

## F International Economics

*Measuring the Restrictiveness of International Trade Policy.* By James E. Anderson and J. Peter Neary. Cambridge and London: MIT Press, 2005. Pp. xvii, 320. \$37.50. ISBN 0-262-01220-0. *JEL 2006-1301*

Despite the substantial reductions in tariff and other barriers to international trade that have been negotiated and enacted over the past sixty years since the inception of the General Agreement on Tariffs and Trade (GATT), distortions to international trade continue to exist. Indeed, there have been recent worrying signs that perhaps the post-World War II trend to free trade may not only have stalled but reversed. The lack of progress on the latest Doha Round of trade negotiations being organized by the World Trade Organization (WTO), which replaced GATT, is of particular concern. There has also been a spate of preferential trade agreements (typically called free trade areas but often stopping far short of free trade), which embody discriminatory trade policies that go against the most favored nation concept of applying the same tariffs to imports from each nation. Given this continued persistence of substantial trade barriers, the book by James Anderson and Peter Neary on the measurement of the restrictiveness of international trade policy is apposite.

Anderson and Neary propose two main measures of the restrictiveness of international trade policy for an economy, which (in the first instance) is assumed to be perfectly competitive and to have duties imposed on its imports. The first is the trade restrictiveness index (TRI), which the authors define as the uniform ad valorem tariff rate that, if applied to all imports, would achieve the same level of welfare (in a single consumer model) as the initial equilibrium with an arbitrarily given tariff structure. An advantage of this TRI concept is that it is intuitively appealing, with the restrictiveness of tariffs being reduced to a single tariff rate that could be actually used as a trade policy instrument. The authors argue that this is an appropriate measure if welfare is the primary concern and that existing measures of average tariff rates with import shares as weights are deficient in important respects.

The second main measure of trade restrictiveness is dubbed the Mercantilist trade

restrictiveness index (MTRI), designed to appeal to trade policy negotiators, policy analysts, and advisors for whom market access and trade volumes are the variables of interest rather than consumer welfare. In this case, the value of a country's imports (the goods subject to tariffs), where (importantly) the valuation of the import quantities uses world prices, is taken as the measure of market access. The MTRI is defined by the authors as the uniform tariff rate that, if applied to all imports, would result in the same level of market access (world price value of imports) as occurs in the initial equilibrium.

The book is devoted to explaining and developing the theoretical properties of these two concepts, arguing the advantages of them over existing measures in the literature, extending their applicability to a range of more general situations than considered in the introductory chapters and, importantly, discussing how the concepts can be applied to real world economies.

The book is divided into three parts. The first part comprises just one chapter designed to provide a nontechnical discussion of the two trade restrictiveness indices. It does this through partial equilibrium supply and demand curve diagrams for two goods, supplemented by some graphs of numerical simulations. This chapter effectively provides the essence of the arguments to come later in a duality-based, general equilibrium analysis that continues throughout the rest of the book. Those wanting only partial equilibrium analysis will have to put the book down at the end of this chapter.

Part 2, comprising eight chapters, develops the theory of the measurement of trade restrictiveness in considerable detail. The authors devote the first chapter of this part to a review of the theory of tariff policy in a small open economy with a single consumer. They develop the duality technology (expenditure and revenue functions) that have become accepted tools used by trade theorists and that are used throughout the book, and summarize the main results concerning the welfare effects of radial tariff reductions and the concertina tariff reform (whereby the largest ad valorem tariff is reduced).

The TRI and the MTRI are defined and analyzed in the next two chapters. Although each concept is defined as a solution of an equation for a uniform tariff rate, the authors show that the

concepts, in rates of change form, can be expressed as a weighted average of tariff rates. They stress that the weights are not the import share weights used in the calculation of the weighted average tariff rate that is commonly applied in the literature, since they account for substitution in both production and consumption as a result of the tariffs. In contrast, the usual formula typically gives low weight to goods with very high tariffs since they are likely to have small import volumes. Therein lies the main criticism that Anderson and Neary direct at the standard, accepted measure of trade restrictiveness.

The next chapter provides results that are likely to appeal to many policy analysts. In this chapter, the authors show that the rate of change in the TRI can be completely described as a function of changes in just two “sufficient statistics.” These are the generalized average tariff rate, which measures the level of the tariff structure, and the generalized variance, which measures the dispersion of tariff rates around the generalized tariff rate. The weights are, not surprisingly, provided by the elements of the net substitution matrix. (It is worth noting that the welfare effects of *any* tariff reform can be expressed in terms of the two tariff change measures, that is, the change in the generalized average and generalized variance of tariff changes.)

The remainder of part 2 is concerned with showing how the two indices can be developed in alternative economic environments. Given the importance of import quotas, two chapters are devoted to them. Again, the theory of the welfare effects of quota reforms is surveyed (a very valuable exposition in its own right) and then the TRI is applied. Other environments covered are the case of large countries, external economies of scale, monopolistic competition, and a multi-country world.

Those empirically and policy oriented readers who got the essence of the theoretical properties of the TRI and MTRI from part 2 and are keen to see applications in part 3, entitled “Applications,” will be perhaps a little disappointed. Most of part 3 comprises more theory, albeit theory concerning applications. Apart from chapter 15, the overall flavor of part 3 is one of extensions of the theory with some illustrative applications, rather than one of detailed applications to real world situations for practitioners and applied policy analysts. To get into the actual applications, the reader

must first digest considerable theoretical preparations. Nevertheless, applications are included—to Mexican agricultural policy, U.S. agricultural policy, the multi-fibre agreement, U.S. dairy quotas, and to twenty-five countries in chapter 15.

Part 3 comprises six chapters, each devoted to a particular extension or issue regarding the application of the TRI and MTRI measures. Chapter 12 deals with distortions other than tariffs and quotas on trade, including import subsidies and export taxes as well as tax distortions in the domestic goods and factors markets. Chapter 13 then turns attention to what the authors call alternative reference points. By this is meant that the essence of the TRI and MTRI measures can be constructed to focus on objectives other than utility, such as sectoral factor incomes or value added, which leads to a excursion into effective rates of protection. In chapter 14, Anderson and Neary point out that the TRI and MTRI can be defined as quantity measures rather than price (tariff rate) measures that occupy the rest of the book. They develop their quantity measures, using distance functions, and relate the resulting TRI to Debreu’s well known “coefficient of utilization,” which measures the distance of an economy from the boundary of the efficiency set. In this context, the quantity version of the TRI is a uniform reduction in existing quotas that yields the same utility as some initial equilibrium with a reference set of quotas.

Perhaps the most useful of the chapters of part 3 is chapter 15, in which the authors apply the standard versions of the TRI and MTRI to computable general equilibrium models for twenty-five different countries and compare these results with calculations of the average level of tariffs. The model, common in structure to all countries, comprises a household that consumes a nontraded good and finished imported goods according to a constant elasticity of substitution (CES) utility function, and a production sector that uses a CES aggregate of domestic factor and imported inputs to produce the nontraded good and exports according to a constant elasticity of transformation technology. There are both tariffs and quotas on imports, with revenues being distributed to the consumer as a lump sum. As readily admitted by the authors, this application is subject to many data and specification limitations and so the results should be regarded as being illustrative rather than definitive. Nevertheless,

this application is very useful for putting the theory into a realistic empirical context. Moreover, conveniently for readers and would-be users, the authors have made the documentation and the Excel spreadsheet that computes the solutions for the model available on the web.

The main conclusions drawn from the results presented are that the TRI substantially exceeds the MTRI, which, in turn, usually exceeds the weighted average tariff rate (with import shares as weights), and that there is a fairly strong rank correlation between the TRIs and the average tariffs. While this latter outcome may give comfort to users of the standard weighted average tariff measure, what is striking is that there are many instances where the rankings are not consistent and the TRI is unusually high relative to the MRTI and the average tariff rate. Thus, a puzzling (unanswered) question arises as to why countries such as Indonesia, Austria, Malaysia, Morocco, and Finland, for example, have particularly high TRI measures compared to their MTRI and average tariff measures. Another important aspect of the results is that the rank correlations become much lower for year-on-year changes in the trade restrictiveness indices. In summarizing the evidence provided by the calculations and analysis of the trade restrictiveness measures for the twenty-five countries, the authors conclude, with caveats, that “the conventional measures are likely to be very seriously misleading in practice.”

The book is well written and well structured. Nevertheless, I do have two comments about its contents. Firstly, the book perhaps tries to include too many topics. My feeling is that the main message could have been presented in a more streamlined way, possibly at a cost of being less comprehensive in coverage. For example, though they are relevant, I wondered about the need to delve into gravity models, implicit separability and aggregation, and effective tariffs. Readers can, of course, self select the chapters to read. Most readers will probably be satisfied with chapters 1–8, which set out the theory for tariff and quota policies and the appropriate TRI and MTRI measures for these, and then jump to chapter 15, which provides applications to twenty-five countries. The remaining chapters can then be read on a needs basis. Secondly, I would have liked the application part to have also included a chapter on the detailed application of the book's methods to

one country. This would have helped the reader get a feel for how to deal with a variety of applied and theoretical issues in the context of how to actually set up the model structure, obtain the necessary data, compute the trade restrictiveness measures and to interpret them for a real open economy.

Overall, Anderson and Neary have provided the profession with an excellent account of the issues and problems in measuring the restrictiveness of international (and other) trade policies employed by countries. They are very critical of the standard measure obtained as the weighted average of tariff rates, since it does not take account of substitution in production and consumption arising from the trade distortions. The authors' TRI and MTRI measures do take account of these and provide easily interpreted scalar measures (uniform tariff rates) that are well founded in economic theory. While the theoretical case seems clearly in favor of the authors, practitioners may be less persuaded due to the cost of theoretical correctness compared to the ease of computing the traditional weighted average tariff rate. Computation of the TRI and MTRI requires detailed quantitative knowledge of the substitutions in production and consumption coming about because of the distortions, and this requires knowledge of the structure of the technology and preferences at least over the relevant subsets. That is, these measures are informationally demanding. To date, computable general equilibrium models of open economies (such as used by the authors in their several applications) typically impose very restrictive structure—both functional form and parameter values—rather than having the structure come from detailed empirical evidence. However, the appropriate response is not to revert to the weighted average tariff (though it doesn't perform poorly in some respects, it seems), but to direct effort to providing the required empirical estimates of disaggregated preferences and technology sets.

The book will appeal most to those international trade economists who have a very good grounding in modern trade theory based upon general competitive equilibrium and the principles of duality. The measures the authors propose can best be developed and analyzed in such a framework. Certainly all graduate students in international trade should be exposed to this book,

providing as it does the background on the welfare economics of tariff and quota reform before developing the TRI and MTRI measures of trade restrictiveness and finally some empirical applications. Trade policy practitioners will also benefit from this book, and should find that the payoffs from working through the essential theoretical parts are worth the effort. Overall, the authors have convincingly argued the case that quantitative measures of trade restrictiveness should be based upon sound economic theory. It remains for practitioners to further develop the empirical evidence to improve implementation of these measures and for them to become part of the information base for policy reforms.

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*Multinational Firms, Innovation, and Productivity.*

By Davide Castellani and Antonello Zanfei. Cheltenham, U.K. and Northampton, Mass.: Elgar, 2006. Pp. xii, 249. \$100.00. ISBN 978-1-84542-198-4. JEL 2007-0092

When business writers and consultancies advocated their management-by-buzzword recommendations of the 1980s and 1990s, expatriates at multinational firms were mocked for management by helicopter: expats would be flown in by surprise, swirl up much dust upon landing, and be lifted out for replacement before the dust had settled. In their monograph, *Multinational Firms, Innovation, and Productivity*, Davide Castellani and Antonello Zanfei don't shy from buzzwords either, of the economic sort in their case. Multinational firms (MNFs) are "asset-seeking" or "asset-exploiting" or both, they form "double networks" to realize their "exploration potential," and they "bridge innovation systems" through their "embeddedness" against "cultural resistance," the "liability of foreignness" and the "incompatibility of knowledge." But Castellani and Zanfei emphasize the long-lived links that persist after the expat dust has settled. Castellani and Zanfei point to knowledge transfers and innovations that MNFs might be uniquely fit to pursue and implement across their locations.

In the first chapters, Castellani and Zanfei march through the topic in bold steps. Select theories serve as landmarks for orientation, and potentially conflicting evidence is cleared from the way, mainly to arrive at the authors' descriptive notion of MNFs as double networks: internal

networks of affiliated companies and external networks of suppliers, clients, and cooperation partners. Given the unavoidable omissions under the authors' fast moves, this reader expected them to head toward a similarly bold ultimate thesis as a reward. Along the way, an implicit proposition seemed to emerge: that today's MNFs tend to seek otherwise inaccessible or unexploited foreign knowledge assets in order to integrate the innovation throughout their multinational networks to their own competitive advantage. Starbucks' integration of local hot-drink specialties and sweets from around the world into its global standard menu might be the emblematic example—admittedly outside the authors' focus on manufacturing. But the authors stop short of such a clear stance. Instead, Castellani and Zanfei stress firm-level diversity as an overwhelming feature of the data and document, for instance, how productivity responses vary across Italian manufacturers depending on their export status, their contractual cooperation with local firms, and their ownership by foreign or Italian MNF parent companies. It is unifying theory behind the heterogeneity, however, that this reader most longed for. How much foreign direct investment is asset seeking and under what conditions do MNFs choose what form of network?

Stimulating discussion awaits the reader in part 2 of the monograph with a synopsis of alternative strands of research into firm-level heterogeneity and its relationship to market structure and international integration. Recent economic research emphasizes, as a cause of multinational expansion, the heterogeneity in firm-level productivity—productivity being the economist's common proxy to what management researchers would call a source of competitive advantage (Richard R. Nelson 1991). Castellani and Zanfei contrast this idea with the viewpoint that a firm's pursuit of competitive advantage is an outcome of its exposure to competitors' internationalization strategies and improved access to foreign markets. Castellani and Zanfei consequently appeal to the economist that "one should consider that firms' international involvement can further reinforce their advantages and hence contribute to generating heterogeneity" (Castellani and Zanfei 2006, p. 86). To broaden the concept of competitive advantage, Castellani and Zanfei use innovation measures