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ASSESSING REGIONAL TRADING ARRANGEMENTS IN THE ASIA-PACIFIC

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ABSTRACT

Using both a gravity model to consider the natural trading bloc hypothesis, and simulation using a CGE model to make welfare estimates, we examine the potential effect of a subset of the new RTA proposal in the APEC region. In broad terms the two approaches appear consistent in their ability to identify RTAs that are beneficial in terms of the welfare of the proposed members. However, comparison of the two alternative approaches does not lead to support for the hypothesis that natural blocs are less likely to be damaging to those economies that remain on the outside of the new proposals.

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I. INTRODUCTION

In the early 1990s when the Asia Pacific Economic Cooperation Process (APEC) was gathering momentum and the outcome of the Uruguay Round was uncertain the countries in the Asia Pacific held steadfastly to the most favoured nation principle. As a group, they intentionally avoided discussions and expansion of the existing regional trading agreements (RTA) in the region (Bora and Findlay, 1996). Since then, it appears that the enthusiasm with the ideals of the APEC has recently appeared to give way to disillusionment with the lack of progress towards achieving the ambitious objectives that were set out in Bogor. By early 2000, more than twenty regional trading arrangements (RTAs) have been proposed amongst various APEC members, and the list continues to grow. Some, such as the free-trade arrangement between New Zealand and Singapore, have already been enacted. Important research questions arise from these developments. First, there is a need for quantitative research to examine the potential effects of the proposals. Second, there is a need to understand how the new proposals might help or hinder the achievement of APEC's ultimate objectives. This paper makes a contribution to the former.

There are two basic approaches to the empirical assessment of RTAs. The first, known as the "gravity model" approach, uses a cross-section of bilateral trade data and attempts to estimate a 'normal' trade pattern. If order can be found in the deviations from that pattern, this technique can provide useful information on trade effects of RTAs (in particular if the cross sections are available for several time periods). Because this approach requires the application of statistical techniques to existing data, it is usually used ex-post – to

confirm the presence of trade creation/diversion after agreements are put in place. Frankel (1997) is a comprehensive study using this technique.

For situations where analysis prior to the fact is required, the most common technique in recent years has been simulation with a computable general equilibrium (CGE) model. This approach is quite different. It takes cross-sectional data from a single base period, not only for trade but also production, and consumption, and imposes a detailed theoretical structure on the interactions between different data elements. These take the form of equilibrium constraints, and assumptions on economic behavior. The models are put to use by imposing changes in the underlying data (in the case of RTAs, removing tariffs between member economies), and observing how the remaining variables adjust. Many studies of this type in the APEC context are surveyed in Scollay and Gilbert (2000).

Although quite different, both techniques can offer insights into areas where the other is commonly used. Hence, CGE models can be used to consider the effect of existing arrangements through backcasting the model, or by using a past equilibrium and projecting forward in the absence of policy changes to try and capture what the economy in question might have looked like without intervention. Similarly, gravity models are often used to try and predict the outcome of proposed agreements by searching for pre-existing trends that might be interpreted as indicating "natural" blocs. The objective of this paper is to see to what extent the predictions from these two disparate techniques can be correlated in the context of the new Asia-Pacific proposals. The

objective is not to advance any of these proposals.

The paper is organized as follows. Section II outlines the methods used in the gravity model simulations. Section III uses the model to assess the current state of regional trading arrangements, in particular APEC sub-regional groups. This section is intended partially as a form of benchmarking, and we discuss the evidence provided by this approach in terms of the traditional features of RTAs: trade creation, trade diversion and the debate over regionalism as path towards global free trade. Section IV uses the model to analyze a subset of new proposals, in an attempt to see whether any conform to the 'natural bloc' criteria. We then contrast these results with those obtained by examining the same proposed blocs in a general equilibrium framework. Concluding comments follow in section V.

II. METHODOLOGY

To analyze the effect of regional trading arrangements in the Asia-Pacific context, the gravity model approach of normalizing bilateral trade patterns and testing for discernable deviations from the estimated norm is adopted. The gravity model postulates that bilateral trade flows are proportional to the product of the size of the two economies, and inversely related to the distance between them. This is a model that is broadly compatible with a wide variety of underlying theoretical models (in particular those emphasizing imperfect competition - see the discussion in Frankel, 1997), and that lends itself easily to empirical verification. The basic applied model estimates the bilateral trade flows as a function of the products of the bilateral GDPs (as a measure of size), and distance (both in log form). Letting *i* and *j* index the economies in the model we have:

term can be thought of as capturing the importance of wealth (as opposed to size) as a determinant of trade, the latter can be thought of as capturing the importance of differences between economies (as emphasized in the Heckscher-Ohlin type models). By virtue of the double-logarithmic specification of the estimated function, the parameter estimates on the income and distance variables (the β_k) can be interpreted as elasticities. Hence, β_1 represents, for example, the estimated proportional change in T_{ij} induced by a 1 per cent change in GDP_iGDP_i .

The remaining variables are dummies designed to capture the influence of other factors on trade flows. ADJ_{ij} represents the existence of a common border, and RTA_{ij} the existence of a regional trading arrangement (being

$$\ln(T_{ij}) = \alpha + \beta_1 \ln(GDP_i GDP_j) + \beta_2 \ln(DIST_{ij}) + u_{ij} \qquad \forall i < j$$

where T_{ij} is the total trade between economies *i* and *j*, $DIST_{ij}$ is the distance measure, and u_{ij} is the error term. Most applications expand the basic model to provide further explanatory variables. The model that is utilized one if both countries *i* and *j* are members of the RTA in question). $OPEN_{ij}$ is designed to capture the degree of openness of RTA members (being one if country *i* or country *j* is a member of the RTA in question), and can be thought of

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