

- U.S. Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1970*. Electronic edition edited by Susan B. Carter et al. Cambridge: Cambridge University Press, 1997.
- U.S. Bureau of Labor Statistics. *Wholesale Prices, 1890–1920*, Bulletin No. 296. Washington, DC: GPO, 1922.
- U.S. Bureau of Manufacturing. *Daily Consular and Trade Reports*. Washington, DC: GPO, 1912–1914.
- U.S. Census Office. *Twelfth Census, 1900*, Vol. 5, *Agriculture*, pt. 1, *Farms. Live Stock and Animal Products*. Washington, DC: GPO, 1902.
- U.S. Consular Reports. "Fruit Culture in the Several Countries." Vol. 41 1/2 (June 1884). Washington, DC: GPO, 1884.
- U.S. Consular Reports. Washington, DC: GPO, various years.
- U.S. Department of Agriculture. *Yearbook*. Washington, DC: GPO, various years.
- U.S. Department of Agriculture. *Agricultural Statistics*. Washington, DC: GPO, various years.
- U.S. Department of Commerce. *Foreign Commerce and Navigation*. Washington, DC: GPO, various years.
- U.S. Department of Commerce and Labor, Bureau of Statistics. "Foreign Markets for American Fruits." *Special Consular Reports*. Vol. 32, House of Representatives, 58th Cong., 3rd Session, Doc. No. 74. Washington, DC: GPO, 1904.
- U.S. Department of Commerce and Labor, Bureau of Statistics. *Statistics of Foreign Commerce*. Washington, DC: GPO, 1909.
- U.S. House of Representatives, Committee on Ways and Means. *Tariff Hearings*. 54th Cong., 2nd sess., Vol. 1, Doc. No. 338. Washington, DC: GPO, 1897.
- U.S. House of Representatives, Committee on Ways and Means. *Tariff Hearings*. 60th Cong., 2nd sess., Vol. 4, Doc. No. 1505. Washington, DC: GPO, 1909.
- U.S. House of Representatives, Committee on Ways and Means. *Tariff Hearings*. 66th Cong., 3rd sess. Washington, DC: GPO, 1921.
- U.S. House of Representatives, Committee on Ways and Means. *Tariff Schedules and Hearings*. 62nd Cong., 3rd sess. Vol. 3, Doc. No. 1447. Washington, DC: GPO, 1913.
- U.S. House of Representatives. *Hearings on Tariff Readjustment, 1929*. 70th Cong., 2nd sess., Vol. 7. Washington, DC: GPO, 1929.
- U.S. Office of Foreign Agricultural Relations. *Fruit: United States Foreign Trade Related to Production, 1910–1949. A Statistical Handbook*. Foreign Agricultural Report No. 60. Washington, DC: GPO, June 1951.
- U.S. Senate. *Report on Wholesale Prices, on Wages, and on Transportation*. 52nd Cong., 2nd sess. Pts. 1 and 2. Washington, DC: GPO, 1893.
- U.S. Tariff Commission. *Grapes, Raisins, and Wines*. Report No. 134, Second series. Washington, DC: GPO, 1939.
- U.S. Tariff Commission. *Summary of Tariff Information, 1929 on Tariff Act of 1922, Schedule 7. Agricultural Products and Provisions*. Washington, DC: GPO, 1929.
- U.S. Tariff Commission. *The Acids of Paragraph 1 and Related Materials Provided for in the Tariff Act of 1913*. Tariff Information Series No. 13. Washington, DC: GPO, 1920.
- Wallschlaeger, F. O. *World's Production and Commerce in Citrus Fruits and Their By-Products*. Bulletin No. 11. Los Angeles: Citrus Protective League of California, 1914.
- Webber, Herbert, and Leon Batchelor. *Citrus Industry*. Berkeley: University of California Press, 1943.
- Wickson, Edward. *California Fruit*. San Francisco: Pacific Rural Press, 1900.
- Williamson, Jeffrey G. "Globalization, Convergence, and History." *this JOURNAL* 56, no. 2 (1996): 277–306.
- Zamagni, Vera. *Economic History of Italy, 1860–1990*. Oxford: Clarendon Press, 1993.

"If It's Yellow, It Must Be Butter": Margarine Regulation in North America Since 1886

RUTH DUPRÉ

The first domestic food to be regulated by the federal government in the United States, margarine had a unique regulation history. No other food product has been so harshly treated throughout the world. The American margarine policy up to the 1950s is generally considered remarkably severe. The Canadian policy was even more stringent and more enduring. The province of Quebec, and until very recently of Ontario, still prohibits the yellow coloring of margarine. This article compares the history of margarine regulation in the two countries and uses the interest-group theory of government to investigate why it was so stringent.

At first sight, margarine may seem a most innocuous product. Until quite recently the classic economics textbook's inferior good, it was a cheap, and many would add a poor, butter substitute consumed by those who could not afford the real thing. To supply a cheap and nutritive fat was indeed the purpose of its invention in 1869 by the French chemist Mège-Mouries under the sponsorship of Napoleon III. But instead of welcoming the invention, many governments gave it the treatment usually reserved for demerit goods such as alcohol, narcotics, or cigarettes.

This was especially the case in North America where the range and persistence of antimargarine measures are really amazing. In Canada, margarine was under total prohibition from 1886 until 1949. In the United States, margarine was legitimate as long as it was not sold yellow. Until 1950 its yellow coloring was subject to a highly discriminatory taxation by the federal government when it was not simply prohibited in many states. The last bans on color disappeared in the late sixties in the United States but not in Canada. The province of Ontario repealed it only in 1995 and the province of Quebec still has it now, albeit under heavy fire. The product may seem trivial, the issue is not. All those restrictions harmed margarine consumers who, for most of the period concerned, were low-income families to whom housekeepers wished to serve something which looked like butter but cost much less.

The Journal of Economic History. Vol. 59, No. 2 (June 1999). © The Economic History Association. All rights reserved. ISSN 0022-0507.

Ruth Dupré is Associate Professor at the École des Hautes Études Commerciales de Montréal, 3000 Côte Sainte-Catherine, Montréal (Quebec) Canada H3T 2A7. E-mail: ruth.dupre@hec.ca.

This research was funded by the Department of Research of the École des HEC. I owe many thanks to my colleagues, Denyse Dagenais, Robert Gagné, and Yvan Stringer for their help and advice. I also wish to thank the editors and anonymous referees. Alexandre LeLysour and Mylène Boucher provided very able research assistance.

Why were governments doing this? In both countries, they claimed they were acting in the *public interest* protecting consumers from a product injurious to health or against its fraudulent sale as butter. It does not seem as though margarine has ever been injurious to health.¹ Even in the 1870s it was not more dangerous than any food produced under the far from optimal conditions of the time. Many contemporary accounts were grossly exaggerated. As margarine was then made from cattle fatty residue that slaughterhouses used to send to candle and soap makers, it was not very difficult to fire the imagination.

The accusations of fraud were more founded. Margarine was very often sold as butter. Both were sold in bulk; it was virtually impossible to distinguish between the two by sensory examination and the price of margarine was about half the price of butter. In order to correct this market failure, governments were justified in imposing measures such as stamps and proper labeling.²

However, measures such as prohibition, bans on coloring, and the like could hardly be defensible on the same *public interest* grounds. There were obviously private interests at stake here. One of the first manufactured food products, margarine was viewed with suspicion and alarm, particularly by the dairy producers who immediately and loudly lobbied against it. In his study of technological change, Joel Mokyr stresses the rigidities frequently imposed by the groups losing in the innovation process. He offers many well-known historical examples of resistance such as printers, and tailors.³ Margarine would seem to be a further case of the political economy of technological change.

To investigate the government response to interest groups, the dominant approach among economists since George Stigler's seminal article of 1971 has been the economic theory of regulation. In the public choice tradition, this model of political behavior is based on self-interest. Political competition leads politicians to act in the interests of their constituents, and it is important to add, of their best-organized constituents. A very important feature of the political market is indeed that politicians tend to favor the policies that benefit well-organized and concentrated interest groups at the expense of the more diffuse interests of citizens or consumers.⁴ This is the perspective adopted here to explain the differences in margarine policies across regional (that is state and province) and federal governments in Canada and the United States since the mid-1880s.

¹ On this question, there is a consensus in the studies on margarine. See for instance the chapter on oleomargarine in Okun, *Fair Play*, or Snodgrass, *Margarine*.

² Those were indeed the policies adopted in permissive countries such as England, Holland, Norway, and Sweden and as we will see, in many American states. See Van Stuyvenberg, *Margarine*.

³ Mokyr, *Lever*, pp. 154, 178-79.

⁴ The classic articles are Stigler, "Theory"; and Peltzman, "Toward a More General Theory."

THE POOR'S BUTTER AND THE POLITICIAN'S BREAD: THE LEGISLATIVE HISTORY OF MARGARINE

In the United States

Introduced in North America in the mid-1870s, margarine was immediately controversial, possibly the most important food adulteration issue of the time.⁵ State governments were the first to act. By 1886, 27 states had some margarine legislation: 20 regulated labeling and packaging and seven downright prohibited its manufacture and sale. The bans often remained dead letter because there was no provision nor resources for enforcement. This led to pressures on the federal government to step in.

In 1886, after much struggle, the Congress passed the Oleomargarine Bill, which imposed a manufacturing tax of 2 cents per pound of margarine and annual license fees for manufacturers, wholesalers, and retailers of margarine of respectively \$600, \$480, and \$48. To evade those licenses, retailers sold margarine as butter whenever they could. Instead of solving the fraud problem, the federal bill seems to have intensified it. As a result, pressures shifted to the state legislatures to regulate the color of margarine. By 1900, 32 states had passed legislation to prohibit the yellow coloring of margarine, the most bizarre certainly being Vermont's in 1884, and New Hampshire's and West Virginia's in 1891 requiring that it be colored pink.

In 1902, after another fierce debate in both houses of the Congress, the 1886 Oleomargarine Act was amended in order to discriminate against colored margarine in the states where the colored product was not banned. The manufacturing tax was raised to 10 cents per pound on colored margarine and lowered to one-fourth cent per pound on the uncolored product. The wholesalers' and retailers' licenses were reduced to respectively \$200 and \$6 when they traded only in uncolored margarine. Officially at least, dealers in colored margarine practically disappeared. In 1914 there were 33 wholesalers and 954 retailers left who sold colored margarine as compared to 960 wholesalers and 62,606 retailers in uncolored margarine.⁶ The Bureau of Internal Revenue frequently complained that the law was quite difficult to enforce. The discovery in 1909 of hydrogenation, a method of extracting various vegetable oils that naturally carry a high degree of yellow coloring, made enforcement even more arduous as the 1902 legislation concerned only artificially colored margarine.⁷

⁵ This account of the state margarine policies is drawn from Snodgrass, *Margarine*, pp. 28-98; Mallory, "Oleomargarine Controversy"; and Riepmma, *Story*.

⁶ U.S. Internal Revenue Commissioner report cited in Wiest, *Butter Industry*, pp. 224-25. Some thirty years later, Mallory ("Oleomargarine Controversy," p. 636) writes that there were only 34 retailers in colored margarine left in the United States and that less than 2 percent of margarine was sold colored.

⁷ It is only in 1930 that naturally as well as artificially colored margarine was subject to the 10 cents a pound tax.

This restrictive environment was to last another forty years. Before the end of World War II, margarine was back on the political scene. This time, the debate dragged out over six years, four major hearings, and some 50 different aborted bills. The explosion of the price of butter in 1947 might have been the last straw and public opinion was alerted. The 1902 Oleomargarine Bill was repealed in the House in 1949 and in the Senate in 1950. Margarine had finally become a normal food product regulated like all the others under the Food and Drugs Act. State governments followed the movement. Bans on coloring began to disappear in the 1940s and were all gone by 1967, with their repeal in the two last strongholds of Minnesota and Wisconsin.

In Canada

The fabrication, sale, and import of margarine was totally prohibited from 1886 to 1949 with a brief interlude between 1917 and 1922. In 1886 the legislative debates were much less intense than in the United States and the Prohibition Act was ratified within a month. In 1917 the ban was lifted under the War Measure Act. When the war ended, faced with a sharp division in public opinion and in the House of Commons, the government played for time by allowing the manufacture and sale of margarine for one year at a time from 1919 to 1922. Prohibition was finally reinstated in 1923 on the grounds that the government had to respect its pledge to dairy farmers that the lift of the ban was a wartime measure.

The ban on margarine was not lifted during the second war because the government dealt with butter scarcity with price control and rationing. As in the United States, after the war, the butter supply remained tight and prices skyrocketed. Pressures intensified to repeal the prohibition of margarine. To the usual arguments—consumer interests and the propriety of margarine as an article of food—were added two new ones—the GATT and Newfoundland.⁸ In December 1948, the Supreme Court ruled that the prohibition of margarine should not be under federal jurisdiction because it was no longer an injurious product against which the population had to be protected.

From then on, margarine regulation became a provincial responsibility. Two provinces took over prohibition: Quebec until 1961 and tiny Prince Edward Island until 1965. All others, except Newfoundland and British Columbia, forbade “butter yellow” margarine. Most of those provinces allowed their regulations to lapse in the early 1970s with the exception of Ontario where the color of margarine was freed only in 1995. In Quebec,

⁸ The prohibition of margarine did not seem consistent with the GATT rules. It was also an obstacle to the entry of Newfoundland in the Confederation because Newfoundlanders had always left margarine free and wanted very much to keep it that way. The main reason may well be that Newfoundland's economy was based on fishing and that marine oil was used in the fabrication of local margarine, somewhat like Norway, a country with one of the most benign margarine policies.

that freedom lasted only 15 years from 1972 to 1987. It might be now the only place left in the world still regulating the color of margarine.

THE ECONOMICS OF MARGARINE POLITICS: THE TWO CASES

What explains the wide range of margarine policies across states, provinces, and federal governments in the two countries since 1886? Two cases are distinguished by an empirical model within the framework of the interest-group theory of regulation.

Case One: “Dairymen Against Housewives and Meatpackers”

Unsurprisingly, dairy producers were the driving force behind restrictive policies on margarine. They were the main, if not the only, losers in the diffusion of this new food product. Margarine could be manufactured at such a lower cost that it could, and was, sold at almost half its price. Table 1 shows the evolution over time of these relative prices and patterns of consumption per capita in the United States. As butter and margarine were not perfect substitutes, the large and increasing price differential did not mean that butter was wiped out of the market. Until the First World War, the average consumption of margarine remained marginal at less than 10 percent that of butter. But with the improvement in its quality and the decline in its relative price, margarine steadily gained ground until it overcame butter in the 1950s, just after the repeal of the 1902 Oleomargarine Bill.

Although there were hundreds of thousands of dairy producers, they were relatively well organized through local, state, and national dairy associations.⁹ The 1886 Oleomargarine Bill was largely a response to the great convention of the National Dairy Association. Meeting in New York in February 1886, dairy interests from 26 states launched a nationwide campaign to place the dairy industry on “an equal footing with its dangerous competitors” and flooded Congress with petitions (seemingly, more than 100,000 private petitions). In the same way, the idea of the 1902 discriminatory tax on colored margarine originated in the National Dairy Association and was first brought to Congress by Vermont Representative W. W. Grout in 1899. In the 1940s the same groups were the main opponents to the “normalization” of margarine legislation.

In Canada, the official purpose of the 1886 Prohibition Act of Margarine was to protect the population from a product injurious to its health. The

⁹ Relative to other farmers. In their study of American agricultural policies in the 1920s, Hoffman and Libecap (“Institutional Choice”) found that producers of agricultural commodities with high degrees of geographical concentration and perishability such as milk or citrus fruits were better able to reach voluntary agreements than the producers of wheat or cotton. In the case of milk, this has long been recognized. See, for instance, Erdman, *Marketing*.

TABLE I
MARGARINE VERSUS BUTTER IN THE UNITED STATES: CONSUMPTION PER CAPITA
AND PRICES, 1890-1960

	Consumption per Capita of Margarine (pounds)	Consumption per Capita of Butter (pounds)	Consumption Ratio Margarine/ Butter	Average Price of Margarine (cents/pound)	Average Price of Butter (cents/pound)	Ratio Price M/ Price B
1890	0.5	19.1	0.03	—	—	—
1900	1.4	19.6	0.07	13.2	21.1	0.63
1910	1.5	17.5	0.09	17.5	29.8	0.59
1920	3.5	14.6	0.24	32.5	56.8	0.57
1930	2.6	17.2	0.15	19.0	35.3	0.54
1940	2.4	16.9	0.14	14.8	28.7	0.52
1950	6.2	10.6	0.58	33.0*	74.6*	0.44
1960	9.6	7.5	1.28	26.9*	76.1*	0.35

* Retail average prices for 1950 and 1960 and wholesale average prices for the previous years. Only the ratio is important, so a consistent series over time was not necessary.

Sources: 1890-1930: Snodgrass, *Margarine*, pp. 309-11, 312-13, and 248; 1940 and 1950: Allen, "Le débat," pp. 19 and 22 (from U.S. Congress House Committee on Agriculture, *Hearings*, 1-5 March 1949, Serial A, pp. 106-07); and 1940-1960: Marais, *Butter*, p. 39 (from the International Labor Office).

protection of dairy farmers was never far behind: most of the prohibitionist legislators were from rural Ontario counties with significant butter production.¹⁰ This became even more obvious in the 1920s legislative saga of the return to prohibition. By that time, as opponents to the ban pointed out, the protectionist motive was the only one left, the dangerous nature of the product being impossible to defend in a world where Canada was alone in totally prohibiting margarine. Lobbying against margarine were national and provincial dairymen's associations from across the country. But the spearhead of the battle was Quebec, by then the largest butter producing province. Twenty-five years later, in 1949, Quebec took over prohibition from the federal government with a bill entitled "An Act to protect the dairy industry in the province." Even the legalization of margarine in 1961 was a governmental response to the farmers' union who preferred a color regulation to an unenforceable prohibition. Quebec's farmers' union is still fighting, until now with success, the repeal of the ban on yellow coloring.

Margarine consumers were hurt by antimargarine policies. To be sure, the product accounted for only a small portion of the household budget.¹¹ Nevertheless, these policies restrained the consumer's freedom of choice, especially in the lower-income groups. This was obviously the case in the 65-year prohibition episode in Canada. This was also the case in the United

¹⁰ See the table in Heick, *Propensity*, p. 167.

¹¹ Fats and oils represented on average some 3 to 4 percent of the total family budget and 5 to 6 percent for lower-income families according to the Bureau of Labor Surveys of family budgets. The information for the early twentieth century is taken from Halbwachs, *L'évolution*, pp. 77, 84-85; and for the late 1940s in Mission française de productivité, *Niveaux*, pp. 72, 80.

States where the 1902 tax of 10 cents per pound almost doubled the price of colored margarine, driving it up to the price of butter. In conjunction with the various state bans, this practically put an end to the sale of colored yellow margarine. As early as 1909, manufacturers started enclosing small containers of coloring for the consumers to do it themselves. The fact that this time-consuming activity was widespread shows that the yellow color had a value.¹² To understand this, one has to remember that margarine buyers were mostly working class housekeepers who could not afford butter but wished to serve something which looked like it. Until two or three decades ago, many people were ashamed to consume this inferior good.

But would this result in political action? Consumers are the example *par excellence* of the latent group in Mancur Olson's theory of collective action: very unlikely to organize and lobby because of its very large number of stakeholders with individually small stakes.¹³ Furthermore, they generally tend to be a neglected constituency as voters are likely to be much more concerned with economic activity than with higher prices or consumer sovereignty. In the margarine issue, consumers were even more neglected as only poor consumers were concerned. In Canada, they could not even vote before the First World War because the franchise was reserved to property-owners. In the 1920s battle against the return of margarine prohibition, there were some women (who had just obtained the franchise) at the forefront, either as consumers responsible for the household budget or as heads of women's organizations assuming their charitable duties towards the poor's children. Their victory would only come some 25 years later and as we saw, not from the legislative body. In the United States, there is no trace of margarine consumers in the political arena before the end of the 1940s.

American margarine manufacturers fought bans, confiscatory taxation, and anticoloring regulations. They hired many experts to defend the wholesomeness of their product. But they suffered from their association with meat-packing, a business with one of the worst reputations in the late nineteenth century. Unsurprisingly, the sympathy of the public was with the small butter producer in his struggle against big business. In Canada, not only was it big business, it was also foreign owned. According to some commentators, this made the margarine industry even less likeable to the population in general.¹⁴

¹² For a long time, a wrist-breaking job which had to be done with a heavy iron spoon and which took from 20 to 30 minutes.

¹³ Olson, *Logic*.

¹⁴ Unilever from London was the major producer of margarine and a multinational with branches in all countries where margarine was consumed. After the abolition of prohibition in 1949, the few other producers in Canada were American subsidiaries such as Procter and Gamble and Swift Canadian. Allen, "Le débat," p. 426.

For all these reasons, neither consumers nor producers of margarine were very influential political forces. As a result, when they were the only ones opposed to margarine restrictions, as in Canada and even more in Quebec, the dairy lobbies were able to get very restrictive margarine laws. In the public choice literature, this is a straightforward case of a policy with concentrated benefits and diffuse costs.

Case Two: "The Dairy Lobby In Competition With Other Agricultural Lobbies"

Dairy interests were not always the only ones at stake. Other categories of farmers supplied raw materials to the margarine industry. The nature of these inputs changed through time. At the beginning, animal fats clearly dominated, hence the name "oleomargarine." Until the First World War, beef fat accounted for two-thirds and cottonseed oil for the other third of the fats in margarine.¹⁵ In the United States Western cattle farmers and Southern cotton growers were the ones who openly fought the dairy lobby in the 1886 and 1902 legislative battles. In Canada the situation was quite different. There were never any cotton growers. In the 1886 prohibition debate, there could not be opposition from the Western cattle producers because the Prairie provinces were still practically empty.

During the war, the scarcity of animal raw materials and the new oil hardening process introduced from Europe sharply increased the use of coconut oil. By 1920 it accounted for 45 percent of the fats that went into margarine; a decade later it had increased to 75 percent. The margarine industry became "un-American": livestock farmers and cotton growers lost interest in it and dairy producers had more munitions to use in lobbying against it. This shift in the political balance translated into an increased severity of federal and state margarine legislation. Thirteen states passed some most-peculiar legislation that came to be known as the "domestic fat laws."¹⁶ Most of these laws imposed a specific tax on margarine made of foreign fats (typically, palm or coconut oil). Some taxed margarine that did not contain animal oil. With the exception of Maine, all the states that imposed these discriminatory taxes were Southern and Western states, that is those which were, until then, supporting margarine.

In reaction to these anti-coconut oil policies, the margarine industry switched from foreign to domestic supplies. By 1940 the share of coconut oil had already dropped to less than 10 percent while cottonseed oil accounted for almost half and soybean oil for a third of the fats in margarine. In the next decades soybean oil became by far the dominant oil used in the

¹⁵ The sources of these figures are: the U.S. Department of Agriculture, *Yearbooks*, and later, *Agricultural Statistics*.

¹⁶ Colorado, Florida, Georgia, Kansas, Louisiana, Maine, Minnesota, Nebraska, North and South Carolina, Tennessee, Texas, and Wyoming.

making of margarine. Margarine thus regained the political support of Mid-west farmers and Southern cotton growers. In the 1940s the National Cotton Council, the American Soybean Association, and the National Association of Margarine Manufacturers were the main proponents of the repeal of the 1902 Oleomargarine Bill. They were joined by food retailers, war veterans, and consumers tired of manual coloring.¹⁷ In Canada the case of the province of Ontario is particularly interesting. When margarine legislation became a provincial matter in 1949, the Ontario government was torn between two agricultural lobbies: the dairy producers and the soybean growers.¹⁸ This may well explain why Ontario chose the compromise of a coloring regulation rather than following Quebec on the prohibition road.

Thus, when conflicting agricultural interests were at stake, the political balance described as Case One could be tipped over. The outcomes of the competition between different agricultural lobbies were longer struggles and debates, tighter legislative votes, and milder "middle of the road" margarine policy.

THE INFLUENCE OF AGRICULTURAL INTEREST GROUPS: SOME EMPIRICAL EVIDENCE

From these two cases of political economy, we can derive the hypothesis to be tested in this section: that agricultural groups with interests at stake had an influence on the severity of margarine legislation. This influence should be positive in the case of butter and negative in the case of cotton, livestock, or soybeans. That is, we expect that the more butter and the less cotton, livestock or, from the 1940s soybeans, was produced in a given state or province, the more antimargarine its legislators would be.

The Data

Antimargarine policies were devised by state and provincial as well as federal governments in both countries. To obtain the most exhaustive portrait, two different dependent variables were built: the degree of severity of state or provincial margarine legislation and the Congressional votes on margarine bills. All American states, except Arizona, and most Canadian provinces had at some time or another some margarine legislation. These laws include a very wide range of measures and they were frequently modified. Fortunately, three studies compiled them for the United States at differ-

¹⁷ All of whom testified before the committee. See U.S. Congress. House. *Hearings*.

¹⁸ Ontario was by far the most important soybean producer in Canada in 1949: 2.8 out of a total of 2.9 millions bushels. See Allen, "Le débat," p. 460.

TABLE 2
DESCRIPTION OF VARIABLES

Variable	Variable Definition	Mean (Standard Deviation)		
		1886	1900	1949
SEVERITY	a severity scaling of state margarine legislation from S_1 to S_4 (defined in the notes)	2.04 (1.41)	2.75 (0.98)	2.41 (1.16)
HVOTE	proportion of voting Representatives who voted yes to the 1886 and 1902 Oleomargarine bills and no to its repeal in 1949	60.2 (39.0)	59.6 (40.3)	30.1 (38.3)
SVOTE	proportion of voting Senators who voted yes to the 1886 and 1902 Oleomargarine bills and no to its repeal in 1950	61.8 (45.1)	53.5 (46.2)	22.2 (37.4)
BUTTER	pounds per capita	17.0 (11.9)	16.6 (10.7)	17.3 (21.0)
COTTON	bales per capita	0.11 (0.24)	0.10 (0.23)	0.09 (0.20)
LIVESTOCK	number of cattle (minus cows) per capita	0.71 (0.86)	1.08 (1.65)	—
SOYBEAN	bushels per capita	—	—	0.97 (2.37)

Notes: S_1 = mildest; no legislation; or label and/or retail sale only in specified size. S_2 = moderate: restrictions or bans of use in state institutions; or one or two of the following: license fees on manufacturers, wholesalers, or retailers; notification that margarine is being served; tax on margarine containing a foreign oil. S_3 = restrictive: ban on the sale of yellow-colored margarine; or tax of 10 cents per pound on colored margarine; or three and more restrictions (listed in S_4). S_4 = severe: prohibition; or requirement that margarine be pink colored; or ban on yellow coloring plus more than one restriction; or ban on yellow coloring plus taxation.

Sources: SEVERITY: Snodgrass, *Margarine*, pp. 195–209; Mallory, "Oleomargarine Controversy"; Riepmma, *Story*, pp. 95–100; and for Canada: Dupré, "De la prohibition," *HVOTE* and *SVOTE*. In 1886: Congressional Records, 49th Cong., 1st sess., 3 June 1886, p. 5213, 20 July 1886, p. 7202; in 1902: 57th Cong., 1st sess., 12 February 1902, p. 1659–60, 3 April 1902, p. 3614; in 1949/50: 81st Cong., 1st sess., 1 April 1949, p. 3728–29, 16 March 1950, p. 559. BUTTER, COTTON, LIVESTOCK, and SOYBEAN: All U.S. agricultural data for 1889 and 1899 were drawn from the 15th and 16th U.S. Census of Agriculture of 1930 and 1940. Data for 1949 and 1969 come from U.S. Department of Agriculture, *Yearbook 1951* and *Agricultural Statistics 1971*. Canadian agricultural figures are from Canada. Dominion Bureau of Statistics, 21–003 *Agricultural Statistics and Canada Yearbook 1952* and 1973.

ent times: 1886, 1900, 1946, and 1969.¹⁹ By slightly modifying the date from 1946 to 1949, the year of the end of national prohibition, I was able to add the Canadian provinces for the last two periods from my own work. The severity scale was built with four categories (as defined in Table 2): mildest, moderate, restrictive, and severe.²⁰

¹⁹ The whole series with the detailed breakdown is available upon request. The studies used are Snodgrass, *Margarine*, for 1886 and 1900; Mallory, "Oleomargarine Controversy," for 1946; and Riepmma, *Story*, for 1969.

²⁰ Of course, even the mildest type such as labeling, which *per se* is a good policy, can be quite cumbersome in the absence of consistency across neighboring legislatures. Mallory ("Oleomargarine Controversy," p. 635) points out that 28 different sizes or styles of type were needed to meet the margarine labeling requirements in effect in 39 states in 1946.

TABLE 3
ANTIMARGARINE POLICIES AND AGRICULTURAL INTERESTS BY STATE AND PROVINCE IN 1886

State/Province	House Vote	Senate Vote	Butter per Capita	Cotton per Capita	Livestock per Capita
Mildest (S_1)					
Alabama	0	0	9.62	0.60	0.39
Arkansas	0	0	13.94	0.61	0.59
California	100	100	22.08	0.00	1.06
Colorado	100	100	7.95	0.00	2.64
Connecticut	75	100	9.65	0.00	0.10
Delaware	100	0	12.06	0.00	0.11
Florida	0	0	2.22	0.15	0.95
Georgia	11.1	0	7.88	0.65	0.32
Illinois	73.7	100	14.93	0.00	0.52
Indiana	75	50	22.12	0.00	0.43
Iowa	100	100	38.12	0.00	1.78
Kansas	100	100	32.29	0.00	1.71
Kentucky	55.6	50	15.63	0.00	0.38
Louisiana	20	0	1.87	0.59	0.37
Maryland	100	50	0.96	0.00	0.12
Massachusetts	77.8	100	3.73	0.00	0.04
Mississippi	71.4	0	10.07	0.90	0.47
Missouri	61.5	50	16.09	0.01	0.79
Nebraska	100	100	26.17	0.00	1.54
Nevada	0	0	10.43	0.00	4.30
New Hampshire	100	100	21.07	0.00	0.30
North Carolina	12.5	0	8.11	0.21	0.25
Oregon	100	100	15.05	0.00	1.28
Rhode Island	0	100	2.91	0.03	0.14
South Carolina	16.7	0	4.99	0.65	0.14
Tennessee	40	0	16.01	0.11	0.35
Texas	0	0	14.36	0.66	3.37
Virginia	25	50	10.84	0.00	0.29
West Virginia	0	100	18.43	0.00	0.50
Restrictive (S_3)					
New Jersey	66.7	100	5.79	0.00	0.03
Severe (S_4)					
Maine	100	100	23.59	0.00	0.21
Michigan	70	100	23.97	0.00	0.26
Minnesota	100	100	26.54	0.00	0.60
New York	72.4	100	16.37	0.00	0.12
Ohio	94.4	100	20.42	0.00	0.26
Pennsylvania	84	100	14.61	0.00	0.15
Vermont	100	100	70.22	0.00	0.49
Wisconsin	83.3	100	27.35	0.00	0.51
British Columbia			4.01	0.00	1.11
Manitoba			31.57	0.00	0.97
New Brunswick			24.29	0.00	0.31
Nova Scotia			20.02	0.00	0.41
Ontario			26.28	0.00	0.50
P. E. I.			18.06	0.00	0.41
Quebec			20.22	0.00	0.28

Note: All Canadian provinces are classified under S_4 (severe) because of the national prohibition. Sources: See Table 2.

The other dependent variable is derived from the recorded Congressional votes on the three margarine bills of 1886, 1902, and 1949/50. An antimargarine vote is defined as the proportion of Representatives or Senators in each state who voted yes to the 1886 and 1902 bills and no to the repeal in 1949/50. Abstentions are excluded because abstention is not an homogeneous category. The motives could have been indifference to the issue or something totally unrelated and we have no means to discriminate between them.²¹ Only the final vote is considered.

When those three indicators of antimargarine policies are examined in conjunction with the per capita state output of agricultural commodities at stake, they provide a first "visual" test of our hypothesis. Table 3 shows the picture for the first wave of legislation in the 1880s. Although butter production was scattered in more than half of the states, the prohibition of margarine in the United States was to be found in the North-Eastern "butter belt" while the South and the West (that is the cotton and livestock producer states) left it totally free. Most of the antimargarine votes on the 1886 federal Bill also came from the North-East. Much the same can be said about the 1902 amendment and about the opposition to the repeal in the late forties.

A correlation matrix is presented in Table 4 for two of the periods: 1886 and 1949. With the exception of soybeans, the correlation between the severity of margarine policies and the importance of the agricultural commodities is in the expected direction: positive for butter and negative for cotton and livestock. Also as expected, there is a positive correlation between state-level policies and the Congressional votes.

The Econometric Results

Two econometric models corresponding to the two different measures of antimargarine policies allow a more formal test of the interest-group hypothesis. The first evaluates the impact of agricultural interests on three antimargarine votes at the Congress with a multinomial logit model.²² In this type of model, the dependent variable is devised as a set of categories. The object is to determine the probability that people who exhibit some given characteristics belong to one or the other of those categories.

The dependent variable represents the proportion of legislators in a given state who cast an antimargarine vote. In the case of the Senate, there are only three possible values: 0, 50, or 100 percent as each state has two Senators.

²¹ It is possible to investigate the abstentions in more depth by comparing the vote to votes on other issues. Given the scope of the study—over two countries, multi-levels of governments, and three-quarters of a century, the simpler procedure of exclusion was chosen, following many studies such as Gilligan, Marshall, and Weingast, "Regulation," p. 54.

²² Political party, an explanatory variable commonly used in voting models, is not included here in order to be consistent with our other model of state-provincial legislation severity.

TABLE 4
CORRELATION MATRIX OF VARIABLES

1886						
SEVERITY	HVOTE	SVOTE	BUTTER	COTTON	LIVESTOCK	
1	0.37	0.47	0.42	-0.35	-0.24	
HVOTE	1	0.66	0.47	-0.54	-0.11	
SVOTE	0.47	1	0.43	-0.71	-0.13	
BUTTER	0.42	0.47	1	-0.31	0.07	
COTTON	-0.35	-0.54	-0.31	1	0.04	
LIVESTOCK	-0.24	-0.11	0.07	0.04	1	
1949						
SEVERITY	HVOTE	SVOTE	BUTTER	COTTON	SOYBEAN	
1	0.61	0.52	0.47	-0.39	0.13	
HVOTE	1	0.82	0.75	-0.33	0.18	
SVOTE	0.52	1	0.80	-0.29	-0.01	
BUTTER	0.47	0.75	1	-0.22	0.29	
COTTON	-0.39	-0.33	-0.22	1	-0.04	
SOYBEAN	0.13	0.18	0.29	-0.04	1	

Note: Variables are as defined in Table 2.

In the case of the House, the dependent variable can take any value between 0 and 100 percent as the number of Representatives by state is proportional to the population. However, the values of 0 and 100 percent are by far the most frequent ones, accounting for more than half of the total at the House (and some 80 percent at the Senate). This is the reason why the vote percentages are grouped into categories and the model used is the multinomial logit. The model could have included only three categories: Y_1 for the states where the vote was unanimously antimargarine (100 percent), Y_2 for the states where the vote was not unanimous (varying from 1 to 99 percent), and Y_3 for the states where the vote was unanimously promargarine (0 percent). But because half of the votes would have ended up in the intermediary category, it was split into two intervals: Y_2 for 51 to 99 percent and Y_3 for 1 to 50 percent. There are thus four categories for the House votes and three for the Senate votes.

The estimation results for the Senate votes are reported in Table 5.²³ In this type of model, a group is taken as the reference group. In this model the reference group is Y_3 , that is the category unanimously against antimargarine legislation. All the coefficients must be interpreted in reference to this group. All coefficients exhibit the expected signs. Most of the coefficients of

²³ The results on the House votes are very similar except that the coefficient estimates of *SOYBEAN* do not have the expected negative sign. Their value is relatively low and we can never reject the hypothesis that they are not significantly different from zero. This suggests that either this interest group was not powerful enough to significantly influence the vote result or that we do not have sufficient information in our data to capture the relationship.

TABLE 5
MULTINOMIAL LOGIT ESTIMATES OF THE PROBABILITY OF ANTIMARGARINE
VOTING IN THE U.S. SENATE IN 1886, 1902, AND 1950

	Intercept	Butter per Capita	Livestock per Capita	Soya per Capita
		1886		
Y_1	-1.413 (1.66)	0.173 (2.73)	-0.583 (1.21)	
Y_2	-1.612 (1.62)	0.119 (1.67)	-0.695 (0.95)	
		1902		
Y_1	-2.500 (2.63)	0.257 (3.20)	-1.249 (1.68)	
Y_2	-0.648 (0.71)	0.042 (0.47)	-1.105 (1.18)	
		1950		
Y_1	-6.920 (3.78)	0.475 (3.07)	-1.118 (1.38)	
Y_2	-5.063 (3.27)	0.396 (2.64)	-0.411 (0.96)	

Notes: t -statistics are in parentheses. The dependent variable is categorized into three groups: $Y_1 = 1$ if $SVOTE$ equals 100 percent; $Y_2 = 1$ if $SVOTE$ equals 50 percent and $Y_3 = 1$ if $SVOTE$ equals 0 percent. Y_3 is the reference group. $SVOTE$ is the proportion of Senators in a given state who voted yes to the 1886 and 1902 Oleomargarine Bills and no to its repeal in 1950. $N = 38, 43$, and 46 for 1886, 1902, and 1950 respectively.

Source: See Table 2.

BUTTER are statistically significant. The values of the coefficients associated with the different categories are expected to be increasing in absolute terms: $Y_2 < Y_1$. That is, the greater the output per capita of butter (livestock or soybeans) in a state, the greater (smaller) the probability that this state belongs to a category with a high proportion of antimargarine votes. With one exception, *LIVESTOCK* in 1886, this is always the case.

If we consider the estimation results in both Houses, the multinomial logit analysis of the Congressional votes partly supports the interest-group hypothesis. Estimation results are very satisfactory in the case of *BUTTER* but little less conclusive in the case of *LIVESTOCK* or *SOYBEAN*. Their coefficients generally have the expected signs but their t -statistics are low and the values of their coefficients do not always respect the expected order.²⁴

²⁴ To note is the absence of *COTTON* in those estimating results. The reason is not that the variable was not significant. In fact, it is the opposite: it fits our hypothesis extremely well. The values of *COTTON* were all zeros when the dependent variable was in the category Y_1 (that is, 100 percent antimargarine). In the case of the Senate vote, it also happened with the category Y_1 ($N = 50$ percent) in 1886. This caused a technical breakdown in the program. All Senators from the cotton states were promargarine in 1886, and only one of them cast an antimargarine vote in 1902 and in 1950. In the

Next, the analysis is carried on with the second measure of antimargarine policies, the degree of severity of state and provincial margarine regulation. Given that the dependent variable is discrete ($S = 1, 2, 3$, or 4), a qualitative dependent variable model is once again to be preferred to the regression model which assumes that the dependent variable is continuous. Because the values associated with the different levels of severity represent an ordinal rather than a cardinal measure of the severity of the policies, the ordered probit is the most appropriate model. Moreover, as in the multinomial logit model, the maximum likelihood method of estimation of the ordered probit provides estimators with satisfactory asymptotic properties of convergence, efficiency, and normality.

For 1886 the ordered probit is reduced to an ordinary probit because all states were either at one extreme—no legislation or just labeling—or at the other—prohibition. In the ordered probit equations, the values of the intercept coefficients are expected to be increasing ($b_1 < b_2 < b_3$) because the dependent variable is constructed to represent an ordering in the degree of severity from the mildest $S_1 = 1$ to the most severe $S_4 = 4$.

Once again, the coefficient estimate of *BUTTER* is expected to be positive and those of *COTTON*, *LIVESTOCK*, and *SOYBEAN* to be negative. A positive coefficient for *BUTTER* means that the greater the output of butter per capita in a state, the greater the probability that this state adopts a severe margarine legislation and the lower the probability that it adopts a mild legislation.²⁵ A negative sign for the other coefficient estimates assumes the opposite. A dummy variable *CANADA* (equal to one for the ten Canadian provinces) is included in the last two equations to verify whether there was some peculiar severity in the Canadian margarine legislative behavior after the end of the national prohibition. Its coefficient is expected to be positive.

Table 6 contains the estimation results. All coefficients have the expected signs and in most cases, high t -statistics. In 16 out of 22 cases, we cannot reject the hypothesis that these coefficients are significantly different from zero at a 90 percent confidence level.²⁶ The statistically significant and positive coefficient of the dummy variable *CANADA* in the 1969 equation suggests that by then the provincial margarine policies were becoming anachronisms. These results provide a fairly strong support for the interest-group theory of regulation.

On the whole, the empirical evidence provided in this section suggests that margarine legislation in North America was largely determined by the interplay of the various agricultural interests at stake, particularly, the butter, beef, and cotton producers.

same way, only one cotton state received a proportion equal to or higher than 50 percent of the antimargarine vote in 1886, 1902, and 1949.

²⁵ Those probabilities can be calculated from the coefficient estimates. We did not calculate them because they were not really useful for our purposes.

²⁶ In the first equation (1886), the ridiculously large (with a variance to match) coefficient of *COTTON* is explained by the fact that all cotton states were in the mild category $S = 1$.

TABLE 6
ORDERED PROBIT ESTIMATES OF THE PROBABILITY OF ANTIMARGARINE
STATE LEGISLATION IN 1886, 1900, 1946, AND 1969

Explanatory Variables	Parameter Estimates			
	1886	1900	1946	1969
Butter per capita	0.233 (2.23)	0.01 (0.5)	0.032 (3.70)	0.059 (5.78)
Livestock per capita	-7.365 (1.75)	-0.212 (1.62)	—	—
Soya per capita	—	—	-0.036 (0.50)	-0.044 (1.71)
Cotton per capita	-5.442.5 (0.33)	-2.257 (2.25)	-1.866 (1.94)	—
Canada	—	—	-0.294 (0.61)	0.695 (1.47)
Intercept b1	-1.949 (1.94)	1.10 (2.24)	0.686 (2.72)	-0.146 (0.63)
Intercept b2	—	2.74 (6.01)	0.794 (3.85)	1.149 (4.15)
Intercept b3	—	—	1.937 (6.59)	2.436 (6.63)
N	38	45	58	58

Notes: *t*-statistics are in parentheses. The dependent variable is the degree of severity of state margarine legislation. There are four possible degrees (as defined in table 2). In 1900, there were no states in the second degree, thus *Y* takes only three values. In 1886, all states were either at one extreme—no legislation—or at the other—prohibition: *Y* takes only two values and the ordered probit is reduced to an ordinary probit.

Source: See Table 2.

POLITIES AND POLICIES: SOME INSTITUTIONAL DIFFERENCES BETWEEN CANADA AND THE UNITED STATES

Interest groups do not operate in a vacuum. The economic theory of regulation is often criticized for its relative neglect of the supply side of policies and of the institutional framework. When lobbying is channeled through different polities, it may elicit a different government response. Although the United States and Canada both trace their political institutions to "the great English mother of all free government," there are many differences between them. Three of them are of particular importance here because the American features seem to lead to a compromise outcome.²⁷

The first is the relationship between the executive and the legislative bodies. In the British parliamentary tradition, the Canadian system is founded upon the principle of fusion of powers between the two. Real policy-making power lies within the executive, that is the Prime Minister

and his Cabinet entirely composed of MPs of the party in power. They set the agenda and control the ebb and flow of legislation, which is virtually assured of passage as long as there is a majority government because party discipline is usually very strong. In contrast, the American political system is based upon the principle of the separation of powers. The legislature has an important role in policy-making. Several institutions share the power to initiate, amend, and kill legislation. The bodies in control of the agenda are in fact the House and the Senate committees.²⁸

The second contrasting feature which also increases fragmentation is the American bicameralism. The Canadian parliamentary system also consists of two chambers but only one, the House of Commons, is elected and the appointed Senate plays a very minor decision-making role.

Finally, perhaps the most striking difference is the considerably greater role played by judicial review in the U.S. polity. In the case of margarine, this most certainly made a difference in reinforcing the Canadian anti-margarine position. Right from the beginning, margarine bills in the United States were constantly challenged in court, not always but often successfully. In Canada, it took 65 years to question the constitutionality of the 1886 prohibition legislation.²⁹ It was only in the 1980s that the Ontario and Quebec coloring laws were challenged in court and each time upheld.

As for the impact of the first two institutional differences, one can only speculate. It is obvious from the hearings and the debates that the House committees of Agriculture were split among the dairy, cotton, livestock, or soybean producers, and that this was the case even if the chairman, the most important actor, was usually from the South because of the seniority system. If the same agricultural groups had been struggling in the Canadian political environment, the Minister of Agriculture would have had a similar problem. So would have had the rest of the Cabinet because of its usual regional representation. The outcome, we suspect, might have been a margarine policy milder than prohibition.

CONCLUSION

In general, public opinion and governments are quite reluctant to tax or to restrict the production of a food product, especially if the product is mostly consumed by poorer people. Why should it have been different for margarine? Why was the product so harshly treated by governments for so long? In most

²⁸ There are also Parliamentary committees in Canada but they play a much lesser role than the American ones. As Pocklington (*Liberal Democracy*, pp. 198-99) wrote, their function is not to modify, reject, or innovate but to tidy up the bills introduced by the Cabinet. This is the source, with Landes, *Canadian Polity*, of much of the information of this section.

²⁹ And even then, it was not so much the right of the state to prohibit a commodity like margarine than the level of government which could do it.

²⁷ The studies exploring the impact of the American political system on policy-making generally find that the system lead to a compromise outcome. See for instance, Gilligan, Marshall, and Weingast, "Regulation"; or the analysis of Reaganomics in West, *Congress*.

of North America for almost three-quarters of a century, margarine policies went much beyond the protection of the consumers against fraud or artificial coloring.³⁰ Using the economic theory of regulation, our study throws light on the determining role of the agricultural lobbies with interests at stake. The legislative saga in both the United States and Canada shows that their considerable political clout can make governments do the strangest things.

Our analysis went beyond the simple political market model in which the group with concentrated benefits (generally the producers) wins over the group with diffuse costs (consumers or taxpayers). As there were in some cases concentrated interests on both sides, a multiple-interest-group perspective was necessary. Taking into account this competition between agricultural interests allows us to explain the diversity of margarine policies across the continent over the century.

Indeed, to the question of why was margarine regulation more stringent and enduring in Canada than in the United States, the economic theory of regulation offers, we think, a more plausible answer than the cultural explanation, calling upon the celebrated "protective impulse" of the Canadians.³¹ With the exception of Ontario from the 1950s, there were no competing agricultural groups with interests at stake in the margarine issue. In addition, differences in the political institutions of the two countries, in particular the much higher degree of judiciary activism in the United States, may have reinforced the Canadian antimargarine stance.

³⁰ The artificial character of the coloring was clearly not the issue. In fact, butter itself was colored because its natural color varies across seasons.

³¹ The title of Heick's book on the history of margarine in Canada is *Propensity to Protect*. He makes numerous allusions to the Canadian protective culture although he also recognizes the role of economic interests. Heick wants to show that the evolution toward a more liberal margarine policy corresponded to the shift from a rural to an urban culture. Unfortunately, the two largest and most urbanized provinces, Quebec and Ontario, do not fit this thesis.

REFERENCES

- Allen, Patrick. "Le débat beurre-margarine au Canada." *L'Actualité économique* 30, no. 3 (1954): 420-76.
- . *La margarine peut-elle remplacer le beurre?* Montreal: École des H. E. C., 1955.
- Canada. Dominion Bureau of Statistics. *Agricultural Statistics*, no. 21-003. Ottawa, various years.
- Dupré, Ruth. "De la prohibition à la décoloration: l'histoire de la réglementation de la margarine au Québec." Unpublished manuscript.
- Erdman, Henry E. *The Marketing of Whole Milk*. New York: MacMillan, 1921.
- Gilligan, Thomas W., W. J. Marshall, and B. R. Weingast. "Regulation and the Theory of Legislative Choice: The Interstate Commerce Act of 1887." *Journal of Law & Economics* 32, no. 1 (1989): 35-61.
- Halbwachs, Maurice. *L'évolution des besoins dans les classes ouvrières*. Paris: F. Alcan, 1933.

- Heick, W. H. *A Propensity to Protect. Butter, Margarine and the Rise of Urban Culture in Canada*. Waterloo, Canada: Wilfrid Laurier University Press, 1991.
- Hoffman, Elizabeth, and Gary D. Libecap. "Institutional Choice and the Development of U.S. Agricultural Policies in the 1920s." this JOURNAL 51, no. 2 (1991): 397-411.
- Landes, Ronald. *The Comparative Policy: A Comparative Introduction*. Scarborough, NY: Prentice Hall, 1987.
- Mallory, J. K. "The Oleomargarine Controversy." *Virginia Law Review* 33 (1947): 631-41.
- Marais, George. *Butter and Margarine. A Comparative Study of Supply and Demand in the Republic of South Africa*. Pretoria, J. L. Van Schaik, 1966.
- Mission française de productivité aux États-Unis. *Niveaux de vie et budgets ouvriers aux États-Unis*. Paris: Société auxiliaire pour la diffusion des éditions de la productivité, 1952.
- Mokyr, Joel. *The Lever of Riches. Technological Creativity and Economic Progress*. New York: Oxford University Press, 1990.
- Okun, Mitchell. *Fair Play in the Marketplace. The First Battle for Pure Food and Drugs*. Dekalb, IL: Northern Illinois University Press, 1986.
- Olson, Mancur. *The Logic of Collective Action*. Cambridge, MA: Harvard University Press, 1965.
- Peltzman, Sam. "Toward a More General Theory of Regulation." *Journal of Law & Economics* 19, no. 2 (1976): 211-40.
- Pocklington, T. C. *Liberal Democracy in Canada and the United States*. Toronto: Holt, Rinehart, Winston, 1985.
- Riepma, S. F. *The Story of Margarine*. Washington, DC: Public Affairs Press, 1970.
- Snodgrass, Katherine. *Margarine as a Butter Substitute*. Stanford, CA: Stanford University Food Research Institute, 1930.
- Stigler, George. "The Theory of Economic Regulation." *Bell Journal of Economics* 2, no. 1 (1971): 3-21.
- U.S. Congress, House. Committee on Agriculture. *Hearings on the Oleomargarine Bill. H.R. 2400*. 78th Cong., 1st sess., 1943.
- U.S. Congressional Records.
- U.S. Department of Agriculture. *Yearbook*. Washington, DC: GPO, various years.
- . *Agricultural Statistics*. Washington, DC: GPO, various years.
- Van Stuyvenberg, J. H. *Margarine: An Economic, Social and Scientific History 1869-1969*. Toronto: University of Toronto Press, 1969.
- West, D. M. *Congress and Economic Policymaking*. Pittsburgh: University of Pittsburgh Press, 1987.
- Wiest, Edward. *The Butter Industry in the United States. An Economic Study of Butter and Oleomargarine*. Ph.D. diss., Columbia University, 1916.