

Book reviews

Jaime de Melo and David Tarr, *A General Equilibrium Analysis of U.S. Foreign Trade Policy* (MIT Press, Cambridge, MA, 1992) pp. xvii, 289, \$40.00.

In this book, de Melo and Tarr provide a quantitative general equilibrium model of how trade policy works in the United States with special attention to the steel, textile, and automobile industries. By doing so, they contribute to an ongoing policy debate over the likely effects of protection. Conditional on the choice of methodology, the book represents a successful effort. We do learn something about how the world works in this book.

It is hard to convincingly model U.S. trade policy in general equilibrium, harder to explain how it was done, and harder yet to summarize the whole package in a couple of pages. After a short introduction, the book begins by laying out a one-sector general equilibrium model. This serves the useful purpose of letting the reader know how the simplest case works. The model assumes perfect competition and product differentiation by country of origin (the Armington Assumption).

In the third chapter, the authors present the model that serves as their base model. Here the United States is composed of one representative consumer on the demand side and ten sectors on the production side. These are agriculture, food, mining, textiles and apparel, autos, iron and steel, other consumer goods, other manufactures, traded services, and construction and non-traded services. The Armington and perfect competition assumptions are maintained. All sorts of interesting extensions are later added to this model, but the basic structure stays the same. Importantly, it is difficult to model distributive issues arising from varying consumption patterns when there is but one representative consumer.

The basic model consists of 33 sets of conditions which correspond to several hundred simultaneous equations. The authors try to make all this notation clear but even under a reviewer's obligation, I could not keep it all straight. This problem is mitigated as the authors do a very nice job explaining the economics of the many equations. Since this is a general equilibrium model, the calibrated model yields an equilibrium in which factor supplies and demands are equaled, trade is balanced, consumers are on their budget frontiers, firms are on their production frontiers, prices equal costs, and final goods supplies and demands inclusive of exports and imports are

equal. Functional forms are quite restrictive, but more general ones require yet more parameters – a trade-off of which the authors are well aware.

Although the book models ten sectors, when it comes to trade policy, the action is centered on only three – autos, steel, and apparel. This is a judicious choice. Besides being where most of the policy action is, it allows the authors to concentrate on some very important details. In particular, they devote much attention to who captures the quota rents. This is the subject of chapter 4. Recent theoretical work, much of it by Kala Krishna, receives some well-deserved attention. In chapter 5, the authors compute the welfare costs of various policy experiments involving quantitative restrictions in the steel, auto, and textile industries. This material is nicely organized and yields many tables, which usually list a base case and two alternative scenarios (usually based on alternative elasticity assumptions). Whether one believes the numbers depends on how persuasive one finds the CGE approach to policy analysis. This is discussed below.

Chapter 6 considers imperfections in the factor market while chapter 7 looks at imperfect competition in the product market. In chapter 6 the authors reconsider the effects of the quantitative restrictions under different factor market assumptions. The auto and steel unions do not fit the neoclassical model of factor price determination, and the authors recognize this. Adding unions to the story is a welcome concession to reality. In chapter 7, the previously maintained assumption of perfect competition is relaxed. This chapter is rather more confusing than most of the others, and the reader interested in obtaining a better feel for the empirical importance of imperfect competition in these industries is likely to be disappointed. The authors discuss various market structures, but they all fall under two categories – contestable markets and monopolistic competition. Also, since the rest of the world is not modelled but the number of firms matter in these market structures, it was hard to know how to interpret what was going on in this part of the book.

The book concludes with a chapter on energy taxes and a chapter summarizing the research.

I have not quoted any of the myriad of welfare losses or gains that are computed in this book. There are two reasons for this. First, there are so many elasticity assumptions, product and factor market assumptions, rent capture assumptions, and so on that to cite just one figure or set of figures would be misleading. Second, I do not find the results from CGE models of the world all that persuasive. The former is as it ought to be, while the latter is more troubling.

The advantage of the CGE approach is that it is able to capture the general equilibrium nature of trade policy. This allows the authors to investigate a plethora of policies that a partial equilibrium model cannot address. Several of these policies relate to cross-industry effects, but the ones

that seemed most important to me after reading this book relate to factor market assumptions.

The disadvantage of the approach as practiced here is that it does not estimate anything, relying instead on a combination of very carefully gathered elasticities taken from other sources and chosen functional forms. (It should be noted that the authors have put much effort into hunting down the detailed elasticities their model requires, and the final product benefits from this search.) Also, the reader does not get a feel for the precision of the computed equilibria that econometrically estimated standard errors provide. While tables frequently have columns for high, average, and low elasticity estimates, this exercise is changing only one of the hundreds of estimated parameters that feed into a complex model. While general equilibrium concerns are undoubtedly empirically relevant, I was not convinced by this book that the benefits of the approach outweighed the costs.

The alternative approach would be to econometrically estimate a simple supply and demand partial equilibrium model of the industry. The assumptions one would have to make regarding product differentiation and competition would be no more heroic than those made in this volume.

In the film *Indiana Jones* there is a scene in which Indiana and pal are being chased by a wild hoard of bloodthirsty tribesmen. As Indiana turns a corner, he is confronted by a very shaky looking rope bridge that traverses an impossibly deep ravine. He hesitates, then, since there is really no choice, he starts to cross. This book is like that scene. Consider de Melo and Tarr as Indiana and pal, their CGE model as the bridge, the intricacies of U.S. international economic relations as the ravine, and the political debate over protection as the bloodthirsty tribe, and the analogy is pretty much complete.

Incidentally, the bridge broke.

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Paul Krugman, *Geography and Trade* (MIT Press, Cambridge, MA, 1991) 85 pp., \$15.95.

In the preface to the first edition of his seminal book *Interregional and International Trade*, Bertil Ohlin states his intention 'To demonstrate that the theory of international trade is only one part of a general location theory.' This preface is dated 1931. Six decades later, Paul Krugman has written a book with essentially the same intention: to redefine the field of international trade as economic geography.

The book consists of three lectures and accompanying technical appendices. The lecture format allows Krugman to write in a more relaxed style than he does in professional journals. Since even in the latter he is one of our