POLICY RESEARCH WORKING PAPER 2898

Relative Returns to Policy Reform

Evidence from Controlled Cross-Country Regressions

Alexandre Samy de Castro
Ian Goldin
Luiz A. Pereira da Silva

The World Bank
Development Economics
Office of the Senior Vice President and Chief Economist
October 2002

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Abstract

De Castro, Goldin and Pereira da Silva aim at contributing to understand the dispersion of returns from policy reforms using cross-country regressions. The authors compare the "before reform" with "after reform" GDP growth outcome of countries that undertook import-liberalization and fiscal policy reforms. They survey a large sample (about 54) of developing countries over the period 1980–99. The benefits of openness to trade and fiscal prudence have been extensively identified in the growth literature, but the evidence from simple cross-section analysis can sometimes be inconclusive and remains vulnerable to criticism on estimation techniques, such as identification, endogeneity, multicolinearity, and the quality of the data.

The authors use a different analytical framework that establishes additional controls. First, they construct a counterfactual control group. These are countries that—under specific thresholds—did not introduce policy reforms under scrutiny. Second, the authors also try to use the most appropriate variable of policy reform, for example, exogenous changes in import-tariffs instead of the endogenous sum of all trade flows. Third, the authors try to base the before-after reform comparison on the most accurate date for the beginning of a policy reform period (instead of comparing averages over fixed intervals of time). Once these controls are set, they explain the difference between average GDP growth rates during the country-specific post and the pre-reform periods, relative to the average GDP growth of the relevant control group.

The explanatory variables in the regressions include the standard growth-regression controls. The results are the following:

- With a better measurement and timing of the policy reforms, the growth effect (the "returns on reform") is generally smaller than in previous papers.
- There is evidence of contingent relationships between policy and growth, corresponding to the country's size, its export profile, and its governance.
- Within the group of policy reformers, some countries have exhibited a relatively weaker growth response.

Overall, the findings suggest that more accurate measurement and definition of the timing of reforms does not strengthen the significance of the effects of reforms on GDP growth. In fact, the effects are weaker than indicated in most cross-section studies. This suggests that the policy implications to be derived from these relationships should be treated with even more caution than previously thought.

This paper—a product of the Office of the Senior Vice President and Chief Economist, Development Economics—is part of a larger effort in the Bank to understand relative returns to policy reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Roula Yazigi, room MC4-328, telephone 202-473-7176, fax 202-522-1158, email address ryazigi@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at adecastro@worldbank.org, igoldin@worldbank.org, or lpereiradasilva@worldbank.org. October 2002. (59 pages)

Relative Returns to Policy Reform: Evidence from Controlled Cross-Country Regressions

Alexandre Samy de Castro, Ian Goldin and Luiz A. Pereira da Silva
The World Bank, 1818, H street NW, Washington DC USA
Adecastro@worldbank.org , Igoldin@worldbank.org , Lpereiradasilva@worldbank.org

Key Words: Trade Reform, Import-Liberalization, Fiscal Policy, Growth, Cross-section regressions, evaluation of reforms

JEL: F13, F43

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Introduction and Overview

Analyzing the Dispersion of Returns to Reform

This paper investigates why is there such a dispersion in returns to policy reform among developing countries controlling for the standard growth-regression country-specific factors. Putting it differently, why is it that some countries have achieved much higher post-reform GDP growth rates? When we look at the data in Table 0, the average growth rate of the 80 developing countries in our sample is slightly higher in the 1990s (3.6%) than in the 1980s (3.2%) but one of the most remarkable findings is that the STD of the difference 1990s-1980s is a high 2.8%.

Except for a few early reformers, most countries implemented trade liberalization during the 1990's. Trade was not the only reform front: the agenda usually included reform of the financial domestic sector, capital account liberalization and fiscal reforms or consolidation, all affecting growth performance. This paper estimates the effects of these policy reforms on long-run growth performance.

This paper uses a different methodology. Most studies make comparisons between reformers and non-reformers over time by conducting straightforward cross-country analysis that regress GDP growth rates over sets of explanatory variables including the relevant policy one, e.g., trade openness. This paper adopts a different approach in many significant respects. First, this paper uses control groups (CGs). The control group is a set of countries whose growth performance will be used as a counterfactual. The aim is to avoid mixing in the comparison the growth performance of countries that did and did not engage in policy reforms. We aim to separate the countries that did not adopt structural policy reforms, and then examine the cross-country variation across those who did reform, in order to proceed with statistical inference on the policy parameters. Second the paper aims to provide improved proxies of "policy instruments". Third, the paper seeks to enhance the analysis' "timing" for the beginning of reforms and set the "before-after reform" comparisons accordingly.

The policy reforms that we consider are reductions in import tariffs and fiscal consolidation. The paper is divided into two parts, each examining one of these reforms. We apply the same methodology in both cases, although the fiscal analysis involves additional complexity. We recognize that we have chosen only two sets of policy reforms (trade and fiscal) when in practice, structural reform should include a much wider set of reforms, as well as their pace and sequencing. However, severe data constraints at this stage limit the widening of cross-country analysis in broader directions.

Cross-country regressions of import-liberalization (henceforth IL) have been subject to severe criticism, as summarized in Rodriguez and Rodrik (2000) (RR). Besides criticizing the 'proliferation' of openness indicators, they suggest promising areas of investigation in the context of cross-country studies. We explore two of these suggestions regarding the measures of openness and the contingent relationships. First, in terms of measures of openness, we propose using Average Tariff Rates (ATR) data as a more accurate measure of policies leading to openness to imports. This type of data has the additional characteristic of allowing us to date import-liberalization events, i.e., defined as the time when a permanent reversion in the trend of Average Tariff Rates *levels* occurs. In a sample of 73 countries we date import-liberalization, and identify a subset – which we name 'Control Group' - that did not experience any such reduction in the sample period (1980 to 1999). That data treatment allows estimating growth regressions that explain differences in GDP growth acceleration between 'open' countries and 'closed' ones. After controlling for the differences in standard growth determinants between the two groups, we evaluate the impact of import-liberalization on growth. Regarding the second suggestion, we identify – under the framework discussed above – some of the *contingent* relationships, as suggested in RR, between import-liberalization policy and growth: do countries benefit differently from import-liberalization, depending on their comparative advantage, or on their size? Do regional trade and world trade play a role? We consider variables that capture some of those effects. Our results suggest that the positive effect of import liberalization on growth is greater for both countries with a comparative advantage in manufactures and higher-GDP levels, but further investigation is required before results can be conclusively validated.

Overall, our results suggest that more accurate measurement (Average Tariffs Rates) and definition of the timing of reforms (date of reversal), does not strengthen the significance of the effects of import-liberalization on GDP growth. In fact, the effects are weaker than indicated in most cross-section studies. This suggests that the policy implications to be derived from these relationships should be treated with even more caution than previously has been identified.

In our analysis, examining fiscal policy is a more complex task. Unlike trade policy – which we examine in terms of import-liberalization, fiscal performance consists of a long vector of components, including public investment, consumption, transfers to households, and the structure of the tax system. Theory suggests that we look at specific components of revenues and expenditures, in order to capture structural relationships between fiscal variables and productivity and thus, growth. But examining all these dimensions in a cross-country setting would be beyond the scope of our resources. Accordingly, we look at some aggregate measures of fiscal performance. That leads us to use a reduced form estimation, precluding the estimation of structural forms. Two other problems make fiscal policy analysis more problematic than that of trade: first, fiscal variables are strongly subject to endogeneity and multicolinearity; second, the data is less comparable in cross-country terms then in the case of import-tariffs.

Despite these difficulties, we adopt the same approach as in the case of the IL analysis, but data availability reduces our sample to 54 countries. The results suggest that growth is negatively related to government consumption; fiscal deterioration in larger countries exhibit a lower net marginal cost (i.e. a lower negative effect on GDP growth); and the worse the level of governance, the higher is the marginal cost –in terms of GDP loss-- of a given budget deficit.

The paper is divided into three parts: in the first part we will examine IL, and lay out the methodology used in the paper. In the second, we examine the returns to fiscal policy. In the last, we discuss what can be learned from the results of the paper and identify some limitations of our approach.

Part I:

The Effects of Import Liberalization on Growth

I.1 – Introduction

In this section, we estimate the effects of Import Liberalization (IL) on GDP growth in a cross-section of developing countries. We innovate on the traditional cross-section analysis in two directions: first, we adopt a proxy for IL which we believe is closer to revealing the actual degree of protection and the less inaccurate in terms of country-rankings. Second, we adopt an modeling strategy that relies on Control Groups (henceforth CG), which consist of a set of countries that, according to given criteria, are regarded as less open to imports. These control groups constitute a counterfactual for comparison of growth performance, conditional standard growth-determinants in the literature. Thus, variables enter the equation twice differenced: taking advantage of the data on Average Tariff Rates (henceforth ATR), we are able to date IL with reasonable accuracy for most countries. Once IL is dated, we estimate the model in first differences of average growth rates, *before* and *after* IL. These first-differenced variables (*before* versus *after* IL) are then differenced with respect to a CG, i.e., compared to the average GDP growth rates for a group of countries that did not undertake IL in the sample. The method is labeled differenced differences, henceforth DD [1]. That methodology and the procedure for dating IL will be discussed in the next section.

We will be discussing the results of two different estimation exercises. In the first we will estimate the growth regressions, using DD, under a fixed IL date – set to 1990 – taken as a cut-off date for the beginning of policy reforms. In that case, the differences in growth rates correspond to 1990-99 averages subtracted from 1980-89 averages. The second exercise consists in first dating the IL on the basis of the evidence, and then computing twice-differenced variables according to each country's IL date. In this case, the CG component or counterfactual, will be different for each observation (country), depending on its respective IL episode. For example, suppose a country liberalizes in 1986. Differenced growth will be the average growth in 1986-1999 minus the average in 1980-1985. According to the methodology proposed, in both exercises we subtract those differences from the CG differences, for all variables in the equation. We consider alternative criteria to determine the CGs, as discussed below.

The quality and suitability of our data is subject to obvious criticism: first, missing observations of ATR are filled-in by linear interpolation, which imply measurement errors.

[1] See Ravallion et al. (2001) on how the DD methodology may be used in the literature on evaluation of public policies.

However, if we assume the path of ATR is linear and monotonic, or, less strongly, that deviations from that path are i.i.d., then interpolation will not introduce systematic bias. Given that we will be averaging variables over long periods, that problem becomes even less severe. In our view, this assumption does not call for using a different proxy for IL, such as import-duties or worse yet, some aggregate ex-post indicator of openness to trade (such as the sum of imports and exports to GDP). Second, the irregular number of years used to averaging might introduce heteroskedasticity (greater variance the further the distance of IL date from 1990, because we will have less observations in one of the periods). In the estimates reported below, we find no evidence of heteroskedasticity, based on standard econometric tests. Also, taking into account country-specific dates allows more meaningful coefficient estimates, and eliminates the distortion that arises from averaging from a fixed and common date for all countries. Third, the scope of ATR is limited, since it does not include non-tariff barriers (NTB) and other trade restrictions, which may be predominant in several countries.

The purpose of dating IL is to verify whether the first results, based on a fixed and identical date for all countries in the sample, will be corroborated when using a more accurate measurement of IL policy. If the answer is in the affirmative, then we will have found additional evidence the effects of IL on growth. Alternatively, if improving measurement reduces the explanatory power and the significance of the relationship between IL and GDP growth, then we will have an additional reason to be skeptical about cross-country studies of the relationship between openness and economic growth.

I.2 – Methodology

We present a brief description of the differenced differences methodology. Begin with a standard production function for country i:

$$Y_{it} = F(A, K_{it}, H_{it}) = ae^{\theta_i t} K_{it}^{\alpha} H_{it}^{\beta} \tag{1}$$

After time differencing the logarithm of the function and adding an i.i.d. shock, we obtain:

$$\log[\frac{Y_{it}}{Y_{i,t-1}}] = \alpha.\log[\frac{K_{it}}{K_{i,t-1}}] + \beta.\log[\frac{H_{it}}{H_{i,t-1}}] + \theta_i + \varepsilon_i \tag{2}$$

or, in compact notation

$$\Delta \log y_{it} = \alpha.\Delta \log k_{it} + \beta.\Delta \log h_{it} + \theta_i + \varepsilon_i \quad , i = 1,..., N \tag{3}$$

If we consider the same function for some subset of the countries in the sample (i.e., the CG), we obtain:

$$\Delta \log y_{gt} = \alpha.\Delta \log k_{gt} + \beta.\Delta \log h_{gt} + \theta_g + \varepsilon_g \quad , g = 1,...,G \in N \tag{4}$$

Subtracting the two equations above and adding other terms,

$$\Delta \log y_{it} - \Delta \log y_{gt} = [\theta_i - \theta_g] + \alpha.[\Delta \log k_{it} - \Delta \log k_{gt}] + \beta.[\Delta \log h_{it} - \Delta \log h_{gt}] + \gamma policy + \lambda \text{controls} + (\varepsilon_i - \varepsilon_g) \quad , i \neq g \tag{5}$$

Equation (5) is the basic specification of our model in the two parts of this paper. Total Factor Productivity (TFP) differential is a constant, changes in capital stock are *proxied* by investment rates and human capital is *proxied* by primary education. The policy vector includes trade and non-trade policy variables: ATR, Government Consumption and "Excess" money growth. The control vector includes: a Governance Indicator, Terms of Trade, regional dummies, regional trade shares and PTA-specific effects.

Excess growth relative to the CG can be explained by differences in accumulation of factors of production. It also can be explained by the difference in TFP changes (the thetas). If we control for productivity differentials using openness to trade (more precisely, to imports), we are implicitly assuming that shocks that drive productivity's process in "open" countries are different from those in "closed" ones. The constant in the regression will be capturing those shocks. It is however, impossible to identify those shocks, in the sense that other variables, unrelated to openness, may be affecting productivity. Our openness variable (ATR) will be capturing only a *marginal* effect. It is important to stress that we estimate a reduced form equation, since we do not model specifically the channels through which opening to imports affects productivity. Indeed, one of the problems with cross-sectional estimates is that theory predicts that almost anything can happen when it comes to openness and growth, depending on the structural assumptions related to each industry [see Tybout (2000)]. In this context, cross-country heterogeneity is not enough to identify productivity effects, since it fails to incorporate industry-level characteristics.

Due to those limitations, the results presented below are merely an exploratory analysis of the data, and estimated partial correlations should not be given any structural interpretation. We are estimating reduced forms.

Despite our imperfect measure of IL and sample size limitation, we believe that our cross-country study is valid: it examines some of the questions raised by RR, which relate to *contingent* relationships between trade policy and growth: "*Do trade restrictions operate differently in low versus high income countries? In small versus large countries? In countries with a comparative advantage in primary products versus those with a comparative advantage in manufactured products? In periods of rapid expansion of world trade versus periods of stagnant trade?*".

The model assumes that part of the productivity shock is attributed to the differences in trade regime [Equation (5)]. There is however, a source of potential bias arising from the

correlation between the 'unexplained' part of productivity shock (the residuals) and capital accumulation. Indeed, if the model is not differenced, then certainly $E[\Delta \log k_j \varepsilon_j] \neq 0$ but if the model is differenced, then there's no reason to believe $E[\Delta \log k_i - \Delta \log k_g]'(\varepsilon_i - \varepsilon_g) \neq 0$. In that sense, we believe OLS will be an appropriate estimation method – unbiased and efficient.

The framework above resembles the DD methodology, which is a standard approach in non-experimental evaluation studies [see for example, Ravallion (2002)]. In such observational studies, the assignment of treatment to subjects (in our case, assignment of policies to countries) is non-random. Rosenbaum (2002) provides a thorough treatment of this topic.[2]

I.3 – Data and Results

Before we discuss our results, we briefly review previous findings in the literature, so as to put our contribution in context. There are only a few studies using ATR as a measure of openness, mainly due to absence of data. Table I summarizes some previous results, on the effects of trade liberalization on economic growth.

One noteworthy result is Wacziarg (1998). He estimates the indirect effects of trade openness (defined as a weighed average of import duties as a percentage of imports (ID), NTB coverage and Sachs Warner's openness indicator), through the following channels: macro-economic policy, FDI, investment, manufactured exports, government consumption and 'distortions'.

The way the index is constructed does not allow a meaningful interpretation of the total effect of IL on growth (e.g., a 15 %-point reduction in ID corresponds to 5.21 increase in the index)

(Exports + Imports)/GDP = -34.73*ID – 0.217*(NTB) + 11.262*(SW)

Therefore, given that the effect of the index on growth is 7%, then **a 15-percentage point reduction in ID would increase growth by 5.21 x 0.07 = 0.36 percentage point per year.** If we consider that ID underestimates real protection, then 15 percentage point reduction in ID corresponds to a greater reduction in ATR. Thus, the effect is probably larger then the above.

[2] In our study, we'll be assuming that the assignment of treatment (policy) is random. One possible remedy for non-random assignment is the Propensity-Score Method. It estimates using a logit model, conditional probabilities of assignment to the treatment group, eliminating overt biases. Hidden bias may still be present however. Our DD estimation has some caveats: the treatment is not a binary variable, and thus it is not constant across treatment countries (some do more of the policy than others). Also, when we date IL, it is as if we were running a given experiment for subjects at different times.

A second result is found in Pedroso and Ferreira (2000). They select an interesting choice of instruments for the growth determinants, namely, an indicator of openness and a social capability index. According to their cross-section results, a 15 percentage-point increase in openness would cause a 0.3 % increase in GDP per capita [see Table I].

Measuring the degree of openness of an economy is tricky, particularly using a low dimensionality vector. Barriers to imports include not only tariffs, but all sorts of NTB, such as quotas, AD duties, red-tape in customs, phyto-sanitary barriers, etc.. Because we preferably want a one-dimensional indicator of trade policy, we decided to use Average Tariff Rates[3], non-weighed. A possible alternative is to use Import duties as a percentage of imports, but that variable underestimates real protection, for obvious reasons. More importantly, comparisons across countries reveal some severe distortions, in terms of country rankings.

The series of Average Tariffs is incomplete. We use linear interpolation to fill-in missing values. This will cause measurement errors but we believe that this variables reflects the degree of import openness more accurately than Import Duties.

In the first exercise, we assume a fixed, common date for IL reform: 1990. The differences are thus calculated as average in 1990-99 minus average in 1980-89. We consider three alternative CGs: Group I : countries that, on average over the period 1990-99, had Average Import Tariffs above 25% - Pakistan, India, Bangladesh, Sierra Leone, Sudan, China, Egypt, Mauritania, Nigeria, Thailand, Tunisia, Mauritius, Benin, Congo Dem. Rep., Ethiopia, Tanzania; Group II: same set of countries in the CG for the IL-dated regressions (see section IV below); Group III: countries that did not reduce, or increased ATR in 1990-99 compared to 1980-89 – Mauritania, Zimbabwe, Saudi Arabia, Sierra Leone, Libya, Congo, Tunisia, Oman, Jordan, Syria, Bahrain, Paraguay, Israel, Singapore, Senegal, Malawi and Poland.

We find it inappropriate to use indices that attempt to measure the quality of macroeconomic policy, such as that proposed by Wacziarg (1998) or indices that attempt to measure openness (such as Sachs Warners' or Dollar's – see Table I). RR provide reasons not to use them. These which are particularly compelling in the case of openness measures. In the case of the quality of macro policy the resulting country rankings are not in our view sufficiently robust to provide illuminating interpretation of the results.

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[3] The data is extracted from a compilation found at http://www1.worldbank.org/wbiep/trade/TR_Data.html. The primary sources include: WTO, IDB CD ROM database and Trade Policy Review -- Country Report, Various issues, 1990-2000; UNCTAD, Handbook of Trade Control Measures of Developing Countries -- Supplement, 1987 and Directory of Import Regimes, 1994; World Bank, Trade Policy Reform in Developing Countries since 1985, WB Discussion Paper #267, 1994, The Uruguay Round: Statistics on Tariffs Concessions Given and Received, 1996 and World Development Indicators, 1998-00; OECD, Indicators of Tariff and Non-Tariff Trade Barriers, 1996; IDB, Statistics and Quantitative Analysis data, 1998.
The data was recently published in the Appendix of the WB's "Development, Trade and the WTO – A Handbook", WB (2002).

"Policy" variables such as Black Market Premium (BMP) or Ratio of External Debt to Exports listed above suffer from endogeneity with respect to output. As RR suggest, BMP reflects macroeconomic conditions broadly speaking, and have little to do with openness to trade or trade policies. They show that BMP is significantly correlated with inflation, debt to exports ratio and to quality of institutions. Indeed, the correlation matrices presented below are consistent with these conclusions, in that BMP is highly and negatively correlated with governance measures and positively correlated with variance of terms of trade (TOT), in the 90's. In the 80's, BMP is highly and positively correlated with both excessive money growth and with debt to exports ratio.

Table II presents simple correlation coefficients for some of the variables defined above. It suggests the following:

1- All governance variables are highly correlated amongst themselves, both in the 80's and the 90's;

2- Variance of TOT is positively correlated with BMP (90's);

3- In the 90's, GOV4 (regulatory framework), is negatively correlated with BMP. This is consistent with the idea the excessive or inappropriate regulation can go hand-to-hand with financial disintermediation. GOV4 is also negatively correlated with Tariffs, suggesting that the countries that have higher average tariffs are also prone to having "bad" regulation.

4- In the 90's, the debt-to-exports ratio is positively correlated with excessive money growth.

5- In the 90's, GOV5 (Rule of Law) is positively correlated with M2/GDP.

6- In the 90's, Investment rate is highly and positively correlated with M2/GDP.

7- In the 90's, BMP is negatively correlated with excessive money growth and positively correlated with debt-to-exports ratio.

8- In the 80's, Investment rate is highly and positively correlated with M2/GDP ratio and negatively with Debt-to-exports ratio

In the initial specification, we would like to include the variables related to growth [initial GDP, investment, lagged growth, human capital (education)]; policy variables (tariffs, excessive money creation, government consumption or debt or deficit); governance variable (rule of law); external shocks (terms of trade and/or its standard deviation); country characteristics (regional dummies, etc).

The difference of *first-differenced* GDP growth, relatively to the CG, depends, besides all the variables discussed above, on the difference between idiosyncratic shocks (other countries versus CG). If we regard such shocks as productivity shocks, then one interesting hypothesis to test is whether the countries that liberalized trade were subject to technological spillovers (or other effects of trade on growth) that do not occur in the CG. If it is true that such spillovers occur only (or mostly) in the manufacturing sector, then it is possible to account for that difference by interacting the tariff changes with the share of manufactures in total exports. The impact of a given effort towards liberalization on growth will be stronger the greater the share of manufactures on exports, precisely because of productivity spillovers[4].

The composition of exports is related to an issue that is very important in the context of import-liberalization among developing countries, namely, *market access*. Although the Uruguay Round achieved a significant reduction in the tariff gap between developing and developed countries, little progress has been achieved with respect to market access, as well as with the occurrence of peak tariffs and tariff escalation[5]. We acknowledge that such distortions affect every country differently, depending, among other factors, on export composition.

Another control variable overlooked both in the present analysis, as well in the next section on fiscal policy, is financial liberalization. Reinhart and Tokatlidis (2002) provide empirical evidence that such reforms increase real interest rates and promotes financial deepening and lower aggregate investment (but not growth), but have an ambiguous effect on savings.

The model allows us to evaluate the role of regional trade. We can compare, for each country, the evolution of trade flow (exports + imports) within a trade bloc, to that with the rest of the world. If a country is promoting IL and, at the same time, its regional trade is increasing faster than its trade with the rest of the world, then we may be observing some trade diversion effect. One possible way trade diversion might harm growth is by diminishing or ceasing technological spillovers or transfers.

Initially, we follow an arbitrary classification for regional trade, which does not necessarily match legally established PTA's. Table IV describes the groups for which we calculate the trade shares, based on IMF's Direction of Trade Database.

Growth of intra-region trade share isn't necessarily related to the establishment of a PTA itself. Therefore, we may want to follow an alternative approach to investigate the effects of regional trade. For that purpose, we will rely on the study by Foroutan (1998), who proposes a

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[4] Following the World Bank's Global Economic Prospects, 1996, Wacziarg (1998) uses the share of manufactured exports in total exports as a proxy for the extent of technological transmissions.

[5] The IMF/World Bank (2001) *manuscript provides an excellent assessment* of those issues. It emphasizes that industrial countries exhibit: 1- high tariffs, tight tariff quotas, tariff peak and escalation in agriculture; 2- high protection (both tariffs and quotas) in labor-intensive sectors such as textiles and clothing. They also point that booming antidumping activity and *GSP* do not help increasing market access for poorer countries.

criteria to discern non-effective regional trade blocs from effective ones. The criteria is as follows: the PTA is considered effective if the data reveals an increase in the share and or trade intensity of intra-group trade in the years following the formation of the PTA. Whether the observed trend – after the establishment of the PTA – is attributed to 'artificial statistical artifacts' such as for example, an increase/decline in world trade shares or to the PTA itself is arbitrary and subjective, as discussed in the paper. A dummy variable for every *effective PTA*, as well as one for all *non-effective* PTA, will enter the equations multiplied by twice-differenced average ATR.

The study suggests the following PTAs are effective:

- CACM: Costa Rica, El Salvador, Guatemala and Nicaragua;
- Andean Pact: Bolivia, Chile, Colombia, Ecuador, Peru and Venezuela;
- MERCOSUR: Argentina, Brasil, Paraguay and Uruguay;
- CEAO/UEMOA (Communaute Economique de l'Afrique Occidentale/ Union Economique et Monétaire de l'Afrique Occidentale): Benin (joined in 1984), Burkina Faso, Cote d'Ivoire, Mali, Mauritania, Niger and Senegal.
- SACU (Southern African Customs Union): South Africa, Botswana, Lesotho, Namibia and Swaziland;
- Zimbabwe, Kenya and Cameroon
- NAFTA: Canada, Mexico and US;
- Israel/US FTA

The non-effective PTAs, among others, are:

- ASEAN: Indonesia, Malaysia, Singapore, Thailand, Philippines and Brunei (from 84). Vietnam joined in 95.
- GCC (Gulf Cooperation Council): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates.
- EU-Mediterranean Initiative: EU countries plus Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Palestinian Autonomous Territories, Syria, Turkey and Tunisia.

Another question we address is that of whether trade restrictions operate differently in low versus high income countries. To do so, we allow differenced differences of ATR to have distinct effects, depending on average GDP. We classify countries into small (three lowest deciles), medium and large (three highest deciles) average GDP in 1980-89, by splitting the sample into three (see Table XII).

In the equations presented below, we use Current Government consumption expenditures as the fiscal policy variable, because both government deficit and debt as % of GDP do not contain enough observations. Since the sample of countries is not very large, we want to avoid restricting it even further.

In Tables V, VI and VII we present the OLS regression results under the three different CGs. In order to account for the comparative advantage of the country, we include the manufactures' share in exports (or alternatively, the commodities' share in exports) as a 'weight' on the ATR reduction. We also consider dummies for PTAs, to capture possible region-specific effects.

Regarding Group I, our main findings are [see Table V]:

1- Among the "growth" variables, GDP difference in the 80's has a positive effect in growth and is consistently significant across all specifications. Human capital, measured as primary education has a positive sign but is only marginally significant (around 15%) for most specifications. The coefficients on lagged investment are significant (marginally) only in the first four equations.

2- ATR, which is our variable of interest, is highly significant, but of small magnitude. The estimated coefficients, between -.05 and -.08, imply that a decrease of, say, 15 percentage points in the ATR will cause average GDP growth (per year) to rise between 0.75 and 1.2 percentage point. Relatively to a 3% p.a. baseline growth, after a decade, two countries with the same initial GDP would diverge at most by 12% due to a 15-point reduction in ATR[6].

3- Whereas 'weighting' ATR reduction by agricultural products' share in export does not result in significant effects, the opposite is true if we use the share of manufactures[7]. Its estimates are around -.20. That means, a country with a 50%-share of manufactures in exports will increase average GDP growth by 1.5 percentage point, due to a 15-point reduction in ATR. The effect is slightly higher than that in 2 above, and will generate a 15%-gap on GDP after a decade, under similar assumptions. Countries with a very high share (close to one) will increase GDP growth by 3 %-points, leading to a 30% gap after a decade.

4- Allowing for PTA-specific effects (equations 4, 8 and 12), we find that, whereas ZKC and CEAO benefit from IL, that seems not to be the case for MERCOSUR countries. The effect for the complement-set of countries is very similar to that obtained in the equations without PTA-specific effects (equations 1, 5 and 9) – between -.05 and -.08. Due to limited degrees of freedom, we excluded all PTA-dummies that were non-significant.

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[6] To simplify our interpretation, we are ignoring the CG component (or assuming it equal to zero)
[7] Caveat: the WDI data on the export shares in general do not add-up to one, with some even exceeding unity.

5- Macroeconomic policy and Governance variables enter significantly in most equations, and always with the expected signs: government consumption and excessive money growth both have a negative impact on growth whereas the impact of "good governance", measured by "rule of law", is positive.

6- Exogenous shocks – in the form of terms of trade shocks are marginally significant in the first four equations. Besides considering terms of trade alone, we tried to include a measure of exogenous shock as suggested by Rodrik (1998): it is calculated as the product of the variance of terms of trade and the degree of openness of the economy (exports plus imports as % of GDP). That variable was not significant and was excluded from all specifications.

We define CG II as the same set of countries in CG V below, rather than selecting based on any given criteria. This is done for comparison purposes. Because of that, it contains both 'open' and 'closed' countries, i.e., countries with low and high average ATR in 1990-99. Whereas CG I is based on *levels* of openness, CG II is based on *changes*. The results – in Table VI – suggest the following:

1- as expected, the constant is non-significant in all equations. There is no evidence of a TFP growth differential, which should be expected in cases where more open economies' TFP grow faster.

2- ATR alone is significant only in the first equation. ATR weighed by share of manufactures in exports is marginally significant at near the 10% level, and the estimates are close to –5%. We were not able to capture significant PTA-specific effects in these equations

3- Looking at the equations together, it seems that under CG II, the effects of IL are significantly weaker then under CG I. This is true for all the coefficients: ATR alone, ATR weighed and allowing for PTA-specific effects.

Finally, under CG III, we adopt a criteria as close as possible to that used in determining CG V – that is, we pick countries which did not exhibit a permanent reduction in ATR, from the 80's to the 90's. The findings are similar to the above [see Table VII]: there is very little evidence that IL enhances growth. It is worth pointing that the present criteria might entail distortions. The reason being that since the ATR variable has been averaged out over fixed periods of time – 1990-99 and 1980-89 – the shifts in ATR (i.e., IL) are 'smoothed' out; therefore, selecting a CG based on percentage-point reduction isn't easy, since its dispersion is low (concentrated around zero): for instance, as can be seen in Figure II, whereas there's 16 countries with zero or positive change in ATR (the CG III), there's another 16 which reduced ATR between 0 and 5 percentage-points. No clear threshold seems to exist.

However, the coefficients on ATR weighed by agricultural exports are *positive* (and marginally significant at a 10% level), suggesting that primary products' exporters may in fact grow slower if they liberalize imports.

Under fixed/common IL dates, overall results suggest that the criteria based on *levels* of openness (CG I), rather than *changes* (CG III), is the most appropriate given the specification of the model: discrepant *levels* of openness are more likely to reflect productivity differences than discrepant *changes*. Perhaps the levels criteria (CG I) entails a *conditional analysis*, which translates into *marginal effects* of tariff reduction for countries that are already open (and thus, not in the CG).

A couple variables were excluded from the model because they failed to be statistically significant: dummy variables for currency crisis and world imports. The former intends to capture possible effects of Balance of Payments crisis on growth performance. Our measure of BOP crisis is obtained from Reinhart (1999): it is derived from an index of market turbulence, defined as a weighed average of exchange rate changes and reserve changes[8]. If there is a possibility that a crisis is self-fulfilling, in the sense of Obstfeld (1994), then its occurrence isn't directly related to macroeconomic fundamentals, as reported for example, in Eichengreen, Rose and Wyplosz (1995,1996). In that case, controlling for such crisis could provide us additional explanatory power in our model. The latter is a measure of world trade. The purpose is to allow the IL effect to be influenced by the global trade, depending on the date countries liberalized imports. Here we haven't been able to answer RR's question of how trade restrictions operate depending on growth of world trade flows.

I.4 – Dating IL

The next step is to consider the IL date in each country in the sample. All variables will be measured as the difference between average growth rates *before* and *after* trade liberalization, whenever it occurs. Just as in the previous section, we will consider alternative selection criteria for the CG, in order to allow comparisons with those results. Notice that the CG component will be different for every observation in the sample, since the differenced averages are time-specific, depending on the date of IL in each country. The specification of the equations will be the same

[8]The countries that suffered BOP crisis in the 80's are (number of crisis after the comma): Argentina, 4; Bolivia, 3; Brazil, 3; Philippines, 3; Venezuela, RB, 3; Chile, 2; Colombia, 2; Indonesia, 2; Israel, 2; Mexico, 2; Thailand, 2; Peru, 1; Turkey, 1; Uruguay, 1. Countries that suffered BOP in the 90's: Brazil, 2; Venezuela, RB, 2; Argentina, 1; Philippines, 1; Indonesia, 1; Mexico, 1; Thailand, 1; Turkey, 1; Malaysia, 1. The data is available at http://www.puaf.umd.edu/faculty/papers/reinhart/papers.htm

as before, allowing us to compare the results. Differencing is with respect to the two periods, determined by the date when the countries implemented IL.

First, we use the same criteria as in CG I above, but selecting from a subset of the countries, which excludes the countries that exhibited no downward trend in ATR (see CG V below) – we name this CG IV. We impose that restriction simply because we are unable to divide the sample into two periods for those countries. CG IV is: Bangladesh, Egypt, India, Mauritius, Nigeria, Pakistan and Sudan.

Next, we define CG V, as follows: instead of selecting countries where average tariff rate was greater than 25% on average over 90-99, or based on tariff reduction decade over decade, as before, we will simply include the countries that did not exhibit IL, that is, those which did not *permanently* reverse the trend of ATR (see Figure II). In order words, countries that did not exhibit a clear downward trend in tariffs. We are not concerned with the *level* of ATR itself, but with *changes*. This group contains countries with a relatively low ATR throughout the sample (Israel and Cyprus, for example. See Table XI), as well as some with high ATR in the 90's. According to that criteria, the CG is: Bahrain, Congo, Dem. Rep., Cyprus, Ethiopia, Israel, Jordan, Libya, Malawi, Mauritania, Oman, Poland, Romania, Saudi Arabia, Senegal, Sierra Leone, Singapore, Syrian, Arab Republic, Tunisia and Zimbabwe.

Group V is comparable to CG II, since both contain the very same countries. CG V is also comparable to CG III, for even though they aren't identical sets, they are based upon the same selection criteria. Table XIII in the appendix describes the selection criteria for the CGs and exhibits some statistics.

Table XI exhibits the dates when trade reform took place in every country in the sample, as detected through inspection of time-series of ATR. It also shows the average tariff before and after the reform. Figures II and III exhibit the path of ATR (normalized) for 'reforming' and 'non-reforming' countries. The number of missing observations varies according to the country, so that time averages are calculated with a different number of observations, even for countries that 'reformed' in the same year. Still, the patterns are clear: the reforming countries cut average tariffs by 15 % points on average, according to their reform schedule. On the other hand, the non-reformers (or CG) *increased* their average tariff by an average of 2 percentage-points in 1990-99 compared to 1980-89. And the dispersion of ATR among those countries is high in the final period (1990-99) – ranging from nearly zero (Singapore) to over 36% (Sierra Leone).

Table VIII presents estimates of the model under CG IV. It is evident that the twice-differenced ATR coefficient is not as significant as under CG I and is smaller in magnitude. The same is true for the PTA-specific coefficients (Equations 40, 44 and 48). Regarding the export profile weights, results are somewhat contradictory: we find a strong (around –20%) and significant coefficient on weighed tariffs both for manufactures' share under CGI, and for

agricultural share under CG IV. We should keep in mind that although the selection criteria is the same, the countries chosen are not.

Table IX presents the results under CG V. That group is identical to CG II. Overall we find more significant effects of ATR under the former than under the latter. That applies not only to ATR alone but also for ATR weighed by export composition and allowing for PTA-specific effects.

We may also compare the results under CG V with those under CG III, in which we adopt the same criteria but the outcome is a different CG. The same differences described above arise in that comparison and more sharply (because ATR is overall less significant in CG III than in CG II).

When we use *levels* criteria [CG I and IV], there are no gains whatsoever in adopting IL-dated regressions. However, if the criteria is changes, then IL dating entails significant improvements in the significance of the relationship between IL and changes in GDP growth.

The results suggest that under a more precise dating of IL, the effects of tariff reduction on growth are slightly stronger and much more significant than as revealed by the initial estimates, with fixed IL dates[9](equations 13, 17 and 21 versus equations 49, 53 and 57). There are also significant improvements when we allow for PTA-specific effects (equations 16, 20 and 24 versus 52, 56 and 60). The improved significance of the share of manufactures' exports suggest that the export profile may be important in determining the potential benefits from trade liberalization. If we interpret this variable as an indicator of comparative advantage, then our result suggests that relatively capital abundant countries benefit from IL significantly more than labor-abundant ones. We cannot tell, however, whether this is due to technology spillovers in manufacturing, since we have not identified any structural parameters.

Finally, when it comes to IL effects *contingent* on country size, the evidence is somewhat mixed. As shown in Table X, for CG I and IV [equations 61-63 and 70-72], we find that medium and low GDP countries benefit from ATR reduction, respectively. For large-GDP countries, ATR reduction is not statistically significant. However, for CG II, III and V, large-GDP countries seem to be the only group that benefits from ATR reduction.

In other words, when we adopt a criteria based on *levels* of openness, either size effects are non-significant (Eq. 61 to 63) or only small countries benefit from IL. Conversely, when we adopt a *changes* criteria, it is becomes evident that large-GDP countries only are the ones who benefit from IL (Equations 64 to 69 and 73 to 75).

[9]Of course, after controlling for external shocks, quality of governance and other (non trade-related) macroeconomic policies.

I.5 – Conclusions for Part I

The effects of IL on GDP growth were evaluated using a DD methodology. We compared results obtained from identical equation specifications, but using alternative measurements of the variables (fixed date versus dated IL). We propose alternative criteria to determine CGs under the two different measurements. The CGs contain countries that are considered not open to imports (*levels* criteria), or that have not exhibited a downward trend in ATR (*changes* criteria). The purpose of dating IL is to obtain a more sensible time-aggregation for variables in the model. GDP growth acceleration (or twice-differenced growth rate) depends on non-trade policies and exogenous shocks, which were included in the regressions.

Our results seem to be highly sensitive to the CG choice. Under a *levels* criteria (CG I and IV), IL-dated results do not strengthen the case for advocates of openness as a growth booster, relatively to fixed-date results. Under a changes criteria however (CG II, III and V), IL dating does strengthen the significance of the relationship between IL and GDP growth. The relevant issue then, seems to be that of determining which criteria is the most sensible to carry on our estimation exercises.

We also find that the countries that are predominantly manufactures' exporters appear to benefit from IL more than those that are not. One conjecture is that such countries experience productivity spillovers that increase total factor productivity and, as a byproduct enhance competitiveness, alleviating external borrowing requirements to growth. One potential problem is that the series of share of manufactures in exports may contain distortions due to the differences in classification of products across countries. Thus, it would be useful to examine the data more carefully. This result isn't unambiguous: in one of the CG (IV), we find that agricultural share-weighed ATR is highly significant, suggesting the opposite.

The relationship between IL and growth, contingent on country size is sensitive to CG selection as well. Whereas under a *levels* criteria, small and perhaps medium-GDP countries only benefit from IL, under *changes* criteria it is evident that large-GDP countries only benefit from IL [Table X]. In theory, under standard assumptions, optimal tariff for large countries should be positive. But such assumptions (constant returns to scale, perfect competition, etc.) may not hold in reality. In any case, our model does not allow a formal test of the theory.

Since our explained variable is difference in growth acceleration between 'reforming' countries and 'closed' ones, differences in TFP growth are supposedly captured by the constant term. In that case, the estimates of the constant represent differences in efficiency between the two groups, which may be related to the trade regime or not. The coefficient of tariffs is then just capturing a 'marginal' effect from liberalization. Under our framework, it is not possible to isolate

the tariff effect from the constant term, since that is, by construction, capturing differences in efficiency between open and closed economies.

Although we are unable to identify such effects, we can look at what happens to the estimates of the constant when we exclude the ATR variable. If excluding it turns the constant significant, then we might suspect the constant accounts at least for a part of the differences in productivity that are related to the importing regime. On the other hand, if the exclusion of the tariffs does no affect the estimated constant, then we might suspect that the constant is capturing productivity differences that are unrelated to the importing regime. We find (not reported) that, whereas excluding ATR under *levels* criteria does not affect the constant, doing so under *changes* criteria turns the constant highly significant. Therefore, considering *levels* criteria, it appears that the identification problem is more severe, in the sense that we cannot isolate from other effects the IL effect on GDP growth. *Levels* criteria reduces the strength of tariff's marginal effect on the one hand, but increases the estimated productivity differential on the other hand.

The discussion above reflects the limitations of the cross-sectional analysis: it is difficult to attribute the difference in the efficiency parameter, between 'open' and 'closed' countries, to IL alone. There could be other effects, which we may not have controlled for. In other words, we have not identified the mechanisms through which IL possibly enhances productivity. The reduced-form results allow for other interpretations too. The result leads us to believe that we cannot rely on the regression outcomes and we need to look at countries separately, either on a time series basis or using industry–level data, or both.

Part II:
The Effects of Fiscal Policy Reform on Growth

II.1. Introduction

We are cautious with respect to the evaluation of fiscal stance in cross-country comparisons. One reason is that the data on fiscal policy – i.e., Government Consumption Expenditures as % of GDP, Tax Revenues as % of GDP (GC and TAX, respectively, henceforth) and Budget Balance as % of GDP – is not subject to unique accounting principles across countries. In several cases, quasi-fiscal operations of the central bank and losses of public development finance institutions, as well as social security contingent liabilities, are not included in central government figures. Moreover, the fiscal data can be budgetary data, rather than consolidated, depending on the country.

Overall, the fiscal data that is available should provide us with a somewhat blurred picture of the fiscal stance, not only in terms of its time path, but also in terms of cross-country comparisons. Nevertheless, we believe that our model may still provide some insights regarding the marginal benefits of public finance reforms, or rather, the marginal costs of not sustaining a sound fiscal policy over time.

Before discussing the criteria to determine our control groups, we undertake an exploratory time-series analysis of the public finance variables, in order to detect any particular properties, possibly common to the whole sample of countries. In particular, there are two hypotheses we wish to test, for every country: first, whether the budget deficit is stationary, which translates into a test of the sustainability of the country's total liabilities. Second, we are interested in whether there is a causal relationship between expenditures and taxation. The results of our analysis, which will not be reported for the sake of brevity, suggest the following: 1- For the vast majority of countries, we have been unable to reject the null hypothesis of a unit root in the process of government budget balance (Overall Deficit); 2- mutual granger-causality tests performed on GC and TAX suggest that for most countries both variables fail to granger-cause one another. That is, shocks in expenditures do not lead, or help predict, changes in taxes and vice-versa[10]. Point 1 above does not undermine the importance of unsustainability of debt. Financial liberalization, changes in the pattern of financing of public deficits or shifts in private capital inflows, for example, may have affected the overall budget deficits as put forth n the specific series we use.

[10] The analysis has several shortcomings: the average sample size is not large (around 20 observations), which may induce small sample biases; it also precludes the inclusion of other desirable variables in the VAR, namely, rate of inflation and GDP growth. The unit root test chosen (Augmented Dickey-Fuller) isn't robust to structural breaks and serial correlation. The lag length in the VAR was 3 years.

Because GC is a more narrowly defined variable, we will discuss the returns to fiscal reform in terms of that variable, rather than in terms of deficit. In this way we hope to minimize discrepancies associated with measurement, and thus enabling less imprecise comparison across countries.

Differently from the Trade Reform analysis, it is not trivial to identify a fiscal policy regime change, regardless of the "indicator" we choose: budget deficit, TAX and or GC and public investment. Unlike average tariff rates, fiscal deficits represent a much more complex time process. Indeed, we do not have deterministic and exogenous variables, such as import-tariffs. For example, a positive shock to government's expenditures, or a tax relief, can be compensated in the future by tax increases. In the long-run, if we think of a sustainable path for the debt, we should anticipate that revenues and expenditures are co-integrated, with a unit-elasticity. In other words, the two variables should not drift apart, and should, in the long run, grow at the same rate. The time-series analysis described above attempts to address some of those issues.

Assuming debt sustainability, we cannot "date" fiscal reform, proxied by budget deficit, since that variable is covariance stationary. All innovations to deficit are temporary, and the probability that it will reverse to the mean in a finite period of time is equal to unity.

Even though our sample (1980-99) might suggest that some countries have permanently reversed the deficit trend, it isn't compelling to assume they will stay on that path indefinitely. This makes it even harder to believe we could appropriately pinpoint structural, public-sector reforms. A temporary, endogenous "bad" fiscal shock, either on TAX or GC (or a broader measure of expenditures), which has apparently reversed the trend, could lead us to mistakenly include a country in our control group. However, since our sample size is relatively small, there is not much we can do about it.

It seems then, that the scope of the analysis of the returns to fiscal policy under a cross-country framework is relatively narrow. The analysis above also suggests that it is more reasonable to look at the data aggregated over long periods (1980-89 and 1990-99) rather than its short-run dynamics, in order to look at the countries that did not reform government finances. By doing so we will be "smoothing" out temporary shocks, and thus getting a clearer picture of the trend: countries that exhibit an persistent upwards trend in the deficit are more likely to be on an unsustainable path, and, because of that, might exhibit more severe macroeconomic imbalances, which may deter growth.

In the light of the aforementioned considerations, the control group will include the countries that obey the following restrictions:

1- Change in GC minus change in TAX greater than five percentage-points[11]

2- International Trade taxes (as % of total tax revenue) above 30% in 1990-99.

The group includes: Trinidad Tobago, Cameroon, Hungary, Congo, Oman and Brazil (subject to 1) plus Ivory Coast, Guinea, Mauritius, Sierra Leone and Ghana (subject to 2). Table XV presents the data on GC and TAX emphasizing the Control Group. If a given country has undertaken fiscal reforms, then we would expect that either GC did not rise and/or TAX did not fall. The exception would be countries that rely heavily on international trade taxes (in those cases, fiscal reform could widen the tax base, and thus induce a change in the level of GC. Moreover, it could push the tax system closer to an optimal taxation scheme, where the excess burden is equated across all taxes). So the difference between the two should provide us with a quite strong criteria for selection: if it is sufficiently large, the country has failed to meet any of the necessary conditions for a sustained fiscal adjustment. We seek to select the countries that exhibited significant deterioration of fiscal stance within the sample[12].

Figure V presents changes in GC and changes in TAX. Figure VI presents the difference between the two, together with trade taxes as a percentage of tax revenues. It provides us with a clear picture of the selection criteria of the control group. Some of the possible problems related to this methodology in the particular case of fiscal policy will be discussed below, when we comment our econometric results.

II.2 Methodology

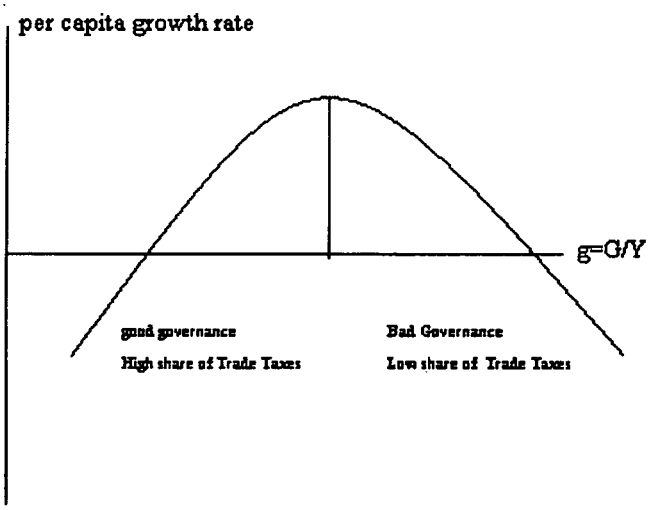
Evaluating the returns to fiscal reform is tricky. If we consider Barro (1990) as the benchmark model, the prediction is that per-capita GDP growth is non-linearly related to average tax rate (measured as government expenditure as % of GDP). The curve is U-shaped: growth is increasing in the tax for low levels of tax, but decreasing for high levels. This results from the interaction of the two channels through which government affects growth: a negative effect of taxation on the after-tax marginal product of capital and a positive effect of public services on this marginal product.

We attempt to control for those channels using two variables: the share of international trade taxes and some governance measure. If a country relies heavily on trade taxes, then its

[11] Equivalent to a difference in average government deficit greater than 5 percentage-points (1990-99 compared to 1980-89)

[12] We find it inappropriate to define any control group under a *levels* criteria, based on, say, GC levels over the 90's. The reason is that, as Easterly and Rebelo (1993) point out, there's a strong correlation between fiscal variables (including GC) and the initial level of income, making it hard to "disentangle" the effects of the two variables.

unlikely that the negative taxation-effect is predominant – thus it will be in the ascending portion of the curve. If a country has "good" governance indicators, then it is also more likely – ceteris paribus – to be in the ascending portion of the curve. Since our control group excludes countries with high a share of trade taxes, we are properly controlling for that effect. Graphically, we have



It is important that we control for governance, in order to find a robust relationship between GC and per-capita growth. Our specification will allow both for the negative tax effect and the positive effect of public services on productivity. We will assume that the latter will be stronger the "better" the governance. If GC grows too much in a country that is badly governed, then the productivity effect will be weak, and thus probably dominated by distortionary effect (taxation). A possible way of picking up such effects is to interact the fiscal variable with a governance measure. Gerson (1998) emphasizes the quality of government expenditures as important determinant of its effects on productivity and thus, on growth rates.

We review now rapidly the most recent findings of the extensive *literature on fiscal policy and economic growth.* There is great emphasis on composition effects of both tax and expenditure policy on long-run growth. In the case of taxes, results will depend on which factor is being taxed the most. In the case of expenditures, composition will matter too: the size of the externalities of public goods (defense, infrastructure, education, etc) will obviously depend on the allocation and quality of the expenditures. But that positive effect will be partially offset by a crowding-out effect.

Since this study is not primarily concerned with fiscal policy alone, we will not be considering composition effects. We will only test for aggregate effects of fiscal policy.

An interesting, but not exhaustive approach of the subject can be found in Tanzi and Zee (1997). They discuss the relationship between fiscal variables, namely, tax, expenditure and budget policy according to three different channels: allocative efficiency, macro stability and

income distribution. As far as this study is concerned, the first channel is the most important, since our "returns" variable is growth rate. Taxes are expected to affect negatively growth, because of the deadweight loss, which is a consequence of the distortion in incentives that agents face. Deadweight loss will occur even if taxes are optimally structured, in the sense that the deadweight loss is equated across all taxes[13]. They report that overall, the empirical cross-country studies have not been able to find conclusive evidence on the effects of both tax and expenditure policy on economic growth. One of the chronic problems is that to a great extent both taxes and expenditure are endogenous and there is multicolinearity with other policies and macroeconomic variables. Moreover, all the literature has been subject to the problem of reverse causation between tax and expenditures on the one hand and growth on the other. Last, but not least, as discussed above, the relationship between growth and fiscal variables is non-monotonic: public expenditure can strengthen growth at low levels, but weaken at higher levels, the same being true regarding taxes.

Table XIV summarizes some of the most representative studies that measure the impact of fiscal variables on economic growth.

II.3. Results

The empirical results will rely on the same equation specification as the analysis in Part I (see section I.2). **The basic equation is equation (5).** The difference is that the Control Group, as discussed in the previous section, is now based on fiscal performance, not import-liberalization. The basic equation includes: factors of production, *proxied* by investment rates and human capital levels; policy variables, including monetary and tariff rates; and other control variables, such as governance.

The same sort of objection also applies in the present analysis: the equations are not meant to identify structural parameters that describe the mechanisms through which fiscal policy affects growth rates. As discussed above, structural modeling would require a much more complete dataset, as well as more reliable and homogeneous measurement across countries. We must acknowledge that the present analysis is even more subject to problems related to endogeneity, multicolinearity and selection bias in the choice of the control group. The reason is that fiscal policy variables are to a large extent more endogenous then tariff rates: not only may they interact amongst themselves but also with other policy and macroeconomic variables, such as money growth, inflation and GDP.

[13] Our selection criteria for the control groups includes countries that have a high share of trade taxes on tax revenues precisely because they are more likely to be further away from an optimally structured tax policy, i.e., most likely, the excess burden of trade taxes will be much larger than that of say, income or consumption taxes.

Our main findings are[14]: I- GC has a negative and highly significant impact on per-capita growth; TAX on the other hand, is non-significant. II- after controlling for country size (measured by GDP), it seems that GC reduces growth for small countries *only*; conversely, TAX increases growth for large countries *only* (marginally significant estimate). III-differently from GC and TAX, budget deficit is significant only when interacted with GC – the effect is strong and significant. That is to say, the higher the levels of GC, the more deficits hurt per-capita growth.

The equations presented in Table XVI include two country-specific dummy variables (for Bolivia and Nicaragua) and one region-specific (Middle East and North Africa). We tested the inclusion of other regional dummies – including ones for Sub-Saharan Africa, Latin America and South East Asia – but they were non-significant and thus, excluded from the equations. We also tried the inclusion of a governance variable and, it was not significant. That is a curious finding specially in face of the results on trade reform, which suggested that governance was an important factor underlying growth performance. One plausible explanation for that fact is that revenues and/or expenditures may be collinear with governance levels. In the lines below, we discuss the results in detail, equation by equation.

Equation I: TAX and GC enter the equation separately. Because GC does not include investment, we have fewer reasons to expect a positive effect on growth. The reason is that the externality of public services on output is largely due to investment, not GC. The result suggests that an increase in GC actually hurts growth performance. TAX, on the other hand, is only marginally significant, with a positive sign. One possible interpretation here is that it is directly related to some measure of good governance, as for example rule-of-law (indeed, taxes and governance have a correlation of .45). We must also note the possibility that the correlation may be reflecting reverse causation, from growth to taxes.

Equation II: we weigh taxes and expenditures by the log of ratio of GDP to Control Group's GDP (average in the 80's). The result is that only GC is significant. Note the if GDP80 equals C_GDP80 then the impact is zero. If the GDP is low enough (i.e., below control group's average) then GC will reduce output. Conversely, if GDP is sufficiently high, then its impact will be positive. The result is consistent with the idea of scale effects, as identified by Easterly and Rebelo (1993). They suggest that there may be non-convexities in the benefits of publicly provided goods and services. If for example, there are high fixed costs and low marginal costs to provide public goods, then large countries would be able to provide a given amount of such services at a lower average cost.

[14] In this section, we will be referring to the variables in the equations without explicitly mentioning the transformation used. For example, when we mention simply "per capita growth" we are actually referring to the *differenced first difference* of per capita growth.

Equation III: we continue investigating size-effects by introducing a dummy variable for country size (measured by GDP level), instead of interacting on relative GDP. The only significant coefficient is that of the expenditures for non-large countries. The result is consistent with that of the previous equation for it suggests that the inability of exploiting economies of scale in the provision of public goods renders small countries no benefit from GC.

Equation IV: we consider the difference between GC and TAX, which is a 'partial' budget deficit[15] (which does not include public investment). We obtain a negative and significant coefficient (-0.10), meaning that government deficits have a negative impact on per-capita GDP growth. **A six percentage-point reduction in the average deficit (compared to the control group) increases average per-capita growth by 0.6 percentage-point.** We have:

$$\frac{\partial growth}{\partial deficit} = -0.10$$

Equation V: still using our 'partial' deficit measure, we allow for a different impact of deficit depending on the country size (proxied by GDP – see Table XII for explanation). The estimated coefficients are only marginally significant, suggesting a lack of evidence in favor of size-effects arising from budget deficits. Whereas scale-effect-results, obtained in Equations II and III above, possibly relate to economies of scale in the provision of public goods or services, in this case it appears that the absence of such effect is perfectly consistent with the 'instability' channel effect suggested by Tanzi and Zee (1997): persistent deficits may raise suspicion that the government recurs to monetary financing, bringing about inflation expectations and thus, macro instability. As it is widely recognized on both theoretical and empirical grounds, inflation levels and variance have deleterious effects on long-run growth rates. Assuming the instability channel is the one that matters, then there is no prior reason to believe its impact would depend on country size.

Equation VI: we interact our partial, calculated deficit with an increasing monotonic transformation of the governance index, but the variable is statistically non-significant. The purpose was to check whether governance could affect perhaps the instability channel of budget deficits.

Equation VII through IX: we include the Overall budget deficit series extracted from WDI, instead of expenditures and revenues separately[16]. That variable is not significant either alone or allowing for country-size effects. This equation uncovers a result which is consistent with that of Easterly and Rebelo (1993) [see Table XIV]: they reject Ricardian Equivalence: under that

[15] That is defined as the difference between *General government final consumption expenditure (% of GDP)*and *Tax revenue (% of GDP)* [Notation: **GC*xx* – TAX*xx***].

[16] That variable is WDI's *Overall budget deficit, including grants (% of GDP)* [Notation: **DEF*xx***].

assumption, deficits should leave private savings unchanged and thus should have no impact on growth whatsoever. The Overall deficit is significant only when we interact it with GC (Equation VIII). That means deficits are good for countries that have low GC levels, but bad otherwise. Interestingly enough, we find, without reporting, that the deficit, when interacted with (a monotonic transformation of) governance (relative to control group), becomes significant: countries with high 'sufficiently good' governance benefit from deficit increase, the opposite being true for those with 'sufficiently bad' governance[17].

We have considered an alternative criteria to determine the control group, based on the change in budget deficit . **That group contains the two highest deciles of the distribution of changes in overall budget deficit**[18] (1990-99 compared to 1980-89). The results, not reported, are not much different from those obtained from the first control group: the deficit does not affect per-capita growth, except when we interact it with governance. Since the overall budget deficit is a broader concept, involving more blocs (consumption, investment, several government sectors), it is likely that cross-country comparisons will suffer from lack of homogenous standards. Moreover, the potential estimation problems aforementioned might be magnified. Because of that, we find that, at the margin, additional results will contribute little to our analysis.

II.4. Conclusions of Part II

We have estimated the effect of fiscal policy variables - TAX, GC and overall budget deficit - on per-capita GDP growth across a sample of developing countries. We adopted the same approach as in the analysis of import-liberalization reform discussed in the first part of this paper. The purpose was to evaluate relative growth-performance, which we regard as one of the measure of returns to reform, vis-à-vis a group of countries that has not undertaken and/or sustained a sound fiscal policy – either in terms of fiscal revenues, expenditures or consolidated deficit. Differently from the analysis of trade reform, in the case of fiscal policy, there are greater potential problems related to the selection of control groups. Those are basically due to the endogeneity of fiscal variables. As in the case of the import-liberalization analysis, we do not propose estimating a structural model[19].

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[17] Again, this result is consistent with the stability channel-type of argument: if countries under good governance should be able to run fiscal deficits without the threat of spreading uncertainty about future policies and destabilizing the macroeconomic environment. Gerson (1998) stresses the importance of the **quality** of public investment, which is, arguably, positively correlated with governance.

[18] That corresponds to a group of 11 countries: ROM, TTO, ZAR, BHR, ETH, TUR, BGD, HUN, BOL, CMR and ZAF. See Figure VII.

[19] Say, the effect of public expenditures on the marginal product of capita, or the effect of taxation on factor returns and supply. As Tanzi (1987) has long recognized, wealthier countries rely more on income and payroll taxes. Therefore, the effect of taxes are hard to be separated from initial income levels. In our analysis however, our explanatory variable isn't tax levels, but its changes, so we do not expect to face such

Despite methodological shortcomings, we have reached conclusions that are in line with the literature. Our conclusions, however, do not provide unambiguous evidence on the relationship between fiscal performance, as modeled in our analysis, and long-run growth.

Our basic findings are: 1- an acceleration of Government Consumption Expenditures is harmful for growth; the same being true for the fiscal deficit (including only consumption on the revenue side) ; 2- country-size effects appear to be important, revealing significant economies of scale in the provision of public goods; that conforms to the literature; 3- the overall budget deficit seems not to affect growth performance; measurement problems related to that variable preclude it from constituting a robust criteria to select a control group; 4 –Governance levels seem to be an important element in determining how large a response from fiscal policy a given country will be able to obtain in terms of growth performance; "poor" fiscal results, i.e. budget deficits, coupled with good levels of governance may in fact streng. , growth performance; this could be explained both by the high quality of expenditures and a better tax system.

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a problem. As Gerson (1998) suggest, the literature on aggregate taxes and growth are mostly ad hoc, not relying on structural models. In that sense we follow the 'tradition'.

Part III:

Final Remarks and Overall Conclusions

The cross-country estimation results discussed in the paper suggest that there are significant correlations between GDP growth and both IL and fiscal policy reforms. The paper's DD methodology, however – as well as the better measurement techniques in the case of IL – do not strengthen the results of the exisiting literature. In the case of IL, GDP growth effects are weaker than those of previous studies. In the case of fiscal reform, the robustness can be questioned, both because of data problems and adequacy of the proposed estimation method.

Our results suggest that country-size, regional or neighborhood effects, governance and export-orientation are significant in determining the returns to reform. We also would have liked to examine the effects of institutional and governance reforms using our DD methodology, but the lack of adequate data allowed us to treat those reforms only as country-specific effects.

The analysis of the two types of policy reforms were performed independently. The question that naturally arises is to what extent the pace and sequencing of the reform agenda might affect the outcomes. That has been a recurrent issue in the literature on liberalization of both trade and capital flows, but there has been "widespread disagreement regarding the optimal pace and sequencing of the structural reforms", according to a survey by Bhattacharya (1997).[20] In fact one of the reasons for such dissent, as he argues, is that "the initial political and economic conditions facing the reforming economy, and in particular the preexisting macroeconomic situation are of crucial importance".

Subsuming a specific policy reform into a single variable is not an easy task. In the context of the standard cross-section approach, making two or more of such variables interact in order to elicit the cross-policy effects is not feasible. Therefore, the analysis of the dynamics and the mutual causation between different policy dimensions would have to be performed in country-specific analysis and studies.

[20] There is however, a relatively high amount of consensus in two topics: the need to undertake fiscal reforms prior to liberalization of domestic financial market, so as to avoid inflationary pressures – Chile being the good example and Brazil and Argentina, the bad; and that liberalization of the capital account of the balance of payments should be the last step in the reform process, for not only does it tend to appreciate the exchange rate, but demand efficient regulation and supervision of the financial sector as well.

Table 0: Average GDP Growth Rate (%)

	1980-1989 (A)	1990-1999 (B)	Difference (B)-(A)	Ratio (B)/(A)
Peru	0.3	3.2	2.9	9.4
Saudi Arabia	0.4	2.7	2.2	6.0
Sudan	1.4	6.9	5.5	5.0
Trinidad and Tobago	0.6	2.7	2.1	4.7
Uruguay	0.7	3.3	2.5	4.6
Guatemala	1.0	4.1	3.1	4.2
Bahrain	1.4	5.5	4.1	3.9
Nigeria	0.9	3.1	2.1	3.3
Costa Rica	2.2	5.4	3.2	2.4
Malawi	1.7	4.2	2.5	2.4
Uganda	3.0	6.9	3.9	2.3
Syrian Arab Republic	2.8	6.3	3.5	2.2
Ethiopia	1.7	3.7	2.0	2.2
Ghana	2.0	4.3	2.3	2.1
Mauritania	2.2	3.4	1.2	1.5
Chile	4.4	6.5	2.1	1.5
Mexico	2.3	3.4	1.1	1.5
Israel	3.7	5.3	1.6	1.4
Benin	3.1	4.5	1.4	1.4
Tunisia	3.6	5.1	1.5	1.4
Philippines	2.0	2.8	0.8	1.4
Senegal	2.5	3.3	0.8	1.3
Sri Lanka	4.1	5.3	1.1	1.3
Malaysia	5.9	7.2	1.4	1.2
Jordan	4.0	4.9	0.9	1.2
Mauritius	4.3	5.3	0.9	1.2
Nepal	4.1	4.8	0.8	1.2
Bangladesh	4.3	4.9	0.6	1.1
Jamaica	1.4	1.5	0.1	1.1
Singapore	7.4	7.7	0.2	1.0
China	9.4	9.8	0.3	1.0
India	6.0	5.7	-0.3	0.9
Guinea	4.5	4.1	-0.5	0.9
Turkey	4.3	3.8	-0.5	0.9
Belize	5.5	4.7	-0.9	0.8
Colombia	3.4	2.9	-0.5	0.8
Tanzania	3.8	3.1	-0.6	0.8
Korea, Rep.	7.6	6.2	-1.3	0.8
Ecuador	2.4	1.9	-0.5	0.8
Taiwan, China	8.1	6.4	-1.8	0.8
Indonesia	6.4	4.8	-1.5	0.8
Egypt, Arab Rep.	5.9	4.5	-1.4	0.8
Cyprus	6.1	4.4	-1.7	0.7
Thailand	7.3	5.2	-2.1	0.7
Morocco	3.9	2.7	-1.2	0.7
Iceland	3.2	2.3	-1.0	0.7
Oman	9.0	6.2	-2.8	0.7
Brazil	3.0	1.8	-1.1	0.6
Pakistan	6.9	4.0	-2.9	0.6
Paraguay	4.0	2.3	-1.7	0.6
South Africa	2.3	1.3	-1.0	0.6
Algeria	2.8	1.6	-1.2	0.6
Zimbabwe	5.2	2.9	-2.3	0.6
Kenya	4.2	2.1	-2.1	0.5
Antigua and Barbuda	6.7	3.3	-3.5	0.5
Barbados	2.2	0.7	-1.5	0.3
Zambia	1.4	0.3	-1.1	0.2
Cameroon	4.0	0.4	-3.6	0.1
Hungary	1.5	0.0	-1.4	0.0
Burundi	4.3	-1.2	-5.5	-0.3
Guyana	-2.8	4.8	7.6	-1.7
Sierra Leone	1.9	-4.0	-5.9	-2.2
El Salvador	-1.9	4.9	6.8	-2.5
Romania	0.9	-2.4	-3.3	-2.6
Congo, Dem. Rep.	1.8	-5.1	-6.9	-2.8
Nicaragua	-0.8	2.9	3.6	-3.7
Argentina	-0.7	4.5	5.2	-6.2
Bolivia	-0.4	4.0	4.4	-9.7
Cote d'Ivoire	-0.2	2.8	3.0	-11.7
Venezuela, RB	-0.2	2.4	2.6	-14.8
Average	3.2	3.8	0.4	0.5
Std. Deviation	2.5	2.5	2.8	3.4

Figure 0: Average GDP Growth: Ratio 1990-99 to 1908-89

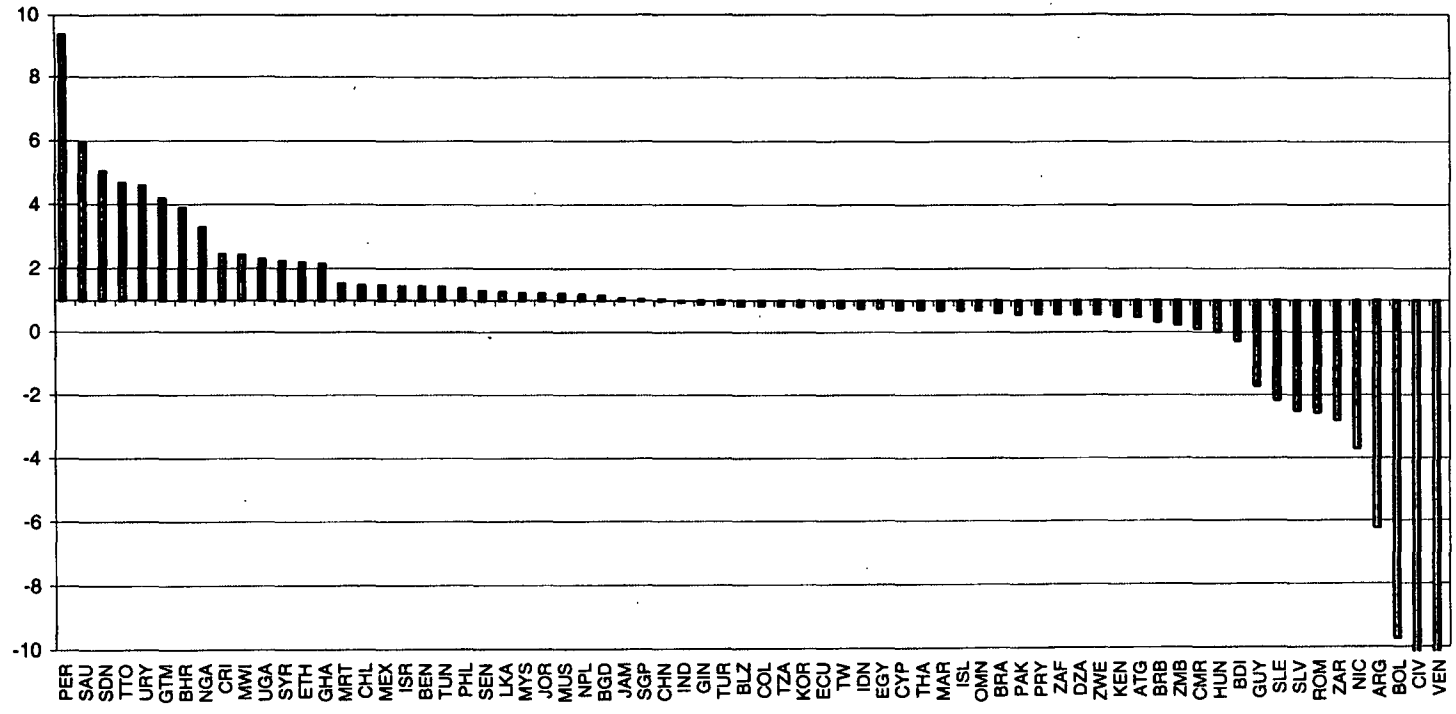

Figure I: Average Tariff Rate, %
(Average 90-99)

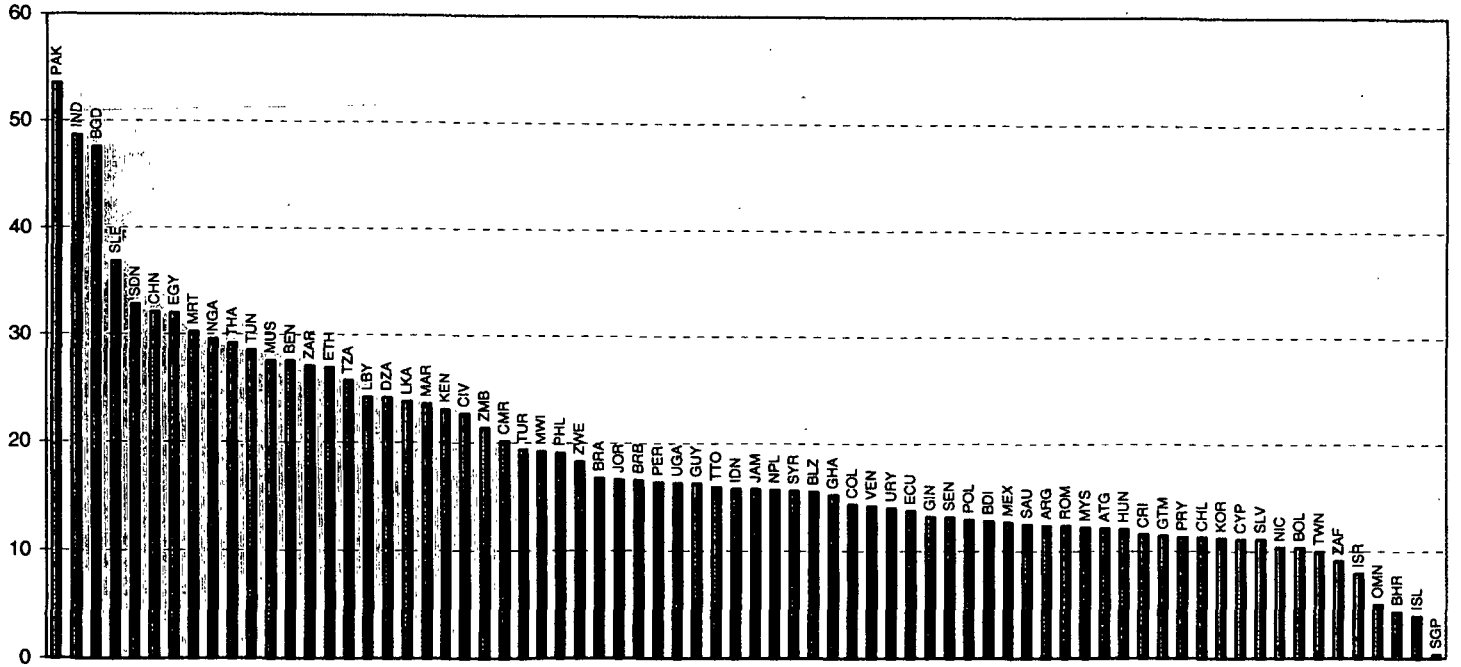

Figure II: Change in Average ATR, 1990-99 compared to 1980-89 (% points)

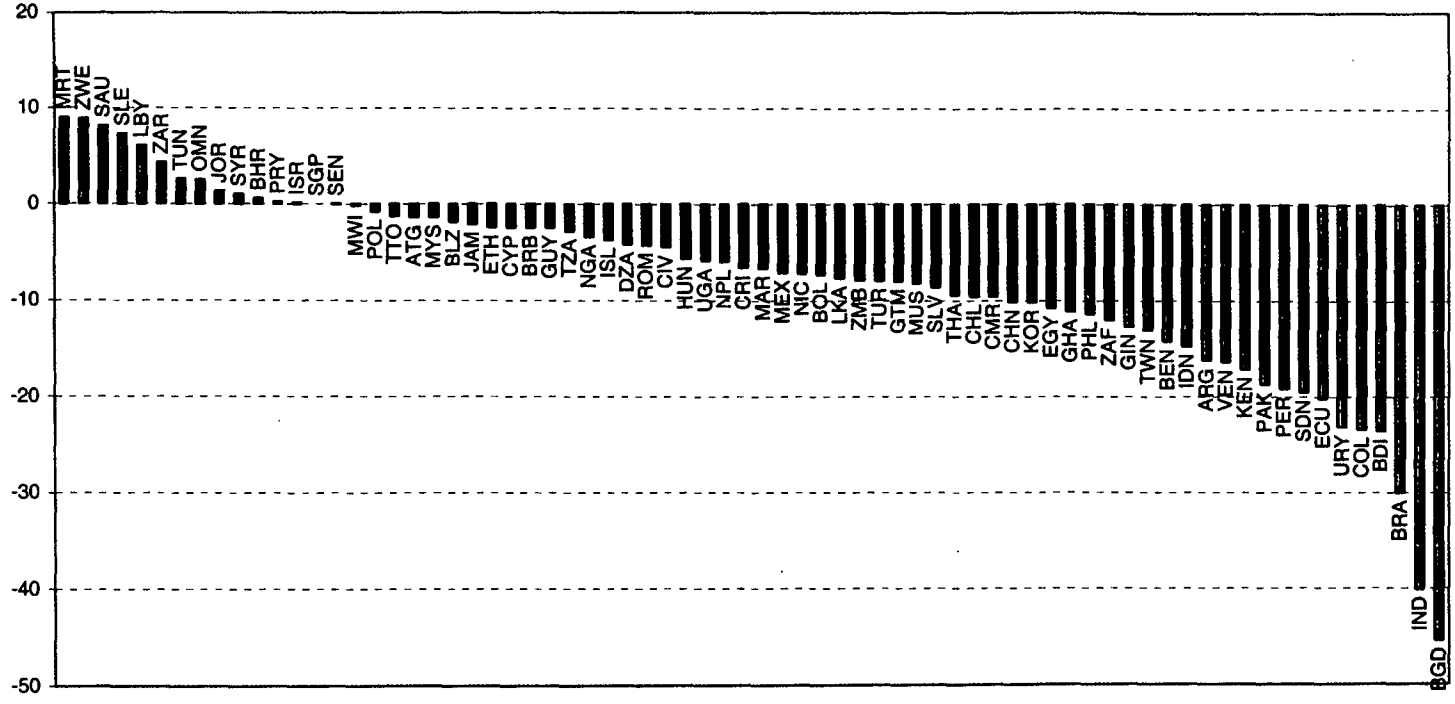

Figure III : Average Tariff Rates, "Reformers"

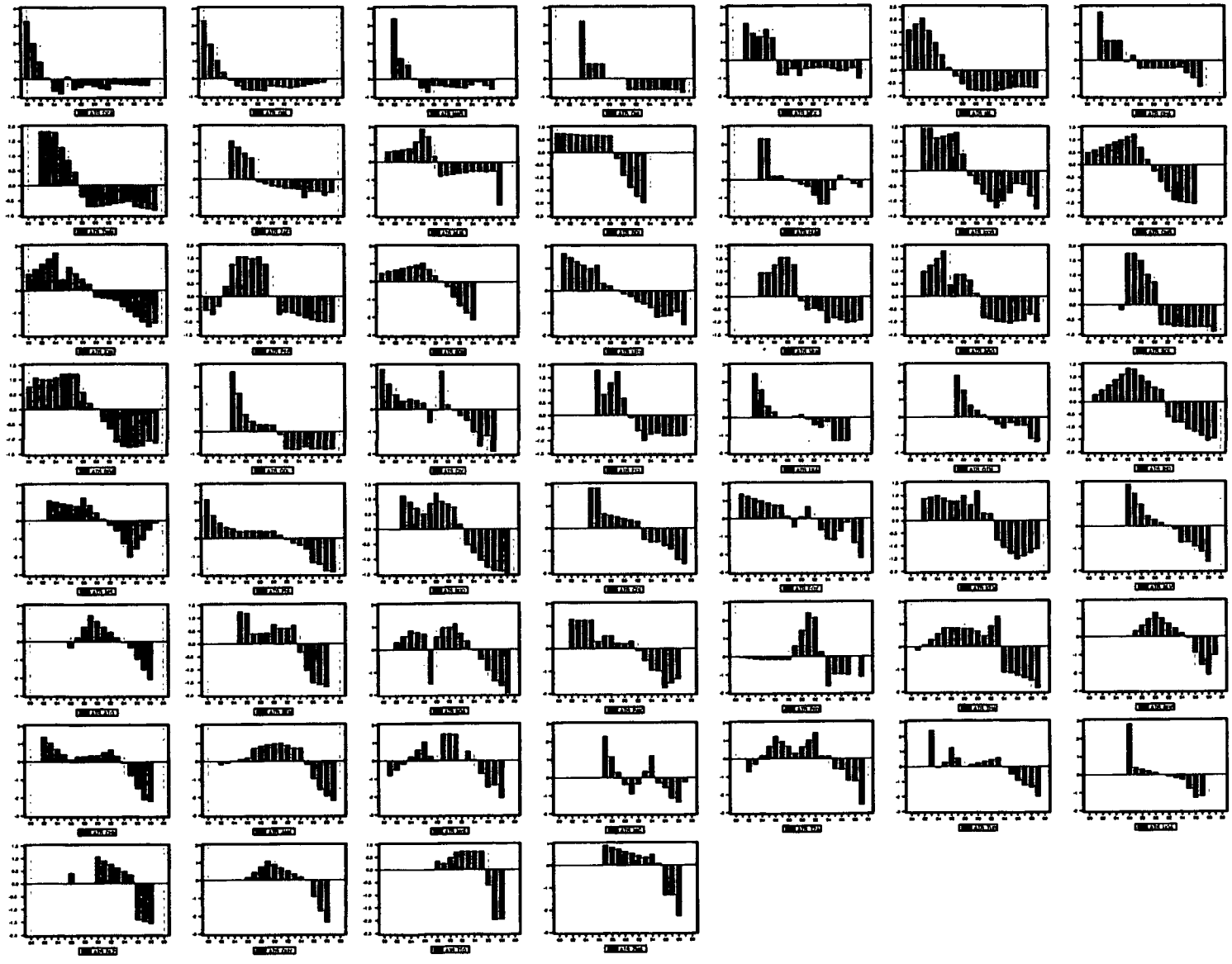

Figure IV: Average Tariff Rates, "Non-reformers"

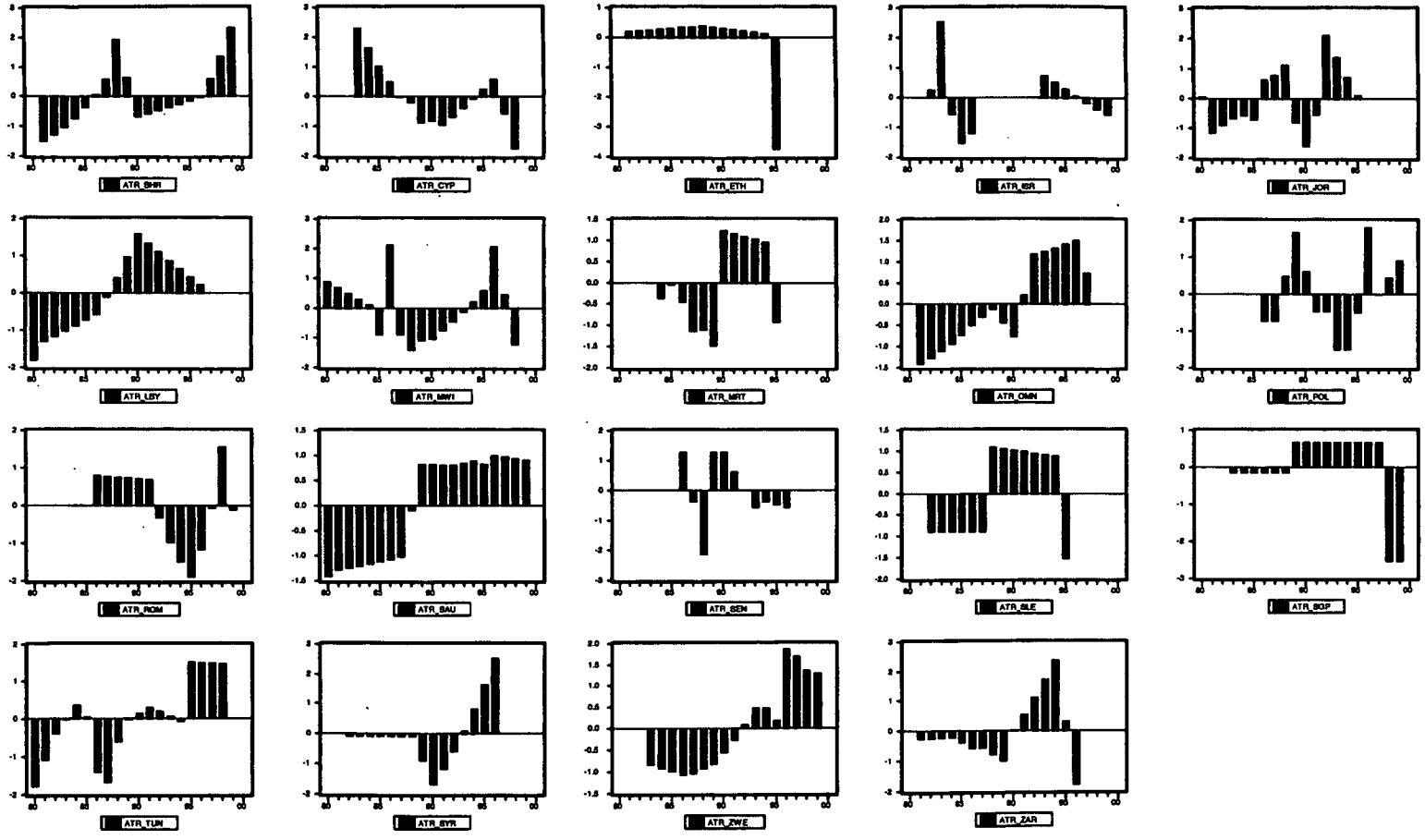

Figure V: Changes in Government Consumption and Taxes, as % of GDP
(1990-99 to 1980-89)

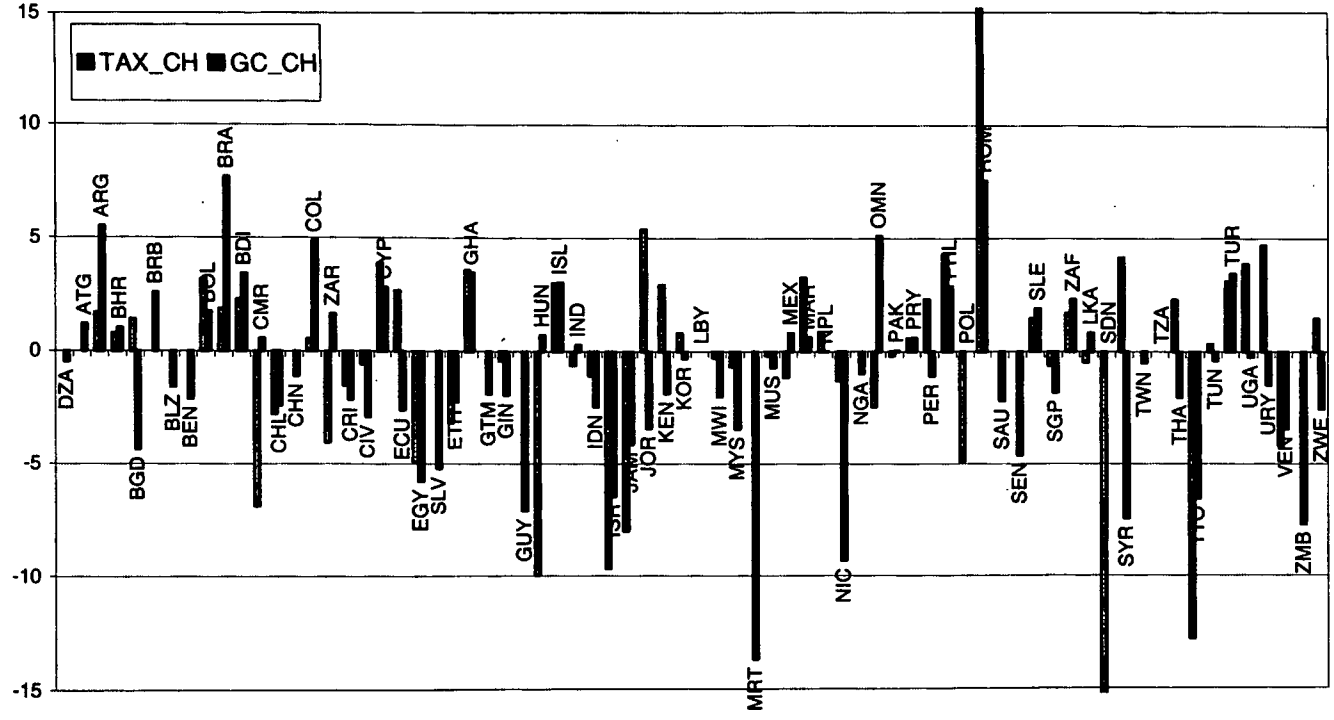

Figure VI: Change in Government Consumption minus Change in Taxes and Trade Taxes as % Tax Revenue

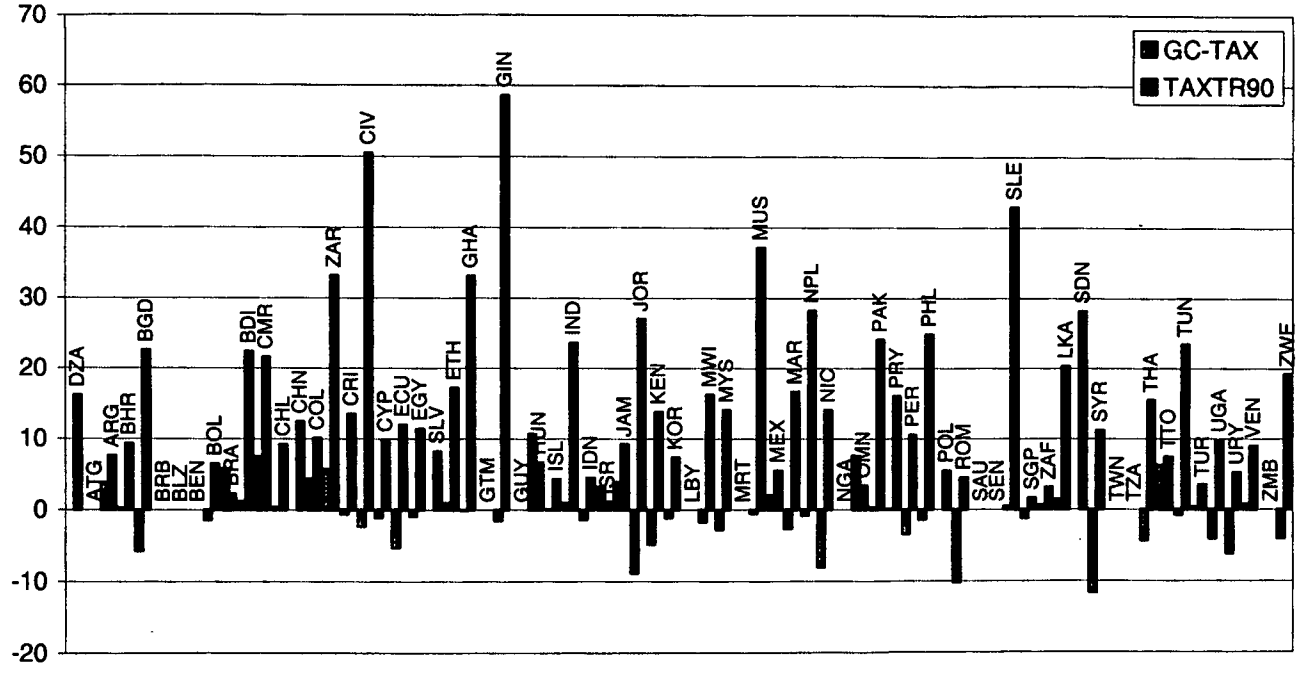

Figure VII: Change in Overall Budget Balance, as % of GDP (90's versus 80's)

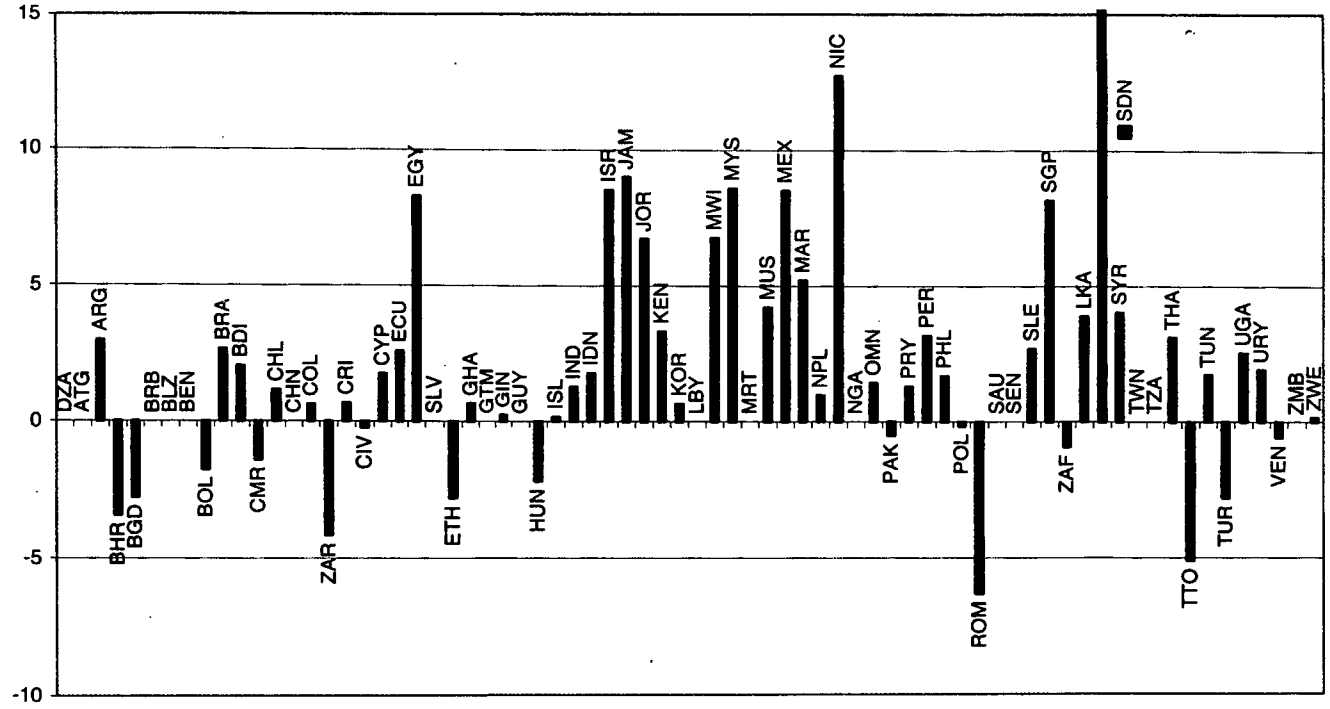

Table I: Some Studies on Openness and Economic Growth

Study	*Effect of IL on growth*	*Openness Measurement*	*Methodology and sample size*
Dollar and Kraay (2001)		Trade volumes (-0.039), adjusted trade volumes (-0.038), SW Index (-0.07), ID as % of imports (-0.16), WTO dummy (0.02).	Income of the bottom quintile as a function of GDP per-capita and openness measure. Includes regional dummies. Sample: 137 to 223 countries.
Pedroso e Ferreira (2000)	"a 1 %-point increase in the (export+imports)/GDP ratio has an impact in the GDP per worker around 0,02%" (cross-section); 0,005% (panel data)	(export+imports)/GDP	Cross-section and Panel estimates. Per-capita GDP as a function of Social Capability (Adelman-Morris Index), and openness. Estimate using instruments – distance from Equator, % of population that speaks European idioms; and "geographic" trade volume (given by a gravity model). Two-stage LS, 59 countries. Panel-data: fixed effects, 1 and 5-year averages; 1400 and 280 observations respectively.
Rodrik and Rodriguez (1999) [review some of the most cited studies: *Dollar(1992), Ben-David (1993), Sachs Warner (199)* and *Edwards (1998)*]	WDR=0.0126 HF=-0.02 Trade Duty=-1.837		On Edwards: Problems with identification assumption and choice of weight for WLS. Use log(GDP) instead of levels. Include HF's Index of Property Rights Protection. Only 3 indicators remain significant, but still, they are subject to ranking problem, failing some consistency checks.
	distortion=-0.008 (ns); variability= -0.099		On Dollar: robustness check indicates that only variability is robust to inclusion of regional dummies. Include also initial income and schooling. Use updated Summers-Heston database, which include more countries (112)
	OPEN=2.12 (considering 4 and 5 only)	Item 4 of Index is equivalent to a dummy for Sub-Saharan Africa. Item 5 is strongly related to macroeconomic and political variables [inflation, debt/exports, quality of institutions (ICRG)]	On SW: the index core amounts to just the last two components (monop.exp. and BMP)
Edwards (1998)	SW= 0.0094 WDR=0.0075 Tariffs=-0.045 BMP=-0.0217 HF=-0.0074 Trade duty=-0.48	SW Index, WB's classification of Trade Strategies (WDR 1987), Leamer's (1988) index, BMP, Average Import Duties and NTB coverage (both by Barro and Lee (1994)), Heritage Foundation's Index of International Trade, ratio of export and import duties to total trade and Holger Wolf's index of import distortions for 1985.	TFP, 1980-90, as a function of initial income, schooling and nine alternative indicators of openness. Estimation Method: WLS (weight=GDP per capita in 1985)
Wacziarg (1998)	0.071	*Fitted* (X + M)/GDP as a linear	Panel data, simultaneous equations; estimation based on

		combination of ID, NTB coverage and SW indicator	Zellner and Theil (1962) – 3-stage LS, 5-year averages over 1970-89; 57 countries;
Harrison (1996)	Vary depending on time aggregation (annual data or 5-year averages). See p.436 **0.02** (TR II, levels)	Two indices of Trade Liberalization: TR I: Papageorgiou et al. (1991) – uses country information on ER and commercial policy in 1960-84, only 15 countries; TR II: Thomas et al (1991) – based on tariff and non-tariff barriers in 1979-88, only 28 countries.	Cross-section and Panel data with fixed effects; Very small country coverage for openness measures – 15 and 28 countries respectively. Evaluates levels and changes in trade policy.
Sachs and Warner (1995)	OPEN= 2.44 [open countries grow two and a half % points more than non-OPEN ones.]	Dummy – A country **is not** OPEN if any of the following is true: 1- ATR >40%; 2- NTB coverage>40%; 3- socialist regime; 4- state monopoly of major exports; 5- BMP>20% in the 70's or 80's.	Growth of GDP per capita, 1970-89, as a function of an openness indicator. Regression includes: initial GDP, investment rate, government consumption as % of GDP, assassinations per capita, schooling, revolutions and coups, deviation from world investment prices. Sample: 79 countries.
Dollar (1992)	DIS=-0.02; VAR= -0.07 Reducing DIS to Asian level adds 0.7 %-point to Latin American growth and 1.8 to African. Reducing VAR would do 0.8 and 0.3	RER distortion (DIS) and variability (VAR).	Cross-section: GDP growth in 1976-85, as function of outward orientation and Investment rates. Includes dummies for African countries. 95 countries. OLS. Does not include basic controls such as initial income, education and other regional dummies.

Table II: Correlation Matrices

	TAR80	CGD80	GC80	BMP80	SDTOT80	M2GDP80	M280	EDX80	GOV1	GOV2	GOV3	GOV4	GOV5	GOV6	INV80
CGD80	-0.24														
GC80	-0.30	**0.54**													
BMP80	-0.12	0.13	0.47												
SDTOT80	0.00	-0.03	0.18	0.28											
M2GDP80	-0.23	0.28	0.36	**0.78**	0.28										
M280	-0.07	0.39	**0.60**	0.00	0.00	-0.12									
EDX80	-0.03	0.21	0.41	**0.91**	0.26	**0.86**	-0.09								
GOV1	0.03	0.22	0.17	0.02	-0.31	0.11	0.32	0.02							
GOV2	-0.01	-0.03	0.20	-0.02	-0.19	-0.02	0.38	-0.06	**0.72**						
GOV3	-0.12	0.04	0.13	-0.11	-0.40	-0.11	0.43	-0.10	**0.54**	**0.71**					
GOV4	-0.11	0.00	0.07	-0.08	-0.12	-0.06	0.28	-0.13	**0.65**	**0.69**	**0.59**				
GOV5	-0.12	-0.04	0.16	-0.15	-0.36	-0.26	0.47	-0.24	**0.60**	**0.81**	**0.83**	**0.63**			
GOV6	-0.10	0.08	0.14	-0.21	-0.41	-0.19	0.37	-0.20	**0.59**	**0.67**	**0.87**	**0.57**	**0.83**		
INV80	-0.14	0.13	0.18	-0.05	-0.16	-0.24	**0.60**	-0.19	0.34	0.35	0.33	0.43	0.44	0.22	
TOT80	0.05	-0.09	0.13	0.14	**0.86**	0.16	0.03	0.09	-0.23	-0.08	-0.36	-0.07	-0.21	-0.35	-0.04

	TAR90	CGD90	GC90	BMP90	SDTOT90	M2GDP90	M290	EDX90	GOV1	GOV2	GOV3	GOV4	GOV5	GOV6	INV90
CGD90	0.22														
GC90	-0.15	0.30													
BMP90	0.19	0.01	0.13												
SDTOT90	0.16	0.27	0.06	0.22											
M2GDP90	-0.14	0.30	0.04	0.24	0.14										
M290	0.15	-0.04	0.37	-0.13	-0.18	-0.43									
EDX90	0.23	0.37	-0.08	0.30	0.43	0.18	-0.33								
GOV1	-0.32	-0.24	0.05	-0.35	-0.07	-0.13	0.16	-0.41							
GOV2	-0.12	-0.24	0.01	-0.35	-0.22	-0.28	0.37	-0.24	**0.65**						
GOV3	-0.23	-0.06	0.08	-0.46	-0.14	-0.17	0.35	-0.12	**0.50**	**0.64**					
GOV4	**-0.55**	-0.27	-0.12	**-0.60**	-0.25	-0.24	0.08	-0.41	**0.62**	**0.54**	0.47				
GOV5	-0.16	-0.19	0.17	-0.26	-0.16	-0.37	0.45	-0.18	**0.57**	**0.76**	**0.74**	0.40			
GOV6	-0.23	0.00	0.15	-0.28	-0.12	-0.13	0.25	-0.22	**0.65**	**0.63**	**0.83**	0.43	**0.75**		
INV90	0.01	-0.42	-0.02	-0.05	-0.27	-0.42	**0.63**	**-0.55**	0.10	0.22	0.15	0.10	0.37	0.08	
TOT90	-0.02	-0.22	0.27	0.09	0.14	-0.14	0.32	-0.47	0.24	0.16	-0.10	0.14	0.16	-0.04	0.38

Table III: Description of the Data

Notation: suffix xx = 80, if average 1980-89;	*suffix xx = 0, if average 1980-year before IL;*
=90, if average 1990-99	*=1, if average year IL-1999*

Variable	*Description*
BMP*xx*	*Black Market Premium. Source*
DEF*xx*	*Overall budget deficit, including grants (% of GDP)*
ED*xx*	*External Debt (% GNI)*
GC*xx*	*General government final consumption expenditure (% of GDP)*
GDP80_LARGE	*Impulse dummy = 1, if average GDP (1980-89) is greater than 35.75 (1995 US$ bn) - see Table XII* = 0, otherwise
GROWTH*xx*	*GDP growth (annual %)*
INF*xx*	*Inflation, consumer prices (annual %)*
INV*xx*	*Gross capital formation (% of GDP)*
M2GDP*xx*	*M2 growth[Money and quasi money (M2) (current LCU)]* **minus** real GDP growth (annual %)
M2*xx*	*Money and quasi money (M2) as % of GDP*
MDUT*xx*	*Import duties (% of imports)*
OPEN*xx*	*Imports plus Exports of goods and services (% of GDP)*
PCGROWTH*xx*	*GDP per capita growth (annual %)*
PE*xx*	*School enrollment, primary (% gross)*
SDINF*xx*	*Standard Deviation of Inflation, consumer prices (annual %)*
SE*xx*	*School enrollment, secondary (% gross)*
TAR*xx*	*Average Tariff, %*
TAX*xx*	*Tax revenue (% of GDP)*
TOT*xx*	*Terms of trade (goods and services, 1995 = 100)*
XAGR_CH*xx*	*Growth Rate of Agricultural raw materials exports (% of merchandise exports)*
XAGR*xx*	*Agricultural raw materials exports (% of merchandise exports)*
XDUT*xx*	*Export duties (% of exports)*
XMAN_CH*xx*	*Growth Rate of Manufactures exports (% of merchandise exports)*
XMAN*xx*	*Manufactures exports (% of merchandise exports)*
Governance Indicators	
GOV1	*Voice and Accountability*
GOV2	*Political Stability/Lack of Violence*
GOV3	*Government Effectiveness*
GOV4	*Regulatory Framework*
GOV5	*Rule of Law*
GOV6	*Control of Corruption*
Regional Trade (see spreadsheet "trade.xls")	
RTSH*xx*	*Average Trade share, (exports + Imports within region)/(exports + imports to the world)*
RTSH_CH*xx*	*Average Growth rate of RTSHXX*
BOP and Banking Crisis (data only until April 98)	
BANK*xx*	*Number of Banking crises in period XX*
BOP*xx*	*Number of Balance of Payments crises in period XX*
PTA Dummy Variables	
CACM	*Costa Rica, El Salvador, Guatemala and Nicaragua*
CEAO	*Benin, Burkina Faso, Cote d'Ivoire, Mali , Mauritania, Niger and Senegal*
LAC	*Latin America and the Caribbean*
MENA	*Middle East and North Africa*
MERCOSUR	*Argentina, Brasil, Paraguay and Uruguay*
SA	*Southeast Asia*
SOUTHA	*South Africa*
ZKC	*Zimbabwe, Kenya and Cameroon*

Table IV: Definition of Regional Trade Groups

Mercosul	South America	East Asia, including Japan	Sub Saharan Africa
ARG	ARG	CHN	BDI
BRA	BOL	IDN	BEN
PRY	BRA	KOR	CIV
URY	CHL	MYS	CMR
	COL	PHL	ETH
South Asia	ECU	SGP	GHA
BGD	PER	THA	GIN
IND	PRY	TWN	KEN
NPL	URY		MRT
PAK	VEN		MUS
LKA			MWI
Caribbean	**Middle East & N Africa**	**Eastern europe**	NGA
ATG	BHR	HUN	SDN
BLZ	DZA	POL	SEN
BRB	EGY	ROM	SLE
CRI	ISR		TZA
GTM	JOR		UGA
GUY	LBY		ZAF
JAM	MAR		ZAR
MEX	OMN		ZMB
NIC	SAU		ZWE
SLV	SYR		
TTO	TUN		
VEN			

Notes

1. Argentina, Brasil, Paraguay and Uruguay's shares were those to mercosur, even though they're included in other South American countries
2. Venzuela's share is to South America
3. Cyprus, Iceland and Turkey' shares are relative to European Union

Table V: Control Group I* - OLS Regression Results. Dependent Variable: [GROWTH90-GROWTH80]-[A_C_GROWTH90-A_C_GROWTH80]**

	Eq.1	Eq.2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8	Eq.9	Eq.10	Eq.11	Eq.12
C	0.412	0.377	0.380	0.567	0.355	0.302	0.389	0.528	0.246	0.160	0.280	0.453
	0.112	*0.192*	*0.133*	*0.036*	*0.172*	*0.298*	*0.119*	*0.041*	*0.326*	*0.520*	*0.234*	*0.081*
GROWTH80-A_C_GROWTH80	-0.418	-0.412	-0.425	-0.398	-0.451	-0.441	-0.445	-0.428	-0.435	-0.444	-0.433	-0.392
	0.001	*0.008*	*0.001*	*0.002*	*0.003*	*0.012*	*0.002*	*0.004*	*0.002*	*0.006*	*0.001*	*0.003*
INV80-A_C_INV80	0.062	0.019	0.058	0.064	-0.029	-0.034	-0.030	-0.022	-0.007	-0.016	-0.006	-0.002
	0.181	*0.726*	*0.161*	*0.139*	*0.549*	*0.514*	*0.548*	*0.659*	*0.857*	*0.701*	*0.877*	*0.957*
PE90-PE80-A_C_PE90+A_C_PE80	0.050	0.038	0.035	0.057	0.025	0.021	0.014	0.033	0.011	0.006	0.005	0.021
	0.010	*0.037*	*0.040*	*0.003*	*0.156*	*0.207*	*0.375*	*0.044*	*0.534*	*0.674*	*0.733*	*0.239*
TAR90-TAR80-A_C_TAR90+A_C_TAR80	-0.079				-0.066				-0.050			
	0.014				*0.028*				*0.046*			
XAGR80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100		-0.132				-0.079				-0.095		
		0.168				*0.445*				*0.373*		
XMAN80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100			-0.232				-0.205				-0.176	
			0.015				*0.004*				*0.009*	
(ZKC+CEAO)*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.137				-0.142				-0.107
				0.166				*0.216*				*0.135*
MERCOSUR*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				0.126				0.223				0.183
				0.016				*0.001*				*0.002*
(1-CACM-ZKC-CEAO-MERCOSUR)*				-0.083				-0.079				-0.055
(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				*0.011*				*0.010*				*0.032*
GC90-GC80-A_C_GC90+A_C_GC80	-0.239	-0.168	-0.226	-0.247	-0.164	-0.121	-0.171	-0.177	-0.162	-0.118	-0.173	-0.172
	0.003	*0.031*	*0.004*	*0.002*	*0.042*	*0.116*	*0.034*	*0.033*	*0.029*	*0.075*	*0.020*	*0.026*
M2GDP90-M2GDP80-A_C_M2GDP90+A_C_M2GDP80	-0.357	-0.343	-0.348	-0.359	-0.312	-0.318	-0.307	-0.315	-0.349	-0.349	-0.343	-0.363
	0.000	*0.004*	*0.001*	*0.000*	*0.016*	*0.019*	*0.021*	*0.016*	*0.002*	*0.005*	*0.002*	*0.001*
GOV5-A_C_GOV5	0.804	0.598	0.687	0.705	0.932	0.678	0.898	0.863	0.839	0.683	0.829	0.685
	0.013	*0.111*	*0.049*	*0.024*	*0.012*	*0.088*	*0.026*	*0.013*	*0.017*	*0.075*	*0.028*	*0.028*
TOT90-TOT80-A_C_TOT90+A_C_TOT80	0.019	0.014	0.020	0.019	-0.002	0.000	0.001	-0.002	-0.001	-0.001	0.002	0.001
	0.101	*0.251*	*0.071*	*0.160*	*0.833*	*0.964*	*0.918*	*0.843*	*0.943*	*0.906*	*0.821*	*0.877*
MERCOSUR	-2.498	-2.260	-1.567		-3.652	-3.010	-2.757		-2.898	-2.507	-2.231	
	0.001	*0.016*	*0.016*		*0.000*	*0.001*	*0.001*		*0.001*	*0.002*	*0.002*	
SOUTHA	1.175	0.832	1.136		1.019	0.831	0.975		1.443	1.280	1.398	
	0.014	*0.161*	*0.029*		*0.095*	*0.234*	*0.127*		*0.015*	*0.044*	*0.019*	
SA	1.207	1.114	1.230		1.510	1.333	1.499		1.295	1.223	1.427	
	0.001	*0.005*	*0.001*		*0.002*	*0.004*	*0.002*		*0.007*	*0.014*	*0.001*	
(RTSH_CH90-RTSH_CH80-A_C_RTSH_CH90+A_C_RTSH_CH80)*10	-0.043	-0.029	-0.040	-0.042								
	0.009	*0.069*	*0.010*	*0.008*								
(RTSH90-RTSH80-A_C_RTSH90+A_C_RTSH80)*100					-0.055	-0.023	-0.055	-0.062				
					0.306	*0.670*	*0.318*	*0.279*				
R-squared	0.91	0.88	0.90	0.90	0.88	0.86	0.89	0.88	0.88	0.86	0.88	0.87
Adjusted R-squared	0.86	0.82	0.86	0.86	0.83	0.80	0.83	0.83	0.83	0.81	0.84	0.83
S.E. of regression	1.06	1.19	1.07	1.05	1.16	1.24	1.14	1.14	1.12	1.18	1.09	1.14
Sum squared resid	26.75	33.71	27.44	27.62	33.58	38.52	32.27	33.76	37.70	41.64	35.76	39.96
Log likelihood	-46.50	-50.78	-46.97	-47.09	-51.57	-54.18	-50.82	-51.67	-57.33	-59.41	-56.22	-58.55
Durbin-Watson stat	2.13	2.08	2.25	2.31	1.78	1.95	1.74	1.88	1.94	2.08	1.98	1.73
Sample Size	37	37	37	37	38	38	38	38	42	42	42	42

* Countries with average ATR greater than 25% in 1990-99: Pakistan, India, Bangladesh, Sierra Leone, Sudan, China, Egypt, Mauritania, Nigeria, Thailand, Tunisia, Mauritius, Benin, Congo, Ethiopia and Tanzania

** *p-values* below estimates

Table VI: Control Group II* - OLS Regression Results. Dependent Variable: [GROWTH90-GROWTH80]-[A_C_GROWTH90-A_C_GROWTH80]

	Eq.13	Eq.14	Eq.15	Eq.16	Eq.17	Eq.18	Eq.19	Eq.20	Eq.21	Eq.22	Eq.23	Eq.24
C	0.241	0.703	0.546	0.399	-0.230	-0.003	-0.164	-0.135	-0.196	0.000	-0.172	-0.146
	0.575	*0.140*	*0.222*	*0.371*	*0.598*	*0.995*	*0.695*	*0.763*	*0.645*	*0.999*	*0.671*	*0.721*
GROWTH80-A_C_GROWTH80	-0.499	-0.460	-0.506	-0.459	-0.433	-0.405	-0.452	-0.357	-0.440	-0.403	-0.456	-0.355
	0.000	*0.008*	*0.001*	*0.002*	*0.012*	*0.033*	*0.009*	*0.038*	*0.009*	*0.031*	*0.006*	*0.018*
INV80-A_C_INV80	0.133	0.088	0.111	0.108	0.024	0.007	0.026	-0.002	0.030	0.007	0.033	0.001
	0.018	*0.187*	*0.059*	*0.077*	*0.672*	*0.921*	*0.656*	*0.970*	*0.562*	*0.921*	*0.522*	*0.977*
PE90-PE80-A_C_PE90+A_C_PE80	0.035	0.033	0.029	0.027	-0.016	-0.012	-0.016	-0.023	-0.011	-0.011	-0.011	-0.022
	0.158	*0.165*	*0.232*	*0.308*	*0.583*	*0.669*	*0.571*	*0.365*	*0.692*	*0.684*	*0.691*	*0.205*
TAR90-TAR80-A_C_TAR90+A_C_TAR80	-0.050				-0.015				-0.010			
	0.015				*0.340*				*0.558*			
XAGR80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100		0.061				0.127				0.150		
		0.779				*0.559*				*0.496*		
XMAN80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100			-0.058				-0.043				-0.034	
			0.124				*0.123*				*0.212*	
(ZKC+CEAO)*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.002				0.056				0.067
				0.971				*0.389*				*0.277*
MERCOSUR*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.053				-0.044				-0.031
				0.114				*0.179*				*0.291*
(1-CACM-ZKC-CEAO-MERCOSUR)*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.033				-0.012				-0.008
				0.077				*0.497*				*0.625*
GC90-GC80-A_C_GC90+A_C_GC80	-0.125	-0.121	-0.103	-0.148	-0.075	-0.096	-0.065	-0.107	-0.072	-0.100	-0.064	-0.108
	0.049	*0.180*	*0.103*	*0.029*	*0.286*	*0.325*	*0.364*	*0.154*	*0.317*	*0.273*	*0.371*	*0.130*
M2GDP90-M2GDP80-A_C_M2GDP90+A_C_M2GDP80	-0.390	-0.369	-0.375	-0.390	-0.390	-0.386	-0.385	-0.391	-0.395	-0.389	-0.393	-0.398
	0.000	*0.002*	*0.001*	*0.000*	*0.007*	*0.007*	*0.007*	*0.006*	*0.005*	*0.005*	*0.004*	*0.002*
GOV5-A_C_GOV5	0.453	0.375	0.349	0.314	0.554	0.470	0.510	0.305	0.508	0.451	0.474	0.246
	0.190	*0.312*	*0.344*	*0.351*	*0.157*	*0.245*	*0.186*	*0.392*	*0.164*	*0.223*	*0.199*	*0.436*
TOT90-TOT80-A_C_TOT90+A_C_TOT80	0.038	0.033	0.031	0.038	0.008	0.010	0.006	0.012	0.009	0.010	0.008	0.014
	0.001	*0.005*	*0.009*	*0.001*	*0.455*	*0.372*	*0.499*	*0.227*	*0.399*	*0.335*	*0.427*	*0.179*
MERCOSUR	-0.012	0.358	0.001		0.284	0.501	0.183		0.066	0.463	-0.050	
	0.982	*0.728*	*0.999*		*0.703*	*0.626*	*0.798*		*0.917*	*0.633*	*0.932*	
SOUTHA									-0.530	-0.528	-0.548	
									0.651	*0.640*	*0.630*	
SA	-0.120	0.626	-0.167		0.649	0.952	0.324		0.694	0.976	0.413	
	0.852	*0.252*	*0.828*		*0.363*	*0.139*	*0.679*		*0.330*	*0.144*	*0.592*	
(RTSH_CH90-RTSH_CH80-A_C_RTSH_CH90+A_C_RTSH_CH80)*10	-0.049	-0.039	-0.043	-0.046								
	0.001	*0.004*	*0.003*	*0.002*								
(RTSH90-RTSH80-A_C_RTSH90+A_C_RTSH80)*100					-0.031	-0.011	-0.034	-0.036				
					0.559	*0.849*	*0.519*	*0.501*				
R-squared	0.90	0.88	0.89	0.90	0.84	0.84	0.85	0.85	0.84	0.85	0.85	0.85
Adjusted R-squared	0.86	0.84	0.85	0.85	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.80
S.E. of regression	1.04	1.11	1.07	1.05	1.22	1.22	1.21	1.20	1.21	1.21	1.20	1.18
Sum squared resid	28.93	33.22	31.18	29.50	44.85	45.01	43.97	43.50	45.47	45.08	44.76	44.51
Log likelihood	-49.51	-52.21	-50.98	-49.90	-60.97	-61.05	-60.56	-60.33	-62.22	-62.03	-61.88	-61.76
Durbin-Watson stat	2.12	2.32	2.25	2.19	2.30	2.30	2.27	2.50	2.27	2.24	2.25	2.53
Sample Size	39	39	39	39	42	42	42	42	43	43	43	43

* Same countries as in Control Group V

Table VII: Control Group III* - OLS Regression Results. Dependent Variable: [GROWTH90-GROWTH80]-[A_C_GROWTH90-A_C_GROWTH80]

	Eq.25	Eq.26	Eq.27	Eq.28	Eq.29	Eq.30	Eq.31	Eq.32	Eq.33	Eq.34	Eq.35	Eq.36
C	0.090	0.862	0.379	0.231	-0.464	-0.045	-0.434	-0.379	-0.421	-0.034	-0.429	-0.354
	0.851	*0.143*	*0.447*	*0.627*	*0.256*	*0.921*	*0.285*	*0.411*	*0.281*	*0.939*	*0.273*	*0.389*
GROWTH80-A_C_GROWTH80	-0.361	-0.274	-0.340	-0.338	-0.312	-0.267	-0.315	-0.272	-0.325	-0.270	-0.329	-0.276
	0.014	*0.058*	*0.026*	*0.023*	*0.061*	*0.092*	*0.058*	*0.080*	*0.041*	*0.079*	*0.037*	*0.047*
INV80-A_C_INV80	0.079	0.028	0.060	0.064	-0.011	-0.035	-0.013	-0.021	-0.003	-0.034	-0.004	-0.017
	0.119	*0.553*	*0.232*	*0.199*	*0.831*	*0.492*	*0.799*	*0.646*	*0.938*	*0.477*	*0.931*	*0.695*
PE90-PE80-A_C_PE90+A_C_PE80	0.030	0.031	0.027	0.021	-0.017	-0.014	-0.017	-0.021	-0.011	-0.012	-0.011	-0.019
	0.225	*0.154*	*0.266*	*0.409*	*0.540*	*0.615*	*0.536*	*0.363*	*0.676*	*0.629*	*0.673*	*0.228*
TAR90-TAR80-A_C_TAR90+A_C_TAR80	-0.037				-0.007				-0.002			
	0.167				*0.730*				*0.921*			
XAGR80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100		0.392				0.357				0.374		
		0.079				*0.080*				*0.084*		
XMAN80*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)/100			-0.020				-0.017				-0.010	
			0.570				*0.527*				*0.696*	
(ZKC+CEAO)*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				0.011				0.056				0.065
				0.824				*0.340*				*0.230*
MERCOSUR*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.064				-0.052				-0.040
				0.088				*0.139*				*0.175*
(1-CACM-ZKC-CEAO-MERCOSUR)*(TAR90-TAR80-A_C_TAR90+A_C_TAR80)				-0.024				-0.007				-0.004
				0.257				*0.718*				*0.836*
GC90-GC80-A_C_GC90+A_C_GC80	-0.190	-0.248	-0.183	-0.198	-0.136	-0.191	-0.135	-0.145	-0.130	-0.192	-0.129	-0.143
	0.016	*0.010*	*0.024*	*0.011*	*0.075*	*0.028*	*0.085*	*0.058*	*0.094*	*0.025*	*0.103*	*0.055*
M2GDP90-M2GDP80-A_C_M2GDP90+A_C_M2GDP80	-0.421	-0.390	-0.411	-0.423	-0.415	-0.402	-0.414	-0.420	-0.422	-0.404	-0.423	-0.424
	0.000	*0.000*	*0.000*	*0.000*	*0.003*	*0.002*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.001*
GOV5-A_C_GOV5	0.402	0.116	0.293	0.249	0.466	0.274	0.452	0.234	0.430	0.258	0.427	0.187
	0.165	*0.703*	*0.310*	*0.407*	*0.170*	*0.444*	*0.179*	*0.481*	*0.190*	*0.447*	*0.193*	*0.517*
TOT90-TOT80-A_C_TOT90+A_C_TOT80	0.031	0.032	0.028	0.032	0.005	0.010	0.005	0.010	0.007	0.010	0.007	0.011
	0.007	*0.004*	*0.016*	*0.007*	*0.533*	*0.275*	*0.563*	*0.249*	*0.411*	*0.225*	*0.429*	*0.169*
MERCOSUR	0.787	2.299	1.142		1.244	2.007	1.219		0.870	1.906	0.815	
	0.423	*0.025*	*0.231*		*0.280*	*0.078*	*0.255*		*0.362*	*0.048*	*0.353*	
SOUTHA									-0.215	-0.234	-0.213	
									0.847	*0.816*	*0.848*	
SA	-0.126	0.925	0.103		0.577	1.100	0.446		0.618	1.121	0.517	
	0.871	*0.078*	*0.896*		*0.420*	*0.069*	*0.568*		*0.385*	*0.075*	*0.499*	
(RTSH_CH90-RTSH_CH80-A_C_RTSH_CH90+A_C_RTSH_CH80)*100	-0.045	-0.041	-0.041	-0.043								
	0.002	*0.003*	*0.005*	*0.003*								
(RTSH90-RTSH80-A_C_RTSH90+A_C_RTSH80)*100					-0.038	-0.012	-0.039	-0.030				
					0.532	*0.839*	*0.538*	*0.621*				
R-squared	0.88	0.89	0.87	0.88	0.84	0.85	0.84	0.85	0.84	0.85	0.84	0.84
Adjusted R-squared	0.84	0.84	0.83	0.84	0.79	0.80	0.78	0.79	0.79	0.80	0.78	0.80
S.E. of regression	1.11	1.10	1.16	1.11	1.23	1.20	1.25	1.21	1.22	1.19	1.24	1.19
Sum squared resid	35.84	33.65	37.55	35.45	48.41	44.95	48.26	47.12	49.30	45.04	49.22	47.75
Log likelihood	-55.42	-53.30	-55.49	-55.19	-64.53	-61.97	-63.50	-63.94	-65.91	-62.95	-64.90	-65.19
Durbin-Watson stat	3.11	2.75	2.97	3.04	2.48	2.31	2.46	2.35	2.46	2.30	2.45	2.30
Sample Size	41	40	40	41	44	43	43	44	45	44	44	45

* Countries that **did not** reduce or increased ATR (average ATR in 1990-99 compared to average ATR in 1980-89)

Table VIII: Control Group IV*. Dependent Variable: [GROWTH1-GROWTH0]-[C_GROWTH1-C_GROWTH0]

	Eq.37	Eq.38	Eq.39	Eq.40	Eq.41	Eq.42	Eq.43	Eq.44	Eq.45	Eq.46	Eq.47	Eq.48
C	-0.909	-0.961	-1.035	-0.922	-0.754	-0.747	-0.858	-0.766	-1.023	-0.935	-1.042	-1.066
	0.188	*0.170*	*0.163*	*0.235*	*0.216*	*0.238*	*0.209*	*0.234*	*0.068*	*0.098*	*0.083*	*0.069*
GROWTH0-C_GROWTH0	-0.664	-0.609	-0.614	-0.668	-0.637	-0.574	-0.582	-0.638	-0.573	-0.555	-0.568	-0.581
	0.001	*0.002*	*0.003*	*0.001*	*0.001*	*0.002*	*0.004*	*0.001*	*0.003*	*0.004*	*0.006*	*0.006*
INV0-C_INV0	0.052	0.037	0.022	0.060	0.040	0.010	-0.003	0.050	-0.004	-0.004	-0.012	-0.004
	0.373	*0.549*	*0.717*	*0.350*	*0.431*	*0.857*	*0.961*	*0.376*	*0.940*	*0.933*	*0.814*	*0.950*
PE1-PE0-C_PE1+C_PE0	0.050	0.044	0.034	0.054	0.053	0.040	0.030	0.061	0.003	0.005	0.004	-0.002
	0.153	*0.245*	*0.374*	*0.220*	*0.117*	*0.266*	*0.414*	*0.153*	*0.928*	*0.844*	*0.885*	*0.940*
TAR1-TAR0-C_TAR1+C_TAR0	-0.046				-0.046				-0.011			
	0.066				*0.049*				*0.593*			
XAGR0*(TAR1-TAR0-C_TAR1+C_TAR0)/100		-0.217				-0.214				-0.144		
		0.065				*0.049*				*0.103*		
XMAN0*(TAR1-TAR0-C_TAR1+C_TAR0)/100			-0.044				-0.030				0.005	
			0.599				*0.692*				*0.945*	
(CACM)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.035				-0.042				0.004
				0.568				*0.504*				*0.943*
(ZKC+CEAO)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.012				-0.009				-0.035
				0.859				*0.885*				*0.654*
MERCOSUR*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.045				-0.044				-0.035
				0.169				*0.221*				*0.118*
(1-CACM-ZKC-CEAO-MERCOSUR)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.059				-0.054				-0.008
				0.136				*0.114*				*0.721*
GC1-GC0-C_GC1+C_GC0	-0.104	-0.091	-0.079	-0.095	-0.106	-0.099	-0.080	-0.101	-0.071	-0.074	-0.066	-0.062
	0.099	*0.132*	*0.220*	*0.164*	*0.106*	*0.117*	*0.227*	*0.140*	*0.260*	*0.218*	*0.288*	*0.342*
M2GDP1-M2GDP0-C_M2GDP1+C_M2GDP0	-0.255	-0.253	-0.242	-0.255	-0.258	-0.261	-0.249	-0.259	-0.268	-0.272	-0.262	-0.261
	0.029	*0.024*	*0.041*	*0.038*	*0.029*	*0.023*	*0.039*	*0.031*	*0.026*	*0.016*	*0.027*	*0.041*
GOV5-C_GOV5	0.780	0.687	0.853	0.853	0.796	0.732	0.882	0.843	0.793	0.723	0.822	0.760
	0.081	*0.138*	*0.097*	*0.099*	*0.059*	*0.086*	*0.059*	*0.076*	*0.062*	*0.087*	*0.061*	*0.098*
TOT1-TOT0-C_TOT1+C_TOT0	0.016	0.013	0.010	0.017	0.015	0.010	0.007	0.016	0.000	0.000	0.000	0.006
	0.121	*0.198*	*0.291*	*0.142*	*0.097*	*0.296*	*0.400*	*0.112*	*0.492*	*0.472*	*0.583*	*0.515*
(RTSH_CH1-RTSH_CH0-C_RTSH_CH1+C_RTSH_CH0)*100	-0.005	-0.013	-0.011	-0.001								
	0.652	*0.243*	*0.339*	*0.939*								
(RTSH1-RTSH0-C_RTSH1+C_RTSH0)*100					0.002	0.020	0.005	0.000				
					0.955	*0.639*	*0.909*	*0.999*				
R-squared	0.829	0.827	0.816	0.831	0.828	0.824	0.813	0.830	0.808	0.812	0.806	0.810
Adjusted R-squared	0.770	0.768	0.753	0.743	0.773	0.767	0.753	0.748	0.756	0.762	0.754	0.732
S.E. of regression	1.426	1.434	1.479	1.508	1.388	1.406	1.449	1.462	1.425	1.409	1.431	1.494
Sum squared resid	52.864	53.501	56.883	52.297	53.945	55.343	58.823	53.455	60.955	59.524	61.445	60.275
Log likelihood	-58.00	-58.21	-59.32	-57.80	-60.58	-61.06	-62.22	-60.40	-64.05	-63.58	-64.20	-63.83
Durbin-Watson stat	1.78	2.04	1.81	1.74	1.64	1.89	1.71	1.59	1.85	2.01	1.89	1.92
Sample Size	36	36	36	36	38	38	38	38	39	39	39	39

* Countries with ATR higher than 25% in the second period (i.e., after IL): Bangladesh, Egypt, India, Mauritius, Nigeria, Pakistan and Sudan

Table IX: Control Group V*. Dependent Variable: [GROWTH1-GROWTH0]-[C_GROWTH1-C_GROWTH0]

	Eq.49	Eq.50	Eq.51	Eq.52	Eq.53	Eq.54	Eq.55	Eq.56	Eq.57	Eq.58	Eq.59	Eq.60
C	0.397	0.713	0.603	0.078	0.257	0.584	0.447	-0.063	0.274	0.509	0.419	0.046
	0.259	*0.035*	*0.047*	*0.829*	*0.491*	*0.105*	*0.163*	*0.874*	*0.376*	*0.085*	*0.127*	*0.889*
GROWTH0-C_GROWTH0	-0.645	-0.595	-0.650	-0.667	-0.608	-0.563	-0.624	-0.631	-0.568	-0.540	-0.596	-0.578
	0.000	*0.000*	*0.000*	*0.000*	*0.001*	*0.003*	*0.001*	*0.001*	*0.000*	*0.001*	*0.000*	*0.001*
INV0-C_INV0	0.049	0.031	0.031	0.063	0.017	0.004	0.007	0.031	0.006	-0.002	0.001	0.013
	0.368	*0.596*	*0.573*	*0.272*	*0.736*	*0.946*	*0.891*	*0.583*	*0.897*	*0.966*	*0.978*	*0.774*
PE1-PE0-C_PE1+C_PE0	0.024	0.027	0.017	0.016	0.011	0.018	0.006	0.005	0.000	0.002	-0.003	-0.006
	0.470	*0.451*	*0.642*	*0.679*	*0.751*	*0.643*	*0.884*	*0.905*	*0.990*	*0.917*	*0.894*	*0.794*
TAR1-TAR0-C_TAR1+C_TAR0	-0.034				-0.030				-0.026			
	0.058				*0.082*				*0.061*			
XAGR0*(TAR1-TAR0-C_TAR1+C_TAR0)/100		-0.108				-0.072				-0.090		
		0.512				*0.717*				*0.524*		
XMAN0*(TAR1-TAR0-C_TAR1+C_TAR0)/100			-0.047				-0.046				-0.044	
			0.078				*0.087*				*0.029*	
(CACM)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.226				-0.240				-0.203
				0.037				*0.041*				*0.031*
(ZKC+CEAO)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.067				-0.050				-0.035
				0.094				*0.234*				*0.380*
MERCOSUR*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.030				-0.017				-0.024
				0.266				*0.632*				*0.257*
(1-CACM-ZKC-CEAO-MERCOSUR)*(TAR1-TAR0-C_TAR1+C_TAR0)				-0.047				-0.043				-0.035
				0.013				*0.015*				*0.017*
GC1-GC0-C_GC1+C_GC0	-0.075	-0.064	-0.075	-0.034	-0.076	-0.073	-0.076	-0.040	-0.077	-0.068	-0.075	-0.046
	0.153	*0.262*	*0.164*	*0.557*	*0.178*	*0.270*	*0.177*	*0.478*	*0.113*	*0.202*	*0.125*	*0.404*
M2GDP1-M2GDP0-C_M2GDP1+C_M2GDP0	-0.261	-0.262	-0.254	-0.258	-0.271	-0.270	-0.263	-0.266	-0.278	-0.279	-0.270	-0.270
	0.009	*0.013*	*0.013*	*0.009*	*0.009*	*0.012*	*0.013*	*0.009*	*0.005*	*0.007*	*0.008*	*0.007*
GOV5-C_GOV5	0.980	0.959	0.945	1.122	1.025	0.995	0.988	1.153	0.963	0.948	0.947	1.040
	0.012	*0.022*	*0.018*	*0.013*	*0.007*	*0.014*	*0.010*	*0.013*	*0.008*	*0.013*	*0.009*	*0.011*
TOT1-TOT0-C_TOT1+C_TOT0	0.009	0.007	0.006	0.007	0.006	0.004	0.003	0.003	0.000	0.000	0.000	0.002
	0.219	*0.337*	*0.388*	*0.337*	*0.430*	*0.517*	*0.640*	*0.629*	*0.460*	*0.573*	*0.635*	*0.685*
(RTSH_CH1-RTSH_CH0-C_RTSH_CH1+C_RTSH_CH0)*100	-0.016	-0.014	-0.014	-0.016								
	0.160	*0.219*	*0.222*	*0.213*								
(RTSH1-RTSH0-C_RTSH1+C_RTSH0)*100					-0.007	0.003	-0.005	0.020				
					0.869	*0.957*	*0.909*	*0.718*				
R-squared	0.843	0.832	0.841	0.853	0.835	0.826	0.836	0.846	0.831	0.824	0.833	0.840
Adjusted R-squared	*0.798*	*0.783*	*0.795*	*0.790*	*0.788*	*0.776*	*0.788*	*0.781*	*0.793*	*0.785*	*0.796*	*0.786*
S.E. of regression	1.291	1.336	1.299	1.315	1.322	1.358	1.322	1.344	1.255	1.281	1.247	1.277
Sum squared resid	*51.647*	*55.313*	*52.335*	*48.417*	*54.204*	*57.137*	*54.157*	*50.582*	*56.743*	*59.074*	*55.954*	*53.812*
Log likelihood	-62.91	-64.31	-63.18	-61.59	-63.90	-64.98	-63.88	-62.48	-69.07	-69.97	-68.75	-67.88
Durbin-Watson stat	2.00	1.82	2.01	2.08	1.96	1.80	2.00	2.01	1.90	1.80	1.95	1.94
Sample Size	41	41	41	41	41	41	41	41	45	45	45	45

* Countries without a downward trend in ATR: Bahrain, Congo, Cyprus, Ethiopia, Israel, Jordan, Lybia, Malawi, Mauritania, Oman, Poland, Romania, Saudi Arabia, Senegal, Sierra Leone, Singapore, Syria Tunisia and Zimbabwe.

Table X: IL and Country Size. Dependent Variable: [GROWTH*XX*-GROWTH*XX*]-[C_GROWTH*XX*-C_GROWTH*XX*]

	Fixed-date Regressions									*IL-Dated Regressions*					
	Control Group I			*Control Group II*			*Control Group III*			*Control Group IV*			*Control Group V*		
	Eq.61	Eq.62	Eq.63	Eq.64	Eq.65	Eq.66	Eq.67	Eq.68	Eq.69	Eq.70	Eq.71	Eq.72	Eq.73	Eq.74	Eq.75
C	0.447	0.293	0.259	0.463	0.059	-0.089	0.200	-0.468	-0.505	-1.097	-0.981	-0.855	0.732	0.602	0.466
	0.117	*0.339*	*0.331*	*0.238*	*0.886*	*0.820*	*0.618*	*0.246*	*0.152*	*0.064*	*0.138*	*0.178*	*0.042*	*0.079*	*0.171*
GROWTHJXX-A_C_GROWTHJXX	-0.405	-0.440	-0.419	-0.453	-0.375	-0.348	-0.381	-0.334	-0.319	-0.656	-0.746	-0.663	-0.607	-0.570	-0.536
	0.001	*0.005*	*0.002*	*0.001*	*0.018*	*0.017*	*0.004*	*0.019*	*0.014*	*0.001*	*0.001*	*0.001*	*0.000*	*0.002*	*0.001*
INVJXX-A_C_INVJXX	0.079	-0.001	0.006	0.064	-0.048	-0.039	0.033	-0.044	-0.037	0.035	0.078	0.064	0.000	-0.032	-0.028
	0.096	*0.983*	*0.890*	*0.344*	*0.491*	*0.567*	*0.493*	*0.374*	*0.405*	*0.534*	*0.222*	*0.250*	*0.999*	*0.606*	*0.592*
PEJXX-PEJXX-A_C_PEJXX+A_C_PEJXX	0.045	0.020	0.010	0.036	0.003	-0.005	0.032	-0.002	-0.007	0.026	0.031	0.055	0.039	0.027	0.004
	0.035	*0.401*	*0.585*	*0.037*	*0.884*	*0.757*	*0.065*	*0.938*	*0.675*	*0.443*	*0.361*	*0.120*	*0.219*	*0.404*	*0.860*
GDPJXX_SMALL*(TARJXX-TARJXX-A_C_TARJXX+A_C_TARJXX)	-0.029	-0.030	-0.007	0.030	0.080	0.065	0.018	0.031	0.030	-0.059	-0.132	-0.078	0.040	0.045	0.025
	0.503	*0.576*	*0.871*	*0.377*	*0.059*	*0.127*	*0.306*	*0.196*	*0.185*	*0.053*	*0.008*	*0.019*	*0.565*	*0.505*	*0.674*
GDPJXX_MED*(TARJXX-TARJXX-A_C_TARJXX+A_C_TARJXX)	-0.080	-0.035	-0.040	-0.014	0.012	0.012	-0.029	-0.028	-0.024	0.011	0.008	-0.004	-0.011	-0.007	-0.010
	0.040	*0.447*	*0.362*	*0.508*	*0.575*	*0.545*	*0.122*	*0.287*	*0.278*	*0.720*	*0.808*	*0.894*	*0.541*	*0.695*	*0.551*
GDPJXX_LARGE*(TARJXX-TARJXX-A_C_TARJXX+A_C_TARJXX)	-0.075	-0.041	-0.039	-0.050	-0.026	-0.024	-0.059	-0.042	-0.037	0.029	-0.042	-0.041	-0.039	-0.035	-0.032
	0.203	*0.546*	*0.291*	*0.017*	*0.213*	*0.228*	*0.011*	*0.074*	*0.059*	*0.474*	*0.302*	*0.362*	*0.045*	*0.059*	*0.067*
GCJXX-GCJXX-A_C_GCJXX+A_C_GCJXX	-0.251	-0.161	-0.158	-0.160	-0.107	-0.119	-0.207	-0.147	-0.150	-0.077	-0.097	-0.100	-0.111	-0.111	-0.102
	0.002	*0.063*	*0.052*	*0.011*	*0.178*	*0.107*	*0.003*	*0.070*	*0.046*	*0.222*	*0.150*	*0.144*	*0.076*	*0.098*	*0.088*
M2GDPJXX-M2GDPJXX-A_C_M2GDPJXX+A_C_M2GDPJXX	-0.396	-0.369	-0.398	-0.381	-0.386	-0.409	-0.412	-0.420	-0.433	-0.277	-0.307	-0.276	-0.241	-0.250	-0.267
	0.001	*0.011*	*0.002*	*0.000*	*0.003*	*0.001*	*0.000*	*0.001*	*0.000*	*0.014*	*0.003*	*0.015*	*0.012*	*0.011*	*0.006*
GOVJ-A_C_GOVJ	0.623	0.665	0.583	0.460	0.574	0.490	0.436	0.478	0.419	0.852	1.100	0.939	1.050	1.096	1.007
	0.079	*0.129*	*0.099*	*0.141*	*0.099*	*0.104*	*0.101*	*0.156*	*0.140*	*0.054*	*0.021*	*0.043*	*0.008*	*0.004*	*0.006*
TOTJXX-TOTJXX-A_C_TOTJXX+A_C_TOTJXX	0.029	0.009	0.009	0.034	0.007	0.009	0.030	0.008	0.008	0.000	0.009	0.014	0.006	0.003	0.000
	0.015	*0.390*	*0.363*	*0.001*	*0.398*	*0.305*	*0.002*	*0.328*	*0.251*	*0.327*	*0.386*	*0.134*	*0.418*	*0.734*	*0.666*
(RTSH_CHJXX-RTSH_CHJXX-A_C_RTSH_CHJXX+A_C_RTSH_CHJXX)	-0.049			-0.046			-0.044				0.020		-0.016		
	0.004			*0.001*			*0.000*				*0.126*		*0.174*		
(RTSHJXX-RTSHJXX-A_C_RTSHJXX+A_C_RTSHJXX)*100		-0.027			-0.039			-0.027				-0.004		-0.009	
		0.673			*0.432*			*0.625*				*0.934*		*0.837*	
R-squared	0.89	0.84	0.85	0.91	0.87	0.86	0.90	0.86	0.85	0.83	0.86	0.85	0.86	0.85	0.84
Adjusted R-squared	0.84	0.78	0.79	0.88	0.82	0.82	0.86	0.81	0.81	0.77	0.80	0.78	0.80	0.79	0.79
S.E. of regression	1.15	1.33	1.25	0.95	1.12	1.13	1.01	1.16	1.15	1.38	1.32	1.37	1.27	1.31	1.26
Sum squared resid	31.61	44.04	46.60	24.62	37.53	40.75	29.62	42.99	44.69	53.21	41.96	48.72	47.06	49.41	53.77
Log likelihood	-48.74	-55.72	-60.80	-46.37	-57.23	-59.86	-51.51	-61.92	-63.70	-61.40	-53.84	-58.64	-61.00	-62.00	-67.86
Durbin-Watson stat	2.25	1.85	1.88	2.04	2.44	2.43	2.92	2.42	2.26	1.50	1.58	1.50	1.82	1.82	1.92
Sample Size	36	36	36	39	42	43	41	44	45	39	36	38	41	45	45

Table XI: Average Tariff Reduction - 'Reformers' versus 'Non-Reformers'

Country	Year of 'Reform'	Average Tariff Rate (%)		
		Before	After	Difference
Algeria	1983	37.9	24.2	-13.7
Guinea	1984	48.3	12.2	-36.1
Chile	1985	35.0	13.5	-21.5
Morocco	1985	41.0	23.6	-17.4
Iceland	1987	9.0	4.0	-4.9
Mexico	1987	24.4	12.5	-11.9
Ghana	1988	29.4	15.6	-13.8
South Africa	1988	25.4	9.6	-15.8
Taiwan, China	1988	26.9	10.2	-16.8
Burundi	1989	37.3	15.6	-21.8
Hungary	1989	18.5	12.2	-6.3
Korea, Rep.	1989	22.3	11.5	-10.7
Mauritius	1989	36.8	27.6	-9.2
Cameroon	1990	29.7	20.2	-9.6
Indonesia	1990	30.4	15.7	-14.7
Peru	1990	35.5	16.4	-19.1
Sudan	1990	52.3	32.8	-19.5
Uruguay	1990	37.1	14.0	-23.1
Venezuela, RB	1990	30.5	14.1	-16.3
Argentina	1991	27.6	11.5	-16.1
Bolivia	1991	17.4	9.7	-7.6
Brazil	1991	45.4	15.0	-30.4
Colombia	1991	36.1	12.9	-23.2
Cote d'Ivoire	1991	27.0	22.2	-4.8
Ecuador	1991	32.3	12.3	-20.0
Sri Lanka	1991	31.0	23.2	-7.9
Guatemala	1992	17.3	10.7	-6.6
India	1992	87.2	40.7	-46.5
Nepal	1992	21.1	14.8	-6.2
Philippines	1992	29.9	17.1	-12.7
Bangladesh	1993	90.2	32.1	-58.1
Costa Rica	1993	17.0	10.0	-7.1
Egypt, Arab Rep.	1993	41.8	29.0	-12.8
El Salvador	1993	17.4	9.4	-8.1
Kenya	1993	39.3	17.0	-22.3
Antigua and Barbuda	1994	13.6	10.9	-2.7
Benin	1994	41.4	16.8	-24.6
Nigeria	1994	33.6	26.0	-7.5
Pakistan	1994	68.8	46.8	-22.0
Paraguay	1994	12.0	9.3	-2.7
Thailand	1994	39.4	21.1	-18.2
Barbados	1995	19.5	13.2	-6.3
China	1995	41.4	22.0	-19.4
Jamaica	1995	18.5	11.7	-6.9
Malaysia	1995	14.0	8.9	-5.1
Nicaragua	1995	14.0	8.8	-5.2
Tanzania	1995	29.0	21.7	-7.3
Turkey	1995	26.3	13.9	-12.4
Uganda	1995	19.8	13.7	-6.1
Belize	1996	18.3	9.5	-8.8
Guyana	1996	18.4	12.4	-6.0
Trinidad and Tobago	1996	18.2	10.7	-7.5
Zambia	1996	27.3	11.3	-16.0

Control Group		1980-89	1990-99	Difference
Bahrain	-	3.8	4.3	0.6
Congo, Dem. Rep.	-	22.8	27.1	4.3
Cyprus	-	13.5	11.1	-2.4
Ethiopia	-	29.3	26.9	-2.4
Israel	-	7.8	7.9	0.1
Jordan	-	15.3	16.6	1.3
Libya	-	18.1	24.2	6.1
Malawi	-	19.4	19.2	-0.2
Mauritania	-	21.2	30.2	9.0
Oman	-	2.5	5.0	2.5
Poland	-	13.7	12.9	-0.8
Romania	-	16.6	12.3	-4.2
Saudi Arabia	-	4.4	12.5	8.1
Senegal	-	13.2	13.1	0.0
Sierra Leone	-	29.6	36.8	7.3
Singapore	-	0.3	0.3	0.0
Syrian Arab Republic	-	14.6	15.6	1.0
Tunisia	-	25.9	28.5	2.6
Zimbabwe	-	9.4	18.3	8.9

Table XII: Classification of Countries by Size (Measured by GDP in 1995 US$)*

Small	Medium	Large
Antigua and Barbuda	Bangladesh	Algeria
Bahrain	Cameroon	Argentina
Barbados	Chile	Brazil
Belize	Congo, Dem. Rep.	China
Benin	Costa Rica	Colombia
Bolivia	Cote d'Ivoire	Egypt, Arab Rep.
Burundi	Ecuador	Hungary
Cyprus	El Salvador	India
Ethiopia	Guatemala	Indonesia
Ghana	Iceland	Israel
Guinea	Kenya	Korea, Rep.
Guyana	Morocco	Malaysia
Jamaica	Nigeria	Mexico
Jordan	Oman	Peru
Libya	Pakistan	Philippines
Malawi	Paraguay	Romania
Mauritania	Sri Lanka	Saudi Arabia
Mauritius	Syrian Arab Republic	Singapore
Nepal	Trinidad and Tobago	South Africa
Nicaragua	Tunisia	Taiwan, China
Poland	Uruguay	Thailand
Senegal	Zimbabwe	Turkey
Sierra Leone		Venezuela, RB
Sudan		
Tanzania		
Uganda		
Zambia		

*Small: less than 5 US$ bil., average 1980-89

Medium: between 5 and 35.75 US$ bil., average 1980-89

Large: more than 35.75 US$ bil., average 1980-89

Table XIII: Control Groups: Criteria and Statistics

	Criteria	Control Group Countries	GROWTH		INV		PE		ATR		GC		M2GDP		GOV5		TOT		RTSH_CH	
			1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Fixed-date Regressions																				
Control Group I	ATR >25% in 2nd period*	Pakistan, India, Bangladesh, Sierra Leone, Sudan, China, Egypt, Mauritania, Nigeria, Thailand, Tunisia, Mauritius, Benin, Congo Dem. Rep., Ethiopia, Tanzania	4.02	3.74	20.81	20.92	77.04	80.35	43.59	33.49	13.75	11.9	-3.89	-4.11	-0.32	-0.32	110.89	98.49	0.11	0.09
Control Group II		same as V below	2.85	3.2	24.27	20.43	83.97	87.28	14.8	16.99	20.1	17.99	-2.51	-1.37	0.13	0.13	108.53	100.09	0.19	0.06
Control Group III	change in ATR>=0	Mauritania, Zimbabwe, Saudi Arabia, Sierra Leone, Libya, Congo, Tunisia, Oman, Jordan, Syria, Bahrain, Paraguay, Israel, Singapore, Senegal, Malawi and Poland	2.92	3.89	24.02	20.52	86.03	91.17	13.7	16.69	20.75	17.89	-2.53	-1.38	0.04	0.04	110.32	99.77	0.21	0.06
IL-dated Regressions																				
Control Group IV	same as I above, and excluding countries in V below	Bangladesh, Egypt, India, Mauritius, Nigeria, Pakistan and Sudan	4.22	4.99	20.1	21.16	78.32	86.79	55.55	37.72	12.28	10.53	-3.99	-4.77	-0.37	-0.37	131.41	102.77	0.04	0.08
Control Group V	No downward trend in ATR (See Figure II) - equivalent to *change in ATR>0*	Bahrain, Congo, Dem. Rep., Cyprus, Ethiopia, Israel, Jordan, Libya, Malawi, Mauritania, Oman, Poland, Romania, Saudi Arabia, Senegal, Sierra Leone, Singapore, Syrian, Arab Republic, Tunisia and Zimbabwe	2.99	3.15	23.90	20.78	84.07	88.36	15.53	15.10	19.67	17.17	-2.44	-2.38	0.13	0.13	108.71	98.95	0.18	0.07

Table XIV: Studies on Fiscal Policy and Economic Growth

Study	*Effect of Tax on Growth**	*Effect of Expenditures on Growth*	*Effect of Deficit on Growth*	*Methodology and Sample*
Engen and Skinner (1992)	*Growth* of tax rate: **-0.06** (1.37)	*Growth* of GC: **-0.105** (1.67)	-	86 **developing** countries. Explained: GDP growth, average 1970-85. Controls: investment rate, population growth, *levels* of GC and tax rate, initial GDP. Uses 2-stage instrumental variables.
Easterly and Rebelo (1993)	Non-tax revenue: **0.106** (1.14) 'Marginal' income tax : **-0.05** (-1.19)	GC net of education and defense: **-0.075** (-1.56) Expenditure on general public services: -0.24 (-1.78)	**-0.129** (2.22)	105 countries. Explained: Per-capita growth and Investment Rate, average 1970-88. Controls: initial GDP, initial PE and SE, assassinations, revolutions, war casualties, M2/GDP and trade share in 1970. Tests 13 tax variables, one at a time: only 'marginal' income tax is significant. **Stresses the strong correlation of fiscal variables with income levels.** Taxes are not significant in general. Other policy variables make the fiscal variables even less significant.
Barro and Sala-i-Martin (1995)	-	Ratio of GC (net of spending on defense and education) to GDP: **-0.11** (average over several equations, highly significant)	-	87 countries. Explained: per-capita growth, average 65-75 and 75-85. Use Barro and Lee (1994) dataset. Controls: initial GDP, PE and SE (male and female), life expectancy, investment rate, BMP and political instability. Uses SUR and instrumental variables.

*t-statistics in parenthesis

Table XV: Fiscal Policy Variables: Non-Control and Control Group

Country	Government Consumption Expendtures as % of GDP			Tax Revenue as % of GDP			Government Consumption minus Taxes (differenced difference)
	1980-89 (A)	1990-99 (B)	difference (C)=(B)-(A)	1980-89 (D)	1990-99 (E)	difference (F)=(E)-(D)	(G)=(F)-(C)
Non-Control Group							
Syria	20.5	13.0	-7.5	13.1	17.3	4.2	-11.6
Romania	5.9	13.5	7.6	10.3	28.0	17.8	-10.2
Jordan	27.3	23.8	-3.4	14.4	19.7	5.4	-8.8
Nicaragua	29.6	20.3	-9.3	26.2	24.9	-1.3	-8.0
Uruguay	13.7	12.2	-1.5	21.3	26.0	4.7	-6.2
Bangladesh	8.9	4.5	-4.4	5.6	7.0	1.4	-5.8
Ecuador	12.5	9.9	-2.6	12.8	15.5	2.7	-5.3
Kenya	18.3	16.4	-1.9	18.7	21.6	2.9	-4.8
Thailand	12.1	10.1	-2.0	13.9	16.2	2.3	-4.4
Uganda	9.9	9.6	-0.2	6.2	10.1	3.9	-4.1
Zimbabwe	20.1	17.5	-2.6	20.9	22.3	1.5	-4.0
Peru	10.3	9.2	-1.1	11.8	14.1	2.3	-3.4
Malaysia	15.5	12.1	-3.5	20.5	19.8	-0.7	-2.8
Morocco	16.6	17.2	0.6	20.8	24.0	3.3	-2.6
Malawi	17.5	15.5	-2.0	17.5	17.2	-0.3	-1.7
Philippines	8.5	11.3	2.9	11.3	15.6	4.3	-1.4
Bolivia	11.6	13.3	1.8	8.8	12.0	3.2	-1.4
Indonesia	10.2	7.8	-2.5	17.0	15.9	-1.1	-1.4
Singapore	11.3	9.5	-1.8	16.9	16.2	-0.6	-1.2
Korea, Rep.	10.7	10.4	-0.3	15.3	16.1	0.8	-1.1
Cyprus	15.0	17.8	2.8	20.1	24.0	3.9	-1.1
Egypt	16.2	10.5	-5.8	24.5	19.6	-4.9	-0.9
Nepal	8.8	8.8	0.0	7.0	7.8	0.8	-0.8
Tunisia	16.5	16.1	-0.4	24.5	24.8	0.3	-0.7
Costa Rica	15.8	13.6	-2.2	19.2	17.7	-1.5	-0.6
Paraguay	6.7	7.3	0.6	8.7	9.3	0.6	0.0
Iceland	18.4	21.4	3.1	22.6	25.6	3.0	0.1
Pakistan	12.5	12.5	0.0	13.1	13.0	-0.2	0.2
Bahrain	20.7	21.7	1.0	6.9	7.6	0.8	0.2
Turkey	8.9	12.3	3.4	12.4	15.5	3.1	0.3
Chile	12.7	10.3	-2.4	21.5	18.7	-2.8	0.4
South Africa	17.4	19.7	2.3	22.3	24.0	1.7	0.6
Venezuela, RB	11.1	7.7	-3.4	19.0	14.8	-4.2	0.8
India	11.1	11.4	0.3	10.0	9.3	-0.6	0.9
Ethiopia	15.7	13.4	-2.3	13.4	10.2	-3.2	0.9
Burundi	9.3	12.8	3.4	13.6	15.9	2.3	1.1
Sri Lanka	9.1	9.9	0.8	17.5	17.0	-0.5	1.3
Mexico	9.3	10.1	0.8	14.2	13.0	-1.2	2.0
Israel	35.5	29.1	-6.4	43.3	33.6	-9.7	3.2
Argentina	4.5	10.0	5.5	10.3	12.0	1.7	3.8
Jamaica	17.4	13.3	-4.1	28.4	20.4	-8.0	3.9
Colombia	10.1	14.9	4.9	10.4	10.9	0.5	4.3
Control Group							
(G) > 5:							
Hungary	10.3	11.1	0.7	46.7	36.8	-10.0	10.7
Oman	28.2	33.4	5.1	10.6	8.1	-2.5	7.6
Cameroon	10.0	10.6	0.6	17.2	10.4	-6.9	7.4
Trinidad Tobago	18.7	12.2	-6.6	35.9	23.1	-12.8	6.3
Brazil	10.6	18.3	7.7	16.8	18.6	1.9	-5.8
Congo, Dem. Rep.	9.0	10.7	1.6	8.7	4.6	-4.0	5.7
Trade Taxes > 30%:							
Guinea	8.9	7.0	-2.0	11.4	11.0	-0.4	-1.5
Cote d'Ivoire	16.5	13.6	-2.9	21.1	20.5	-0.6	2.3
Sierra Leone	8.6	10.5	1.9	7.0	8.5	1.5	0.4
Mauritius	12.7	11.9	-0.7	19.1	18.9	-0.2	-0.5
Ghana	9.0	12.5	3.5	8.5	12.1	3.6	-0.1

Table XVI: Control Group I*- Dependent Variable: PCGROW90-PCGROW80-C_PCGROW90+C_PCGROW80

	Eq.1	Eq.2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8	Eq.9
C	-1.526	-1.153	-1.388	-1.646	-1.576	-1.063	-1.029	-0.969	-1.098
	0.002	*0.022*	*0.002*	*0.001*	*0.002*	*0.031*	*0.035*	*0.066*	*0.012*
PCGROW80-C_PCGROW80	-0.371	-0.341	-0.328	-0.335	-0.317	-0.344	-0.320	-0.306	-0.314
	0.002	*0.004*	*0.007*	*0.003*	*0.004*	*0.007*	*0.012*	*0.006*	*0.001*
INV80-C_INV80	0.057	0.072	0.045	0.044	0.023	0.039	0.042	0.029	0.045
	0.130	*0.084*	*0.226*	*0.193*	*0.483*	*0.218*	*0.187*	*0.318*	*0.136*
SE90-SE80-C_SE90+C_SE80	0.046	0.043	0.046	0.047	0.040	0.030	0.028	0.018	0.031
	0.017	*0.013*	*0.052*	*0.012*	*0.032*	*0.069*	*0.070*	*0.204*	*0.119*
GC90-GC80-C_GC90+C_GC80	-0.155								
	0.009								
(GC90-GC80-C_GC90+C_GC80)*LOG(GDP80/C_GDP80)		0.076							
		0.039							
(GC90-GC80-C_GC90+C_GC80)*(GDP80_LARGE)			-0.073						
			0.500						
(GC90-GC80-C_GC90+C_GC80)*(1-GDP80_LARGE)			-0.192						
			0.026						
TAX90-TAX80-C_TAX90+C_TAX80	0.079								
	0.072								
(TAX90-TAX80-C_TAX90+C_TAX80)*LOG(GDP80/C_GDP80)		-0.004							
		0.851							
(TAX90-TAX80-C_TAX90+C_TAX80)*(GDP80_LARGE)			0.077						
			0.237						
(TAX90-TAX80-C_TAX90+C_TAX80)*(1-GDP80_LARGE)			0.001						
			0.975						
(GC90-GC80-C_GC90+C_GC80)-(TAX90-TAX80-C_TAX90+C_TAX80)				-0.100					
				0.026					
((GC90-GC80-C_GC90+C_GC80)-(TAX90-TAX80-C_TAX90+C_TAX80))*GDP80_LARGE					-0.112				
					0.079				
((GC90-GC80-C_GC90+C_GC80)-(TAX90-TAX80-C_TAX90+C_TAX80))*(1-GDP80_LARGE)					-0.073				
					0.120				
((GC90-GC80-C_GC90+C_GC80)-(TAX90-TAX80-C_TAX90+C_TAX80))*EXP(GOV5-C_GOV5)						-0.005			
						0.827			
DEF90-DEF80-C_DEF90+C_DEF80							-0.038		
							0.345		
(DEF90-DEF80-C_DEF90+C_DEF80)*(GC80-C_GC80)/100								-0.804	
								0.026	
(DEF90-DEF80-C_DEF90+C_DEF80)*GDP80_LARGE									-0.051
									0.333
(DEF90-DEF80-C_DEF90+C_DEF80)*(1-GDP80_LARGE)									-0.020
									0.753
TAR90-TAR80-C_TAR90+C_TAR80	-0.008	-0.019	-0.013	-0.006	-0.009	-0.012	-0.009	-0.002	-0.010
	0.487	*0.186*	*0.310*	*0.615*	*0.511*	*0.466*	*0.589*	*0.871*	*0.501*
M2GDP90-M2GDP80-C_M2GDP90+C_M2GDP80	-0.644	-0.590	-0.614	-0.674	-0.665	-0.626	-0.645	-0.647	-0.653
	0.060	*0.164*	*0.000*	*0.099*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
R-squared	0.913	0.905	0.910	0.905	0.897	0.883	0.886	0.898	0.887
Adjusted R-squared	0.883	0.872	0.875	0.877	0.866	0.853	0.857	0.871	0.853
S.E. of regression	0.778	0.814	0.804	0.800	0.834	0.873	0.862	0.817	0.873
Sum squared resid	17.546	19.224	18.117	19.192	20.847	23.629	23.020	20.688	22.888
Log likelihood	-40.276	-42.103	-40.917	-42.069	-43.724	-46.230	-45.707	-43.571	-45.593
Durbin-Watson stat	1.597	2.097	1.967	1.746	1.885	2.006	1.943	2.226	1.967

* Countries with: change in [GC-TAX] greater than 5 % points (average 1990-99 compared to 1980-89); or with trade taxes >= 30% in 1990-99: TTO, CAM, HUN, OMN, BRZ; CIV, GIN, MUS, SLE and GHA

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