Modeling Market Access in Services *

Elisabeth Christen
Universität Innsbruck, and
Johannes Kepler Universität Linz

Joseph Francois
Johannes Kepler Universität Linz,
Tinbergen Institute, and CEPR

Bernard Hoekman
World Bank, and CEPR

May 31, 2011

Abstract

In this paper, we examine how the recent applied CGE literature has moved from goods trade into quantification of market access in services. This includes both a discussion of measuring barriers to trade and investment (generally with a mix of firm surveys, price comparisons, and econometrics), and a discussion of how changes in these barriers, however measured, have been implemented in the CGE literature. Throughout, and also in the conclusion, we offer some opinion on both necessary and promising directions for new research. Until the Uruguay Round, and reflecting the focus of the policy community, the CGE literature focused on goods trade, with services an explicit non-tradables sector. As models have been modified since the mid-1990s to reflect services trade as well as goods trade, three challenges have emerged. The first is identification, in an analytical sense, of how trade in services takes place, and how market access is therefore affected by policy. A second challenge, quite simply, has been to find data on services trade and FDi flows sufficiently robust for modeling purposes. A third, linked to the data problem, has been quantifying barriers to then be examined. We provide an overview of each of these in turn, before finally focusing on the applied policy literature itself.

Keywords: Trade in Services, NTMs, NTBs, CGE models
JEL codes: F10

*all views expressed in this paper are strictly those of the authors, and do not reflect the official views or positions of any institution with which they may be affiliated, or of anyone at those institutions.

1 Introduction

According to the WTO, the global value of cross-border services exports in 2007 was $3 trillion, or some 20 percent of world trade in goods and services. However, the share of services rises to almost 50 percent if transactions are measured in terms of direct and indirect value added content - that is, if trade is measured in terms of the value that is added by processing of imported components into final products for export as opposed to measuring trade flows on the basis of the gross value of goods crossing the border (Escaith, 2008). If we add in the sales of services by foreign affiliates of multinational firms, then the value of trade in services rises further. Data for 15 OECD countries puts the value of such sales at some $1.5 trillion in 2007 (WTO, 2009).

While the expanding economic importance of services has not gone unnoticed, services have not figured prominently in the economic growth and development literature, and have only recently been highlighted in the CGE literature. Traditional international economics textbooks tend to assume (assert) that services are largely non-tradable. This started to change with the emergence of services on the international policy agenda in the 1980s, in part as a consequence of U.S. proposals to negotiate multilateral rules on policies affecting trade and investment in services. The initial response of most countries to the U.S. initiative, put forward formally at the 1982 GATT Ministerial meeting, was to call for further study. One result was to mobilize the first analytical contributions to the trade literature. The initial research effort suggested that many countries had a potential interest in liberalizing trade in services, reflected, for example, in many of the poorest developing countries having a revealed comparative advantage in services when measured on a balance-of-payments basis. This realization helped overcome some of the early resistance by developing countries to launching negotiations on trade in services in the Uruguay Round and the creation of the WTO General Agreement on Trade in Services (GATS)

in 1994. Building on the early literature in this area, there is now an emerging CGE literature on market access in services.

For services, market access can be difficult to define. For example, it is hard to judge just how open a particular nation is to foreign banks since the barriers are thoroughly mixed in with domestic regulation, standards and business practices. For this reason, market access - as market opening is known in WTO jargon - has been qualitative in service sectors. There have not been targeted numeric measures per se, but rather commitments in the cross-border movement of consumers and providers and the establishment of foreign providers. In fact, for academics, the General Agreement on Trade in Services (GATS) seems to confuse both foreign direct investment (FDI) and migration with international trade, defining all three as trade (see Deardorff, 2001). This means that the market access negotiations in services involve a mix of rules on FDI, movement of persons, and cross-border commerce. Ultimately, cross-border commerce is the actual trade following from commitments in these areas, though it is governed by investment rules and rules governing movement of persons. It is also affected by yet more WTO agreements on procurement in public sectors.

In this paper, we examine how the recent applied CGE literature has moved from goods trade into quantification of market access in services. This includes both a discussion of measuring barriers to trade and investment (generally with a mix of firm surveys, price comparisons, and econometrics), and a discussion of how changes in these barriers, however measured, have been implemented in the CGE literature. Throughout, and also in the conclusion, we offer some opinion on both necessary and promising directions for new research.

Until the Uruguay Round, and reflecting the focus of the policy community, the CGE literature focused on goods trade, with services an explicit nontradables sector. As models have been modified since the mid-1990s to reflect services trade as well as goods trade, three challenges have emerged. The first is identification, in an analytical sense, of how trade in services takes place, and

how market access is therefore affected by policy. A second challenge, quite simply, has been to find data on services trade and FDi flows sufficiently robust for modeling purposes. A third, linked to the data problem, has been quantifying barriers to then be examined. We provide an overview of each of these in turn, before finally focusing on the applied policy literature itself. Section 2 focuses on how services trade differs, in ways that deserve serious though when modeling market access in a CGE model. Section 3 then discusses data issues. In Section 4 we provide an overview of methods used to estimate barriers to trade and FDI (or alternatively to benchmark appropriate policy experiments). Finally, we focus on the applied CGE literature itself in Sections 5 (WTO-based studies) and 6 (regional and unliateral policy assessments). We discuss some reservations in Section 7, followed by closing remarks in Section 8.

2 Conceptual Issues

What is different about trade in services compared with trade in goods? There are many points that could be emphasized. In this section, we provide a broad overview on the mechanics of international services trade and some of the implications this carries for CGE modeling of public policy in this area.

In general, services provision will often have an element of "jointness in production" in the sense that complementary inputs - including other services - are needed to allow effective exchange (trade) of a service to occur. These complementary inputs can also meet location or proximity requirements inherent in many service transactions. Where there is a need for proximity in exchange, factors like distance place a cost burden on certain forms of services delivery. This is the proximity burden (Christen and Francois 2009). It is recognized implicitly in the policy community, where the cross-border and local presence (or commercial establishment) components of international service transactions are referred to as modes of supply. Indeed, an important paper by Sampson

and Snape (1985) developed the typology for modes that was largely incorporated in the design of the GATS. The first of these modes, what has come to be called mode 1 in GATS-speak, is cross-border supply. It applies when service suppliers resident in one country provide services in another country, without either supplier or buyer/consumer moving to the physical location of the other. Mode 2, consumption abroad, refers to a consumer resident in one country moving to the location of the supplier(s) to consume a service. Mode 3, commercial presence, refers to legal persons (firms) moving to the location of consumers to sell services locally through the establishment of a foreign affiliate or branch. The fourth mode of supply, mode 4 or movement of natural persons, refers to a process through which individuals (temporarily) move to the country of the consumer to provide the service. In reality, there are services where the proximity burden remains so strong that delivery must be local, so that foreign ownership (establishment) is required (mode 3).

The GATS modes also translate into logical channels for modeling services trade and the impact of policy. Modes 1 and 2 will both manifest themselves as cross-border trade. What is less obvious is that mode 3 can also involve cross-border trade, because FDI can facilitate trade where imported services are ultimately delivered through foreign affiliates (Francois and Christen 2009). As such, restrictions on FDI can manifest themselves, econometrically, as effective determinants of cross-border trade. (Francois and Hoekman 2010). As such, even in models where FDI based delivery is not modeled explicitly (meaning the bulk of the literature), even a focus on cross-border trade alone implies an implicit role for FDI policy, and for joint modeling of modes 1, 2, and 3 trade. As discussed below, this has so far involve rather crude modeling of NTBs in services as a mix of trade costs and rents, though with increasingly better basis in firm surveys and econometrics.

There also ought to be payoff, in future, from explicit modeling of services firm behavior in CGE models. While the recent body of theory on firms and

trade focuses on goods producing firms, the same basic theoretical framework also promises valuable insights for service firms, once we reinterpret physical transport costs as distance costs following from the proximity burden. (See Helpman 2006). The first insight relates to "natural" elements of firm costs (those outside policy). Where the most efficient firms engage in internal trade and FDI, since in heterogeneous firm models market share primarily goes to the more efficient firms, we should see most cross-border services trade taking place within MNEs rather than through unaffiliated sales. Going further, establishment sales should be more important than unaffiliated sales for the same reasons. Another insight relates to the impact of policy. In the theoretical literature, internalization hinges on a mix of costs affecting internal and arms-length delivery, as well as multi-plant versus single plant costs and distance costs. If we map these to the different modes of supply, concessions made in trade agreements or unilateral changes in national policies that affect these different costs should affect the choice of modes, the importance of establishment sales, and the importance of arms-length versus internal cross-border sales, in predictable ways. This suggests potentially fruitful application of the recent theory on goods-producing MNEs and internalization of transactions to formulate questions that map nicely to patterns in the services trade and policy data. However, international service flows are dominated by a small number of large firms, and much of trade takes place within these firms. For example, trade within multinational companies (affiliate trade) accounted for 25.9 percent of U.S. exports of private services in 2005 and for 22 percent of U.S. imports of private services. In contrast, affiliated trade in business, professional and technical services accounted for 50.1 percent of total exports and for 69.6 percent of total imports in 2005. Also in the United States, in financial services the top 8 consumer lenders accounted for 75 percent of receipts, the top 4 international trade financing companies accounted for 70 percent of receipts, the top 8 securities firms accounted for 50 percent of receipts, and the top four direct life insurance

carriers accounted for 81 percent of receipts. Similar concentration patterns hold in Europe (Francois and Christen 2009). As such, an oligopoly approach to trade and FDI in services is likely to offer a better mapping than the large group, monopolistic competition approach now followed in the litereature.

3 Data Issues

Services trade data are available from a number of sources. The OECD, Eurostat and the UN all provide data in some form on bilateral services trade flows (both imports and exports), by partners and BOPs (balance of payments sectors) for up to 24 sectors and subsectors. The most comprehensive coverage of reporting countries among the three sources is UN, which at present count provides data on roughly 190 reporters. Eurostat and OECD provide data for a more limited number of reporters, though with more sector detail than the UN. Eurostat covers 27 EU members plus Croatia, Iceland, Japan, Norway, Turkey, Switzerland, and USA, while the OECD covers 28 countries (all the OECD members apart from Chile, Iceland, Israel, Slovenia, and Switzerland). Time coverage is the deepest with EUROSTAT, which reports data starting from 1995. IMF data cover almost as many countries as the UN, and for a longer time span, but only for trade with world.[1]

The construction of datasets for both econometrics and CGE work has required reconciliation and merging of these data in some form. For econometrics, the main issue is reconciling multiple sources, and mirroring is often used to deepen coverage. This means that where country x reports trade with country y, this can be used a replacement where country y does not itself report its trade with country x. Reconciled bilateral datacubes, expanded to include countries who do not themselves report services trade, are available on this basis.[2]

[1] See Francois and Pindyuk (2010).
[2] Again see Francois and Pindyuk (2010).

While mirroring does reduces the scope for missing data in the bilateral datacube, for CGE modeling this is not enough. This is because, to balance trade data, we need to somehow allocate missing destinations if we are to reconcile bilateral data with total values of trade with world (for example based on data from the IMF). On top of this, official data can be inconsistent, both with themselves (services data can vary widely depending on the reporting countries), and in the case of shipping and transport data, they can be inconsistent with flows implied by $cif - fob$ margins for goods. The most comprehensive effort to confront these challenges, in the context of balancing global and bilateral service flow, has been under the guise of the GTAP project. The efforts to reconcile services data within the project are well documented, and reflect rather creative approaches, based on entropy methods, to flesh out the pattern of trade enough to allow construction of a global dataset for modeling cross-border trade in services. (See MacDougall and Hagemejer 2005, and Van Leeuwen and Lejour 2006). Indeed, for the transport sector, reconciliation of trade data is explicitly linked to the parallel reconciliation of data on trade in goods, as services play a critical role in bridging the gap between reported export flows for goods, in one country's national accounts data, and reported import flows in another country's data (Gelhar 1996).

Data on services trade may have a reputation for being crude, yet they are easy to work with and quite complete when compared to data on FDI flows in services. FDI data are plagued by limited coverage, and also by confidentiality where available so that flows are not actually reported. Here, efforts have sometimes been linked to specific modeling projects, like FTAP, the Michigan model, and the Worldscan model as discussed below (Lejour, Rojas-Romagosa and Verweij 2008, Hanslow et at 2000, and Brown and Stern 2001), while the French research institute CEPII has also endeavored to follow the entropy and reverse gravity methods pioneered for trade flows for trade to also map out a

picture of FDI flows refined enough for CGE modeling. (Boumellassa, Gouel, and Laborde 2007).

4 Measurement Issues

The overlap of services market access with trade, FDI, and migration has meant that academic efforts to quantify market access in services (a basic requirement if we want to guage liberalization in a CGE model) have been problematic. The initial approach (see Hoekman, 1996) was to establish an inventory measures. As an alternative approach, there has also been a recent branch of research based on price- cost comparisons (see Kalirajan et al., 2000; Nguyen-Hong, 2000; OECD, 2009). Starting with Francois (2000), the approach that now dominates CGE modeling of barriers to cross-border trade in services involves some form of dead-weight cost estimated with gravity models (or alternatively from price comparisons). However, while recent practice has focused on pure trade costs, emerging evidence (ECORYS 2009) suggests that best practice lies in modeling a mix of dead weight costs and rents. Reflecting this, there is now a move to integrate econometric estimates from gravity models with firm surveys when defining policy experiments for services in CGE models. Such estimates are admittedly crude, but may be the best available for the purposes of simulating liberalization.

The importance of "rents vs. waste" is a well-known issue that is not specific to services regulation, e.g., it played an important role in estimates of the net gains from the EU Single Market program, and is a matter that has been the subject of much analysis in the public choice literature. Characterization of services barriers as deadweight costs has also been important in CGE-based assessments of potential WTO liberalization and regional integration. An implication for empirical efforts to determine the effects of policy is that it is not enough to focus on price-cost margins as that does not allow one to disentangle

the two effects. Better econometrically-based decomposition of the various price and cost margins linked to international service transactions is an important and sorely needed building block in guiding policy formation. Also important is to determine whether liberalization has implications for the realization of regulatory objectives for a sector. The literature is sometimes rather cavalier in the analysis of discriminatory policies, generally assuming this is not needed to attain regulatory objectives, so that liberalization and the associated increase in competition will not have implications for the realization of these objectives.

From the range of gravity and price based estimates of trade costs in services, a basic message is that the costs of barriers to trade in services may be very substantial, and potentially larger than the barriers presented by conventional trade measures such as tariffs and subsidies (Dee, Hanslow and Pham Duc 2000; Dee 2005; Department of Foreign Affairs and Trade 1999; Francois 2000; Francois and Hoekman 2010; Fontagne et al 2010). This finding arises even when barriers to trade in services are treated as taxes on trade and production.

5 Models of GATS-based liberalization

5.1 pioneering work

Early CGE models of multilateral liberalization focused on trade in goods. This includes models of the North American Free Trade Area (Francois and Shiells 1994), the enlargement of the EU (Baldwin et al 1997), and models of the Tokyo Round (Deardorff and Stern 1973). One of the first attempts to move beyond this was the application of the Michigan model to assess the possible impact of the Uruguay Round as it related to services. Building on early estimates by Hoekman (1996), Brown et al (1996), The liberalization of services trade: potential impacts in the aftermath of the Uruguay Round) revised the Michigan model to include services trade. Indeed prior to their Uruguay Round assessment, services were treated as strictly non-tradable in the Michigan model.

Confronting problems now well know (and outlined above), but less appreciated at the time, extending the model required the Michigan model team to estimate services trade flows from the swiss-cheese of aggregated and bilateral trade data (conceptually a data cube, but full of holes). In a procedure similar to the one followed in future extensions of the GTAP database, that involved using a RAS-type routine to estimate the full bilateral trade matrix.

Given Hoekman's assessment that the Uruguay Round did not actually yield liberalization, the assessment of Brown et al is more of an estimate of what might be accomplished in future rounds. In this context, they model reductions in tariff equivalents in services, and conclude that future services liberalization has the potential to yield gains comparable to past accomplishments under the GATT in goods, measured in terms of GDP and trade volumes. More recent estimates suggest that the tariff equivalents grounded in earlier NTB counts, like those from Hoekman, overstate actual barriers to services trade. At the same time, because the barriers were modeled as tariffs rather than as NTBs with dead weight costs attached to them, this early round of estimates both overstated barriers to trade, while understating welfare impacts linked to dead-weight costs.

Within the ORANI/GTAP family of models, the FTAP model (Hanslow et al 2000) has offered a more extended treatment of market access in services, focused on FDI as well as cross-border trade, following an initial proposal by Petri (1997) in integrating FDI in an Armington fashion within CGE models. This approach has involved ever greater data problems than cross border trade alone (Stone et al 1999, Hanslow et al 1999). Through its work on FTAP, the Australian Productivity Commission has pioneered extension of a standard, static modeling framework to include bilateral FDI in services. Working with the model, Dee and Hanslow (2003) have reported estimates that full liberalization of services would yield greater gains than comparable liberalization in

goods trade. Hence, like the Michigan-model based work, FTAP also points to potentially large gains linked to services liberalization.

5.2 more recent GATS-based work

Subsequent to the early assessments of the Uruguay Round, the literature on multi-country services liberalization has focused on both further GATS-based liberalization, and on regional trade agreements. For example, Francois (1999), Francois, van Meijl, and van Tongeren (2005) and Kinnman and Lodefalk (2007) model services trade as part of a comprehensive liberalization package under post-Uruguay negotiations. They focus on the multi- country pattern of impacts under GATS-based improvements in market access, and emphasize cross-border trade. Following Petri (1997) and the FTAP effort (Hanslow et at 2000), the CPB in the Hague has extended its own WorldScan model to include FDI in services as well (Lejour, Rojas-Romagosa and Verweij 2008), while Brown and Stern (2001) have themselves extended the Michigan model to also include FDI flows. The modeling of mutilateral liberalization points still to great potential that is limited by very little actual liberalization. It also points to potential developing country interests, for example for India, in services liberalization for offensive (export) reasons (Francois, van Meijl, and van Tongeren 2005).

In addition to global aspects of GATS-based liberalization, there has also been increased interest in more country-focused assessments of the impact of GATS-based liberalization. This includes not only the impact on individual countries under multilateral liberalization, but also the possible impact of GATS accession. Rutherford, Tarr and Shepotylo (2005) employ a static CGE model to assess the impact on Russia of accession to the WTO. Their analysis is innovative in that all 55,000 households distinguished in the Russian Household Budget Survey are incorporated into their model, allowing assessments of the impacts on income distribution and the poor. Their analysis includes FDI (mode 3) as well as Dixit-Stiglitz endogenous productivity effects. They

conclude that in the medium term virtually all households would gain from liberalization, with increases in real incomes in the range of 2 to 25 percent of base year household income. These estimates are decisively affected by liberalization of FDI in business services sectors and endogenous productivity effects in business services and goods. The gains from FDI liberalization in services alone are 5.3 percent of the value of Russian consumption, and represent more than 70 percent of the total value of the potential gains from WTO accession-related reforms. The welfare gains from Russia's tariff reductions and better access to markets abroad would be equivalent to only 2 percent of consumption.

Konan and Maskus (2006) focus on Tunisia and, like Rutherford and Tarr in the case of Russia, they conclude that the most important component of potential welfare gains from liberalization are removal of barriers against FDI in services sectors. However, they also find that many households may lose in the short term, making it important to put in place effective safety nets to protect the poorest members of society during the transition. Konan and Maskus argue that increasing international competition on service markets will reduce the "cartel effect"-the markup of price over marginal cost that incumbents are able to charge due to restricted entry, and attenuate what they term the "cost inefficiency effect"-the fact that in an environment with limited competition marginal costs of incumbents are likely to be higher than if entry were allowed. The latter is most important as inefficiency imposes a cost on all sectors and households that consume the services involved. They conclude that removing policies that increase costs can have much greater positive effects on national welfare than the removal of merchandise trade barriers by up to a factor of seven or eight. Instead of the "standard" 0.5 to 1 percent increase in real income from goods liberalization, introducing greater competition on services markets that removes cost inefficiencies raises the gains to 6-8 percent. These large potential effects of services liberalization reflect both the importance of services in the economy and the extent to which they tend to be protected.

Modeling GATS-based liberalization also touches on aspects of migration. This is because the GATS also envisions rules on temporary movement of service providers. Indeed temporary movement of service suppliers through mode 4 might offer (arguably) a partial solution to the dilemma of how international migration is best managed given the substantial political resistance that exists against it in many high-income countries. Working with a multi-region CGE model, Walmsley and Winters (2005) estimate that if OECD countries were to expand temporary access to foreign service-providers by the equivalent of 3 percent of their labor force, the global gains would be greater than those associated with full liberalization of merchandise trade. Both developed and developing countries would share in these gains, and they would be largest if both high-skilled mobility and low-skilled mobility were permitted. There are of course large political obstacles that must be overcome for such mode 4 trade expansion to be feasible, but movement towards liberalization may be possible if designed appropriately. While this is an area where the GATS could play a role, it is more likely that countries will continue to rely on bilateral arrangements to manage such trade.[3]

Rutten and Reed (2009) also examines migration and services, focusing on the impact of health worker migration on the cost structure of the UK health system. She finds that while a rise in the National Health Service (NHS) budget is shown yields overall welfare gains, a nominally equivalent migration policy (yielding the same increase in services) yields even higher overall welfare gains. Health worker migration, whether temporary of permanent, is likely to become increasingly important given demographic trends in the OECD and the willingness of middle income countries to train such workers (as in the Philippines) for export.

[3]See, e.g., Pritchett (2006). Mechanisms that could facilitate agreement to liberalize mode 4 trade are discussed in Mattoo and Carzaniga (2003) and in Mattoo (2005).

6 Regional and Unilateral Liberalization

The recent CGE literature has also shifted focus to services when examining regional integration issues. For example, Lejour, Rojas-Romagosa and Verweij (2008) emphasize efforts within the EU to deepen integration of European services markets. Indeed, the EU is not (yet) a customs union for services (Langhammer 2005), and deeper integration in this area is highly contested. There is evidence (see the joint Canada-EU governments report 2010) that EU markets are more integrated than those between third countries. Even so, Lejour et al estimate that while there are potential gains from further integration of EU markets. Magnitudes depend on the extent to which intra-EU barriers protect rents, or actually involve dead-weight costs. Hence, they support the notion that how we treat barriers to services trade is important. Political economy factors (generally not found in CGE models) also matter. Kox and Lejour (2006) project that the original 2004 Services Directive could increase intra-EU services trade by 30 percent to 62 percent and direct investment in services by 18 percent to 36 percent. The revised directive that was adopted in 2006 is unlikely to have such effects given that key aspects of the initial proposal were removed, in particular acceptance of home country regulation. The EU experience illustrates the difficulty for (unwillingness of) polities to converge on common norms and to allow for regulatory arbitrage even in situations where in principle all are agreed that common minimum standards exist.

There has been also been extensive recent effort to quantify NTMs to trade in services and to break down the extent to which they generate rents or costs. For example, in the context of potential regional negotiations the EC has sponsored studies on NTMs in services in North America and Japan. (ECORYS 2009, and Sunesen et al 2009) ECORYS estimates, based on firm surveys, that there is an approximate 60:40 split in the extent to which barriers increase the cost of doing business, and the extent to which they simply raise prices

by generating rents. They also provide a CGE-based assessment of NTM reduction between the US and EU. Like recent multilateral studies, results point to service barriers being as important as barriers to goods trade. The results also stress not only the importance of FDI, but also the need to understand the nature of barriers (costs vs. rents) when modeling NTMs in a CGE framework. Similarly, Balisteri, Rutherford, and Tarr (2009) also work with survey data to benchmark barriers to foreign service firms. they employs a small open economy computable general equilibrium model of the Kenya, focusing on regulatory barriers against both foreign and domestic business service providers. They identify large potential gains (up to 50% of baseline consumption in the long-run). However, this is not from market access restrictions per se, but rather from regulatory barriers that are non-discriminatory.

7 Market Structure, Linkages, and Other Caveats

The credence that should be placed in the numbers generated by CGE assessments of market access in services depends very much on the validity of the modeling assumptions made and the data that are used. While the accuracy of the specific numbers generated is certainly open to question, the conclusion that services liberalization can generate much larger welfare effects than goods liberalization is probably robust. Yet clearly, to be more informative, CGE analyses need to be able to draw on empirical research that determines the effects of policies on markups and costs. In an overview of the prospective quantitative literature on the potential impacts of services trade liberalization, Whalley (2004) argues that a basic problem with this literature is that the heterogeneity of service activities is typically neglected, even though this may have important implications. In defense of those working in this area, this is not an issue limited to services. Whalley focuses on two central issues: the representation and measurement of barriers to services trade in individual countries, and

the interpretation of results from model-based analyses quantifying the effect of trade liberalization in services. Drawing on numerical estimates, Whalley (2004) and Huang, Whalley and Zhang (2005) argue that the welfare impacts from partial liberalization of intermediation services can be negative if it results in a fall in prices of goods and thus greater consumption and trade, and the associated increase in aggregate intermediation costs exceed the efficiency gains derived from lower "unit" intermediation costs.

Given the prevalence of increasing returns and imperfect competition in many services industries, the welfare effects of partial liberalization will also depend on market structure and the contestability of the service industries concerned and the nationality of ownership of firms. However, in our view (and notwithstanding Whalley's concerns), in the services context the prevalence of imperfect competition may well imply significant gains from liberalization. First, liberalizing trade in services is likely to encourage greater specialization, thus helping to realize increasing (international) returns where these exist. Even if a country does not happen to have comparative advantage in certain services, liberalization may have a positive effect in terms of encouraging further fragmentation of production activities, fostering exports of merchandise and/or other services. If mode 3 is the main mode of supply, the prices affected by liberalization are internal prices, so that the associated terms of trade effects can be neutral or even positive (Dee and Sidorenko 2006).

One potentially important issue related to market structure is market power in trade and distribution sectors. This is closely related to the recent macroeconomic literature on price pass-through, which also highlights the structure of retail sectors in determining transmission of border prices to consumers and downstream industry. It points to potential impacts on goods trade linked to market structure in both international transport services a domestic distribution services. On the side of econometric and theory-based reasons to take this seriously, Raff and Schmitt (2009) examine the potential for trade liberalization

in goods to lead to increased concentration in the retail sectors, while Francois and Wooton (2010) focus on the impact of combined oligopsony/oligopoly pricing in retail and wholesale trade on the gains from trade liberalization. Francois and Wooton (2001) focus on a related issue, developing a theoretical structure where trade requires transport costs supplied by a shipping sector operating as an oligopoly. Building on the work of Francois and Wooton, Hummels, Lugovsky, and Skiba (2009) offer empirical support, reporting that indeed shipping firms charge much higher freight rates when demand is relatively inelastic. In general, the message from this literature is that with intermediate service firms exercising market power on two margins (including retail, wholesale, and transport/logistic firms), the gains from trade in goods hinges on the degree of competition in service sectors, and trade and FDI policy in services may therefore impact directly and substantively on trade in goods. Indeed, Francois and Wooton (2010) suggest that, at least in the EU context, market power in these sectors may effectively offset realized liberalization in goods sectors. Yet this issue is little explored in a CGE framework, in part due to data issues.[4] In principal, the GTAP database does include estimates of bilateral shipping costs. However, the data are admittedly crude, and do not include information on market structure, per unit and per weight charges, and the variation in these charges by route. The OECD has recently organized a dataset on precisely these values. Yet with strong lobbying from the shipping industry, though the data are now publicly available, internal analysis by the OECD based on these data is not. (OECD 2011).

8 Conclusions

Given the dominance of the service sector in most economies, it makes sense that CGE modeling of market access has moved away from an exclusive focus on goods. However, this is a recent move, and there is a need for more investment

[4] A related issue is restrictions on trade in cabotage services. See Arce et al (1996).

in theory and data before these assessments can move beyond being crude. This need includes investing effort in better representation of the role that services play in distribution, communications, and investment in modern economies, their role as intermediate inputs, and the interaction between market structure, trade, FDI in services, and industry performance in goods. While the available estimates are very rough and preliminary, they suggest that service-related trade policy reform may have been an important recent force for productivity growth in emerging markets in goods. Evidence is also growing that the price effects of protection (trade costs) in the service sectors may be quite large compared to protection in goods. Leaving them out therefore provides yet another reason why CGE studies may miss the mark.

Notwithstanding the caveats, a basic message that emerges from the current literature is that liberalization of services matters, perhaps much more than trade in goods. However, much depends on how well the characteristics and economic functions of different services are captured, the accuracy of estimated or assumed impacts on costs and prices of services, whether policies create rents or simply raise costs, and if there are rents, what share accrues to foreign factors.

9 References

Arce, H. J. Francois, J. Flynn, and K.A. Reinert (1996), "Commercial Policy and the Domestic Carrying Trade", Canadian Journal of Economics, 1996.

Baldwin, R.E., J.F. Francois, and R.E. Portes (1997), "Costs and Benefits of EU Enlargement to the East", Economic Policy.

Balistreria, E., T. Rutherford, and D. Tarr (2009). "Modeling services liberalization: The case of Kenya," Ecomic Modelling Volume 26, Issue 3, Pages 668-679.

Boumellassa, H., C. Gouel, and D. Laborde (2007), "A multisector multicountry FDI database for GTAP," Paris: CEPII working paper.

Brown, D.K., and R.M. Stern, (2001), "Measurement and modeling of the economic effects of trade and investment barriers in services," Review of International Economics, 9(2): 262-286.

Brown, Deardorff, Fox, Stern (1996), "The liberalization of services trade: potential impacts in the aftermath of the Uruguay Round,"in W. Martin and L.A. Winters (eds.), The Uruguay Round and the Developing Countries. Cambridge: Cambridge University Press, 88-124.

Christen, E. and J. Francois (2009). "Modes of Delivery in Services," CEPR discussion paper.

Deardorff and Stern (Tokyo Round Reference needed. AER paper?)

Deardorff, A. (2001). "International Provision of Trade Services, Trade and Fragmentation," Review of International Economics 9: 233-48.

Dee, P. et al. (2011), "The Impact of Trade Liberalisation on Jobs and Growth: Technical Note", OECD Trade Policy Working Papers, No. 107, OECD Publishing.

Dee, P., K. Hanslow and Phamduc Tien (2000). "Measuring the cost of barriers to trade in services" Paper presented to the Eleventh Annual NBER East Asian Seminar, 22- 24 June, Seoul.

Dee, P. (2005). "A Compendium of Barriers to Trade in Services," Washington: World Bank working paper.

Dee, P. and A. Sidorenko (2006). "The Rise of Services Trade: Regional Initiatives and Challenges for the WTO," in C. Findlay and H. Soesastro (eds.), Reshaping the Asia-Pacific Economic Order. London: Routledge.

Department of Foreign Affairs and Trade (1999). Global Trade Reform: Maintaining Momentum. Australian Department of Foreign Affairs and Trade, Canberra, www.thecie.com.au

ECORYS (2009),Non-Tariff Measures in EU-US Trade and Investment - An Economic Analysis, report to the European Commission Reference: OJ 2007/S 180-219493, Rotterdam.

Escaith, H. (2008). "Measuring trade in value added in the new industrial economy: statistical implications," WTO, mimeo.

Fontagne, L., A. Guillin and C. Mitaritonna (2010), "Estimations of tariff equivalents for the services sectors," Paris: Cepii discussion paper.

Francois, J.F. and C.R. Shiells (1994), Modelling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade. Cambridge University Press: Cambridge, coedited, ISBN:0-521-450003-9.

Francois, J.F., THE NEXT WTO ROUND (2000): North-South stakes in new market access negotiations , CIES Adelaide and the Tinbergen Institute, CIES: Adelaide. ISBN: 0-86396-474-5.

Francois, J. and B. Hoekman (2010), "Trade and Policy in Services, Journal of Economic Literature.

Francois, J. and O. Pindyuk (2010), "Consolidated Data on International Trade in Services ," Vienna: wiiw discussion paper.

Francois, J.F., H. van Meijl and F. van Tongeren (2005), "The Doha Round and Developing Countries," Economic Policy.

Francois, J., and Wooton (2001). "Trade in International Transport Services: The Role of Competition," Review of International Economics, 9(2): 249-61.

Francois, J. and I. Wooton (2010), "Market Structure and Market Access," The World Economy. Also published as World Bank Policy Research Working Paper 4151.

Gehlhar, M.J. (1996), Reconciling Bilateral Trade data for Use in GTAP, GTAP Technical Paper No. 1.

Hanslow, K., T. Phamduc, and G. Verikios (2000), "The Structure of the FTAP Model," Melbourne: Productiviy Commission Research Memorandum MC-58.

Helpman, E. (2006). "Trade, FDI, and the Organization of Firms," Journal of Economic Literature, XLIV: 589-630.

Hoekman, B. (1996). "Assessing the General Agreement on Trade in Services," in W. Martin and L.A. Winters (eds.), The Uruguay Round and the Developing Countries. Cambridge: Cambridge University Press, 88-124.

Huang, H., J. Whalley and S. Zhang (2005) "Trade Liberalization in a Joint Spatial Inter-Temporal Trade Model," CESifo Working Paper 1463.

Hummels, D., V. Lugovskyy, and A. Skiba (2009), "The Trade Reducing Effects of Market Power in International Shipping" Journal of Development Economics 89 (2009), pp. 84-97

Kalirjan, K., G. McGuire, D. Nguyen-Hong and M. Schuele (2000). "The Price Impact of Restrictions on Banking Services, in C. Findlay and T. Warren (eds.), Impediments to Trade in Services: Measurement and Policy Implications. London: Routledge.

Konan, D. and K. Maskus (2006). "Quantifying the Impact of Services Liberalization in a Developing Country," Journal of Development Economics, 81: 142-62.

Kox, H. and A. Lejour (2006). "The Effects of the Services Directive on Intra-EU Trade and FDI," Revue Economique, 57(4): 747-69.

Langhammer, R. (2005). "The EU Offer of Service Trade Liberalization in the Doha Round: Evidence of a Not-Yet-Perfect Customs Union," Journal of Common Market Studies 43(2), 311-25.

Van Leeuwen, N.I.M. and A.M. Lejour, (2006), "Bilateral services Trade Data and the GTAP database," the Hague: CPB Memorandum 160.

Lejour, A., H. Rojas-Romagosa and G. Verweij (2008). "Opening services markets within Europe: Modelling foreign establishments in a CGE framework," Economic Modelling, 25(5): 1022-39.

Mattoo, A. (2005). "Services in a Development Round: Three Goals and Three Proposals," Journal of World Trade, 39 (December), 1223-38.

Mattoo, A. and A. Carzaniga, (eds.), (2003). Moving People to Deliver Services, Oxford University Press and World Bank, Washington, D.C.

McDougall, RA and J. Hagemejer, "Services Trade Data," in Dimaranan, B.V, and R.A. McDougall (editors), 2005, Global Trade, Asistance, and Production: The GTAP 6 Data Base, Center for Global Trade Analysis, Purdue University.

Nguyen-Hong, D. (2000). "Restrictions on Trade in Professional Services," Productivity Commission Staff Research Paper (Canberra: Ausinfo).

OECD (2009). "Methodology for Deriving the STRI". Downloadable at http://www.oecd.org/trade/stri.

Petri, P.A., (1997), "Foreign Direct investment in a computable general equilibrium framework," Paper prepared for the Conference, Making APEC work: Economic Challenges and Policy Alternatives, March 13-14, Keio University, Tokyo.

Pritchett, L. (2006). Let Their People Come: Breaking the Gridlock on Global Labor Mobility. Washington DC: Center for Global Development

Raff, H. and N. Schmitt (2009). "Imports, Pass-Through, and the Structure of Retail Markets," Kiel Working Paper No. 1556.

Rutherford, T., D. Tarr and O. Shepotylo (2005). "The Impact on Russia of WTO Accession and The Doha Agenda: the importance of liberalization of barriers against FDI in services for growth and poverty reduction," in T. Hertel and L.A. Winters (eds.), Putting Development Back into the Doha Agenda: Poverty Impacts of a WTO Agreement, New York: Palgrave McMillan.

Rutten, M. and G. Reed (2009), "A comparative analysis of some policy options to reduce rationing in the UK's NHS: Lessons from a general equilibrium model incorporating positive health effects," Journal of Health Economics, Volume 28, Issue 1, January 2009, Pages 221-233

Sampson, G and R. Snape (1985). "Identifying the Issues in Trade in Services," The World Economy, 8, 171-81.

Sunesen, E.R., J. Francois and M. Thelle (2009), ASSESSMENT OF BARRIERS TO TRADE AND INVESTMENT BETWEEN THE EU AND JAPAN," Copenhagen Economics: report to the European Commission ref no. TRADE/07/A2.

OECD (2011), maritime database paper.

Walmsley, T. and L.A. Winters (2005). "Relaxing the Restrictions on the Temporary Movement of Natural Persons: A Simulation Analysis," Journal of Economic Integration 20(4), 688-736

Whalley, J. (2004). "Assessing the Benefits to Developing Countries of Liberalization in Services Trade," The World Economy 27(8), 1223-53.

WTO (2009). International Trade Statistics, 2009. Geneva: WTO.