Graduate Institute of
International Studies | Geneva
Economics

HEI Working Paper No: 03/2008

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Sudip Ranjan Basu

United Nations
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First version, 2 October 2006
This version, 14 February 2008

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Key Words: WTO, Economic policies, Institutions, Difference-in-Difference Analysis

JEL Classification Numbers: F13, O1, C3

[†] I would like to express my sincere thanks to John Cuddy, Richard Baldwin, Lawrence R. Klein, Victor Ognivstev, Khalil Rahman, Andrew Cornford, Craig Vangrasstek and M. Muqtada for their encouraging ideas on WTO issues. I am thankful to Jaya Krishnakumar, Miho Shirotori, Aki Kuwahara, Patrick Low, Marc Bacchetta, Lucian Cernat, Marco Fugazza, Alberto Portugal, Deepali Fernandez, Samuel Munyaneza, Wojciech Stawowy and Mark Bloch for their valuable discussions during preparation of this paper. Thanks to Gayatrika Gupta for useful comments. I received constructive comments from the participants at the XI[th] Spring Meeting of Young Economists, Sevilla, 2006. Part of the research was undertaken when author was a Ph.D. candidate at the Graduate Institute. The views expressed in this paper are those of the author and do not necessarily reflect the views of the United Nations Secretariat or its members. Any errors in this paper are those of the author.

E-mail:basu1@hei.unige.ch, sudip.ranjan.basu@unctad.org
Fax: +41 22 917 00 44

1. Introduction[1]

Recent global summits and international conferences underlined the salience of a "rule-based, open, non-discriminatory and equitable multilateral trading system, as well as meaningful trade liberalization, which can substantially stimulate development worldwide, benefiting countries at all stages of development."[2] This has provided an impetus to development-oriented international trade and economic integration. In this context, the role of the WTO is crucial in helping countries integrate beneficially in the international trading system. In the current phase of economic globalization, countries are indeed trying to participate in this global economic system to garner the benefits of deepening integration.[3]

The WTO has provided countries a forum in which to discuss and negotiate their terms of engagement in the multilateral trading system. Yet there are concerns among developing countries and newly acceded WTO members about the expected gains from multilateral trade. The fear of differential and asymmetric level of benefits across and within countries often makes it difficult to obtain political support to legitimise an across-the-board trade liberalization agenda. In addition to this, countries engaged in the accession process need to put into place specific adjustment mechanisms. [4]

As of 14 February 2008, 23 new members have acceded to the WTO, raising the total members to 151 (See Appendix Table A1), while the hope for the newly acceding member countries is to integrate their national trade into the multilateral trading system so as to gain through economic transactions and trade expansion. [5] Furthermore, WTO membership is often seen as a means to gain credibility from the international business community; it is seen as indicating the willingness of acceding countries to implement far-reaching changes in domestic economic policies and institutions.[6]

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[1] See Basu, Ognivtsev and Shirotori (2008a) for a comprehensive discussion on WTO accession and its implications for acceding countries economic policies and trade-related institution building.

[2]See UNCTAD (2005)

[3] Frankel (2001) reports that for new round, when dynamic effects are included, 'might raise global income per capita by 2 percent over a twenty-five-year period, and four times than in the truly long run'.

[4]See UNCTAD (2005) and Bachetta and Jansen (2003) for discussions and evidence on adjustment related economic costs.

[5]Those are (in chronological order): Ecuador; Bulgaria; Mongolia; Panama; Kyrgyz Republic; Latvia; Estonia; Jordan; Georgia; Albania; Oman; Croatia; Lithuania; Moldova; China;Taiwan, Province of China; Armenia; Former Yugoslav Republic of Macedonia (FYROM); Nepal; Cambodia; Saudi Arabia, Viet Nam and Kingdom of Tonga. In addition, the WTO General Council on 5 February 2008 paved the way for Ukraine's membership by approving its accession terms. Ukraine will have to ratify the deal by 4 July 2008 and would become a WTO member 30 days after the ratification. Following the ratification of these terms, Ukraine will become 152nd member of WTO. See http://www.wto.org/english/thewto_e/acc_e/acc_e.htm

[6]North (2003) describes institution as "the process of change", and helps "improving the performance of economies through time". He emphasized that the key elements of institutions are to "have secure property rights" and "rule of law".

During the negotiation process, the newly acceded countries undertook a number of substantive commitments to redesign their domestic economic structure and institutional framework, as well as to make economic conditions more stable and predictable. The accession process is often regarded as an unprecedented exercise in terms of the commitments that link aspects of domestic economic policies and institutional matters. In particular, acceding countries have had to deliver tangible results to bring about changes in trade laws and regulations, providing improved market access in goods and services through reduction of import tariff duties and the liberalization of services sectors, making their trade regimes more transparent for business communities. As noted previously, these substantial domestic economic policy changes were expected to send a credible signal to foreign investors to boost their confidence.[7] Nevertheless, little research has been carried out to date on the effects of WTO accession on domestic economic policies and institutions of newly acceded members.[8]

There are important, not to mention, controversial, studies to assess the impact of WTO membership on trade benefits enjoyed by countries and its role in providing critical impetus to economic activities.[9] The WTO as a rule-making multilateral world body ought to deliver meaningful benefits. However, given the differential level of economic development and domestic absorption capacity of many of acceding countries, the adjustment needs to be country specific to reduce unwanted costs arising during the process. Hence, the analysis of WTO accession should be broadened to include issues related to a broader economic policies and institutional structures and dimensions.[10]

The paper is organized as follows: Section 2 outlines literature related to WTO membership impact. The WTO accession process is described in Section 3. The channels through which WTO accession can impact economic policy and institutions are discussed in Section 4. Section 5 documents data and empirical methodology for the analysis. Difference-in-difference analysis is used to identify the performance of 'treatment group' (newly acceded WTO members) in relation to 'control group'- the GATT/WTO developing countries in the sample. Section 6 shows initial results of 23 newly acceded WTO countries in terms of GDP

[7] Detken et al (2004) discussed the role of European Union (EU) to help increase economic and political stability in the newly acceding countries. It noted that there had been the overall positive achievements of newly 10 acceded countries in terms of domestic policy reform and institutions. It strongly argued the role of the EU as an institutional anchor.

[8] According to former WTO DG M.Moore: "One important way in which countries can demonstate their commitment to policy stability, predictability and good governance is through membership of WTO". See WTO website for text of entire speech.

[9] See Piermartini and Teh (2005) for an overview of key CGE and Gravity modelling exercise results from Uruguay Round and Doha Round.

[10] See Acemoglu et al (2001), Rodrik et al (2004) for empirical evidence of the role of institutions in economic development.

per capita, tariff rates and trade indicators, etc. Then specific results are shown by descriptive statistics on domestic economic policies and institutions, and explore some correlates in Section 7. The next section presents the empirical model to identify the role of WTO accession on domestic economic policies and institutions by employing difference-in-difference analysis. We also carry out robustness analysis. Section 9 concludes the paper.

2. A Brief Literature Review

This section briefly points to some research papers which are related to WTO accession and/or membership, and show how the role of WTO accession has been perceived to foster trade expansion and institution-building at the national level. An UNCTAD (2001) publication on "*WTO Accessions and Development Policies*" provides an integrated treatment of different aspects of WTO accession processes and country specific experiences. The publication, inter alia, discussed the importance of WTO accession to the newly acceded countries, and argued that "commitments made in the course of accession to WTO should not necessarily be deemed concessions. From this perspective, it might be more accurate (and politically palpable) to conceive them as investments, insofar as they are payments today in the expectation that they will produce rewards in the future". Separately, in a series of thought provoking writings on GATT/WTO, Bagwell and Staiger (2002, 2003 and 2004) discussed the design and implementation of international trade agreements, and reciprocity and enforcement of government negotiation. Some of these theoretical underpinnings of WTO accession encouraged more empirical discussions on the impact of WTO membership on GDP, investment and trade.

More importantly, recent studies have highlighted diverging opinions on the role and impact of WTO membership on trade outcomes. In a series of papers, Rose (2004, 2005 and 2006) did not find any statistically significant results of WTO membership on bilateral trade flows. However, this result was contested upon by Subramanian and Wei (2003).[11] They argued that WTO membership could affect the developed and developing countries in different ways, as well as across sectors. These studies decisively illustrate the fact that WTO accession literature is primarily concerned in assessing the trade-specific effects only of acceding countries via membership. In fact, researchers have not yet given much attention to the *analysis of WTO accession on domestic economic policies and institution-building*.

[11]Subramanian and Wei (2003) found that "WTO (and its predecessor, the GATT) had promoted world trade..[and that].... WTO may have increased world imports by about 44 percent or about US$3 trillion in 2000 alone".

Let us briefly present *four* main studies which have included, to some extent, policy and institutional aspects of WTO accession. In one of the initial papers on the impact of WTO membership on transition countries, Drabek and Bacchetta (2004) related the impact of WTO accession on policymaking and institutional reform. They found that for newly acceding countries, WTO membership brought significant improvement in governance and economic policies. They also documented several reasons why countries should join WTO, leading to beneficial effects on domestic policymaking and efficient institutional system. In another study, Kennett et al (2005) provided analytical discussions of the WTO accession of Bulgaria, Ecuador, and Jordan and also highlighted the legal obligations, implications and trends associated with WTO accession. Ferrantino (2006) explored the effects of WTO accessions on governance. He compared the accession impact of North American FTAs on governance and concluded that the World Bank's governance index indicators show no apparent relationship between the period of negotiation or engagement and improved governance".[12]

Tang and Wei (2006) explored the consequences of WTO accession on income and investment. They found evidence that WTO accession led to income and investment spurs only if countries had gone though rigorous accession procedures. They also showed that "policy commitments associated with the accessions were helpful, especially for countries with poor governance".[13]

The papers described above attempted to bring out the policy and institutional component in the analysis of WTO accession outcomes. Yet the above studies did not discuss in totality the links between WTO accession and domestic policy and institution-building. In the spirit of the above discourse, this paper discusses the *positive impact* of the accession process and stringent conditionalities attached to WTO membership. The countries had actually brought about substantial domestic economic policy reforms to overcome many existing supply-side constraints and institutional bottlenecks.[14] Therefore, this paper aims to discuss *only* WTO accession and its impact on domestic economic polices and institutions of the newly acceded WTO members in comparison to rest of the GATT/WTO developing country members.

[12] In this paper, we do not include any of the six governance indicators from the World Bank's "Governance Matters' database. See http://info.worldbank.org/governance/wgi2007/

[13] They used the World Bank's governance index, and Regal Rights Index, along with Heritage Foundation's Index of Economic Freedom.

[14] Basu (2008b) empirically finds a key role of institutions in raising development.

3. WTO accession process: An overview

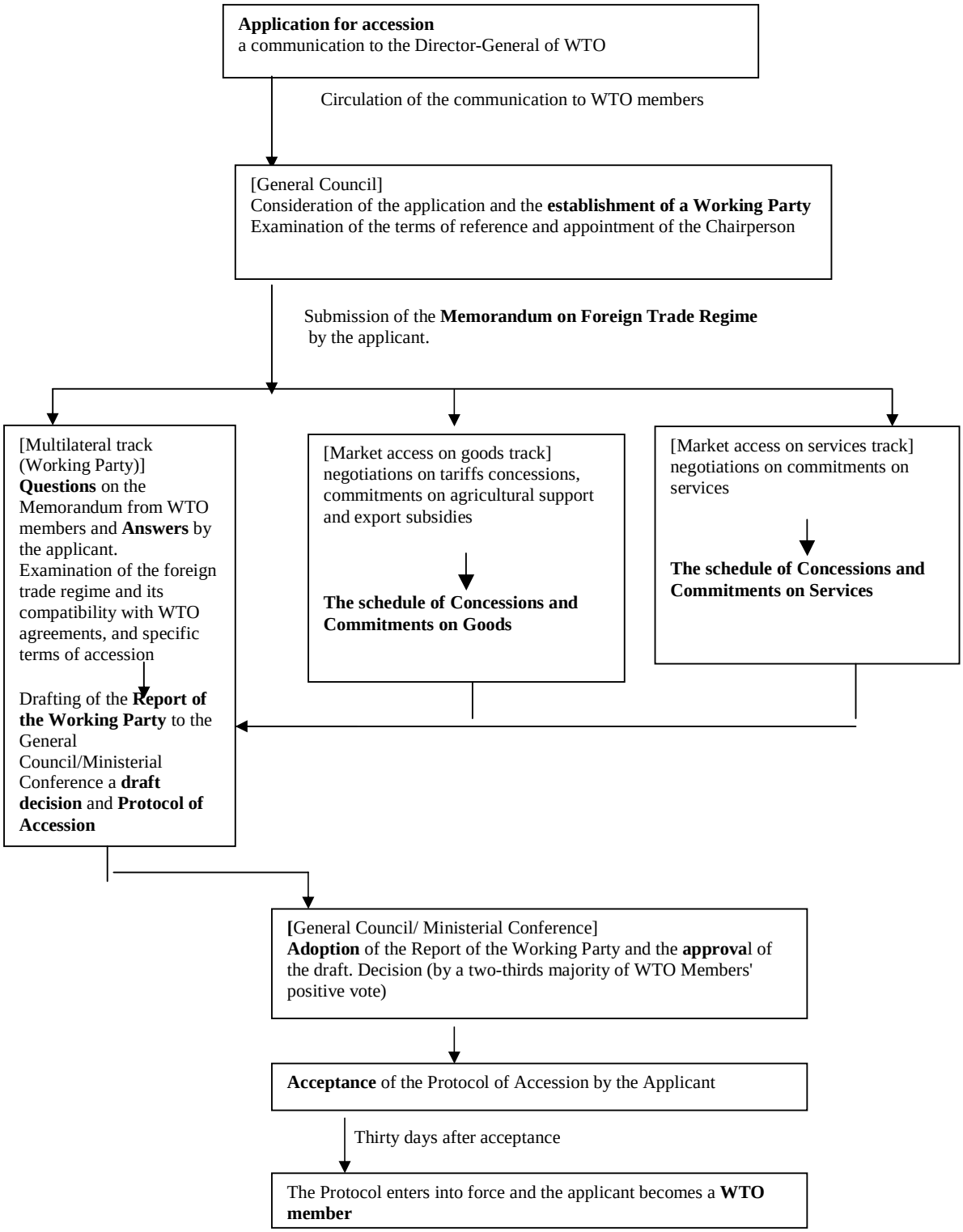
This section briefly outlines the procedures necessary to become a member of WTO. The benefits of joining this organization are as follows: "*Membership in WTO allows countries to design their development strategies and trade policies in a more predictable and stable trading environment. Accession to WTO must be seen not as an end in itself but as a key element in the pursuit of national development policy objectives; these objectives should be clearly defined before a country begins the accession process, so that the terms of accession, notably the specific concessions and commitments relating to foreign access to markets for goods and services, as well as other commitments under WTO Agreements (agricultural and industrial subsidies, trade related investment policies and intellectual property rights, etc.), fall within the parameters of these policies."*(UNCTAD 2001)

It has been discussed over the years that there is a need for appropriate balancing between domestic challenges and conforming to international trade rules during the process of negotiations so as to enhance their increasing and beneficial participation in the multilateral trading system. In view of the accession package, it is believed to foster the following changes in a country: "*Accession, if it is to be achieved on balanced terms, should be recognized as a difficult and complicated process, which may be lengthy, requiring high-level preparations and coordination among government agencies and a broad political consensus in order to effectively pursue and defend national interests. It will also require tough negotiations with major WTO members. Such negotiations involve strategic and long-term issues which could affect the trade and development policies of countries concerned for years to come*" (UNCTAD 2001).

Figure 1 presents schematically the different broad steps to follow before becoming a WTO member. Article XII of WTO Agreement states that the conditions to become WTO members as: '*accession to WTO will be "on terms to be agreed" between the acceding government and WTO. Accession to WTO is essentially a process of negotiation*".[15] The WTO accession process follows the general rule where "each accession working party takes decisions by consensus, all interested WTO Members must be in agreement that their individual concerns have been met and that outstanding issues have been resolved in the course of their bilateral and multilateral negotiations".[16]

[15]See http://www.wto.org/english/thewto_e/acc_e/acces_e.htm
[16] See http://www.wto.org/english/thewto_e/acc_e/acces_e.htm for detailed discussion.

Figure 1: Schematic presentation of various steps of WTO accession process



Source: Adapted from UNCTAD and WTO accession documents

After this initial process, a working party is set up to initiate three interrelated tracks of accession negotiation: *a systemic* or *multilateral track,* a *market access in goods track* and *a market access in services track*. During the accession process, countries submit detailed questions in the following areas: balance of payments; foreign exchange operations; statistics and publication systems relating to foreign trade; customs import tariffs, including any preferential tariffs, customs fees, tariff exemptions, etc.; export regulations; import licensing; state trading enterprises; pricing practices and regulations; taxation systems; subsidies to specific sectors of the economy, particularly agriculture; regime for foreign investment; safeguard measures and other trade remedies (anti-dumping and countervailing measures standardization and certification of imported goods); sanitary and phytosanitary standards; and systems of protection of intellectual property rights.[17] Once they have acceded, WTO members are expected to benefit from their participation in the multilateral trading system, which will translate into higher income, trade levels and *better government and rule of law* (italics added). [18]

Of the 151 members, 128 were contracting parties of the GATT system. The latter countries became "founder-members" of WTO when it was set up on 1 January 1995 after the signing of the Uruguay Round Agreement at Marrakesh in April 1994 (See Appendix Table A2 lists founder members of GATT/WTO and Table A3 lists countries that are seeking accession to the WTO).[19] These 128 founder members did not need to accede to WTO under the Article XII.I of the Marrakesh Agreement.[20]

4. How does WTO accession process impact?

This section provides the possible mechanisms through which WTO accession affects a country's policy and institutions. Membership in WTO requires that a country's trade regime conform to WTO rules. The WTO rules consist of different components such as the General Agreement on Tariffs and Trade (GATT), twelve issue-specific agreements (e.g. on

[17]See UNCTAD (2001), and other WTO accession documents for further discussions.
[18] See http://www.wto.org/english/thewto_e/whatis_e/10ben_e/10b00_e.htm for further discussion.
[19] Another route to WTO membership is contained in GATT Article XXVI5(c) of GATT 1947 that notes that a territory of a contracting party that attains autonomy can be sponsored for membership by the contracting party. Eighteen countries became WTO members in 1994 thanks to this article, while Algeria and Cambodia had the possibility to exercise this clause, but they did not do so. The Article states "If any of the customs territories, in respect of which a contracting party has accepted this Agreement, possesses or acquires full autonomy in the conduct of its external commercial relations and of the other matters provided for in this Agreement, such territory shall, upon sponsorship through a declaration by the responsible contracting party establishing the above-mentioned fact, be deemed to be a contracting party"
See http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm#articleXXVI.
[20] See Ognivtsev et al (UNCTAD, 2001) for a comprehensive discussion on accession issues.

agriculture), General Agreement on Trade in Services (GATS) and Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). A multilateral working party is established to review each accession case; in these working parties WTO members investigate whether any part of the acceding country's trade regime is inconsistent vis-à-vis WTO rules.[21] Two of the main areas under scrutiny are: economic policies measures affecting imports and exports, and the institutional framework (of legal and judicial factors) that exists to formulate and enforce such policies. Therefore, it is evident from accession requirements that one ought to look into the details of WTO accession for newly acceded members.

4.1 Channels of WTO accession impact

WTO accession impacts domestic economic policies and institutions through a variety of WTO rules, which directly correspond to those included under "policies affecting trade in goods and services" (See Table 1). These specific economic policy measures in this package include regulations over imports and exports (e.g. tariff types, import licensing system, non-tariff barriers, and export tax) as well as other "internal" measures that may affect trade, such as industrial and agricultural subsidies, technical standards, and state trading entities as documented in the WTO accession technical note. [22] If WTO members find that any economic policy measure is inconsistent with certain WTO provision(s), the acceding country needs to provide evidence when and how it intends to reform that specific economic policy in question, because these are all part of overall changes of the domestic economy. So, economic policy reforms and institutional changes declared in this manner by an acceding country are regarded as commitments on "rules".

Parallel to multilateral negotiations on rules, an acceding country negotiates bilaterally with interested WTO members over how many "concessions" it should make in terms of opening its market to exports from WTO members. Concessions consist of tariffs that are to be bound at "commercially viable levels" (WTO 1995), so that these concessions are incorporated in the schedule of commitments for the country engaged in the accession process.

[21] The largest Working Party so far is on the accession of the Russian Federation, to which 58 WTO members participate. The smallest ones are for Bhutan and Montenegro, each with nine WTO members (WTO 2005, page 8).

[22] See for further details, Technical Note on the Accession Process, WT/ACC/10/Rev.3, 2005, and http://www.wto.org/english/thewto_e/acc_e/acc_e.htm

Let us now discuss specifically the two main areas in which WTO accession affects economic policies and institution-building. As there is no WTO Agreement that requires specific reform and change in many of the so-called institutional indicators, but the broad set of commitments can actually bring about real changes in not only economic policies but also on institutions of the acceding country.[23]

Once the accession negotiation is over, WTO members and acceding countries agree on the terms of accession containing commitments on rules and on market access negotiations; following this, a working party issues a report providing the details on the terms of accession. The Legislative Action Plans (LAPs) provides a clear indication of institutional changes, which contain a timetable for legislative changes, the intended policy reform, and the schedules of concessions in goods and services. It is worth noting here that these documents are legally binding under the protocol of accession, i.e. it cannot be altered unilaterally by the acceding country without prior consultations. All these clearly indicate a potential influence of WTO accession on the domestic economic policies and institutions of acceding countries.

In the spirit of this paper, we examine the "width", i.e. the areas, of economic policy and institutional changes specified in the terms of accession of the 23 countries that have acceded to the WTO since 1995. The width of economic policy changes is assessed in terms of the number of areas where a country stated its commitment on economic policy reform in its working party report. It is worth noting here that the spread of commitments made by each country across different policy areas remain very similar as it is a part of the accession requirement.[24]

Across different policy areas, almost all countries made commitments in areas which have a direct correspondence to a WTO Agreement such as anti-dumping, customs valuation, import licensing measures, and TRIPs. In such cases, commitments are a simple statement that a country will abide with the given WTO rule and worded in an almost identical manner across countries, this is probably because previous working party reports served as a precedent. Then, contents of the commitments often include specification of laws to be amended or created in order to be consistent and ensuring economic policy reform. If

[23] Quite a number of recently accede countries made commitments with regard to privatization of stated-owned enterprises and pricing policies. Such commitments are referred to as "WTO-plus", as they exceed the level of obligations that applies to existing WTO members.

[24] "Technical Note on Accession Process" (2005), prepared by the WTO secretariat, provides paragraphs which provide a type of commitments in the working party reports of each country. Commitments according to this note take different forms, e.g. a specification of national measures to be amended in order to conform to WTO rules, acceptance of obligation to abide by existing WTO rules, or obligation not to have recourse to specific WTO provisions (e.g. transition periods). The WTO secretariat note also indicates the number of paragraphs used to specify each commitment.

countries have made no commitments in a specific policy area it generally means that they already have a trade regime that conforms to the corresponding WTO rules. In case of developing countries and particularly LDCs, it could be due to the fact that the special and differential (S&D) provision of a given WTO rule allows them to be exempted from abiding with this rule, although there are cases that the S&D provisions are not automatically granted to newly acceding countries including LDCs.[25]

In Table 1, we schematically present the two areas a working party focuses on during the WTO accession process and the impacts that WTO membership would have on domestic economic and institution-building.

In this paper we argue that accession commitments and stringent conditionalities for making changes in domestic economic policies and institutional framework help aspiring countries to implement and deepen their transformation for qualitative changes over time. These multilateral commitments oblige them to become more credible, notably by implementing an appropriate set of economic policies within a specific period of time. The time-bound commitments help to generate a huge amount of domestic pressures in place of a WTO consistent set of policies to initiate domestic economic policy reform measures.

In other words, Table 1 shows that the WTO accession process does not limit itself to trade policy measures and/or external sector liberalization. The *accession package deal* envisages that concerned governments will undertake substantial reform at the domestic economy policy level that may help to reduce constraints, both on the economic and institutional fronts. Given this perspective, we argue that a single measure to identify WTO accession impact on a country may not be fully appropriate, and one ought to look for a composite measure of economic policies and institutions.

More specifically, by looking at the above Table 1, we observe that the institutional dimensions consists of the following aspects: structure and powers of government and of the executive, legislative and judicial branches; administration of policies on WTO-related issues, authority of sub-central governments, uniform administration of trade regime, judicial review, publication of information on trade and trade laws, and submitting WTO notifications. Rules related to WTO accession can clearly help stimulate tangible changes in institutions, in the case of economic policy measures, which are directly related to import and export regulations and policies, and

[25] Note that in some policy areas such as agriculture, making no commitment is a declaration that a country follows WTO rule. For instance, in the agricultural policies, no commitment in terms of reduction of agricultural subsidies means that a country is committed not to have any such subsidies to begin with.

Table 1: Impacts of WTO accession process on economic policies and institutions

			Commitments in specific policy areas
Policies affecting trade in goods And services	Trade in goods	Import regulations	Import regimes, customs code, ordinary customs duty, other duties and charges, TRQ, tariff exemptions, application of internal taxes on imports, prohibitions, quotas, restrictive licences, import licensing procedures, customs valuation, rules of origin, other customs formalities, pre-shipment inspection, contingency measures (e.g. anti-dumping, countervailing or and safeguard measures).
		Export regulations	Tariffs or taxes on exports, export restrictions, export subsidies, export processing zones.
		Internal policies affecting trade in goods	Taxes and charges levied on imports, industrial policies including subsidies, technical barriers to trade (TBT) and sanitary and phytosanitary measures (SPS), trade-linked investment measures (TRIMs), state trading entities, free zones and special economic areas, government procurement, transit, agricultural policies, trade in civil aircraft, textiles, and trading rights (e.g. advertising and trade in alcohol and tobacco).
	Trade in services		Horizontal commitments (in Modes 1, 2, 3, 4), MFN exemption, full or partial commitments in the following services - business, communication, construction, distribution, educational, environmental, financial, health, tourism and travel-related, transport.
	Trade-Related Intellectual Property Rights (TRIPS)		Obligations stipulated in the TRIPS Agreement.
Other related policies			Non discrimination, foreign exchange and payments, balance of payment measures, investment regime, state ownership and privatization, and pricing policies.
Policies affecting institutions			Structure and powers of government; powers, executive, legislative and judiciary administration of policies on WTO-related issues; authority of sub-central governments; uniform administration of trade regime; judicial review (including the right of appeal).

Source: Technical Note on the Accession Process, WT/ACC/10/Rev.3, 2005, and http://www.wto.org/english/thewto_e/acc_e/acc_e.htm . See also Basu, Ognivtsev, and Shirotori (2008a)

TRIPs issues, etc. Hence, we argue in favour of using a composite measure of economic policy and institutions in this paper.

Therefore, the purpose here is to explain and provide empirical evidence for the fact that due to WTO membership requirements, there have been substantial changes in economic policy and institution-building after controlling for the developing country members of the GATT/WTO.

4.2 A testable hypothesis

The analysis is based on the WTO accession cases in 1995-2007. The findings suggest that WTO accession can induce, under certain conditions, countries to establish or improve domestic policies and institution-building. However, the accession process itself needs to incorporate mechanisms which take account of the differing levels of economic development and institutional capacity of acceding countries, so as to avoid placing a heavier burden of implementation policy and institutional reform and related costs on countries with limited human, administrative and financial resources. Given this backdrop, we intend to put forward the following *testable hypothesis*:

> **Hypothesis:** *The WTO accession process has mainly a positive and significant impact on domestic economic policy and institution-building. Countries that have become WTO members show higher level of institutional improvements in relation to other developing country members of the GATT/WTO.*

The principal logic of this hypothesis, as described above, is that during the WTO negotiation process an aspiring country has to undertake far-reaching commitments that are directly related to domestic economic policy reforms and institutions; these commitments are related to systemic changes of economic measures and relevant policy changes for institutional capacity-building that go deeper than other one-time changes in policymaking. We show that compared to developing country (members of WTO), the newly acceded members have benefited because of a stringent negotiation process, during which the WTO played the role of an '*external*' policy anchor to help bring about domestic economic policy and institutional changes.

Therefore, the aim is to present empirical evidence and support to the fact when analysing the effect of WTO accession, we need to go beyond the usual measures of trade

flows or trade policy, and rather a broad composite measure of economic policies and institutions should be considered to understand WTO accession impacts. To that end, we specifically argue that the composite measures should be included as outcome variables in the empirical modelling section of the paper, and then use the rest of the developing country GATT/WTO members as a reference group to determine the effects on the domestic economic policies and institutions of newly acceded WTO members.

The majority of the studies examined during this research have emphasized the direct impact of the GATT/WTO membership on trade policy measures and trade outcomes in general. Some papers attempted to relate to this policy and institution-building. However, we show that rather than taking an indirect route econometric modelling can be used to identify the channels through which WTO accession helps countries to promote a substantial policy reform agenda. In other words, the focus should be placed on examining the impacts of WTO accession impacts on domestic economic policy and institutional changes in a concrete manner. Policymaking and improvement in institutional quality should prepare countries to climb further up the development ladder. Once we figure out this *untapped linkage*, then the question of accession impact can be explored rigorously on trade, investment, finance and development.

5. Data and empirical model

In this section, we set up and examine through econometric specification of the hypothesis that accession has a positive and significant impact on economic policies and institutions (DEI). In other words, if accession to the WTO influences policies and institutions in the acceding country, what is the extent of this influence?

In order to capture the changes in DEI two measures for the dependent variable are used - one for the baseline estimation and another for checking of the model's robustness. The measure for the baseline estimation is the Index of Economic Freedom (EFI) estimated by the Heritage Foundation. The EFI is a composite measure constructed from ten indicators - trade, fiscal burden, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, and international market. The data are estimated for 101 developing countries during the period 1995-2004. It should be noted that the EFI has not been constructed to take into account the accession impacts on domestic economic and institutional quality. However, the constituents of the index can capture some of aspects of accession commitments. (See Appendix Table A4 for detailed discussions of the EFI and components).

The second measure (for robustness analysis) of the dependent variable is obtained from PRS group data on the *International Country Risk Guide* (ICRG) that helps to identify the risk measure of business investment by companies.[26] The PRS Group has provided 'perception-based' data and information on a number of risk components on a monthly basis since 1984; this data helps to identify policy and institutional related developments in more than 130 countries. We included three components from their dataset, which are related to countries economic policies and institutions, such as investment profile (IP), law and order (LO), and bureaucracy quality (BQ). The data are used since 1995 to 2004 for 81 developing countries, including GATT/WTO members (See Appendix Table A5 for detailed discussions of the ICRG index and its components). Therefore, in this paper, we use two measures of DEI, (i.e. EFI or ICRG) to identify the impact of WTO accession negotiation during the treatment period.

The key independent variable in this paper is the WTO *accession dummy* variable. This is computed from the information on member countries of WTO documents which are downloadable from WTO website directly.[27] The control variable in all of the specifications is lagged GDP per capita (log of), which is obtained from the World Bank's World Development Indicators (2006). (See Appendix Table A6 for list of countries in the sample).

The test uses the tool of difference-in-difference (DD) analysis which uses dummy variables to segment the observations for countries and years in order to produce estimates of the effects of WTO accession on DEI.[28] The hypothesis is accepted if the countries that went through the accession process show higher levels of improvements in DEI than other developing-country members of the GATT/WTO.[29] Twenty-one newly acceded countries are defined as the 'treatment group' and other developing countries which are GATT/WTO members as the 'control group' (See Appendix Table A6 for the list of countries in the sample for the empirical study).[30]

[26] In PRS Group website, they claim that "You can trust the PRS Group to bring you the accurate and timely information you need to make the decisions that are crucial to *your* business" (http://www.prsgroup.com/)
[27] See http://www.wto.org/English/thewto_e/acc_e/acc_e.htm for relevant country-wise accession documents.
[28] See Meyer (1995), Slaughter (2001) and Betrand et al (2004) for a detailed discussion on difference-in-difference analysis.
[29] Information on Viet Nam and Tonga are not included in the analysis because of their recent entry to the WTO. We don't have enough information to test impact on their domestic economic policies and institutions buildings.
[30] The selection of sample country depends on the availability of comparable data across variables for all the model specifications.

Let us define the following notations as follows below:

DEI_{it} is the measure (EFI or ICRG) of domestic economic policy and institutional quality of country i at time period t.

$WTOd_{it} \in \{0,1\}$=Dummy variable of whether a country i is member of WTO (=1) or not (=0) at time point t in the sample.

$\Delta DEI_{it+t^*}{}^{1}$=Measures (EFI or ICRG) the change in the domestic economic policy and institutions over the treatment period for the treatment group, the newly acceded WTO members.

$\Delta DEI_{it+t^*}{}^{0}$=Measures (EFI or ICRG) the change in the domestic economic policy and institutions over the treatment period for the control group.

Therefore, the causal effect of WTO accession negotiation for country i at time point t and $t+t^*$ is compared for the outcome of the change in the domestic economic policy and institutions (EFI or ICRG) over the treatment period for the treatment group in comparison to the control group.

Let us write now the average treatments effects (ATE) on the treated in the following form:

$$ATE = E\{\Delta DEI^{1}_{t+t^*} \mid WTOd_t = 1\} - E\{\Delta DEI^{0}_{t+t^*} \mid WTOd_t = 0\} \ldots\ldots. (1)$$

In equation (1), $E\{\Delta DEI^{1}_{t+t^*} \mid WTOd_{it} = 1\}$ measures (EFI or ICRG) the change in the domestic economic policy and institutions in a country i of newly acceded WTO members, while $E\{\Delta DEI^{0}_{t+t^*} \mid WTOd_{it} = 0\}$ measures the change in the same in a country i for control group in the respective samples.

By following equation (1), to explore *Hypothesis*, the difference-in-difference analysis is employed here by estimating the following equation:

$$DEI^{TG(=1)}_{it} = \alpha_i + \beta_0 WTOd_t + \beta_1 WTOd_{t+t^*} + \delta_0 WTOd^{TG(=1)}_{it} + \delta_1 WTOd^{TG(=1)}_{it+t^*} + \phi X_{it-1} + \lambda_t + \varepsilon^{TG(=1)}_{it}$$

(2)

where $DEI^{T(G=1)}_{it}$ is the measure (EFI or ICRG) for country i belonging to the treatment group of twenty-one recently acceded countries. α_i captures fixed effects of country i.

$WTOd_{it}$ is a dummy variable for country i which is equal to 1 if a country is a member of the WTO at time t and to 0 if it is not. β_0 thus captures the effect of WTO accession in the year

after accession and β_1 the effect of WTO accession in subsequent years for the whole sample of countries in both treatment and control groups.

$WTOd^{TG=1}_{it}$ is a dummy variable for country i in the treatment group (the newly acceded countries) which is equal to 1 in the year of accession and 0 otherwise. $WTOd^{TG=1}_{it+t^*}$ is a dummy variable for the same country i which is equal to 0 in years prior to WTO accession and to 1 in the year of WTO accession and subsequent years. δ_0 *thus captures the additional effect of WTO accession* in the year of accession and δ_1 *the additional effect of WTO accession* in subsequent years for the treatment group in comparison to the control group.

X_{it-1} is the log of lagged GDP per capita which acts as a proxy to capture all other country-specific variations. λ_t represents the time-specific effects in the model specification, and ε is an error term which is assumed to have zero mean and constant variance and not to be autocorrelated.

However, if we only consider newly acceded WTO member countries in the sample, then equation (2) boils down to the following:

$$DEI_{it} = \alpha_i + \delta_0 WTOd_{it} + \delta_1 WTOd_{it+t^*} + \phi X_{it-1} + \lambda_t + \varepsilon_{it} \quad \ldots\ldots(3)$$

where DEI_{it} is the measure (EFI or ICRG) of domestic economic policy and institutional quality of country i at time period t, δ_0 captures the contemporaneous change in the outcome variable with WTO accession, and while δ_1 captures the change in outcome variable with after effects of WTO accession. The results are discussed in section 6.

6. WTO accession: Some stylized facts

WTO member countries have carry out many policy changes during the accession process. Evidence of some of the changes that the 23 newly acceded countries is documented below (Appendix Table A7 lists these 23 countries). These countries implemented these changes as they wished to enjoy the benefits of a multilateral trading system, and become eligible for MFN treatment on all their economic transactions from other member countries. The statistics show that population size of these countries is relatively small, except for ChinaThe GDP per capita (current $) varies across countries, with $270.7 in Nepal, and

$15,291 in Taiwan, Province of China in 2005. The Trade/GDP ratio for Nepal, for example, is less than 50 per cent, while that of Estonia is almost 165 per cent. These numbers only show that countries vary not only in their economic development, but also in so-called trade openness measure.[31]

Newly acceded countries reduced their applied MFN tariff rates following their first working party meeting (See Table A8).[32] In the base year (i.e. 1995), 13 countries had average tariff rates of more than 10 per cent, but in the latest year (2005) for which data are available only seven countries still had these average tariff rates. The maximum average tariff rate in the base year was 35.5 per cent (China), but only 16.8 per cent (Viet Nam) in the latest year. A quick look at the table indicates that China's tariff rates decline has been substantial, and followed by Albania and Jordan.

The level of participation in international trade for each country is depicted by its share of global merchandise trade. Only China has shown a significant rise of its share from 2.88 per cent in 1995 to 7.28 per cent in 2005. The export and import share (merchandise products) of the 23 new member countries in 1995 and 2005 are also key to understanding their increased participation in international trade after acceding to the WTO.[33] (See Appendix Table A9) Other countries show an overall slow rise in their share over the period; however the difference is not statistically significant in comparison to the base year of observation. It can be argued that the impact of WTO accession would probably be realised after some years of membership.

The descriptive statistics of above indicators for two separate years (see Appendix Table A10) show that average per capita GDP is characterized by a significant amount of dispersion among countries, and that the trade/GDP ratio had increased; however, MFN tariff rates had declined significantly over the period. The share of merchandise exports as a percentage of world exports increased from 0.32 to 0.51 per cent over the past decade, as did imports. Therefore, it provides some initial association indicating the fact that countries with *falling tariff* rates are doing *more trade*.

Another crucial element of the accession process is the statistics related to number of "systemic" (or institutional) commitments made by these countries in the working party report

[31] See Sachs and Warner (1995) and Wacziarg and Welch (2003) for a discussion on trade openness measure.
[32] We perform paired mean difference test of two periods across 22 countries. The result is statistically significant at 1 per cent level, indicating there has been a significant fall in latest year compared to base tariff rates.
[33] Merchandise exports and imports and trade/GDP data are obtained from UNCTAD's Handbook of Statistics (2008).

(Appendix Table A11). The width of the terms of accession refers to the range of issues in which acceding countries are required to reform their economic policies and institutions. On average, countries made commitments in 23 policy areas. By taking statistics from acceding countries, we find that the mean number of "areas of commitments" is 23 (excluding China and Taiwan, Province of China is 22). Under each policy area, however, some acceding countries have made much "deeper" commitments than others. The depth of the terms of accession is assessed by the number of commitment paragraphs in the working party report, since these paragraphs refer to the types and the degree of policy and institutional reforms that acceding countries have to undertake. The average number of "paragraphs of commitments" was 34: Mongolia negotiated the smallest number of paragraphs of commitments (17); whereas China took the maximum number of paragraphs of commitments (82). Another interesting statistic is the number of working party meetings that were held and members present during the accession process. Nepal and Georgia had only 3 meetings each during their accession process, whereas China had 41 meetings with working party members. The number of working party members is another indication of how existing member countries are interested in the economic strength and future prospects of the candidate country. A quick look at the table shows that mean number of members is 28 (excluding China and Taiwan, Province of China where the number stood at 24). China had 62 working party members, while Cambodia and the Kyrgyz Republic each had 15 working party members.

The key accession information discussed above clearly indicates that acceding countries have made substantial commitments. Subsequent sections will seek to systematically explore the implications of WTO accession on domestic economic policies and institution-building.

7. Linking WTO accession to economic policies and institutions

In this section, we describe briefly the descriptive statistics of EFI; and ICRG measures to indicate the economic policy changes and institutional quality for acceding countries. We present results for 21 countries that have completed the accession procedures as Viet Nam and Tonga were not taken into account in the empirical analysis.

7.1 Some descriptive results

The key question is to determine any domestic economic policy and institutional changes among newly acceded countries during this period on. First, we discuss the EFI measure, and then the ICRGI, and then analyse three groups of countries for both the samples in enlarged version. By dividing countries into the following groups: Developing countries GATT members only, WTO members and WTO members-Article XXVI5(c).

We present the results for the EFI sample (See Appendix Table A12). This sample consists of a total 98 countries. The developing country GATT members have an EFI value of 1.73 and 1.85 for the newly acceded WTO members. Moreover, WTO members-Article XXVI5(c) registered average value of 1.71. The above figure clearly shows that the value is highest for the newly acceded members, and the maximum value (3.32 of Estonia) in the sample is from this group. Similarly, we present the results from the ICRG sample. It consists of 80 developing countries GATT/WTO members. The WTO members' average stands at 4.90, 4.57 for GATT members and 3.908 for XXVI5(c) countries (See Appendix Table A13). The average of all the developing countries in the sample is 3.92. The above descriptive statistics provide an initial indication that in our sample for both sets of measures, newly acceded WTO member countries have performed better that the rest of the groups. This preliminary finding implies that domestic economic policy and institutional changes have been raised substantially over the period for newly acceded members of WTO as compared to the rest.

7.2 Some correlates

Firstly, we determine correlation among EFI and ICRGI components. Secondly, the correlation results between GDP per capita (log of) with a composite measure, such as EFI and ICRGI, and its constituent components are presented. The correlation matrix of 10 components of EFI is also reported (Appendix Table A14). By looking closely at the table, one can observe some interesting relationships among the components. For example, the trade (TD) policy component is significantly correlated with foreign investment (FI) and banking (BK) component measures of EFI. TD is not statistically significantly correlated with only monetary policy (MP) component also. Similarly, the property rights (PR) component has highest correlations with the foreign investment (FI), banking (BK), and wages and prices (WP) components, and has least correlation with the monetary policy (MP) component. Furthermore, the regulation (RE) component of EFI shows a maximum correlation with

property rights (PR) component and followed by the foreign investment (FI), banking (BK), and wages and prices (WP) component.

The correlation of foreign investment (FI) with banking (BK) is highest, and followed by the wage and prices (WP), property rights (PR) and regulation (RE) components. It indicates that institutional measures are important elements of economic policy change, and its improvements. The domestic economic policy change and institutional measure are all positively related to each other in the EFI sample. Let us now turn to discuss the relationship of these the EFI components with GDP per capita (Appendix Table A15). The composite measure of 10 components is the economic freedom index (EFI), and that is highly correlated with GDP per capita (log of) indicator, 0.65.

By analysing individual components of EFI, we observe that better regulation (RE) is highly correlated with GDP per capita, and so is the property rights (PR) component, and improvements in the (in) formal market (IM) component. Monetary policy (MP) and government intervention (GI) components have the least correlations with GDP per capita component. It again shows that improved banking (BK) and foreign investment (FI) have statistically significant positive correlation with the GDP per capita; this is equally true for the trade (TD) component. With all of these domestic policy and institutional measures, it comes out strongly that GDP per capita measure is positively correlated.

The International Country Risk Guide Index (ICRGI) is composed of three components: investment profile (IP); law and order (LO); and bureaucratic quality (BQ). The Investment profile (IP) component of ICRGI is found to be positively correlated (statistically significant) with the law and order (LO) and bureaucratic quality (BQ) components. Bureaucratic quality (BQ) has the highest correlation with the law and order (LO) component. The correlations between GDP per capita with three components are shown in the next table (Appendix Table A17); the results clearly indicate that bureaucratic quality (BQ) has the highest correlation with GDP per capita, followed by law and order (LO) and investment profile (IP). (Appendix Table A16).

Therefore, a high correlation between domestic economic policy components (i.e. banking, wages and prices, trade, fiscal burden, foreign investment, investment profile) with institutional measures (i.e. property rights, regulation, law and order, and bureaucratic quality) should not be interpreted as causation. The preliminary results of interrelationship among these components with GDP per capita are also encouraging. This helps us to explore in detail the causal relation through econometric modelling in later sections of this paper.

8. Empirical Results

To provide empirical support to testable hypotheses, this section intends to discuss results from difference-in-difference analysis. The results from the three estimation procedures: ordinary least squares (OLS), feasible generalized least squares (FGLS) and fixed effects (FE) are presented. These model specifications are run with the economic freedom index as dependent variables. For robustness analysis, we use international country risk guide (ICRG) index as well. Another set of set of robustness analysis was carried out by dropping China and Saudi Arabia from the sample.[34] These two countries were removed from the sample for two very specific reasons: (i) the total time from application to membership was among the highest for these countries; and (ii) they had to make a maximum number of commitments during the accession negotiations. Previously, it was argued that the number of commitments was related to changes in economic policies and institutions. These two countries may, therefore bias the results downward.

8.1 Main results

The estimation results of equation 2 (see Section 5) are shown in Appendix Table A18, A19 and A20. Results are obtained by considering all developing countries in the sample as control group. First, OLS (pooled) results for economic freedom index (EFI) as dependent variable are presented. (Appendix Table A18) The main independent variable is the WTO accession dummy, and lagged GDP per capita (log of) is the control variable. In the first three columns (Col.1 to Col. 3), we define the WTO accession year as a dummy variable, where accession year is 1 and it remains 1 for the rest of the sample time points, and zero otherwise. The first column show statistically significant positive coefficients of the WTO accession dummy variable (coefficient is 0.138 and significant at 10 per cent level). The control variable, lagged GDP per capita (log of), is positive and significant in all the different specifications of the model. In column 2, We included a time trend variable {$timetrend_{1995}$=1, $timetrend_{1996}$=2,…..) to account for the overall trend in economic freedom index, i.e., to understand if there has been any perceptible secular positive trend in economic policy and institutions for these sets of countries in the sample. The positive and significant coefficient on the time trend indicates that the long-run trend in WTO accession to domestic policy changes and institutions are upward. In the regression estimation in Column 3, we include both year effects and time trend, but in that case the coefficient is no longer significant at the

[34] Saudi Arabia do not matter much as after their accessions, there is no data point in the sample.

10 per cent level. This result can follow from the fact that in simple pooled OLS, by ignoring the country heterogeneity, the year effects may have actually accounted for changes in EFI.

We now show an analytical exercise of WTO accession impact at the domestic level. We postulate that WTO accession could impact on economic policy and institutions to a country which did not go through the accession process (a control country). If OLS is a causal relationship, then the size of the coefficient on WTO accession dummy suggests its impact on economic policy and institutions, which is measured by EFI. For example, Madagascar did not go through with WTO accession process, while Lithuania had gone through the process. The regression coefficient from column 1 of Appendix Table A18 indicates that if Madagascar had gone through the WTO accession process as in Lithuania, then Madagascar would raise EFI to 1.77, closing the gap with Lithuania from an average of 0.64 to 0.54 points, which is a substantial improvement. Madagascar's EFI would then become higher than that of developing countries of GATT/WTO average of 1.73.[35] This simple exercise shows a substantial improvements that could occur had other been gone through the accession process.

In the remaining columns (Columns 4 to 6), we attempt to understand the WTO accession impact on economic policy and institutional measures, by isolating the accession time profile into the two indicators to ascertain the impact: the year of accession to WTO, and for the subsequent years. (Appendix Table A18). The economic policy and institutional measures is due to its lengthy process and that changes are slow, and that governments need to pursue such measures on a longer-term basis. The positive reflections on economic outcome measures are not necessarily supposed to occur only in the first year after the accession; rather results turn out to be substantially improved during subsequent time period. We can expect that WTO (t0+t*) to be positive always, if not WTO (t0).[36] It is observed that both WTO (t0) and WTO (t0+t*) are positively significant in all the different model specifications; WTO (t0+t*) is statistically more significant.[37] Hence, the coefficients of the WTO accession dummy designed *to estimate the additional effects on DEI for newly acceded countries* over a longer period than simply the year of accession are positive and highly statistically significant, as are the coefficients for the proxy variable, (log of) real GDP per capita. The conclusion as to the significance of the influence of WTO accession over a longer period is therefore valid.

[35] The EFI average over the period for Lithuania is 2.27, and 1.63 for Madagascar.
[36] WTO (t0) = 1 for the year of accession, 0 for the rest of sample period. WTO (t0+t*) = 1 for the years after WTO accession, and continues to be 1 for the rest of sample period.
[37] The common intercepts hypothesis is rejected in all the model specification as shown by F-statistics. It is note worthy that throughout this paper, robust standard errors and adjusted for clustering by country are reported.

The Generalized Least Squares (GLS) estimator is employed because it is consistent and asymptotically more efficient than OLS (Wooldridge, 2003).[38] The GLS estimators are used to account for heteroskedasticity in the error term ε.[39] We use FGLS estimation in the presence of panel specific AR (1) autocorrelation, and heteroskedasticity across panels with no cross-sectional correlation.[40] We present feasible GLS (FGLS) results. (Appendix Table A19) The overall model specifications remain similar to that with previous findings. (Appendix Table A18). So, all coefficients of interest remain positive and highly significant. However, after considering the panel-specific autocorrelation process, results show that the size of standard errors has been drastically reduced without changing its sign and level of significance either.

We can illustrate the estimation results on the basis of Fixed Effects (FE) estimates, which, of the three regression techniques (OLS, GLS and FE) deployed, is intended to eliminate distortions of the parameters from the largest number of possible sources. The FE estimator to capture the unobserved country-specific variation in a fixed effects intercept in the model specification. Also, the fixed effects capture the average cross-sectional effect over time to account for shifts over time the countries relative position to each other countries in the sample. The fixed effects results of the equation 2 (Section 3) are presented in the following table (Appendix Table A20). The first three columns (Col.1 to Col.3) again show that the WTO accession coefficient is positive and significant in all the specifications. The coefficient on time trend is positive and significant, which implies there has been upward movement in EFI, so it captures overall improvement of these treatment group countries (newly acceding countries) have shown an overall positive upward trend in their domestic economic policies and institutions. Column 3 shows results by including time specific effects, along with time trend, as in column 6 of the same table. The results still remains highly significant for WTO (t0+t*) variable for columns 5 to columns 6. But, the WTO (t0) coefficient is insignificant. The first three tables therefore strongly support our testable hypothesis.

[38] Wooldridge further notes that "at any rate, for large sample sizes, FGLS is an attractive alternative to OLS when there is evidence of heteroskedasticity that inflates the standard errors of the OLS estimates".

[39] See Hausman and Kuersteiner (2004) on the comparison between feasible GLS and OLS procedures. They note that "corrected FGLS based tests outperforms tests based on OLS"

[40] See Bertrand et al (2004) for further dissuasion on the importance to "correct the standard errors assuming that the error term follows an AR(1) process".

8.2: Robustness analysis

We now further check robustness of our hypotheses by including international country risk guide index (ICRGI) as the dependent variable. This index is a simple average of three components: investment profile; law and order; and bureaucratic quality. The result of this analysis is reported (Appendix Tables A21, A22 and A23). As expected, for three model specifications (OLS, FGLS, and FE), the WTO accession coefficient is positive and highly significant.

To carry out another robustness analysis, we report results excluding China and Saudi Arabia from the sample (Appendix Table A24). This also shows by dropping these countries, from sample EFI and ICRGI, has shown substantial increases in the size of coefficients on the WTO dummy variable in the fixed effects estimates (See Appendix Table A20 column 1 and Appendix Table A23 column 1). This shows that without China and Saudi Arabia, the WTO accession process raised countries' economic policies and institutions substantially when compared to other WTO members who did not go through the accession process. But more importantly, it indicates that, unsurprisingly, the choice of indicator for the dependent variable, DEI, makes a difference to the value of the estimated parameters. However, the conclusion as to the significance of the influence of WTO accession over a longer period still remains valid.

9. Conclusions

To conclude, it is worthwhile to reiterate that we intended to examine the effects of WTO accession on domestic economic policies and institutions of newly acceded members in comparison to the rest of the developing members in the sample. We argued that measures going beyond usual trade policy and trade outcome should be used to explore the WTO accession benefits for newly acceded countries. The preliminary findings show that given the composite measures of domestic economic and institutions, WTO accession had a positive and significant impact on these newly acceded countries after controlling for developing countries in the sample by using difference-in-difference analysis. Hence, the WTO accession mechanism could be seen as a package deal that provides opportunities to countries to make credible commitments by inducing deeper economic policy changes and making institutions respond effectively and efficiently during the process.

Future research can be directed toward quantifying the specific measures of WTO accession package along with their commitments on goods and services. These measures

should help to promote a better understanding of the impact of WTO accession in the above areas. It can also be of interest to determine the potentially differential impact of WTO accessions on LDCs, oil-rich countries, and in newly acceded EU countries. Furthermore, future analysis can be directed to give focused attention not only to compare and test the policy-anchor hypotheses of FTAs, RTAs, and external sector related programmes of international organizations, but also simultaneously to look at the effects, at the national level, for each of these newly acceded countries so that the country specific characteristics and requirements are adequately recognized. Transmission mechanisms of the impacts of accession process should also be expanded and identified.

Appendix Tables

Table A1: Countries completed WTO accessions since 1995

Country	Application	1st Meeting of Working Party (WP)	Membership	Total Time (Application to Membership)
Ecuador	September 1992	July 1993	January 1996	3 years 4 months
Bulgaria	September 1986	July 1993	December 1996	10 years 3 months
Mongolia	July 1991	June 1993	January 1997	5 years 6 months
Panama	August 1991	April 1994	September 1997	5 years 1 month
Kyrgyz Republic	February 1996	March 1997	December 1998	2 years 10 months
Latvia	November 1993	March 1995	February 1999	5 years 3 months
Estonia	March 1994	November 1994	November 1999	5 years 8 months
Jordan	January 1994	October 1996	April 2000	6 years 4 months
Georgia	July 1996	March 1998	June 2000	4 years 1 month
Albania	November 1992	April 1996	September 2000	7 years 10 months
Oman	April 1996	April 1997	November 2000	4 years 7 months
Croatia	September 1993	April 1996	November 2001	7 years 2 months
Lithuania	January 1994	November 1995	May 2001	7 years 5 months
Moldova	November 1993	June 1997	July 2001	7 years 4 months
China	July 1986	October 1987	December 2001	15 years 5 months
Taiwan, Province of China	January 1992	November 1992	January 2002	10 years
Armenia	November 1993	January 1996	February 2003	9 years 3 months
Macedonia FYR	December 1994	July 2000	April 2003	8 years 3 months
Nepal	May 1989	May 2000	April 2004	14 years 11 months
Cambodia	December 1994	May 2001	October 2004	9 years 10 months
Saudi Arabia	June 1993	May 1996	December 2005	12 years 7 months
Viet Nam	January 1995	July 1998	January 2007	12 years
Kingdom of Tonga	Jun 1995	Apr 2001	July 2007	6 years 3 months

Source: Technical Note on the Accession Process, WT/ACC/10/Rev.3, 2005, and http://www.wto.org/english/thewto_e/acc_e/acc_e.htm

Table A2: Founder member of GATT/WTO

Country, Year of Membership	Country, Year of Membership	Country, Year of Membership
Angola 8 April 1994	Grenada 9 February 1994	Pakistan 30 July 1948
Antigua and Barbuda 30 March 1987	Guatemala 10 October 1991	Papua New Guinea 16 December 1994
Argentina 11 October 1967	Guinea 8 December 1994	Paraguay 6 January 1994
Australia 1 January 1948	Guinea Bissau 17 March 1994	Peru 7 October 1951
Austria 19 October 1951	Guyana 5 July 1966	Philippines 27 December 1979
Bahrain 13 December 1993	Haiti 1 January 1950	Poland 18 October 1967
Bangladesh 16 December 1972	Honduras 10 April 1994	Portugal 6 May 1962
Barbados 15 February 1967	Hong Kong 23 April 1986	Qatar 7 April 1994
Belgium 1 January 1948	Hungary 9 September 1973	Romania 14 November 1971
Belize 7 October 1983	Iceland 21 April 1968	Rwanda 1 January 1966
Benin 12 September 1963	India 8 July 1948	Senegal 27 September 1963
Bolivia 8 September 1990	Indonesia 24 February 1950	Sierra Leone 19 May 1961
Botswana 28 August 1987	Ireland 22 December 1967	Singapore 20 August 1973
Brazil 30 July 1948	Israel 5 July 1962	Slovak Republic 15 April 1993
Brunei Darussalam 9 December 1993	Italy 30 May 1950	Slovenia 30 October 1994
Burkina Faso 3 May 1963	Jamaica 31 December 1963	Solomon Islands 28 December 1994
Burundi 13 March 1965	Japan 10 September 1955	South Africa 13 June 1948
Cameroon 3 May 1963	Kenya 5 February 1964	Spain 29 August 1963
Canada 1 January 1948	Korea, Republic of 14 April 1967	Sri Lanka 29 July 1948
Central African Republic 3 May 1963	Kuwait 3 May 1963	Saint Kitts and Nevis 24 March 1994
Chad 12 July 1963	Lesotho 8 January 1988	Saint Lucia 13 April 1993
Chile 16 March 1949	Liechtenstein 29 March 1994	Saint Vincent and the Grenadines 18 May 1993
Colombia 3 October 1981	Luxembourg 1 January 1948	Suriname 22 March 1978
Congo, Republic of 3 May 1963	Macao 11 January 1991	Swaziland, Kingdom of 8 February 1993
Costa Rica 24 November 1990	Madagascar 30 September 1963	Sweden 30 April 1950
Côte d'Ivoire 31 December 1963	Malawi 28 August 1964	Switzerland 1 August 1966

Cuba 1 January 1948	Malaysia 24 October 1957	Tanzania 9 December 1961
Cyprus 15 July 1963	Maldives 19 April 1983	Thailand 20 November 1982
Czech Republic 15 April 1993	Mali 11 January 1993	Togo 20 March 1964
Denmark 28 May 1950	Malta 17 November 1964	Trinidad and Tobago 23 October 1962
Djibouti 16 December 1994	Mauritania 30 September 1963	Tunisia 29 August 1990
Dominica 20 April 1993	Mauritius 2 September 1970	Turkey 17 October 1951
Dominican Republic 19 May 1950	Mexico 24 August 1986	Uganda 23 October 1962
Egypt 9 May 1970	Morocco 17 June 1987	United Arab Emirates 8 March 1994
El Salvador 22 May 1991	Mozambique 27 July 1992	United Kingdom 1 January 1948
Fiji 16 November 1993	Myanmar, Union of 29 July 1948	United States of America 1 January 1948
Finland 25 May 1950	Namibia 15 September 1992	Uruguay 6 December 1953
France 1 January 1948	Netherlands 1 January 1948	Venezuela 31 August 1990
Gabon 3 May 1963	New Zealand 30 July 1948	Yugoslavia 25 August 1966
The Gambia 22 February 1965	Nicaragua 28 May 1950	Zaire 11 September 1971
Germany 1 October 1951	Niger 31 December 1963	Zambia 10 February 1982
Ghana 17 October 1957	Nigeria 18 November 1960	Zimbabwe 11 July 1948
Greece 1 March 1950	Norway 10 July 1948	

Source: http://www.wto.org/english/thewto_e/gattmem_e.htm

Table A3: Ongoing accession countries of WTO (Updated 14 February 2008)

	Application	Working Party Established	Memorandum	First/Latest* Working Party Meeting	Number of Working Party Meetings *	Draft Working Party Report **
Afghanistan	Nov 2004	Dec 2004				
Algeria	Jun 1987	Jun 1987	Jul 1996	Apr 1998/Feb 2005	8	Feb 2005
Andorra	Jul 1999	Oct 1997	Mar 1999	Oct 1999	1	
Azerbaijan	Jun 1997	Jul 1997	Apr 1999	Jun 2002/Oct 2004	2	
Bahamas	May 2001	Jul 2001				
Belarus	Sep 1993	Oct 1993	Jan 1996	Jun 1997/Sep 2004	6	Jul 2004 (FS)
Bhutan	Sep 1999	Oct 1999	Feb 2003	Nov 2004	1	
Bosnia and Herzegovina	May 1999	Jul 1999	Oct 2002	Nov 2004/Dec 2004	2	
Cape Verde	Nov 1999	Jul 2000	Jul 2003	Mar 2004/Dec 2004	2	Oct 2004 (FS)
Ethiopia	Jan 2003	Feb 2003				
Iran	Jul 1996	May 2005				
Iraq	Sep 2004	Dec 2004				
Kazakhstan	Jan 1996	Feb 1996	Sep 1996	Mar 1997/Nov 2004	7	Sep 2004 (FS)
Lao People's Democratic Republic	Jul 1997	Feb 1998	Mar 2001	Oct 2004	1	
Lebanese Republic	Jan 1999	Apr 1999	Jun 2001	Oct 2002/Jul 2004	3	Jun 2004 (FS)
Libyan Arab Jamahiriya	Jun 2004	Jul 2004				
Montenegro	Dec 2004	Feb 2005	Mar 2005			
Russian Federation	Jun 1993	Jun 1993	Mar 1994	Jul 1995/Apr 2005	27	Oct 2004
Samoa	Apr 1998	Jul 1998	Feb 2000	Mar 2002	1	Jun 2003
Sao Tome and Principe	Jan 2005	May 2005				
Serbia	Dec 2004	Feb 2005	Mar 2005			
Seychelles	May 1995	Jul 1995	Aug 1996	Feb 1997	1	June 1997
Sudan	Oct 1994	Oct 1994	Jan 1999	Jul 2003/Mar 2004	2	Sep 2004 (FS)
Tajikistan	May 2001	Jul 2001	Feb 2003	Mar 2004	1	Apr 2005 (FS)
Ukraine	Nov 1993	Dec 1993	Jul 1994	Feb 1995/Mar 2005	14	Mar 2005
Uzbekistan	Dec 1994	Dec 1994	Oct 1998	Jul 2002/Jun 2004	2	
Vanuatu	Jul 1995	Jul 1995	Nov 1995	Jul 1996/Oct 1999	2	Accession Package Oct 2001
Yemen	Apr 2000	Jul 2000	Nov 2002	Nov 2004	1	

Note: * As of the date of this document.

** Most recent Factual Summary (FS), draft Working Party Report or Elements of draft Working Party Report

Table A 4: Freedom House Index of Economic Freedom (EFI)

Index of Economic Freedom (EFI)	Economic freedom is defined as *the absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself*. In other words, people are free to work, produce, consume, and invest in the ways they feel are most productive. To measure economic freedom and rate each country, the authors of the Index study 50 independent economic variables. These variables fall into 10 broad categories, or factors, of economic freedom. In the *Index of Economic Freedom*, all 0 factors are equally important to the level of economic freedom in any country. Thus, to determine a country's overall score, the factors are weighted equally. The scales run from 1 to 5: score of signifies an economic environment or set of policies that are most conducive to economic freedom, while a score of 5 signifies a set of policies that are least conducive to economic freedom.
(TD) Trade	Trade policy is a key factor in measuring economic freedom. The degree to which government hinders access to and the free flow of foreign commerce can have a direct bearing on the ability of individuals to pursue their economic goals. The factors are: Weighted average tariff rate, Non-tariff barriers, Corruption in the customs service.
(FB) Fiscal Burden	To measure the fiscal burden a government imposes on its citizens, the authors examined both marginal tax rates and the year-to-year change in the level of government expenditures as a percent of gross domestic product (GDP). The factors are: Top marginal income tax rate, Top marginal corporate tax rate, Year-to-year change in government expenditures, as a percent of GDP.
(GI) Government intervention	This factor measures government's direct use of scarce resources for its own purposes and government's control over resources through ownership. The measure comprises both government consumption and government production. The factors are Government consumption as a percentage of the economy, Government ownership of businesses and industries, Share of government revenues from state-owned enterprises and government ownership of property, Economic output produced by the government.
(MP) Monetary Policy	The value of a country's currency is shaped largely by its monetary policy. With a stable monetary policy, people can rely on market prices for the foreseeable future. Hence, investment, savings, and other longer-term plans are easier to make, and individuals enjoy greater economic freedom. The factors are: Weighted average inflation rate from 1995 to 2004.
(FI) Foreign investment	Restrictions on foreign investment limit the inflow of capital and thus hamper economic freedom. By contrast, little or no restriction of foreign investment enhances economic freedom because foreign investment provides funds for economic expansion. For this factor, the more restrictions a country imposes on foreign investment, the lower its level of economic freedom and the higher its score. The factors are: Foreign investment code, Restrictions on foreign ownership of business, Restrictions on industries and companies open to foreign investors, Restrictions and performance requirements on foreign companies, Foreign ownership of land, Equal treatment under the law for both foreign and domestic companies, Restrictions on repatriation of earnings, Restrictions on capital transactions, Availability of local financing for foreign companies
(BK) Banking	In most countries, banks provide the essential financial services that facilitate economic growth; they lend money to start businesses, purchase homes, and secure credit that is used to buy durable consumer goods, in addition to furnishing a safe place in

	which individuals can store their earnings. The more banks are controlled by the government, the less free they are to engage in these activities. Hence, heavy bank regulation reduces opportunities and restricts economic freedom; therefore, the more a government restricts its banking sector, the lower its level of economic freedom and the higher its score. The factors are: Government ownership of financial institutions, Restrictions on the ability of foreign banks to open branches and subsidiaries, Government influence over the allocation of credit , Government regulations that inhibit financial activity, Freedom to offer all types of financial services, securities, and insurance policies.
(WP) Wages and prices	In a free-market economy, prices allocate resources to their highest use. A firm that needs more employees may signal this need to the market by offering a higher wage; an individual who greatly values a home on the market offers a higher price to purchase it. Prices also act as signals to producers and consumers by conveying information that it otherwise would be prohibitively costly to obtain. The factors are: Minimum wage laws, Freedom to set prices privately without government influence, Government price controls, Extent to which government price controls are used, Government subsidies to businesses that affect prices.
(PR) Property Rights	The ability to accumulate private property is the main motivating force in a market economy, and the rule of law is vital to a fully functioning free market economy. Secure property rights give citizens the confidence to undertake commercial activities, save their income, and make long-term plans because they know that their income and savings are safe from expropriation. This factor examines the extent to which the government protects private property by enforcing the laws and how safe private property is from expropriation. The less protection private property receives, the lower a country's level of economic freedom and the higher its score. The factors are: Freedom from government influence over the judicial system, Commercial code defining contracts, Sanctioning of foreign arbitration of contract disputes, Government expropriation of property, Corruption within the judiciary, Delays in receiving judicial decisions and/or enforcement, Legally granted and protected private property.
(RE) Regulation	Regulations and restrictions are in effect a form of taxation that makes it difficult for entrepreneurs to create and/or maintain new businesses. In some countries, government officials frown on any private-sector initiatives; in a few, they even make them illegal. Although many regulations hinder businesses, the most important are associated with licensing new companies and businesses. The factors are: Licensing requirements to operate a business, Ease of obtaining a business license, Corruption within the bureaucracy; Labor regulations, such as established workweeks, paid vacations, and parental leave, as well as selected labor regulations; Environmental, consumer safety, and worker health regulations; Regulations that impose a burden on business.
(IM) Informal market	Informal markets are the direct result of some kind of government intervention in the marketplace. An informal market activity is one that the government has taxed heavily, regulated in a burdensome manner, or simply outlawed in the past. This factor captures the effects of government interventions that are not always fully measured elsewhere. The factors are: Smuggling, Piracy of intellectual property in the informal market, Agricultural production supplied on the informal market, Manufacturing supplied on the informal market, Services supplied on the informal market, transportation supplied on the informal market, Labor supplied on the informal market.

Source: http://www.heritage.org/research/features/index/chapters/pdfs/Index2006_Chap5.pdf

Table A 5: PRS Group-International Country Risk Guide (ICRG)

International Country Risk Guide (ICRG)	The *International Country Risk Guide* (ICRG) rating comprises 22 variables in three subcategories of risk: political, financial, and economic. A separate index is created for each of the subcategories. The Political Risk index is based on 100 points, Financial Risk on 50 points, and Economic Risk on 50 points. The total points from the three indices are divided by two to produce the weights for inclusion in the composite country risk score. The composite scores, ranging from zero to 100, are then broken into categories from Very Low Risk (80 to 100 points) to Very High Risk (zero to 49.5 points).The ICRG staff collects political information and financial and economic data, converting these into risk points for each individual risk component on the basis of a consistent pattern of evaluation. The political risk assessments are made on the basis of subjective analysis of the available information, while the financial and economic risk assessments are made solely on the basis of objective data. In addition to the 22 individual ratings, the ICRG model also produces a rating for each of the three risk factor groups plus an overall score for each country.
Investment profile (IP):	This is an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The risk rating assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk. The subcomponents are: Contract Viability/Expropriation, Profits Repatriation, and Payment Delays.
Law and Order (LO):	Law and Order are assessed separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law. Thus, a country can enjoy a high rating – 3 – in terms of its judicial system, but a low rating - 1 – if it suffers from a very high crime rate of if the law is routinely ignored without effective sanction (for example, widespread illegal strikes).
Bureaucratic Quality (BQ):	The institutional strength and quality of the bureaucracy is another shock absorber that tends to minimize revisions of policy when governments change. Therefore, high points are given to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Countries that lack the cushioning effect of a strong bureaucracy receive low points because a change in government tends to be traumatic in terms of policy formulation and day-to-day administrative functions.
ICRG Index	It is a simple average of IP, LO and BQ from the existing sample

Source: http://www.prsgroup.com/commonhtml/methods.html

Table A6: List of countries in sample for empirical analysis

Country	Country	Country	Country
Angola[1]	**Djibouti**[1]	Lithuania	Papua New Guinea[1]
Albania	Dominican Republic	Latvia	Poland
Argentina	Ecuador	Morocco	Paraguay
Armenia	Egypt, Arab Rep.	Moldova	Romania
Burundi	Estonia	Madagascar	**Rwanda**
Benin	Gabon	Mexico	Saudi Arabia
Burkina Faso	**Georgia**	**Macedonia, FYR**	Senegal
Bangladesh	Ghana	Mali[1]	El Salvador
Bulgaria	Guinea[1]	Myanmar	Suriname
Bahrain[1]	Guinea-Bissau[1]	Mongolia	Slovak Republic
Belize	Guatemala	Mozambique[1]	**Swaziland**[1]
Bolivia	Guyana	**Mauritania**	**Chad**
Brazil	Honduras	**Mauritius**	Togo
Barbados	Croatia	Malawi	Thailand
Botswana	Hungary	Malaysia	Trinidad and Tobago
Central African Republic	Indonesia	Namibia[1]	Tunisia
Chile	India	Niger	Turkey
China	Jamaica	Nigeria	Tanzania
Cote d'Ivoire	**Jordan**	Nicaragua	Uganda
Cameroon	Kenya	**Nepal**	Uruguay
Congo, Rep.	**Kyrgyz Republic**	Oman	Venezuela, RB
Colombia	**Cambodia**	Pakistan	South Africa
Costa Rica	Korea, Rep.	Panama	Congo, Dem. Rep.
Cuba	Sri Lanka	Peru	Zambia
Czech Republic	**Lesotho**	Philippines	Zimbabwe

Note: Countries in **BOLD** are not in ICRG database. [1] GATT Article XXVI: 5(c) countries in sample
Source: Heritage Foundation for Index Economic Freedom, and PRS-Group for International Country Risk Guide database.

Table A7: Population, GDP per capita and Trade/GDP of 23 newly acceded WTO members

	Population (in Million)	GDP per capita(current $US)	Trade/GDP ratio	
	2005	2005	1995	2005
Ecuador	13	2739.9	54	63
Bulgaria	7.8	3442.5	91	138
Mongolia	2.5	736.3	97.2	160
Panama	3.2	4786.3	198.8	141
Kyrgyz Republic	5.1	473.4	71.8	97
Latvia	2.3	6856.7	87.5	111
Estonia	1.3	9744.6	144.5	175
Jordan	5.4	2376.7	124.6	145
Georgia	4.5	1429.2	67.8	97
Albania	3.1	2677.4	47	68
Oman	2.5	9460.1	79.6	99.7
Croatia	4.4	8417.7	88.1	103
Lithuania	3.4	7465.5	111	124
Moldova	4.2	691.0	107.3	144
China	1296.2	1708.6	43.9	69
Taiwan, Province of China	22.6	15291.5	N.A.	120.2
Armenia	3	1625.4	86.1	67
Macedonia, FYR	2	2832.8	75.8	108
Nepal	26.6	270.7	59.5	49
Cambodia	13.8	383.1	77.7	139
Saudi Arabia	24	12606.4	65.4	87
Viet Nam	82.2	631.7	74.7	145
Kingdom of Tonga	0.102	2159.0	52.0	54.0

Note: N.A.: Not available
Source: UNCTAD database, WTO 2007 database, and World Bank 2007 database.

Table A8: MFN Tariff Rates (simple average) of 23 newly acceded WTO members

Country	Base year	Latest year	Change	Rank
Ecuador	12.9	11.7	-1.2	15
Bulgaria	12.3	10.4	-1.9	13
Mongolia	N.A.	4.5		
Panama	12.2	7.3	-4.9	7
Kyrgyz Republic	8.5	4.8	-3.7	8
Latvia	3.8	5.4	1.6	19
Estonia	1.6	5.4	3.8	21
Jordan	22.1	11.5	-10.6	2
Georgia	10.6	7.0	-3.6	9
Albania	15.9	5.7	-10.2	3
Oman	7.7	5.3	-2.4	11
Croatia	10.6	4.9	-5.7	6
Lithuania	3.5	5.4	1.9	20
Moldova	5.9	5.2	-0.7	16
China	35.5	9.9	-25.6	1
Taiwan, Province of China	8.3	6.4	-1.9	13
Armenia	2.9	3.0	0.1	17
Macedonia FYR	14.4	7.9	-6.5	5
Nepal	16.6	13.9	-2.7	10

Cambodia	16.4	14.3	-2.1	12
Saudi Arabia	12.1	5.2	-6.9	4
Viet Nam	16.5	16.8	0.3	18
Kingdom of Tonga	N.A.	16.8	N.A.	N.A.

Note: N.A.: Not available, Base year is the year of 1st Working Party meeting. Due to data availability, some countries may not match with exact year. Rank 1 implies maximum decline in tariff rate.
Source: UNCTAD TRIANS database.

Table A9: Shares of merchandise exports and imports of 23 newly acceded WTO members (% of the world)

Country	Export Share		Import Share	
	1995	2005	1995	2005
Ecuador	0.083	0.096	0.079	0.096
Bulgaria	0.104	0.112	0.108	0.169
Mongolia	0.009	0.010	0.008	0.011
Panama	0.012	0.010	0.048	0.039
Kyrgyz Republic	0.008	0.006	0.010	0.010
Latvia	0.025	0.049	0.035	0.080
Estonia	0.036	0.074	0.046	0.095
Jordan	0.034	0.041	0.071	0.098
Georgia	0.003	0.008	0.007	0.023
Albania	0.004	0.006	0.014	0.024
Oman	0.117	0.179	0.081	0.082
Croatia	0.087	0.084	0.141	0.172
Lithuania	0.052	0.113	0.070	0.144
Moldova	0.014	0.010	0.016	0.021
China	2.877	7.280	2.526	6.131
Taiwan, Province of China	2.157	1.890	1.983	1.696
Armenia	0.005	0.009	0.013	0.016
Macedonia FYR	0.023	0.020	0.033	0.030
Nepal	0.007	0.008	0.025	0.017
Cambodia	0.017	0.028	0.023	0.036
Saudi Arabia	0.968	1.725	0.537	0.552
Viet Nam	0.105	0.310	0.156	0.344
Kingdom of Tonga	0.000	0.000	0.001	0.001

Source: UNCTAD Handbook of Statistics 2008 (updated January 2008)

Table A10: Descriptive statistics of 23 newly acceded WTO member states

	Year	# Observations	Mean	Std. Dev.	Min	Max
GDP per capita(current $US)	2005	23	4295.93	4283.04	270.70	15291.50
Trade/GDP ratio	1995	23	86.60	35.41	43.90	198.80
	2005	23	109.28	36.83	49.00	175.00
MFN Tariff Rates	1995	23	11.92	7.59	1.60	35.50
	2005	23	8.20	4.12	3.00	16.80
Shares of merchandise exports	1995	23	0.29	0.74	0.00	2.88
(% of World)	2005	23	0.52	1.56	0.00	7.28
Shares of merchandise imports	1995	23	0.26	0.64	0.00	2.53
(% of World)	2005	23	0.43	1.29	0.00	6.13

Note: Author's calculation
Source: UNCTAD and World Bank

Table A11: List of commitments (areas and paragraphs), working party meetings and number of members

Country	# areas of commitments in Working Party Reports	# paragraphs of commitments in Working Party Reports	#Working Party Meetings	# Working Party Members
Ecuador	17	21	9	21
Macedonia, FYR	19	24	5	23
Panama	19	24	5	34
Mongolia	20	17	5	17
Latvia	20	22	6	24
Nepal	20	25	3	23
Estonia	21	24	8	21
Kyrgyz Republic	21	29	6	15
Bulgaria	22	26	9	22
Croatia	22	27	6	19
Lithuania	22	28	5	27
Albania	22	29	9	16
Georgia	23	29	3	21
Jordan	23	29	5	32
Taiwan, Province of China	23	63	11	48
Oman	24	26	6	31
Moldova	24	28	5	25
Cambodia	24	29	5	15
Armenia	25	39	5	30
Saudi Arabia	26	59	12	57
China	27	82	41	62
Tonga	29	32	3	13
Viet Nam	30	70	14	43
Mean	23	34	8	28
Median	22	28	6	23
Std. Dev	3.18	17.13	7.73	13.24
Min	17 (Ecuador)	17 (Mongolia)	3 (Nepal and Georgia)	13 (Kyrgyz Republic)
Max	30 (Viet Nam)	82 (China)	41 (China)	62 (China)

Note: Author's calculation. Ascending order of # areas of commitments in WPRs
Source: Technical Note on the Accession Process, WT/ACC/10/Rev.2, 22 October 2004, and http://www.wto.org/english/thewto_e/acc_e/acc_e.htm

Table A12: Descriptive Statistics of Economic Freedom Index (EFI)

	Observations, Cross country	Observations, Panel	Mean	Standard deviation	Min	Max
Developing country GATT members	80	744	1.73	0.58	0.00	3.25
WTO members	20	181	1.85	0.48	0.90	3.32
WTO members-GATT Article XXVI5(c)	9	76	1.71	0.71	0.50	3.25

Notes: Economic Freedom Index includes 10 indicators: trade, fiscal burden, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, informal market. The higher score implies higher economic freedom.
Source: Economic Freedom Index is from Heritage Foundation and WTO accession year is from WTO accession documents.

Table A13: Descriptive Statistics of International Country Risk Guide (ICRG) database

	Observations, Cross country	Observations, Panel	Mean	Standard deviation	Min	Max
Developing country GATT members	68	680	4.163	1.026	0.666	6.666
WTO members	14	122	4.573	0.891	2.611	6.166
WTO members- GATT Article XXVI5(c)	8	80	3.908	1.127	2.000	6.166

Notes: The ICRG index includes 3 indicators: Investment profile, law and order, and bureaucratic quality. The higher score implies less risk.
Source: PRS Group ICRG database and WTO accession year is from WTO accession documents.

Table A14: Correlation among Economic Freedom Index (EFI) indicators

	EFI	TD	FB	GI	MP	FI	BK	WP	PR	RE	IM
EFI	1										
TD	0.593	1									
FB	0.448	0.333	1								
GI	0.443	0.257	0.130	1							
MP	0.421	-0.010	0.069*	0.011	1						
FI	0.693	0.381	0.226	0.294	0.094	1					
BK	0.757	0.407	0.291	0.305	0.189	0.607	1				
WP	0.688	0.273	0.237	0.320	0.188	0.545	0.566	1			
PR	0.717	0.348	0.198	0.136	0.143	0.483	0.497	0.417	1		
RE	0.741	0.361	0.214	0.145	0.209	0.504	0.514	0.492	0.698	1	
IM	0.700	0.297	0.241	0.142	0.230	0.355	0.439	0.409	0.651	0.604	1

Note: *statistically significant at 5%-level, and all other coefficients are statistically at significant at 1%-level, underline implies coefficient is not significant.
Sample consists of Developing country GATT/WTO members
Source: Economic Freedom Index is from Heritage Foundation; log (Real GDP per capita) from the World Bank.

Table A15: Correlation of GDP per capita with Economic Freedom Index (EFI) indicators

	GDPpc
(EFI) Economic Freedom Index	0.657
(TD) Trade	0.355
(FB) Fiscal Burden	0.301
(GI) Government intervention	0.168
(MP) Monetary Policy	0.174
(FI) Foreign investment	0.431
(BK) Banking	0.468
(WP) Wages and prices	0.360
(PR) Property Rights	0.564
(RE) Regulation	0.629
(IM) Informal market	0.572

Note: All the coefficients are statistically significant at 1%-level.
GDP is in PPP (constant 2000 international $) value. Acronyms are in parentheses.
Sample consists of Developing country GATT/WTO members
Source: Economic Freedom Index is from Heritage Foundation; log (Real GDP per capita) from the World Bank.

Table A16 Correlation among International Country Risk Guide (ICRG) Indicators

	ICRGI	IP		BQ
International Country Risk Guide Index (ICRGI)	1			
(IP) Investment Profile	0.859	1		
(LO) Law and Order	0.623	0.219	1	
(BQ) Bureaucratic Quality	0.590	0.285	0.310	1

Note: All the coefficients are statistically significant at 1%-level.
Sample consists of Developing country GATT/WTO members
Source: PRS Group ICRG database

Table A17: Correlation of GDP per capita with ICRG Index indicators

	GDPpc
International Country Risk Guide Index (ICRGI)	0.548
(IP) Investment Profile	0.365
(LO) Law and Order	0.366
(BQ) Bureaucratic Quality	0.561

Note: All the coefficients are statistically significant at 1%-level.
Sample consists of Developing country GATT/WTO members
Source: PRS Group ICRG database

Table A18: OLS estimation- WTO accession impact on domestic economic policy and institution

	Dependent variable: Economic Freedom Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.138*	0.104	0.103			
	(0.091)	(0.094)	(0.094)			
WTO accession year (t0)				0.046	0.041	0.031
				(0.086)	(0.087)	(0.088)
WTO accession year after (t0+t*)				0.134**	0.132*	0.123*
				(0.097)	(0.100)	(0.100)
log(Real GDP per capita)$_{t-1}$	0.282***	0.282***	0.282***	0.189***	0.292***	0.282***
	(0.029)	(0.029)	(0.029)	(0.030)	(0.030)	(0.029)
Country effects	N	N	N	N	N	N
Year effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	-0.232	-0.403	-0.381*	-0.300	-0.400**	-0.380**
	(0.205)	(0.209)	(0.214)	(0.210)	(0.209)	(0.210)
#Observations	906	906	906	906	906	906
#Countries	98	98	98	98	98	98
R-squared	0.439	0.450	0.415	0.442	0.450	0.451
F-statistics	51.03	37.81	12.67	35.19	29.05	13.64

Notes: Economic Freedom Index includes 10 indicators: trade, fiscal burden, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, informal market. The higher score implies higher economic freedom
Treatment Group: The WTO accession countries.
WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero.
WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points.
Control Group: Developing country GATT members
Robust standard errors are (in parentheses) adjusted for clustering in all country. *** implies significance at the 1 percent level; ** at the 5 percent level; and * at the 10 percent level.
Source: Economic Freedom Index is from Heritage Foundation, WTO accession year is from WTO accession documents; log (Real GDP per capita) from the World Bank.

Table A19: FGLS estimation-WTO accession impact on domestic economic policy and institution

	Dependent variable: Economic Freedom Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.124***	0.094***	0.091***			
	(0.040)	(0.041)	(0.041)			
WTO accession year (t0)				0.091***	0.071**	0.079**
				(0.041)	(0.042)	(0.042)
WTO accession year after (t0+t*)				0.189***	0.149***	0.141***
				(0.052)	(0.052)	(0.052)
log(Real GDP per capita) $_{t-1}$	0.281***	0.281***	0.284***	0.287***	0.281***	0.282***
	(0.018)	(0.017)	(0.019)	(0.019)	(0.017)	(0.017)
Country effects	N	N	N	N	N	N
Year effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	-0.250***	-0.416***	-0.432***	-0.303***	-0.408***	-0.425***
	(0.131)	(0.124)	(0.131)	(0.130)	(0.124)	(0.124)
#Observations	906	906	906	906	906	906
#Countries	98	98	98	98	98	98
AR(1)	-0.805	-0.782	-0.780	-0.802	-0.780	-0.778
Log likelihood	272.7	265.3	266.8	273.1	265.0	266.7
Wald Statistics	269.7	332.3	343.8	278.6	337.9	349.8

Notes: Economic Freedom Index includes 10 indicators: trade, fiscal burden, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, informal market. The higher score implies higher economic freedom
Treatment Group: The WTO accession countries.
WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero.
WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points.
Control Group: Developing country GATT members
GLS model uses linear panel model using feasible generalized least squares. The model specification permits AR(1) correlation over time, and specifies each group to have a different AR(1) process for different cross-section units. Standard errors are (in parentheses)
Z-statistics *** implies significance at the 1 percent level;** at the 5 percent level; and * at the 10 percent level.
Source: Economic Freedom Index is from Heritage Foundation, WTO accession year is from WTO accession documents; log (Real GDP per capita) from the World Bank.

Table A20: Fixed effects estimation-WTO accession impact on domestic economic policy and institution

	Dependent variable: Economic Freedom Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.117***	0.119**	0.111***			
	(0.046)	(0.049)	(0.050)			
WTO accession year (t0)				0.064*	0.067	0.061
				(0.039)	(0.041)	(0.041)
WTO accession year after (t0+t*)				0.133***	0.131***	0.134***
				(0.054)	(0.057)	(0.059)
log(Real GDP per capita) $_{t-1}$	1.056***	0.990***	1.055***	1.027***	0.970***	0.980***
	(0.183)	(0.224)	(0.222)	(0.186)	(0.227)	(0.224)
Country effects	Y	Y	Y	Y	Y	Y
Year fixed effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	-6.328***	-4.936***	-4.372***	-6.194***	-4.864***	-4.869***
	(1.293)	(1.560)	(1.545)	(1.314)	(1.527)	(1.626)
#Observations	906	906	906	906	906	906
#Countries	98	98	98	98	98	98
Breusch-Pagan LM test χ^2 (1)	1937.32***					
Hausman Specification Test χ^2 (2)	16.42***					
R-squared	0.435	0.439	0.439	0.435	0.407	0.439
F-statistics	35.73	23.51	9.16	24.94	17.99	8.65

Notes: Economic Freedom Index includes 10 indicators: trade, fiscal burden, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, informal market. The higher score implies higher economic freedom. Breusch-Pagan LM statistic tests the random effect model versus the pooling OLS. Hausman specification statistic tests the fixed-effect model versus the random effect model. WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero. WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points
Treatment Group: The WTO accession countries. **Control Group**: Developing country GATT members
Robust standard errors are (in parentheses) adjusted for clustering in all country. *** implies significance at the 1 percent level; ** at the 5 percent level; and * at the 10 percent level.
Source: Economic Freedom Index is from Heritage Foundation, WTO accession year is from WTO accession documents; log (Real GDP per capita) from the World Bank.

Table A21: OLS estimation-Robustness analysis: WTO accession impact on domestic economic policy and institution

	Dependent variable: ICRG Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.385**	0.330*	0.340*			
	(0.198)	(0.202)	(0.203)			
WTO accession year (t0)				-0.060	-0.057	-0.026
				(0.175)	(0.179)	(0.159)
WTO accession year after (t0+t*)				0.495**	0.434*	0.429*
				(0.221)	(0.227)	(0.231)
log(Real GDP per capita) $_{t-1}$	0.461***	0.462***	0.461***	0.461***	0.461***	0.453***
	(0.068)	(0.068)	(0.069)	(0.068)	(0.068)	(0.069)
Country effects	N	N	N	N	N	N
Year effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	0.943**	0.433	0.118	0.945**	0.455	0.128
	(0.496)	(0.504)	(0.496)	(0.493)	(0.505	(0.497)
#Observations	782	782	782	782	782	782
#Countries	80	80	80	80	80	80
R-squared	0.315	0.334	0.359	0.319	0.337	0.362
F-statistics	28.54	28.1	26.64	19.73	21.36	25.36

Notes: The ICRG index includes 3 indicators: Investment profile, law and order, and bureaucratic quality.
The higher score implies less risk. **Treatment Group**: The WTO accession countries.
WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero.
WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points.
Control Group: Developing country GATT members
Robust standard errors are (in parentheses) adjusted for clustering in all country. *** implies significance at the 1 percent level;
** at the 5 percent level; and * at the 10 percent level.
Source: ICRG Index is from PRS Group ICRG database, WTO accession year is from WTO accession documents;
log (Real GDP per capita) from the World Bank.

Table A22: FGLS estimation-Robustness analysis: WTO accession impact on domestic economic policy and institution

	Dependent variable: ICRG Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.237*	0.142	0.115			
	(0.113)	(0.112)	(0.106)			
WTO accession year (t0)				0.039	-0.015	-0.031
				(0.116)	(0.116)	(0.108)
WTO accession year after (t0+t*)				0.563***	0.440***	0.403***
				(0.140)	(0.142)	(0.135)
log(Real GDP per capita) $_{t-1}$	0.482***	0.472***	0.470***	0.473***	0.463***	0.465***
	(0.046)	(0.044)	(0.045)	(0.046)	(0.046)	(0.045)
Country effects	N	N	N	N	N	N
Year effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	0.640**	0.004	-0.166	0.659**	0.075	-0.095
	(0.329)	(0.338)	(0.339)	(0.334)	(0.344)	(0.343)
#Observations	782	782	782	782	782	782
#Countries	80	80	80	80	80	80
AR(1)	-0.781	-0.778	-0.806	-0.791	-0.788	-0.811
Log likelihood	-468.964	-4534	-388.30	-454.5	-441.5	-378.4
Wald Statistics	123.960	16658	28684	143.84	178.08	303.84

Notes: The ICRG index includes 3 indicators: Investment profile, law and order, and bureaucratic quality. The higher score implies less risk.
Treatment Group: The WTO accession countries.
WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero.
WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points.
Control Group: Developing country GATT members
GLS model uses linear panel model using feasible generalized least squares. The model specification permits AR(1) correlation over time, and specifies each group to have a different AR(1) process for different cross-section units. Standard errors are (in parentheses)
Z-statistics *** implies significance at the 1 percent level;** at the 5 percent level; and * at the 10 percent level.
Source: ICRG Index is from PRS Group ICRG database, WTO accession year is from WTO accession documents;
log (Real GDP per capita) from the World Bank.

Table A23: Fixed effects estimation-Robustness analysis: WTO accession impact on domestic economic policy and institution

	Dependent variable: ICRG Index					
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6
WTO accession year(t)	0.318	0.367*	0.362*			
	(0.213)	(0.201)	(0.195)			
WTO accession year (t0)				0.058	0.051	0.078
				(0.215)	(0.211)	(0.187)
WTO accession year after (t0+t*)				0.513**	0.502**	0.483**
				(0.214)	(0.203)	(0.203)
log(Real GDP per capita) $_{t-1}$	2.123***	1.931***	1.799	2.043***	1.872***	1.703***
	(0.459)	(0.578)	(0.574)	(0.460)	(0.576)	(0.572)
Country effects	Y	Y	Y	Y	Y	Y
Year fixed effects	N	N	Y	N	N	Y
Time trend	N	Y	Y	N	Y	Y
Constant	-16.084***	-13.188***	-13.226	-15.532***	-12.862***	-12.879
	(3.269)	(4.012)	(3.987)	(3.273)	(3.997)	(3.973)
#Observations	782	782	782	782	782	782
#Countries	80	80	80	80	80	80
Breusch-Pagan LM test χ^2 (1)	1210.021***					
Hausman Specification Test χ^2 (2)	27.84***					
R-squared	0.303	0.308	0.317	0.305	0.310	0.319
F-statistics	21.45	23.52	21.06	22.19	22.42	23.39

Notes: The ICRG index includes 3 indicators: Investment profile, law and order, and bureaucratic quality. The higher score implies less risk. Breusch-Pagan LM statistic tests the random effect model versus the pooling OLS. Hausman specification statistic tests the fixed-effect model versus the random effect model.
Treatment Group: The WTO accession countries.
WTO membership year (t): Country gets 1 if becomes WTO member, and continues to be 1 for the rest of the sample time points.
WTO accession year (t0): It takes 1 for WTO accession year, and rest of the time points is zero.
WTO accession year after (t0+t*): It takes 1 for the year after WTO accession, and continues to be 1 for the rest of the sample points.
Control Group: Developing country GATT members. Robust standard errors are (in parentheses) adjusted for clustering in all country.
*** implies significance at the 1 percent level; ** at the 5 percent level; and * at the 10 percent level.
Source: ICRG Index is from PRS Group ICRG database, WTO accession year is from WTO accession documents;
log (Real GDP per capita) from the World Bank.

Table A24: Fixed effects-Robustness analysis: WTO accession impact, dropping outlier countries

	Dependent variable: Economic Freedom Index				**Dependent variable**: ICRG Index			
	Col.1	Col.2	Col.3	Col.4	Col.5	Col.6	Col.7	Col.8
WTO accession year(t)	0. 147***	0.139***			0. 512 **	0. 523***		
	(0.043)	(0.047)			(0.195)	(0. 170)		
WTO accession year (t0)			0.063**	0.084**			0. 190	0. 222**
			(0.036)	(0.038)			(0.213)	(0.168)
WTO accession year after (t0+t*)			0.131**	0.152***			0. 661***	0. 643***
			(0.052)	(0.057)			(0.195)	(0.057)
log(Real GDP per capita) $_{t-1}$	1.098***	1.053***	1.028***	1.037***	2.022***	2.051***	2.209***	1.921***
	(0.173)	(0.233)	(1.324)	(0.237)	(0. 463)	(0. 579)	(4.664)	(0.577)
Country effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	N	Y	N	Y	N	Y	N	Y
Time trend	N	Y	N	Y	N	Y	N	Y
Constant	-6.609***	-5.206***	-6.478***	-5.119***	-17.497***	-15.194***	-16.910	-14.818***
	(1.269)	(1.627)	(1.324)	(1.654)	(3.291)	(4.006)	(3.308)	(3.995)
Outlier countries	China and Saudi Arabia							
#Observations	887	887	887	887	762	762	762	762
#Countries	96	96	96	96	78	78	78	78
R-squared	0.445	0.446	0.443	0.447	0.303	0.316	0.305	0.317
F-statistics	49.24	11.24	32.55	10.24	27.20	23.28	27.37	24.26

Notes: See previous tables.

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