

BOOK REVIEWS

Richard G. Harris with David Cox, *Trade, Industrial Policy, and Canadian Manufacturing* (Ontario Economic Council, Toronto, 1984) pp. v+330, paperback, \$9.

This monograph describes in detail a modeling effort and computational analysis in which scale economies and imperfect competition play a central role. It is an impressive and important contribution both to international trade theory and policy. It brings empirical reality to bear on aspects of industry structure and firm behavior which have been receiving increasing theoretical attention in the recent trade literature. It is also especially relevant for policy since it provides numerical estimates of the cost of protection to the Canadian economy and the potentially large welfare gains that could be realized if Canada were to eliminate its own trade barriers unilaterally or if there were multilateral free trade.

The recognition of scale economies and imperfect competition has important implications for comparative advantage and the cost of protection that differ from the standard model with its assumptions of perfect competition and constant returns to scale. Thus, for example, in a small open economy like Canada, it is perceived that manufacturing plants are suboptimal in size and have shorter production runs because of protection both at home and abroad. The cost of protection may thus be significantly higher in these circumstances than would otherwise be the case. If trade barriers were to be removed, individual firms might then expand and concentrate on fewer product lines, with resulting benefits derived from declining average costs. Resources would tend to be reallocated more *within* industries rather than between industries as in the standard model. Moreover, the benefits realized would supplement the traditional ones.

To analyze these issues, the authors develop a general equilibrium trade (GET) model which consists of 20 manufacturing industries that are characterized by scale economies and imperfect competition plus an additional 9 industries, including agriculture, mining, and services, which are modeled competitively and with constant returns to scale. The manufacturing industries are treated in terms of representative firms which employ capital and labor and have fixed costs and unit variable costs which are constant. Average costs are therefore declining. The noncompetitive behavior of firms involves pricing decisions which are a mixture of monopolistic competition and oligopolistic collusion. In the former case, firms establish a

monopoly price according to the Lerner formula and based on the perceived demand curve, while in the latter, they set price around a collusive 'focal point', which is defined as the world price plus the tariff on imports. A weighted average price is used in implementing the model, usually with equal weights assigned to the two behavioral rules.

The demand side of GET involves the Armington assumption which distinguishes between imports and home goods. Labor is fixed in supply and mobile only domestically while capital is mobile both domestically and internationally. Since Canada is taken to be a small country, it faces a given world price for capital. This is also the case for Canada's merchandise imports, while for exports the foreign demand schedules are downward sloping. The rest-of-world is treated in the aggregate and its supply behavior is not modeled explicitly in view of the assumption that Canada is a price taker for imports.

Goods and factor markets clear in equilibrium. In the short run, industry structure is fixed and firms may realize profits or losses in short-run equilibrium. In the long run, there is a zero profit condition which will be achieved by entry and exit of firms and changes in industry structure. The benchmark equilibrium for the model is based on actual data for 1976, and a long-run equilibrium is calculated and used as a basis for comparison with the equilibria associated with assumed changes in policies. The key parameters in the model include literature estimates of scale economies and import and export demand elasticities. Since there is no information available on the elasticities of the declining average cost functions, a best guess is used. The same is true for the weights attached to the two rules which govern firm pricing behavior.

The model is used to analyze the effects of a variety of assumed changes in trade policies and in industrial policies. Numerical results are given in the aggregate for economic welfare and a large number of endogenous variables, and there are also numerous tables of results pertaining to individual industries. The unilateral adoption of free trade (UFT) by Canada is estimated to increase Canada's welfare by 4.1 percent of GNP, and multilateral free trade (MFT) to increase welfare by 8.6 percent. These gains stem in large part from the very large increases in productivity and rationalization of product lines in particular manufacturing industries. The transportation equipment industry in Canada is the major beneficiary of MFT, while labor-intensive industries such as knitting mills and leather experience sizable declines. A sensitivity analysis is conducted in which the import elasticities, export elasticities, and scale elasticities are varied over a range below and above the actual values used. The results appear in several cases to be very sensitive to the different values. In addition to the UFT and MFT experiments, the authors analyze selective tariff cuts by industry and increases in protection. Industrial policy evaluations are also presented on an

individual industry basis for labor subsidies, capital subsidies, higher protection, export subsidies, and forced rationalization of industries.

While it is impressive, this work nevertheless has a number of problems worth mentioning. First, the representation of price behavior in terms of an average of the monopolistic competition and focal-point pricing rules is imposed on the model without any underlying theoretical justification. These two rules are troublesome when used in combination, especially since the collusive aspects of focal-point pricing do not accord with the entry and exit of firms that will occur. Second, the assumption of perfectly mobile capital internationally obscures the investment decisions being made by multinational corporations (MNCs). Thus, for example, with multilateral free trade, the model generates an automatic inflow of capital into Canada. However, since investment decisions are not modeled explicitly, it is not obvious that passive capital flows will occur. It is conceivable that MNCs might decide instead to serve the now unprotected market from their home (U.S.) base. Third, the specification of the rest of world in the aggregate fails to distinguish the special characteristics of U.S.-Canadian trade. Thus, for example, it is difficult to understand how the transportation equipment industry can be such a large beneficiary from UFT and MFT given the free trade arrangement which already exists in the U.S.-Canadian Auto Pact. Also, since Canada may confront quite different barriers in its trade with the United States as compared to other industrialized countries, it is important that these differences be taken into account in constructing the aggregate protection measures for the rest of world. A final and important consideration concerns the scale economy parameters which are central to the model. It is well known that engineering estimates of these parameters are much larger than estimates based on regression methods. But, as John Whalley points out in his review of the Harris-Cox study in the May 1984 *Canadian Journal of Economics*, there are serious drawbacks with both of these methods which may limit their usefulness. It is also not clear that the dichotomy between manufacturing and nonmanufacturing industries accurately reflects what the authors intend since some of the latter industries may be subject to government intervention and are not really competitive.

Harris and Cox are critical of most existing general equilibrium computational trade models because these models ignore the large potential benefits deriving from scale economies and industry rationalization. Their criticism may well be correct as applied to a small open economy like Canada. However, for the reasons mentioned above, their numerical results may not be definitive. Nonetheless, Harris and Cox's work greatly enhances our understanding of the issues involved and poses important questions of model design and parameterization. Canada may have much to gain from the lowering or removal of its own trade barriers and those of the United States and other trading partners. It is important therefore to encourage further

research which may help in evaluating the policy choices to be made. Harris and Cox are to be commended for their excellent start, and it is a certainty that their work will be an inspiration to others.

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Charles P. Kindleberger, *Multinational Excursions* (MIT Press, Cambridge, 1984), pp. vii + 275, \$22.50.

In reading Kindleberger's collected papers on the multinational enterprise, I was continually struck by the contrast between the traditional and more recent approaches to international industrial organization. A principal but certainly not exclusive difference between these approaches is one of 'breadth' versus 'depth'. Kindleberger's essays consist of a wide and unfortunately sometimes random sweep through the fields of economics, political science, economic history, and even sociology. Economic theory is intertwined in the same pages with very practical administrative and bureaucratic issues that are invariably abstracted from theoretical micro-economics. The institutional context, often entirely ignored in current theoretical papers, is seen here as inseparable from the principal problems.

The more modern approach, as readers of this Journal are aware, focuses on narrowly defined problems. Specific but restrictive assumptions on technology, behavior, and market structure are used to construct models which in turn are solved by the application of (invariably) the Nash equilibrium concept. These models provide a rigorous but obviously narrow understanding of how market power, scale economies, product differentiation, and so forth influence the positive and normative properties of trading equilibria and the effects of commercial policy.

Both schools of thought have something to contribute and something to learn. The traditional school as exemplified in the Kindleberger papers contributes a broad understanding of the issues and their interrelationships. Its weakness is that it offers only an 'on the one hand, but then on the other' type of discussion that leaves one with a conspicuous absence of general principles and unifying concepts. The newer formal approach contributes the latter through the vehicle of simple but rigorous and internally consistent models. By analogy, the two-by-two Heckscher-Ohlin model is a gross simplification of reality, but nevertheless it is an extremely valuable tool for understanding the basic principles linking factor endowments and trade.