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BUILDING TRADE-RELATING INSTITUTIONS AND WTO ACCESSION

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ABSTRACT

The paper aims to examine how trade rules affect a much greater array of domestic policies and institutions than ever before. The expanding scope of trade policy places an additional strain on policymaking and institution-building, especially for developing countries. By analysing WTO accession cases, the paper concludes that this process can, under certain conditions, induce countries to establish or improve trade-related institutions. The difference-in-difference analysis is employed as the empirical model. Results are robust with alternative model specifications and choice of economic policies and institutional variable. However, the accession process lacks mechanisms which take account of acceding countries' differing levels of economic development and institutional capacity, placing a heavier burden of implementation policy and institutional reform and related costs on countries with limited human, administrative and financial resources such as LDCs.

Key Words: WTO, Institution, Difference-in-Difference Analysis, LDCs

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1. INTRODUCTION

The implications of changing multilateral trading relations for international trade and development are immense. Recent trends in global economic affairs highlight the challenges which developing countries face in their efforts to build effective trade-related institutions. This has provided an impetus to development-oriented international trade and economic integration. In this context, the role of the World Trade Organization (WTO) is crucial in helping countries integrate beneficially into the international trading system. In the current phase of economic globalization, countries are indeed trying to participate in this global economic system to reap the benefits of deepening integration.[1]

The main focus of the analysis is the implications of WTO membership for the development of trade-related institutions such as the laws and regulatory frameworks that govern trade as well as the administrative mechanisms and processes for designing, implementing and evaluating trade and trade-related policies. The effectiveness of these institutions at the national level is crucial in terms of ensuring trade liberalization and guaranteeing benefits from the multilateral trading system.

UNCTAD (2005) discussed how gains from trade liberalization came about in the long run, at least in the absence of externalities, while noting that liberalization could have some serious short- to medium-term adjustment implications for developing countries.

The WTO process can help developing countries successfully adjust by ensuring meaningful liberalization by developed countries in areas where developing countries enjoy a comparative advantage, ahead of liberalization by developing countries themselves, so that new trading opportunities create new jobs in developing countries before possible job losses in sectors that may suffer from increased competition as a result of their own liberalization. The WTO process could also usefully address systemic and rule-related issues in order to provide developing countries with some policy space for the use of trade and trade-related policies for development purposes. This was partly envisaged in the original GATT, but it seems that such options, including the use of support policies in the presence of externalities, are increasingly being called into question.[2] International trade involves interaction with partner countries so that a country's trade-related institutions cannot be related solely to domestic interests and concerns. The rules that govern domestic trade have to accommodate rules and organizational arrangements that also apply to other actors in the international trading system. Key sources of these rules are various agreements negotiated multilaterally at and administered by WTO and bilateral/regional trade agreements (RTAs), which have been proliferating in recent years and have involved developing countries on all three continents. Those rules that constitute a country's international commitments and obligations have to be reflected in a country's national legislation.[3]

The international trading system today incorporates a much broader range of economic activities, issues, rules, and commitments than the pre-1994 regime of the General Agreement on Tariffs and Trade (GATT) and the preferential trade agreements (PTAs, RTAs, FTAs) which were mostly limited to tariff liberalization. Topics such as investment, environmental protection and intellectual property rights, the international dimensions of which were previously handled through sector- or subject-specific agreements and arrangements, have now been brought within the scope of trade policy. As a result, not only goods but also cross-border movements of services, investment, intellectual property, and even people are now included in the overall trade policy agenda. Moreover, what were once considered non-trade issues such as labour practices, environmental standards and even human rights are now also largely treated by major developed trading countries under this heading.

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[1] Frankel (2001) reports that the new round, when dynamic effects are included, 'might raise global income per capita by 2 per cent over a 25-year period.'

[2] See Chapter 3, DCIT-TDI 2005 for further discussion.

[3] UNCTAD (2008): UNCTAD-JETRO publication.

Since WTO agreements were based on the principle of a single undertaking, all Member States are obliged to be party to all the agreements which cover a wider set of border as well as domestic policy issues than the GATT.[4] This has reduced the domestic policy space previously available to developing countries.

Thus international trade rules affect a much greater array of domestic policies and regulations than ever before and therefore have an impact on and are impacted by domestic institutions. For instance, multilateral trade agreements involving sanitary and phytosanitary measures, as well as technical barriers to trade, generally require changes in national standard-setting institutions, procedures, and enforcement mechanisms. Existing and proposed WTO rules on agriculture and the provisions concerning labour and environmental issues in some bilateral free trade agreements (FTAs) intrude deeply on domestic social and economic policies.

The expanding scope of trade policy places an additional strain on policymaking and institution-building, especially for developing countries. Countries that once faced simple choices about whether or not to join the GATT must now be prepared to undertake (sometimes simultaneously) negotiations at bilateral, regional, and multilateral levels. One consequence of this is that it is more difficult to verify compliance with the obligations in the trading system. For example, a country's policymaker may be unaware that a new domestic law or regulation is not in compliance with obligations undertaken in one of the more technically complex WTO agreements or FTA chapters. Verification of compliance by trading partners can pose an even greater challenge.

Ideally, WTO membership should reduce the strains on policymaking. First, it is supposed to ensure that members conduct their trade policies transparently according to a common set of agreed rules, thereby reducing transaction costs and risks linked to uncertainty over trade measures of partner countries. Second, and perhaps more importantly for developing countries, undertaking the obligations of WTO membership may help strengthen a country's trade-related institutions. By using these obligations as an external policy anchor or stimulus, policymakers can help streamline regulatory and institutional policies and measures. Also, a country may be able to inject greater coherence into different policies affecting trade. However, the potential benefits have to be weighed against the danger that if the obligations of WTO membership, and, indeed, also of obligations under FTAs, embody a "one-size-fits-all" approach, this would place unsustainable costs – economically, socially and politically in a democratic context - and substantial constraints on a country's policy space.

This paper takes up various issues related to the way in which WTO membership can affect a country's trade-related institution-building. The analysis is based on WTO accession cases in 1995–2007. Findings suggest that WTO accession can, under certain conditions, induce countries to establish or improve trade-related institutions. However, the accession process itself needs to have mechanisms which take account of acceding countries' differing levels of economic development and institutional capacity, so as to avoid placing a heavier burden in terms of implementation policy and institutional reform and related costs on countries with limited human, administrative and financial resources. Furthermore, a country's objectives in joining the WTO are not necessarily limited to membership per se, but are also likely to include exerting an influence on the multilateral trading system (MTS) and its future evolution so as to best promote its trade and development objectives. Yet this depends on the capacity to participate effectively in multilateral rule-making. The final and concluding section contains some suggestions as to the necessary ingredients for building a more effective trade-policy capacity.

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[4] These include the Uruguay Round agreements on agriculture, textiles and clothing, trade-related aspects of intellectual property rights (TRIPS), trade-related investment measures (TRIMs), services (GATS), sanitary and phytosanitary standards (SPS), customs valuation and expanded versions of Tokyo Round agreements on technical barriers to trade, import licensing procedures and subsidies/countervailing measures.

As of 14 February 2008, 23 new members had acceded to WTO, raising total membership to 151 (see Appendix table A1). The hope for these new members 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 thought to reflect the willingness of acceding countries to implement far-reaching changes in domestic economic policies and institutions.[6]

During the negotiation process, the newly acceded members 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 opening of services sectors and 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 in order to boost their confidence.[7] Nevertheless, research has not paid much attention to analysing the issues relevant to changes in domestic economic policies and institutions due to the WTO accession process of newly acceded members.[8]

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

The paper is organized as follows: Section 2 outlines the WTO accession process and the channels through which WTO accession can impact economic policy and institutions. Section 3 shows initial results of 23 newly acceded WTO members in terms of GDP per capita, tariff rates, and trade indicators etc. Next, specific results are shown by descriptive statistics on domestic economic policies and institutions and some correlates are explored. The empirical methodology and statistics are described afterwards. We employ difference-in-difference analysis to identify the performance of the 'treatment group' (the newly acceded WTO members) in relation to the 'control group'– the GATT/WTO developing countries in the sample. We also carry out a robustness analysis. Section 4 discusses some implications of WTO accession for the LDCs, while Section 5 concludes the paper.

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[5] Those are (in chronological order): Ecuador; Bulgaria; Mongolia; Panama; Kyrgyz Republic; Latvia; Estonia; Jordan; Georgia; Albania; Oman; Croatia; Lithuania; Moldova; China; Chinese Taipei (referred to in the United Nations as 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. Following the ratification of these terms, Ukraine became the 152nd member of WTO. See http://www.wto.org/english/thewto_e/acc_e/acc_e.htm

[6] North (1993) describes institution as "the process of change", and helps "improving the performance of economies through time". He emphasizes that the key elements of institutions are to "have secure property rights" and "rule of law".

[7] Detken et al (2004) discussed the role of European Union (EU) in helping increase economic and political stability in the newly acceding countries. They noted the overall positive achievements of newly 10 acceded countries in terms of domestic policy reform and institutions, making a strong point for the EU's role as an institutional anchor.

[8] According to former WTO Director-General M. Moore: "One important way in which countries can demonstrate 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.

2. WTO ACCESSION PROCESS: AN OVERVIEW

Integration into the multilateral trading system is a major part of the rationale for acceding to the WTO. During the negotiation process, the newly acceded members undertook a number of substantive commitments to redesign their domestic economic structure and legal 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 the reduction of import tariff duties and the opening-up of services sectors and 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 in order to boost their confidence.[11] Nevertheless, research has not paid much attention to a systematic examination of the issues relevant to domestic economic policies and institutions due to the WTO accession process of newly acceded members.[12]

Countries should follow some broad steps before becoming WTO members. Article XII of the WTO Agreement states that the conditions to become WTO members are as follows: *'accession to WTO will be "on terms to be agreed" between the acceding government and WTO".*[13] 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".[14]

An individual country makes an application for accession negotiation to begin. 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; foreign investment regime; safeguard measures and other trade remedies (anti-dumping and countervailing measures, standardization and certification of imported goods); sanitary and phytosanitary standards; and systems for the protection of intellectual property rights.[15] Therefore, WTO members are expected to benefit from participation in the multilateral trading system, as this is expected to raise income, trade, and *encourage better government and the rule of law* (italics added).[16]

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 (Appendix table A2 lists founder members of GATT/WTO, while table A3 lists countries with

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[11] Detken et al (2004) discussed the role of the European Union (EU) in helping increase economic and political stability in the newly acceding countries. They noted the overall positive achievements of newly 10 acceded countries in terms of domestic policy reform and institutions, making a strong point for the EU's role as an institutional anchor.

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

[13] See http://www.wto.org/english/thewto_e/acc_e/acces_e. htm

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

[15] See UNCTAD (2001), and other WTO accession documents for further discussions.

[16] See http://www.wto.org/english/thewto_e/whatis_e/10 ben_e/10b00_e.htm for further discussion.

ongoing accession to WTO).[17] These 128 founder members did not need to accede to WTO under Article XII.I of the Marrakesh Agreement.[18]

2.1 Impact of the WTO accession process

It has been discussed over the years that there is a need to strike an appropriate balance between domestic challenges and conformity with international trade rules during the process of negotiations so as to enhance their increasing and beneficial participation in the multilateral trading system. Accession may 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).

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 the General Agreement on Tariffs and Trade (GATT), twelve issue-specific agreements (e.g. on agriculture), the General Agreement on Trade in Services (GATS) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). Within a set-up of a multilateral

"Working Party" on each accession case, WTO members investigate whether any part of the acceding country's trade regime is inconsistent with WTO rules.[19] Two main areas under the scrutiny are economic policy measures that affect imports and exports, and the institutional framework (of legal and judicial factors) for making and enforcing such policies. Therefore, it is evident from accession requirements that one ought to look into the details of WTO accession for newly acceded members.

2.2 Channels of WTO accession impact

WTO accession impacts the domestic economic policies and institutions through a variety of WTO rules, which directly correspond to for example those included under "policies affecting trade in goods and services". The specific economic policy measures in this package include regulations for 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 a WTO accession technical note. If WTO members find that any economic policy measure is inconsistent with certain WTO provision(s), the acceding country needs to provide evidence as to when and how it intends to reform the 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 in the process of accession.

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[17] Another route to WTO membership is contained in GATT Article XXVI:5(c) of GATT 1947, which notes that a territory of a contracting party that attains autonomy can be sponsored for membership by the contracting party Because of this provision, 18 countries became WTO members in 1994, while Algeria and Cambodia had the possibility to exercise this clause but 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.

[18] See Ognivtsev et al (UNCTAD, 2001) for a comprehensive discussion on accession issues.

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

Let us now discuss specifically the two main areas affected by WTO accession – economic policy and institution-building. There is no WTO Agreement requiring 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 in the institutions of the acceding country.[20]

Once the accession negotiations are over, WTO members and the acceding countries agree on the terms of accession that are made up of the latter's commitments on rules and on market access negotiations. These terms are detailed in the Working Party Report. The Legislative Action Plans (LAPs), which provide a clear indication of institutional changes, contain a timetable for legislative changes, required implementing declared policy reform, and the Schedules of Concessions in Goods and in Services. It is worth noting here that these documents are legally binding under the protocol of accession, i.e. they cannot be altered unilaterally by the acceding country without a priori consultation. All these clearly indicate a potential influence of WTO accession on acceding members' domestic economic policies and institutions.

In the spirit of this paper, we examine the "width" – the areas – of economic policy and institutional changes specified in the terms of accession for 23 countries that have acceded to 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 remains very similar, as it is part of the accession requirement.[21]

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, worded in an almost identical manner across countries probably because the previous Working Party Reports were taken as a precedent. Then, contents of the commitments often include specification of laws to be amended or created in order to be consistent and ensure economic policy reform. If countries have no commitment in a policy area, this generally means that they already have a trade regime that conforms to the corresponding WTO rules. In the case of developing countries and particularly LDCs, it could be due to the fact that special and differential (S&D) provision of a given WTO rule allows them to be exempted from abiding with the rules, though there are cases where the S&D provisions are not automatically granted to newly acceding countries including LDCs.[22]

In table 1, we schematically report on two areas where a typical working party document for the WTO accession process and WTO membership would impact on domestic economic and institutional aspects. Against the backdrop of the above discussions, economic policy and institutional changes are the two areas of the WTO accession process that we investigate because of the direct links.

We argue that the accession commitments and stringent requirement for making changes in domestic economic policies and institutional framework help aspiring countries implement and deepen their transformation for qualitative change over time. These countries' commitments in the multilateral forum require them to display greater credibility in terms of putting in place appropriate sets of economic policies within the given time period. The time-bound commitments help to generate a huge amount of domestic pressures in place of a WTO-consistent set of

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[20] Quite a number of recently acceded countries made commitments with regard to privatization of State-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.

[21] The "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 under 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) among others. The WTO secretariat note also indicates the number of paragraphs used to specify each commitment.

[22] Note that in some policy areas such as agriculture, making no commitment is a declaration that a country follows the WTO rule. For instance, as regards agricultural policy, no commitment in terms of reduction of agricultural subsidies means that a country is committed not to having 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 licenses, 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 Trading rights, (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, 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 .

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 is indeed intended to bring about substantial reform of domestic economy policy that may help to reduce constraints, on both the economic and institutional fronts. Given this perspective, we argue that a single measure to identify the impact of WTO accession 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 consist of the following aspects: the structure and powers of Government and of the Executive, the Legislative and the Judiciary;

the administration of policies on WTO-related issues; the authority of sub-central governments; the uniform administration of the trade regime; judicial review; publication of information on trade and trade laws; and submission of WTO notifications. The WTO accession-related rules 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 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 GATT/WTO developing country members.

Moreover, WTO accession requires countries to prepare a policy commitment in several key areas as against the particular institution that must be created, strengthened or updated in the acceding country, thereby giving guidance on the full panoply of trade- and development-related institutions that will be influenced by accession to WTO. Table 2 shows how the accession process can help bring about changes in national economic policies and trade-related institution building. Once a country begins its negotiation process with the existing WTO members, it has to go through a long-drawn process which is expected to eventually bring a substantial change in policy areas and in creating more efficient trade-related institutions.

Table 2 presents an example of what a developing country, acceding and/or implementing multilateral trade rules, will involve in terms of institutional changes. That, in turn, can suggests the areas where external support may be expected from, e.g. the Aid for Trade (AfT) initiative.

Although developing countries still receive some form of special and differential treatment (SDT), this is mainly on the basis of temporary exemptions from some provisions of the new agreements and longer implementation periods (that have mostly expired). As a result of stricter application of the reciprocity principle,

developing countries are now in general expected to have national trade regimes as open as those of the developed countries. Thus, the new underlying logic in the trading system's approach to trade and development is equality of trade opportunity for developed and developing countries alike (despite inequality of capacities), rather than the provision of effective flexibilities of rules and disciplines and meaningful responses to the specific structural problems of developing countries. New members that have acceded to WTO in 1995-2007 are in fact subject to this logic in an even more pronounced manner.

It may be noted that in the context of making changes in national policy and institutional framework, negotiations on the terms of accession take place on two tracks – a multilateral and a bilateral track. First, within a multilateral Working Party on each accession case, WTO members investigate whether any economic policy measure of a country seeking accession is inconsistent with the WTO rules. When an inconsistency is found, the country is expected to demonstrate how it plans to reform the concerned policy area.[23] Second, in parallel to the multilateral track, an acceding country is requested to negotiate bilaterally with interested WTO members over how many "concessions" it makes in terms of opening its market in goods and services to exports from WTO members. Concessions cover binding MFN tariffs at "commercially viable levels"; making rules transparent across all domestic services sectors ("horizontal commitments"); and totally or partially opening up specific service sectors such as telecommunications, professional and financial services. Upon the completion of multilateral and bilateral negotiations, the agreed terms of accession are specified in the Working Party Report, which includes legislative action plans (LAPs) mapping out intended institutional changes and the country' Schedules

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[23] Note also that quite a number of newly acceded countries made commitments that go beyond the coverage of the existing WTO rules, for example, with regard to privatization of State-owned enterprises, pricing policies, export duties and taxes, protection of intellectual property rights, trade-related investment measures and overall transparency requirements. Such commitments are referred to as "WTO-plus", as they exceed the level of obligations that applies to existing WTO members.

Table 2. Illustrative interplay between international institutions (multilateral trade rules) and national trade-related institutions

WTO institutional area	National policy areas affected	Change in national institutions required
Import tariffs	Government revenues, industrial and customs policy	Bound levels of tariffs for both industrial and agricultural goods
Fees and charges for imports and exports	Government revenues	Fees and charges should be limited to the approximate cost of services rendered
Internal taxes	Government revenues	Internal taxes should be equal to similar domestic and imported products
Quantitative import and export restrictions on goods	Agricultural and industrial policies	Quantitative restrictions are prohibited
Import licensing	Agricultural and industrial policies	Import licensing should be transparent and subject to simple and clear procedures
Customs valuation	Customs policy	Application of defined valuations methods; prohibition of minimal values for customs purposes
Anti-dumping, countervailing duties and safeguard regimes	Agricultural and industrial policies	Adoption of special laws and regulations, including establishment of special responsible bodies
Export subsidies	Agricultural and industrial policies	Export subsidies on industrial products are prohibited and bound at zero for agricultural products
Internal subsidies	Agricultural and industrial policies	Industrial subsidies are subject to specific rules; Agricultural subsidies are bound at specific or de minimis levels
Technical barriers to trade (TBT)	Agricultural and industrial policies	Special laws and regulations to cover technical regulations, standards and conformity assessment systems, including transparency and establishment of enquiry points
Sanitary and phytosanitary measures (SPS)	Agricultural policy	Special laws and regulations to cover risk assessment and other required multilateral rules, including transparency and establishment of inquiry points
Trade-related investment measures (TRIMS)	Agricultural, industrial and investment policies	TRIMS are prohibited
Services sectors	Economic and social policies	Laws and regulations on access of foreign services to national market
Trade-related intellectual property rights (TRIPS)	Economic and social policies, and national law systems	Laws and regulations to conform to the TRIPS Agreement and its enforcement on copyright and related rights, trademarks, geographical indications, industrial designs, patents, plant variety protection, layout designs for integrated circuits, undisclosed information, etc.

Note: Some of the categories such as TBT, SPS, anti-dumping and subsidies under the "WTO Institutional Area" are categorized in the UNCTAD classification as non-tariff measures (NTMs).

of Concessions in Goods and Services.[24] These documents are legally binding under the Protocol of Accession, i.e. they cannot be altered unilaterally by the acceding country without a priori consultations and negotiations with other WTO members.

Some general cross-country studies have covered the policy and institutional impact assessment component of accession to WTO.[25] In a study of the impact of WTO accession on economies in transition, Drabek and Bacchetta (2004) found that WTO membership brought significant improvement in governance and economic policies. In the discussion of several accession cases, Kennett et al (2005) highlighted the legal obligations and their implications. Ferrantino (2006) explored the effects of WTO accessions on governance, concluding that the World Bank's "Governance Matters" indicators showed no apparent relationship between accession to WTO and improvement in the quality of governance. Tang and Wei (2006) explored the consequences of WTO accessions on income and investment, finding evidence that WTO accession accelerated income and investment provided countries had accepted rigorous accession commitments. These studies have not discussed the full range of links between the accession to WTO and changes in domestic policies and institutions; unsurprisingly in view of differences in their country coverage, their conclusions as to the strength of the effects of WTO accession vary.[26]

3. MODEL-BASED ANALYSIS OF WTO ACCESSION AND THE BUILDING OF TRADE-RELATED INSTITUTIONS

This section provides results from qualitative and econometric models. Initially, we set out briefly the descriptive statistics of basic economic information, EFI and ICRG measures to indicate the economic policy changes and institutional quality for acceding countries. We present results for 21 members that have completed the accession procedures, as Viet Nam and Tonga are not taken into account for the empirical analysis.

3.1 WTO accession: A qualitative analysis of economic conditions

The WTO members have undergone many policy changes during the process of accession. We document here some evidence of changes over the period for 23 newly acceded members, which provided them a gateway to enjoy the benefits through a multilateral trading system. These members are now eligible for most-favoured-nation (MFN) treatment on all their economic transactions from other member countries. The statistics show that the population size of new members is relatively small, except for China (Appendix table A1).

The new members show considerable divergence in economic size, levels of development and degree of participation in world trade (see Appendix tables A4, A5, and A6):

- Though the majority of new members are relatively small in terms of population except for China, GDP per capita (in US$) varies across countries, ranging from a minimum of US$ 270.7 for Nepal for 2005 to a maximum of US$ 15,291.5 for Chinese Taipei (referred to in the United Nations as Taiwan Province of China) (see table A4).

- The level of participation in international trade for each member is depicted by its share of global merchandise trade. Only China experienced a significant rise of its

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[24] Legislative Action Plans have now become a requirement in all accessions, although they were not requested in the earlier cases.

[25] See Basu (2008) for further discussion on role of institutions.

[26] See also Oxfam International (2003) on Cambodia's accession and its impact.

share from 2.88% in 1995 to 7.28% in 2005 (see table A5).

- They also vary in terms of their trade-to-GDP ratio.[27] The trade/GDP ratio for Nepal, for example, is less than 50 per cent, while that of Estonia is almost 165 per cent.

- The new members have reduced their applied MFN tariff rates since the date of their first Working Party meeting (see table A6).[28] In the base year (i.e. 1995), there were thirteen members with average tariff rates exceeding 10 per cent, but in the latest year (2005) for which data were available the number had declined to six members. 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.

The descriptive statistics of above indicators for two separate years are also presented (Appendix table A7). They show that average per capita GDP has a significant amount of dispersion among countries, trade/GDP ratio has increased and MFN tariff rates have declined significantly over the period. The share of merchandise exports (% of world) increased from 0.32 per cent 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 engaging in *more trade*.

Another crucial element of the accession process is the statistics related to the number of "systemic" (or institutional) commitments made by these members in the Working Party Report (Appendix table A8). 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, new members made commitments in 23 policy areas. By taking statistics, we find that the mean number of "areas of commitments" is 23 (excluding China and Chinese Taipei, referred to in the United Nations as 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 indicating 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 had to undertake. While the average number of "paragraphs of commitments" is 34, Mongolia had the minimum number of paragraphs of commitments (17) while China had the maximum number (82). Another interesting fact is the number of working party members present and negotiated during the accession process. Nepal and Georgia had to hold three meetings each during their accession process, whereas China had to undertake 41 meetings with working party members. The number of working party members is another indication of how existing member countries are interested in particular accession negotiations. A quick look at the table shows that the mean number of members is 28 (excluding China and Chinese Taipei, referred to in the United Nations as Taiwan Province of China, is 24). China had 62 working party members, while Cambodia and Kyrgyz Republic had 15 working party members. Some of these measures provide crucial clues for further exploration of accession impact on domestic economic policies and resulting institutional changes.

3.2 WTO accession: A qualitative analysis of policy and institutions

The key question is to trace the changes of newly acceded members during this period on domestic economic policy and institutions. First, we discuss the EFI measure, and then ICRGI. We analyse three groups of WTO members for both the samples in enlarged version by dividing members into the following groups: developing country GATT members only, WTO members and WTO members-Article XXVI:5(c).

We present the results for the EFI sample (see Appendix table A9 for the description of each EFI component and table A10 for the descriptive statistics). This sample consists of a total of 98 countries. The developing country GATT members have an EFI value of 1.73, as

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[27] See Chapter 1 of this publication. See also Sachs and Warner (1995) and Wacziarg and Welch (2003) for a discussion on trade openness measures.

[28] We perform paired mean difference test of two periods across 22 new members. The result is statistically significant at the 1% level, indicating there has been a significant fall in latest year compared to base tariff rates.

compared with 1.85 for the newly acceded WTO members. Moreover, WTO members-Article XXVI:5(c) registered an average value of 1.71. The figure clearly shows that the value is highest for the newly acceded members, and the maximum value (3.32 for Estonia) in the sample is from this group. Similarly, we present the results from the ICRG sample (see Appendix table A11 for the description of each of ICRG components and table A12 for the descriptive statistics). It consists of 80 developing countries GATT/WTO members. The average of WTO members stands at 4.90, while for the GATT members it is 4.57 and for XXVI:5(c) members it is 3.908 (Appendix table A12 shows). 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, the newly acceded WTO members 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.

We also present results of correlation among components of EFI and ICRGI. Secondly, the results on correlation 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 A13). 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 the foreign investment (FI) and banking (BK) component measures of EFI. TD is not statistically significantly correlated with only the monetary policy (MP) component also. Similarly, the property rights (PR) component has the highest correlations with the foreign investment (FI), banking (BK), and wages and prices (WP) component, and the least correlation with the monetary policy (MP) component. Furthermore, the regulation (RE) component of EFI shows maximum correlation with the property rights (PR) component, 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, followed by the wage and prices (WP), property rights (PR) and regulation (RE) component. This indicates that institutional measures are important elements of economic policy change and improvements therein. 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 the EFI components with GDP per capita (Appendix table A14). The composite measure of 10 components is the Index of Economic Freedom (EFI), which is highly correlated with the 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, as are the property rights (PR) component and improvements in the (in)formal market (IM). Monetary policy (MP) and government intervention (GI) components have the least correlations with the GDP per capita component. This shows once again that improved banking (BK) and foreign investment (FI) have statistically significant positive correlation with GDP per capita, as does 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, viz., investment profile (IP), law and order (LO), and bureaucratic quality (BQ). Initially, the correlation among components (Appendix table A15) Investment profile (IP) component of ICRGI is found to be positively correlated (statistically significant) with law and order (LO) and bureaucratic quality (BQ) component. Bureaucratic quality (BQ) has the highest correlation with the law and order (LO) component. Subsequently, the correlations between GDP per capita with three components are shown in the next table (Appendix table A16). 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).

Therefore, a high correlation between domestic economic policy components (banking, wages and prices, trade, fiscal burden, foreign

investment, investment profile) with institutional measures (property rights, regulation, law and order, and bureaucratic quality) should not be interpreted as causation. The preliminary results of inter-relationship among these components with GDP per capita are also encouraging, helping us explore in detail the causal relation through econometric modelling in later sections of this paper.

It may be noted that there is also some indication that the impact of WTO accession on institution-building and on trade performance depend on the level of development, in particular absorption capacity and hence capacity to effectively implement the commitments. It is natural to ask whether and how such divergences among new members are taken into account when negotiating their terms of accession to WTO. This question is the focus of our examination below. The terms of accession agreed by each new member are examined here in terms of their width and depth.[29]

3.3 WTO accession: A qualitative analysis of terms of accession

The width of the terms of accession refers to the range of issues in which acceding countries are required to reform their policies and/or institutions. As shown in table 3, width is similar across countries. On average, new members made commitments in twenty-two policy areas which vary little among countries at different income levels. These areas cover the "core" issues of WTO, i.e. those which are closely linked to the WTO/GATT Articles or directly associated with specific WTO agreements such as those on customs valuation, import licensing, anti-dumping, subsidies and countervailing measures, safeguard measures, TRIPs and TRIMs. Such a result suggests that accession negotiations are conducted according to a given framework, whose objective is a systematic check on economic policies that touch upon the core issue covered by the WTO rules. Under each issue, however, some acceding countries have made much "deeper"

Table 3. Depth of commitments in accession agreements

Low-income group	area	para	Lower-middle income group	area	para	Higher-middle income group	area	para
Kyrgyz Republic (1997)	21	29	Ecuador (1996)	17	21	Bulgaria (1996)	22	26
Mongolia (1997)	20	17	Albania (2000)	22	29	Panama (1997)	19	24
Moldova (2001)	24	28	Georgia (2000)	23	29	Latvia (1999)	20	22
Cambodia (2004)	24	29	China (2001)	27	82	Estonia (1999)	21	24
Nepal (2004)	20	25	Armenia (2003)	25	39	Croatia (2000)	22	27
Viet Nam	30	70	Tonga	29	32	Jordan (2000)	23	29
						Oman (2000)	24	26
Average	**23.1**	**33.0**	**Average (excluding China)**	**23.8** **23.2**	**38.6** **30.0**	Lithuania (2001)	22	28
						Chinese Taipei (2002)*	23	63
						Macedonia, FYR (2003)	19	24
						Saudi Arabia (2005)	26	59
						Average (excluding Chinese Taipei* and Saudi Arabia)	**21.9** **24.8**	**32.0** **25.6**

Note: World Bank definition of the *Income group*: Economies are divided according to 2005 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, $875 or less; lower middle income, $876 - $3,465; upper middle income, $3,466 - $10,725; and high income, $10,726 or more. Area refers to the number of subjects, and para denotes the number of commitment paragraphs in the Working Party Report.

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

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[29]   The concept of the width and the height was first used by VanGrasstek (2001), though the definition used here is not exactly the same.

commitments than others. The depth of the terms of accession is assessed here by the number of commitment paragraphs in the Working Party Report, since these paragraphs refer to the types and the degree of reforms that new members are called to undertake. As shown in Table 3, the average number of commitment paragraphs (40) is the highest for the lower-middle income group, followed by the higher-middle income group (32) and the lower-income group (33). These averages, however, are greatly influenced by four outliers, China, Viet Nam, Saudi Arabia and Chinese Taipei (referred to in the United Nations as Taiwan Province of China). When these new members are excluded, the depth of commitments does not differ much among countries and income groups, the reduction in depth being due to the exclusion of China, a particularly large country, from the lower-middle income group.

Figure 1. Linking the terms of accession to (1) GDP per capita and (2) a measure of policy and institutional quality
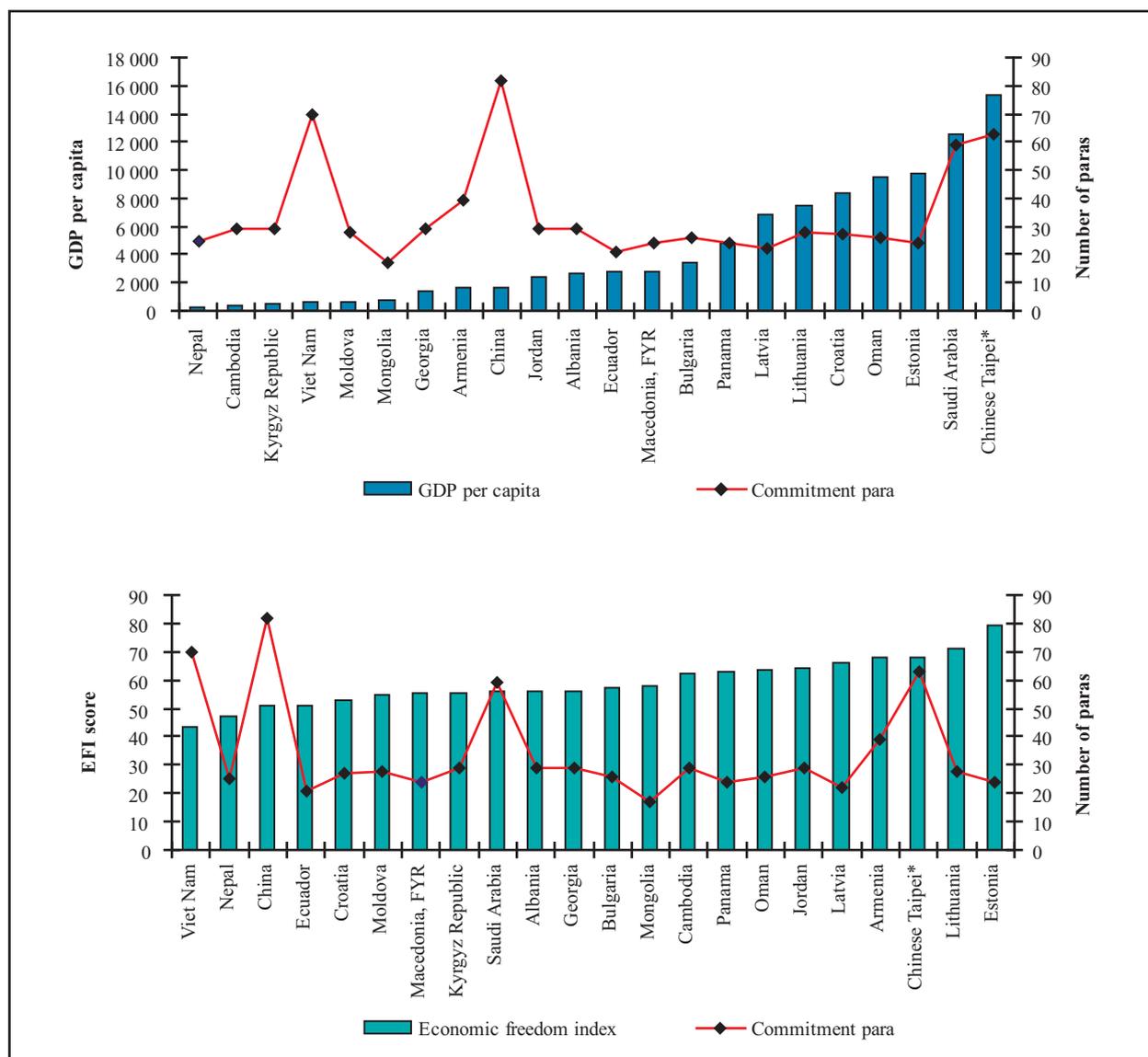
Notes: Commitment para: number of commitment paragraphs in Working Party Report.
Real GDP per capita at constant $US, EFI: Index of Economic Freedom (a measure of domestic economic policy and institutional quality).
* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

Source: EFI from the Heritage Foundation, GDP per capita from UNCTAD intranet, and Commitment para from the WTO documents.

Figure 2. The commitments of acceded members and export share in world trade

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.
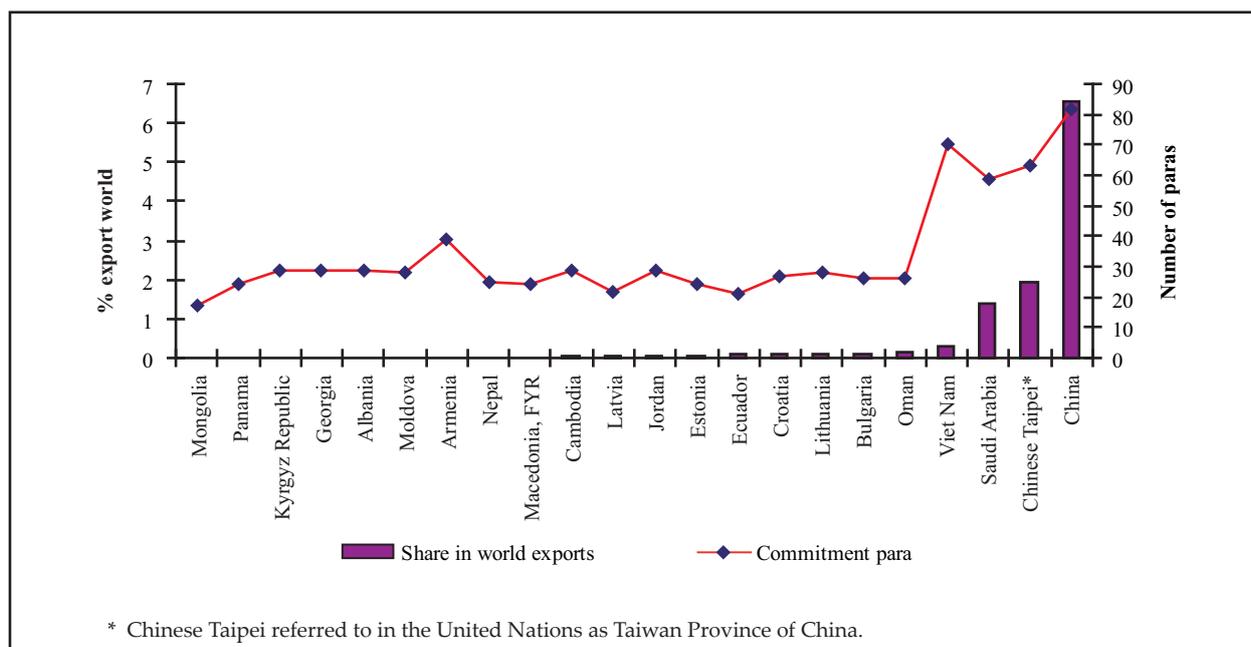
So what determines the divergence in the depth of the terms of accession? Figure 1 shows that depth is not related to either income level or institutional quality as measured by the EFI. The commitments of Cambodia, which is a LDC, were covered by the same number of paragraphs as those of Jordan, a country with a GDP per capita about five times higher; while the commitments of Nepal, another LDC, were covered by one paragraph more than Estonia and Panama, countries almost twenty times richer.

It might be expected that a country with a low level of institutional quality/financial resources should not be required to make a greater number of commitments than others with a better level. But this does not seem to hold. In the lower half of Figure 1, the newly acceded countries are ordered from left to right according to their associated EFI values. There is no apparent relationship between EFI and depth of terms of accession.

However, the depth of terms of accession appears to be related to a member's participation in world trade (see Figure 2). The "outlier" members – China, Chinese Taipei (referred to in the United Nations as Taiwan Province of China) and Saudi Arabia – together account for some 11 per cent of the merchandise export of world trade, while the share of all the remaining members only accounts for 1.1 per cent. The average number of commitment paragraphs for

the "outlier" members is 68, compared to 28.7 for the remaining members. New members with greater participation in world trade and market impact were asked to make greater concessions than other small players. This readily implies that width and depth of commitments vary according to specific commercial interest, size of markets and political economy.

The above examination suggests that the terms of accession resemble a "set menu" in terms of width, i.e. acceding countries face a fixed set of areas for policy and institutional reform regardless of their differing levels of economic development or institutional quality. Moreover, whenever the commercial or political interests of WTO members are at stake in relation to certain acceding countries, the former show greater interest in their trade regimes and institutions and insist on substantially more commitments than in the "set menu".

Indeed, it has been observed that major WTO members use accession negotiations to improve their export opportunities and to block "unfair access" of new members to their home markets.[30] This may reflect the fact that acceding

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[30] A notable example was the terms of accession for China, which assure a certain share for the exports of major WTO members in its market via tariff rate quotas and which include clauses allowing WTO members to impose safeguard and anti-dumping measures on the basis of special rules and procedures if Chinese exports of certain goods threaten a WTO member's import market. These special provisions are set to expire only after transitional periods of 12 to 15 years.

countries still include "non-market economies", which are deemed to require special approach and disciplines before they make the transition to a "full market economy" and are therefore requested to make much deeper commitments than other acceding countries. WTO members also take advantage of accession negotiations to influence negotiations with countries "in waiting", using the terms of accession to establish precedents for subsequent cases. As a result, terms of accession have tended to become deeper over time.

The above discussion generates some key issues regarding the terms of accession and their impact on acceding countries. For acceding countries at a higher level of development, accession commitments can well induce institution-building and expedite the process of integration into the multilateral trading system (MTS). But the accession process fails to recognize the "readiness quotient" of a country in terms of its institutions and development level. If "readiness" is less, more time should be required for the implementation process, particularly in terms of resource-intensive commitments. Ideally, "demands" on width and depth of concessions should be calibrated according to institutional preparedness and the necessary resources provided in the case of poor countries.

The present reality is that no thought seems to be given to the linkage of readiness and institutional capacity. Accessions are used to extract maximum concessions from acceding countries without any reflection as to the sustainability of such demands, in terms of levels of development, and the institutional preparedness of the countries in question.

3.4 WTO accession: A quantitative analysis

In this section, we set up and examine through econometric specification the hypothesis that accession has a positive and significant impact on economic policies and institutions (DEI, for domestic economic policy). 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 are used for the dependent variable – one for the baseline estimation and another for checking 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 aspects of accession commitments.

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 identify the risk-measure of business investment by companies.[31] PRS Group has provided 'perception'-based data and information on a monthly basis since 1984 on a number of risk components, helping to identify policy and institution-related developments for 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. 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 can be downloaded directly from the WTO website.[32] The control variable in all of the specifications is lagged GDP per capita (log of), which is obtained

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[31] On the 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/)

[32] See http://www.wto.org/English/thewto_e/acc_e/acc_e. htm for relevant country-wise accession documents.

from the World Bank's World Development Indicators (2006).

The test uses the tool of difference-in-difference (DD) analysis, which relies on dummy variables to segment the observations for countries and years in such a way as to produce estimates of the effects of WTO accession on DEI.[33] The hypothesis is accepted if countries that went through the accession process show higher levels of improvements in DEI than other developing-country members of the GATT/WTO.[34] 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 A17 for the list of countries in the sample for the empirical study).[35]

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.

[33] See Meyer (1995), Slaughter (2001) and Bertrand et al (2004) for an in-depth discussion on difference-in-difference analysis.

[34] Information on Viet Nam and Tonga are not included in the analysis because of their recent entry to the WTO. We do not have sufficient information to test the impact on their domestic economic policies and institution-building.

[35] The selection of sample country depends on the availability of comparable data across variables for all model specifications.

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

$$ATE = E\{\Delta DEI^1_{t+t^*} \setminus WTOd_{it} = 1\} - E\{\Delta DEI^0_{t+t^*} \setminus WTOd_{it} = 0\} \quad .....(1)$$

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

$$DEI^{TG(=1)}_{it} = \alpha_i + \beta_0 WTOd_{it} + \beta_1 WTOd_{it+t^*} + \delta_0 WTOd^{TG(=1)}_{it} + \delta_1 WTOd^{TG(=1)}_{it+t^*} + \phi X_{it-1} + \lambda_t + \varepsilon^{TG(=1)}_{it} \quad (2)$$

where $DEI^{TG(=1)}_{it}$ 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 members in the sample, then equation (2) boils down to the following:

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

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, while δ_1 captures the change in outcome variable with after effects of WTO accession. The results are discussed in section 6.

If accession to the WTO influences trade-related institutions in the acceding country, what is the extent of this influence? In this section, the impact of WTO accession on an acceding country's domestic economic policies and institutional quality (DIQ) is examined through econometric tests of the hypothesis that accession has a positive and significant impact on trade-related institutions.

3.5 WTO accession: Empirical findings

To provide empirical support to testable hypotheses, this section intends to discuss results from difference-in-difference analysis. The results from 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 Index of Economic Freedom (EFI) as dependent variables. For robustness analysis, we use the International Country Risk Guide (ICRG) index as well. Later on, by dropping China and Saudi Arabia from the sample, another set of set of robustness analysis is carried out.[36] We drop these two countries from the sample for two very specific reasons: (i) total time from application to membership is 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.

The estimation results of the equation 2 (see Section 3.4) are shown in the tables (Appendix table A18, A19 and A20). Results are obtained by considering all developing countries in the sample as the control group. First, **OLS (pooled)** results for the EFI as the 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 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 shows statistically significant positive coefficients of the WTO accession dummy variable (coefficient is 0.138 and significant at 10% 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 time trend {timetrend$_{1995}$=1, timetrend$_{1996}$=2,…..) to account for the overall trend in the EFI, i.e. to understand if there had 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 of WTO accession for domestic policy changes and institutions is an upwards one. In the Column 3 regression estimation, we include both year effects and time trend, but in that case the coefficient is no longer significant at the 10% level. This result can follow from the fact that in the 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 for a country which did not go through the accession process (a control country). If OLS is the causal relationship, then the size of the coefficient on the WTO accession dummy suggests its impact on economic policy and institutions, which is measured by EFI. For example, Madagascar did not go through with the WTO accession process, while Lithuania went through the process. The regression coefficient from column 1 of Appendix table A18 indicates that if Madagascar had gone through

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[36] Saudi Arabia does not matter much as after its accession, there is no data point in the sample.

the WTO accession process like Lithuania, then Madagascar would raise its EFI to 1.77, closing the gap with Lithuania from 0.64 point to 0.54 point on average, which is a substantial improvement. The EFI of Madagascar would then become higher than that of developing countries of GATT/WTO average of 1.73.[37] This simple exercise shows the substantial improvements that could occur if others had gone through the accession process.

In the remaining columns (Col.4 to Col.6), we attempt to understand the impact of WTO accession on economic policy and institutional measures, by isolating the accession time profile into two indicators in the following to ascertain the impact: the year of accession to WTO, and for the subsequent years (Appendix table A18). The economic policy and institutional measures take time to bring about changes due to the lengthy process, and governments need to pursue them 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 periods. We can expect WTO (t0+t*) to be consistently positive, if not WTO (t0).[38] It is observed that both WTO (t0) and WTO (t0+t*) are positively significant in all the different model specifications; WTO (t0+t*) being statistically more significant.[39] 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.

The *Generalized Least Squares (GLS)* estimator is employed because it is consistent and asymptotically more efficient than OLS (Wooldridge 2003).[40] The GLS estimators are used to account for heteroskedasticity in the error term ε.[41] We use FGLS estimation in the presence of panel specific AR (1) autocorrelation, and heteroskedasticity across panels with no cross-sectional correlation.[42] 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 our 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 a change in its sign or level of significance.

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 captures 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 in the countries' relative position to each other 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 specifications. The coefficient on time trend is positive and significant, which implies there has been upward movement in EFI, so it captures the overall improvement of these treatment group countries (newly acceding countries) that have shown an overall positive upward trend in their domestic economic policies

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[37] The average of EFI over the period for Lithuania is 2.27, while Madagascar is 1.63.

[38] 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.

[39] The common intercepts hypothesis is rejected in all the model specification as shown by F-statistics. It is noteworthy that throughout this paper, robust standard errors adjusted for clustering by country are reported.

[40] 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".

[41] 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"

[42] 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".

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 remain highly significant for WTO (t0+t*) variable for columns 5 to columns 6, but the WTO (t0) coefficient is insignificant. Therefore, the first three tables strongly support our testable hypothesis.

3.6 WTO accession: Robustness checks of empirical findings

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

To carry out another robustness analysis, we report results excluding China and Saudi Arabia from the sample (Appendix table A24). This also reveals that dropping these countries from sample EFI and ICRGI leads to a substantial increase 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), showing that without China and Saudi Arabia, the WTO accession process substantially boosted countries' economic policies and institutions when compared to other WTO members that did not go through the accession process. More importantly, however, this indicates that, unsurprisingly, the choice of indicator for the dependent variable, DEI, makes a difference for the value of the estimated parameters. However, the conclusion as to the significance of the influence of WTO accession over a longer period stands.

4. IMPLICATIONS OF ANALYSIS FOR SPECIAL MEASURES TO HELP ACCEDING LDCs

If the terms of accession are determined regardless of the level of economic development and the institutional quality of acceding countries, it is reasonable to assume that WTO accession could pose a greater burden for countries with limited administrative and institutional capacity, such as LDCs. In fact, WTO members agreed, in the Decision of the WTO General Council of 10 December 2002, that the accession of LDCs should be conducted under a "fast track" approach. The Decision states that "the General Council decides that (…) negotiations for the accession of LDCs to the WTO, be facilitated and accelerated through simplified and streamlined accession procedures, with a view to concluding these negotiations as quickly as possible", and provides a "guideline" as regards negotiations on market access, WTO rules, the negotiation process and provision of technical assistance.[43]

The guideline set out in the Decision, however, provides no practical measures to facilitate and accelerate accession negotiations involving LDCs. For instance, with regard to market access, WTO members are supposed to "exercise restraint" in seeking concessions on trade in goods and services from acceding LDCs, taking into account "the levels of concessions and commitments undertaken by existing WTO LDC Members". However, the tariff concessions made by two LDCs (Cambodia and Nepal) which acceded to WTO after this Decision had come in force brought their average bound tariffs in agriculture to a level of about one-third of the average tariffs of other WTO LDC Members bound under the Uruguay Round.

With respect to rules, the guideline states that "… transitional periods/transitional arrangements foreseen under specific WTO Agreements (…) shall be granted (to acceding LDCs) taking into account individual development, financial and trade needs". But

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[43] WTO, "Accession of Least-Developed Countries" – Decision by the General Council of 10 December 2002 (WT/L/508).

there is no guidance as to how individual needs and the feasibility of reforms in the case of LDCs are to be assessed or as to how subsequent implementation of terms of accession is to be monitored. For example, in the case of the accession of Cambodia[44], it was informally estimated that the implementation costs of compliance with only four WTO multilateral trade agreements (on TRIPS, Customs Valuation, Technical Barriers to Trade and Sanitary/Phytosanitary Measures) would amount to about US$ 120 million per annum during a five-year period after accession.[45]

Accession to the WTO can present a window of opportunity to acceding countries, particularly to those with institutional capacity gaps and deficit such as LDCs, to build stronger trade-related institutions.[46] In order to take advantage of this opportunity, LDCs require focused and practical support. However, such support has not been forthcoming on the required scale either for recently acceding LDCs or for the thirty other LDCs, most of which acquired GATT membership through succession. The effectiveness of LDCs' participation in the international trading system is at best partially monitored by the Trade Policy Review Mechanism, which apparently lacks a special framework adapted to the special circumstances of LDCs.[47]

In order to build a functioning bridge between WTO-induced policy reform and achievement of developmental goals by acceding LDCs, a national mechanism could be established that would serve as an "adjustment and development audit", taking into account, among other things, potential economic costs associated with compliance with WTO rules.[48] UNCTAD could assist LDCs in this task.

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[44] UNCTAD provided comprehensive technical assistance to Cambodia during its WTO accession process.

[45] For further details, see WTO documents WT/ACC/KHM/13/Rev.1 (3 March 2003), WT/ACC/KHM/14/Rev.1 (3 March 2003), WT/ACC/KHM/15/Rev.1 (3 March 2003) and WT/ACC/KHM/16/Rev.1 (3 March 2003).

[46] The positive impact on trade-related institution-building for LDCs may be the most significant benefit accruing from WTO accession. Other effects which are relatively more important for non-LDCs – such as improving market access, attracting new foreign direct investment and exercising the right to participate in multilateral rulemaking – may not apply to the same extent to LDCs due to their weaknesses. In the case of market access, for instance, over 80 per cent of LDCs' exports to the main developed-country markets already benefit from tariff-free market access under various preferential trade arrangements outside the WTO framework which apply to WTO members and non-members alike.

[47] Among possible vehicles for such a mechanism within existing programmes might be the Integrated Framework (IF) for LDCs. New initiatives such as "Aid for Trade" could also be used for this purpose.

[48] See, for instance, Finger and Nogués (2002) for the estimates of costs for developing countries associated with implementing the WTO agreements such as TRIPs, SPS and TBT.

5. CONCLUSIONS

To conclude, it is worthwhile to reiterate that we intended to examine the effects of WTO accession on the domestic economic policies and institutions of newly acceded members in comparison to other developing members in the sample. We argued that measures going beyond usual trade policy and trade outcome should be used to explore 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 for 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 countries with opportunities to make credible commitments, by inducing deeper economic policy changes and making institutions respond effectively and efficiently during the process.

Future research could 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 better understanding of WTO accession impact in the above areas. It could also be of interest to determine the potentially differential impact of WTO accession on LDCs, oil-rich countries, and newly acceded EU countries. Furthermore, future analysis could be geared to focusing on not only comparing and testing the policy anchor hypothesis of FTAs, RTAs and external-sector-related programmes of international organizations, but also simultaneously looking 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. Mechanisms for transmission of the impacts of the accession process should also be expanded and identified.

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APPENDIX TABLES

Table A1. Completed WTO accessions since 1995

	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
Chinese Taipei*	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	June 1995	April 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

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

Table A2. Founder members 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	St. 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 (United Rep. of) 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 (Bolivarian Rep. of) 31 Aug 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	

Table A3. Ongoing accessions to the 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 A4. 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	2 739.9	54.0	63.0
Bulgaria	7.8	3 442.5	91.0	138.0
Mongolia	2.5	736.3	97.2	160.0
Panama	3.2	4 786.3	198.8	141.0
Kyrgyz Republic	5.1	473.4	71.8	97.0
Latvia	2.3	6 856.7	87.5	111.0
Estonia	1.3	9 744.6	144.5	175.0
Jordan	5.4	2 376.7	124.6	145.0
Georgia	4.5	1 429.2	67.8	97.0
Albania	3.1	2 677.4	47.0	68.0
Oman	2.5	9 460.1	79.6	99.7
Croatia	4.4	8 417.7	88.1	103.0
Lithuania	3.4	7 465.5	111.0	124.0
Moldova	4.2	691.0	107.3	144.0
China	1 296.2	1 708.6	43.9	69.0
Chinese Taipei*	22.6	15 291.5	NA	120.2
Armenia	3.0	1 625.4	86.1	67.0
Macedonia, FYR	2.0	2 832.8	75.8	108.0
Nepal	26.6	270.7	59.5	49.0
Cambodia	13.8	383.1	77.7	139.0
Saudi Arabia	24.0	12 606.4	65.4	87.0
Viet Nam	82.2	631.7	74.7	145.0
Kingdom of Tonga	0.102	2 159.0	52.0	54.0

Note: NA: Not available.

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

Source: UNCTAD database, WTO 2007 database, and World Bank 2007 database.

Table A5. Shares of merchandise exports and imports of 23 newly acceded WTO members
(% of the world)

	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
Chinese Taipei*	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

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

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

Table A6. MFN Tariff Rates (simple average) of 23 newly acceded WTO members

	Base year	Latest year	Change	Rank
Ecuador	12.9	11.7	-1.2	15
Bulgaria	12.3	10.4	-1.9	13
Mongolia	NA	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
Chinese Taipei*	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	NA	16.8	NA	NA

Note: NA: 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.

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

Source: UNCTAD TRAINS database.

Table A7. Descriptive statistics of 23 newly acceded WTO members

	Year	# Observations	Mean	Std. Dev.	Min	Max
GDP per capita(current $US)	2005	23	4 295.93	4 283.04	270.70	15 291.50
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 (% of World)	1995	23	0.29	0.74	0.00	2.88
	2005	23	0.52	1.56	0.00	7.28
Shares of merchandise imports (% of World)	1995	23	0.26	0.64	0.00	2.53
	2005	23	0.43	1.29	0.00	6.13

Note: Author's calculation.

Source: UNCTAD and World Bank.

**Table A8. List of commitments (areas and paragraphs),
working party meetings and number of members**

	# 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
Chinese Taipei*	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.

* Chinese Taipei referred to in the United Nations as Taiwan Province of China.

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 A9. 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: a score of 1 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

.../...

Table A9. (continued)

(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 A10. Descriptive statistics of the Index of Economic Freedom (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 XXVI:5(c)	9	76	1.71	0.71	0.50	3.25

Notes: The Index of Economic Freedom 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: The Index of Economic Freedom is from the Heritage Foundation and WTO accession year is from WTO accession documents.

Table A11. 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 A12. 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 XXVI:5(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 A13. Correlation among 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	<u>-0.010</u>	0.069*	<u>0.011</u>	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 significant at 1%-level, underline implies coefficient is not significant.
Sample consists of Developing country GATT/WTO members.

Source: The Index of Economic Freedom is from the Heritage Foundation; log (real GDP per capita) from the World Bank.

Table A14. Correlation of GDP per capita with EFI indicators

	GDPpc
(EFI) Index of Economic Freedom	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 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: The Index of Economic Freedom is from the Heritage Foundation; log (real GDP per capita) from the World Bank.

Table A15. Correlation among International Country Risk Guide (ICRG) indicators

	ICRGI	IP	LO	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 coefficients are statistically significant at 1%-level.
Sample consists of Developing country GATT/WTO members.

Source: PRS Group ICRG database.

Table A16. 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 coefficients are statistically significant at 1%-level.
Sample consists of Developing country GATT/WTO members.

Source: PRS Group ICRG database.

Table A17. 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 (United Rep)
Cote d'Ivoire	**Jordan**	Nicaragua	Uganda
Cameroon	Kenya	**Nepal**	Uruguay
Congo, Rep.	**Kyrgyz Republic**	Oman	Venezuela, BR
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 the ICRG database.   [1] GATT Article XXVI:5(c) countries in sample.

Source: Heritage Foundation for the Index of Economic Freedom, and PRS-Group for the International Country Risk Guide database.

Table A18. OLS estimation – WTO accession impact on domestic economic policy and institution

	Dependent variable: Index of Economic Freedom					
	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: The Index of Economic Freedom 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 acceded members.
WTO membership year (t): Country gets 1 if it becomes a 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 countries. *** implies significance at the 1 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Source: The Index of Economic Freedom is from the 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: Index of Economic Freedom					
	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: The Index of Economic Freedom 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 acceded members.
WTO membership year (t): Country gets 1 if it becomes a 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 that each group has a different AR(1) process for different cross-section units. Standard errors are (in parentheses)
Z-statistics *** implies significance at the 1 per cent level;** at the 5 per cent level; and * at the 10 per cent level.

Source: The Index of Economic Freedom is from the 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: Index of Economic Freedom					
	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)	1 937.32***					
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: The 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.

The Breusch-Pagan LM statistic tests the random effect model versus the pooling OLS. The 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 acceded members.

Control Group: Developing country GATT members.

Robust standard errors are (in parentheses) adjusted for clustering in all countries. *** implies significance at the 1 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Source: The Index of Economic Freedom is from the 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 acceded members.
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 countries. *** implies significance at the 1 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Source: The 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 acceded members.
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 that each group has a different AR(1) process for different cross-section units.
Standard errors are (in parentheses)
Z-statistics *** implies significance at the 1 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Source: The 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)	1 210.021***					
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.
The Breusch-Pagan LM statistic tests the random effect model versus the pooling OLS. The Hausman specification statistic tests the fixed-effect model versus the random effect model.

Treatment Group: The WTO acceded members.
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 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Source: The 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: Index of Economic Freedom				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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