No. 2006-11-A

OFFICE OF ECONOMICS WORKING PAPER

U.S. INTERNATIONAL TRADE COMMISSION

Is Trade Preference Erosion Bad for Development?

Judith M. Dean
U.S. International Trade Commission

November 2006

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Address correspondence to:
Office of Economics
U.S. International Trade Commission
Washington, DC 20436 USA

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Judith M. Dean
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Research Division, Office of Economics
US International Trade Commission
500 E St., SW
Washington, DC 20436
Judith.Dean@usitc.gov

*The views are those of the author, and do not necessarily reflect the views of the US International Trade Commission or the individual Commissioners. The participants of the World Bank/WTO International Symposium on Preference Erosion (WTO, June 2005) inspired me to pursue this research. I am grateful to Nick Grossman and Maya Shivakumar for excellent assistance with tables and data. Special thanks to Peg MacKnight for technical assistance. Thanks to the participants in the Midwest International Economics Group meetings, University of Kansas (Oct., 2005) and the Trade and Development Seminar at George Washington University (Nov. 2005) for helpful comments.

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Judith M. Dean
Research Division, Office of Economics
US International Trade Commission
500 E St., SW
Washington, DC 20436
Judith.Dean@usitc.gov

Abstract
In much of the recent debate about trade preference erosion, opponents have stressed the impact that trade preferences have had on economic development in beneficiary countries. However, lack of quantification of preference margins and preference utilization has inhibited testing such hypotheses. This paper uses HS 8-digit level U.S. data to quantify both preference utilization and tariff preference margins for the CBERA beneficiary countries from 1984-1998. Panel data from 1970-1998 are then used to test the impact of preference erosion on growth and investment in ten beneficiary countries. A two-equation simultaneous model is developed which allows preference erosion to impact growth directly as well as indirectly through investment. Results show that CBERA preferences have been steadily eroding since 1984, while average CBERA preference utilization has risen dramatically since 1984. The panel estimation shows that CBERA preference erosion did discourage investment and growth (both directly and indirectly) in some beneficiary countries. However, increased CBERA utilization stimulated investment and growth, and is likely to have outweighed the effects of preference erosion on development. Preferential access to qualifying apparel imports via the production-sharing program had at least as large an effect as the CBERA. Finally, for all countries, increased openness mattered much more for development than preference erosion.

JEL: F15, F43, O40

IS TRADE PREFERENCE EROSION BAD FOR DEVELOPMENT?[1]

> …[I]t is "crucial that modalities be developed to protect the preferential as well as favourable conditions of access of these countries. Otherwise, they run the risk of being chased out of the market with devastating socio-economic consequences…[2]"
>
> *Prime Minister of Mauritius*

> [V]ulnerability to preference erosion is heavily concentrated in a sub-set of products, especially sugar and bananas," and thus, "assistance to help countries cope with preference erosion can and should be closely targeted at the countries at risk.[3]"
>
> *IMF Managing Director*

I. Introduction

There has been much recent debate over the value of industrial countries' preferential trade programs which grant duty-free or reduced duty access to many developing countries' exports. Ostensibly, a country granted trade preferences would see demand for its exports grow, relative to other exporting countries still facing MFN tariffs. If the country receiving preferences is small, its exports would continue to be sold in the importing country at the MFN-tariff-inclusive price, with the exporter earning the difference. Thus, the benefits of such preferences for the exporting country would be increased exports and a transfer of rent from the importing country to the beneficiary country.

Recent studies which attempt to quantify the value of US and EU trade preferences (Dean and Wainio (2006), Jean and Candau (2005), Alexandraki and Lankes (2004), Brenton and Ikezuki (2004)) suggest that reality may be closer to the view of the IMF Managing Director than that of the Prime Minister of Mauritius. Although coverage and utilization of preferences is quite high for many countries, preferences are widely underutilized, and preference margins tend to be small, except on some agricultural products and

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[1] This paper draws on Dean (2002), and the author's earlier formal analysis of CBERA, in chapter 4 of USITC *The Impact of the Caribbean Basin Economic Recovery Act*. Publication No. 3447 (2001).

[2] Speech of the Prime Minister, Hon. P. R. Bérenger, Republic of Mauritius, at the opening of the G-90 Ministers' Meeting 12 July 2004 http://ncb.intnet.mu/mfa/speech/sppm.htm, downloaded July 12, 2005.

[3] Statement by the IMF Managing Director, Rodrigo de Rato, Managing Director of the IMF, to the WTO General Council 22 October 2004 http://www.wto.org/english/news_e/news04_e/gc_stat_imf_22oct04_e.htm, downloaded July 12, 2005.

on apparel. Even assuming full transfer of rent, the number of countries in which this transfer exceeds 5 percent of the value of exports is small.[4]

In light of this evidence, it appears that trade preferences are unlikely to have had a significant impact on developing countries' economies. However, the recent attempts at quantification have been confined, typically, to estimates for a single year. Thus, not surprisingly, no attempt has been made to formally test whether or not these preferences have had any impact on development. This paper uses HS 8-digit level U.S. data to quantify both preference utilization and tariff preference margins for the Caribbean Basin Economic Recovery Act (CBERA) beneficiary countries[5] from 1984-1998. Panel data on 10 countries from 1970-1998 is then used to test the impact of CBERA on growth and investment in these beneficiary countries.

The CBERA is an ideal test case for this hypothesis. Begun in 1984 as the Caribbean Basin Initiative (CBI), and extended twice, the objective of the CBERA was to encourage export diversification, growth and development in Caribbean and Central American countries (USITC 2001). In 2001, the Office of the US Trade Representative stated that: "expansion of the CBI benefits through enactment of the [Caribbean Basin Trade Preference Act (CBTPA)[6]]…represented an important affirmation of the United States' ongoing commitment to economic development in the Caribbean Basin, by providing an open US market for CBI goods."[7] Yet, despite annual evaluations by the USITC of the effects of CBERA *on the US*, the impact on the beneficiary countries has not been formally analyzed.[8]

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[4] This number varies greatly across preference programs and depends to some extent on the method used by different authors to calculate the values. Incorporation of actual utilization into the value calculation is critical (Dean and Wainio, 2006).

[5] The following countries are presently beneficiaries: Antigua, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Monteserrat, Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.

[6] The most recent extension, enacted as part of the Trade Act of 2000.

[7] USTR, "4th Report to Congress on the Operation of the Caribbean Basin Economic Recovery Act," Dec. 31, 2001.

[8] See note 1.

Early assessments of CBI preferences actually predicted that they would have minimal effects (Pelzman and Schoepfle, 1988; Ray, 1987; Clark and Zarrilli, 1994), since most CBERA-eligible goods already entered the US duty-free under MFN or GSP. In addition CBERA preference margins were small, and non-tariff measures (NTMs) restraining eligible goods were left in place. Perhaps most important, goods in which these countries had some comparative advantage, such as apparel, were excluded from CBERA. Interestingly, the "production-sharing" program (PSP), which ran concurrently with CBERA, did offer reduced duties on apparel assembled from fabrics wholly made and cut in the US.[9] In addition, under the related Guaranteed Access Levels (GALs) program, a country received quota-free access for qualifying apparel. Only with the CBTPA in 2000, was preferential access extended (with conditions) to include apparel exports.

Results of this analysis show that CBERA tariff preference margins have been eroding fairly steadily since the inception of the program in 1984 for the region as a whole, as well as for the 10 countries included in the panel analysis. This erosion has been largely due to US multilateral liberalization during the period. At the same time utilization of the CBERA preferences has grown dramatically, as has the share of PSP trade and GALs trade in the region's overall trade with the US. Preliminary results from the panel estimation reveal that erosion of CBERA preferences may have discouraged growth and investment in the CBERA region. However, the negative impact of CBERA preference erosion was likely outweighed by the positive impact of increased utilization of the program. There is also some evidence that participation in production sharing had larger positive effects on investment and growth than did CBERA preferences. This would suggest that preferences targeted toward goods in which the region had some comparative advantage are indeed more important for growth and investment than the CBERA program itself. Perhaps most

[9] Production-sharing also included goods from other sectors. For more detail on these programs see USITC (2001).

important, it appears that openness on the part of beneficiary countries mattered far more for growth and investment in the region than preference erosion.

II. Preferential Trade and Preference Erosion in the CBERA Countries

Figure 1 shows US imports[10] from all CBERA member countries by preference program between 1984 and 1999. The share of US imports under the CBERA program more than doubled from 1984 to 1998, rising from 7 percent to 19 percent, then falling slightly to 14 percent in 1999. The well-documented shift from the use of GSP preferences to CBERA preferences over time can be seen in figure 1. Though the share of US imports entering under the GSP was 7 percent in 1984 (equal to the share entering under CBERA), it fell to only about 1 percent by 1999. In contrast to CBERA imports, PSP imports rose dramatically over the period and constituted the largest component of US preferential imports from the CBERA region at the beginning of the new millennium. From 1984 to 1999, PSP imports rose from 7 percent of US imports from the region to 43 percent , before declining to 32 percent in 1999. Most of this dramatic increase is due to growth in apparel imports from CBERA countries. The fraction of PSP imports entering under GALs has also grown significantly.[11]

Figure 2 shows the coverage and utilization of the CBERA preference program over 1984-99, as well as the unweighted average tariff preference for the region. Coverage is defined as the percentage of US imports from the region in a given year that are eligible for CBERA preferences, and utilization is defined

[10] Data for 1989-1999 are calculated using HTS 8-digit data from the USITC Dataweb (www.usitc.gov), and include total imports in HS Chapters 1-97. For 1984-88, the data are from various issues of *USITC The Impact of the Caribbean Basin Economic Recovery Act*, and include all imports.

[11] The earliest GALs arrangements were with Costa Rica, Dominican Republic, Haiti, Trinidad and Tobago and Jamaica. These were in place as early as 1987. A GAL was negotiated with Guatemala in 1990, but it wasn't until 1994 that the US added GALs with El Salvador, and Honduras. The GALs with Haiti and with Trinidad appear to have expired in 1994 and have not been renewed.

as the share of US CBERA-eligible imports in a given year actually entering under the CBERA program.[12] The unweighted average tariff preference margin is defined as the difference between the MFN *ad valorem* equivalent tariff and the preferential tariff at the HTS 8-digit level. The regional margin is the average of the 8-digit level margins, across all US imports from eligible countries, in a given year.[13]

Several interesting features emerge here. First, at the regional level, the coverage of the CBERA program was far below 100 percent during the period. As figure 2 indicates, approximately 26 percent of US imports from the CBERA region were eligible for CBERA preferences in 1984. Coverage peaked at 44 % in 1989, then fell back to 28 percent in 1999. Second, CBERA preferences were underutilized. Utilization is likely to be less than 100 percent for a number of reasons: some goods may enter under GSP instead; exporters may lack information about CBERA eligibility; exports may not qualify because they do not meet the CBERA regional content requirements. Third, utilization rose significantly during this time period, from 34 percent in 1984 to 72 percent in 1999. Fourth, preference erosion has taken place almost steadily since the inception of the CBERA program in 1984. Unweighted average tariff margins fell from 5.5 percent in 1984 to about 3.4 percent in 1999.[14] What is most striking about figure 2 is the dramatic rise in utilization despite the erosion of preference margins. Figure 3 shows that this pattern is also apparent for many of the individual CBERA countries, for which data are available from 1989-1999.

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[12] Coverage and utilization data for 1989-1999 are calculated using HTS 8-digit data from the USITC Dataweb (www.usitc.gov). For 1984-88, the data are from various issues of *USITC The Impact of the Caribbean Basin Economic Recovery Act*, and include only information on imports eligible for duty-free access. Although this omits imports that were eligible for reduced-duty access, these were a very small portion of eligible imports at that time.

[13] Average tariff preference data for 1995-99 are calculated using HTS 8-digit data from the USITC Tariff Database (www.usitc.gov). For 1989-94, preference margins are calculated using HS 6-digit tariff data from TRAINS via WITS. For 1984-88, preference margins are calculated as the unweighted calculated duty estimates for the US from *Value of US Imports for Consumption, Duties Collected, and Ratio of Duties to Values 1891-2003 (http://dataweb.usitc.gov/scripts/AVE.PDF)*. Since nearly all CBERA preferential trade was duty-free during this early period, using an estimate of the US non-preferential tariff should slightly overestimate the preference margins. On the other hand, since the non-preferential tariff is estimated using calculated duties, it already incorporates preferential trade, and thereby underestimates the preference margins.

III. Modeling Growth and Investment in the CBERA Region

A cursory look at growth and investment in the region reveals no discernible differences in the period following the inception of the CBERA program. For many of the beneficiary countries,[15] annual real income growth averaged 3 percent or higher both before (1970-83) and after (1984-98) CBERA (table 1). While real per capita income growth is generally much slower, it also shows no systematic difference between the periods. Investment remained between 20 and 30 percent of GDP in the Caribbean, and between 15 and 20 percent of GDP in Central America during both periods. However, table 2 shows that both FDI inflows and real export growth are much higher post-CBERA. In 4 out of 6 Central American countries, FDI as a ratio of GDP is between 50 percent and 200 percent higher, and real export growth is much more rapid than in the earlier period. In more than half the Caribbean countries FDI inflows are a larger share of GDP post-CBERA, though the less complete export growth data show little systematic change.

The significant unilateral trade liberalization which took place in the CBERA region during this period makes it difficult to decipher the impact of the program itself. Virtually all beneficiary countries moved from import-substitution industrialization characterized by highly protectionist regimes, to more open, liberalized regimes between 1970 and 1999. In Costa Rica, Trinidad, Jamaica, and Guyana this transformation took place as early as the mid- to late 1980s. The other beneficiary countries began major reforms in the early to mid-1990s. For the CBERA region as a whole,[16] most reform periods included macroeconomic stabilization measures, significant deregulation of the foreign exchange market, and trade reform. In general, trade reforms were characterized by removal of quantitative restrictions, reductions of tariff levels, and narrowing of the tariff range (USITC, 2001). In addition countries removed export taxes and implemented incentives

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[14] Trade-weighted margins fell similarly from 3.7 percent to 1.3 percent.

[15] Due to lack of data, Aruba, Montserrat, British Virgin Islands, and Netherlands Antilles were omitted from the analysis.

[16] For detailed studies, see the WTO *Trade Policy Reviews* and IMF *Staff Country Reports*.

for foreign direct investment. Between 1986 and 1999, nearly all CBERA beneficiary countries also became members of the WTO, as well as one or more regional trade agreements.[17]

Many studies have found evidence of a direct link between *unilateral* trade liberalization and more rapid growth, though the debate continues as to the robustness of these results.[18] The early work of Levine and Renelt (1992) found no robust direct link, but instead a strong indirect link between trade and growth via investment. Four recent cross-country studies have emphasized the role of *unilateral* trade liberalization in impacting growth through investment. Greenaway, et al. (1998, 2002), find evidence that both investment and trade openness strongly increase growth, though the impact of trade reforms appear to follow a J-curve pattern. Using a two-equation simultaneous system, Baldwin and Seghezza (1996) find evidence that reductions in tariffs *at home and abroad* generate "trade-induced investment-led growth."[19] However, they find no significant direct link between trade liberalization and growth. Wacziarg's (2001) eight-equation simultaneous system allows trade policy to affect growth indirectly through six channels, including investment.[20] He finds that more than half of the total effect of trade openness on growth occurs through increased investment. In evaluating various model specifications based on predictive ability, Krishna, et al. (2003) argue for inclusion of both investment and trade variables in explaining growth. They also emphasize controlling for the economic state of a country's trading partners when explaining growth.

In light of this literature, this study uses a simple two-equation model which allows trade preference programs (CBERA and PSP) to impact growth directly as well as indirectly through investment. Let annual

[17] The CACM was reactivated about 1993, and entered into a trade agreement with Dominican Republic in 1998. In addition, all Central American countries negotiated (or began negotiating) PTAs with Mexico during the 1990s. Revitalized in 1991, CARICOM maintains essentially free trade among its members, and hasreduced its CET range since 1991. CARICOM entered into PTAs with Venezuela (1993), Columbia (1994) , and the Dominican Republic (1998).
[18] See Krishna, et al. (2003), Rodrik and Rodriguez (2001), Tybout (2000), US ITC (1997), Edwards (1998).
[19] They argue that trade liberalization may raise the return to capital, stimulating investment and thereby growth. This could occur through reduced cost of imported intermediates, increased demand for investment goods, and procompetitive effects in investment goods, tradables, and/or the financial sector.
[20] These are: incentives for better macroeconomic policy, impact on government size, lower degree of price distortion, increased exposure to new technology, technology transmission through FDI.

real income growth in a country be a function of growth in the factors of production (low-skilled labor (L), high-skilled labor(H), and capital (K)), and technological change ($\hat{A}$).

$$\hat{Y} = \hat{A} + a_1 \hat{L} + a_2 \hat{H} + a_3 \hat{K} \tag{1}$$

where "^" indicates proportionate change, and a_j is the share of input j (j=L, H, K) in total output.

Trade barriers are assumed to slow down technological change by: limiting access to goods embodying new technologies; impeding foreign investment, and thus, knowledge transfer from foreign firms; reducing incentives to improve technology in order to remain competitive on world markets.[21] To keep things simple, assume that technological change is driven by country-specific factors (d) and by a country's own trade restrictions as well as its trading partners' ($\boldsymbol{TR}$). With these assumptions equation (1) might be written as:

$$\hat{Y} = d + a_1 \hat{L} + a_2 \hat{H} + a_3 \hat{K} + \boldsymbol{ß'(TR)} \tag{2}$$

The vector $\boldsymbol{TR}$ includes beneficiary country's unilateral trade barriers, US unilateral trade barriers, and trade preferences under CBERA and PSP.

Investment is modeled using a modified simple accelerator model. The desired capital stock in any period is assumed to be a linear function of income. Thus, investment today is a linear function of the difference between income next period and income today:

$$\begin{aligned} I_t &= (K^* - K_t) = h(Y_{t+1} - Y_t) \\ I_t / Y_t &= h(\hat{Y}_{t+1}) \end{aligned} \tag{3}$$

where * indicates desired level of capital in period t+1, and 0<h<1.[22] Since income growth next period is unknown, investment decisions today must be based on expectations of future growth, $\hat{Y}^e_{t+1}$. Suppose trade liberalization is expected to stimulate growth:

[21]See Edwards (1993, 1992), Harrison (1996), Levine and Renelt (1992).

[22]Allowing for partial adjustment in a given period, (3) can be rewritten as: $I_t = g(K^* - K_t) = g \cdot h(Y_{t+1} - Y_t)$, $0 < g < 1$.

$$\hat{Y}^{e}_{t+1} = g_1 \hat{Y}_t + g_2 \hat{TR}_t \tag{4}$$

According to (4), expected growth next period is equal to actual growth this period plus an adjustment for changes in trade restrictiveness today, with $g_1 > 0$ and $g_2 < 0$. Thus, (3) becomes:[23]

$$I_t / Y_t = hg_1 \hat{Y}_t + hg_2 \hat{TR}_t \tag{3$'$}$$

IV. Estimation and Data

Equations (2) and (3)' form a two-equation simultaneous model of income growth and investment. They are estimated using pooled data for 5 Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) and pooled data for 5 Caribbean countries (Dominican Republic, Guyana, Haiti, Jamaica, and Trinidad) for the years 1970-98. These countries were chosen based on data availability. The sample ends in 1998 to avoid changes in investment and growth due to anticipation of the CBTPA in 2000. For each country, income growth is measured as the log difference in real GDP per capita, while investment is measured as the ratio of gross capital formation to GDP. Data on skilled labor, or proxies such as enrollment in secondary education, were not available for all 10 countries over the entire time period. Hence, L was redefined as the total labor force.

Equation (2) was modified to address non-random shocks which occurred during this time period. Radical changes in the prices of several commodity exports caused wide short-run fluctuations in growth in the CBERA region. Since terms of trade data were not available for all countries for all years, (2) includes a variable ($EXCI_{it}$) measuring changes in the export capacity to import (the ratio of export revenues to import

prices). Two additional dummies variables were included to account for non-random political, military or economic shocks. The first is a "crisis" dummy variable, which takes a value of one for a country at a point in time when a major shock took place (e.g., a military coup in Guatemala in 1982, a U.S. trade embargo against Haiti 1992-94). The second is a dummy for the debt crisis in the early 1980s.[24] Thus, equation (2) becomes:

$$\hat{Y}_{it} = d_i + a_1\hat{L}_{it} + a_2\hat{K}_{it} + \boldsymbol{ß_1'TR_{it}} + a_3 EXCI_{it} + \boldsymbol{ß_2'\mu_{it}} + e_{it} \qquad (2)'$$

where $\boldsymbol{\mu_{it}}$ is a vector of country or time specific shocks and e_{it} is a random error. Other major shocks that are controlled for include the wars in El Salvador and Nicaragua, the significant changes in the US sugar quota regime affecting the Dominican Republic, and the Jamaican change in government in the 1970s.

The restrictiveness of the trade regime is affected by the trade preference programs, as well as unilateral trade reforms, and the interactions between them. Because country-level data are difficult to obtain for 1984-1988, regional measures of CBERA utilization and preference margins are used to represent the program. PSP utilization is proxied by the share of US apparel imports from the region which enters under PSP. Though not all apparel imports are eligible due to the requirement to use US components, this should give a rough idea of how much the region participates in the PSP. Since PSP is even more valuable if a country has a GALs agreement (since qualifying apparel imports enter quota-free), the share of regional PSP trade entering under GALs is included. Anecdotal evidence from exporters in beneficiary countries

[23]Of course, the fraction h in equation (4) may not be a constant, but instead a function of the return to capital and the rate of depreciation, h=h(r, d). If, as in Baldwin and Seghezza, trade liberalization raises the return to capital, we have $I_t / Y = h(TR_t)g_1\hat{Y}_t + h(TR_t)g_2\hat{TR}_t$. Attempts at interacting GDP growth with the measures of own country and US openness did not reveal any significant interactive effects, and did not alter the results presented below.

[24] Both dummies were constructed by the author based on information from various IMF country reports.

indicated that NAFTA resulted in investment and trade diversion from the region.[25] A dummy representing the period after NAFTA implementation is, therefore, included. In subsequent work, the possibility of interactions between the preference programs, reform and NAFTA will be tested.

Because countries' trade restrictions were reduced during this time period, some measure of trade openness for both Central America and the US should be included. As is well known, however, it is difficult to find such measures.[26] Data on the ratio of trade to GDP are the most complete for these 10 countries during 1970-1998. Thus, despite its known shortcomings, this variable is used to represent the level of openness in beneficiary countries and in the United States. Lack of complete data for some of the widely used proxies for trade openness made it impossible to test the robustness of results with alternative measures.[27] However, reform period dummies were introduced to capture periods of major trade reform and/or macro-stabilization efforts.

The simultaneous relationship between income growth and investment, along with the likelihood that countries in the region experienced similar contemporaneous shocks (e.g., hurricanes, droughts, collapses in commodity prices) suggest the use of three-stage least squares. Spencer-Berk tests rejected the null hypothesis of exogeneity for investment and income growth in the Central American region, and for income growth in the Caribbean. Thus, these three equations were estimated using three-stage least squares, while the investment equation for the Caribbean was estimated using SUR. These equations were also corrected for country-specific first-order serial correlation and groupwise-heteroskedasticity. The instruments include all exogenous variables in the system plus the lagged values of dependent variables. Country-specific effects

[25] While PSP allowed apparel made from US fabrics and yarns to enter the US market with reduced duties, NAFTA removed all duties from the same products originating in Mexico. In interviews with AGEXPRONT (an exporters' association) and an apparel manufacturer in Guatemala in2001, exporters noted that after NAFTA, orders for shipments by very large U.S. retailers under the PSP were cancelled and shifted to Mexico. Similar views were reported by several apparel manufacturers in Dominican Republic and Trinidad.

[26] See Harrison (1996) and Rodrik and Rodriguez (2001), for example.

[27] Most other proxies, such as collected tariffs or black market premia, are not available for years prior to CBERA.

were included in both equations to capture the influence of non-measurable country characteristics which would likely influence both investment and growth.

IV. Results

The results in table 3 suggest that preference erosion had a small direct negative impact on both investment and growth in Central America. A one percent decline in the regional average CBERA preference margin reduces growth by 0.04 percent and investment by 0.06 percent, though with a lag. There is also evidence that investment has a strong positive effect on income growth. Thus, any drop in investment due to preference erosion would also indirectly reduce income growth. In contrast, table 4 suggests that preference erosion has no direct impact on Caribbean investment, but does have a small direct negative impact on growth. This, surprisingly, suggests that preference erosion may have dampened development in both regions, despite the small size of the average preference margin.

However, these two tables also suggest that preference utilization has a positive impact on both growth and investment--one that is much stronger than preference erosion. In Central America a one percent increase in the utilization of CBERA preferences has a 30% larger direct impact on investment, and twice the direct impact on growth as a one percent decline in the preference margin. In the Caribbean, an increase in utilization has a positive direct impact on investment (while preference erosion does not), and has more than two times the impact on growth as does preference erosion. Thus, the effect of the dramatic increase in utilization of the CBERA program during this time period (shown in figure 2) may have more than offset any impact preference erosion had on development.

Tables 3 and 4 also reveal that the production sharing program may have mattered just as much or more than the CBERA program for development in the region. In Central America, both investment and growth were far more sensitive to PSP utilization than to preference erosion. In addition, PSP utilization had a stronger positive impact on investment than CBERA utilization, though it had a similar impact on growth. A

GALs agreement strengthened the impact of PSP utilization on investment (as expected), though its impact on growth appears perverse. In the Caribbean, PSP again had a stronger effect on investment than either preference erosion or CBERA utilization. PSP utilization alone had no impact on growth, but PSP with a GALs agreement did have a small positive effect on growth.

Perhaps most interesting, these results suggest that a country's own trade reform may have had a larger impact on development than any preference program. In Central America, investment is twice as sensitive to a country's own openness as it is to preference erosion, and 50% more sensitive to openness than to CBERA utilization. The positive significant coefficient on the reform dummy also suggests that overall trade and macroeconomic reforms had an additional small stimulus to investment. In the Caribbean, investment is 50% more sensitive to an an increase in a country's openness, than it is to an increase in CBERA utilization.

V. Conclusion

Though recent quantification of US trade preference programs with developing countries show underutilization and often small preference margins, many still argue that these preferences are significant for development. If so, then preference erosion could be bad for development. In this paper CBERA utilization and preference margins were quantified, using highly disaggregated data, from the inception of the program in 1984 until 1999. The impact of CBERA preference erosion on investment and growth was then tested, using data on 10 CBERA beneficiary countries, from 1970-1998. A two-equation simultaneous model was used, which allowed for direct and indirect effects of preference programs and trade reform on investment and income growth.

Results showed that CBERA preference margins have been eroding steadily over the 15 year time period. Surprisingly, CBERA utilization grew dramatically throughout the same 15 years. Preliminary results from the panel estimation suggest that preference erosion does matter for development. Preference erosion

had a small direct negative impact on investment and growth in Central America, and on growth in the Caribbean. Given a strong positive relation between investment and growth in both regions, preference erosion would also have an indirect negative impact on growth.

However, participation in CBERA mattered more for development than preference erosion. Investment and growth in both regions were much more sensitive to CBERA utilization than to preference erosion. Thus, the negative effect of the small gradual decline in preference margins over the time period may have been completely overwhelmed by the positive impact from the simultaneous dramatic increase in CBERA utilization. Participation in the production sharing program had even greater effects on investment and growth than preference erosion, and in some cases than utilization of the CBERA. This may be due to the fact that PSP offered preferences on apparel exports while CBERA did not. Finally, a country's own trade reform appears to matter far more for development than preference erosion.

Several issues remain unaddressed and require further work. While these results reflect changes in regional preferences and utilization, it remains to be seen whether or not changes in country-specific preference margins and utilization will have similar impacts on growth and investment. There may also be interactions between own-country trade reform and participation in preference programs, requiring alternate specifications. Finally, if growth and investment also depend upon their values in previous years, dynamic panel estimation may be appropriate.

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Table 1. Growth and Investment before and after CBERA

	Real Income Growth[1] (average annual, %)		Real Income Growth p.c. [3] (average annual, %)		Investment[4] (% of GDP)	
	Pre[2]	Post[2]	Pre	Post	Pre	Post
Central America						
Costa Rica	4.1	4.9	1.4	2.3	22.4	19.5
El Salvador	0.9	3.5	-1.3	1.8	16.6	15.1
Guatemala	4.1	3.2	1.4	0.9	15.7	13.5
Honduras	4.2	3.6	0.9	0.6	19.8	20.7
Nicaragua	1.4	0.1	-1.7	-2.2	17.7	21.0
Panama	4.2	3.3	1.6	1.2	.	17.3
Caribbean						
Antigua	4.8 [5]	5.3	4.5 [5]	4.2	28.7[6]	34.4
Bahamas	2.2	2.5	(.)	0.7	.	.
Barbados	2.2	2.1	1.8	1.8	23.1	15.7
Belize	5.5	6.1	3.4	3.2	22.2	22.6
Dom. Rep.	7.0	4.0	4.3	2.2	20.9	22.1
Dominica	4.5 [5]	3.4	3.8 [5]	3.7	30.2[6]	29.8
Grenada	3.3 [5]	4.4	.	.	26.7[6]	32.1
Guyana	(.)	2.2	-0.6	2.4	24.3	30.5
Haiti	2.7	-0.9	0.7	-2.7	16.3	15
Jamaica	0.9	2.0	-0.5	1.2	20.6	24.8
St. Kitts	3.8 [5]	6.0	3.5 [5]	6.7	.	.
St. Lucia	.	6.8	.	5.3	.	24.6
St. Vincent	4.1	4.1	3.1	3.3	28.2[6]	28.5
Trinidad	4.0	0.0	2.7	-0.7	24.9	19.9

[1] GDP in constant 2000 $US.

[2] "Pre" designates average over 1970-1983. "Post" designates average over 1984-1998.

[3] GDP per capita in constant 2000 $US.

[4] Gross capital formation (% of GDP).

[5] Calculated from 1978-1983.

[6] Calculated from 1977-1983.

(.) indicates less than 0.1%.

Source: All data from World Bank, *World Development Indicators*, 2005.

Table 2. FDI Inflows and Export Growth before and after CBERA

	FDI Inflows (% of GDP)		Real Export Growth[2] (average annual, %)	
	Pre[1]	**Post[1]**	**Pre**	**Post**
Central America				
Costa Rica	2.1	2.6	5.7	10.2
El Salvador	0.4	0.9	2.1	6.2
Guatemala	1.4	1.2	2.1	4.4
Honduras	0.6	1.3	3.7	2.4
Nicaragua	0.7	2.2	3.3	3.9
Panama	2.5	1.5	.	3.9
Caribbean				
Antigua	.	.	11.2 [3]	8.0
Bahamas	1.2 [4]	1.0	5.5 [3]	.
Barbados	3.6	2.2	.	.
Belize	1.4	2.6	.	7.2
Dom. Rep.	1.7	1.9	7.2	15.7
Dominica	0.01 [5]	8.5	10.3 [3]	6.9
Grenada	0.9 [5]	7.1	-1.2 [3]	6.5
Guyana	-1.2	7.4	-4.5	7.4
Haiti	0.8	0.2	7.6	3.5
Jamaica	2.3	2.0	1.5	.
St. Kitts	2.1	12.6	0.1 [3]	7.0
St. Lucia	.	7.9	.	.
St. Vincent	0.5	10.4	13.1 [3]	3.5
Trinidad	4.9	5.0	1.3	5.9

[1] "Pre" designates average over 1970-1983. "Post" designates average over 1984-1998.

[2] Exports in constant 2000 $US.

[3] Calculated from 1978-1983.

[4] Calculated from 1976-1983.

[5] Calculated from 1977-1983.

Source: All data from World Bank, *World Development Indicators*, 2005.

Table 3. Investment and Growth in Central America[1]

Investment [2] (3SLS)			Income Growth (p.c.)[2] (3SLS)		
Variable	***Coefficient***	***t-Statistic***	***Variable***	***Coefficient***	***t-Statistic***
GDP per capita (log difference)	0.24*	2.98	Investment	0.37**	2.91
ln Openness	0.16**	9.49	Debt Dummy	-0.04**	-3.45
ln US Openness	0.03	1.61	Crisis Dummy	-0.07**	-4.52
ln CBERA Utilization (lagged)	**0.10***	**2.66**	**ln CBERA Utilization**	**0.09****	**4.20**
ln CBERA Preference (lagged)	**0.07***	**2.56**	**ln CBERA Preference**	**0.04****	**2.83**
ln PSP Utilization (lagged)	**0.13***	**2.44**	**ln PSP Utilization**	**0.09****	**2.22**
ln GALs share in PSP (lagged)	**0.03****	**3.26**	**ln GALs share in PSP**	**-0.02****	**-2.57**
NAFTA	-0.05**	-2.94	TOT Change	0.03	1.62
Reform Dummy	0.03**	3.24	El Salvador War Dummy	-0.06*	-2.25
			Nicaragua War Dummy	-0.02	-0.98
			ln US Openness	-0.07**	-4.01
Country Fixed Effects (Cross)	yes		Country Fixed Effects (Cross)	yes	
Country AR1 Correction	yes		Country AR1 Correction	yes	
Observations	140		Observations	140	
Wald test: all parameters=0	c^2 = 392.0**		Wald test: all parameters=0	c^2 = 317.9**	

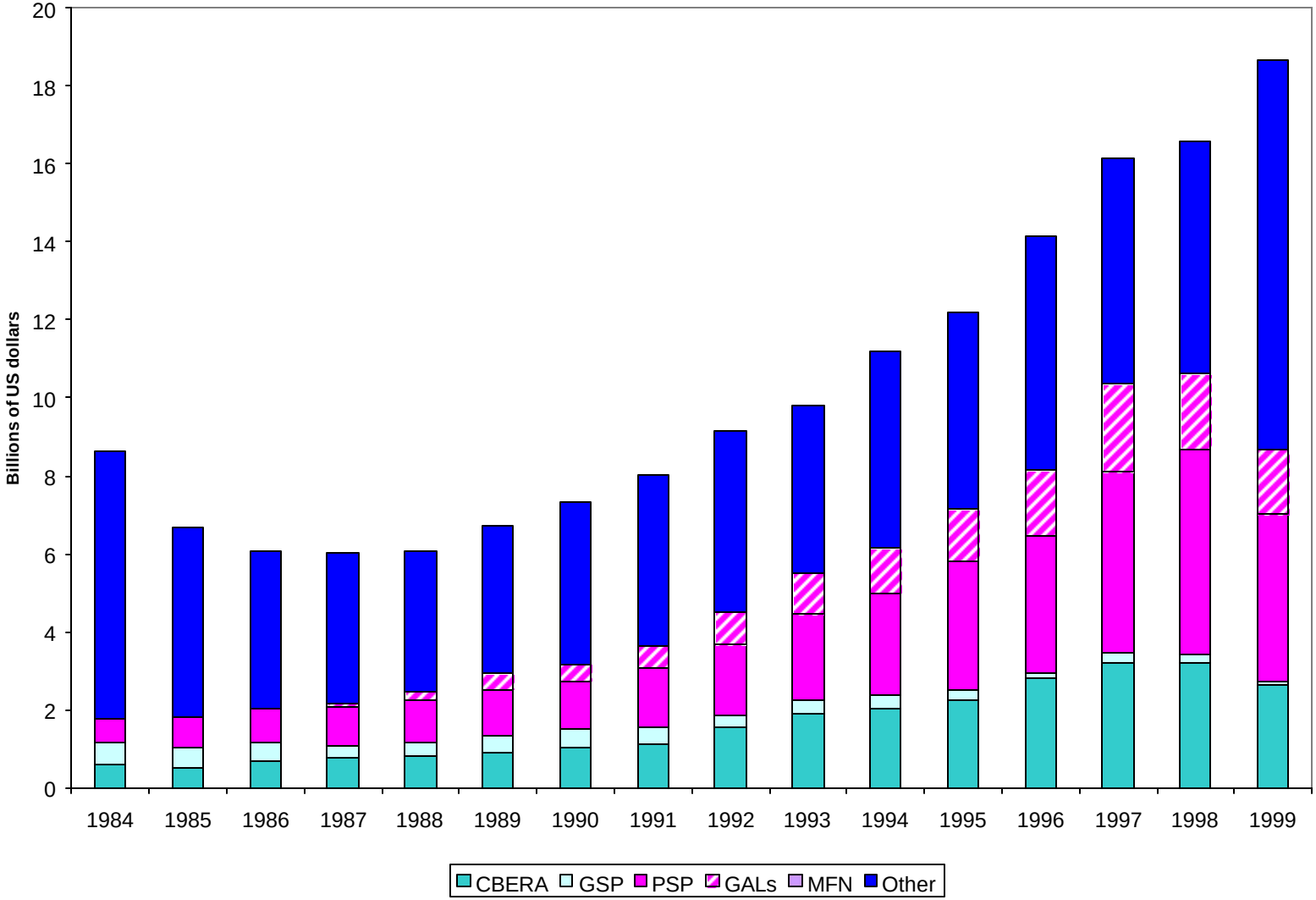
[1] t-statistics in parentheses. **, *, and † indicate significance at the 1%, 5%, and 10% levels, respectively.
[2] Instruments include all exogenous variables in the system and lagged values of endogenous and exogenous variables.

Table 4. Investment and Growth in the Caribbean[1]

Investment [2] (SUR)			Income Growth (p.c.)[2] (3SLS)		
Variable	***Coefficient***	***t-Statistic***	***Variable***	***Coefficient***	***t-Statistic***
GDP per capita (log difference)	0.05	1.01	Investment	0.26*	2.23
ln Openness	0.09**	5.88	Debt Dummy	-0.08**	-5.17
ln US Openness	0.01	0.19	Crisis Dummy	-0.03†	-1.85
ln CBERA Utilization	**0.06***	**2.24**	**ln CBERA Utilization (lagged)**	**0.10****	**2.71**
ln CBERA Preference	**0.02**	**1.30**	**ln CBERA Preference (lagged)**	**0.04***	**2.14**
ln PSP Utilization	**0.09****	**2.95**	**ln PSP Utilization (lagged)**	**-0.05**	**-1.08**
ln GALs share in PSP	**-0.01**	**-0.65**	**ln GALs share in PSP (lagged)**	**0.02***	**2.90**
NAFTA	-0.01	-0.57	TOT Change	0.02	1.17
Reform Dummy	-0.01	-0.92	Jamaican Election Dummy	0.19**	6.51
			DR Sugar Price Dummy	-0.08**	-2.44
			ln US Openness	0.05	1.27
Country Fixed Effects (Cross)	yes		Country Fixed Effects (Cross)	Yes	
Country AR1 Correction	yes		Country AR1 Correction	Yes	
Observations	140		Observations	140	
Wald test: all parameters=0	c^2 = 199.26**		Wald test: all parameters=0	c^2 = 192.6**	

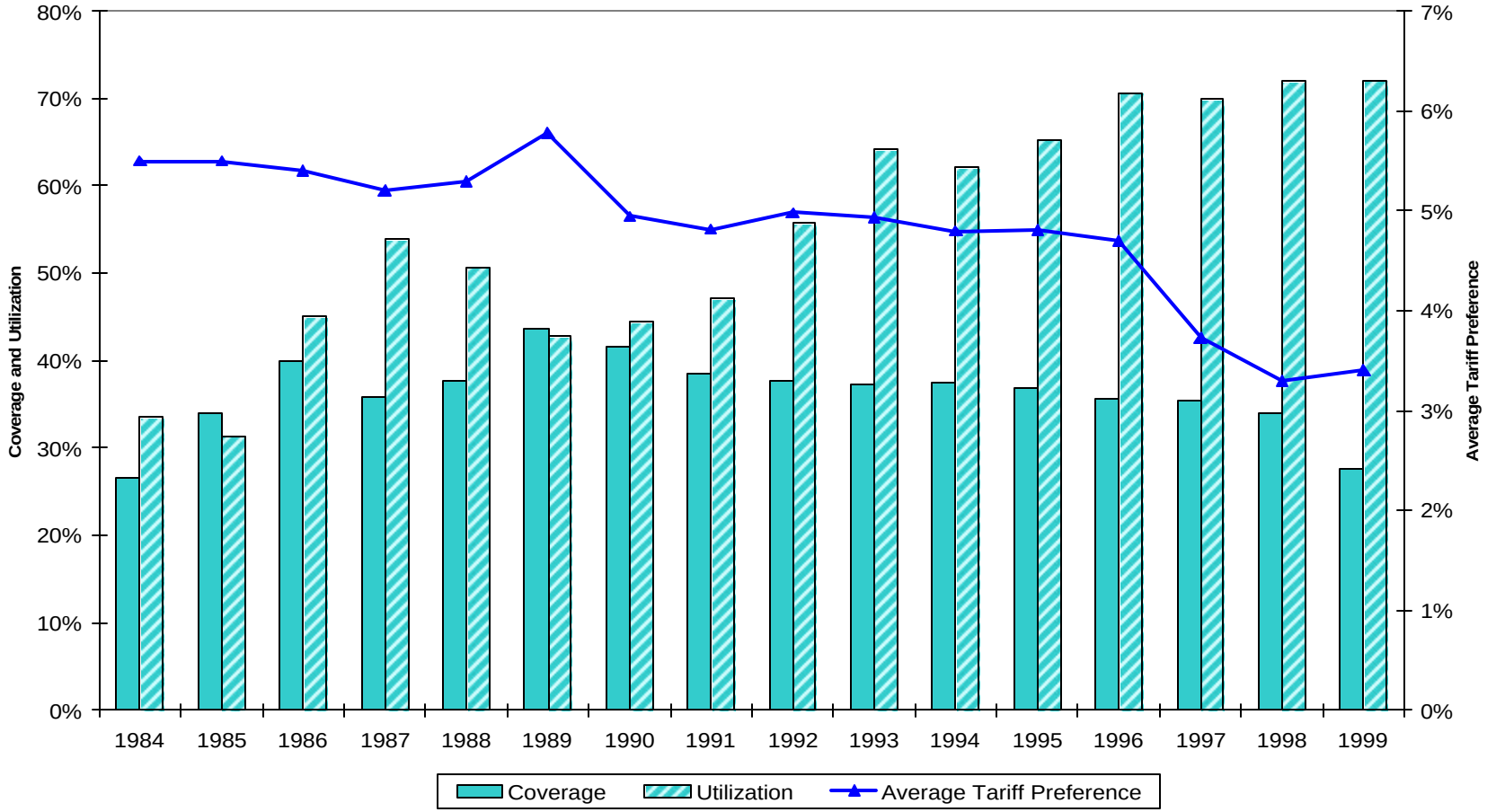
[1] Includes fixed effects. t-statistics in parentheses. **, *, and † indicate significance at the 1%, 5%, and 10% levels, respectively
[2] Instruments include all exogenous variables in the system and lagged values of endogenous and exogenous variables.

Figure 1. US Imports from CBERA Countries by Program, 1984-99



Source: Data for 1989-1999 are calculated using HTS 8-digit data from the USITC Dataweb (www.usitc.gov). For 1984-88, the data are from various issues of *USITC The Impact of the Caribbean Basin Economic Recovery Act*.

Figure 2. US Imports from CBERA Countries:
CBERA Coverage, Utilization and Average Tariff Preference, 1984-1999



Source: Coverage and utilization data for 1989-1999 are calculated using HTS 8-digit data from the USITC Dataweb (www.usitc.gov). For 1984-88, the data are from various issues of *USITC The Impact of the Caribbean Basin Economic Recovery Act*. Average tariff preference data for 1995-99 are calculated using HTS 8-digit data from the USITC Tariff Database (www.usitc.gov). For 1989-94, preferences are calculated using HS 6-digit tariff data from TRAINS via WITS. For 1984-88, preferences are calculated using unweighted calculated duty estimates for the US from *Value of US Imports for Consumption, Duties Collected, and Ratio of Duties to Values 1891-2003* (*http://dataweb.usitc.gov/scripts/AVE.PDF*).

Figure 3: CBERA Utilization and Average Tariff Preference by Country

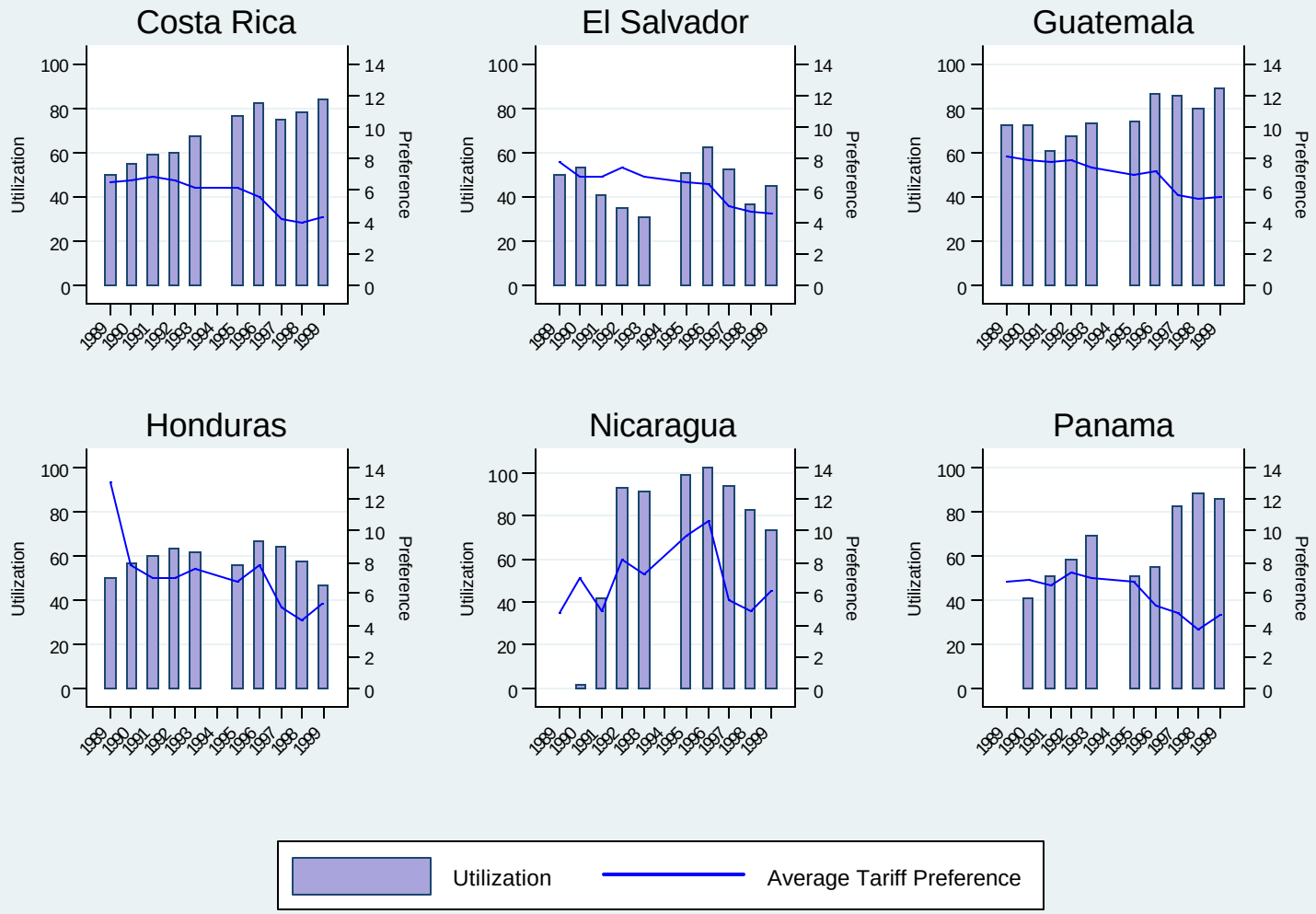
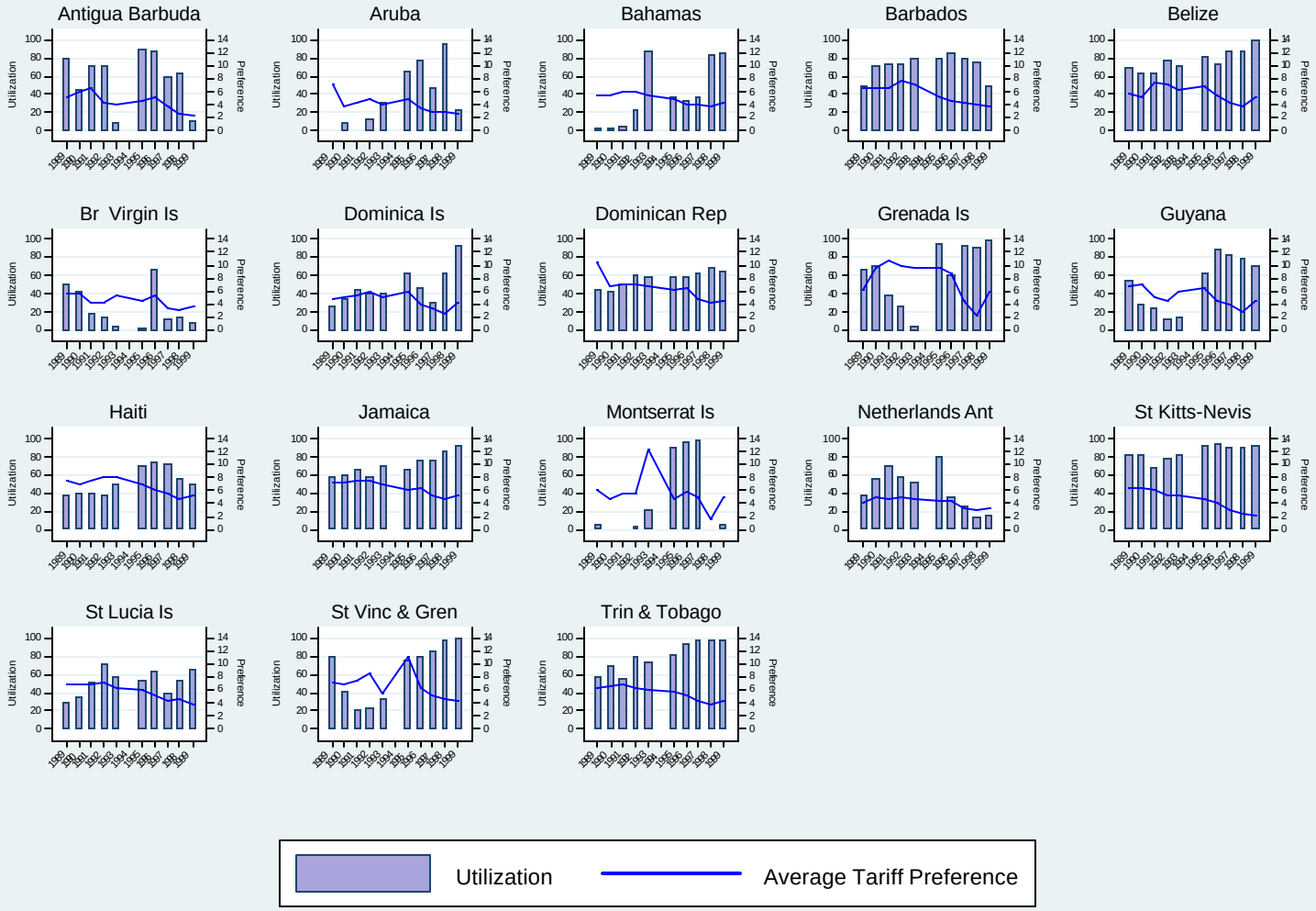


Figure 3: CBERA Utilization and Average Tariff Preference by Country (continued)



Note: Aruba, Guyana and Nicaragua became beneficiaries in January 1986, November 1988 and November 1990, respectively; Panama lost its beneficiary status in April 1988 and was reinstated in March 1990.

Source: See notes for figure 2. Data on preference margins prior to 1989 are not available for all countries or all years.

DATA APPENDIX

Variable Name	Measure	Source
Real Income Growth (p.c.)	Log difference in annual GDP p.c. (constant 2000 $US)	World Bank, *WDI 2006*
Real Investment	Ratio of gross capital formation to GDP	World Bank, *WDI 2006*
Labor force growth	Log difference in annual labor force	World Bank, *WDI 2006*
Export capacity to import	Export revenue/import price index	World Bank, *WDI 2006*
CBERA utilization	US imports under CBERA program/US imports eligible for CBERA program	USITC Database
PSP utilization	US imports from CBERA countries under HTS heading 98020080/US apparel imports from CBERA region	USITC, *Impact of the Caribbean Basin Economic Recovery Act* (various issues)
GALs share of PSP	US imports from CBERA under HTS heading 9802.00.8015 (807A)/US PSP imports from CBERA region	USITC, *Impact of the Caribbean Basin Economic Recovery Act* (various issues)
Openness	Value of country's exports plus imports/country's GDP	World Bank, *WDI 2006*
Openness of US	Value of US exports plus imports/US GDP	World Bank, *WDI 2006*
Debt crisis	Country specific dummy variable	Constructed by author
Crisis	Country specific dummy variable	Constructed by author
War	Dummy variable for El Salvador and Honduras	Constructed by author
Reform years	Country specific dummy variable	Constructed by author
NAFTA	Dummy variable for 1994-1998	
Sugar Dummy	Dummy variable for US sugar regime changes with respect to DR, 1981 & 1990	
Jamaican Election Dummy	Dummy variable for Jamaica, 1972	