a pound, but not less than 37.5 per cent ad valorem, effective July 8, 1927. This duty remained in effect until the passage of the Hawley-Smoot Tariff in June, 1930.

During 1928 and 1929 New York prices averaged about 7 cents a pound above Basel, about 5 cents of which is attributable to the tariff. Since a duty of approximately 12 cents a pound was in effect during these two years,[12] the 1927 duty, like the 1922 duty, was less than 50 per cent effective, on the average, in securing higher prices for American producers.

The differential of New York above Basel prices averaged 7.8 cents in 1928 and 6.2 cents in 1929. The variation in these two years was due entirely to fluctuations in domestic Swiss cheese prices, because Basel prices remained stationary at 31.5 cents a pound throughout the period. New York prices did not fluctuate greatly; they averaged 39 cents for the first five months of 1928 and 39.5 cents for the last six months. They were stationary at 37.5 cents for all of 1929 except January, when they went to 39.5 cents. A decline in domestic purchasing power and an increased demand for the Swiss product are the principal reasons for the decrease in the dif-

[11] See U. S. Tariff Commission, op cit., for a more complete discussion of the operation of these central organizations.

[12] The average Basel price during these two years was 31.5 cents, so that the 37.5 per cent ad valorem rate made the duty approximately 12 cents a pound.

ferential in favor of New York prices in 1929.[13]

Prices of imported Swiss cheese at New York in 1928 averaged about 7.9 cents a pound above prices of the domestic product and in 1929 about 10.9 cents above. This premium, amounting to more than half of the duty[14] during 1928 and 1929, explains why the 1927 tariff was less than 50 per cent effective in increasing American prices. It also indicates why the duty did not reduce imports. Swiss producers found it profitable to export to us, in spite of our increased tariff, 18½ million pounds in 1928 and nearly 19 million pounds in 1929, or 112 per cent and 97 per cent, respectively, of home production.

The Tariff of 1930. The Hawley-Smoot Tariff of June, 1930, increased the duty on cheese from 5 cents per pound, but not less than 25 per cent ad valorem, to 7 cents per pound, but not less than 35 per cent ad valorem. Since no special provision was made for Swiss cheese, the duty of 7.5 cents a pound, but not less than 37.5 per cent ad valorem proclaimed in 1927 was slightly reduced in the 1930 tariff.

Imported Swiss cheese at New York has continued to command considerably higher prices than the domestic product and the 1930 duty, like those of 1922 and 1927, has been less than 50 per cent effective in keeping domestic prices above foreign prices. For the latter half of 1930 New York prices averaged somewhat less than 6 cents a pound above Basel prices. Had the tariff been fully effective they would have averaged about 12 cents above.[15]

The business depression with its resultant unemployment and reduced purchasing power in the United States caused domestic Swiss cheese prices to decline from 39.5 cents a pound in January, 1929, to 30 cents in May, 1931. During the same period prices of

[13] Domestic demand weakened considerably in 1929, especially toward the latter part of the year when the stock market crash, decreased industrial activity, and increased unemployment reduced the purchasing power of the public. Also, the Emmenthal Cheese Corporation inaugurated a nation-wide magazine advertising campaign after the increase in the duty in 1927. This campaign emphasized the quality of Switzerland cheese and the name "Switzerland Cheese" was stamped conspicuously on the rind of the imported product so that buyers would not fail to distinguish it from the domestic cheese. This campaign increased the price of imported Swiss cheese at New York and maintained Swiss cheese imports in spite of the increased duty. Imported Swiss cheese at New York averaged approximately 1.5 cents a pound higher in 1929 than in 1928. (See U. S. Tariff Commission, **Summary of Tariff Information, 1929**—Schedule 7, Agricultural Products and Provisions, Washington, D. C., 1929, p. 1072.)

[14] When the 2-cent transportation charge is subtracted from the differential, the amount of the 12-cent duty made ineffective by the premium was 6 cents in 1928 and 9 cents in 1929.

[15] The average Basel price during the last six months of 1930 was 29.4 cents, and the 35 per cent ad valorem rate made the duty approximately 10 cents a pound. To this must be added the 2-cent transportation differential.

imported Swiss cheese increased from 47 to 48.5 cents. In other words, an increasingly large portion of the duty has been made ineffective by the large premium on imported cheese during this period. In May, 1931, the imported product averaged 18.5 cents above the American and the importer could pay even more for the Switzerland product than for the American, pay the entire duty of about 11 cents and the 2-cent transportation charge, and still make a good profit. When the entire duty can be offset in this way the tariff is ineffective in maintaining domestic prices above foreign prices.

Benefits and Burdens of the Duties

Method of Calculation. The method of calculating benefits to producers that was used for butter and Cheddar cheese is here used for Swiss cheese. This method involves the use of monthly production figures and the average monthly differential except where the differential exceeds the duty, in which case the amount of the duty is taken as the differential attributable to the influence of the duty, allowing for transportation charges. As indicated above,[16] the results obtained by this method represent the maximum possible, not the actual benefits.

The burdens of the butter and Cheddar cheese duties were measured by the method described above, substituting monthly consumption for monthly production data. However, figures are not available for either monthly Swiss cheese consumption or average monthly retail prices. Consequently, the exact cost of the Swiss cheese duties to consumers or its relation to the total cost of Swiss cheese cannot be calculated.

Benefits to Producers. The monthly and annual benefits to American farmers were computed for the years 1923-1926 and for 1928 and 1929 by the method mentioned above. These benefits are shown in Table 33.

Farmers benefited from the 1922 tariff, on the average from 1923 to 1926, to the extent of about $888,000, or 10.5 per cent of their annual income from Swiss cheese. If the duty had been fully effective, they would have received about $1,885,000, or 21.5 per cent. In 1928 and 1929 benefits amounted to about $979,000 and $780,000, or 14.9 and 10.7 per cent respectively. Farmers would have received about $1,964,000, and $2,280,000, or 29.9 per cent and 31.2 per cent, during the same years had the duty been fully effective (that is, not offset at all by other supply and demand fac-

[16] See the analysis of **Benefits and Burdens of the Butter Duties** in Chapter III.

TABLE 33

Benefits of the Swiss Cheese Tariff to Farmers in the United States in Dollars and as a Percentage of Total Income from Swiss Cheese, by months, 1923-1926, and 1928 and 1929

Month	Production 1 (000 lbs.)	Wholesale price 2 (¢ lb.)	Total farm income from Swiss cheese 3 $	Direct effect of duty 4 (¢ lb.)	Benefits of duty $	Benefits as a % of total income
			1923			
Jan.	196	33	64,680	a		
Feb.	199	34	67,660	1	1,990	2.9
Mar.	298	34	101,320	1	2,980	2.9
April	1,018	37	376,660	4	40,720	10.8
May	2,948	38	1,120,240	6	176,880	15.8
June	3,468	39	1,352,520	6	208,080	15.4
July	4,015	40	1,606,000	6	240,900	15.0
August	3,683	40	1,473,200	5	184,150	12.5
Sept.	3,368	40	1,347,200	5	168,400	12.5
Oct.	2,756	40	1,102,400	4	110,240	10.0
Nov.	1,855	40	742,000	4	74,200	10.0
Dec.	751	40	300,400	5	37,550	12.5
	24,555	**37.9**	**$9,306,345**		**$1,246,090**	**13.4**
			1925			
Jan.	184	36	66,240	a		
Feb.	174	36	62,640	a		
Mar.	219	37	81,030	1	2,190	2.7
April	503	39	196,170	3	15,090	7.7
May	2,460	38	943,800	2	49,200	5.3
June	3,868	39	1,508,520	3	116,040	7.7
July	4,240	39	1,653,600	3	127,200	7.7
August	4,110	39	1,602,900	3	123,300	7.7
Sept.	3,170	37	1,172,900	1	31,700	2.7
Oct.	2,592	38	984,960	2	51,840	5.3
Nov.	1,332	39	519,480	3	39,960	7.7
Dec.	605	39	235,950	3	18,150	7.7
	23,457	**38**	**$8,533,660**		**$574,670**	**6.7**
			1924			
Jan.	293	40	117,200	5	14,650	12.5
Feb.	299	40	119,600	5	14,950	12.5
Mar.	325	40	130,000	5	16,250	12.5
April	727	40	290,800	4	29,080	10.0
May	2,862	40	1,144,800	4	114,480	10.0
June	3,873	40	1,549,200	4	154,920	10.0
July	4,095	39	1,597,050	2	81,900	5.1
August	3,577	37	1,323,490	a		
Sept.	3,016	37	1,115,920	2	60,320	5.4
Oct.	1,881	37	695,970	1	18,810	2.7
Nov.	699	37	258,630	1	6,990	2.7
Dec.	197	36	70,920	a		
	21,844	**38.6**	**$8,431,784**		**$512,350**	**6.1**
			1926			
Jan.	189	39	73,710	3	5,670	7.7
Feb.	175	39	68,250	3	5,250	7.7
Mar.	252	38.5	97,020	5.5	13,860	14.3
April	847	38.5	326,095	5.5	46,585	14.3
May	3,128	38.5	1,204,280	5.5	172,040	14.3
June	4,035	38.5	1,553,475	5.5	221,925	14.3
July	3,749	38.5	1,443,365	5.5	206,195	14.3
August	3,231	35	1,130,850	6.5[b]	210,015	18.6
Sept.	2,635	35.3	930,155	6.5[b]	171,275	18.4
Oct.	1,627	35	569,450	6.5[b]	105,755	18.6
Nov.	795	35	278,250	6	47,700	17.1
Dec.	220	35	77,000	6	13,200	17.1
	20,883	**37.1**	**$7,747,593**		**$1,219,470**	**15.7**

TABLE 33 (Continued)

Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from Swiss cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits of duty $	Benefits as a % of total income	Month	Production 1 (000 lbs.)	Wholesale price 2 (c lb.)	Total farm income from Swiss cheese 3 $	Direct effect of duty 4 (c lb.)	Benefits of duty $	Benefits as a % of total income
			1928							1929			
Jan.	225	39	87,750	5.5	12,375	14.1	Jan.	181	39.5	71,495	6	10,860	15.2
Feb.	224	39	87,360	5.5	12,320	14.1	Feb.	180	37.5	67,500	4	7,200	10.7
Mar.	332	39	129,480	5.5	18,260	14.1	Mar.	241	37.5	90,375	4	9,640	10.7
April	762	39	297,180	5.5	41,910	14.1	April	850	37.5	318,750	4	34,000	10.7
May	2,101	39	819,390	5.5	115,555	14.1	May	3,037	37.5	1,138,875	4	121,480	10.7
June	2,955	39.3	1,161,315	5.8	171,390	14.8	June	3,894	37.5	1,460,250	4	155,760	10.7
July	2,758	39.5	1,089,410	6	165,480	15.2	July	3,448	37.5	1,293,000	4	137,920	10.7
August	2,402	39.5	948,790	6	144,120	15.2	August	2,795	37.5	1,048,125	4	111,800	10.7
Sept.	2,094	39.5	827,130	6	125,640	15.2	Sept.	2,342	37.5	878,250	4	93,680	10.7
Oct.	1,756	39.5	693,620	6	105,360	15.2	Oct.	1,456	37.5	546,000	4	58,240	10.7
Nov.	813	39.5	321,135	6	48,780	15.2	Nov.	689	37.5	258,375	4	27,560	10.7
Dec.	296	39.5	116,920	6	17,760	15.2	Dec.	293	37.5	109,875	4	11,720	10.7
	16,718	**39.3**	**$6,570,174**		**$978,950**	**14 9**		**19,406**	**37.7**	**$7,280,870**		**$779,860**	**10.7**

[a] No differential (New York prices above Basel prices by 2 cents or less).
[b] Amount of the duty.

Sources:

[1] Swiss Cheese (including Block). Data obtained from U. S. Department of Agriculture, **Monthly Supplement of Crops and Markets.**

[2] Wholesale price of domestic round fancy large-eyed Swiss Cheese at New York. Data obtained from various reports of the U. S. Tariff Commission.

[3] Wholesale prices are used to compute total farm income. Farm prices are not available.

[4] Differential of N. Y. over Basel prices representing direct effect of duty. The differential is the actual average differential minus transportation costs except in those cases where the differential exceeds the duty, in which case the amount of the duty is used.

tors in the world and domestic markets.)

For the last six months of 1930 farmers received a benefit of $671,900, or 12.5 per cent, of their total income from Swiss cheese. If the duty had been fully effective they would have received $1,634,200, or 30.3 per cent, during the same period.

Burdens to Consumers. Burdens cannot be calculated by the above method since average monthly consumption data and retail prices of Swiss cheese are not available. However, burdens to consumers include (1) the cost of the duty on the Switzerland cheese imported, and (2) the amount by which the price of American Swiss is raised by the duty. Benefits consist only of the second. Since imports of Swiss cheese averaged about 70 per cent of domestic production from 1923 to 1926, the total costs of the 1922 tariff to consumers may be roughly estimated as amounting to about 70 per cent more than the total benefits accruing to farmers. On this basis, the cost to consumers averaged about $1,527,000 annually during this period.[17]

Imports from Switzerland were 112 and 97 per cent respectively of the 1928 and 1929 domestic production. Consequently, the

TABLE 34

Net Benefits to Farmers from the Swiss Cheese Tariff, 1923-1926, 1928, 1929 and 1930

Year	Costs to all consumers [1]	Costs to farmer consumers [2]	Benefits to farmers as a class	Net benefits to farmers as a class	Net benefits as a percentage of total farm income from Swiss cheese
1923	$2,118,000	$601,512	$1,246,090	$644,578	6.9
1924	832,000	232,128	512,350	280,222	3.3
1925	966,000	264,684	574,670	309,976	3.6
1926	2,194,000	587,992	1,219,470	631,478	8.1
1928	2,075,000	535,350	978,950	443,600	6.8
1929	1,536,000	388,608	779,860	391,252	5.3
1930[a]	974,000	241,552	671,900	430,348	8.0

[a] Last six months only.

[1] Tariff benefits per pound multiplied by total domestic consumption.

[2] Computed by using the proportion of farmers to total population as a rough estimate of the proportion of their Swiss cheese consumption to the total. It is unlikely that the proportion of farm to total Swiss Cheese consumption is the same as the proportion of farmers to total population, but accurate data are unavailable and these figures are used as estimates.

[17] Imports in 1923 were 69 per cent; in 1924, 62 per cent; in 1925, 68 per cent; and in 1926, 80 per cent of domestic production. Consequently, the costs to consumers can be roughly estimated as $2,118,000, $832,000, $966,000, and $2,194,000 for the four years, respectively.

total costs of the 1927 duty to consumers can be roughly estimated as twice the benefits to producers during these two years or about $2,075,000, and $1,536,000, respectively. Imports declined in 1930 and during the last six months of that year amounted to but 45 per cent of home production. Consequently, the total cost of the 1930 duty to consumers for these six months can be estimated as amounting to 45 per cent more than the benefits, or about $974,000.

Net Benefits to Farmers. To arrive at net benefits to American farmers as a class the increased costs borne by farmer consumers must be subtracted from the benefits accruing to them from higher prices received for their Swiss cheese under the duties. Table 34 shows these costs and benefits, together with net benefits to farmers for the years 1923-1926, 1928, and 1929.

Farmers received an average annual net benefit of about $467,000, or about 5.5 per cent of their total income from Swiss cheese during the period 1923-1926, and a net benefit of about $444,000, in 1928, $391,252, in 1929, and $430,348 for the last six months of 1930 which amounted to 6.8, 5.3, and 8.0 per cent of their total income from Swiss cheese in those years. These net annual benefits represent the maximum value of the 1922, 1927 and 1930 duties to farmers as a class.

Conclusions

The Swiss cheese duties were less than 50 per cent effective in maintaining domestic prices above foreign prices during the period 1923-1931, chiefly because American consumers were willing to pay considerably higher prices for imported than for domestic Swiss cheese. These higher prices, which averaged about 8 cents a pound above the domestic product from 1923 to 1930, correspondingly reduced the effectiveness of the duties in maintaining a differential in favor of domestic prices.

The duties have failed either to check imports or develop a domestic industry competent to take care of domestic needs. An increasingly large portion of the duties has been made ineffective since the beginning of 1929 because the premium placed on imported Swiss cheese has increased. In the spring of 1931 the premium equaled the entire duty plus transportation costs. In May, 1931, imported Swiss cheese averaged 18.5 cents a pound higher than the domestic product. The tariff under these conditions could not main-

tain domestic above foreign prices.[18]

Since Americans are willing to pay a premium for imported Swiss cheese principally because of its superior quality, it would seem necessary to improve the quality of the domestic product in order to check importations. Past increases in the tariff have not checked the competition from Switzerland; they have only burdened consumers to a degree out of all proportion to the benefits secured by producers. If American producers improve their competitive position through better production and care of the milk and longer aging of the cheese, by the organization of strong centralized producing and selling agencies, by acquainting the public with improvements in quality, and otherwise attempting to remove the present quality differential existing between the domestic and foreign product, they will place themselves in a position to secure the full possible benefits of the duties in terms of higher domestic prices.

It is true that such improvement in quality would involve additional cost, but the price spread which prevails between high and low grades of Swiss cheese more than warrants it. Most of the domesti product is low grade. Only about 14 per cent of our output grades Fancy.[19] Consequently, there is much room for improvement. There is no good reason to believe that American producers cannot produce a cheese comparable with the Swiss product if they adopt definite program of quality improvement, but until such a program is instituted the Swiss cheese duties probably will continue to be less than 50 per cent effective in maintaining domestic prices above foreign prices.

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[18] It would not be correct to say that the duty was completely ineffective even in the spring of 1931. If there had been no duty more foreign cheese probably would have been imported and the increased supplies in the domestic market would have depressed American prices. However, the fact that nearly 16 million pounds of cheese of the Emmenthaler type were imported during 1931, a year of business depression and low purchasing power, compared with about 18 million pounds imported in 1928, a year of general business prosperity and high purchasing power, indicates that the demand for the imported product is relatively inelastic and that the duty would have to be increased to extremely high levels to keep out imports.

[19] In an address, **Wisconsin Swiss Cheese Industry at Parting of the Ways**, by William Olson at the Southern Wisconsin Cheesemakers and Dairymen's Convention, Monroe, Wisconsin, December 9, 1927, it was stated that with respect to Drum Swiss cheese during the four years 1923-1926, only 14 per cent graded Fancy, while 42 per cent graded No. 1 and 44 per cent graded No.2. (See Silcox, W. B., and Bakken, H. H., **The Foreign Type Cheese Industry in Wisconsin**, University of Wisconsin Research Bulletin 103, December, 1930, p. 33.)

PART V.

MILK, CREAM, CASEIN, AND OTHER DAIRY PRODUCTS

Chapter VIII. Milk and Cream

Before the development of our large cities there was virtually no interstate trade in milk and cream. Each town depended upon its own supply or supplemented it to a small extent by wagon receipts from near-by territory.[1] But with the growth of industry, especially in the eastern part of the United States, and the concentration of more than one-fourth of our population in an area only 5 per cent of our total (New England and the Middle Atlantic States), the territory supplying our eastern cities continually widened. At first the dairy industry in the eastern states was able to shift from butter and cheese production to the supply of milk and cream quickly enough to meet the increasing demand of the cities for fresh milk and cream, but as these demands have grown cream has had to be supplied from greater and greater distances, until today it is shipped to the great cities from all over the New England and Middle Atlantic states and from Canada and the Middle West.

The Domestic Industry

Production. The trend of domestic production of milk and cream has been upward since 1920. Milk production increased from 90 billion pounds in 1920 to 121 billion pounds in 1926. In more recent years, 1928 to 1932, cows and heifers 2 years old and over kept on farms for milk increased from 22,129,000 to 24,379,000.[2]

The principal dairy states according to their importance in production are: Wisconsin, New York, Minnesota, Iowa, Pennsylvania,

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[1] Before the days of milk transportation by rail the principal source of New York City's milk and cream supply was from cows kept in the stables of breweries or distilleries, supplemented to a small extent by wagon receipts from Long Island and Westchester County. Orange County was producing milk in volume, but it was consumed principally in butter making. (See Department of Agriculture and Markets of the State of New York, Bulletin 241, **Statistics Relative to the Dairy Industry in New York State, 1929, Albany, New York, 1930, p. 173.)**

[2] U. S. Department of Agriculture, *Bureau of Agricultural Economics*, **Supplement to Handbook of Dairy Statistics**, Washington, D. C., April, 1932, p. 10.

Illinois, Ohio, Michigan, and California. Milk production is decidedly seasonal, with the peak in May and June and the low point in the winter months.

Consumption. Nearly half of all the milk produced in the United States is consumed as fluid milk and cream; about a third is used for the manufacture of butter; the manufacture of cheese, condensed and evaporated milk, and ice cream each consume from 3 to 4 per cent; less than .5 per cent is used for all other dairy products; about 4 per cent is fed to calves; the rest (about 3 per cent) is apparently wasted.

The demand for fluid milk is comparatively stable throughout the year but cream consumption rises and falls with the consumption of ice cream and cream for berries. The peak of domestic demand comes during the summer months, somewhat later than the peak of production. The per capita consumption of whole milk and the whole milk equivalent of cream used as fluid cream is about 55 gallons annually in the United States. This is considerably higher than in most other nations, but less than in Finland and Switzerland.[3]

Prices. Much has been done by producers' organizations to adjust milk prices so as to encourage a shift from surplus production in summer to increased production in the winter. In addition to the use of a flat price, two plans are in use: (1) the "Basic Rating Plan," and (2) the "Use Plan." The Basic Rating Plan involves the establishment of a basic quantity for each producer upon which the basic price determined in conference by dealers and representatives is paid. Any milk delivered in excess of the basic quantity is paid a lower price.[4] The Use Plan makes the dealer pay for the milk according to the use which is made of it. Production is divided into the following classes: (1) fluid milk; (2) milk for cream and ice cream; (3) condensed milk; and (4) milk for butter and cheese. Fluid milk, the most valuable product, is always in the first class. Sweet cream is always in the second class. These two prices are determined by the supply and demand conditions of the individual milk shed.

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[3] Per capita consumption amounts to less than one-half gallon in Japan, about 7 gallons in Chile, 14 in Spain, 25 to 27 in Great Britain, France, and Germany, 37 in Australia and New Zealand, 45 in Austria and Czechoslovakia, 50 in Canada, 55 in the United States, 70 in Switzerland, and about 84 in Finland. Ibid., p. 4.

[4] This plan is used by the cooperatives supplying milk to Baltimore and Philadelphia. The basic quantity used is the average production by each producer for the months of October, November, and December. The producer receives the basic price on this amount for the following nine months and a "surplus price" on any excess, which is calculated on the price of 92-score butter plus a 20 per cent premium. (See U. S. Tariff Commission, **Report to the President of the United States—Milk and Cream.** Washington, D. C., 1929, p. 9.)

but the price in the last class must be determined on a national or world market basis.[5]

The Tariff Problem

Canadian Competition. Milk and cream are highly perishable products and only a neighboring country can effectively compete with the United States by exporting these products in the fresh, raw state to her markets. Virtually all of the United States imports of milk and cream are from Canada.[6]

Imports of both milk and cream are insignificant when compared with the total domestic production, but these imports are concentrated in one or two large markets. The only areas in the United States which are unable to satisfy their own requirements in milk and cream are the three eastern regions supplying Boston, New York, and Philadelphia. Practically all of our imports from Canada originate in Quebec and Ontario within a zone of about 20 miles contiguous to the border, and no imported milk is ordinarily shipped as far south as Philadelphia. About two-thirds of these imports are either separated for cream or manufactured into other dairy products at receiving border plants, and New York City and Boston receive most of the balance for fluid use.[7]

The Shift to the Mid-West. Ordinarily the supply of fluid milk and cream in Boston, New York, and Philadelphia is scarce during the late summer and early fall months, and until recent years this scarcity has been met largely by imports from Canada. In the past few years, however, an increasingly large part of the regular seasonal shortage of cream, caused by the greater diversion of the

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[5] For a discussion of the Use Plan, see Schoenfeld, W. A., **Some Economic Aspects of the Marketing of Milk and Cream in New England,** U. S. Department of Agriculture, Washington, D. C., Circular 16, 1927.

[6] In 1929 a total of 4,246,000 gallons of milk and 2,970,000 gallons of cream were imported by the United States. 4,169,418 gallons, or 98.2 per cent of the total milk imported, and 2,963,649 gallons, or 99.8 per cent of the total cream imported, came from Canada. The remaining 1.8 per cent of the milk and .2 per cent of the cream came from Norway, the United Kingdom, Mexico, and other countries. (See State Department of Agriculture and Markets, *Bulletin* No. 241, **Statistics Relative to the Dairy Industry in New York State,** 1929, p. 156.)

[7] The U. S. Tariff Commission made a study of the disposal of milk imported from Canada through the Vermont and St. Lawrence customs districts from May 1, 1925, to April 30, 1926, and found that 2.84 per cent of the total milk imported through these districts during this period was shipped to Boston for fluid consumption, 36.86 per cent was shipped to New York City for fluid consumption, and 60.30 per cent was separated or otherwise manufactured at receiving border plants. See the Commission's **Report to the President of the United States: Milk and Cream,** p. 19.

eastern production from cream to fluid milk market channels, has been supplied by fresh cream shipments from the Middle West.[8] This shift in the source of supply from Canada to the Middle West has been encouraged by (1) improvement in transportation facilities, and (2) our tariff policy on milk and cream.

It is now possible with proper handling to ship sweet cream long distances. As early as 1925 and 1926 fresh table cream moved in express car lots of 200 40-quart cans each from points in Kansas, Iowa, Minnesota, Wisconsin, and Michigan to Springfield and Boston, Massachusetts. The maximum distance so hauled was 1,700 miles and the running time of the trains, including time spent switching in Chicago, ranged from 30 to 40 hours.[9] This is approximately the same as the running time from the farthermost Canadian supply points to Boston.[10] However, the rates from the mid-western points to Boston ranged from $1.85 to $2.28½ per 40-quart can while the rates from the farthermost Canadian points ranged from 56 to 60 cents.[11] Thus, in spite of his ability to ship sweet cream in good condition to Boston as rapidly as his Canadian competitor, the mid-western shipper had to pay from 13 to 16 cents a gallon more for transportation to Boston than the Canadian. As a result, without the United States tariff policy to offset this transportation differential in favor of the Canadian producer, the shift from Canada to the Middle West as a source of part of the cream supply for the East would not have occurred to the extent that it has.

The Fordney-McCumber Tariff of September, 1922, placed a duty of 20 cents per gallon on cream, which in May, 1929, was increased by presidential proclamation to 30 cents per gallon. Consequently, Canadian producers from 1922 to 1929 had to pay 20 cents a gallon, or slightly more than their transportation advantage over middle-western producers. But many Canadian farmers are enough closer to the United States than to the Canadian markets to permit them to ship to us, pay the 20-cent duty, and still net more than by shipping to Canadian markets. In spite of a 20-cent duty during the years when the Canadian advantage in transportation costs over mid-western producers was only 13 to 16 cents a gallon, Canadian exports of cream to the United States increased, reaching a peak of more than 5 million gallons in 1926.

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[8] Milk is not shipped to eastern markets from the Middle West in significant quantities because of its comparatively low unit value. Cheaper feed and other lower costs of producing cream in the Middle West offset, to some extent, the freight charges to eastern markets.

[9] Schoenfeld, W. A., **Some Economic Aspects of the Marketing of Milk and Cream in New England**, p. 19. [10] **Ibid.**, p. 20. [11] **Ibid.**, pp. 64 and 66.

But great increases in the tariff since 1926 have more than offset any advantages the Canadians may have had in transportation or other costs, and imports have decreased. In 1931, with a duty of 56.6 cents a gallon, only 79,435 gallons of cream were imported from Canada, and in 1932, 118,000 gallons. Thus, by heavy increases in the tariff, the transportation advantages of Canadian producers over mid-western producers have been more than offset, and the shift from Canada to the Middle West as a source of supply for the eastern states has been largely completed.[12]

Effects of Recent Duties

Recent Milk Duties. Table 35 shows average prices paid to producers for milk at New York and Montreal, 1922-1931. For the five-year period 1922-1926 New York prices averaged about 6.4 cents a gallon above Montreal.[13] Thus the 2.5-cent per gallon duty of 1922 was not sufficient to offset the differentials between American and Canadian prices, and imports were the largest on record.[14] Nor was it sufficient to equalize the milk, butter, and cheese duties during this period, and Canadian producers found they could ship milk into the United States cheaper than they could ship in the manufactured products, butter and cheese.[15]

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[12] In 1925 only 217,000 quarts of cream were received at Boston from states west of Buffalo, while in 1931 nearly 6 million quarts were received. Receipts from mid-western points at New York City increased from less than 2 million quarts in 1927 to nearly 4 million quarts in 1929, but in 1931 declined to about the 1927 level. On the other hand, the total United States imports decreased from 5,374,000 gallons in 1926, to 4,843,000 gallons in 1927, to 3,621,000 gallons in 1928, to 2,970,000 gallons in 1929, to 1,585,000 gallons in 1930, to 79,000 gallons in 1931, and to 118,000 gallons in 1932. The embargo placed on milk and cream from the Montreal district by the United States because of the typhoid epidemic in 1927 undoubtedly was the chief reason for the 1927 decrease in imports. In 1928 the decline was due to a large extent to the sanitary regulations of the Lenroot-Taber Act. But the great decline in 1931 and 1932 was due primarily to the increase in the duty from 30 to 56.6 cents a gallon in June, 1930.

[13] New York prices averaged $2.88 per hundred pounds compared with an average of $2.13, or 75 cents less, for Montreal. Since one gallon contains 8.6 pounds, New York prices averaged about 6.4 cents a gallon above prices at Montreal.

[14] About 4.5 million gallons of milk were imported in 1923; over 5 million in 1924; over 7 million in 1925 and 1926; 4.5 million in 1927; and about 5.5 million in 1928.

[15] In 1926, 60 per cent of the milk imported from Canada was separated or otherwise manufactured at border receiving plants and only 40 per cent was pasteurized, of which 37 per cent was shipped to New York and 3 per cent to Boston for fluid consumption. A considerable quantity of the 60 per cent that was separated or manufactured at border receiving plants was made into condensed milk for export, upon which drawback was allowed. (See Report of U. S. Tariff Commission to the President of the United States, **Milk and Cream**, 1929, p. 19.)

TABLE 35

Average Prices Paid to Producers for Milk at New York and Montreal, 1922-1931

Season	New York [1] (c per cwt)	Montreal [2] (c per cwt)	Differen'l in favor N. Y. (c per cwt)	Differen'l in favor N. Y. (c per gal)
1922, spring & summer[3]	237	195	42	3.6
1922-23, fall & winter[4]	314	213	101	8.6
1923, spring & summer	283	195	88	7.5
1923-24, fall & winter	287	250	37	3.1
1924, spring & summer	238	195	43	3.6
1924-25, fall & winter	307	195	112	9.6
1925, spring & summer	280	195	85	7.3
1925-26, fall & winter	315	250	65	5.5
1926, spring & summer	285	195	90	7.7
1926-27, fall & winter	316	250	66	5.6
1927, spring & summer	307	203	104	8.9
1927-28, fall & winter	347	280	67	5.7
1928, spring & summer	308	203	105	9.0
1928-29, fall & winter	340	280	60	5.1
1929, spring & summer	336	256	80	6.8
1929-30, fall & winter	339	290	49	4.2
1930, spring & summer	314	232	82	7.0
1930-31, fall & winter	307	234	73	6.2
Average	**303**	**228**	**75**	**6.4**

Sources:

[1] Pooled prices of milk f. o. b. New York City, from the Dairymen's League *Cooperative Association. Data for 1922-1926* inclusive, taken from U. S. Tariff Commission, **Report to the President of the United States: Milk and Cream,** 1929, p. 20. Data for 1927-1931 are basic prices for fluid milk and were taken from U. S. Department of Agriculture, **Crops and Markets.**

[2] Dealers' quotations of prices paid to producers. Data for 1922-1926 inclusive, taken from U. S. Tariff Commission, **Report to the President of the United States: Milk and Cream,** 1929, p. 21. Data for 1927-1931 taken from **Canadian Monthly Bulletin of Agricultural Statistics,** *February,* 1932, *p. 58.* Quoted in cents per Imperial gallon and converted to pounds by using 8.6 pounds as the weight of a United States gallon and five-fourths or 1.20032 times 8.6 pounds as the weight of an Imperial gallon.

[3] Average of the 6 months April, May, June, July, August and September.

[4] Average of the 6 months October, November, December, January, February, and March.

The milk duty was increased to 3.75 cents a gallon by President Hoover on May 14, 1929, effective June 13, 1929, and on June 18, 1930, was raised to 6.5 cents a gallon in the Hawley-Smoot Tariff. The present rates are approximately sufficient to equalize the duties on milk and on butter and cheese (see Table 1). They are also sufficient to offset the differential of New York prices above Montreal prices which existed, on the average, from 1922 to 1930. The large decrease in milk imports in 1931 and 1932 is evidence that the present tariff is sufficient virtually to prohibit imports in significant amounts (see Table 36 and Figure 19).

TABLE 36

U. S. Imports and Exports of Milk and Cream, 1918-1932
(In thousand gallons)

Year	Imports		Exports (Milk & Cream)[1]	Year	Imports		Exports (Milk & Cream)[1]
	Milk	Cream			Milk	Cream	
1918	865	.....	.....	1926	7,386	5,374	59
1919	2,753	931	.....	1927	4,493	4,843	65
1920	2,521	1,597	.....	1928	5,499	3,621	125
1921	2,579	2,034	.....	1929	4,246	2,970	180
1922	2,023	2,124	190	1930	1,837	1,585	189
1923	4,473	3,025	104	1931	612	79	101
1924	5,160	4,198	67	1932	105	118	36
1925	7,366	5,171	86				

[1] Not reported separately.

Source: U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

United States Imports and Exports of Milk and Cream, 1918-1932

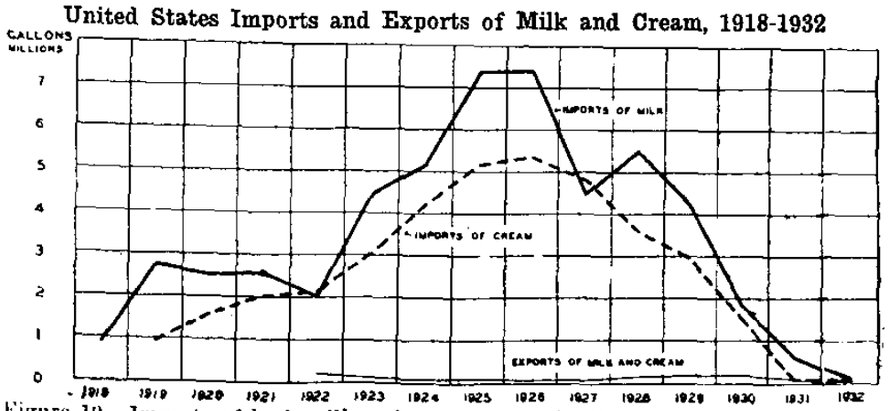

Figure 19. Imports of both milk and cream are insignificant when compared with the total domestic production, but these imports are concentrated in two or three large markets. Ordinarily the supply of fluid milk and cream in Boston, New York, and Philadelphia is scarce during the late summer and fall months, and until recent years this scarcity has been met largely by imports from Canada. In the past few years, however, an increasingly large part of the regular seasonal shortage of cream has been supplied by fresh cream shipments from the Middle West.

Recent Cream Duties. Table 37 shows wholesale prices per gallon of 40 per cent cream at New York and Montreal, by months, 1926-1931. For the years 1926, 1927, and 1928, New York cream prices averaged approximately 30 cents a gallon above Montreal prices. Thus the 1922 duty of 20 cents a gallon could not offset the differential between New York and Montreal prices and imports were relatively large.[16] Nor was it sufficient to equalize the cream duty with the 12-cent per pound duty on butter in effect during this period.

The cream duty was increased to 30 cents a gallon by presidential proclamation on May 14, 1929, (effective June 13, 1929) and to 56.6 cents a gallon in the Hawley-Smoot Tariff of June 18, 1930.

The present duty of 56.6 cents a gallon is approximately sufficient to equalize the cream tariff and the present 14-cent per pound duty on butter. It is also more than sufficient to offset the average differentials between New York and Montreal prices existing from 1926 to 1931. In no month since December, 1926, have New York prices been above Montreal prices by an amount equal to this rate. The present cream duty, with the small differentials existing since 1929, is high enough to prohibit significant imports.[17]

Benefits and Burdens of the Duties

The present duties on milk and cream have succeeded in restricting imports of these products to insignificant quantities. This shutting out of Canadian milk and cream from the eastern markets (the only significant deficit areas in the United States) simply means that the source of part of the required supply for these markets has been shifted from Canada to the mid-western dairy states. The problem thus becomes one of determining how and to what extent this shift, brought about largely by the duties, has been of benefit to American dairymen.

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[16] In 1926, 5,374,000 gallons of cream were imported into the United States. This is the largest on record. In 1927 imports dropped to 4,843,000 gallons in spite of an average differential of 42 cents a gallon between New York and Montreal prices, because of the embargo placed on Montreal milk and cream on account of the typhoid epidemic. Imports decreased further to 3,621,000 gallons in 1928 in spite of an average differential of 25 cents a gallon between New York and Montreal prices, principally because of the sanitary regulations of the Lenroot-Taber Act.

[17] New York cream prices averaged but 6 cents a gallon above Montreal prices in 1929 and 1930 and one cent above in 1931. 1½ million gallons were imported in 1930, only 79,000 gallons in 1931, and 118,000 gallons in 1932 as compared with an average importation of more than 4 million gallons annually during the three years 1926, 1927, and 1928.

TABLE 37

Wholesale Price per Gallon of 40 Per Cent Cream, by Months, at Montreal and New York, 1926-1931

Month	1926			1927			1928			1929		
	New York [1]	Montreal [2]	N. Y. over Mont'l	New York [1]	Montreal [2]	N. Y. over Mont'l	New York [1]	Montreal [2]	N. Y. over Mont'l	New York [1]	Montreal [2]	N. Y. over Mont'l
Average	**1.74**	**1.50**	**.24**	**2.01**	**1.59**	**.42**	**1.85**	**1.60**	**.25**	**1.77**	**1.71**	**.06**
January	1.75	1.70	.05	1.91	1.72	.19	1.91	1.48	.43	1.89	1.74	.15
February	1.75	1.70	.05	2.03	1.65	.38	1.83	1.48	.35	1.97	1.80	.17
March	1.67	1.64	.03	1.96	1.81	.15	1.91	1.70	.21	1.92	1.84	.08
April	1.51	1.64	–.13	1.96	1.60	.36	1.79	1.65	.14	1.79	1.83	–.04
May	1.59	1.39	.20	1.71	1.56	.15	1.75	1.45	.30	1.71	1.57	.14
June	1.66	1.48	.18	1.67	1.48	.19	1.71	1.53	.18	1.71	1.57	.14
July	1.59	1.35	.24	1.63	1.39	.24	1.75	1.56	.19	1.66	1.63	.03
August	1.63	1.35	.28	1.63	1.48	.15	1.83	1.60	.23	1.73	1.66	.07
September	1.75	1.35	.40	1.83	1.60	.23	1.91	1.70	.21	1.82	1.70	.12
October	1.83	1.39	.44	1.87	1.65	.22	1.87	1.65	.22	1.80	1.74	.06
November	2.00	1.45	.55	1.96	1.56	.40	2.00	1.70	.30	1.68	1.74	–.06
December	2.16	1.60	.56	2.03	1.56	.47	1.96	1.70	.26	1.61	1.74	–.13
	1930			1931								
Average	**1.42**	**1.36**	**.06**	**1.07**	**1.06**	**.01**						
January	1.42	1.62	–.20	1.08	1.32	–.24						
February	1.39	1.58	–.19	1.07	1.36	–.29						
March	1.44	1.48	–.04	1.09	1.36	–.27						
April	1.50	1.42	.08	.98	1.28	–.30						
May	1.36	1.30	.06	.88	.88	0						
June	1.27	1.22	.05	.87	.85	.02						
July	1.37	1.22	.15	.94	.93	.01						
August	1.52	1.22	.30	1.06	.97	.09						
September	1.56	1.30	.26	1.24	1.00	.24						
October	1.57	1.34	.23	1.30	1.00	.30						
November	1.40	1.34	.06	1.17	.93	.24						
December	1.24	1.30	–.06	1.14	.85	.29						

Sources:

[1] The prices of domestic and Canadian cream are based on the price of butter. The method of computation is as follows: from the wholesale price of 92-score butter is subtracted 5 cents for manufacturing costs. The result is multiplied by 120 per cent for churn over-run. To the price of butterfat thus obtained is added 3.5 cents per pound as a premium for butterfat in sweet cream. New York butter prices are for 92-score and were secured from U. S. Department of Agriculture, Bureau of Agricultural Economics. For a discussion of method see U. S. Tariff Commission, **Report to the President of the U. S.: Milk and Cream**, p. 33.

[2] The prices for butterfat paid at Montreal are usually determined by subtracting from the price of No. 1 Montreal butter 3.5 cents for manufacturing costs. The resulting amount is then multiplied by 116.7 per cent for churn over-run. To the price of butterfat thus obtained 4.5 cents per pound is added as a premium paid for butterfat in sweet cream. Montreal butter prices are for "Creamery Solids" and were secured from the Dominion of Canada, Bureau of Labor, **Monthly Bulletin of Agricultural Statistics.**

Benefits to Eastern Dairymen. United States duties on milk and cream tend to benefit American producers situated close to the three large eastern markets—Boston, New York, and Philadelphia—whether or not they are sufficient to benefit mid-western dairymen. Even if the duties are not sufficient to cause this shift to the Middle West, and imports continue, it is logical to believe that imports under the duties would be somewhat less than would occur in the absence of any tariff barriers. Prices in eastern markets, especially during the late summer and fall months when domestic supplies are relatively smallest, should tend to maintain a differential above prices in foreign markets by the amount of the duties.

If the duties restrict imports enough to shift the source of supply to the Middle West, eastern dairymen will still tend to receive benefits, although these are not necessarily equal to the full amount of the duties. The cost of transporting cream from the Middle West to the eastern markets averages about 15 cents a gallon more than from Canada.[18] Consequently, any duty high enough to cause a shift to the Middle West will tend to raise prices in eastern markets by the amount of the differential in shipping costs. When this happens, shipments from the Middle West occur in sufficient quantities to meet the requirements of eastern markets. If the tariff is considerably higher than the transportation differential, supplies from the Middle West will replace Canadian shipments because importation will be unprofitable. This is exactly what has occurred in the past two years under the high milk and cream duties of the Hawley-Smoot Tariff of 1930. Eastern dairymen receive a benefit of about 15 cents a gallon from the 1930 cream duty—the average transportation differential between the Middle West and Canada.

This increase in cream prices is reflected in better milk prices, because the price of milk is determined largely by its butterfat content. Assuming an average butterfat content of 3.5 per cent, milk prices in eastern markets are increased by about 15 cents per hundred pounds.[19] Since about 12,000,000,000 pounds of milk are produced in the Boston, New York and Philadelphia regions,[20] the bene-

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[18] Shipping costs from the Middle West range from about $1.85 to $2.28 per 40-quart can in carload lots (8,560 quarts equals one car), compared with from 57.5 to 65 cents from Canadian border provinces to eastern United States markets, or a difference of from 13.7 to 16.3 cents a gallon.

[19] A gallon of 40 per cent cream weighs about 8.4 pounds, and contains, therefore, about 3.4 pounds of butterfat. 100 pounds of 3.5 per cent milk contain 3.5 pounds of butterfat. Consequently, the 15-cent per gallon benefit on cream increases the price of milk by about 15 cents per hundred pounds.

[20] U. S. Tariff Commission, **Report to the President of the United States: Milk and Cream**, p. 7.

fits to eastern dairymen from the cream duty amount to about $18,000,000 annually.

It is difficult to estimate the benefits from the milk duty because, even though the 6.5-cent duty keeps out appreciable importations, milk is not shipped to eastern markets from the Middle West. The restriction of imports means that the milk produced near the eastern markets, which would otherwise be skimmed for sweet cream, must be used as fluid milk; this increases the proportion of sweet cream which must be shipped from the Middle West to supply the demands of eastern markets; the milk duty, therefore, indirectly adds to the effectiveness of the cream rate, in securing better prices for eastern dairymen.

Benefits to Mid-Western Dairymen. The milk and cream duties have frequently been classified as nuisance tariffs on the ground that freight rates absorb any possible benefits to mid-western dairymen. This is largely true, particularly in the case of milk, but dairymen in the Middle West may benefit somewhat from better butter prices as a result of shipping to eastern markets cream which would otherwise be manufactured into butter. While this benefit cannot be quantitatively measured, the data available indicate that it is extremely small. If all imports of Canadian milk and cream during the period 1920-31 had been shut out, and the entire amount supplied from the Middle West, it would have removed, on the average, the equivalent of only 15 million pounds of butter from the butter market each year. This is less than .8 per cent of the United States annual domestic butter consumption.

Burdens to Consumers. Consumers living in Boston, New York, and Philadelphia pay about $18,000,000 a year more for their milk and cream than they would if no duties were in effect. This estimate is based on the transportation differential between the Middle West and Canada to eastern markets, which is about 15 cents per 100 pounds. More than 12 billion pounds of milk are consumed annually in these cities.

Conclusions

The present duties of 6.5 cents a gallon on milk and 56.6 cents a gallon on cream are sufficient to equalize the rates on dairy products, prevent the importation of butter and cheese in the form of cream or milk, and offset the differentials that have existed between domestic and Canadian milk and cream prices since 1926.

Producers in the Canadian border provinces have an advantage over Middle Western producers in transportation costs to the eastern markets of about 15 cents a gallon on cream, but the present cream duty more than offsets this advantage. As a result, the source of a part of the cream supply of eastern United States markets has shifted from Canada to the Middle West, netting a benefit to eastern dairymen of about 15 cents a gallon on cream, which, reflected in better milk prices, amounts to about $18,000,000 annually. Midwestern dairymen may have benefited to a very slight degree by better butter prices as a result of shipping to New England sweet cream which would otherwise have been manufactured into butter.

The present milk duty restricts imports to an insignificant amount and increases the amount of sweet cream which must be shipped from the Middle West to supply eastern demands. It complements the cream duty in securing better cream and milk prices for eastern dairymen.

The rates in the Hawley-Smoot Tariff were high enough virtually to shut out milk and cream imports into the United States in 1931 and 1932, and the shift to domestic supplies is almost complete. In view of these facts and the large potential supplies of midwestern milk and cream, it is obvious that any further increases in the duties would be entirely ineffective in raising cream or milk prices in eastern United States markets.

Chapter IX. Casein

Casein is one of the three major proteins of milk. In its pure state it is snow-white, odorless, and tasteless, although in its commercial form it is a yellowish-white substance. It is commercially prepared by adding dilute acids to skimmed milk or buttermilk, usually the former, and then heating to separate the curd from the whey.[1] Milk contains approximately 3 per cent casein, although only 2.75 per cent is commercially recoverable.

The Domestic Industry

Production. More than 40 billion pounds of skimmed milk and buttermilk are available from butter manufacture in the United States each year for potential casein production. Only about 1.5 billion pounds, or less than 4 per cent of the total skimmed milk available in the United States, was so used in 1930, when the domestic production was the largest ever recorded.

Domestic production increased from 8 million pounds in 1916 to 14 million pounds in 1919, then decreased to 7 million pounds in 1922. From that time, with the exception of 1925, production steadily increased, until in 1930 approximately 42 million pounds were produced. In 1931, 35 million pounds were produced (See Table 38 and Figure 20).

California, Wisconsin, New York, and Vermont together produced 82 per cent of the total domestic output in 1931. Most of the remaining 18 per cent was produced in Illinois, Idaho, Minnesota, Pennsylvania and Utah. The output of California and Wisconsin alone comprised two-thirds of the total.

Consumption. Casein finds a wide use in industry. The manufacture of coated paper takes 75 per cent of the total domestic consumption. The next most important use is as an adhesive in the manufacture of plywood veneer products, such as doors, desks, chests, and aeroplane propellors. The manufacture of such products as combs, brush backs, umbrella handles, buttons, cigarette holders, insecticides, paints, artists' colors, shoe polish, mucilage,

[1] See Eckles, C. H., Combs, W. B., and Macy, H., **Milk and Milk Products**, New York City, 1929, p. 27.

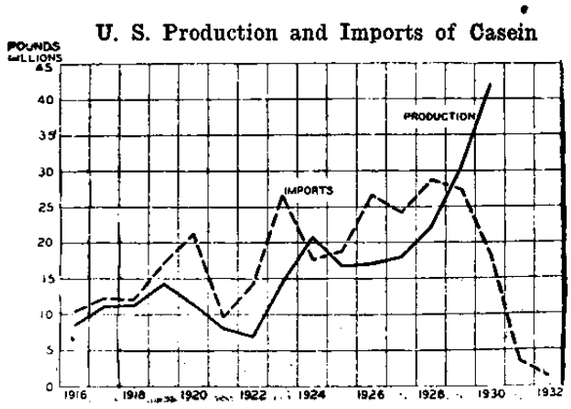

Figure 20. For several years the United States relied largely upon imports to meet its requirements in casein, only 46% of the amount consumed being supplied by domestic production during the 10 years 1921 to 1930. Since that time, however, our requirements have been met almost entirely by domestic production.

TABLE 38

United States Production, Imports, and Consumption of Casein, 1916-1932 (in pounds)

Year	Domestic production	Imports	Total Consumption	Production as percentage of consumption
1916	8,415,789	10,376,641	18,792,430	44.8
1917	11,055,595	12,319,111	23,374,706	47.3
1918	11,338,484	12,133,855	23,472,339	48.3
1919	14,407,394	17,076,936	31,484,330	45.8
1920	11,526,000	21,238,822	32,764,822	35.1
1921	8,076,000	9,717,238	17,793,238	45.4
1922	6,927,000	14,342,498	21,269,498	32.5
1923	14,548,000	26,489,992	41,037,992	35.5
1924	20,759,000	17,749,985	38,508,985	53.9
1925	16,660,000	18,803,816	35,463,816	47.0
1926	16,953,000	26,628,126	43,581,126	38.9
1927	18,033,000	24,209,504	42,242,504	42.7
1928	22,151,000	28,651,215	50,802,215	43.6
1929	30,537,000	27,583,339	58,120,339	52.5
1930	41,965,000	18,499,656	60,464,656	69.4
1931	35,335,000	3,503,249	38,838,249	90.9
1932	.....	1,201,014	.....	.....

Source: Production data from U. S. Department of Agriculture, Bureau of Agricultural Economics. Import data from U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

cement, medicines, paint removers, and diabetic foods accounts for a further proportion.[2]

Consumption in the United States totalled 60 million pounds in 1930. This is the largest amount on record and exceeds the 1929 figure by 2 million pounds. During the four years 1923-1926, annual consumption averaged 38.5 million pounds, while during the four years 1927-1930, the average was 53 million pounds, an increase of 38 per cent.

Competition

For several years the United States relied to a considerable extent upon imports to meet its requirements in casein. During the 10 years 1921-1930, only 46 per cent of the amount consumed was supplied by domestic production. However, domestic production increased from 22 million pounds in 1928 to 42 million pounds in 1930 and 35 million pounds in 1931, whereas imports declined from nearly 29 million to 3.5 million pounds for the same years. In 1932 only one million pounds were imported and the United States met its requirements almost entirely by domestic production. No domestic exports of casein are recorded.

Argentine Competition. Before the World War most of our casein imports came from France, but in recent years the source has shifted to Argentina. While small imports are recorded from England, France, Holland, Australia, New Zealand, and some other countries, approximately 80 per cent comes from Argentina. Domestic production is largest in the spring and summer months, while imports are usually greatest during the fall and winter months because of the difference in seasons in the United States and Argentina. Most of Argentina's production is exported, chiefly to the United States.

Domestic casein is made from skimmed milk, but this latter is usually more profitably used in the manufacture of condensed or powdered milk, and cheese. In regions of large hog production skimmed milk is most profitable as hog feed, so that very little casein is produced. In Argentina, casein is the only product made directly from skimmed milk. Argentina raises relatively few hogs compared with the United States and, consequently, casein production encounters neither so many nor so vigorous competitors as it does in the United States.

[2] For a discussion of the uses of casein see U. S. Tariff Commission, **Report to the President of the U. S.; Casein**, Washington, D. C., 1926.

Our eastern and middle-western producers possess an advantage over Pacific Coast producers in their proximity to such large consuming centers as Kalamazoo, Michigan, and Holyoke, Massachusetts. Although Pacific Coast producers have an outlet in the plywood veneer manufactures in Oregon and Washington and in the manufacture of spray insecticides on the Pacific Coast,[3] considerable quantities of California casein are shipped to eastern markets, either by rail or by water. The rates from San Francisco to New York via the Panama Canal amount to about 50 cents per 100 pounds, while the rate by rail is about 2.5 times that amount.[4]

Shipping costs from Argentina to Kalamazoo, the largest American consuming center, are as much as 60 cents per hundredweight more than from San Francisco to Kalamazoo.[5] The transportation differential in favor of eastern and mid-western over Argentine producers is considerably greater than this, ranging anywhere from $1.40 for New York producers to as much as $1.88 for Michigan producers.

Substitutes. When the price of casein is high or a shortage exists, starch products and hide glue may be substituted in coated paper manufacture. While they may lower the quality of the paper,[6] they may be used under unusual circumstances, and they tend to make the demand for casein relatively more elastic and to limit the extent to which its price can be raised by increasing the duty.

During the hearings in Congress in 1929 on the proposed tariff rate of 8 cents a pound, many large publishers testified that they would shift from casein-coated to supercalendered paper if the 8-cent duty were imposed. Some publications had already changed to supercalendered paper by the fall of 1929 because of the high prices

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[3] U. S. Tariff Commission, **Report to the President of the United States: Casein**, pp. 8 and 9.

[4] The U. S. Tariff Commission found the freight rate on casein in carloads to be $1.28 per 100 pounds. (See the Commission's Report to the President, **Casein**, p. 9.)

[5] The U. S. Tariff Commission in 1922 found the costs of transporting Argentine casein from Buenos Aires to Kalamazoo totaled $1.88 per 100 pounds. These costs were divided as follows: cartage and rail freight from factory to ship (most of the Argentine casein factories are located from 100 to 200 miles from Buenos Aires), 80 cents per 100 pounds; ocean freight from Buenos Aires to New York, 30 cents per 100 pounds; export charges, insurance, consular fees, and brokerage, 30 cents per 100 pounds; and rail freight from New York to Kalamazoo, 48 cents per 100 pounds. (See the Commission's Report to the President, **Casein**, p. 9.)

[6] It is practically the unanimous opinion of the coated paper manufacturers that substitutes do not maintain the quality of paper that is demanded by the printer and publisher. (See U. S. Tariff Commission, **op. cit.**, p. 9.)

of casein at that time.[7] In the face of such substitution a duty which raised the price of casein to very high levels might kill the American casein industry. A duty which gives Americans some protection from foreign producers and yet does not raise prices to the point where publishers abandon its use is more beneficial than a much higher rate. It is interesting to note that on final passage the Hawley-Smoot Tariff carried a rate of 5.5 and not 8 cents a pound on casein.

Adhesives made from flour and hide glue can be used as casein substitutes by the plywood veneer manufacturers. The use of seed meal glues for woodworking purposes has displaced casein to the extent of some 8 to 10 million pounds a year.[8]

Prices of Casein at New York and Manchester, Eng.

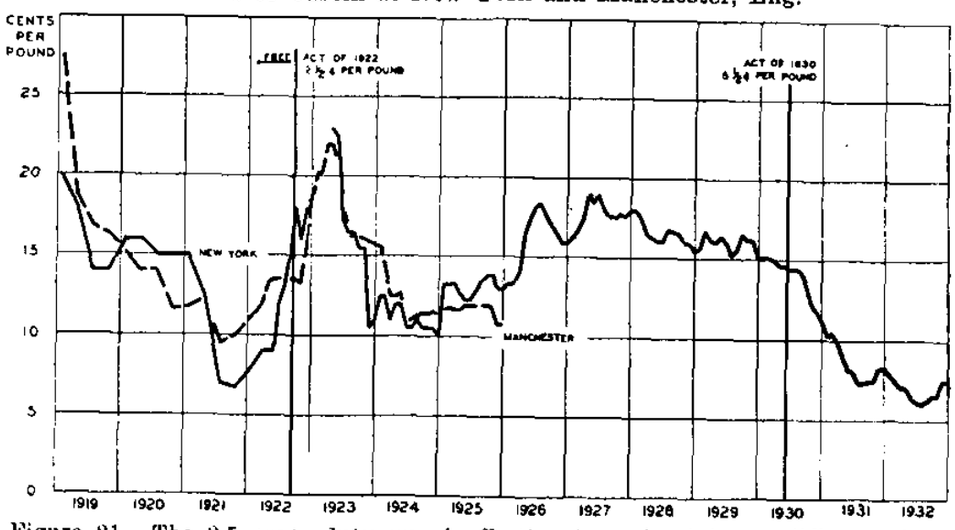

Figure 21. The 2.5 cents *duty was ineffective in maintaining a differential of* domestic above foreign casein prices. The increase in the duty to 5.5 cents in June 1930 has been effective in virtually prohibiting imports and in bringing about an increase in domestic production to meet domestic requirements. The large drop in domestic prices during the past three years is due largely to the fall in the general price level accompanying the business depression.

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[7] Senator Smoot before the Senate on October 24, 1929, in pointing out the possible results if an 8-cent duty were imposed, presented: (1) a list of 11 publications which had recently *changed to supercalendered paper*, (2) a *list of 24* publications which would change to supercalendered paper in the event an 8-cent duty were passed, and (3) a list of 37 publications which would seriously consider a change to supercalendered *paper if the casein duty were increased. These* lists were compiled by the National Publishers' Association and represent only a part of the publications which use or have used coated paper.

[8] Statement of Mr. A. F. Grignon, Vice President and General Manager of the Casein Manufacturing Company of America, in a letter to the author dated March 15, 1932.

TABLE 39

Prices of Casein at New York, and Manchester, England, 1919-1932

(c per lb.)

	1919		1920		1921		1922		1923		1924		1925				1926—New York		
													New York						
	New York	Man-ches-ter	New York	Man-ches-ter	New York	Man-ches-ter	New York	Man-ches-ter	New York	Man-ches-ter	New York	Man-ches-ter	20-30 mesh	80-100 mesh	Ave.	Man-ches-ter	20-30 mesh	80-100 mesh	Ave.
Ave.	16.50	19.80	15.50	13.75	10.33	10.88	12.40	13.50	16.50	18.40	11.13	12.17	12.67	13.50	13.09	11.67	15.6	16.8	16.20
Jan.	20.00	27.63	16.00	15.25	15.00	11.75	8.00	11.25	nomin'l	20.25	12.50	15.53	12.50	14.00	13.25	11.66	12.8	13.8	13.30
Feb.	.....	.....	.....	.....	.....	.....	8.50	11.50	no stk.	20.25	12.50	13.88	12.50	14.00	13.25	11.77	12.9	13.8	13.35
Mar.	.....	.....	.....	.....	.....	.....	9.00	12.00	" "	22.00	11.00	12.47	13.00	13.75	13.38	11.69	13.4	14.6	14.00
Apr.	18.00	18.75	16.00	14.00	12.50	12.25	9.00	13.25	23.00	22.00	12.00	12.48	12.50	13.50	13.00	11.73	15.8	17.1	16.45
May	.....	.....	.....	.....	.....	.....	9.00	13.50	22.50	20.75	12.00	12.72	12.00	12.50	12.25	11.90	16.9	18.1	17.50
June	.....	.....	.....	.....	.....	.....	12.00	13.50	17.50	.....	10.50	10.96	12.00	12.50	12.25	11.94	17.4	18.9	18.15
July	14.00	16.75	15.00	14.13	7.00	9.50	13.00	13.50	16.50	16.38	10.50	11.00	12.50	13.00	12.75	11.93	17.6	19.1	18.35
Aug.	.....	.....	.....	.....	.....	.....	15.00	13.50	16.50	16.25	11.00	11.22	13.00	14.00	13.50	11.93	17.0	18.4	17.70
Sept.	.....	.....	.....	.....	.....	.....	18.00	13.50	15.50	16.25	10.50	11.43	13.50	14.00	13.75	11.92	16.3	17.8	17.05
Oct.	14.00	16.25	15.00	11.63	6.75	10.00	16.00	13.25	15.50	16.13	10.50	11.36	13.50	14.00	13.75	11.89	15.8	17.3	16.55
Nov.	.....	.....	.....	.....	.....	.....	18.00	16.00	10.50	15.88	10.50	11.57	12.50	13.50	13.00	10.82	15.4	16.4	15.90
Dec.	.....	.....	.....	.....	.....	.....	nomin'l	18.50	11.00	15.75	10.00	11.39	12.50	13.50	13.00	10.81	15.6	16.1	15.85

	1927—New York			1928—New York			1929—New York			1930—New York			1931—New York			1932—New York		
	20-30 mesh	80-100 mesh	Ave.	20-30 mesh	80-100 mesh	Ave.	20-30 mesh	80-100 mesh	Ave.	20-30 mesh	80-100 mesh	Ave.	20-30 mesh	80-100 mesh	Ave.	20-30 mesh	80-100 mesh	Ave.
Ave.	17.4	18.2	17.80	16.2	16.8	16.50	15.6	16.2	15.90	13.1	14.7	13.90	7.7	9.1	8.4	6.3	7.5	6.9
Jan.	16.0	16.6	16.30	17.5	18.4	17.95	15.5	15.8	15.65	14.7	15.4	15.05	9.2	12.2	10.2	7.5	8.2	7.9
Feb.	16.1	17.2	16.65	17.0	18.0	17.50	16.5	17.0	16.75	14.5	15.8	15.15	9.0	11.8	10.4	7.1	7.9	7.5
Mar.	16.9	17.9	17.40	16.1	16.8	16.45	15.9	16.4	16.15	14.4	15.6	15.00	8.6	10.9	9.8	6.6	7.8	7.2
Apr.	18.8	19.1	18.95	16.1	16.5	16.30	16.0	16.2	16.10	13.9	15.4	14.65	8.0	9.5	8.8	6.3	7.6	7.0
May	18.6	19.1	18.85	15.7	16.4	16.05	16.0	16.8	16.40	14.0	15.4	14.70	7.4	8.8	8.1	5.5	7.5	6.5
June	18.5	19.3	18.90	15.8	16.3	16.05	15.5	16.4	15.95	13.8	15.1	14.45	7.2	8.8	8.0	5.5	7.0	6.3
July	17.6	18.5	18.05	16.6	16.9	16.75	14.8	15.5	15.15	13.8	15.1	14.45	6.8	7.8	7.3	5.4	6.5	6.0
Aug.	17.2	18.0	17.60	16.4	16.9	16.65	15.5	15.7	15.60	13.5	15.0	14.25	6.8	7.8	7.3	5.5	7.0	6.3
Sept.	17.1	18.0	17.55	16.2	17.0	16.60	15.7	16.4	16.50	12.9	14.4	13.65	6.9	7.8	7.4	6.1	7.2	6.7
Oct.	17.3	18.2	17.75	15.2	16.8	16.00	15.8	16.6	16.20	11.2	13.6	12.40	7.0	7.8	7.4	6.2	7.2	6.7
Nov.	17.1	18.2	17.65	15.6	16.3	15.95	15.8	16.6	16.20	10.4	13.2	11.80	7.5	8.2	7.8	7.2	8.2	7.7
Dec.	17.7	18.3	18.00	15.2	15.6	15.40	14.8	15.4	15.10	9.9	12.2	11.05	7.5	8.2	7.9	7.2	8.2	7.7

Source: 1919-1925 data taken from U. S. Tariff Commission, Report to the President of the U. S., **Casein**, 1926. New York prices, 1926-1932, secured from U. S. Department of Agriculture, Bureau of Agricultural Economics.

Effects of Recent Duties

Casein was on the free list in both the 1909 and 1913 tariff acts, but was made dutiable at 2.5 cents per pound in the Fordney-McCumber Tariff of 1922.

The 1922 Tariff. Figure 21 shows prices of casein in Manchester, England, from 1919 to 1925 and in New York from 1919 to 1932. It is evident that the 2.5-cent duty was not effective in maintaining a differential between domestic and foreign prices (see Table 39).

Both domestic production and imports increased during the years 1922-1929 under the 1922 duty. Approximately four times as much casein was manufactured and nearly twice as much was imported by the United States in 1929 as in 1922.

The Tariff of 1930. The Hawley-Smoot Tariff of June, 1930, increased the duty on casein to 5.5 cents a pound. Under this duty domestic prices have fallen, domestic production has greatly increased, and imports have greatly decreased.

Prices of domestic casein (20-30 mesh) at New York declined from 16.5 cents a pound in February, 1929, to 5.4 cents a pound in July, 1932. This 70 per cent drop is due largely to the fall in the general price level accompanying the business depression in the United States.

The increase in the duty, combined with the great drop in domestic casein prices, caused imports to drop from 27.5 million pounds in 1929 to one million pounds in 1932. Imports for the first 6 months of 1930, when the 2.5-cent duty was in effect, totalled 16 million pounds, whereas only 2.5 million pounds were imported during the last 6 months of that year under the 5.5-cent duty. The record domestic production of 42 million pounds in 1930, approximately twice the average production of the preceding five years, and the output of 35 million pounds in 1931, indicates that domestic supplies have largely replaced imports in meeting domestic requirements.

Benefits and Burdens of the Duties

Benefits to Dairymen. Those who favor a high duty on casein claim that if imports were kept out more than a billion pounds of skimmed milk would find an outlet in the manufacture of casein, which in turn would increase the value of milk products and raise the price paid to milk producers.

Imports during 1931 and 1932 were 24 and 26 million pounds respectively less than in 1929. During each of these 2 years about a billion pounds of skimmed milk, or approximately 10 per cent of

the amount thrown away or not utilized in the United States annually,[9] would have been required to produce this casein. If the United States in 1931 and 1932 had consumed as much casein as in 1929, and this additional 24 and 26 million pounds had been manufactured entirely from skimmed milk now wasted, the total value of all the milk products in the United States would have been increased by about $2,016,000 in 1931 and by about $1,800,000 in 1932.[10] These sums represent the maximum possible benefits which American dairymen could have secured from the 1930 casein duty. It seems plausible that the actual benefits were considerably less than this for the following reasons: (1) the decline in domestic demand in 1931 and 1932, coincident with the business depression, reduced domestic consumption of casein to such an extent that the increase in domestic production did not equal the reduction in imports; (2) the great decline in domestic casein prices was a contributing factor in checking imports, so that the decrease of 24 and 26 million pounds was not by any means due solely to the 3-cent increase in the duty; (3) manufacturing costs take a portion of this $2,016,000 and $1,800,000; and (4) the increased domestic output probably was not all made from skimmed milk before wasted, but in part from milk that otherwise would have been used for another, though possibly less profitable purpose.

However, even assuming that 2 million dollars represents a fairly accurate estimate of the average increase in the value of all milk products in the United States in 1931 and 1932 attributable to the 1930 casein duty, there still remains the question of how much the duty actually raised the prices paid producers for their milk.

The estimated value of milk products made in the United States annually is about 3 billion dollars. The 2-million dollar average increase in 1931 and 1932 attributable to the casein duty is less than .07 per cent of the total value of all milk products. The average price paid New York farmers for milk was $1.74 per hundred pounds in 1931 and $1.20 in 1932.[11] Since .07 per cent of this might possibly be attributed to the casein duty, farmers in New York received, on this basis, about .13 and .08 more per hundred pounds for their milk in 1931 and 1932, respectively, than they would have received without the duty. Farm prices for milk average higher in New

[9] U. S. Department of Agriculture, Bureau of Agricultural Economics, estimate.

[10] The average price of domestic casein (average of 20-30 mesh and 80-100 mesh) at New York was 8.4 cents per pound in 1931 and 6.9 cents in 1932.

[11] As reported by the Dairymen's League and taken from New York State College of Agriculture, Farm Economics, February, 1933, p. 1827.

York than in most other states. Consequently the .13-cent and .08-cent benefits represent a very liberal measure of the benefits accruing to American dairymen from the casein tariff.[12]

While it is uncertain that the entire increase in the value of milk products attributable to the casein duty is reflected to farmers in better milk prices, the casein duty may be beneficial in other ways. At certain times of the year the farmers may not be able to use skimmed milk on the farm, and would prefer to sell whole milk rather than just the cream. In such a case a creamery equipped to use the skimmed milk is in a better position to cater to its patrons than one not so equipped. Casein manufacture, which requires relatively inexpensive equipment, enables the small creamery which otherwise could not use the skimmed milk to compete for its business with its larger competitors who make powdered and other skimmed milk products.

Burdens to Consumers. Since about three-fourths of the total consumption of casein is used in the manufacture of coated paper, any increase in casein prices burdens the paper, printing, lithographing, electrotyping, and publishing industries. General business conditions have caused casein prices in the United States to decline approximately 70 per cent from the beginning of 1929 to the summer of 1932, so that it is impossible to demonstrate the price effects of the 1930 duty. The duty has been more influential in shutting out imports and replacing foreign with domestic supplies than in raising casein prices by the amount of the duty. It is very likely that casein prices would have fallen lower than they did during 1930, 1931 and 1932 if the duty had been 2.5 cents instead of 5.5 cents, or if no duty had been in effect. But while it is impossible to state just how much lower prices would have been, it is unlikely that they would have been enough lower to burden consumers in proportion to the 2 million dollar average benefit received by producers, since the completeness of the shift from imports to domestic supplies indicates that domestic prices did not rise by the amount of the duty and importation was unprofitable.

Much has been said by casein users regarding the comparative qualities of the Argentine and the domestic product. Reliable authority indicates that casein of a quality equal to that made in Argentina can be made in the United States, so that domestic consumers

[12] In Wisconsin, the leading casein producing state, farm prices of milk in 1931 averaged $1.62 per hundred pounds, or 12 cents less than the average in New York. See Wisconsin Crop and Livestock Reporting Service, **Wisconsin Dairying**, Bulletin No. 120, Madison, Wisconsin, p. 36.

need not incur added burdens from the casein duty because of the inferiority of the domestic product.[13]

Conclusions

The 5.5-cent casein duty since its passage in June, 1930, has been effective in virtually prohibiting imports and in bringing about an increase in domestic production to meet domestic requirements. The maximum possible benefit which American dairymen secured from this reduction in imports and increased home production amounted to not more than 2 million dollars annually in 1931 and 1932.

This 2 million dollar benefit is less than .07 per cent of the total value of all milk products. Consequently the 1930 casein tariff is not a very significant factor in making for a more profitable utilization of skimmed milk. With the farm milk prices existing in 1932, the casein duty, assuming that the entire benefit was reflected to producers in better milk prices, enabled American dairymen to get about .08 cent per hundred pounds more than they would have received without the duty.

Only one million pounds of casein were imported in 1932. Under the present virtually prohibitive duty, with domestic prices depressed to low levels because of the depression, and large quantities of skimmed milk wasted every year, it becomes obvious that any further increases in the duty at this time would not increase domestic casein prices or the income of American dairymen. Even with improved business conditions and better domestic prices, the benefits accruing to American dairymen from the present duty or any increases in it are likely to be comparatively small.

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[13] Mr. A. F. Grignon, Vice President and General Manager of the Casein Manufacturing Company of America, in a letter to the author dated March 15, 1932, states that, "We have used at times several million pounds of Argentine casein per year so that we are thoroughly familiar with the quality of that product and we can say upon the best of authority that the Argentine casein runs good, bad, and indifferent in quality, the same as the domestic casein product does. There is as good casein made in the United States as in the Argentine and this country has received large quantities of second grade Argentine casein. It may be said that there has been a great improvement in the quality of the casein made in the United States during the last three years, and there is no reason why the percentage of good casein made in this country should not continue to increase."

Chapter X. Other Dairy Products

The effects of tariffs on butter, Cheddar and Swiss cheese, milk, cream, and casein prices have been discussed in the foregoing pages. Other dairy products, including condensed and evaporated milk, whole milk powder, cream powder, skimmed milk powder, malted milk, and milk sugar, carry specific rates in the Hawley-Smoot Tariff of 1930. Import and export data for this group are combined under the headings "condensed", "evaporated", and "powdered" milk. The only difference between condensed and evaporated milk is that the former is sweetened and the latter unsweetened. Therefore, the discussion in this chapter will be under two principal heads: (1) condensed and evaporated milk, and (2) milk powders.

Condensed and Evaporated Milk

The Domestic Industry. Approximately as much milk is used annually in the United States in the manufacture of condensed and evaporated milk as in the manufacture of cheese. The general trend of condensed milk manufacture has been downward since 1919, decreasing from 605,161,000 pounds in that year to 285,474,000 pounds in 1931. The trend of evaporated milk manufacture for the same years has been definitely upward, increasing from 1,234,202,000 pounds in 1919 to 1,735,214,000 pounds in 1930. Production in 1931 totalled 1,684,533,000 pounds.

Competition. The domestic industry is on a decided export basis although exports have declined greatly since the War, when prepared milk products were in great demand to make up the deficit in European production. Exports of condensed milk declined from 607,457,000 pounds in 1920 to 11,501,745 pounds in 1932, and of evaporated milk during the same period from 101,006,000 to 39,305,309 pounds. Imports of condensed milk totalled only 699,000 pounds and those of evaporated milk only 489,000 pounds in 1932.

With insignificant imports and comparatively large exports, it is obvious that the United States can and does meet competition on a world market basis. "The United States has been a leader in the development of the condensed and evaporated milk and milk powder

industry. Methods have been invented and perfected, and machines of all sorts have been developed here to an extent unequalled in any other country. The fact that a large part of the various processes are carried through by means of automatic machinery, and that the labor cost is such a relatively small percentage of the total cost (about 10 per cent) is a considerable advantage to American producers when competing with European manufacturers even though their labor costs may be somewhat less. The largest items of expense are milk, sugar, and cans, and American manufacturers are not at a disadvantage, relative to their competitors in foreign countries with respect to the price and supply of these materials".[1]

TABLE 40

United States Production, Exports, and Imports of Condensed and Evaporated Milk, 1918-1932 (In thousand pounds)

Year	Condensed Milk			Evaporated Milk		
	Production	Exports	Imports	Production	Exports	Imports
1918	452,097	528,759[a]	29,927[a]	1,100,050	[b]	[c]
1919	605,161	728,741[a]	20,184[a]	1,234,202	[b]	[c]
1920	363,911	607,457[a]	19,081[a]	1,052,347	101,006[a]	[c]
1921	222,308	147,732[a]	19,273[a]	1,101,317	114,936[a]	[c]
1922	260,748	56,804	2,037[a]	1,019,997	130,692	[c]
1923	240,918	57,378	7,276[a]	1,344,528	136,887	[c]
1924	234,710	64,025	4,714	1,272,527	142,284	1,738[a]
1925	231,565	42,707	3,988	1,316,012	105,056	633
1926	210,681	38,711	343	1,245,309	75,838	1,320
1927	201,023	34,981	506	1,375,169	68,047	2,117
1928	333,826	38,763	1,131	1,584,601	76,789	1,478
1929	401,718	41,243	620	1,804,930	68,943	2,014
1930	345,110	29,648	1,401	1,735,214	60,811	210
1931	285,474	19,324	619	1,684,533	55,761	625
1932	.....	11,502	699	.....	39,305	489

[a] Year ending June 30.

[b] Domestic exports of evaporated milk combined with condensed prior to 1920.

[c] Imports not recorded prior to 1924.

Source: Production data from U. S. Department of Agriculture, Bureau of Agricultural Economics. Export and import data from monthly and annual reports of the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

Effects of the Duties. The Hawley-Smoot Tariff of 1930 placed a duty of 1.8 cents a pound on evaporated milk and 2.75 cents a pound on condensed milk. It is difficult to show the need for the duties, since the United States industry is on a decided export basis in both of these products. The present rates are sufficient to keep out imports, which at present are insignificant, and also to equalize

[1] U. S. Tariff Commission, **Tariff Information Surveys: Dairy Products**, Washington, D. C., 1921, p. 79.

the duties on fresh milk, cream, and butter. They are useless as far as increasing domestic prices or benefiting the dairy industry are concerned, and an increase would prove worthless.

Milk Powders

The Domestic Industry. Of the powders manufactured in the United States in 1931, powdered skimmed milk is the most important. In 1931, 261,938,000 pounds were manufactured, as compared with 50,535,000 pounds of buttermilk, 19,197,000 pounds of malted milk, 12,627,000 pounds of whole milk, 9,562,000 pounds of milk sugar, and 161,000 pounds of cream.

Most of the powdered milk manufactured is made from skimmed milk, because it keeps better than that which contains butterfat. Powdered whole milk is likely to become rancid unless refrigerated. Milk powders are used in the manufacture of oleomargarine, ice cream, confections, and baked goods.

Competition. Import data show milk powders as dried and malted milk, and export data as dried milk and cream. Separate data are not recorded.

Since 1927 the United States has annually exported more powdered milk and cream than she has imported. In 1931 these exports totalled 12,790,000 pounds, while imports of both dried and malted milk totalled but 1,134,000 pounds. In 1932 exports totalled 1,903,993 pounds and imports 596,448 pounds. Obviously the United States can and does meet competition in the manufacture of milk powders on a world market basis.

TABLE 41

United States Production, Exports, and Imports of Powdered Milk and Cream, 1922-1932
(In thousand pounds)

Year	Production		Exports Milk & Cream[a]	Imports Milk & Cream[a]
	Milk	Cream		
1922	5,599	118	6,190	[b]
1923	6,560	328	2,437	[b]
1924	7,887	1,018	5,529	1,870
1925	8,931	339	3,649	5,430
1926	10,768	331	2,661	5,224
1927	11,464	338	3,326	6,828
1928	9,605	673	4,016	3,895
1929	13,202	294	5,342	4,186
1930	15,440	400	6,223	2,603
1931	12,627	161	12,790	1,134[c]
1932			1,904	596[c]

[a] Not reported separately.

[b] Not reported prior to January 1, 1924.

[c] Includes malted milk.

Source: Production data from U. S. Department of Agriculture, Bureau of Agricultural Economics. Export and import data from monthly and annual reports of the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

Effects of the Duties. The Hawley-Smoot Tariff of 1930 placed a duty of 6.5 cents a pound on powdered whole milk, 12.33 cents a pound on powdered cream, 3 cents a pound on powdered skimmed milk or powdered buttermilk, and 20 per cent ad valorem on malted milk and milk sugar. These duties, while sufficient to keep imports considerably below exports, are not prohibitive. They are sufficient to equalize the duties on fresh milk and cream, butter, and other dairy products. If they were raised high enough to be prohibitive, the benefits to the dairy industry would still be insignificant, since it would require only .02 per cent of domestic milk production to manufacture the powdered milk imported in 1932, and the present exports could be diverted to domestic use if imports were prohibited.

Conclusions

Whatever benefits American dairymen secure from the tariff are virtually all secured from the butter, cheese, milk, cream, and casein duties. These benefits have been discussed in Chapters II to IX, inclusive, and are summarized in Table 42. The duties on all other dairy products, including condensed and evaporated milk, powdered whole milk, cream, skimmed milk, buttermilk, malted milk, and milk sugar appear to be ineffective because the United States competes in the world market in these products, especially in condensed and evaporated milk. However, even if the duties on milk powders, particularly cream powder and milk sugar,[2] were fully effective, the total benefits would be insignificant compared with those secured from the butter, cheese, milk, and cream duties because of the minor position of milk powders in the domestic dairy industry.

[2] Available export and import data indicate that the United States is on a decided export basis, or is at least not subjected to noticeable competition from foreign countries in powdered whole milk, skimmed milk, buttermilk, or malted milk.

TABLE 42

Estimated Benefits Secured by American Dairymen from the Various Tariffs on Dairy Products, 1932

Product	1930 duty	Benefits	Benefits as % of total farm income from product
Butter	14.0c lb.	$74,655,000	12.0
Cheddar cheese	7.0c lb.	9,687,000	21.7
Swiss cheese	7.0c lb.	1,344,000[a]	12.5
Milk and Cream	6.5c gal. / 56.6c gal.	18,000,000	12.5[b]
Casein	5.5c lb.	1,800,000[c]	74.2
Other[d]		Negligible[e]	

[a] Estimated for 1932 from data for last six months of 1930. 1931 and 1932 data not available.

[b] Represents percentage of total farm income from milk and cream in the three eastern regions (Boston, New York and Philadelphia). Total farm income in these regions calculated by multiplying average yearly milk production (about 12 billion pounds) by the average price paid New York farmers for milk in 1932 as reported by the Dairymen's League ($1.20 per hundred pounds).

[c] Based on 1931 production of approximately 35 million pounds.

[d] Includes condensed and evaporated milk, powdered whole milk, cream, skimmed milk and buttermilk, malted milk, and milk sugar.

[e] The United States competes in the world market in all of these products, except possibly in cream powder and milk sugar, for which there are no separate import and export data available. However, these products hold a minor position in the United States dairy industry.

Source: All of the above benefits have been calculated by the price differential method, i. e., by multiplying the domestic production by the differential which existed between prices at home and abroad, with due allowance for transportation and other costs. Thus determined, the benefits shown above represent the maximum possible and not necessarily the actual benefits. However, for reasons pointed out throughout this study and particularly in Chapter III, they are the best available estimates of the actual benefits of the duties.