

January 1985

# Toward a Business-Cycle of Tariffs

Giulio M. Gallarotti

Wesleyan University, [ggallarotti@wesleyan.edu](mailto:ggallarotti@wesleyan.edu)

Follow this and additional works at: <http://wescholar.wesleyan.edu/div2facpubs>



Part of the [International Relations Commons](#)

---

## Recommended Citation

Gallarotti, Giulio M., "Toward a Business-Cycle of Tariffs" (1985). *Division II Faculty Publications*. Paper 59.  
<http://wescholar.wesleyan.edu/div2facpubs/59>

This Article is brought to you for free and open access by the Social Sciences at WesScholar. It has been accepted for inclusion in Division II Faculty Publications by an authorized administrator of WesScholar. For more information, please contact [dschnaidt@wesleyan.edu](mailto:dschnaidt@wesleyan.edu), [ljohnson@wesleyan.edu](mailto:ljohnson@wesleyan.edu).

---

Toward a Business-Cycle Model of Tariffs

Author(s): Giulio M. Gallarotti

Source: *International Organization*, Vol. 39, No. 1 (Winter, 1985), pp. 155-187

Published by: [The MIT Press](#)

Stable URL: <http://www.jstor.org/stable/2706637>

Accessed: 24/01/2011 11:24

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=mitpress>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).



The MIT Press is collaborating with JSTOR to digitize, preserve and extend access to *International Organization*.

---

# Toward a business-cycle model of tariffs Giulio M. Gallarotti

---

Scholars have for too long looked to the international power structure and the role of ideology in attempting to model the behavior of tariffs. The fact that commercial policies have historically diverged from the prescriptions of pure theories of international trade has stimulated an ever-growing literature on the politicization of trade relations, of which the above two treatments of tariffs are well-known. Accounting for the imperfect causal link between shifts in comparative advantage and the behavior of tariffs is a central concern of this literature. Methodologically, tariffs have been addressed from diverse perspectives. They have been approached from all levels of analysis and been subjected to various empirical tests.

This article is a second step in developing an alternative systematic account of movements in tariffs.<sup>1</sup> The business-cycle model of tariffs presented and tested here has been developed within a causal context that locates the major source of causation within the nation-state (i.e., domestically) while the causal process itself is defined in trivariate form. It seeks to link the direction of tariff change to the overall level of economic activity within nations by means of a process of market exchange whereby government, behaving as a rational, unitary actor, monopolistically dispenses tariff legislation to competing organized interests in return for political support.

The first section provides a brief description of two leading noneconomic theories of tariffs and empirical difficulties they encounter, as well as a discussion of recent work in the field of international political economy that has established the theoretical foundations of a business-cycle approach to

For comments leading to the revision of this article, I am grateful to John Conybeare, Robert Jervis, Peter Katzenstein, Timothy McKeown, Jack Snyder, and two anonymous reviewers. Nancy Hoepfli, Mary Stavrou, and Nancy Clavin were of assistance in typing and editing various drafts.

1. Timothy McKeown's "Firms and Tariff Regime Change: Explaining the Demand for Protection," *World Politics* 36 (January 1984), is the first systematic attempt to construct a business-cycle model of tariffs.

tariffs. Section two presents the model's three variables. The model and two competing explanations of tariffs, hegemonic stability and ideology, are tested in section three.

### 1. The political economy of tariffs: competing approaches

Explanations of commercial policy making based on ideology were among the first attempts to account for the noneconomic behavior of tariffs.<sup>2</sup> These explanations account for the divergence in commercial policies across nations by reference to diverse schools of economic thought that supposedly dominate the belief systems of entire societies. Great Britain's propensity to trade openly throughout much of the 19th century, for example, has been attributed to the primacy of a liberal economic tradition deriving from the principles of Smithian and Ricardian economics. Germany's commercial behavior, on the other hand, demonstrated a propensity toward economic closure during the same period; it has been linked to the country's dominant scholarly tradition of economic nationalism advocated by Friedrich List.

Empirically, however, policy outcomes have not always matched these expectations. During the latter half of the 19th century, for instance, three of the world's most prolific trading nations exhibited commercial policies that ran counter to prevailing ideologies. France, Germany, and the United States, all ideologically protectionist during the period, traded in a liberal manner at one time or another. This disconfirming evidence has provoked cursory and unsystematic attempts to rescue theory rather than more rigorous, scientific approaches. The free-trade policies of Germany and France during the 1860s and 1870s, for example, have generally been explained away as aberrations, an ad hocery that makes it difficult to derive a systematic idea of counter-ideological policy trends.

The hegemonic stability literature accounts for the behavior of tariffs from a structural analytical perspective.<sup>3</sup> It emphasizes the effects of the international distribution of economic power on the character of global trading relations. Stephen Krasner hypothesizes a bivariate causal relation in which

2. See, for example, Charles Kindleberger, "The Rise of Free Trade in Western Europe, 1820–1875," *Journal of Economic History* 35 (March 1975), and Kenneth Fielden, "The Rise of Free Trade," in C. J. Bartlett, ed., *Britain Pre-eminent: Studies in British World Influence in the Nineteenth Century* (London: Macmillan, 1969).

3. The best-known works of this literature include Stephen Krasner, "State Power and the Structure of International Trade," *World Politics* 28 (April 1976); Robert Gilpin, *U.S. Power and the Multinational Corporation: The Political Economy of Foreign Direct Investment* (New York: Basic, 1975); Charles Kindleberger, *The World in Depression* (Berkeley: University of California Press, 1973), and "Dominance and Leadership in the International Economy: Exploitation, Public Goods and Free Rides," *International Studies Quarterly* 25 (June 1981); and Robert Keohane, "The Theory of Hegemonic Stability and Changes in International Economic Regimes, 1967–1977," in Ole Holsti, Randolph Siverson, and Alexander George, eds., *Change in the International System* (Boulder: Westview, 1980).

the global distribution of economic power covaries with the degree of openness in the international trading system. Employing a state-interest theory of trade, which links the size and level of economic development of nations to commercial policy preferences, and public goods logic, Krasner deduces that a concentration of power in the international system will be accompanied by an open trading regime. Where power is diffuse, on the other hand, he expects closure. Thus the presence of a hegemon—the highest concentration of power—encourages open trading relations, the absence of a hegemon encourages protection.

Empirical tests have done little to raise the theoretical stature of the hegemonic approach. Krasner's data, for instance, show that in six periods tested (1820–80, 1880–1900, 1900–13, 1919–39, 1945–60, and 1960 onward), covariation of the independent and dependent variables is established across only the first, second, and fifth. Simple probability dictates that if no relationship existed, we should expect three successful outcomes.<sup>4</sup> We are therefore presented with test results dictated by chance in a low-N setting. Furthermore, the theory fails a crucial-case test. If the causal relation between hegemony and commercial policy outcomes holds at all, it should hold for a hegemon. Yet Great Britain, a declining hegemon in 1880–1913 according to Krasner, maintained free-trade policies, while the United States, a rising hegemon in 1919–39, pursued strongly protectionist policies.

The idea that there exists some relationship between patterns of tariff legislation and a nation's economic health is by no means new. That differing phases of a business cycle should have predictable effects on commercial policies has long possessed a fair amount of intuitive appeal. Empirically, the hypothesis has been strengthened by the identification of an inverse correlation between levels of economic activity and protection. Historically, prosperous periods have been accompanied by free trade, and periods of depression by closure.

Only recently has the first systematic attempt been made to account for the behavior of tariffs using a business-cycle approach. In a 1984 article Timothy McKeown looks at the behavior of tariffs in the light of changing business conditions within nations.<sup>5</sup> The causal relation is modeled in trivariate

4. There are four possible outcomes in combining the two variables: hegemon-openness, no hegemon-openness, hegemon-closure, and no hegemon-closure. Since one-half of these outcomes exhibit combinations consistent with hegemonic stability theory, we should expect a success ratio of 50% if the variables are not related in any way.

5. Although one may be tempted to view a business-cycle theory as an outgrowth of recent scholarly arguments concerning the effects of industrial surplus capacity on economic policy making within nations, there are strong theoretical and analytical grounds for distinguishing between the two approaches. Notwithstanding a common dependent variable (both attempt to explain protection, although the surplus-capacity literature is often concerned with more than trade matters), surplus-capacity arguments have been developed within an analytical framework that exhibits a strong sectoral bias. The performance of specific industrial sectors is modeled as an independent variable. The business-cycle approach, on the other hand, fixes upon macroeconomic trends as a source of causation. Furthermore, the effects of surplus capacity

form, where the overall performance of a national economy is the independent variable, and nominal tariff levels the dependent variable. The mediating variable is a process whereby interest groups compete for favorable tariff legislation from their government.

McKeown conceives of tariff-policy outcomes as reflections of the balance of political power in society between high- and low-tariff interests. He postulates that the balance itself will be determined by the relative levels of collective action that these competing groups achieve. If, for example, protectionists achieve a high degree of collective action relative to low-tariff interests, we would expect increased pressure on government to raise tariffs. The greater relative "voice" of high-tariff interests would make legislators more amenable to protectionist demands.

Shifts in the political balance between groups result from a process whereby changing business conditions modify the expected utilities of free trade and protection. This process, in turn, determines the relative levels of collective action achieved by high- and low-tariff-seeking groups. Employing both rational and semirational theories of group behavior,<sup>6</sup> McKeown hypothesizes that periods of economic contraction, such as depressions, will shift the political balance over to the side of protection, while periods of expansion shift the balance in favor of free trade.

The business-cycle model developed in this article is faithful to McKeown in three ways. It accepts the major assumptions that underlie much of the public-choice literature on the supply of government output: government is a rational, unitary actor; society and government interact through a process of market exchange; government is responsive to societal demands.<sup>7</sup> It is developed within a similar causal context: domestic source of causation and trivariate causal process. And it employs the same independent variable, the overall performance of the national economy.

---

are not formally explored within an interest-group theoretical framework. The mediating role of organized interests within the causal process is not articulated in any systematic way (i.e., direct rather than indirect effects dominate the process). Conversely, a business-cycle model posits a dominant indirect effect. Thus the model suggests that the political process leading to protection is a series of political actions (i.e., formulating and voting on tariff bills) undertaken by legislators in response to pressures from organized interests within their societies. A surplus-capacity model, on the other hand, conceives of these same political actions as less dependent upon underlying societal pressures and more upon an acknowledged responsibility on the part of legislators to insure the economic viability of key sectors within their domestic economies. On the theory of surplus capacity, see Susan Strange, "The Management of Surplus Capacity: or How Does Theory Stand up to Protectionism 1970s Style?" *International Organization* 33 (Summer 1979); Strange and Roger Tooze, eds., *The International Politics of Surplus Capacity* (London: Butterworth, 1980); and Loukas Tsoukalis and António da Silva Ferreira, "Management of Industrial Surplus Capacity in the European Community," *International Organization* 34 (Summer 1980). For a formal articulation and empirical investigation of the theory, see Peter Cowhey and Edward Long, "Testing Theories of Regime Change: Hegemonic Decline or Surplus Capacity?" *International Organization* 37 (Spring 1983).

6. McKeown employs both rational-utility-maximization and satisficing theories of firm behavior.

7. For an extensive survey of the literature, see Dennis Mueller, *Public Choice* (New York: Cambridge University Press, 1979).

But the two models differ in their treatment of the dependent variable: where McKeown is interested in the level of tariffs, I fix upon the direction of tariff change. At its present stage of development, the business-cycle model seems better suited at predicting the latter. Predicting the former may, in fact, present a problem. For example, the logic of a business-cycle argument suggests that a severe depression should stimulate the legislation of strongly protectionist tariffs. Nominal levels, however, do not always indicate the degree to which tariffs shield an economy; where the production costs of foreign firms roughly equal those of domestic firms, a low, scientific tariff may afford a higher degree of protection than a high tariff where foreign firms are far more cost-efficient. Therefore a government responding to protectionist pressures during a depression may impose a low tariff in order to provide the high degree of protection demanded, even though a model equating protection with nominal levels would predict high tariffs. Hence the model should be better at predicting the direction of change. We can be far more certain that tariffs will rise during a depression than we can be regarding the levels they will reach.

## 2. The variables

### *The independent variable*

My independent variable is the overall level of economic activity within a nation as measured by an NBER business index.<sup>8</sup> Business indexes as measures of a nation's economic performance are neither perfectly valid nor perfectly reliable. The various economic processes aggregated into a single index do not include all those processes which determine the overall state of business conditions. Moreover, not all indexes are aggregates of the same processes. Notwithstanding these limitations, the parsimony of a business index as an indicator of general economic trends makes it a useful, albeit rough, scientific tool.

The cyclical index exhibits four phases of business activity across which a national economy may move: prosperity, recession, depression, and revival. For purposes of analytical simplicity, I distinguish only two phases: expansion, which includes prosperity and revival, and contraction, which includes reces-

8. The National Bureau of Economic Research's business annals were used in measuring the overall levels of economic activity within the three nations tested in Section 3. See Willard Thorp, *Business Annals* (New York: NBER, 1926), pp. 94, 95. Unlike most business indexes, the business annals are not a statistical aggregation of specific time series of diverse economic processes. They provide a nonstatistical summary of business fluctuations within various nations over time. In this sense, the term "index" applies loosely. They are, however, ideal for my purposes since they attempt to be more comprehensive than the average business index in capturing movements within a national economy as a whole. On the comparison between the business annals and other indexes of business conditions, see Wesley Mitchell, *Business Cycles* (New York: NBER, 1927).

sion and depression. I assume that in assessing business conditions within a nation, organized interests will neither differentiate between prosperity and revival nor between depression and recession. They will view each pair as one general phase. Furthermore, I assume that organized interests are sensitive to overall economic trends rather than to one or a small set of economic indicators (unemployment, inflation, etc.). In other words, the behavior of groups is driven by the general state of an economy rather than by particular processes within that economy.

### *The intervening variable*

Movements in a business cycle influence the direction of tariff change through a process of market exchange between government and organized interests: tariff legislation is sold by government, functioning as a unitary actor, and purchased by interest groups.<sup>9</sup> A government will rationally dispense tariff policies in return for some form of payment.

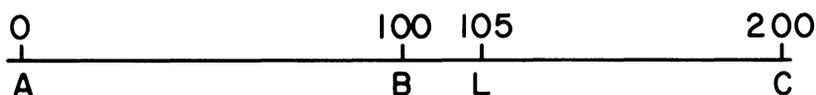
The idea that government behavior conforms to the laws of rational choice is an overriding theme of the extensive public-choice literature on the supply of government output. The business-cycle model, in keeping with this analytical perspective, approaches the study of tariffs from a monopoly theory of legislation. Government is viewed as a monopoly producer of two commodities: policies that increase all tariffs, and policies that reduce all tariffs. The assumption that governments either raise or lower all tariffs when legislating policy is McKeown's. The process is depicted in Figure 1.

Assume that government can increase or reduce tariffs along a continuum ranging from a rate of zero (point A—complete openness) to a completely prohibitive rate of 200 (point C). At any given point along the continuum at which the national tariff is set, say point B (100), high-tariff interests (coalition 1) are the buyers of all tariff rates from zero to 100, or line AB (100 units of protection). Low-tariff interests (coalition 2) buy all tariff rates from 200 to 100, or line CB (100 units of free trade). A movement along the continuum caused by a policy change, let us say to point L, would redistribute five units from coalition 2 to coalition 1. In this sense the competition between coalitions for favorable tariff legislation is depicted as a zero-sum game, where the losses of one coalition exactly equal the gains of its competitor.

Assuming that organized interests pay for tariff legislation with political support, the point along the continuum at which government sets its national tariff will be the rate at which the excess of total political support from both

9. The rational, unitary actor assumption is made strictly on the grounds of theoretical parsimony. It allows us to model the interaction between legislators and interest groups within a single exchange space, thus simplifying the analysis of policy outcomes. Needless to say, it abstracts substantially from the policy-making process in each nation tested in Section 3 (United States, Germany, and Great Britain).

Figure 1



coalitions above the total cost of producing such legislation is maximized; we can view this excess as “profits” that government earns from the production of tariff legislation.<sup>10</sup> In order to satisfy this condition, government will naturally seek out that tariff rate at which the gain from selling the last unit to one coalition will exactly equal the loss it incurs from taking that unit away from the other. The redistribution of tariff legislation between coalitions will continue until marginal gain from redistribution equals marginal loss from redistribution.<sup>11</sup> Only at this rate will profits be maximized. Figure 2 illustrates how this optimal tariff rate is arrived at.

Government is represented as a monopolistic firm producing both protectionist and free-trade legislation. The demand for each commodity, shown as AR curves, will be determined by the relative-voice magnitudes of protectionist and free-trade interests. (A coalition’s voice is the total amount of collective pressure that it brings to bear on government for the legislation of favorable tariff policies.) Based upon this collective pressure, government will determine the quantity of tariff legislation (in units) demanded by each coalition at each given price.<sup>12</sup> Any change in relative voice will cause the two demand curves to shift in opposite directions. One will expand while the other will contract; simultaneous movement of the curves follows logically

10. Like other public-choice models dealing with the supply of government output, this model accepts the fundamental assumption that policy makers are sensitive to changes in political support. It differs from a mass-voting model (i.e., political business-cycle model) in that it assumes legislators to be sensitive only to the support of organized interests. Political support here comprises promises of future favors, votes, campaign contributions, and side payments.

11. In less abstract, political-process form, this proposed tendency of government to formulate commercial policy based upon a rational assessment of expected returns in the form of political support suggests nothing more than a propensity on the part of legislators to alienate as few organized interests as possible when formulating and voting on tariff bills. By favoring policies that minimize societal discontent, legislators assure themselves the broadest possible base of political support, which they value both for increasing their political influence while in office and for maximizing their probability of being reelected.

12. Insofar as organized interests are able to communicate their demands to legislators, the formal process of demand assessment postulated here is not far removed from the manner in which legislators are sensitized to policy preferences within their societies. A legislator will judge the extent to which groups desire a given policy by the intensity with which these groups convey their policy preferences. For example, where a substantial number of groups intensify their support for a proposed policy (i.e., sharp increase in lobbying; letters, telegrams, and petitions become more abundant), legislators will perceive society’s demand for such legislation as having increased.

Figure 2

Diagram 1

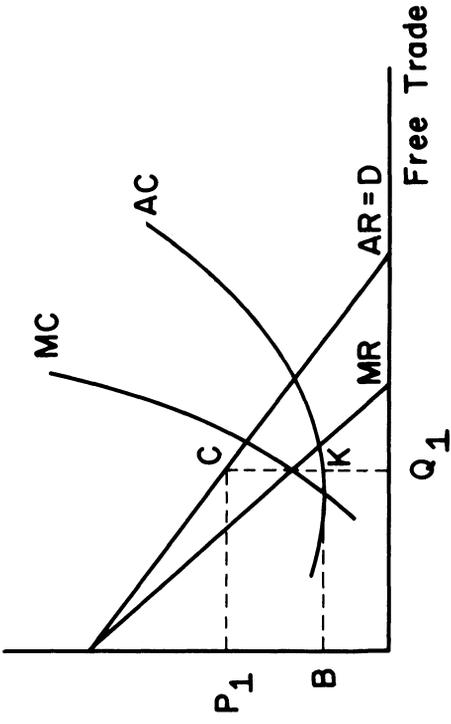
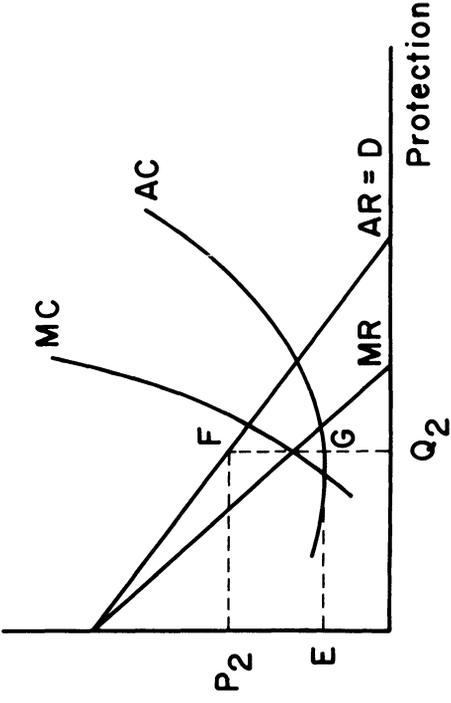


Diagram 2



$Q_1 + Q_2 = 200$  units (point C in Figure 1)

from government's relative evaluation of the demands of competing coalitions.

The marginal cost curve for each commodity represents changes in total cost for each additional unit of tariff legislation produced. Government production costs are made up of the political support of opposing interests that is foregone and legislation costs. Foregone support refers to profits lost from the coalition against which government is legislating. For example, in Figure 1, part of the cost of supplying free traders with 100 units of tariff legislation are the profits foregone because those 100 units were not "sold" to protectionists. Legislation costs are those resources expended in passing laws. They include logrolling costs (trading policies in other issue-areas), information costs, and extraction costs (political side payments to fellow legislators, etc.).<sup>13</sup>

Behaving as a monopolist, government will set price (P) and quantity (Q) for both commodities according to the intersection of the marginal-cost and marginal-revenue curves. This outcome will assure that total profits (surplus political support) accruing from the production of each commodity will be maximized, thus maximizing sum-total profits from both commodities. As a supplier of free trade (Diagram 1), government will produce  $Q_1$  units at price  $P_1$ , while incurring an average cost of B. Total profits will equal  $(Q_1 \times P_1) - (Q_1 \times B)$ , or rectangle  $P_1, B, K, C$ . As a supplier of protection, government will produce  $Q_2$  units at price  $P_2$ , while incurring an average cost of E. Total profits will be  $(Q_2 \times P_2) - (Q_2 \times E)$ , or rectangle  $P_2, E, G, F$ . At the equilibrium quantities  $Q_1$  and  $Q_2$ , sum-total profits [ $\pi_1 + \pi_2 = Q_1(P_1 - B) + Q_2(P_2 - E)$ ] will be maximized.

The model suggests that changing economic conditions will alter the distribution of tariff legislation through both supply and demand effects. As to demand effects, an expanding economy will raise the relative voice of free traders, thus causing demand for low tariffs to expand (AR curve for free trade shifts rightward) and demand for high tariffs to contract (AR curve for protection shifts leftward). Conversely, economic contraction will raise the relative voice of protectionists, thus stimulating an opposite movement in demand for each commodity.<sup>14</sup>

On the supply side a period of economic expansion will lower the costs

13. In that legislators both monitor and assess the political costs they incur in supporting specific policies, although perhaps neither as formally nor as rigorously as the abstract process articulated here, one does not deviate substantially from reality in positing the existence of policy-specific (i.e., each policy incurs specific costs) supply functions over government as a whole.

14. The shifting demand curves merely suggest that an expanding economy will cause the support for free-trade legislation to increase and become more intense over society as a whole (i.e., low-tariff groups will become more abundant and more vocal), while a stagnant economy will have a similar effect on society's support for protection. For purposes of theoretical parsimony and analytical simplicity, the model does not account for power differentials across coalition members. More specifically, it assumes that groups entering either tariff coalition possess roughly equal resources (which may be used to purchase policies) such that the voice of a coalition will be augmented by an equal amount with the entrance of each additional member.

of producing free trade (MC shifts downward), and raise the costs of producing protection (MC shifts upward). A period of economic contraction would have the opposite effects.<sup>15</sup> The combined supply and demand effects of changing business conditions would indicate the following pattern: periods of economic expansion will stimulate a redistribution of tariff legislation from protectionists to free traders, periods of economic contraction will stimulate a redistribution in the opposite direction.<sup>16</sup>

The idea that the overall level of economic activity within a nation conditions the supply of and demand for tariff legislation is basic to the business-cycle theory. The supply and demand effects of changing business conditions can be accounted for by way of an expected-utility theory of protection. I begin with a rationale for demand effects.

The model views the demand curves for both commodities as reflections of relative levels of collective action achieved by coalitions competing for tariff legislation. In accounting for the demand effects of a business cycle, it is therefore necessary to explain how movements in a cycle affect the possibility of collective action by coalitions. Shifts in economic activity alter the expected utilities of both high and low tariffs, changing the incentives for seeking free trade and protection. Periods of economic contraction raise the expected utility of protection over society as a whole and reduce the expected utility of free trade. This change in turn enhances the potential for collective action on the part of protectionists and reduces that potential for free traders. Conversely, during periods of economic expansion we should expect utilities to shift in the opposite directions.

Treating organized interests in society as firms, one can marshal several arguments in support of these hypotheses. First, entry into an industrial sector, argues McKeown, is positively correlated with that sector's rate of demand growth. Where this rate slows up or becomes negative, as in a period of economic contraction, fewer firms will enter than during a prosperous period (where the rate of demand growth is greater). This argument suggests that for every unit of protection supplied to firms in that sector, the producer's surplus that it creates will be bid away more slowly. Conversely, in an expanding economy the proliferation of entrants will cause the surplus to be bid away much faster. Hence the expected utility of high tariffs will be greater

15. Legislators, on a whole, will find the political costs of supporting free trade to be lower in an expanding economy. Since protectionist interests will be less abundant vis-à-vis free-traders, legislators will minimize their loss of political support by favoring low tariffs. As the economy experiences a downturn, however, and protectionist groups become more numerous, legislators will find it politically more costly to support low tariffs.

16. The power mechanism by which the sum of preferences is converted into policy manifests itself in a rational-exchange process. If we view the relation between competing coalitions as a balance of purchasing power (i.e., forms of payment acceptable to policy makers), the nature of this mechanism becomes clear. As the potential of any coalition to purchase a favorable policy increases with the entrance of each additional member, so does its ability to outbid the competition. Consequently, the balance of power within society will be determined by the relative sizes of the resource pools that coalitions use to bid for policy.

during a period of economic contraction since each unit of protection supplied will bring a longer-lasting benefit.

Second, in a period of economic contraction firms earning less than satisfactory profits will find it difficult to enter more remunerative sectors since such periods are less opportune for the implementation of long-term structural change. The net result will be that firms faced with such conditions will see greater utility in seeking protection from government and less utility in exiting a sector. This argument suggests that a positive correlation exists between the amount of pressure a firm will bring to bear on government in attempting to extract protection and the costs of exiting a troubled sector. Where these costs are high, as in a period of economic contraction, the increase in the expected utility of protection will cause firms to expend a greater amount of resources in extracting higher tariffs. Where these costs are low, as in a period of economic expansion, the decrease in the expected utility of protection will cause firms to expend their resources entering another sector—exit becomes a preferable strategy.

Finally, Schumpeterian economists have noted that innovations and technological advances generally thrive in a climate of prosperity. The productivity gains that accompany such advances serve to make domestic products more globally competitive. The positive correlation between prosperity and exports, which these arguments suggest, has proved valid. Historically, nations with the highest growth rates have exhibited the best export performances.

Following this Schumpeterian logic, we should see an expanding economy raising the expected utility of free trade for various reasons. If we divide a national economy into three types of firms and assume that all firms import a substantial proportion of their inputs, exporting firms will prefer low or no domestic tariffs because their input costs will be reduced and because low domestic tariffs might serve to induce other nations to open their markets to foreign products. Mixed-interest firms, which both export and compete against imports, will also prefer low tariffs for both reasons. They need not fear foreign competition in their domestic market since they will be the lower-cost producers. Import-competing firms will be less disposed to seek protection because their input costs will also be reduced. Like mixed firms, they will not require protection to control their domestic market.

Conversely, the loss in international competitiveness that accompanies contractionary periods will increase the expected utility of protection. Exporting firms will, of course, always prefer free-trade policies. However, the preferences of the other two firms will alter in favor of protection. Import-competing firms, no longer able to dominate their domestic market without the aid of protection, will become strongly protectionist. Similarly, the import-competing side of mixed firms will in the face of more competitive foreign producers attribute a greater value to high tariffs.

Turning to the supply side, movements in government supply curves are stimulated by changes in profits foregone and by changing legislation costs.

Since an expanding economy raises the profits that government obtains from producing free-trade legislation, it follows that the production of protection becomes more expensive. More must be given up in terms of free-trade profits, which are now greater, in order to produce each additional unit of protection. Conversely, economic contraction causes the profits obtained from the production of free trade to decrease, thereby making it cheaper to produce protection.

Changes in legislation costs compound the supply effects of changing profits. A period of prosperity reduces the legislation costs of free trade, while a contractionary period lowers the costs of legislating protection. Since a greater proportion of society will be pressuring government for low tariffs in the former period, a government legislating high tariffs will find it necessary to buy off a larger number of groups. This need will make the legislation of each additional unit of protection that much more costly. If legislating tariff reductions, however, government will do so more cheaply since it has fewer groups to buy off, protection-seeking interests having diminished in number. By the same logic, periods of contraction should see an increase in the costs of legislating free trade and a decrease in the legislation costs of protection.

A translation of the model into less abstract, political-process form suggests a dynamic relationship between competing tariff coalitions, legislators, and the business cycle. Legislators will favor a protectionist coalition, let us say, over a free-trade coalition only insofar as siding with the former is potentially more advantageous, in terms of expected political support, than siding with the latter. Consequently, the redistribution of legislation will always be directed toward that coalition with the greater amount of political support to offer (i.e., the greater amount of political purchasing power). Where the balance of power between competing coalitions is heavily skewed, we should expect policies to be strongly biased in favor of the dominant coalition. Where the balance is roughly equal, however, policies will strongly favor neither coalition.

The business cycle enters into the causal process both as a shaper of the content of group interests and as a catalyst stimulating the realignment of groups between competing coalitions. As the business cycle moves from a peak to a trough, for example, the rise in the expected utility of high tariffs, for reasons explained above, will cause protectionist groups to become more numerous (the increase in the expected gains from protection stimulates the realignment of groups from a free-trade to a protectionist coalition) and more vocal.<sup>17</sup> This change will shift the balance of power (the power of a coalition being measured by the total amount of political support that it can offer to legislators) in favor of high-tariff interests.

Both the extent of realignment and the rise in voice are contingent upon

17. The resources that each group is willing to expend in order to pressure legislators for protection will rise in proportion to the expected gains from high tariffs. As this pressure grows (i.e., as lobbying and other forms of communication, both direct and indirect, intensify), legislators will perceive society's demand for protection as having increased.

the severity of the downturn. Hence the degree to which relative levels of political power between coalitions change is determined by variations in the level of economic activity. We would expect groups favoring high tariffs, for instance, to be most abundant and most vocal during periods of severe depression. In such periods the expected utility of protection would be at its highest.

Legislators, who are sensitive to changes in political support, perceiving that a greater proportion of society's organized interests prefers high tariffs, will naturally become more amenable to protectionist demands. The proliferation of protectionist groups and their willingness to expend a greater amount of resources in obtaining favorable policies will mean that legislators stand to gain more by favoring high tariffs when formulating and voting on tariff bills.

#### *The dependent variable*

My dependent variable is the direction of tariff change, where changes are either increases or reductions. As to the magnitude of change, the logic of viewing government as a producer of legislation suggests that the change in tariffs enacted should be intelligible to organized interests, such that for any given price paid for a unit of legislation, the buyer must be assured that tariff change has been provided. Thus the model should hold for intelligible tariff changes and best explain and predict *major* tariff changes, which are, of course, the most intelligible.

Thus I coded only those tariff changes highlighted in the historical literature as significant alterations of national tariff structures. This method of coding will of course lead to obvious reliability problems. The cases furthermore represent, with some exceptions, legislated rather than internationally negotiated initiatives.<sup>18</sup> Since organized interests do not have the same access to bilateral or multilateral commercial negotiation that they do to domestic legislation, we would expect a nation's negotiating patterns to exhibit much less sensitivity to shifts in power between competing tariff coalitions. In this sense the business-cycle model is better at explaining and predicting tariff acts than commercial treaties. For Germany, sixteen tariff changes were coded: eleven reductions and five increases.<sup>19</sup> For Great Britain, fifteen tariff

18. The German cases before 1871 and during the Caprivi era (1890–94) are the only exceptions. Under the Zollverein, Prussian tariff policy was generally initiated through treaties or within the institutional framework of the customs union. Consequently, major legislative initiatives from 1853 to the founding of the Empire in 1871 are lacking. Since the period is of considerable length, I coded major treaties and general Zollverein revisions rather than omit tariff data entirely. For the Caprivi era, the most important nonlegislated initiatives were coded. Because the 1890s were a turning point in the history of German tariff policy, the model must address the decade's events.

19. The sources for German tariffs were Percy Ashley, *Modern Tariff History* (London: Dutton, 1911); Frederic Ogg, *Economic Development of Europe* (New York: Macmillan, 1920); and Asher Isaacs, *International Trade: Tariff and Commercial Policies* (Chicago: Irwin, 1948).

changes were coded: twelve reductions and three increases.<sup>20</sup> For the United States, twenty tariff changes were coded: ten reductions and ten increases.<sup>21</sup>

The business-cycle model is potentially rich in testable hypotheses that can be deduced from it. The next section tests my working hypothesis—*there exists an inverse relationship between movements in tariffs and the level of economic activity within a nation*. More precisely, tariff changes occurring in periods of high economic activity will show a downward tendency, those occurring in periods of low activity will tend upward.

### 3. Testing

I tested my working hypothesis on three nations: Germany between 1853 and 1914, and the United States and Great Britain between 1800 and 1914. Each nation is subjected to two tests that address the relation between levels of economic activity and tariff changes. The first locates periods of differing economic activity and then searches for accompanying tariff outcomes; the second locates the outcomes and then searches for accompanying levels of activity.

Test 1 presents the distribution of tariff changes across periods of high, intermediate, and low economic activity. The periods selected for analysis were quinquennia. Five-year periods were the optimal *long* periods of analysis since the average yearly expansion values over longer periods tended to be predominantly intermediate—there were too few high- and low-expansion periods for sufficient variation of the independent variable. For each quinquennium I calculated total number of expansion years (years of prosperity or revival), total number of contraction years (years of recession or depression), average yearly expansion over the quinquennium, tariff increases, and tariff reductions. Quinquennia with average annual expansion between 70 and 100 percent (3.5 to 5 years of expansion) were coded as high-expansion, those in the range 31 to 69 percent (1.5 to 3.5 years of expansion) were coded as intermediate, and those falling in the range zero to 30 percent (zero to 1.5 years of expansion) were coded as low.

There are, of course, problems with such a coding procedure. The boundaries for the three periods were assigned subjectively. There is little agreement on exactly what constitutes high, intermediate, and low expansion. Fur-

20. The sources for British tariffs were Ogg, *Economic Development*; Isaacs, *International Trade*; and J. F. Rees, *A Short Fiscal and Financial History of England, 1815–1918* (London: Methuen, 1921). The Acts of 1804 and 1815 did not formally alter existing tariffs. Rather, they revised the Corn Laws so as to afford greater protection to agriculture. Owing to a scarcity of observations and the fact that the Corn Laws were not functionally separable from tariff protection, these two cases were coded as increases. See Rees, pp. 32–38, and Isaacs, pp. 332, 333.

21. The sources for U.S. tariffs were Ashley, *Modern Tariff History*; Isaacs, *International Trade*; and Frank Taussig, *The Tariff History of the United States*, 8th ed. (New York: Putnam, 1931).

thermore, intermediate quinquennia bordering on extreme (high or low) values may function as extreme periods. Notwithstanding its imperfections, however, this tripartite classification does serve as a functional scientific tool in that it allows us to distinguish, albeit roughly, between differing levels of economic activity.

Test 2 presents average economic expansion figures (number of expansion years divided by the total number of years in each observation period) for periods surrounding the legislation of tariff reductions, and average economic contraction figures (number of contraction years divided by the total number of years in each observation period) for periods surrounding the legislation of tariff increases. The time periods tested for both tariff increases and reductions were the year in which tariffs were enacted, the year prior to enactment, the year of enactment plus the two preceding years, and the year of enactment plus the four preceding years. Average yearly expansion and contraction figures for the entire period covered in the case of each nation were provided in order to determine how far the values recorded for the four subtests vary from values dictated by chance.

### *Germany*

The results of Test 1, shown in Tables GR-1 and GR-2, exhibit a strong inverse correlation between levels of economic activity and the direction of tariff change. The first five periods conform perfectly to model expectations. The first period, 1853–54, exhibits high expansion and is accompanied by a tariff reduction. The next period, 1855–59, is an intermediate period preceded by high expansion; in this instance we would expect a tariff reduction (model expectations during intermediate periods are discussed below). The periods 1860–64 and 1865–69 are high-expansion periods and exhibit reductions, as does the intermediate period 1870–74. Of the sixteen tariff changes coded, only three (a reduction in low period 1875–79 and two reductions in low period 1890–94) fail to conform to model expectations.

Some quinquennia show no tariff changes. As stated above, changes coded represent only those legislated initiatives that the historical literature deems significant alterations in national tariff structures. These quinquennia might well have experienced legislation of a less consequential nature, or negotiated initiatives, which were not coded but conform to model expectations. In any event, governments have historically undertaken the legislation of tariffs in comprehensive bills, legislated infrequently, that cover a wide range of commodities. It would therefore be unrealistic to expect major legislation in each extreme (high or low) quinquennium.

The distribution of tariff changes across extreme quinquennia, periods in which the explanatory and predictive powers of the business-cycle model should be strongest, supports the hypothesis. Of the eleven changes occurring in such periods (see Table GR-2), only three go against model expectations.

**TABLE GR-1.** *Expansion and contraction per quinquennium: Germany, 1853–1914*

| Period                 | Years of  |             | Average<br>Yearly<br>Expansion (%) | Tariff    |            |
|------------------------|-----------|-------------|------------------------------------|-----------|------------|
|                        | Expansion | Contraction |                                    | Increases | Reductions |
| 1853–1854 <sup>a</sup> | 2.00      | 0.00        | 100                                | 0         | 1          |
| 1855–1859              | 2.50      | 2.50        | 50                                 | 0         | 1          |
| 1860–1864              | 5.00      | 0.00        | 100                                | 0         | 1          |
| 1865–1869              | 4.00      | 1.00        | 80                                 | 0         | 2          |
| 1870–1874              | 3.00      | 2.00        | 60                                 | 0         | 2          |
| 1875–1879              | 1.50      | 3.50        | 30                                 | 1         | 1          |
| 1880–1884              | 1.50      | 3.50        | 30                                 | 0         | 0          |
| 1885–1889              | 3.25      | 1.75        | 65                                 | 2         | 0          |
| 1890–1894              | 0.25      | 4.75        | 5                                  | 1         | 2          |
| 1895–1899              | 5.00      | 0.00        | 100                                | 0         | 0          |
| 1900–1904              | 1.50      | 3.50        | 30                                 | 1         | 0          |
| 1905–1909              | 2.50      | 2.50        | 50                                 | 0         | 0          |
| 1910–1914              | 3.75      | 1.25        | 75                                 | 0         | 1          |

a. Data before 1853 not available in source.

**TABLE GR-2.** *Distribution of tariff changes by quinquennia: Germany*

|                                  | Tariff Increases | Tariff Reductions |
|----------------------------------|------------------|-------------------|
| High Expansion (70%–100%)        | 0                | 5 <sup>a</sup>    |
| Intermediate Expansion (31%–69%) | 2                | 3                 |
| Low Expansion (0%–30%)           | 3                | 3                 |
| Intermediate Preceded by Low     | 2                | 0                 |
| Intermediate Preceded by High    | 0                | 3 <sup>b</sup>    |

a. One reduction is from the two-year period 1853–54.

b. Thorp provides data for only two years, in which a reduction takes place, preceding the intermediate quinquennium 1855–59.

Tariff changes in high-expansion quinquennia conform perfectly: all are reductions. Those occurring in low periods conform less well to expectations; the six changes are evenly distributed between increases and reductions.

The quinquennial expansion averages in Table GR-1 reveal an interesting pattern when considered in light of German commercial policy from 1860 to 1914. Germany's so-called free-trade era, 1860–79, exhibits a 68-percent

average annual expansion rate. German protectionism reestablished itself between 1880 and 1914, years that exhibit much lower annual average expansion (approximately 50%). The decade in which German free trade took off, 1860–70, exhibits the only two successive high-expansion quinquennia of the entire period. Average annual expansion throughout that decade is 90 percent, compared to a 48-percent average during the decade that witnessed the return of protectionism, 1880–90 (the first quinquennium of this decade is, in fact, the second of only two successive low-expansion quinquennia of the entire period).

The emerging pattern of economic expansion accompanied by free trade and contraction by protection is reinforced by the distribution of low-expansion quinquennia. Before 1880, when free trade predominated, only one out of five quinquennia is low, and this single low period directly precedes the first quinquennium of the protectionist period. After 1880, when protectionism predominated, three quinquennia are low. Over the entire period the ratio of low to total quinquennia is 4:12. The ratio for Great Britain between 1800 and 1914 is 3:23. Did the so-called protectionist ideology of Germany and free-trade ideology of Great Britain not merely reflect differing patterns of economic growth?

The business-cycle model thus far is strongest at the extremes: it best explains and predicts the direction of tariff change in conditions of high and low expansion. The model can, however, be modified so as to address the effects of intermediate expansion, by incorporating expectation lags. The notion of expectation lags, as it applies to the behavior of groups seeking government output during periods of moderate economic activity, shares the fundamental assumptions of bounded-rationality theory.<sup>22</sup> It postulates that belief systems are fairly rigid. Modification of these beliefs takes place incrementally and only in response to strong external signals. Where signals are weak or unclear, little or no modification should be expected. Thus in a period of high expansion, where economic signals of prosperity are strongest, expectations will be modified in a positive direction: people will expect prosperity. The opposite will occur in periods of high contraction or low expansion: negative expectations will be stimulated. Economic signals will be both weak and unclear during intermediate periods. Consequently, we should expect the continuation of positive expectations in intermediate periods preceded by high periods, and negative expectations in intermediate periods preceded by low periods. The behavior of groups in intermediate periods will approximate the behavior expected in preceding extreme periods.

Taking into account expectation lags, the business-cycle model suggests

22. On the theory of bounded rationality, see Charles Lindblom, "The Science of Muddling through," *Public Administration Review* 19 (Spring 1959); Herbert Simon, *Administrative Behavior* (New York: Free, 1965); and James March and Herbert Simon, *Organization* (New York: Wiley, 1958).

**TABLE GR-3.** *Average yearly economic change in periods of tariff change (%)*: Germany

|   | <i>Average<br/>Expansion<br/>(Tariff<br/>Reductions)<sup>a</sup></i> | <i>Average<br/>Contraction<br/>(Tariff<br/>Increases)<sup>b</sup></i> |
|---|--|---|
| Same Year (Year of Enactment)             | 77   | 70  |
| Previous Year                             | 60   | 95  |
| Three Years (Same Year plus Two Previous) | 67   | 80  |
| Five Years (Same Year plus Four Previous) | 64   | 70  |
| Period (1853–1914)                        | 58   | 42  |

a. N = 11 for “Same Year”; N = 10 for other computations, which omit the tariff of 1853.

b. N = 5.

that we should find a low-expansion quinquennium preceding an intermediate quinquennium in which there is a tariff increase, and a high-expansion quinquennium preceding an intermediate quinquennium in which there is a reduction. Table GR-2 shows that the distribution of tariff changes across intermediate-preceded-by-extreme quinquennia conforms to model expectations.

For the second test, the higher-than-period-average expansion and contraction values in Table GR-3 are consistent with model expectations. The years surrounding the enactment of tariff increases exhibit contraction values well above the average for the entire period (1853–1914). Had no relationship existed between the variables, we would expect the four subtest values to converge around a 42-percent rate. Similarly, years surrounding the enactment of tariff reductions exhibit expansion values above the 58-percent average.

Moreover, the data establish causal direction between the variables. Higher-than-period-average expansion values precede the enactment of tariff reductions, while higher-than-period-average contraction values precede the enactment of tariff increases; these results support the validity of modeling economic activity as the independent variable and tariff change as the dependent variable.

In general, we should not expect all subtest averages to be above period averages. In the case of tariff increases, for example, a high previous- or three-year contraction average may suffice to stimulate the collective action necessary to extract protection from government. As all subtest averages for contraction are well above the period average, German protectionists may have required a longer time to achieve levels of collective action sufficient to extract favorable legislation. The very high previous-year value (95%

contraction) may suggest that the year prior to a tariff increase was especially important in stimulating collective action on the part of protectionists. In the case of tariff reductions, the very high same-year value in connection with moderately high previous-, three-, and five-year values may suggest that German free-traders required less time than German protectionists to collectivize and extract favorable legislation.

### *United States*

A pattern of inverse covariation between economic activity and the direction of tariff change also emerges from data in Tables US-1 and US-2. Of fourteen tariff changes occurring in extreme quinquennia or intermediate-preceded-by-extreme quinquennia, eleven conform to model expectations.

Tariff changes occurring in intermediate quinquennia preceded by other intermediate quinquennia are not addressed. The reason is that we can be far less certain of the effects of expectation lags over two or more successive intermediate quinquennia following an extreme quinquennium. Since these effects are more predictable in the short run, longer-range lags are not addressed.

The distribution of tariff changes in Table US-2 exhibits a strong correlation with economic activity at the extremes. Of the nine changes occurring in extreme quinquennia, only one runs counter to model expectations.

When viewed in light of U.S. commercial policy during the 19th century, the quinquennial expansion averages reveal an interesting pattern. The so-called American free-trade period—actually a period of moderate protection running from the mid-1840s to the beginning of the Civil War<sup>23</sup>—exhibits an average yearly expansion value of 60 percent (an intermediate value bordering on high). During 1860–79, while Europe was trading freely, the United States became heavily protectionist. Average yearly expansion in this period for the United States was 44 percent, compared to a 68-percent average for Germany and 55 percent for Great Britain.

The distribution of tariff changes across intermediate-preceded-by-extreme quinquennia (Table US-2) lends mild support to the hypothesis. As expected, we find more reductions than increases in intermediate-preceded-by-high quinquennia. Overall, three of the five cases support the model. The low N, however, renders any conclusions at best speculative.

Unlike the German values for test 2, U.S. values are not all well above period averages (see Table US-3). The five-year contraction average is very close to the period average, the same-year expansion average is almost identical. However, in that a majority of the values are above period averages we may say that the data support the hypothesis. The well-above-average and almost identical values for the first three contraction subtests (60%,

23. See Taussig, *Tariff History*, pp. 156, 157.

TABLE US-1. *Expansion and contraction per quinquennium: United States, 1800–1914*

| Period                 | Years of  |             | Average<br>Yearly<br>Expansion (%) | Tariff    |            |
|------------------------|-----------|-------------|------------------------------------|-----------|------------|
|                        | Expansion | Contraction |                                    | Increases | Reductions |
| 1800–1804              | 3.00      | 2.00        | 60                                 | 1         | 0          |
| 1805–1809              | 2.75      | 2.25        | 55                                 | 0         | 0          |
| 1810–1814              | 4.75      | 0.25        | 95                                 | 0         | 0          |
| 1815–1819              | 0.25      | 4.75        | 5                                  | 2         | 0          |
| 1820–1824              | 3.00      | 2.00        | 60                                 | 1         | 0          |
| 1825–1829              | 2.75      | 2.25        | 55                                 | 1         | 0          |
| 1830–1834              | 4.00      | 1.00        | 80                                 | 0         | 3          |
| 1835–1839              | 3.25      | 1.75        | 65                                 | 0         | 0          |
| 1840–1844              | 1.50      | 3.50        | 30                                 | 1         | 0          |
| 1845–1849              | 2.75      | 2.25        | 55                                 | 0         | 1          |
| 1850–1854              | 3.75      | 1.25        | 75                                 | 0         | 0          |
| 1855–1859              | 2.50      | 2.50        | 50                                 | 0         | 1          |
| 1860–1861 <sup>a</sup> | 1.00      | 1.00        | 50                                 | 1         | 0          |
| 1865–1869              | 2.50      | 2.50        | 50                                 | 0         | 0          |
| 1870–1874              | 2.50      | 2.50        | 50                                 | 0         | 2          |
| 1875–1879              | 1.50      | 3.50        | 30                                 | 1         | 0          |
| 1880–1884              | 2.75      | 2.25        | 55                                 | 0         | 0          |
| 1885–1889              | 4.00      | 1.00        | 80                                 | 0         | 0          |
| 1890–1894              | 2.00      | 3.00        | 40                                 | 1         | 1          |
| 1895–1899              | 3.25      | 1.75        | 65                                 | 1         | 0          |
| 1900–1904              | 3.75      | 1.25        | 75                                 | 0         | 0          |
| 1905–1909              | 3.75      | 1.25        | 75                                 | 0         | 1          |
| 1910–1914              | 1.50      | 3.50        | 30                                 | 0         | 1          |

a. Data from Civil War years 1862–64 not available in source.

TABLE US-2. *Distribution of tariff changes by quinquennia: United States*

|                                  | Tariff Increases | Tariff Reductions |
|----------------------------------|------------------|-------------------|
| High Expansion (70%–100%)        | 0                | 4                 |
| Intermediate Expansion (31%–69%) | 6                | 5                 |
| Low Expansion (0%–30%)           | 4                | 1                 |
|                                  | .                |                   |
| Intermediate Preceded by Low     | 1                | 1                 |
| Intermediate Preceded by High    | 1                | 2                 |

**TABLE US-3.** *Average yearly economic change in periods of tariff change (%)*: United States

|                    | <i>Average Expansion<br/>(Tariff Reductions)<sup>a</sup></i> | <i>Average Contraction<br/>(Tariff Increases)<sup>b</sup></i> |
|--------------------|--|---|
| Same Year          | 55   | 60  |
| Previous Year      | 70   | 60  |
| Three Years        | 63   | 58  |
| Five Years         | 60   | 47  |
| Period (1800–1914) | 56   | 44  |

a. N = 10. b. N = 10.

60%, and 58%) may suggest that the collectivization of protectionist interests and the subsequent extraction of tariff increases from government took place over some three years, each of the years being equally important in stimulating collective action.

The above average previous-, three-, and five-year expansion values suggest a longer collectivization and extraction period for free-trade interests. The fairly high previous-year value indicates the special importance of the year prior to the enactment of tariff reductions in the stimulation of collective action.

### *Great Britain*

Great Britain shows somewhat less conformity to the model in test 1 than do the United States and Germany. Still, the data are mildly supportive of the hypothesis. Of ten tariff changes occurring either in extreme quinquennia or intermediate-preceded-by-extreme quinquennia, seven are consistent with model expectations (see Table GB-1).

Tariff reductions exhibit greater conformity to the model than do increases. Of the ten tariff changes, eight are reductions and two are increases. Seven of the eight reductions behave according to expectations, while both increases do not. We should not, however, be too quick to dispense with the model in explaining British tariff policy. Owing to the scarcity of consequential tariff increases in Great Britain during the 19th century, only three were coded. Deriving systematic behavioral patterns in such a low-N setting would seem a highly speculative venture. Furthermore, two of the increases (1815 and 1816) came at the end of the Napoleonic Wars, when Great Britain was saddled with a debt of £860 million. Although the years 1815–19 exhibit an intermediate-expansion average, the economic exigencies brought about by war (such as the debt) may have been sufficient to stimulate low-expansion commercial behavior on the part of British government.

TABLE GB-1. *Expansion and contraction per quinquennium: Great Britain, 1800–1914*

| Period    | Years of  |             | Average<br>Yearly<br>Expansion (%) | Tariff    |            |
|-----------|-----------|-------------|------------------------------------|-----------|------------|
|           | Expansion | Contraction |                                    | Increases | Reductions |
| 1800–1804 | 1.75      | 3.25        | 35                                 | 1         | 0          |
| 1805–1809 | 3.00      | 2.00        | 60                                 | 0         | 0          |
| 1810–1814 | 3.50      | 1.50        | 70                                 | 0         | 0          |
| 1815–1819 | 2.50      | 2.50        | 50                                 | 2         | 0          |
| 1820–1824 | 4.50      | 0.50        | 90                                 | 0         | 1          |
| 1825–1829 | 2.50      | 2.50        | 50                                 | 0         | 1          |
| 1830–1834 | 2.75      | 2.25        | 55                                 | 0         | 1          |
| 1835–1839 | 2.00      | 3.00        | 40                                 | 0         | 0          |
| 1840–1844 | 1.75      | 3.25        | 35                                 | 0         | 1          |
| 1845–1849 | 3.25      | 1.75        | 65                                 | 0         | 2          |
| 1850–1854 | 4.00      | 1.00        | 80                                 | 0         | 1          |
| 1855–1859 | 2.75      | 2.25        | 55                                 | 0         | 0          |
| 1860–1864 | 5.00      | 0.00        | 100                                | 0         | 2          |
| 1865–1869 | 2.00      | 3.00        | 40                                 | 0         | 2          |
| 1870–1874 | 3.75      | 1.25        | 75                                 | 0         | 0          |
| 1875–1879 | 0.25      | 4.75        | 5                                  | 0         | 1          |
| 1880–1884 | 3.00      | 2.00        | 60                                 | 0         | 0          |
| 1885–1889 | 3.25      | 1.75        | 65                                 | 0         | 0          |
| 1890–1894 | 0.75      | 4.25        | 15                                 | 0         | 0          |
| 1895–1899 | 4.50      | 0.50        | 90                                 | 0         | 0          |
| 1900–1904 | 1.00      | 4.00        | 20                                 | 0         | 0          |
| 1905–1909 | 3.75      | 1.25        | 75                                 | 0         | 0          |
| 1910–1914 | 4.00      | 1.00        | 80                                 | 0         | 0          |

Another problem that hinders the induction of systematic patterns of tariff increase in the British case is the scarcity of low quinquennia—only three out of twenty-three. This scarcity limits the variation in the independent variable. From a logical standpoint, however, that Great Britain should simultaneously exhibit a scarcity of both low-expansion periods and significant tariff increases is consistent with the model.

A further problem emerges in the fact that there are no significant tariff alterations after 1875. The greater variation in the independent variable (as compared to the first 75 years) fails to stimulate a commercial policy response. We can advance two plausible explanations, which may be additive. One derives from the logic of the model; it has to do with the cumulative effects of expectation lags. The other lies outside the model; it is concerned with the growth of empire.

The first low period comes after almost eight decades of either high or intermediate expansion. Neither the United States nor Germany comes close to this unbroken stretch of high and moderate quinquennial prosperity. The longest U.S. period is thirty years (1880–1909), while Germany exhibits no more than twenty-two consecutive years of high and intermediate growth (1853–1874).<sup>24</sup> The absence of low growth may itself have caused expectations to become rigid in a positive direction, making organized interests less sensitive to economic downturns. The institutional rigidities, which economic historians have often discussed, surrounding British commercial policy making in the latter decades of the 19th century may have been a direct outgrowth of this tendency toward optimism. Moreover, each of the low quinquennia after 1889 is immediately followed by high prosperity. Whatever stimulus these brief periods of low growth gave to high-tariff interests was quickly counteracted by a dynamic economy.<sup>25</sup> This argument is, however, highly speculative. One might just as easily argue that ideology conditions expectations. In any event, there is little evidence on causation either way.

Second, despite the propensity on the part of Britain's industrial trading partners to close off their markets to British goods, the empire provided stable demand for British exports. The vent for exports and secure source of supply provided by overseas possessions made Britain less vulnerable, in the absence of tariffs, to the commercial warfare that characterized the late 19th century. In a sense, the empire became a substitute for tariffs.

The distribution of tariff changes across extreme quinquennia (see Table GB-2) exhibits a stronger relationship between high expansion and tariff reductions than between low expansion and increases. The one tariff change occurring in a low quinquennium is an unexpected reduction.

Tariff changes in intermediate-preceded-by-extreme quinquennia lend mild support to the relation between expansion and tariff reductions, as well as to the existence of expectation lags (see Table GB-2). More of the tariff changes occurring in intermediate-preceded-by-high quinquennia are reductions. The low *N*, of course, renders these findings less than conclusive.

In test 2 the fairly high expansion values in periods of tariff reductions are consistent with the model. The fact that all are above the period average, with the same-year value being highest, suggests a roughly five-year collectivization and extraction period for British free-trade interests, with the year of enactment being especially important in stimulating collective action (see Table GB-3).

The very low contraction values for the previous-, three-, and five-year

24. Such cross-sectional variation in economic activity may hold the key to explaining the emergence of differing commercial ideologies within the three nations. It would seem only natural for Great Britain, having experienced the longest stretch of high and moderate prosperity, to be guided by liberal policy prescriptions.

25. A similar interpretation is provided by Ross Hoffman. See his *Great Britain and the German Trade Rivalry, 1875–1914* (New York: Russell & Russell, 1964).

**TABLE GB-2.** *Distribution of tariff changes by quinquennia: Great Britain*

|                                  | <i>Tariff Increases</i> | <i>Tariff Reductions</i> |
|----------------------------------|-------------------------|--------------------------|
| High Expansion (70%–100%)        | 0                       | 4                        |
| Intermediate Expansion (31%–69%) | 3                       | 7                        |
| Low Expansion (0%–30%)           | 0                       | 1                        |
| Intermediate Preceded by High    | 2                       | 3                        |

**TABLE GB-3.** *Average yearly economic change in periods of tariff change (%): Great Britain*

|                    | <i>Average Expansion<br/>(Tariff Reductions)<sup>a</sup></i> | <i>Average Contraction<br/>(Tariff Increases)<sup>b</sup></i> |
|--------------------|--|---|
| Same Year          | 71   | 75  |
| Previous Year      | 66   | 25  |
| Three Years        | 67   | 33  |
| Five Years         | 62   | 38  |
| Period (1800–1914) | 57   | 43  |

a. N = 12. b. N = 3.

subtests in conjunction with a very high same-year value suggests that British high-tariff interests were able almost instantaneously to collectivize and extract favorable legislation. More specifically, protectionists had the ability to collectivize and extract tariff increases from government in less than a year's time. In light of the relative weakness of British protectionism throughout the period, this conclusion hardly seems likely. In any event the low N strips conjecture either way of any certainty.

#### *Alternative explanations*

That the data generally support the business-cycle model is not in itself a reflection of the strength of competing theories. It merely suggests that the model is one of several possible approaches to the study of tariffs that is not disconfirmed by the evidence. As is usual in social scientific inquiry, the data are consistent with several explanations of the phenomenon. In the case of Germany, for example, the data support hegemonic stability theory as much as they do the business-cycle model. In the years of Great Britain's rising hegemony (1860–80), German tariff changes indicate a trend toward greater liberalization. This policy reverses itself with British hegemonic decline (1880–1914). Of the fourteen changes coded since 1860, only four run counter

to a hegemonic stability explanation. An ideology explanation, however, does far less well. With such an explanation of tariff policy we would expect major reductions to be absent throughout the period, but of the sixteen changes coded, only five are increases.

In the case of the United States the data support neither explanation. For both, the supporting cases are as numerous as the disconfirming cases (ten for and ten against). The data from 1880 on, however, do favor David Lake's modified hegemonic stability theory and an explanation based on political party affiliation.<sup>26</sup> Lake sees the commercial policy preferences of the United States as a function of its position in the international economic structure. As a supporter (a middle-sized nation of high relative productivity) under British hegemony between 1887 and 1897, the United States would be expected to free ride on British leadership (i.e., maintain high tariffs while actively exporting). As a supporter in a system of declining hegemony, 1897–1912, and a cosupporter in a system of bilateral supportership, 1912–30, the United States would be expected to adopt more liberal policies as it took on some of the burden of systemic leadership. Of the five changes I coded from 1880 to 1914, four conform to Lake's explanation. Two out of the three changes before 1898 are increases, both later changes are reductions.

Party political affiliation suggests a polarization of commercial policy preferences along party lines: Democrats favoring reductions, Republicans favoring increases.<sup>27</sup> Four out of the five tariff changes after 1880 support this idea: both increases occur under Republican presidents, and two (1894, 1913) of three reductions occur under Democratic presidents.

The British data best conform to an ideology explanation. From the 1820s on, after free-trade ideology became an influential force in political circles, tariff changes exhibit an unbroken liberal trend. All twelve changes between 1820 and 1879 are reductions. The nonevents (i.e., absence of tariff changes) between 1880 and 1914 provide further support. The absence of increases, especially in the face of severe downturns in two of the last five quinquennia, attests to the superiority of an ideology theory of tariffs (the business-cycle model would have expected increases in these two quinquennia). In fact, neither the business-cycle model nor hegemonic stability theory finds any empirical support in the late 19th and early 20th centuries. A pronounced variation in economic activity fails to stimulate any change in tariff policy. Such an outcome cuts sharply against the business-cycle model. Hegemonic stability theory, on the other hand, would predict that a change in policy toward greater protection will result from hegemonic decline—which did not

26. See David Lake, "International Economic Structures and American Foreign Economic Policy, 1887–1934," *World Politics* 35 (July 1983), and his "Structure and Strategy: The International Sources of American Trade Policy, 1887–1939" (Ph.D. diss., Cornell University, 1984).

27. The polarization of commercial policy preferences along party lines after the Civil War was especially evident during the last three decades before World War I. See Taussig, *Tariff History*.

**TABLE ID-1.** *Distribution of tariff changes in intermediate quinquennia preceded by extreme quinquennia*

| Country       | Intermediate<br>Preceded by | Tariff Increases | Tariff Reductions |
|---------------|-----------------------------|------------------|-------------------|
| Germany       | Low                         | 2                | 0                 |
|               | High                        | 0                | 3                 |
| Britain       | Low                         | 0                | 0                 |
|               | High                        | 2                | 3                 |
| United States | Low                         | 1                | 1                 |
|               | High                        | 1                | 2                 |

happen. The data suggest that British tariff policy was more sensitive to ideology than to shifts in business conditions or to changes in the global distribution of power.

Over all three nations, however, the business-cycle model does best. Of tariff changes occurring in extreme quinquennia or intermediate-preceded-by-extreme quinquennia, thirty-one out of forty conform to model expectations. Of these same forty cases, hegemonic stability theory explains twenty-two, ideology nineteen.

When formally testing an ideology explanation, however, we cannot expect all tariff changes occurring in Great Britain to be reductions and all those occurring in the United States and Germany to be increases. Ideology models should not be criticized because they fail to explain and predict all tariff movements. So the test in Table ID-1 observes the movements of tariffs during periods when ideology models are most likely to hold. Intermediate-expansion quinquennia are such periods. In an extreme period we would expect the balance of political power between competing tariff coalitions to be heavily skewed, giving one set of tariff interests a significant advantage in extracting favorable legislation. It is during periods of moderate economic activity, when there is a roughly even balance between coalitions, that a prevailing ideology will be most influential in swinging decision makers either to free trade or to protection.

The data indicate that the business-cycle model is superior to an ideology explanation in accounting for tariff movements. Of fifteen tariff changes occurring in intermediate-preceded-by-extreme quinquennia, only seven (two U.S. increases, three British reductions, and two German increases) conform to ideology expectations. Compare this to an eleven-to-four ratio in favor of a business-cycle explanation. Of the eleven tariff changes occurring in intermediate-preceded-by-high quinquennia, eight are reductions. Of the four changes occurring in intermediate-preceded-by-low quinquennia, three are increases.

How do the explanatory powers of hegemonic stability theory match those

**TABLE HS-1.** *Tariff changes for three nations: United States, Germany, and Great Britain*

| <i>Tariff Changes Occur in</i>   | <i>Tariff Increases</i> | <i>Tariff Reductions</i> |
|--|-------------------------|--------------------------|
| Low-Expansion Quinquennia<br>During 1860–79<br>(Rising Hegemony)       | 2                       | 2                        |
| High-Expansion Quinquennia<br>During 1880–1914<br>(Declining Hegemony) | 0                       | 2                        |

of the business-cycle model? Table HS-1 presents tariff changes for all three nations occurring in low-expansion quinquennia between 1860 and 1879 and high-expansion quinquennia between 1880 and 1914. The two models predict opposite test results for each period. The first period was one of rising hegemony according to Krasner; hegemonic stability theory would expect it to exhibit reductions. The business-cycle model, on the other hand, would expect increases because the tariff changes are taking place in low-expansion quinquennia. In the second period, one of declining hegemony, hegemonic stability theory would expect increases while the business-cycle model would expect reductions.

The tariff changes in Table HS-1 exhibit greater sensitivity to economic activity than to the concentration of global power and hence support a business-cycle argument. Four of six changes conform to model expectations. The low N, however, makes any conclusions derived from the comparison of these two theoretical approaches less than certain.

#### *Inferring causation from correlation*

Although tariff trends, on a whole, conform to model expectations, the data may not accurately reflect the strength of the business cycle as a source of causation. Did actual historical events exhibit a pattern markedly different from what the numbers suggest? A detailed survey of the history of the period is one way of confirming that correlation and causation are the same. Such a task goes far beyond the scope of an article, but it is possible briefly to highlight some of the more authoritative historical arguments about the major sources of commercial policy for each nation.

In the case of Germany, most historical accounts of German tariff policy in the 1850s and 1860s tend to agree, Prussia's predilection toward free trade was largely dictated by rivalry with Austria over the leadership of German unification.<sup>28</sup> The business cycle has not traditionally been regarded as an

28. See, for example, Helmut Böhme, *Deutschlands Weg zur Grossmacht* (Berlin: Kiepenheuer & Witsch, 1966).

effective cause of German policy during this period. Yet evidence suggests it was a consequential permissive cause. The prosperity of these two decades stimulated rising agricultural revenues and led the politically powerful Junkers to advocate a policy of export expansion and, consequently, low tariffs. They had done well at home and now sought to penetrate foreign markets. Once joined by the trading sectors and part of the industrial community, the free-trade coalition became the dominant commercial coalition in Prussian society. This broad base of political support facilitated the free-trade initiatives of Prussian leaders.<sup>29</sup>

The business cycle assumed a more directly causal role in the 1870s.<sup>30</sup> When a severe downturn hit Germany in 1873, policy was dominated by a low-tariff coalition led by the Junkers. By 1879 the balance of power had shifted strongly in favor of protectionism. Declining industrial revenues resulting from a fall in prices during the early years of the long depression stimulated the collectivization of middle and heavy industry—which had never been organized politically before the 1870s—into new pressure groups, such as the Association of German Steel Producers and the Central Association of German Industrialists, whose primary purpose it was to extract tariff increases from government.

Industry was joined by agriculture in the mid-1870s when the Junkers shifted their support from free trade to protection. The shift was stimulated by a sharp decline in agricultural prices and a massive influx of foreign grain. The fall in prices and the competition from foreign imports in conjunction with a dwindling rural population meant that landowners would be forced to pay higher wages when profits and the value of land were declining. Protection offered them the means to exclude imports and maintain price levels.

Led by the two pillars of the German state, industry and agriculture, the protectionists assumed a dominant role in shaping policy. In the Reichstag, during the late 1870s, members of the conservative, liberal, and center parties succeeded in establishing the basis of a parliamentary majority in favor of protection. This position of strength culminated in the highly protective tariff of 1879.

The events of the Caprivi era (1890–94), unlike those of the preceding period, cut sharply against the model. These years saw tariff reductions in the face of slow growth and the protests of powerful agricultural interests. Caprivi's bureaucratic skill and isolation from the various power centers of the German state (kaiser, bureaucracy, court, and army) allowed him to

29. See Helmut Böhme, *An Introduction to the Social and Economic History of Germany* (New York: St. Martin, 1978).

30. Excellent historical accounts of this period may be found in Martin Kitchen, *The Political Economy of Germany, 1815–1914* (Montreal: McGill-Queen's University Press, 1978), and Helmut Böhme, "Big Business Pressure Groups and Bismarck's Turn to Protectionism, 1873–79," *Historical Journal* 10, 2 (1967).

pursue a liberal policy in a nation dominated by protectionist interests.<sup>31</sup> Clearly the model has trouble with powerful and skillful leaders whose commercial preferences are autonomous (i.e., not driven by the structure of political support within their societies). In such instances policy outcomes may diverge sharply from model expectations, as the data for Germany in the early 1890s show.

In the case of the United States the historical literature indicates that the business cycle had more of an impact on policy before the Civil War. According to Frank Taussig, the protectionist movement of the 1820s and early 1830s was set in motion by the crisis of 1818–19. Manufacturers sought protection for their young industries in hard times, while agriculture clamored for a secure home market. Conversely, the widespread prosperity of the years 1846–57 caused a softening of the collective voice of protectionist manufacturers, who were content with the increased revenues generated by high economic growth, thus allowing the interests of southern agriculture (low prices on manufactures and export expansion) to shape policy.

Events after 1865 attest to the influence of other forces. It has been suggested, for example, that the war itself, by stimulating greater industrialization and turning national sentiments against the South, was responsible for shifting the balance of political power in favor of the traditionally protectionist industrialists. Greater power in the major political parties gave protectionist interests the opportunity to block the formation of low-tariff coalitions and assure satisfactory levels of protection throughout the rest of the century.<sup>32</sup> The influence of party affiliation, especially in the last three decades before World War I, has also been emphasized. Democrats advocated a somewhat less protectionist policy than Republicans.<sup>33</sup> The data favor both explanations of postwar policy.

A third explanation highlights the connection between tariff legislation and the revenue needs of government. Taussig contends that changes in the financial position of the U.S. government have historically given rise to alterations in tariffs: revenue surpluses causing reductions, deficits causing increases. Such a trend, Taussig suggests, was evident in the tariff acts of 1857, 1861, 1864, 1872, 1875, 1883, and 1890.

Finally, for Great Britain the literature has emphasized three influential forces: early industrialization, ideology, and an economic position of strength deriving from overseas interests—none of which is purported to relate to the business cycle. Some have attributed the rise of free trade in Britain to her lead in the industrial revolution. They argue that free trade seemed the “natural” policy for a highly productive nation trying to maintain a high level of industrialization in the face of limited home demand and a scarcity

31. See Kitchen, *Political Economy*.

32. See Peter Gourevitch, “International Trade, Domestic Coalitions, and Liberty: Comparative Responses to the Crisis of 1873–1896,” *Journal of Interdisciplinary History* 8 (Autumn 1977).

33. See Taussig, *Tariff History*.

of natural resources.<sup>34</sup> The liberal trend in British policy from the 1820s to the 1860s supports this explanation.

As for ideology, the various historical accounts of British policy before World War I seem to indicate that Britain's strong ideological adherence to the principles of free trade cannot be explained fully by the business cycle alone.<sup>35</sup> Business conditions did, after all, vary throughout the latter 19th century while the commitment to low tariffs did not. The argument, proposed above, that links ideology to the business cycle (i.e., expectation lags condition ideological preferences) is highly speculative and can easily be turned around by arguing that ideology actually conditions expectations, especially ideology about the benefits of free trade. The post-1875 attachment to a liberal policy is especially troubling to the model because severe downturns failed to alter views on the utility of free trade. The British saw low tariffs as beneficial in both good and hard times. It would seem, therefore, that ideology did achieve a life of its own as a source of causation, especially in the four decades before World War I.

A third explanation points to the empire and overseas investment as sources of economic strength that allowed Britain to maintain low tariffs in the face of widespread closure during the late 19th and early 20th centuries. Trade was maintained by diverting it to the colonies, while earnings on investments bolstered the British balance-of-payments position. Britain could maintain a strong financial position without having to retreat into her domestic market.<sup>36</sup>

The historical evidence for all three nations suggests that the business cycle did achieve some prominence as a cause of tariffs, although perhaps not to the degree suggested by the data and perhaps not at all in Britain. In the case of Britain, historians have traditionally highlighted other sources of causation. The business cycle's impact was most prominent in pre-1880 Germany and the pre-Civil War United States.

#### *Alternative interpretations of the data*

The method I chose for interpreting the data was based upon an analysis of extreme values of the independent variable. There are, of course, other methods of interpretation. Many require certain assumptions regarding the sensitivity of groups to business fluctuations. I have assumed groups to be sensitive only to extreme fluctuations; hence I have been concerned primarily with tariff changes occurring in, or near, extreme quinquennia. If, however, one posits a high degree of sensitivity, such that groups can differentiate between, let us say, 49-percent and 51-percent expansion as a quinquennial average, one could use 50 percent as a boundary separating high and low

34. See Fielden, "Rise of Free Trade."

35. See Kindleberger, "Rise of Free Trade."

36. See Fielden, "Rise of Free Trade."

expansion. Such an interpretation yields the following results: for Germany, ten tariff changes in favor of the model, five against, and one tied (exactly 50% expansion); for the United States, ten in favor, six against, and four tied; for Great Britain, eight in favor, four against, and three tied. These results offer far less support to the model than those of the original tests, especially if the tied cases are counted against the model.

Moreover, the tests do not give numerical weight to nonevents, the absence of tariff changes. We can justify the exclusion on empirical grounds: that nations have historically legislated major tariffs infrequently makes it unrealistic to expect a change in every extreme quinquennium. Nevertheless, it is difficult to find a theoretical rationale for this exclusion. Nonevents may be included in the analysis by counting those quinquennia (extreme quinquennia and intermediate-preceded-by-extreme quinquennia) which produce an expected tariff change as being in favor of the model, those that produce an unexpected change or no change at all as being against, and those that produce both expected and unexpected changes as being tied. This method of interpretation yields the following results: for Germany, seven in favor, three against, and two tied; for the United States, seven in favor, eight against, and one tied; for Great Britain, five in favor, eleven against, and one tied. Overall, nineteen quinquennia are in favor, twenty-two against, and three tied.

The same quinquennia and method of interpretation used to test hegemonic stability and ideology theories produce results identical for both: twelve in favor, twenty-nine against, and three tied. Thus even if we include nonevents, the model is still superior over all three nations to competing explanations.

#### 4. Conclusions

Several points should be made regarding the limitations of the model and suggestions for future research. First, the model accounts for the direction of tariff change rather than tariff levels. There is, however, nothing in the logic of a business-cycle argument that prevents it from addressing nominal tariff levels. A modified business-cycle model would hypothesize a negative correlation between the height of tariffs and the level of economic activity within a nation. There are, however, certain obvious pitfalls: for example, as already noted, nominal levels may not always indicate the margin of protection a nation enjoys.

Second, I assumed that organized interests are sensitive to overall economic conditions within a nation rather than to specific economic processes. If we relax this assumption, to which economic processes are tariff movements most sensitive? The political business-cycle literature has shown that macroeconomic policy makers in representative democracies are especially

sensitive to movements in rates of inflation and unemployment.<sup>37</sup> Are the makers of trade policy also sensitive to particular indicators? If so, which? By disaggregating a national economy and correlating tariff movements (and/or levels) with various economic processes, component sources of causation may emerge.

Third, in that tariffs were major tools of commercial policy during the 19th century, the business-cycle model can also be considered a way of modeling protection for that period. Nations sought greater protection almost exclusively through tariff increases, and unrestricted trade through reductions.<sup>38</sup> The result was a high correlation between nominal rates and the level of protection sought. With the proliferation of nontariff barriers in the 20th century, this correlation has weakened considerably. It is, however, possible to address modern protectionism by means of a modified model that takes into account prevalent nontariff barriers (OMAs, VERs, quotas).

Finally, a more definitive statement regarding "business-cycle impact" is required. When is the model more or less likely to hold? As a preliminary thought, two factors might modify the strength of the causal arrow running from changing business conditions to movements in tariffs: national crises and election years. During periods of war, for example, we would expect national security objectives to take precedence in the legislation of commercial policy. Hence the explanatory and predictive powers of the model would be weaker. Conversely, we would expect the model to be stronger in explaining and predicting tariff policy during election years, when governments perceive the expected utility of political support to be at its highest.

The empirical analysis presented in this article, notwithstanding some low-N settings and various reliability deficiencies, lends fairly strong support to the validity of the causal process hypothesized by the business-cycle model. The inverse relation between economic activity and tariff change, which emerges from the data, gives greater credibility to the belief that tariffs are cycle-sensitive. Moreover, the findings seem to support the contention, especially prevalent in the surplus-capacity literature, that international economic cooperation is a fair-weather phenomenon. We would expect nations to be more willing to bear the costs of interdependence when their economies are performing at levels high enough to absorb the shocks of economic interpenetration.

The possibilities of reformulating the model to take into account differing levels of analysis are numerous. One such reformulation, which would appeal to scholars who prefer to view international trade relations from a structural

37. See, for example, Douglas Hibbs, "The Mass Public and Macroeconomic Performance: The Dynamics of Public Opinion toward Unemployment and Inflation," *American Journal of Political Science* 23 (November 1979).

38. Although nontariff barriers did exist in the 19th century (e.g., health codes), their trade-distorting effects were minimal when compared to those of tariffs.

perspective, could address the effects of international business cycles on systemic tariff trends. More specifically, it might show how the transmission of business cycles across national boundaries causes the commercial behavior of nations to converge.