Trade and Development

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Trade and Development: Lessons from Vietnam's Past Trade Agreements

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Summary. – History, not predictions of CGE models or cross-country growth studies, shows a strong relationship between trade and development. Vietnam's experience with bilateral trade agreements, comparing actual outcomes with predictions from existing models, demonstrates this and the limitations of research methodologies. Forecasts for Vietnam greatly underestimated the impact of past agreements because tariff reform was not the main factor driving adjustments. Addressing market imperfections through institutional reform was central to bringing output and trade expansion. Key questions for future research are: whether policy reform will result in new institutional changes, and how resulting incentives determine the evolution of investment by sector.

1. INTRODUCTION

The relationship between trade and development remains controversial among researchers in spite of political pronouncements that take this nexus as given. Pascal Lamy (2006), former European Union (EU) Trade Representative and now Director General of the World Trade Organization (WTO), as well as Robert Portman (2006) and Susan Schwab (2006), recent U.S Trade Representatives, have all argued that failure to conclude the Doha Development Agenda negotiations would be a serious lost opportunity to foster more rapid development in third world countries. In contrast, academic studies take both sides of this question, with many arguing that the evidence at hand does not support the assertions that trade liberalization fosters more rapid growth and development.

Three principal analytical approaches have been utilized over the years to explore this relationship. Case studies under the direction of Krueger (1978) and Bhagwati (1978) for the National Bureau of Economic Research (NBER) in the late 1970s have served as the basis for presuming a strong link between trade and development. Cross-country regressions to establish the determinants of economic growth followed the pioneering work of Feder (1983) by including trade and policy variables as key determinants. Computable general equilibrium (CGE) models have also been used worldwide to gauge the effects of trade reforms. The World Bank's (2002) claim that developing countries stood to gain $500 billion from a successful Doha round was based on the predictions of their CGE model. The CGE models and econometric studies are attempts to establish on a more general basis the relationship between trade and growth. We argue in what follows that they have not provided convincing empirical evidence due to serious methodological limitations. Compelling up-to-date evidence can be found, however, in more recent cases of successful trade agreements fostering both greater trade and faster growth. Also, critiques of CGE and econometric growth studies speak more to the limitations of these methodologies than to the underlying relationship between trade and growth (e.g. Stiglitz and Charlton, 2005; Rodrik and Rodriguez, 1999).

Econometric studies (Frankel and Romer, 1999; Rodrik and Rodriguez, 1999; Andersen and Dalgaard, 2007) and reviews of this voluminous literature (Temple, 1999; Santos-Paulino, 2005) on cross-country growth performance report conflicting results on the role of trade. Effects of trade variables are collinear with (some argue dominated by) macroeconomic variables and other globalization indicators, and tariff reductions per se are seldom found to matter.

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Computable general equilibrium models have been used to illustrate the linkage between trade and development and to highlight the gains from liberalization accruing to developing countries in connection with WTO Doha round reforms (Anderson, Martin and van der Mensbrugghe, 2005; Hertel and Keeney, 2005). But critics of this approach use the very numbers generated in these papers to argue that the link between trade liberalization and development is weak (Tokarick, 2008; Ackerman, 2005; Polanski, 2006; Taylor and von Armin, 2007). Rodrik and Rodriguez (1999) further argue that tariff reductions generate only one time, long run impacts and not more rapid growth, and it has long been recognized that large trade impacts follow from "dynamic" not static reforms (Piermartini and Teh, 2005).

Following the tradition of Krueger and Bhagwati, we utilize the case of Vietnam's successful economic development, rapid expansion of trade, and history of both trade policy reform and institutional change to examine in detail the relationship between trade and development and the limitations to available research methods. Emphasis is placed on what actually followed bilateral trade agreements versus what was predicted by CGE models that have been extensively used in the Vietnamese case and elsewhere.[1] We strive in this way to set the Vietnam case in the broader context of the trade and development literature and bring out key insights that go well beyond the case under study.

WTO accession by Vietnam on 11 January 2007 as the 150th member of this organization culminated a long process of efforts to integrate the Vietnamese economy into international markets. Since 1986, when the Doi Moi restructuring process began, numerous market-oriented legal and economic reforms have been introduced. This process has been associated with rapid economic growth, increasing international trade and impressive poverty reduction. GDP per capita measured in constant purchasing power parity (PPP) corrected (2000) dollars increased almost threefold from $1,097 in 1989 to $2,739 in 2005. Over this same period trade (imports plus exports) increased six-fold as a share of GDP, and headcount poverty at the $1 per capita per day threshold had already fallen to below 15% in 1993 and was only 2% in 2002 (World Bank, 2006).[2]

The policy dialogue by both foreigners and Vietnamese has often evaluated the ongoing reform process in much harsher terms than the economic performance would seem to warrant. Critics of Vietnamese policy continue to highlight the need for deeper institutional reform and to reduce persistently high tariffs for clothing and agricultural commodities (STAR-Vietnam, 2002;

Thanh, 2005). Much of the critique is informed simply by the economic theory underlying standard trade models. Paradoxically, economy wide CGE models built from this basis have not been very helpful to policy makers. This is so both with regard to estimated aggregate levels of economic variables and in the details about how growth and trade have evolved. Simulated changes are often small relative to both prior performance and to actual changes following international trade agreements. Moreover, key causal mechanisms remain to be established.

This suggests that existing model specifications, used across the developing world at large, may be flawed. The models have, as we see it, overemphasized tariff changes as the critical element of reform and have failed to integrate satisfactorily the impact of institutional factors. In the case of Vietnam (and elsewhere) it is not uncommon for authors of economy wide impact studies to acknowledge the ongoing debate over legal reforms, the role of SOEs, access by foreign firms, and the importance of "services trade" – banking, insurance, financial markets, wholesale and retail trade, and telecommunications. However, subsequent formal modeling exercises have almost exclusively limited the analysis to tariff changes, probably because other reforms are indeed hard to capture.

We pursue these topics by examining Vietnam's past experience with economic integration as a basis for (i) understanding the general role of trade in economic development, and (ii) starting to predict the economic effects of WTO commitments. Our expectation, based on historical experience, is that these effects are likely to be much greater than available formal modeling exercises indicate. Important lessons of relevance to developing countries more generally can therefore be drawn. This includes the need for a distinctly different analytical path to the evaluation of trade agreement impacts than has so far been typical at both the national and international level. Whatever path is followed, it must better address institutional and services trade issues. The same goes for the key roles played by unemployment and international capital flows as well as productivity growth. To be sure, there exist trade agreements which have not had a large socio-economic impact. But our experience is that the Vietnamese success following bilateral agreements is rather typical of cases found across the developing world.[3]

In Section 2 we provide further detail on Vietnam's trade policy history. Section 3 reviews existing CGE model based assessments of WTO accession and bilateral trade agreement impacts. This is followed in Section 4 by an identification of the key features of those models,

which limit their ability to predict, while Section 5 concludes and suggests directions for future research on the trade and development nexus.

2. VIETNAM'S ECONOMIC HISTORY – POLICY AND TRADE

The modern economic history of Vietnam is, as shown in Figure 1, remarkable. Following the policy reforms in 1986, GDP has grown steadily at an average rate of 7.6% per year. Growth accelerated to 9.8% a year from the early 1990s until 1998, but then stalled to 7.0% following the Asian financial crisis, before increasing again to 7.7% per year from 2002 to 2004. This rapid economic growth has been accompanied by an extraordinary increase in trade (imports plus exports as a share of GDP), from 23% in 1986 to 97% already in 1998 and 140% in 2004. Growth in exports has been especially impressive, from only 6.6% of GDP in 1986 to 44.8% in 1998 and 66.4% in 2004. Moreover, the share of exports in GDP has been rising somewhat faster than imports. In 1983 trade was more than two-thirds imports, whereas in 2004 exports were nearly half of the trade share of GDP. Imports continue to exceed exports as capital flows into Vietnam, but foreign direct investment (FDI) has been erratic and was strongly affected by the Asian financial crisis. There was no measurable FDI in 1986. FDI grew to 7.7% of GDP by 1993 and stagnated at below that level, equaling 6.1% in 1998. It fell thereafter to less than 4% of GDP from 2002, before starting to recover after 2004. Figure 1 suggests that the FDI has so far had no discernable effect on past GDP growth, while the extent to which increasing GDP has been associated with reduced poverty is clear.

[Figure 1 about here]

While subject to controversy, performance is less satisfactory when it comes to employment expansion. According to Niimi et al. (2003) employment has only increased from 2 to 3% since 1990. Unemployment remains at about 6.9% in urban areas and underemployment persists in rural areas. Nevertheless, real wages increased 36-38% over this same period, with minimum wage increases and higher wages paid by foreign enterprises largely accounting for wage growth.[4]

Questions these data raise are whether trade performance has led or followed economic growth, and whether trade policy and specifically trade agreements have played a significant role

in explaining Vietnam's development success. While short time series, serious identification difficulties, and likely measurement errors preclude direct econometric testing of the direction of these effects, we believe much can be learned from a careful look at the timing of reforms and corresponding bilateral trade flows.

Figure 2 presents a timeline of significant changes in Vietnam's trade and related domestic policies. The process of reforming Vietnam's trading institutions and engaging in agreements with potential trade partners has been continuous if not smooth, so it is difficult to set precise dates of reforms that would significantly influence trade trends. Specific dates for changes in bilateral export flows are more evident, and two types of events are highlighted in the timeline – key bilateral trade agreements and ongoing trade related legal reforms.

[Figure 2 about here]

Legal reforms have been instituted as part of the ongoing renovation process, in response to negotiations both of bilateral agreements and as part of the WTO accession process. The first significant changes at the border involved introduction of import tariffs in 1988, elimination of the state monopoly over international trade in 1989, and establishment of export processing zones in 1990. While additional reforms were undertaken in the 1990s, a substantial new impetus to legal reform began following the U.S. bilateral trade agreement (BTA) signed in 2000. Since then Vietnam has rewritten its commercial code almost entirely, with important new Enterprise, Competition, and Investment Laws all introduced. The final negotiations for Vietnam's WTO accession were enabled by significant additional legal reforms undertaken particularly in 2005 as the U.S. and other WTO members insisted that Vietnam implement reforms before accession would be granted.[5]

Turning to the key bilateral agreements,[6] the first major agreement was with the EU in 1992. Vietnam joined ASEAN in 1995 (the same year that WTO accession talks formally began) and APEC in 1998. Implementation of tariff reductions under CEPT/AFTA began in 2001, and agreements under ASEAN auspices with China and Japan followed in 2002 and 2003. Implementation of the BTA with the U.S. got underway in 2002, and bilateral agreements on WTO accession were reached with WTO members, including countries with which Vietnam had previously negotiated bilateral trade agreements. For example, Vietnam concluded its accession

agreement with the EU in 2004 and all 20 bilateral accession agreements were completed by 2006.

It has been argued in the literature that many of the earlier bilateral agreements probably had little impact on Vietnam's trade and economic performance, since they were with similar countries, suggesting little basis for Vietnam to realize comparative advantage. Moreover, tariff reductions were typically small and occurring over long, delayed implementation periods (Fukase and Martin, 1999a). Yet, each agreement also altered institutional arrangements between Vietnam and its trading partners, and data on bilateral trade flows paint an illustrative picture of the effectiveness of these early trade agreements.

Figure 3 illustrates that well before tariff reductions occurred in 2001 under CEPT/AFTA, trade with ASEAN partners had increased significantly. Trade with Vietnam's most important ASEAN partner, Singapore actually began increasing in 1994, just prior to Vietnam's entry into ASEAN. Trade with other ASEAN partners started to grow in the mid to late nineties, with obvious limits and erratic flows due to the Asian financial crisis. Since 1999, exports to Singapore, Thailand and the Philippines, now Vietnam's most important ASEAN export destinations, increased at least four-fold, well beyond any model predictions of exports to these countries. Exports to Singapore reached $1.8 billion in 2004, with exports to Thailand and the Philippines nearing $1 billion and to Malaysia reaching $600 million.

[Figure 3 about here]

Figure 4 shows that trade between the EU and Vietnam increased rapidly from a very low level immediately following the 1992 bilateral agreement. Exports grew rapidly again, from $4.5 billion in 2002 to $7 billion in 2004, at the time the U.S. BTA went into effect and WTO accession negotiations were completed with the EU. Vietnam exported essentially nothing to the U.S. until the mid 1990s and just prior to implementation of the BTA in 2002 had exported at most $1 billion per year. Those exports increased to over $6.5 billion in 2005. Exports to Japan started earlier than to most of these other destinations, and yet showed another significant increase following the ASEAN-Japan agreement in 2002, going from about $2.5 billion and then to $4 billion in 2004. Trade with China did not grow to significant levels until 2000, reaching $1 billion, and then more than doubled to $2.5 billion in 2004.

[Figure 4 about here]

In sum, a common result seen in these data is that as new agreements are reached, trade to that destination increases, often dramatically;[7] and there is little evidence that export surges to one region diminish exports elsewhere. Region specific exports are never seen to fall, except for a few instances explained by economic problems of Asian partners in 1998. It is also generally the case that trade was initially at very low levels, and increased by orders of magnitude.

The composition of Vietnam's imports and exports in 2005 is shown in Table 1 to illustrate recent trade patterns. About a fifth of all exports are food and live animals. Petroleum adds 24% and labor intensive manufactured goods represent about a third of Vietnam's exports. Almost 45% of those manufactured goods exports are clothing. Vietnam's imports include mostly either intermediate inputs (fertilizer, plastics, leather, textiles, iron and steel, chemicals) or capital goods (machinery and transport equipment). Some have raised concerns as to the highly specialized nature of Vietnam's exports and its dependence on only a few labor intensive sectors for its growth (Roland-Holst et al., 2002). Concerns have also been voiced that some labor intensive industries (e.g. electronics) have not grown as fast as clothing (STAR-Vietnam, 2002). Consumer goods have been only a small part of Vietnamese imports.

[Table 1 about here]

In light of the highly specialized nature of Vietnam's exports, we look in Table 2 at Vietnam's bilateral trade by commodity corresponding to the four digit SITC (Rev. 3) classification. For each of the key regions with whom bilateral trade agreements have been reached we report the extent of specialization and the number of four digit commodities traded in years before and after trade agreements were reached as well as in the most recent year for which detailed data are available (2005). In the case of exports to the EU, in 1990 prior to the bilateral agreement the top five commodities accounted for 57.4% of exports and the top 20 for 82.2%. After the agreement, in 1996 similar specialization remained in spite of an increase in trade levels by a factor of 24, from $74 million to $1.8 billion. But the number of four digit commodities exported more than doubled from 177 to 424. Exports to the EU quadrupled again

to $7.5 billion in 2005, and the number of four digit commodities exported increased to 640. In the case of exports to the U.S., prior to the BTA the top 20 commodities accounted for very high shares, but in 2005 the number of commodities exported had increased from 264 to 458, and exports had increased 8.1 times, to $7.2 billion. The U.S. has remained a relatively specialized destination, and the top 20 commodities accounted for 70.6% of imports in 2005. Singapore and China present similar stories. While substantial growth in exports following trade agreements (ASEAN entry) is found, the top five commodities account for around 80% of exports and the top 20 for about 90%, while the number of four digit commodities exported increased substantially.

[Table 2 about here]

The data describing Vietnam's trade and development experience tell a compelling story about the correlation between institutional reforms, trade performance and economic growth. The lessons which seem to emerge are that bilateral trade agreements in the past have generated new and more diversified trade flows well beyond the levels likely to follow from modest tariff reductions. As major new bilateral agreements were arrived at, trade flows to other destinations expanded as well. [8]

WTO accession in early 2007 is the latest significant step in the process of legal and economic reform. In debate in Vietnam on potential WTO impacts, discussion quickly moves from tariff commitments to finance and insurance, telecommunications, wholesale and retail trade, and energy, where foreign firm operation in Vietnam rather than cross border trade is in focus. We keep this in mind as we move on to review existing modeling of Vietnam's trade agreements.

3.   MODELING TRADE AGREEMENTS

A number of modeling exercises have attempted to quantify the impacts of both bilateral trade agreements and Vietnam's accession to the WTO. Rama and Sa (2005) carefully review 26 such contributions, including a study establishing an underlying database for modeling. We subsequently found another four papers of relevance.[9] Several of the analyses examined by Rama and Sa are partial equilibrium evaluations of likely WTO impacts on key sectors – rice, sugar,

maize, livestock, textiles, and clothing. Sixteen of the 29 impact studies, however, utilized CGE models and provided quantitative predictions of the economy-wide impacts of trade reform.

Specifications of the CGE models used to investigate trade liberalization by Vietnam mostly follow either the GTAP model (Hertel and Tsigas, 1997) or the World Bank's Linkage model (van der Mensbrugghe, 2005). Such models capture economy-wide relationships among the different sectors, factor markets, households and government, allocating scarce capital and labor to the most productive uses as dictated by incentives influenced by tariffs. Most assume perfectly competitive, efficient markets, and none allowed for scale economies. Sectoral aggregation varied somewhat, with few studies utilizing the detail of the existing 100 plus sector Input-Output (IO) table (GSO, 2003), and most limited analysis to under 20 aggregate sectors. Minor modifications to those very similar specifications have not incorporated the recent additions to the Linkage model to allow dynamic simulations, focusing rather on static long run outcomes. The length of that long run period is not specified, an issue in evaluating results against actual performance. We assume that a 10 year time horizon is relevant, and the projected impacts are in any case a one time change, not an increase in growth rates.

Base data for those models typically come from the official 1996 Vietnam IO table (GSO, 1999), with a SAM either updated using 1997 macroeconomic information as in the GTAP based models (Hertel, 1997), or in a few cases using more current SAMs (see Tarp et al. 2001, 2002 and Jensen et al., 2004). Vietnam Living Standards Surveys (VLSS), done in 1992/93 or 1997/98 are key sources of information, and base data differ little from one model to another.

Following academic tradition, each study tends to focus on one aspect of the model, with most emphasis placed on characterizing model related policy reforms. Differences in assumptions on likely tariff reductions account for much of the differences found in results. Issues beyond tariff reduction were also addressed. For example, Ianchovichina (2003) modifies tariff data to account for duty drawbacks on re-exported intermediate imports. Vanzetti and Huong (2007) consider simulations which permit unemployment. Dee et al. (2005) includes pro-competitive effects of service sector reform, and is the one study allowing for imperfect competition.[10] Several studies address poverty reduction by disaggregating households, and some examine tax replacement strategies to cope with lost tariff revenue (Jensen and Tarp, 2005), which has accounted for over one-third of Vietnam's government revenue. A few studies

carefully specify narrow methodological objectives (e.g. Chan at al., 2005), but most studies boldly assert that their results amount to a quantitative prediction of the likely impact of either WTO accession or earlier bilateral trade agreement adoption, and claim that they are relevant to the path of trade and development of Vietnam.

The general contention of the CGE studies is that Vietnam's trade regime misallocates resources. Tariff reductions will free resources now going to protected industries, generate greater gains from trade and expansion of export industries, so increasing GDP. But these effects are typically small, especially on aggregate economic activity. Table 3 summarizes results for 30 scenarios from seven studies which recently examined WTO accession by Vietnam. Maximum GDP increases were less than 3.3% until two studies after 2005 got somewhat larger impacts. Vanzetti and Huong (2007) realize a 15 percent increase in GDP when labor constraints are relaxed to account for unemployment, but their prediction is in the range of other studies when employment is constrained. Dimaranan et al. (2005) did realize in one scenario a 7.9% increase in total output, about one year's growth. However, in scenarios which take duty drawbacks into account, the predicted impact is reduced by 70%. Nguyen and Ezaki (2005) argue that liberalization will increase household consumption and reduce poverty, but their trade WTO accession/multi-lateral liberalization scenarios actually show declines in GDP.

[Table 3 about here]

Rama and Sa (2005) observe that models may be manipulated to obtain desired results, as most changes are the result of exogenous assumptions of the authors. In our review we found GDP impacts tended to grow in later studies, supporting this concern. But impacts on long run GDP are in any case quite small relative to the observed average annual growth rate that would have increased GDP 106% over ten years. If existing CGE predictions are correct trade has played only a minor role in Vietnam's growth, an implication we find implausible.

Trade impacts from the predictions of these models in Table 3 are somewhat larger than GDP impacts, with studies typically showing 10 to 20 percent increases in exports over the long run. Actual exports increased more than 100% from 1993 to 2002, and grew even faster afterwards. The one instance in which large trade growth is predicted is for the unemployment

scenario of Vanzetti and Huong (2007). Also, later studies found somewhat larger trade impacts within the above range.

Not surprisingly, low GDP impacts make poverty predictions from trade liberalization inconclusive, and all studies underestimate the extent to which poverty has been falling in Vietnam. Even the direction of the effect of trade liberalization on poverty varied, as did the GDP impact direction. Authors' predictions on poverty were conditional on their fiscal policy adjustments, which had at least as large an impact on GDP as did tariff reductions. Thus, losses from tax changes could overwhelm the gains from trade, leading to the scenarios where GDP falls. These results are consistent with the findings on poverty impacts of trade liberalization of Hertel and Winters (2005), where proper modeling of microeconomic distortions is the key to getting appropriate impacts on poverty, and the effects of those distortions dominate tariff effects.

Comparisons of results from studies projecting impacts of bilateral agreements to actual outcomes are more direct. Those agreements have been in force for several years, so relevant time periods exist over which observed trade and modeling results can be compared. Two studies done at the World Bank looked at impacts of Vietnam's relationship with ASEAN (Fukase and Martin, 1999a) and at the U.S. Bilateral trade agreement (Fukase and Martin, 1999b). In the case of the U.S. BTA, sectoral impacts for the successful sectors are also examined. Those studies were done much earlier, and so anticipated lower impacts in line with typical outcomes from this type of study.

In Table 4 we compare predicted changes from the study examining trade with ASEAN partners after 1996, when Vietnam joined ASEAN.[11] Fukase and Martin (1999a) had, as alluded to in Section 3, anticipated little impact. In the eight years from 1996 to 2004, their prediction underestimated actual increases in exports from Vietnam to Indonesia by a factor of four, and to Malaysia and Thailand by a factor of six. In the one case where they expected a large increase, the Philippines, actual exports fell from 1996 to 2000 and then increased to nearly the predicted level by 2004. In the case of Singapore, Vietnam's largest ASEAN partner, their export prediction was a 0.4% increase, yet actual exports increased over 200%.

[Table 4 about here]

The Fukase and Martin (1999b) rhetoric was somewhat more optimistic in the case of the U.S. BTA. Their predictions included some quite large percentage changes in exports for products in which exports were likely to increase due to very substantial tariff reductions by the U.S. once Vietnam faced MFN tariffs. Table 5 shows actual 1996 sectoral exports from Vietnam to the U.S., Fukase and Martin's predicted increases (in % changes) and actual changes from 1996 to 2004. Their most notable prediction was an increase in clothing exports of 1,512%. Actual exports increased over eight years by 10,635%. They also predicted that textile exports would increase by 218%, but the actual increase was 40,804%. Results are quite similar for the other sectors presented in Table 5. These results vividly illustrate the problem that small initial shares doom model forecasts to under predict the effects of trade liberalization, even in sectors where tariff changes are large.[12] That table shows comparable results for overall trade, where one would not have expected the initial condition constraint to bind so tightly. In that case, the prediction was that exports would increase 127.4%, but over eight years they grew 1,576%.

[Table 5 about here]

Tables 3, 4 and 5 have taken three different approaches to comparing CGE model results of trade agreement impacts against Vietnam's actual experience. In each case the models seriously underestimated the observed success of the trade agreement. We therefore look carefully at the limitations of the underlying models in Section 4.

4. MODEL LIMITATIONS

CGE methodology is associated with difficult modeling choices and limitations. For example, most models predict (only) static and long run one time reallocations of resources as the consequence of price adjustments following tariff changes (Rodrik and Rodriguez, 1999). Hence, the effects of trade agreements do not influence the path of development. While dynamic specifications are at the frontier of CGE modeling (e.g. van der Mensbrugghe, 2005), none of the studies reviewed here were dynamic, and that literature is still wrestling with short run macroeconomic closure issues and inability to predict the evolution of capital stock over time. Moreover, the underlying assumption that capital will reallocate to the sectors yielding highest returns, the presumption of long run static models, has not served well in predicting short to

medium run investment allocations (Ianchovichina et al., 2000). Clearly, models will need to do a better job of explaining short to medium run sectoral capacity evolution before they can adequately address development implications of trade liberalization.

In dynamic CGE models as well as in static models, macroeconomic performance, including economic growth, is assumed (not endogenously predicted) based on external forecasts. The only mechanism by which trade can affect GDP is via gains from trade generated by resource reallocations. Yet, the Harberger triangles of net surplus gains from tariff changes are typically quite small, and this is why results from CGE models of WTO trade liberalization impacts have generally been small (Ackerman, 2005).

In the mid 1990s, the notion emerged that "dynamic gains" from trade liberalization were necessary to identify large impacts. The two key concepts put forward then were the pro-competitive effects of trade liberalization and productivity gains resulting from greater openness (USITC, 1997). These changes are "dynamic" only in the sense that they go beyond tariff barriers, and have not fully included a growth model or explained the processes that give rise to productivity changes over time (Piermartini and Teh, 2005).

Only Dee et al. (2005) examined potential pro-competitive effects of trade liberalization, looking at opening of service sectors to foreign firms to prevent domestic firms from exploiting market power. Gains are limited by the extent to which state enterprises are replaced by oligopolistic multinational firms, whereas efficiency gains from replacing state enterprises by private firms may be more significant. But modeling of these effects remains ad hoc.

Roland-Holst et al. (2002) included productivity gains, which they attributed to complementary domestic policy reform, and which were essentially exogenously imposed. Nevertheless, the econometric literature on the relationship between trade liberalization and growth remains controversial. The presumption that a systematic relationship between the level of trade and productivity in a sector, commonly used in CGE models to capture dynamic gains, has yet to be conclusively supported. The broader literature shows that development and growth are due as much to technological progress or productivity gains resulting from other efficiency enhancing factors as to capital accumulation (Andersen and Dalgaard, 2006).

The key mechanism in existing trade models driving changes after reform is tariff reductions and subsequent price changes, but even setting tariff change assumptions for an aggregate model is problematic. One problem is that tariff equivalents of non-tariff barriers

(NTBs) must be established. Thus, modeling exercises show an increase in Vietnamese tariffs, as a result of tariffication of NTBs, following several reforms in the late 1990s, when trade levels were increasing.

A second problem is aggregation. Negotiations involve compromises at a highly disaggregated level, and critical products and corresponding tariff lines in negotiations can be for very narrowly defined sectors. In evaluating the potential outcome from the Doha Round, the World Bank (Anderson and Martin, 2005) noted that exempting just 5% of tariff lines from reduction could eliminate potential gains from Doha Round trade liberalization. None of the Vietnam studies we reviewed are sufficiently disaggregated to overcome such problems. Rather, simplistic tariff changes, such as projecting free trade outcomes, were assumed since details of the outcome of WTO accession negotiations were not available at the time of writing. So, likely tariff changes are overestimated while the projected trade and economic outcomes are underestimated.

Some of the specific modeling choices in typical trade models have also been subject to considerable criticism (Ackerman, 2005; Taylor and von Arnim, 2007). This includes the functional form determining how tariff reductions are translated into market access improvements. One of the most important features is the Armington specification of international market share determination (see Armington, 1969). In this approach, imported intermediates (by source) are assumed to be separable from domestically produced intermediate inputs. That is, firms first decide on the sourcing of their imports. Then, based on the resulting composite import price, they determine the optimal mix of imported and domestic goods (Hertel, 1997). The specific functional forms used (i.e. the constant elasticity of substitution or CES types) have the virtue of allowing observed two way trade, and they constrain base solutions and simulations of small shocks to stay near the base case outcomes, so model results appear realistic. Yet, they are essentially an ad hoc feature to cope with aggregation problems that exaggerate market power in trade and more importantly, limit the potential for new markets to emerge.

Historically, the values of the Armington substitution elasticities were simply assumed, yet these parameters are critically important in determining the magnitude and nature of changes that occur in CGE models. We know of no studies estimating these parameters for Vietnam. Furthermore, if initial international market shares are zero, the Armington functions must keep

shares at zero, and where shares are low initially, very large price differentials and/or substitution elasticities are needed to allow those sectors to grow to any appreciable size.

To illustrate this serious model weakness we imputed the Armington elasticities of substitution necessary to capture the observed increases in Vietnam's share of the U.S. market following the BTA for seven of the more successful commodities. This is a straightforward case to model – if tariffs are all that drive trade. In most cases Vietnamese exports are small relative to the U.S. market, with only cashew at more than 5% after the increases in trade following the BTA (see shares before and after the BTA in Table 6). We therefore invoke the small country assumption and so assume that U.S. import prices from other exporters and on average (Pus) remain fixed. The Vietnamese export price to the U.S. (Pvn) is then determined from the ad valorem tariff:

$$\text{Pvn} (1 + T) = \text{Pus} \quad \text{so} \quad \text{Pvn/Pus} = 1 / (1 + T)$$

where $T = To$ (the high tariff faced by Vietnam before the BTA) or $T = Tmfn$ (the lower MFN tariff faced after the agreement). An Armington model of Vietnam's share in the U.S. market can be written as:

$$E_{vn-us} / M_{us} = c (Pvn / Pus)^{\varepsilon}$$

where E_{vn-us} is exports of a good to the U.S. from Vietnam, M_{us} is total imports of that good into the U.S., c is a constant and ε is the Armington elasticity of substitution to be imputed. We can now write the share of Vietnamese exports into the U.S. market after the BTA relative to before the BTA as:

$$(E_{vn-us} / M_{us})^{after\ BTA} / (E_{vn-us} / M_{us})^{before\ BTA} = ((1 + To) / (1 + Tmfn))^{\varepsilon}$$

We then imputed the Armington elasticities (ε) reported in Table 6 using the above formula and data in Table 6 on export shares and on tariffs faced by Vietnam before and after the BTA of each of the seven commodities.

For some sectors – cashews, fish, crustaceans, and coffee – tariffs were initially very small, and Armington elasticities need to be over 100 for the assumed model structure to capture the successful increases in these sectors. For other sectors – apparel, clothing, electronics footwear, and furniture – tariff reductions were quite substantial yet substitution elasticities greater than eight and as high as 20 were needed to capture the big increases in Vietnam's share of the U.S. market.

[Table 6 about here]

The extremely large elasticities and very large new exports in sectors where tariffs were almost zero before an agreement suggest that other, institutional factors, not tariff changes, are what drove export success after a trade agreement. Even in cases where tariff changes are significant, the Armington elasticities must be quite large to explain observed trade changes. This highlights that movements along a restrictive demand function cannot explain the improvements in market access that trade agreements may bring. Accordingly, whatever approach is used to predict the consequences of trade agreements, it really should not rely on the Armington specification.

Labor market assumptions have also been a focus of criticism of the CGE models (Polanski, 2006; Stiglitz and Charlton, 2005). In the Vietnam studies, only Vanzetti and Huong (2007) introduce a model closure permitting unemployment. They identified only one such case, which they characterized as extreme. If Niimi et al. (2003) are correct that Vietnam's recent economic history has shown relatively modest employment gains, the unemployment closure of Vanzetti and Huong (2007) may not be as extreme as they suggest. While still quite low relative to history, this closure finds the most reasonable trade and GDP impacts. It may also be the case that education levels constrain employment growth from some activities but not for others, suggesting that a more detailed look at labor markets is required. At a minimum, relationships between urban and rural labor markets and the constraints they imply for particular sectors need to be better understood.

A fundamental concern in assessing alternative future model specifications is to ask what constrains sectoral growth. In most CGE models, and all those examined as part of this paper, gains for one sector typically come at the expense of losses for other sectors as fixed capital and

labor endowments are reallocated. In the Vietnamese case, however, it is hard to argue that labor has to this point been a serious constraint on growth. The effect of FDI in augmenting capital is not apparent either (Figure 1), and the literature has had difficulty in attributing productivity gains to the presence of FDI (Javorcik, 2004; Keller, 2004). In addition, substantial domestic savings has led to investment equaling nearly a third of GDP. Yet, it must be the case that capacity constrains growth, subject to productivity enhancing effects of institutional reforms and to demand constraints that may be relaxed as new market access opportunities arise.

Institutional changes, improved market access, and domestic reform all change the incentives to invest in particular sectors following trade agreements. Those investments together with the institutional changes increase capacity and enhance productivity. A successful trade model would need to predict both any changes in investment patterns and productivity increases sector by sector as a consequence of all aspects of trade agreements. It is likely that high fixed (initial) costs of those investments mean that trade liberalization may facilitate the exploitation of significant scale economies. Sectoral estimates of likely capacity expansions provide better information than aggregated CGE models now do. Current models can accommodate the national accounting constraints within which such capital allocations occur, but they can capture endogenously neither the allocation of investment nor the increase in productivity that have apparently followed past trade agreements.

5. CONCLUSION

This paper has focused on the relationship between trade and development, utilizing the case of Vietnam to compare what happens following bilateral agreements to predictions of CGE models. The CGE methodology is the standard approach to assessing the economic mechanisms by which trade fosters growth and development, and is routinely applied to analyze trade policy impacts both in specific developing countries and globally. There is no shortage of economy wide studies utilizing CGE models to examine trade policy impacts, especially in Vietnam, and we considered 16 such studies.

It emerged, as it has in recent global and regional assessments, that there is a serious disconnection between the small numbers from existing model predictions and the larger impacts anticipated and experienced from trade agreements in reality. The reasons for this are embedded in the fact that tariff reform and associated price changes are of much less importance than often

assumed. It is clear from our review that many authors are aware of the limitations of the basic methods applied. The rhetoric used regularly involves more optimistic conclusions. A common strategy has been to exogenously shift production functions outward. The claim that such shifts capture the link between trade and development highlights the inability of models to represent endogenously the mechanisms by which trade may foster development and reduce poverty. There is conflicting evidence on poverty reduction as well. Hertel and Winters (2005) show that market imperfections, such as price transmission and unemployment must be modeled to get the linkages between trade and poverty right. More importantly, the impact of trade liberalization appears small relative to the effects of revenue replacement assumptions incorporated in modeling of alternative tax regimes.

History following the implementation of past trade agreements, not model based results, would appear to justify the belief that WTO accession will lead to more rapid economic development. Our analysis of model revisions necessary to make tariff changes induce observed, detailed sector outcomes demonstrates that institutional changes beyond tariffs must lie behind the changes observed in the past. More simply, the fact that large new trade flows appear following bilateral agreements in sectors where tariffs were previously insignificant strongly suggests something else is going on. Models must cope with the prospect that new trade flows will arise wherever trade reforms are pursued.

Policy makers on the ground are already grappling with the importance of institutional changes. Discussions of the prospects and challenges from Vietnam's WTO accession invariably move towards discussion of services trade, legal reform, and the role of the state in the economy. But it is difficult to foresee quantitatively the impacts of reforms from those discussions. In the sector studies we reviewed as background, authors tended to shy away from quantitative conclusions. Instead, recommendations for further institutional reforms are emphasized, while offering a simple indication of the anticipated direction of changes in competitive advantage. Progress on how institutional reforms may be captured in research methodologies, in Vietnam and elsewhere, is critical to improving predictions from methods we rely on, and in establishing the mechanisms by which trade reforms may impact development.

The key puzzle, in looking ahead, for all those engaged in ongoing, policy relevant trade analysis (including academic researchers and development practitioners more broadly) is to identify the mechanisms through which trade influences development and so determine what

limits the expansion of trade and growth, in particular sectors and overall. Our observations are clearly consistent with the trend toward developing dynamic versions of economy wide models (van der Mensbrugghe, 2005; Ianchovichina et al., 2000). Dynamic development questions have to be captured in short to medium run models to be of interest in this endeavor. Rapid growth and the limited employment generation of the Vietnam experience highlight the limitations of analysis based on traditional clearing of aggregated factor markets. Under and unemployment of labor are clearly important, and relaxation of demand constraints are evident in the Vietnam case in the form of reemergence of textile quotas on Vietnam from the U.S. Model closures must address both demand constraints (market access) and under employment to get trade impacts right.

An important key to understanding the link between trade and development is to better capture the role of trade incentives on investment. Any path forward to quantitatively assessing the potential impacts of trade agreements will evidently need to respect the fundamental national accounting identities of the social accounting matrices (SAMs) that are the foundation of model based approaches to quantitative trade reform assessment. These incorporate the basic supply-demand balances and macroeconomic consistency that must hold. We find that the key behavioral relationships which are in need of explanation in future research include:

- Uncovering the factors that determine the evolution of the capital stock, hence capacity, by sector;
- Establishing how productivity by sector evolves in response to trade incentives and institutional reforms; and
- Determining how factors outside the country under study shape developments in market access (demand).

In conclusion, Vietnam is an important case illustrating successful economic development and poverty alleviation from a low income level. The extensive involvement of the state in the Vietnamese economy may make it a special case in some respects. Yet, the institutional reforms undertaken (particularly in preparation to join the WTO and as a consequence of past bilateral agreements) are commonly found in other developing countries. We believe our critical look at the lessons from Vietnam have broad application in terms of the methodology employed to examine trade liberalization as well as in assessing the linkages between international trade liberalization, development, and poverty.

NOTES

[1] Focus is on the CGE methodology in this paper because cross-country regressions necessitate examination of multiple countries. This paper was motivated by setting the lessons learned from the Vietnamese case in the broader context of the trade and development literature and shedding new light on issues that go beyond the case under study. Moreover, if growth regressions do show that trade matters, they beg the question "why?" CGE models attempt to elaborate some of the mechanisms by which trade impacts growth.

[2] Vietnam's own poverty criterion set the poverty rate at 58% in 1993 and slightly below 29% in 2002, with a food poverty measure of 24% in 1993 and 11% in 2002 (Thang, 2004).

[3] A reviewer raised the concern that Vietnam's experience following its bilateral agreements may be unique, or peculiar to East Asia. In our experience, however, substantial increases in trade flows between partners signing bilateral agreements are commonplace and have generally been under-predicted, with some notable exceptions, particularly in Africa and when there is civil strife.

[4] The nationally representative household surveys (known by the acronym VLSS and more recently VHLSS) suggest somewhat lower unemployment rates. Nevertheless, we believe that both under and unemployment are concerns that must be addressed in any assessment of economic impacts in Vietnam.

[5] The channels through which legal changes work include that they (i) make contracting and so cross border economic relationships more reliable, facilitating trade and investment relationships, (ii) influence uncertainty under which firms operate, and (iii) improve the environment for investment, for both foreign-invested and Vietnamese firms. We have not attempted to address in this paper the problem of quantifying trade impacts of broad legal changes, but highlight that changes in trade coincide directly with these institutional reforms. Existing models which we review in Section 3 rely on behavioral relationships which preserve the status quo, whereas legal changes would alter many of the underlying economic structures and behaviors.

[6] Niimi et al. (2003) note that by 2000 Vietnam had negotiated 57 bilateral trade agreements and 72 MFN tariff agreements. See also Thang (2004).

[7] Econometric evidence on trade flow impacts of bilateral agreements is problematic with the short time series data available. It is not possible to establish causality for a one time shock. We did compute t-statistics to see if trend trade flows to a particular partner accelerated in a statistically significant manner immediately after bilateral agreement with that partner. For the US BTA, the two EU agreements and other major bilateral agreements the increase in trend was significant at better than 1%. The only minor exception was for some of the smaller ASEAN partners due to erratic trade flows following the Asian crisis, which raised standard errors so significance could not be shown.

[8] Hummels and Klenow (2005) provide evidence consistent with ours that trade liberalization brings product diversification.

[9] See Abbott et al. (2006) and references therein.

[10] Specifically, they introduce an oligopolistic mark-up and assume that the mark-ups fall by an arbitrary amount as trade liberalization brings competition. On the basis of this exercise they conclude that impacts of tariff reforms negotiated in the WTO accession agreement would be trivial in comparison to recent economic performance.

[11] 1996 is the base year in both studies by Fukase and Martin (1999a; 1999b), so we compare actual outcomes from that base year. ASEAN partnerships began in 1996, and U.S. trade started to expand in 1996 as well, but the real expansion came after the 2000 BTA was signed.

[12] See also DeRosa and Gilbert (2005) on this point.

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TABLES AND FIGURES

Figure 1. *Economic Growth, Trade, FDI, and Poverty in Vietnam*
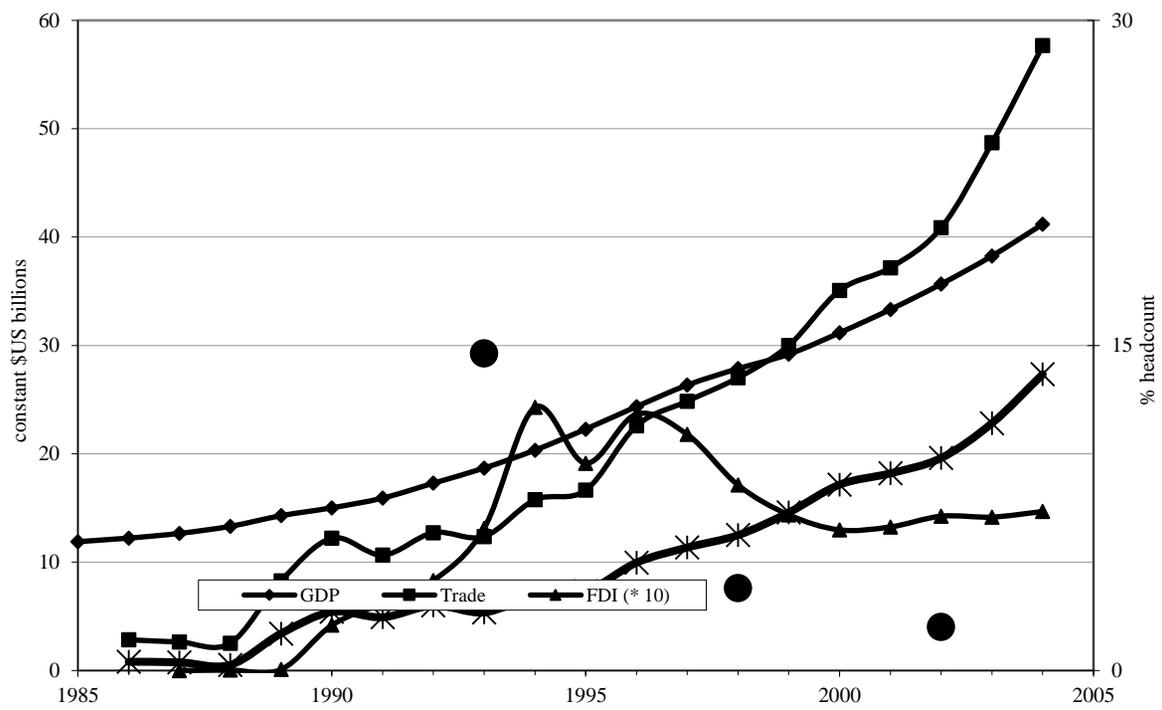
Figure 2. *Timeline for Vietnam's Trade Agreements and Economic Reforms - 1986 to 2006*

|	
1986	*Doi Moi* (the Renovation) -- Economic reforms begin
1987	
1988	Import tariffs introduced
1989	Market oriented reforms, Unified exchange rate
	State monopoly of foreign trade eliminated
1990	Export Processing zones established
1991	*Law on Import and Export Duties* - established Preferential tariffs
1992	*European Union* trade agreement
1993	
1994	Quotas introduced
1995	*WTO Accession Working Party* established
	Joined *ASEAN*
1996	
1997	Asian Financial Crisis begins
	Reduced requirements on firms to enter foreign trade
1998	Joined *APEC* (Asian Pacific Economic Cooperation)
1999	MFN agreement with *Japan*
2000	*US -*Vietman Bilateral Trade Agreement (*BTA*) signed
2001	*CEPT/AFTA* implementation plan under ASEAN begins
	New Trade Policy Roadmap - most QRs removed
2002	ASEAN *China* Free trade area
	Implementation of *US-BTA* begins
2003	ASEAN *Japan* Comprehensive economic partnership
	TRQs introduced
2004	*EU* -Vietnam bilateral agreement on WTO Accession
	Competition Law
2005	29 new or amended Laws on Commerce and Trade
2006	Final bilateral agreements for *WTO Accession* reached
	CEPT/AFTA under ASEAN implementation to be completed

Source: Adapted mostly from Thanh (2005) and www.WTO.org

Figure 3. *Vietnamese Exports to ASEAN countries*

Legend:
- ♦ Brunei
- ■ Cambodia
- ▲ Indonesia
- ○ Malaysia
- ✳ Phillipines
- ● Thailand
- ✕ Singapore
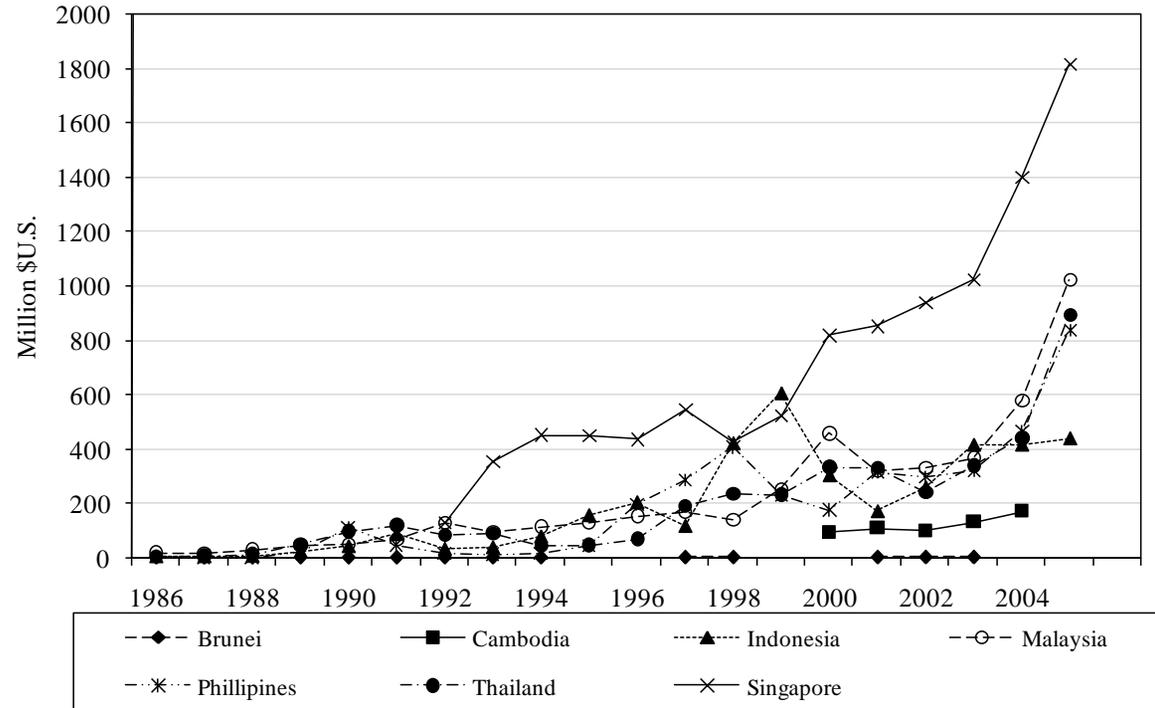
Source: UN Comtrade (2007)

Figure 4. *Value of Total Vietnamese Exports to Various Trading Partners*
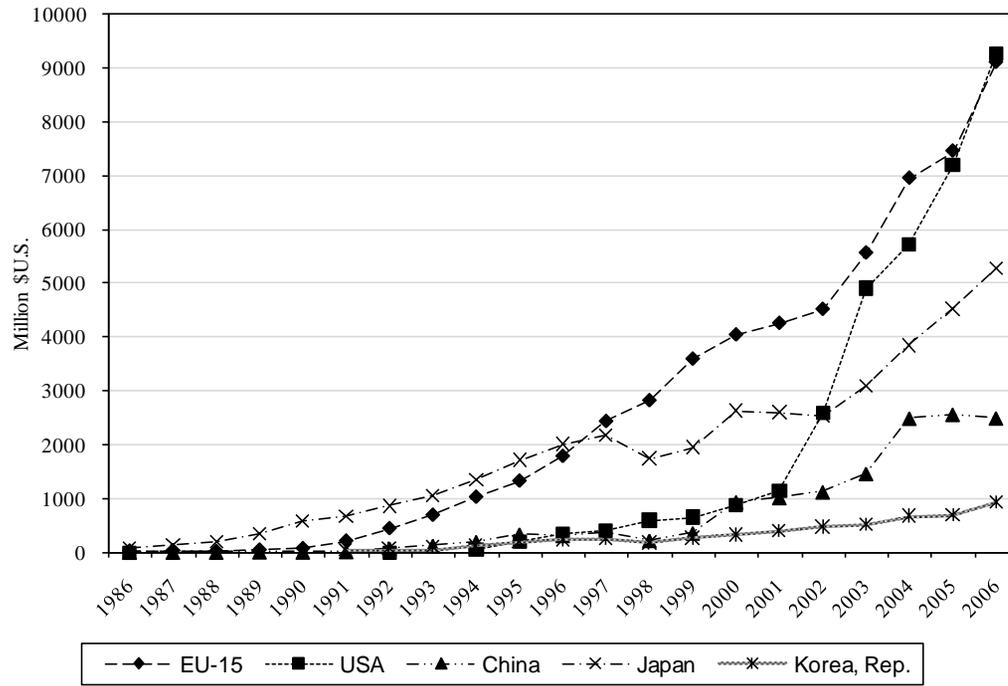
Table 1. *Key Vietnamese Imports and Exports in 2005, $U.S. million*

Leading Exports		Leading Imports	
Misc manufactured articles	10,403	Manufactured goods	10,119
Clothing and Accessories	4,681	*Textile yarn, Fabric etc.*	3,435
Footwear	3,079	*Iron and Steel*	3,207
Furniture, Bedding etc.	1,401	*Non-ferrous metals*	837
		Leather, Leather goods	710
Fuels, Lubricants etc.	8,358		
Petroleum, Petroleum products	7,686	Machines, Transport Equipment	9,218
		Electr. and mech. apparatus, Parts nes	1,966
Food and Live Animals	6,333	*Specialized industrial machinery*	1,632
Fish, Crustaceans, Mollusks	2,743	*Road vehicles*	1,449
Cereals, Cereal preparations	1,468	*General industrial machinery nes*	1,334
Coffee, Tea, Cocoa, Spices	1,026	*Telecommunication, sound equipment etc.*	876
Vegetables and Fruit	818		
		Chemicals, Related Products nes	5,290
		Plastics in primary form	1,517
		Chemical materials, nes	691
		Medicinal, Pharmaceutical products	649
		Fertilizer except GRP272	649
Other Exports	7,353	Other Imports	12,134
Total Exports	32,447	Total Imports	36,761

Source: UN Comtrade (2007)

Note: Commodities classified according to SITC Rev. 3, at the 2 digit level

Table 2. *Vietnamese Exports to the EU, U.S., Singapore and China Before and After Bilateral Agreements*

EU - 15	1990		1996		2005	
	$US million	*%*	$US million	*%*	$US million	*%*
Top 5 commodities	42.5	57.4	845.7	47.4	3458.8	46.4
20 commodities	60.8	82.2	1442.5	80.9	5363.9	71.9
Total	74.0		1783.6		7460.2	
No. of 4 Digit SITC Commodities	177		424		640	
US	**1996**		**2000**		**2005**	
	$US million	*%*	$US million	*%*	$US million	*%*
Top 5 commodities	262.3	76.8	523.0	59.1	2686.7	37.3
20 commodities	323.3	94.6	798.0	90.1	5088.8	70.6
Total	341.7		885.2		7205.5	
No. of 4 Digit SITC Commodities	187		264		458	
Singapore	**1992**		**2000**		**2005**	
	$US million	*%*	$US million	*%*	$US million	*%*
Top 5 commodities	95.2	73.6	644.4	78.7	1548.5	85.4
20 commodities	120.5	93.2	715.4	87.4	1642.7	90.6
Total	129.3		818.9		1813.0	
No. of 4 Digit SITC Commodities	173		445		551	
China	**1991**		**2000**		**2005**	
	$US million	%	$US million	%	$US million	%
Top 5 commodities	9.8	90.7	814.1	87.8	1868.0	73.2
20 commodities	10.8	100.0	877.0	94.6	2293.3	89.9
Total	10.8		926.7		2550.5	
No. of 4 Digit SITC Commodities	23		270		378	

Source : UN Comtrade (2007)

Note : Years were chosen for each region or country to bracket the years in which trade agreements were
negotiated in order to assess the impact of agreements on specialization and diversification. For example,
the EU signed agreements with Vietnam in 1992 and 2004.

Table 3. *Predictions Based on 30 Scenarios of CGE Studies of the Impact of WTO Accession on Vietnam, Percentage Changes*

Study	Number of scenarios	GDP		Export		Import	
		min	max	min	max	min	max
Fukase and Martin (1999a)[a]	5	-4.7	1.0	3.9	15.2	3.1	12.8
CIE (2002)[b]	7	0.2	3.3	0.6	12.1	N/A	N/A
Dee et al. (2005)	4	0.03	2.4	N/A	N/A	N/A	N/A
Toan (2005) [a, c]	1		fall		0.13		0.4
Nguyen and Ezaki (2005)	5	-0.06	-0.7	1.7	18.2	3.2	15.4
Dimaranan et al. (2005)[a]	2	6.7	7.9	15.2	18.8	N/A	N/A
Vanzetti and Huong (2007)	6	1	15	-2	57	-1	37

Source: Abbott et al. (2006)

Notes:

a) Only the sector-disaggregated predicted effects on output were reported in the paper. The numbers reported here are calculated averages of the predicted effects on output, not GDP.

b) The effects on GDP and exports were not reported in scenarios (ii) and (iii).

c) The paper by Toan (2005) only has one scenario.

N/A: not applicable

Table 4. *Model Predictions Versus Actual Exports to ASEAN Partners after 1996*

	Actual value	Predicted	Actual changes		
	1996	changes	1996-2000	1996-2004	2000-2004
	$US million	*%*	*%*	*%*	*%*
Indonesia	204.4	*25*	*48.1*	*103.5*	*37.1*
Malaysia	150.4	*59*	*202.9*	*285.7*	*27.3*
Philippines	196.9	*226*	*-11.0*	*124.0*	*151.7*
Singapore	436.0	*0.4*	*87.8*	*218.9*	*69.8*
Thailand	65.7	*98*	*403.5*	*568.4*	*32.7*

Source: Predictions are from Fukase and Martin (1999a)

Table 5. *Model Predictions versus Actual Exports to the U.S. Following the BTA Implemented in 2002*

	Actual value 1996	Predicted change	Actual changes		
			1996-2000	1996-2004	2000-2004
	$US million	%	%	%	%
Agriculture and Forestry	56.1	-1	575	1,383	120
Basic Manufacturing	1.6	329	826	5,596	515
Beverages and Tobacco	0.6	125	13	317	270
Clothing	25.7	1,512	106	10,635	5,113
Coal, Oil, Gas	0.01	4	-49	1,424	2,888
Chemical, Rubber, Plastic	1.5	64	400	2,140	348
Electronics & Machinery	0.4	284	737	29,865	3,478
Processed Agriculture	119.5	19	28	44	13
Petroleum & Coal	85.8	N/A	11	340	298
Textiles	0.2	241	718	40,804	4,902
Transport Equipment	0.02	N/A	559	63,877	9,613
Light Manufacturing	45.1	147	263	2,601	643
Furniture & Footwear	42.8		233	2,182	584
Other Light Manufacturing	2.3		811	10,255	1,037
Total	341.7	127	159	1,576	547

Source: Predictions are from Fukase and Martin (1999b)

Table 6. *Tariff Changes and Imputed Armington Elastiticies: Selected Commodities Following the U.S. BTA*

	Vietnam's Share of U.S. Market		Tariff paid		Imputed Armington Elasticity
	2000	2004	2000	2004	
	%	*%*	*%*	*%*	
Cashews	*11.5*	*30.4*	*0.9*	*0.0*	-114
Apparel and Clothing	*0.1*	*3.8*	*38.7*	*15.4*	-20
Electronics	*0.002*	*0.02*	*28.7*	*2.0*	-11
Fish, Crustaceans	*3.0*	*5.1*	*0.5*	*0.3*	-375
Footware	*1.0*	*2.9*	*26.3*	*10.6*	-8
Furniture	*0.07*	*1.53*	*26.2*	*0.02*	-13
Coffee	*4.6*	*5.5*	*0.008*	*0.005*	-5,468

Source: UN Comtrade (2007) and authors' calculations