

Aid for Trade and the Post-Washington Confusion

Arne Melchior, Norwegian Institute of International Affairs

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Abstract

The paper examines some core issues related to aid for trade (AfT); starting with a brief review showing the rapid expansion of such aid in recent years. There is a well-documented need for aid related to trade institution building and the implementation of WTO agreements, and AfT may be scaled up for this purpose. Beyond this, there is uncertainty about the level of ambition for AfT, and the paper attempts to assess the scale of the problems that AfT is supposed to remedy.

An analysis of the relationship between openness and income suggests that 1/10 of the countries, representing 3% of the world population, have a “problem with trade” in the sense that openness and income are negatively correlated, and growth has been slow. On the other hand; for 28% of the countries, representing 2/3 of the world population, the relationship between trade openness and income over time is clearly positive. Hence on average, the relationship between trade and growth is positive even if there is a considerable middle ground where the relationship is not so clear-cut.

The existence of a negative relationship between trade and growth for some countries provides a rationale for AfT related to the supply-capacity of countries. For the problem countries, the “problems with trade” are the same as the “problems with growth”. Hence there is no specific AfT that can solve their problems, and aid for supply-side development should therefore be provided on a long-term basis and coordinated with other aid, as suggested by the recent task force on aid for trade. The experience with AfT implementation so far suggest that such aid has to be scaled up gradually, building on existing channels and coordinating better, rather than creating a new AfT mega-facility overnight.

A third type of AfT is related to adjustment to trade liberalisation. It is argued that transitional AfT in order to compensate for preference erosion might be given. AfT related to the erosion of tax revenue may be important for some low-income countries.

The paper suggests that the targeted countries should vary across different types of AfT. In order to reach the countries that are most needy in terms of supply-side limitations, the “IDA only” list or the list of low-income countries, are better than the LDC (Least Developed Countries) list. Furthermore, non-members of WTO seem to have larger “problems with trade”, and this underlines the importance of AfT related to WTO accession. The analysis provides support for the proposal by the aid for trade task force to create new funding mechanisms for aid for trade to non-LDC developing countries.

1. Introduction

In the "Washington consensus" around 1990, trade liberalisation in rich as well as poor countries was a top priority.¹ 15 years later, trade optimism is less credible, the worries have increased, and there is a search for a new consensus:

"We cannot ignore the costs of adjustment, particularly for the developing countries, and the problems that can arise with the opening up of markets. These adjustments must not be relegated to the future: they must be an integral part of the opening-up agenda. We must create a new "Geneva consensus": a new basis for the opening up of trade that takes into account the resultant cost of adjustment. Trade opening is necessary, but it is not sufficient in itself. It also implies assistance: to help the least-developed countries to build up their stocks and therefore adequate productive and logistical capacity; to increase their capacity to negotiate and to implement the commitments undertaken in the international trading system; and to deal with the imbalances created between winners and losers from trade opening — imbalances that are the more dangerous to the more fragile economies, societies or countries. Building the capacity they need to take advantage of open markets or helping developing countries to adjust is now part of our common global agenda."

This statement was not made by some anti-globalisation activist; it is from WTO's Director-General Pascal Lamy.² But while Lamy is searching for the new consensus, the actual situation is one of dissonance, discontent and confusion. The Doha Development Agenda (DDA) has collapsed, and it is currently (November 2006) uncertain when or whether it will be resumed. While the Uruguay Round (UR) of the WTO was conceived in the trade optimism of the Washington consensus, DDA has collapsed in the Post-Washington confusion. An example is UNCTAD's Trade and Development Report 2006 (UNCTAD 2006a), which is partly an anti-WTO manifesto. At UNCTAD's Trade and Development Board Meeting on 27 September 2006, Pascal Lamy spent parts of his statement arguing against the report's rejection of several WTO agreements as well as the plans for tariff reductions in the current WTO round. Ironically, the UNCTAD report bears the signature of Secretary-General Supachai Panitchpakdi of UNCTAD – the former WTO Director-General!³

In this situation, Aid for Trade has become a new buzzword, sometimes almost like a magic wand.⁴ Aft should not only teach the poor countries about WTO and help them modernise their trade institutions, but even improve their supply capacity. In the most optimistic version, Aft is

¹ The expression "Washington consensus" was first used to describe the policy recommendations of the international financial institutions toward Latin America around 1990. The exact content of this consensus is actually not so clear (see e.g. Williamson 2000), but trade liberalisation is normally on the list. As an example, see e.g. the World Development Report 1987 (World Bank 1987).

² Pascal Lamy: "Humanising globalisation", speech in Santiago de Chile, 30 January 2006, see www.wto.org.

³ Lamy's statement, and the response from Supachai the day after, are available at WTO's and UNCTAD's websites, respectively.

⁴ At the Hong Kong Ministerial in December 2005, Pascal Lamy showed up with a wand, stating that "Trade is not a magic wand" (according to Stiglitz and Charlton 2006).

a quick fix that secures that all countries benefit from trade liberalisation. While Lamy and UNCTAD seem to partly disagree on trade liberalisation, they agree on the importance of aid for trade. As stated by Lamy (ibid.): “..we need to think more creatively about how trade, development and growth can fit together into a coherent whole. Aid for Trade is a key piece of that puzzle.”

But if trade is not a magic wand, it is even less likely that AfT will be so. Hence there is a need for realism, and more analysis as an underpinning of future policy in the field. In this paper, we briefly review the development of AfT and then turn to the analysis of why and how AfT should be given. A core focus is on the concerns about trade: “Trade may be good, but...” In general, the magnitude of AfT depends on the magnitude of the “buts”. If the concerns about trade are great for many countries, trade liberalisation is less attractive and AfT is more important. If, on the other hand, trade is mostly good and does little harm, the argument for massive AfT is weaker. In the paper, we review some relevant literature and present some new evidence, as a platform to proceed to some tentative recommendations about AfT. In the analysis, we are not only interested in the need for AfT, but also which types of AfT that should be provided, and which countries should have it.

Section 2 presents a brief chronology of AfT, with an overview of relevant institutions in Appendix A. Section 3 describes the AfT agenda in the DDA, with some relevant documentation in Appendix B. In section 4, a brief review of the debate on trade and growth is presented. In sections 5 and 6, we present some new evidence concerning trade openness and development; with a special focus on finding out where AfT may be required. On this background, section 7 examines the country focus of AfT. Section 8 discusses AfT related to preference erosion and adjustment to trade liberalisation, and section 8 concludes. Appendix A briefly reviews the main institutions involved in AfT. Finally, a Statistical Appendix contains an examination of trade, income and growth, as an underpinning of some of the arguments made in the main text.

2. Aid for Trade: A brief chronology

The historical starting point for AfT was the establishment of ITC (International Trade Centre)⁵ in 1964. Since then, AfT has been part of the international aid agenda. Over time, the ITC developed its activity in the field which is called *trade development* in the current classification of AfT: export promotion and trade-related assistance to enterprises. Another early form of AfT was import promotion offices, which were established in some rich countries.

A boost in AfT occurred after the completion of the Uruguay Round (UR). With the establishment of WTO and its so-called “single undertaking” in 1995, a number of technically challenging sub-agreements became mandatory, also for developing countries. Combined with the strong expansion in WTO membership, this created a new demand for AfT

⁵ At the time, it was named International Trade Information Centre, and was established under GATT. Later, it became International Trade Centre UNCTAD/ GATT and then finally International Trade Centre UNCTAD/WTO.

related to *trade policy and regulations*; a second main category of AfT. For example, the SPS (Sanitary and Phytosanitary Measures) Agreement implied that developing countries had to improve their institutions for veterinary control and certification. Similarly, WTO and trade integration led to a need for upgrading of e.g. customs institutions and intellectual property protection. In the aftermath of the UR, a greater awareness of the costs gradually developed.

In the post-UR years, AfT was therefore stepped up in several institutions, including the newly established IF (Integrated Framework for Trade-Related Technical Assistance to Least-Developed Countries, established 1997) and JITAP (Joint Integrated Technical Assistance Programme, for Africa, established 1998). In 2001, IF was reformed and the WTO also expanded its AfT, including the establishment of a new trust fund for AfT donations.

Taken together, "trade development" and "trade policy and regulation" constitute the category *trade-related technical assistance and capacity building* (TRTA/CB). From a modest level before the UR, such aid increased to 2.6 billion USD or 2.7% of all aid in 2004.⁶ Hence AfT has become a significant part of aid. Appendix A provides a brief overview of important institutions involved.

TRTA/CB is AfT in the narrow sense; probably what most of us would perceive as AfT. As noted, however, it has been suggested that poor countries do not only need such aid, but also aid to develop the supply-side capacity. In OECD and World Bank statistics on AfT, therefore, figures on infrastructure (transport and storage, energy, communications) are added. This brings the AfT figure up to 15.5 billion USD or 16.6.% of worldwide aid. If "productive capacity building" is also included, the figure jumps to 22.8 billion USD or ¼ of total aid.⁷ As noted by OECD (2006a), it is pretty arbitrary where the line is

Abbreviations

In the AfT activity, a new "tribe language" has developed. So, for example, when we mainstream TRTA into PRSP with DTIS funded by IFTF, should it also be available for OLIC, IDA only or ODA? Below are some abbreviations relevant for Aid for Trade (AfT); most of these are explained in more detail in Appendix A or in the main text.

- ▶ TRTA/CB: Trade-related technical assistance and capacity building
- ▶ PRSP: Poverty Reduction Strategy Paper
- ▶ DTIS: Diagnostic Trade Integration Studies
- ▶ IF: Integrated Framework for Trade-Related Technical Assistance to Least-Developed Countries, with IFTF = IF Trust Fund, IFSC = IF Steering Committee
- ▶ JITAP: Joint Integrated Technical Assistance Programme
- ▶ TIM: Trade Integration Mechanism
- ▶ OLIC: Other Low-Income Countries, i.e. non-LDC
- ▶ IDA only: Countries eligible for concessional loans from IDA, i.e. mainly low-income plus some lower middle income with debt problems
- ▶ ODA: OECD-DAC list of countries entitled to Official Development Aid.

⁶ The figure is from OECD (2006a, 75).

⁷ See OECD (2006a, 75). Earlier statistics were provided in e.g. OECD/WTO (2005).

drawn. For example, education is important for productive capacity so why shouldn't we include that as well? Re-naming aid will however not change the world.

As a backdrop for the analysis of AfT, it is useful to observe some important features of the current activity.⁸

▶ *Almost 1/4 of AfT is directed towards the Least Developed Countries, and this share has increased in recent years.* An important policy issue is whether the increased focus on LDCs is appropriate. Are the LDC's the countries that need most AfT? Or maybe the LDCs need more "fundamental" aid while the more narrowly trade-related aid is more important for countries one step up the ladder, that have more to sell? Are the adjustment costs of trade liberalisation higher in LDCs compared to other developing countries? Is the focus on LDC just a way of limiting the costs, or is it warranted in economic terms? Given that LDCs represent less than 1% of world trade and only 2.3% of developing country exports⁹, these are important issues for the efficiency of AfT: It should be given where it is needed *and* effective.

▶ *A main focus of AfT since 2001 has been to integrate trade and AfT into national development plans and other aid.* "Mainstreaming" is the slogan. For LDCs, AfT has since 2001 been integrated into the Poverty-Reduction Strategy Process of the World Bank. For this purpose, IF provides funding for so-called Diagnostic Trade Integration Studies (DTIS) which should lead to mainstreaming of AfT into national development strategies.

▶ *The specialised AfT providers in IF, JITAP and WTO taken together provided in 2004 less than 1.5% of total TRTA/CB.* Hence the largest part of AfT is provided through the regular activity of other multilateral institutions, or bilaterally. In Appendix A, an overview of the main actors is provided.

▶ *In spite of the focus on LDCs, the largest fraction of AfT (36%) is given to middle-income countries.* This AfT is provided mainly by the non-specialised aid agencies.

▶ *85% of TRTA/CB is in the form of grants* (OECD 2006a), while concessional loans are more common for infrastructure and productive capacity-building.

▶ *Almost half of AfT is given bilaterally* (te Velde et al. 2006); not via multilateral organisation. For the EU, much AfT is provided from particular funding mechanisms with a regional focus. In 2004, 29% of EU's AfT was funded by the EDF (European Development Fund), which is for ACP countries (Africa, Caribbean, Pacific). Another 24% of EU's AfT was from an aid programme for the Western Balkans (CARDS).

▶ For the national pride, we may add that *since 2002, Norway has provided more than 1/10 of the trust funds for AfT, and was the largest*

⁸ The figures are based on OECD (2006a), te Velde et al. (2006, 32) concerning the share of bilateral AfT, and IF (2006) regarding IFs budget.

⁹ Based on Melchior (2005, 12).

*individual donor to these funds.*¹⁰ In the spirit of humility, it should nevertheless be recalled that these trust funds represent a small share of total AfT.

Numerous evaluations of AfT have been undertaken. A useful overview is provided in OECD (2006b). Although a positive role for AfT is identified, several shortcomings are identified:

- There has been unsystematic or incomplete needs assessment.
- Project management and project governance structures have been weak.
- Trade-related aid interventions have been fragmented, with insufficient synergies to broader aid.
- Trade-related aid has been too weakly linked to poverty reduction objectives.
- There has been insufficient donor coordination and complementarity at headquarters and field level.
- Internal communication and expertise on trade-related matters have been inadequate.

In several evaluations, a message is that recipient country ownership is too weak; mechanisms for monitoring and evaluation have been too limited; and even when clear priorities and recommendations have been made, funding and capacity for follow-up have been insufficient.

For such reasons, there is currently a discussion on how the efficiency of AfT may be improved. Based on the analysis referred to above, OECD (2006b) recommends:

- A better dialogue to ensure country ownership.
- A better needs assessment through consultative diagnosis.
- Explicit links to national poverty reduction strategies should be strengthened.
- Better management and result-orientation.
- Better donor coordination, harmonisation and complementarity.
- Improved internal communication and improved knowledge.

As argued by Saner and Paez (2006), there is a considerable risk of failure to fulfil the expectations inherent in the current AfT process, and it is therefore important that reforms are implemented.

In June-July 2006, two task forces presented reform proposals; one on an "enhanced IF" and the other on AfT in general. The second one had been established by the WTO after the Ministerial Meeting in Hong Kong, December 2005, when Ministers endorsed in principle the plans for an enhanced IF.¹¹

The IF task force has suggested various institutional reforms that improve recipient country ownership, monitoring and evaluation, donor coordination and efficiency. In addition, a major scaling-up of budgets has been suggested. Based on past experience in fields such as customs reform and veterinary control facilities, i.e. costs related to the implementation of particular WTO agreements, required funds for TRTA/CB have been

¹⁰ This conclusion is based on the data provided by te Velde et al. (2006, 32). These data, in turn, are based on WTO's AfT database.

¹¹ The task force recommendations are found in WTO (2006b, c).

estimated at 150 million USD per country.¹² In the light of such estimates, the IF task force suggested that IF funds should be more than doubled to 80 million USD per year over five years (WTO 2006c, 9).

The Aid for Trade Task Force presented several proposals in order to increase the efficiency and coordination of AfT (WTO 2006b). It also supports the planned reforms of IF, and suggests that a similar process is established for non-LDC developing countries, focusing on “IDA only” countries.¹³

3. AfT and the Doha Development Agenda

Given the post-UR expansion of AfT, it was no surprise that AfT was mentioned in several parts of the Doha Declaration of 2001, in which the WTO Ministers launched the current negotiation round, the Doha Development Agenda (DDA). In spite of this, it has never been accepted that AfT should be part of the “single undertaking”. While some AfT is provided through WTOs regular budgets, the expansion has to come from voluntary contribution to the WTO trust fund. The task force on IF has suggested that the secretariat of the enhanced IF should be “administratively housed in the WTO Secretariat, with a strong firewall around it” (WTO 2006c, 19). Hence AfT is partly inside and partly outside the WTO.

In the WTO and other institutions dealing with AfT, there is broad agreement about the usefulness of TRTA/CB as well as the need to increase funding and to make such aid more efficient. There are however various conflicts about AfT that have emerged:

A first issue is about the country coverage of AfT. The IMF and the World Bank, plus some developing countries, have advocated that the enhanced IF should be extended from LDCs to other low-income developing countries (see e.g. IMF/World Bank 2006, 9). The IF task force rejected this proposal.¹⁴ An issue is therefore: Is this exclusive focus on LDCs warranted? As noted, the Aid for Trade Task Force (WTO 2006b) suggests a parallel process for non-LDC countries.

A second issue is whether AfT should cover *adjustment costs* due to WTO liberalisation. While AfT currently covers costs of implementation, there is disagreement about adjustment costs. Examples of such costs are:

- Losses due to preference erosion: ACP and LDC have asked for compensation when their trade preferences are eroded, and the issue of preference erosion has been an obstacle in the NAMA (Non-Agricultural Market Access) of the DDA. AfT is one possible form of compensation for preference erosion.
- For some poor countries, tariffs make up a large part of public revenue, and tariff cuts may erode public funding. AfT has been suggested as a remedy.

¹² According to OECD (2006a), the figure of 150 million is likely on the high side. It is based on extrapolations undertaken by Finger and Schuler (2000).

¹³ IDA refers to the classification of the International Development Association. IDA only is a list of countries qualified for interest-free loans and grants from this affiliate of the World Bank. There are currently 81 such countries; of which a few have hardened terms.

¹⁴ Establishing parallel arrangements for non-LDCs is however still on the agenda.

While there is agreement about the existence of these problems, there is yet no agreement that AfT should be scaled up to account for adjustment costs of this kind.

Third, it has been suggested that AfT should not only address specific costs related to trade agreements, but it should improve the supply capacity of poor countries. According to Stiglitz and Charlton (2006, 27), "a key feature of an expanded aid for trade agenda should be to promote investments in new productive capacity". If aid is provided for this as well as related to adjustment costs, it will, according to the authors, "offer the possibility that, instead of developing countries being worse off – as so many were as a result of the last round of trade negotiations – they will actually be better off. It offers the possibility of a trade agreement that will actually result not only in more imports and job losses in developing countries, but more exports and job creation" (ibid., 31) Hence the proposal is based on a rather pessimistic analysis of trade liberalisation: Unless trade liberalisation is supplemented with heavy amounts of AfT, developing countries will lose.

AfT for supply-side development is generally on the lists of AfT priorities already, but is it not fully clear what it means in practice, beyond adding it to the AfT statistics. As noted by OECD (2006a), a key issue with respect to AfT is where to draw the line: Should AfT be limited to the narrow TRTA/CB, or widened to address adjustment costs as well as production-capacity building? The answer to this question largely rests on the scope of the problem: Does freer trade lead to large costs and losses, or only small ones? Are tariff revenue losses a modest or a severe problem? Will developing countries generally lose from the DDA unless it is accompanied with massive AfT, or will they generally gain? In the search for a new consensus, this is a rhetorical and political battleground.

4. Trade and growth: The Post-Washington confusion

Given that policies related to AfT crucially depends on the perceptions about how good or bad trade is, we shall – as a platform for the later analysis – summarise some of the current literature in the field, before presenting some new evidence.

In the World Development Report 1987 (World Bank 1987), one of the pillars of the Washington consensus, growth through industrialisation and trade is a major message. For some developing countries, especially in Asia, this has indeed materialised. After the UR, there has been a surge in manufacturing exports from developing countries. During 1996-2004, the share of low- and middle-income countries in world exports of manufacturing grew from 22 to 31%. 4% of the 9% increase was due to China.¹⁵ The rising share is equivalent to an export increase in 2004 prices of more than 700 billion USD. A change of this magnitude in only 8 years is dramatic. It is likely that trade liberalisation, e.g. tariff cuts and the dismantling of the MFA (the "Multifibre Agreement", for textiles and clothing), contributed to this growth. The causality may however be

¹⁵ Own calculations based on COMTRADE data. The WTO "NAMA" definition of manufactured goods is applied.

complex and it may be that growth drives trade rather than the opposite, or that both are driven by other factors. What is absolutely sure, however, is that industrialisation and growth in developing countries has been a core feature of the world economy also during the last decade.

It is however well-known that this success does not apply to all developing countries. Hence some countries that “did the right things” according to the Washington consensus, faced stagnation rather than growth. This heterogeneity of outcomes is the main underlying reason why there is no consensus in the research literature about how trade liberalisation and growth are related.¹⁶ Some research in the 1990s seemed to confirm that trade liberalisation promotes growth, but then came the critique of Rodrigues and Rodrik (1999); maintaining that the results were based on variables that poorly reflected trade liberalisation. Some later research, see e.g. Wacziarg and Welch (2003) have added to the “pro-trade” literature suggesting that trade liberalisation promotes growth. According to Rodrigues (2006), however, the results of Wacziarg and Welch are subject to the same criticisms as earlier attempts, so the jury is still out.

It is important to recall that the inconclusive state of this literature relates to the question an trade *liberalisation* and growth, and not the relationship between *trade and growth*. On trade and income levels, recent research (Nogues and Siscart 2005) suggests that there is a strong and positive relationship: More trade corresponds with higher income. It should also be recalled that inconclusiveness on the trade liberalisation/growth link does not imply that any result to the opposite effect has been found. So when Stiglitz and Charlton (2006) at least seem to suggest (see quotation above) that trade liberalisation has been generally bad for developing countries, there is no research consensus about this.

Why, then, has a relationship between trade liberalisation and growth not been confirmed by research? One possibility is of course that such a relationship actually does not exist. Another is that empirical research in the field is still limited, and based on relatively crude measures of trade policy. For example, there is to our knowledge still no study that use accurate time-series data on tariffs in such work. Such data have recently become more easily available, and new research using better data may hopefully add to our knowledge. Another issue is that empirical work has not fully reflected developments in theory. For example, in the empirical literature, a distinction has not been properly made between one’s own liberalisation and the liberalisation of others: While the latter (better market access) is unambiguously positive in virtually all economic models, there are situations where a country may gain from its own protection. So even if trade liberalisation is good, the impact of own liberalisation may be mixed.

Another aspect of importance is the great amount of heterogeneity across countries. Several contributions confirm that there are good as well as bad cases (see e.g. Wacziarg and Welch 2003, Rodrigues 2006. When these are stacked together in growth regressions, the average result – which the regression analysts look for – becomes blurred. There is

¹⁶ For a survey on trade and growth, see Maurseth (2005).

probably not one single model that can capture all the different stories simultaneously. For such reasons, Bhagwati and Srinivasan (2001) have argued that regression analysis is not an appropriate method for examining the complex interactions between trade liberalisation and growth.

From development economics as well as modern economic theory, it is in fact not surprising that the relationship between openness and growth may be ambiguous. Even if trade liberalisation generally leads to welfare gains, this may not be equally distributed, and there may be losers, both within and across countries.¹⁷ In trade models with scale economies and imperfect competition, scale-based industries tend to cluster in countries with better market access. In such models, or models with industry-wide externalities,¹⁸ it is frequently the case that improved market access is always good, but the impact of own liberalisation may be ambiguous. When technology levels differ across countries and knowledge does not spread easily across borders, trade liberalisation may sometimes be to the advantage of the technologically superior nations (see e.g. Grossman and Helpman 1995). There may also be cases where trade liberalisation leads to a one-off increase in income while the long-run growth rate is unaffected. Hence empirically as well as theoretically, it is important to be aware of the distinction between *level* and *growth* effects.

5. Good trades and bad trades: Some new evidence

So we are left in the post-Washington confusion: We are no longer certain about to what extent trade is good or bad. We may address the critique by political rhetorics: "Trade alone is not sufficient for growth; we need institutions, investments and so on." But such wordings, even if they are basically true, will not resolve the problem of perception. Unless we address it, many NGOs and developing countries may gang up in discontent. We may put money into AfT to add some harmony, but we will have no post-Washington consensus.

For such reasons, we shall make an attempt to shed some new light on the basic issue: how good is trade? In the context of AfT, our primary objective will not be to find new results on the *average* effect of openness, but we are interested in the heterogeneity of outcomes: Since AfT is for the "problems with trade", we want to track countries where increased trade has not contributed to development. If it is true that trade does not work in some cases; it is for policy purposes urgent to know the scale of the problem: Is it rare and accidental, or a widespread fault of the trade system? If the latter is true, it might even be appropriate to halt trade liberalisation. But if the gains from trade liberalisation far outweigh the problems, we should argue against the skeptics.

We address this issue by analysing the relationship between real income per capita on one side, and trade openness on the other. In a

¹⁷ For a survey, see e.g. Darity and Davis (2005).

¹⁸ Such scale economies at the industry level imply that productivity increases with the production volume, and may result from e.g. learning-by-doing, labour market pooling, vertical linkages between input and final goods producers, and technology spillovers between firms.

Statistical Appendix, an analysis of these issues is provided, using data for 1975-2002 for 165 countries.

In the Statistical Appendix, we show that openness as well as the trade balance affects income per capita; trade is generally not balanced and the surplus countries tend to have higher income levels. Hence there is an impact of openness, but also competitiveness, on the income level. If we use exports/GDP as a measure of openness, the results will partly reflect the competitiveness effect, which is not due to openness *per se*, but better technology and skills, or lower costs. *We therefore use imports/GDP as a measure of openness.* We are interested in studying the impact of openness as such, and not the impact of increased competitiveness.

Since imports/GDP is more directly affected by a country's own trade liberalisation, this variable is also more relevant for the concerns related to trade liberalisation. The imports/GDP ratio is however affected not only by e.g. tariffs or other government-determined trade costs but also other aspects such as country size (large countries are more closed), geographical location (e.g. landlocked countries face higher trade costs and therefore trade less) and others. It is therefore a measure of openness, and not trade policy; although it is influenced by trade policy.¹⁹

In the following analysis, imports of services are included, so our measure of openness in imports of goods and services as a % of GDP. As to the income level variable, we use GDP per capita, PPP (constant international \$). This is a measure of real income; comparable across countries since PPP (Purchasing Power Parity) data are used. PPP implies that figures are adjusted for cross-country differences in price levels. For both variables, the data source is the World Bank Development Indicators (World Bank 2004). With 28 years and 106-165 countries (varying across years), we have a dataset with more than 4000 observations. This dataset has two dimensions; the cross-section dimension (comparing different countries at each point in time) and the time-series dimension.

Although it is beyond the scope of this study to undertake an in-depth examination of the cross-country variation in openness and income, the results in the Appendix suggest that there is a strong and stable relationship: More openness corresponds to higher income per capita. These tentative results are in line with the findings of e.g. Noguera and Siscart (2005), who found that a 1% increase in openness corresponds to approximately 1% increase in GDP per capita.

Turning to the time-series variation in the data, we have already noted the inconclusive state of the research literature on trade and growth. We do not have the ambition here to provide the final answer; in the context of AfT we are in fact more interested in the heterogeneity across countries than the average effect: How many and which countries have a "problem with trade", and can it be remedied by AfT?

For the purpose of this analysis, we make a useful observation: Even if the time-series correlation between the two variables (income level and openness) is weak for the whole sample of countries, there is frequently a

¹⁹ Rodrigues and Rodrik (1999) maintain that studies of *openness* and growth have little to say about *trade policy* and growth. While we agree that the distinction is important, we believe that a focus on openness is appropriate in the context of AfT, and furthermore that studies of openness and growth are relevant also for trade policy considerations.

very robust correlation at the individual country level. As an illustration, Diagrams 1a and 1b show two examples:

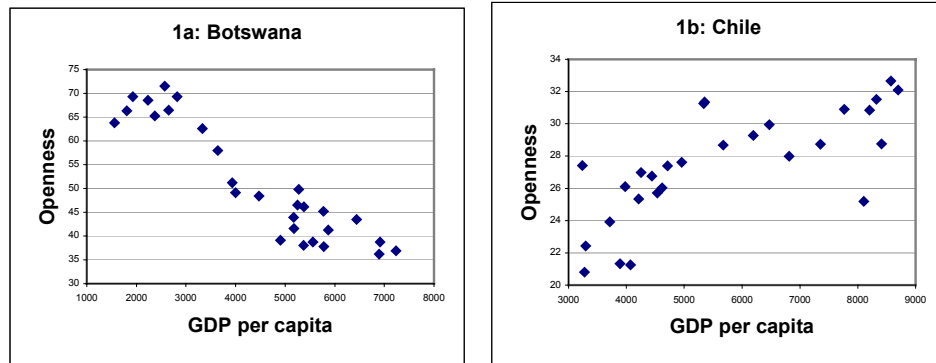


Diagram 1: Income vs. openness in Botswana and Chile.

In the case of Botswana there is a clear negative correlation so that more openness corresponds with lower income. In the case of Chile, however, the reverse is true. Now if we mix the two datasets, this clarity is lost and that is why the correspondence is weak in the pooled dataset. For this reason, we shall undertake the analysis in a roundabout two-step fashion: We first derive how the correlation is at the individual country level, and then examine what determines the variation across countries in the results we obtain.

How many countries are like Chile, and how many are like Botswana? In order to provide an answer, we use statistical methods to put a number on each country, mostly between -2 and $+2$. For example, we obtain -1.75 for Botswana and 1.65 for Chile. We call these number openness-income elasticities since they measure how much a 1% change in openness affects income per capita. For example, if the elasticity is $+2$ and openness increases from 10 to 15%, i.e. by 50%, income per capita will be doubled. The measurement of these elasticities is undertaken for each country individually, using only the time-series variation in the data. Even if we do not explicitly consider growth rates, we examine how *changes in openness* are related to economic growth. This distinction between levels and changes/growth is important since the results may differ, depending on how the question is asked. Table 1 illustrates the options:

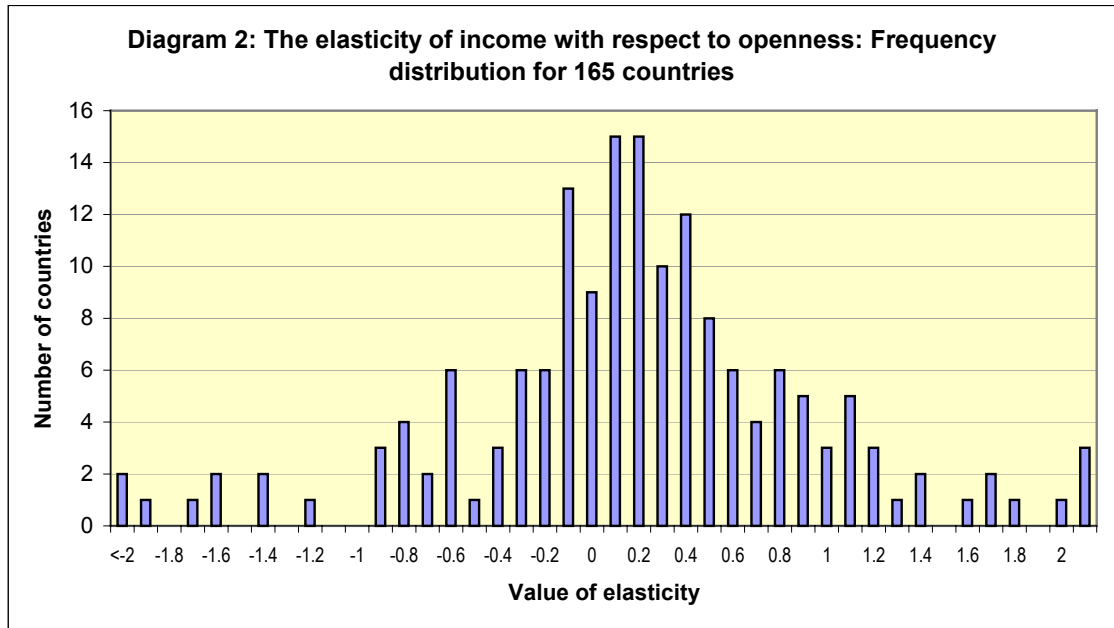
Table 1: Levels versus changes			
		Income per capita	
		Level, at some point in time	Change over time (growth)
Openness	Level, at some point in time	(1) Pure cross-section	(2) Mixed
	Change over time	(3) Mixed	(4) Pure time-series

In the text above, we considered the pure cross-section variation – option (1): How does openness affect the income level when we compare countries in each year. In the calculation of elasticities, we now change to option (4) – by using only the time-series variation. All four options are however possible. In the literature on trade and growth, some authors have asked: Do open countries grow faster - option (2)? Version (3) is more rare, but we could imagine studies of trade policy asking e.g. "Are rich countries more liberal?" – i.e. how does the income level affect changes in openness.

Observe that we use statistical (regression) analysis as a descriptive device and make no statements here about causality. It may be that economic growth leads to more trade and not vice versa; or it may be that both variables are affected by other variables. It is evident that any time trend in the two variables will make them correlated. We use these correlations in order to describe the data; we make at this stage no statements about the mechanism behind.

In cases such as Botswana and Chile, where data points are close to a line, there is a statistically significant relationship between the two variables. To what extent is this true also for other countries? We find that 2/3 of the estimates are statistically significant (and different from zero), while for 34% of the countries, there is no statistically significant relationship (i.e. the elasticity is not different from zero with statistical certainty). Among the statistically significant cases, there are twice as many positive as negative cases. Hence there is more frequently a positive relationship between trade opening and economic growth.

Diagram 2 shows the frequency distribution of values, including the non-significant elasticities (which are generally close to zero).



Hence there are not so many large positive or negative values; the bulk of the countries are in the middle. The centre of the distribution is slightly above zero; the simple mean of the elasticities is 0.14. Hence on average, there there is a modest positive relationship between openness and income level. Table A1 in the Appendix shows the 50 top and bottom estimates, including levels of significance.

A negative openness-income elasticity is not alone a sufficient indicator to tell that a country has a "problem with trade". For example, the imports/GDP ratio may decline in countries with high growth, if GDP per capita increases faster than imports. An illustration is Norway, where oil revenues have boosted GDP faster than imports; so the elasticity becomes negative. Given that negative elasticities also occur for high-growth countries, we add a second criterion in order to capture in a better way the "problems with trade": We divide countries according to whether economic growth in the period was below or above the median. The median annual growth rate was 1.19, corresponding to 38% growth in income per capita over the entire 1975-2002 period. Using this second criterion, we divide the 165 countries into five groups, as shown in table 2:

Keyword	Brief description	Openness-income elasticity	Economic growth rate
Negative	Negative elasticity, low growth	Negative, statistically significant	Below median
Negative+	Negative elasticity, high growth	Negative, statistically significant	Above median
Neutral	Unclear openness-income relationship	Not significantly different from zero	Any
Positive—	Positive elasticity, low growth	Positive, statistically significant	Below median
Positive	Positive elasticity, high growth	Positive, statistically significant	Above median

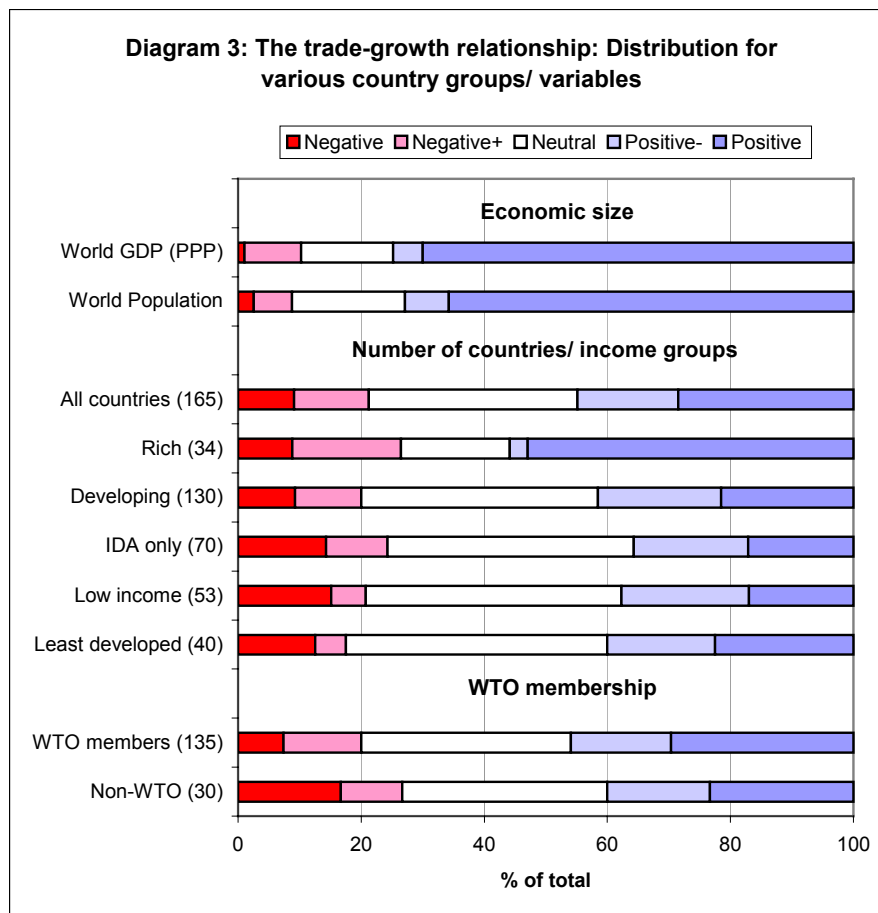
Hence from the countries with significantly negative elasticities, we split out cases such as Norway and Botswana, where growth has been high for particular reasons (oil, diamonds etc.). Similarly, we split out grey-area cases with a positive elasticity but low growth.

Reverting to our level-change taxonomy, we have now used the time-series information for each country in order to to classify them as above. In our two-step analysis, we now turn to a cross-section analysis of these results: What are the characteristics of the various groups, and what determines whether we have a negative or positive outcome?

The chosen classification is admittedly crude and a more extensive analysis could be made to improve its accuracy. For example, we have treated the period 1975-2002 as one, although the trend could have changed over time for individual countries. Furthermore, a much more detailed analysis is needed in order to pin down the causality between trade and development. We nevertheless believe that this classification serves our purpose here, which is to shed some light on the heterogeneity of outcomes with respect to trade and growth, and the proportion of countries where there has not been a positive trade-growth relationship. The classification pins down where increased trade openness, due to trade liberalisation or other reasons, is adversely related to economic growth. The fear that poor countries may lose from increased trade openness has frequently been raised by NGOs and critics related to the current WTO negotiations, and – as illustrated above – it has also provided an argument for AfT. It could also be argued that AfT should be provided not only to the bad cases, but also to the neutral or grey-area countries where increased trade openness has not ben accompanied by growth. The approximate magnitude of this group will also be evident from our results.

Table 3 and Diagram 3 show the distribution of countries according to these criteria. In Table 3, the upper half shows absolute numbers, and the lower half the percentage distribution. The diagram shows the percentage distribution.

Table 3: The openness-income relationship: Distribution for different variables/ country groups						
Variable or country group	Total in sample	Negative	Negative+	Neutral	Positive-	Positive
Absolute figures (=number, except world GDP= billion \$, world population=millions)						
Economic size						
World GDP (PPP)	47760	481	4396	7159	2288	33437
World Population	5004	128	309	918	358	3290
WTO membership						
WTO members	135	10	17	46	22	40
Non-WTO	30	5	3	10	5	7
Country/ income groups						
All countries	165	15	20	56	27	47
Rich	34	3	6	6	1	18
Developing	130	12	14	50	26	28
IDA only	70	10	7	28	13	12
Low income	53	8	3	22	11	9
Least developed	40	5	2	17	7	9
% of total						
Variable or country group	Total in sample	Negative	Negative+	Neutral	Positive-	Positive
Economic size						
World GDP (PPP)	100	1.0	9.2	15.0	4.8	70.0
World Population	100	2.6	6.2	18.4	7.2	65.7
	Number					
WTO membership						
WTO members	100	7.4	12.6	34.1	16.3	29.6
Non-WTO	100	16.7	10.0	33.3	16.7	23.3
Country/ income groups						
All countries	100	9.1	12.1	33.9	16.4	28.5
Rich	100	8.8	17.6	17.6	2.9	52.9
Developing	100	9.2	10.8	38.5	20.0	21.5
IDA only	100	14.3	10.0	40.0	18.6	17.1
Low income	100	15.1	5.7	41.5	20.8	17.0
Least developed	100	12.5	5.0	42.5	17.5	22.5
Note: The classification of country groups follows Melchior (2005); for details see http://www.nupi.no/IPS/filestore/685.pdf .						



To the far left we observe the "countries in the red" in our context (low growth, negative relationship between openness and income) and to the far right we have the "success stories" (high growth, positive openness-income relationship).

In terms of economic size, measured by GDP or population, it is evident that the positive outcomes far outweigh the negative: The *Negative* group represents a modest 1.0% of world GDP, and 2.6% of the world population. The *Positive* group, on the other hand, accounts for 66% of world population and 70% of world GDP.

Since there are several small countries in the *Negative* group, the proportions are considerably changed if we count countries. Now the proportion of *Negative* increases to 9%, while *Positive* shrinks to 28%. The number of countries in the middle, with mixed or ambiguous outcomes, now represents 62%. Since the majority of countries are WTO members, the distribution for WTO members is close to the distribution for all countries. For non-members of WTO, however, the outcome is more frequently negative (5 countries out of 30, i.e. 1/6 of the cases).

A main result here is that the number of negative outcomes is limited, but there is a sizeable group in the middle where a virtuous trade-growth relationship is missing. Even if the *Positive* group dominates in terms of economic weight, the non-positive outcomes dominate when we count the

number of countries. In political settings with one country, one vote, it will be no surprise if the support for trade liberalisation is lukewarm.

Technically, the results show the importance of weighting: With each country counting equally, the negative or intermediate outcomes dominate. If we weight by population or country size, on the other hand, the outcome is dramatically changed. In the growth regression literature, countries are normally given equal weights so that the numerous small countries with a less favourable outcome have a large impact. This contributes to explaining the inconclusive state of the growth regression literature.

The distribution of good and bad trade-growth outcomes, as shown in the results above, corresponds closely to the world income distribution and its development over the last decades. Also in this case, the overall assessment crucially depends on weighting or not:

- There is a considerable list of countries with a low income per capita and low growth, but if we weight by population, this group shrinks to less than 10% of the total (Melchior 2001).
- If countries are weighted by their populations, there has been income convergence in the world economy over the last decades; see e.g. Melchior (2001) or Sala-i-Martin (2006).²⁰ If all countries count equally, however, the opposite conclusion obtains.

As illustrated above, the importance of weighting also applies to trade: If trade is good for China and India, with a combined population of 2.4 billions in 2004, and bad for Rwanda and Tadjikistan, with a combined population of 15 millions, should we then conclude that trade is on average not positive? While regression analysis follows the one country, one vote approach, our analysis here suggests that trade is indeed positive for a large part of the world economy as well as the world population.²¹

6. What explains the "bad trades"?

Hence we have found that there is a negative association between trade openness and income for some countries, and a positive association for others. Are the failures or successes related to particular aspects of trade or trade institutions, or are they just an expression of general development outcomes? The more trade-specific they are; the more they provide an argument for AfT. We shall therefore look into what determines the outcomes according to our classification in the preceding section. This analysis is indeed a giant task, and we limit ourselves to a tentative assessment.

The basic answer to our question above is that the negative cases observed in the preceding analysis are related to general problems of

²⁰ If within-country inequality is added, the trend is modified but not changed. There are several papers supporting this, see e.g. Schultz (1998). Milanovic (2002) obtains another conclusion for the period 1988-1993. There is some uncertainty about the quality of the income data used for these calculations (or their PPP adjustment, see Dowrick and Akmal 2005), but that is another matter.

²¹ For this reason, regression analysis should not be used for descriptive purposes unless the units of observation are equal in some sense. Regression may however be used for causal analysis without weighting.

economic development and growth, and not problems that are specifically related to trade. This has the implication that if AfT is to address the supply-side issues, it should be done jointly with aid for economic development in general.

We obtain this conclusions by studying the factors that determine the position of countries in our classification, and compare this to the results from research on trade and growth. We basically find that the variables that produce a positive trade-growth relationship are also the variables that drive growth. Details of this analysis are found in the Statistical Appendix, Section 3.

Some variables have an unambiguous impact on the trade-growth relationship: Developed capital markets, good institutions and a high technology level are positive aspects. Being landlocked is negative. Large countries do better. Specialisation also matters: High employment in manufacturing and services, and little in agriculture, is positive, as well as manufacturing exports.

Some variables have a significant but less clear-cut impact. For example, military conflict precludes a positive outcome, but does not necessarily put you on the negative list. High tariffs are similar; they preclude a positive outcome but does not necessarily create a very negative trade-growth relationship. Health and education are necessary for a positive outcome, but even with good health and education, you can be among the less fortunate. The intuition is that for these variables, there is considerable variation among the negative cases, so the impact is more ambiguous.

From the literature on trade and growth, it is well known that several factors affect growth, and causality analysis is extremely difficult since many variables are correlated (see e.g. Dollar and Kraay 2003). In this study, the ambition is not to sort out causality. For our purpose, it is sufficient to note that our results are in line with the growth literature, and the trade and growth literature; in the sense that the determinants of growth are generally the same as the determinants of whether the openness-income relationship is positive or negative. In his survey of the trade and growth literature, Winters (2004) e.g. mention corruption, inflation, investment policy, institutions and education as important aspects. We have checked all these except for inflation, and found support. For education, the cross-country evidence from growth research is more mixed, and it is in line with this that we have education on our "list B". Similarly, the relationship between conflict and growth is complex (on wars and trade, see e.g. contributions in Schneider et al. 2003), so it is not surprising the conflict is on "list B". The position of tariffs in this group indicates that trade liberalisation is necessary but not sufficient in order to obtain a virtuous trade-growth relationship. This is also in line with earlier contributions (see e.g. Winters 2004).

Hence our result suggest that the "problems with trade" are basically the problems of growth. Hence there is no quick fix, since most of the characteristics that are relevant, are of a long-term nature and can hardly be remedied over night. Addressing supply-side problems is therefore not only trade-related, but related to the broader agenda of aid for economic development.

There are however some trade-related drivers of growth: For example, we find that landlocked countries are over-represented in the negative group. In a recent study of Africa's exports, Clarke (2005) also found support concerning the role of being landlocked. More generally, Redding and Venables (2003) found that poor external geography, poor internal geography, and poor institutional quality contributed approximately equally to explaining the dismal export performance of Sub-Saharan Africa. Aid for infrastructure development is more trade-related than e.g. schools and hospitals, so the "problems with trade" provide an argument for a high level of support for infrastructure development.

In terms of policy, our conclusions indicate that AfT in order to address supply-side issues should be coordinated with aid in general. Hence it underlines the need to "mainstream" AfT into national development strategies, and coordinate with other aid, as suggested by the AfT task force as well as other studies.

7. Aid for trade and country selection: Is the focus on LDCs warranted?

In the development of AfT so far, it has been assumed that the LDCs are the countries in most need of AfT. It is therefore of interest to use our results to check whether this is the case. From Diagram 3, it is evident that the LDCs have more negative outcomes, but that is even more true for the low-income, IDA only and non-WTO groups. This creates some doubt as to whether it is really true that the LDCs are the most needy in terms of AfT.

As a further check, let us therefore look closer at the countries at the bottom end. Since our *Negative* category contains only 15 countries out of the 165, we use a somewhat wider selection by picking countries with below-median growth and an openness-income elasticity below -0.10 . In this way, we obtain a group of 30 countries. In the Statistical Appendix, these are listed, with data on some of their properties. It should be emphasized that the classification undertaken here is a crude approximation and that for policies toward individual countries, more specific analysis would be required. The purpose here is to provide some broad guidelines, and it is evident that the classification of individual countries could change if the criteria were modified.

How many of the 30 "most needy" according to our classification are LDCs? Table 4 sums up some of the properties of these 30 countries.

Table 4: Characteristics of 30 countries with low growth and a negative income-openness elasticity		
Country group ²²	Number (out of 30)	
Least developed	10	
Least-developed + low-income	16	
IDA only	19	
Former Soviet Union	12	
Not WTO member	7	
Landlocked	9	
Severely indebted	8	
Small island developing state (definition 1)	4	
Small island developing state (definition 2)	3	
Income group	High	3
	Upper middle	3
	Lower middle	10
	Low	14

Hence while the low and lower middle income countries are in a clear majority, only 1/3 of these countries are LDCs. The country group that captures the highest fraction, is "IDA only" which covers 19 of the 30. If the 30 countries are ranked by income level, the IDA list perfectly matches the lower part of the table. Observe that 12 FSU republics are on the list. These are not LDCs, but six of them are on the IDA list. Six of the FSU countries (plus Vanuatu) are not yet WTO members.

In the Aid for Trade context, there has been a focus on the poorest countries: The IF programme has included only the Least Developed countries. Hence to the extent that our list properly captures some of the "problems with trade", our results suggest that a focus on LDCs is inaccurate in terms of targeting; a better choice would be to give AfT to IDA countries. Covering low-income would also be an improvement. Aid for WTO accession could also cover many of the non-WTO case. Hence our results provide an argument for increasing AfT for WTO-acceding countries. These arguments are not to say that LDCs do not need aid; what we are saying is only that with respect to AfT, the LDC groups is not the best possible focus.

Hence even in order to reach the most needy of AfT, a focus beyond the LDCs may be required. This is even more true for the next step on the ladder; the countries with an ambiguous trade-growth relationship. This group is harder to classify, but from Diagram 3 it is evident that the white intermediate segments constitute a large number of developing countries in general. This is an argument for providing AfT to a broad group of developing countries. Scaling such aid according to income levels is one option.

In the recent Geneva-based process, there was no agreement to expand the IF to non-LDCs. The IF Task Force, however, concluded that "the IF should remain exclusively for the LDCs, as their needs are particularly

²² For details on the definition of country groups, see Melchior (2005).

acute, although a similar mechanism could be of use in other countries” (WTO 2006c, 7). In spite of the conclusion, there is an opening for creating a similar mechanism for non-LDCs. Our results indicate that such an additional facility should be created. Alternatively, support for non-LDCs could be scaled up via other existing channels. As noted earlier, a large share of AfT is given to non-LDCs in the current situation. The results above suggest that there should not be a further drift towards an exclusive LDC focus, but AfT for non-LDCs is also important.

The Aid for Trade Task Force (WTO 2006b, 4) has suggested to ”Explore the necessity of establishing a similar, but separately funded, in-country-process for non-LDCs ”International Development Assistance (IDA)-only” countries, if such mechanisms do not already exist or can be improved upon.” The analysis above provides support for this aim; although we do not make a detailed assessment of what institutional solution is the best. There is the down-side that an ”IF-IF” may create unnecessary duplication and bureaucracy, so a wider IF seems as a better solution. If that is politically impossible, other options have to be examined.

8. AfT and adjustment costs

So far, we have discussed two forms of AfT;

- ”type 1” which is Trade-Related Technical Assistance and Capacity-Building, and
- ”type 2” which is supply-side AfT.

We have argued that ”type 1” should be expanded through particular AfT institutions, and that there is also a need for ”type 2” but that is mostly the same as aid for economic development in general. Hence while there may also be good arguments for more aid if ”type 2”, it is less clear that specific new institutions have to be created.

A third type of AfT are adjustment costs related to trade liberalisation. For completeness we shall also discuss that briefly; although a considerable literature exists in this field and we do not have the ambition to add much here. Such ”type 3” AfT is conceptually very distinct from the two former because it is related to particular effects of liberalisation, that apply to particular countries that do not necessarily fit into the classification schemes we have made so far. In the WTO, there is a precedence from the Uruguay Round, where net food-importing developing countries were given promises of aid in case they were adversely affected by agricultural trade liberalisations.

With respect to losses from preference erosion, Hoekman and Prowse (2005) argues that AfT should be given in order to compensate for preference erosion (see also Kleen and Page 2005). Their argument is partly one of political economy (compensating losers), and partly that AfT related to preference erosion should be part of a broader AfT agenda including supply-side measures. As noted by Stiglitz and Charlton (2006), however, AfT linked to preference erosion implies a focus on a few particular countries that leaves out many of the needy.

It is important to observe that preference erosion is not a ”problem with trade” in the sense we have defined it: Some of the countries that are

most severely affected by preference erosion, are among the most "successful" according to our measures. For example, Mauritius has a trade-income elasticity of 1.63, and average growth in income per capita at 4.34% annually over 20 years. As an ACP country, Mauritius has had better access to the EU market than ordinary developing countries. But Mauritius is affected by preference erosion for sugar, textiles and clothing and is on top of some of the lists that have been made on such losses (see e.g. Low et al. 2005, 2006, Alexandraki et al. 2004, Milner et al. 2004, Grynberg et al 2004).

While some developing countries may be significantly affected by preference erosion, the overall messages are that

- the total gains for developing countries far outweigh the potential losses
- losses are likely for a limited number of countries
- the greatest problems are related to EUs agricultural regime, e.g. sugar.

Further, it should be recalled that preference erosion for rich countries is an important aspect that adds to the gains for developing countries. For example, there has been a large intra-European preferential margin for clothing, and the erosion through tariff reduction and the elimination of quotas implies that developing countries capture much larger shares of the European clothing market (Melchior 2006). LDC and ACP constitute, in economic terms, just a small fraction of the developing countries. Preference erosion is not a "problem with trade" but a problem of selective market access for only some, while other developing countries are excluded. This is an unsolidaric regime, and it has even been argued that such preferences should be considered as a temporary advantage that does not require compensation. Another issue is who should compensate: Should such AfT be multilateral or bilateral? The EU is already well on its way implementing regimes that compensate for the changes in the banana and sugar regimes (te Velde et al. 2006).

Preference erosion has been addressed in a number of other contributions and we do not undertake extensive new analysis here. The facts are now relatively clear, and it is mainly a political-economy and institutional issue whether and how such compensation should be given. Our previous analysis suggests that too much focus on preference erosion leads to a focus on countries that are not among the most "needy" in terms of supply-side limitations. We do not here argue against AfT for preference erosion, we suggest it should be transitional. There are also plausible arguments for delegating the responsibility for such AfT, or at least much of it, to the countries that provided the preferential market access.

A second type of AfT for adjustment is related to the elimination of tax revenue. The correlations in Appendix Table A3 suggest that if import duties have a high share of tax revenue, countries do not belong to the success group. Furthermore, reductions in this share over time promotes a better outcome (see page 49). Stiglitz and Charlton (2006) also argue in favour of AfT related to tax reform. According to Baunsgaard and Keen (2005), revenue losses due to tariff reduction is particularly a problem for low-income countries. The IMF currently has a number of activities related to tax reform and sees this as an important issue, but has

nevertheless argued against a separate "adjustment funding facility" (IMF/ World Bank 2005, 12). Hence the view of the IMF and The World Bank is that current facilities are sufficient to handle the need in this field. A more in-depth institutional assessment is necessary to provide a clear conclusion and this will not be undertaken here. It is nevertheless important to note that the loss of tariff revenues for some poor countries is a serious and legitimate concern related to trade liberalisation, and policies should be shaped with this in mind.

9. Final comments

The Geneva consensus is not there and its possible realisation depends on politics. In order to obtain a consensus, it is important to acknowledge that

- there is a "problem with trade", that is on average larger for poor countries
- the "problem with trade" is not general and applying to all poor countries; in fact they apply to only a minority, and many developing countries have no problem with trade or benefit from it;
- addressing supply-side issues is relevant and important but there is no quick fix and these are long-term concerns that should mainly be handled within existing institutions.

Hence we have to obtain a realistic assessment about the virtues of trade, as well as the role that AfT can play.

For the implementation of AfT, there are also a host of more specific issues related to implementation, efficiency and the division of labour between institutions. We have addressed some of these issues but certainly not all, and we refer to other contributions that include more specific assessments (see reference list).

The IF task force recommended that there should be no specific definition of AfT: In order to avoid the problem of delineation, the task force suggested more or less that AfT is what countries name AfT. This is plausible as long as it is a matter of semantics, but – as noted – the IF should not start building roads and bridges. For the efficiency and implementation of AfT, it seems to be an advantage with clear definitions and ambitions rather than vague "magic wand"-like perceptions.

In the current debate on AfT, some providers of AfT, e.g. the regional development banks, have argued that some AfT should be undertaken on a regional rather than a country-by-country basis (see e.g. IMF/ World Bank 2005, 22). The AfT task force also supported this view. This is important in the context of country focus. For example, we have seen that several CIS states were on the "negative list". This includes Russia, but Russia is neither LDC, nor IDA only, nor low-income. But for the poor neighbours of Russia, it may be particularly important that Russia's trade regime is upgraded and reformed. The research literature provides solid support for the view that countries grow together; the development of your neighbours is crucial for your own development (see e.g. Maurseth 2003). Hence there are arguments for considering AfT in a regional context. In such a context, it may also be wise to include large and important countries in regions, even if they are not on the list of priority recipients.

AfT also faces all the problems of aid in general, and there is a risk of inefficiency and waste. Especially in the context of the DDA, where AfT may be expanded as an open or hidden side-payment in order to obtain agreement, there is a risk that donations expand faster than the ability for implementation. This suggests that AfT should be scaled up gradually, so that there is a match between funds and ability. Here it should be recalled that even with the modest scale of IF, implementation problems have been considerable. Also here, there is no magic wand to eliminate such challenges.

In principle, most aid is a subsidy and there should be a consideration of the overall welfare impact. In the case of the narrow AfT such as TRTA/CB, a standard argument is related to sunk export costs, thresholds or learning effects that make subsidies warranted. For example, Lederman et al. (2006) study export promotion agencies and find that for the median agency, 1\$ of export promotion creates 300\$ of exports. They nevertheless find that the impact fall with agency size so that "small is beautiful" in this context. Such considerations apply to all specific forms of aid. Analysis of such issues in specific areas is crucial for the final policy formulation, but has been beyond the scope of this more macro-oriented assessment of AfT.

Coordination of AfT is crucial for efficiency, and the recent task forces have provided some recommendations. While the realism of creating a new and separate mega-supply-side AfT facility may be questioned, it might be an idea to work for stronger coordination of TRTA/CB, for example by considering to merge some institutions and create a clearer division of labour. For example, merging UNCTAD, ITC and IF could be considered; although we have doubts about the political realism of such a reform. The Panel of Eminent Persons (2006) has suggested that UNCTAD should be the world's think-tank on trade and development (see also UNCTAD 2006b). While many of the panel's assessments are sensible, an additional issue is what change are required in the organisation if it is to take on such a new and enhanced role. At a time when the WTO is in deep crisis, UNCTAD basically maintains that core parts of the DDA agenda (related to the emerging consensus on manufacturing tariff cuts) are flawed, so here we do not only have confusion but also conflict. In our opinion, UNCTAD should remain an executive international organisation and possibly, an extended more specific and developed operational role on AfT could provide a sensible anchor.

It should also be recalled that market access is a core precondition for the exports from developing countries. Hence AfT will not help if exports are stopped by trade restrictions. For the sake of policy coherence, AfT should be accompanied by improved market access for developing countries.

For policy purposes, we would like to add that the classification of countries and the analysis undertaken to support our conclusions is a crude ranking with the purpose of obtaining knowledge about the magnitude of the "problems with trade". Countries could be listed according to other criteria, and other plausible methodologies might change the picture. In practical policy, a much more detailed analysis of the

individual country is required. In our analysis, we have seen that there is great heterogeneity across countries, even for countries at similar income levels. For this reason, AfT should not be provided indiscriminately but according to a needs assessment – as underlined in the recent policy prescriptions for AfT. Finally, this paper has been written during a very short period of time, and extensive econometric analysis has been beyond the scope of the study. Some results are therefore tentative and should be followed up with more in-depth analysis.

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Appendix A: Aid for Trade (AFT): Main current schemes and activities

A. Special schemes and organisations with Aft as the core focus.

IF (Integrated Framework) is an Aft programme which focuses on the Least-Developed Countries and is run jointly by six agencies: IMF, ITC, UNCTAD, UNDP, World Bank and the WTO. Linked to the PRSP (Poverty Reduction Strategy Paper) process, a main purpose of IF since 2001 has been to mainstream trade and trade policy into the policy of participating countries. For this purpose, so-called DTIS (Diagnostic Trade Integration Studies) are funded by IF. By August 2006, 42 LDCs participated in the process and 20 had completed their DTIS. Based on these, follow-up activities are to be undertaken, with funding from a second window of IF. IF started in 1997, and was reformed in 2001. Since then, contributions from bilateral and multilateral donors have been pooled in the IF Trust Fund. By March 2006, 35 million USD has been given to IFTF. There is currently a proposal on the table for an enhanced IF, planned to be launched before the end of 2006. The enhanced IF should be better organised at the country level and have significantly more funds for implementing the recommendations. While there have been suggestions to extend it to non-LDCs, this was not supported by the task force (WTO 2006b). In the IF activity, the World Bank is a core institution related to DTIS, while UNDP manages the trust fund. For more, see www.integratedframework.org.

JITAP (Joint Integrated Technical Assistance Programme) is an Aft programme run by WTO, UNCTAD and ITC, focusing on African countries. JITAP I (1998-2002) covered 8 countries of which four non-LDC (Cote d'Ivoire, Ghana, Kenya and Tunisia). JITAP II (from February 2003) added eight new countries, of which two were non-LDC (Botswana, Cameroon). JITAP II has a budget of 12.6 mill. USD. Contributions from various donors (including Norway) are pooled in a Common Trust Fund (CTF for the abbreviation-minded) with a corresponding steering group (CTF-SG!). The main focus of JITAP is capacity-building. Web page: www.jitap.org.

TIM (Trade Integration Mechanism) is a scheme established by the IMF in 2004 in order to provide financing for Balance-of-Payments difficulties that might arise from multilateral trade liberalisation. It is not a separate lending facility, but a policy to provide better access to existing funding schemes, by giving more favourable and predictable financing in relevant cases. TIM may only be used in order to mitigate BOP difficulties due to trade liberalisation by others – not a country's own liberalisation. For example, preference erosion, or BOP difficulties if elimination of agricultural subsidies in other countries leads to higher import prices, would be covered. By October 2006, three countries (Bangladesh, Dominican Republic, Madagascar) had obtained TIM support. More information on <http://www.imf.org/external/np/exr/facts/tim.htm>.

STDF (Standards and Trade Development Facility) was established in 2002 as a joint effort between FAO (United Nations' Food and Agriculture Organization), OIE (the World Organization for Animal

Health), the World Bank, WHO (World Health Organization) and the WTO. STDF helps developing countries develop capacity related to international sanitary and phytosanitary (SPS) standards, and the implementation of WTO rules in this area. STDF partly funds, and partly coordinates activities. From the STDF web page www.standardsfacility.org we find that 69 project grants or project preparations grants had been given. Budget figures are however not provided.

ITC (International Trade Centre UNCTAD-WTO) is much larger than the specific schemes, with 213 employees and a budget of 49 million USD in 2004, and extensive use of external consultants. While e.g. UNCTAD and the WTO undertake activities related to governments, the activity of ITC is more focused on business, business organisations, and export promotion. Web page: www.intracen.org.

B. As part of broader activities.

World Bank (www.worldbank.org): Trade-related activity is an important part of the WB's regular activity. According to IMF/ World Bank (2006, 30), trade-related lending amounting to 1.6 billion USD had been approved for 2006. The composition of WB trade-related lending has changed considerably over time (IEG 2005); with a declining share for conditionality-related lending, and a larger share to institution-building (e.g. customs facilities) and physical infrastructure.

The regional development banks: These have several activities related to trade. Some AfT may be related to regional integration schemes or regions, and the regional development banks may be particularly relevant in that context. For example, the IADB (Inter-American Development Bank) has regional integration as one of its main policy objectives (see IADB 2003, available at www.iadb.org). The regional development banks also have technical assistance activities.

IMF: In addition to TIM, the IMF's overall activity is to some extent trade-related. For example, convertibility is trade-facilitating, and lending for BOP imbalances is generally trade-related. The Compensatory Financing Facility (CFF) is related to reductions in export earnings or BOP difficulties due to commodity price fluctuations. The IMF also has special lending facilities for the poorest countries, and the process of "mainstreaming" trade into national development plans provides a link to such lending. For details, see www.imf.org.

UNCTAD (United Nations Conference on Trade and Development, www.unctad.org): As evident from its name, trade and development is a major focus of UNCTAD. This includes intergovernmental contact to promote consensus, particularly among developing countries. UNCTAD also has programmes for export diversification, technical assistance, and related to trade and the environment. Given that trade in services is partly driven by FDI, UNCTAD's activity related to investment is also relevant in the context of trade.

WTO (www.wto.org): During the last years, technical assistance and training for developing countries has become a regular part of WTO's activity. In 2004, the WTO had a regular budget of 5.6 million USD for such activity, plus voluntary trust fund contributions of 19.3 million USD.

OECD has not undertaken much AfT as such, but plays an important role in the field of policy dialogue, donor coordination, analysis, standards for statistics and the like (see www.oecd.org).

UNDP: Apart from managing the IF Trust Fund, UNDP has not been a major actor in the trade-related area. Given the core role of trade in development, it nevertheless seems as if the UNDP is stepping up projects in the field (www.undp.org).

Sectorally or thematically specialised organisations: This includes organisations such as the WCO (World Customs Organization, www.wcoomd.org), WIPO (World Intellectual Property Organization, www.wipo.int), UNIDO (United Nations Industrial development Organization, www.unido.org), FAO (United Nations Food and Agriculture Organization, www.fao.org) and others. In their particular areas, such organisations may play a role for AfT. Some regional trade blocs also have AfT activities.

Bilateral aid: While a considerable part of AfT is undertaken via multilateral organisations, some countries – notably the EU – provides substantial AfT bilaterally. This is partly due to the focus on former colonies in EU development policy. The EU provides almost 1 billion EUR annually on AfT, of which a large share is bilateral aid (te Velde et al., 2006).

Statistical Appendix:

The relationship between trade openness, income and growth

A1. Measuring openness by exports or imports?

In the analysis of openness and income levels, the trade/GDP ratio has frequently been used as a measure of openness (see e.g. Noguer and Siscart 2005). But should we use the import/GDP ratio, the export/GDP ratio or the trade/GDP ratio, i.e. (import+export)/GDP? We will show that different measures may give different results.

In simple trade models, balanced trade is frequently assumed, but this is not realistic since imports may deviate from exports for several reasons.²³ In our sample with data for 1975-2002 for 165 countries, the import/GDP ratio (for goods and services) is on average 41.7% while the exports/GDP ratio is 35.3%. The trade balance/GDP ratio is -6.3% on average, while the absolute value of the trade balance/GDP ratio is on average 10.2%. A modest part of the difference can be attributed to the fact that import values include cost, insurance and freight (c.i.f) and are therefore larger than the corresponding export values. According to the literature, this gap amounts to a few percentages of trade value.²⁴ On average in our sample, the absolute value of trade imbalances amount to approximately $\frac{1}{4}$ of the trade value, so there is no doubt that trade imbalances are important. Since exports and imports generally differ, it is therefore an issue in the analysis of trade openness and growth whether exports and imports are differently related to growth.

In order to check the differential impact of exports and imports, we run some illustrative regressions. We use income per capita as the dependent variable, and check how this is affected by the imports/GDP ratio, the exports/GDP ratio, and the trade balance/GDP ratio. We then add a measure of country size to the same equations, for the reasons suggested above. In these illustrative regressions, we pool the data (cross-section and time series), giving 3904 observations. Table S1 shows the results. For the sake of brevity, we drop reporting the constant terms since they do not matter here.

²³ A trade imbalance has to be matched by a corresponding capital account imbalance. Trade may be imbalanced in the short run, corresponding to short-term capital account imbalances, or in the long run corresponding to long-term capital flows or aid. For example, countries receiving aid or capital inflows may import more because aid compensates for their current account deficit. And countries such as Norway, with large oil revenues and corresponding capital outflows.

²⁴ According to Wijnolst and Wergeland (1997, 244) the average difference between import and export prices was around 6% of the c.i.f. price in 1994, but varying strongly across sectors.

Table S1: Illustrative regressions on income level and openness Dependent variable: GDP per capita (PPP, constant international dollars) Number of observations: 3904 Variables are in log form, with the trade balance variable expressed as $\ln(X/M)$, equivalent to $\ln(X/Y) - \ln(M/Y)$, where X=exports, M=imports and Y=GDP. Parameter estimates, with T values in brackets below.				
Equation	Import/GDP	Export/GDP	Trade balance	Adj. R ²
	$\ln(M/Y)$	$\ln(X/Y)$	$\ln(X/M)$	
(1)	0.17 (5.58)			0.01
(2)		0.65 (26.98)		0.16
(3a)	0.31 (12.01)		1.45 (39.83)	0.29
(3b)		0.31 (12.01)	1.15 (27.58)	0.29
(4)			1.39 (0.27)	0.27

While all the parameter estimates are statistically significant, the magnitude of the estimates as well as adjusted R² vary considerably:

- The import/GDP ratio alone (equation 1) explains less than 1% of the variation in income levels.
- The export/GDP ratio (equation 2) scores much higher, capturing 16% of the variation.
- If the trade balance/GDP ratio is included in addition to import/GDP (3a) or export/GDP (3b), adjusted R² jumps to 29%.
- From equation (4) we see that the trade balance alone captures 27% of the income variation.

Equations (1)-(4) therefore suggest that the impact of trade/GDP ratios can be decomposed into two elements; one about openness and one about competitiveness. In equations (3a-b), the estimates on imports/GDP and exports/GDP are by definition equal, and the value of 0.31 tells that a 1% increase in the trade/GDP ratio (e.g. from 10.0 to 10.1%) leads to a 0.31% increase in income, if we "deduct" the competitiveness effect. The equations also suggest that unless the trade balance is included, the export/GDP ratio will capture some of the competitiveness effect. *For this reason, we shall use the import/GDP ratio as a measure of openness in the analysis* in the main text and later in this Appendix.

A shortcoming of the results in Table S1 is that trade openness depends strongly on country size, which we have not taken into account. If there were only two countries in the world and trade between them was balanced, the larger country would by definition be less open. Generally, larger countries tend to be more closed. When analysing the impact of openness on income, we should therefore control for country size. Note that it is economic size rather than population that is relevant, so we should use GDP and not population as the variable.

Country size may also affect the income level if firms in large countries have advantages due to their large home markets, or because of externalities. Externalities may e.g. be due to labour market pooling (a

good supply of differentiated labour, experts etc.), vertical linkages (a large domestic supply of inputs, machinery etc.), or knowledge spillovers (firms learn from each other so that productivity is higher if the industry is large). If home market effects or externalities are present, there may be a direct influence from country size on the income level. Again, it is GDP rather than population that is relevant.

In order to illustrate the importance of this issue, we therefore add a country size variable to the equations above. As noted above, it is economic size that matters in this context, not population. We therefore add the log of GDP as a right-hand side variable in the equations above, and obtain equations (5)-(9).²⁵

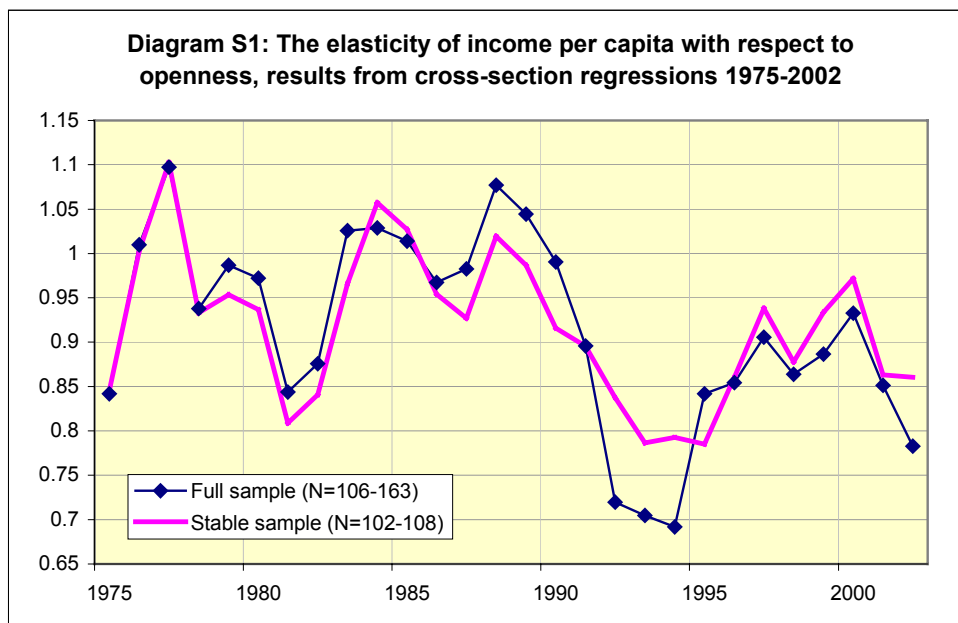
Eq.	GDP	Import/GDP	Export/GDP	Balance/GDP	Adj. R ²
	ln(Y)	ln(M/Y)	ln(X/Y)	ln(X/M)	
(5)	0.23 (32.03)				0.20
(6)	0.38 (47.95)	0.93 (32.54)			0.38
(7)	0.30 (49.60)		0.90 (45.70)		0.48
(8)	0.29 (37.82)	0.85 (32.58)		0.96 (28.58)	0.48
(8a)	0.29 (37.82)		0.85 (32.58)	0.11 (2.50)	0.48
(9)	0.15 (21.09)			1.08 (28.54)	0.34

Income per capita is obviously correlated with income, as shown in (5). There is therefore certainly a problem with endogeneity, which we do not have to address for the purposes here. When GDP is added in equations (6)-(9), the estimates on openness consistently increase to the range 0.85-0.93. Observe also that when GDP is included, the trade balance alone captures less of the income variation (compare (9) with (8a-b)). This is because on average, large countries tend to have a trade surplus; possibly suggesting that there are externalities or "home market effects" present. For this reason, the trade/GDP ratios are also not exogeneous.

The equations above were run with pooled data. The results are however qualitatively similar if we run the regressions for each year individually; i.e. with pure cross-section data. As an example, we run equation (8) with annual data. The parameter estimates are statistically significant at the 1% level or better in all cases, except for the constant terms in some cases (not reported above). Diagram S1 shows the estimates for ln(M/Y) during the period. Since the number of countries included

²⁵ If we use population as a measure of country size, and add this (in log form) as a right-hand side variable in equations (1)-(4), it does not change the results very much. Population size barely contributes to explaining the income differences.

generally increases over time due to better data availability as well as the formation of new countries (e.g. the new states after the former Soviet Union), the regressions are also run with a more or less constant sample with income data for all years. This is shown in the curve without markers.²⁶



There is a slight drop in this elasticity during the 1990s. Rodrigues (2006) maintains that "If there was a relationship between openness and growth in the data, it seems to have disappeared during the period since 1990." This is however referring to growth and not income levels; the diagram above suggests that the cross-section relationships is present also in the 1990's, but somewhat weaker. Some of the variation over time, especially some of the sharp drop in 1993-95, is due to the addition of new countries in the data set. On the whole, we see that the impact has varied around 1%, with a slight reduction over time. The drop in the early 1990s may possibly be due to the bad economic performance in Eastern Europe during some years, but we drop a more detailed analysis.

These equations demonstrate beyond doubt the importance of model specification and problems of endogeneity in the analysis of trade openness and income. Hence our results here are tentative only and a more extensive analysis is required to address issues of endogeneity and model specification. The results above nevertheless suggest that there is a positive impact of openness on income, as concluded by Nøguer and Siscart (2005). And we have obtain the information we needed for the choice of variable in the further analysis: We use imports/GDP since it reflects better the impact of openness, rather than competitiveness, in settings where we do not control for the trade balance.

²⁶ We do not report the details of these regressions here; these are available upon request. The average value of adjusted R² for these 28 regressions is 0.50.

A2. Measuring the impact of changes in openness on growth

For calculating the openness-income elasticities used in the main text, we run regressions of the form

$$\ln(\text{GDP per capita})_t = \alpha_1 + \alpha_2 \ln(\text{imports/GDP})_t + \varepsilon_t$$

where t refers to the 28 years covered by the data, or less where data are missing for some years. The regressions are undertaken for each individual country in turn. We do not report the detailed results, but summarise them. Details may be provided to interested readers upon request.

- The number of observations was 28 in 93 of the 165 cases and lower in the remaining ones, with an average of 23.7.
- Adjusted R^2 was on average 0.31.

Table S3 shows the number of significant estimates as well as their signs.

Sign of elasticity	Level of significance	Number of countries	% of countries
Positive (104, 63%)	1% level	62	37.6
	5% level	6	3.6
	10% level	6	3.6
	Not significant	30	18.2
Negative (61, 37%)	Not significant	26	15.8
	10% level	6	3.6
	5% level	6	3.6
	1% level	23	13.9
All countries		165	100

Hence 44.8% of the cases were significantly positive with P-values below 10%. 21.1% were negative with P values below 10%.

Table S4 shows the top and bottom 50 estimates for the openness-growth elasticity.

Table S4: Bottom and top 50 estimates of elasticities of income level with respect to openness.

Parameter β from OLS regression $Y_t = \alpha + \beta X_t + \varepsilon_t$; number of observations 28 in 110 cases (out of 165), average 24.7.

- Y_t = GDP per capita, PPP, constant 1995 international \$
- X_t = Imports of goods and services in % of GDP.
- t – years from 1975 to 2002
- Significance levels: *** = 1% level or better, ** = 5% level or better, * = 10% level or better.
- Data source: World Development Indicators 2004.

Bottom 50				Top 50			
Country	β	Sign. level	Y_{2000}	Country	β	Sign. level	Y_{2000}
St. Kitts and Nevis	-2.91	***	10389	Burundi	0.42	***	552
Cyprus	-2.07	***	15693	Togo	0.43	***	1312
Lesotho	-1.93	***	1994	Kazakhstan	0.44	***	4215
Botswana	-1.75	***	6911	Fiji	0.44	***	4477
Norway	-1.63	***	32228	Bangladesh	0.46	***	1427
Bahamas, The	-1.62	***	15306	Colombia	0.47	***	5618
St. Vincent & Grenadines	-1.48	***	4861	Eritrea	0.49	***	743
Tajikistan	-1.42	***	736	Uganda	0.49	**	1164
Armenia	-1.25	***	2222	Namibia	0.53	***	5357
Moldova	-0.98	***	1184	Nepal	0.54	***	1216
Kuwait	-0.98	***	14471	Cambodia	0.56	***	1682
Dominica	-0.93	*	5470	Canada	0.56	***	25456
United Arab Emirates	-0.87	***	19860	Denmark	0.56	*	26883
St. Lucia	-0.83	**	5126	Equatorial Guinea	0.59	***	15510
Ukraine	-0.83	***	3769	Niger	0.62	***	686
Pakistan	-0.8	*	1751	Czech Republic	0.66	***	12840
Israel	-0.79	***	18895	Greece	0.66	***	15280
Djibouti	-0.74	P>0.1	1769	El Salvador	0.69	***	4307
Egypt, Arab Rep.	-0.67	***	3253	Estonia	0.72	**	9428
Papua New Guinea	-0.65	***	2194	Spain	0.73	***	18314
Lebanon	-0.64	***	3866	Costa Rica	0.74	***	8175
Macao, China	-0.63	***	17559	Poland	0.75	***	9114
Oman	-0.62	**	11498	Sweden	0.75	***	22498
Japan	-0.62	***	23828	France	0.77	***	23225
Turkmenistan	-0.53	*	3224	Kenya	0.83	P>0.1	922
Burkina Faso	-0.47	***	931	Cote d'Ivoire	0.83	***	1455
Barbados	-0.44	**	14084	Sri Lanka	0.86	**	3181
Tonga	-0.43	*	5787	Cape Verde	0.89	***	4315
Georgia	-0.38	P>0.1	1722	Germany	0.89	***	23913
Latvia	-0.35	P>0.1	6985	India	0.94	***	2220
Jordan	-0.33	*	3597	Tunisia	0.94	***	5754
Vanuatu	-0.32	**	2855	United States	0.96	***	31338
Rwanda	-0.3	***	1019	United Kingdom	1.00	*	22652
Uruguay	-0.3	P>0.1	8130	Malaysia	1.01	***	8217
Bahrain	-0.27	***	14385	Belgium	1.04	***	24250
Nicaragua	-0.26	**	2279	China	1.06	***	3547

Bottom 50				Top 50			
Country	β	Sign. level	Y ₂₀₀₀	Country	β	Sign. level	Y ₂₀₀₀
Madagascar	-0.26	***	757	Austria	1.09	***	25694
Kyrgyz Republic	-0.24	P>0.1	1431	Vietnam	1.12	***	1854
Congo, Rep.	-0.21	P>0.1	884	Netherlands	1.14	***	24833
Solomon Islands	-0.2	P>0.1	1726	Australia	1.19	***	24013
Guinea-Bissau	-0.18	**	729	Portugal	1.28	***	15879
Lithuania	-0.17	P>0.1	7998	Thailand	1.32	***	5846
Russian Federation	-0.17	P>0.1	6644	Indonesia	1.33	***	2807
Azerbaijan	-0.17	P>0.1	2358	Mauritius	1.63	***	8858
Sierra Leone	-0.16	P>0.1	427	Hong Kong, China	1.65	***	23735
Albania	-0.15	P>0.1	3727	Malta	1.76	*	16482
Benin	-0.13	P>0.1	895	Chile	1.91	***	8412
Mali	-0.13	P>0.1	683	Ireland	2.01	***	27612
Congo, Dem. Rep.	-0.13	P>0.1	638	Slovenia	2.14	P>0.1	15239
Belize	-0.12	P>0.1	5124	Luxembourg	2.34	***	51637

Note: Income data for the United Arab Emirates is for 1998.

In Table S6, we show 30 countries with below-median growth and an openness-income elasticity below -0.10 .

**Table S5: Problems with trade:
30 countries with growth in per capita income below the median (1.19) and an income-openness elasticity at –0.10 or below**

Country	Income-openness elasticity	Growth in per capita GDP	Simple tariff average	Import tariffs, % of tax revenue 1980	Export + imports % of GDP 2002	GDP per capita, 2002 (PPP)	Income group 2005	LDC	Small Island Dev. State (1)	Small Island Dev. State (2)	Land-locked	IDA	Severely in-debted	Former Soviet Rep.	WTO
Bahrain	-0.27	0.11	4.92	50	146	15210	High	0	0	0	0	0	0	0	1
Kuwait	-0.98	-2.15	3.89	26	88	14382	High	0	0	0	0	0	0	0	1
United Arab Emirates	-0.87	-3.24				19860	High	0	0	0	0	0	0	0	1
Lithuania	-0.17	-1.12	3.97		114	9145	Upper middle	0	0	0	0	0	0	1	1
Latvia	-0.35	1.00	3.97		102	8161	Upper middle	0	0	0	0	0	1	1	1
Uruguay	-0.30	0.70	13.05	15	41	6939	Upper middle	0	0	0	0	0	1	0	1
Russian Federation	-0.17	-2.23	9.76		59	7289	Lower middle	0	0	0	0	0	0	1	0
Macedonia, FYR	-0.11	-1.03	8.68		95	5735	Lower middle	0	0	0	1	0	0	0	1
Belarus	-0.10	0.01	11.04		143	4887	Lower middle	0	0	0	0	0	0	1	0
Ukraine	-0.83	-4.15	6.84		108	4315	Lower middle	0	0	0	0	0	0	1	0
Azerbaijan	-0.17	-1.07	8.13		95	2845	Lower middle	0	0	0	1	1	0	1	0
Armenia	-1.25	-0.87	2.30		77	2761	Lower middle	0	0	0	1	1	0	1	1
Vanuatu	-0.32	-1.11	13.57			2556	Lower middle	1	1	1	0	1	0	0	0
Georgia	-0.38	-2.43	6.93		67	2002	Lower middle	0	0	0	0	1	0	1	1
Djibouti	-0.74	-2.04	32.55	5		1766	Lower middle	1	0	0	0	1	0	0	1
Turkmenistan	-0.53	-2.32	3.88				Lower middle	0	0	0	1	0	0	1	0
Nicaragua	-0.26	-2.55	4.42	23	72	2187	Low	0	0	0	0	1	0	0	1
Papua New Guinea	-0.65	-0.34	4.69	16		2007	Low	0	1	1	0	1	0	0	1
Mongolia	-0.11	0.13	4.95		148	1514	Low	0	0	0	1	1	0	0	1
Kyrgyz Republic	-0.24	-1.97	4.84		82	1436	Low	0	0	0	1	1	1	1	1
Solomon Islands	-0.20	1.03		31		1409	Low	1	1	1	0	1	0	0	1
Moldova	-0.98	-7.80	4.12		133	1300	Low	0	0	0	0	1	0	1	1

Country	Income-openness elasticity	Growth in per capita GDP	Simple tariff average	Import tariffs, % of tax revenue 1980	Export + imports % of GDP 2002	GDP per capita, 2002 (PPP)	Income group 2005	LDC	Small Island Dev. State (1)	Small Island Dev. State (2)	Land-locked	IDA	Severely indebted	Former Soviet Rep.	WTO
Rwanda	-0.30	0.89	9.47	27	33	1126	Low	1	0	0	1	1	1	0	1
Benin	-0.13	1.04	11.63		40	950	Low	1	0	0	0	1	0	0	1
Tajikistan	-1.42	-5.52	8.12		130	866	Low	0	0	0	1	1	1	1	0
Mali	-0.13	0.72	11.63	16	73	820	Low	1	0	0	1	1	0	0	1
Madagascar	-0.26	-1.90	5.08	26	39	659	Low	1	0	0	0	1	0	0	1
Guinea-Bissau	-0.18	-0.85	11.63		123	630	Low	1	1	0	0	1	1	0	1
Congo, Dem. Rep.	-0.13	-4.71	11.90	23	40	578	Low	1	0	0	0	1	1	0	1
Sierra Leone	-0.16	-2.33	13.25	41	59	464	Low	1	0	0	0	1	1	0	1
Sum country groups								10	4	3	9	19	8	12	7

Note: Income data for the United Arab Emirates are for 1998.

A3. Determinants of the "problems with trade"

In the text, we conclude that the factors that create a negative trade-growth relationship are the same as the factors that impede growth. We support this conclusion by studying the correlations between our indicators of the openness-growth relationship on one side, and a number of other country-related variables on the other. In Table S7 at the end of this Appendix, the correlations and data sources are shown. We study around 150 variables, but drop details and summarise the results only briefly. The selection of variables is guided by earlier research on trade and growth, and data availability/ time constraints. We use data on

- education and technology
- the quality of institutions (including corruption, the rule of law, efficiency of governance etc.)
- the "quality" of capital markets
- health
- country size
- sectoral specialisation (agriculture, manufacturing, services)
- trade policy.

For many aspects, we have data of good quality, but in some cases there are limitations. For example, we would have liked to have better data on trade policy changes over time, but this was not available so we only use data on the cross-section variation at the end of the period studied. Hence more can be done to make results more accurate, but that has to be a task for future work.

For the chosen variables, we consider *levels* for various years during the period studied, mostly at the beginning and the end of the time period studied (1975-2002), or other years if this is necessary due to data availability. In addition, we check correlations with *changes over time*; mostly using the change over the whole period. A full-fledged econometric analysis is beyond the scope of the paper, so what we present is a tentative analysis based on correlations. Furthermore, there may be changes in the trend during the time period studied, e.g. that the 1990s are different from the 1980s, but a more detailed study of the changes over time is not undertaken here.

We correlate these numerous variables with the estimated trade elasticities (EL), as well as a dummy (NEG) for 30 negative cases and a similar dummy (POS) for 54 positive cases (positive openness-income elasticity and above-median economic growth). Since we include these dummies, we also report Spearman (rank) correlation coefficients. We drop reporting results for a number of variables of less interest or because they duplicate others, and finally report in Table S7 correlations with 113 variables.

The two dummies are constructed by using growth rates in addition to EL. Hence an issue is whether the dummies are more correlated with growth-related aspects. In order to check if the variables behave differently, we examine the correlations between the six sets of correlation coefficients that we obtain. This is shown in Table S6.

Variable/ type		NEG	POS		EL	
		Spearman	Pearson	Spearman	Pearson	Spearman
NEG	Pearson	0.93	-0.76	-0.75	-0.71	-0.77
	Spearman		-0.73	-0.79	-0.70	-0.84
POS	Pearson			0.95	0.88	0.87
	Spearman				0.80	0.92
EL	Pearson					0.88

Note: The number of observations is 113 in all cases. P values are below 0.0001 in all cases.

Hence even if POS is more growth-related than EL due to its construction, the correlations obtained using POS are very close to those obtained using EL. This is shown by correlation coefficients in the range 0.80-0.92 between the four sets of correlations. Hence POS and EL results are strongly positively related, while results with NEG are generally the opposite, as we would expect.

Hence if e.g. some variable is positively correlated with EL, it also tends to be positively correlated with POS and negatively correlated with NEG. Many variables conform to this expectation. There is, however, also another group where the correlations with EL and POS are highly significant, but where results for NEG are mixed due to the heterogeneity among the countries with NEG=1. For example, we find that armed conflict precludes a positive outcome, but does not necessarily imply that you are on the negative list.

In the first group of variables, with an unambiguous impact on the positive as well as the negative, we find:

- ▶ **Developed capital markets:** We use a number of different variables measuring this, related to FDI, stock and credit markets, and investment. While the results for FDI are partly mixed, there is on the whole a very consistent picture: More developed capital markets correspond to a more positive trade-growth relationship.
- ▶ **Good institutions:** We measure this using six different indicators of governance from Kaufmann et al. (2006). The results are very convincing; indicating that good institutions correspond with a positive trade-growth relationship.
- ▶ **Country size:** It is easier for large countries to obtain a positive link between openness and income. This is consistent with theories predicting that large countries have an advantage in international trade due to their large home market, or due to economies of scale at the industry level.
- ▶ **The sectoral composition of production and exports:** In order to obtain a positive trade-income link, a country should have
 - little employment in agriculture, and more in manufacturing and services
 - a high share of manufacturing in exports.
- ▶ **Technology:** A high share of high-tech exports, or machinery and equipment, is clearly positive.
- ▶ **Being landlocked:** We include this here since it is a country group based on a "physical" and exogenous criterion (not income etc.).

In the second , group, with unambiguous results for POS and EL, but not NEG, we find:

▶ **Military conflict:** We examine this using

- military expenditure in % of GDP
- battle-deaths in % of the population over the period.²⁷

Measured in this way, conflict is negatively correlated with POS and EL, while the results for NEG are mixed. The significance levels are generally not very high, so the relationship is not very strong statistically speaking.

▶ **Health:** Using various health indicators, we find positive correlations with POS and EL, while results for NEG are more mixed. An exception is population density, where an increase (equivalent to population growth) renders it more likely to be on the NEG list.

▶ **Education:** Without good education, you cannot be on the positive list: For school enrolment, however, the relationship has become weaker over time.

▶ **Agricultural exports:** countries with a high share of agriculture in exports in more seldom on the "positive list", but it is more ambiguous whether this will put them on the negative list.

▶ **Manufacturing imports:** In later years of the period, a large share of manufacturing imports is positive. This could be related to technology transfer through imports of capital goods. Another reason could be multinational production.

▶ **Tariffs:** High tariffs preclude a positive trade-growth relationship, but it is ambiguous whether they cause a negative link.²⁸

Results may vary and the classification into the two groups is not always crystal clear, but made based on our assessment. It may be that mixed results are due to data quality etc., so the classification should be considered as tentative.

In Table S7, we also include results not reported here, such as for various country groups as well as related to trade, income and growth.²⁹

²⁷ For this purpose, we use the Battle Deaths Dataset, from the Centre for the Study of Civil War, PRIO, 2006. We sum up all battle deaths reported for the period 1975-2002, and divide by mean population. The purpose is to obtain a continuous variable that differentiates according to the severeness of a conflict.

²⁸ If import tariffs represent a large share of tax revenue, it is (weakly) true that countries will be on the negative list. This relationship is however weak, with P values for the Spearman correlation coefficients in the 0.10-0.12 range.

²⁹ With respect to trade and income, these are also involved in the construction of variables, so here we will find correlations by construction.

Appendix Table S7: What determines whether there is a positive link between openness and income?

Data sources:

- (1) World Development Indicators 2005, World Bank
- (2) Centre for the Study of Civil War, PRIO, 2006: The Battle Deaths Dataset.
- (3) Classifications used in Melchior (2005), based on various sources.
- (4) Kaufmann, D., A. Kraay and M. Mastruzzi, 2006, Governance Matters V: Governance Indicators for 1996-2005. World Bank.
- (5) Own calculations based on tariff data from TRAINS (UNCTAD) and the IDB/CTS (WTO) databases.

Table S7 continued... Variable	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Aid, % of GNI Note: For each correlation, the upper figure is the correlation coefficient. The figure in the middle is the P value. The lower figure is the number of observations used.	1985	0.16	0.13	-0.21	-0.23	-0.11	-0.13	1	Aid
		0.1019	0.2015	0.0354	0.0202	0.2812	0.2058		
		104	104	104	104	104	104		
	2002	0.19	0.23	-0.09	-0.27	-0.14	-0.25		
		0.0253	0.0069	0.2988	0.0016	0.1077	0.003		
		134	134	134	134	134	134		
	Change	0.09	0.15	-0.14	-0.28	0.01	0.03		
		0.3687	0.151	0.1808	0.0059	0.9283	0.7686		
		93	93	93	93	93	93		
Military expenditure (% of GNI)	1990	0.21	0.06	-0.17	-0.17	-0.29	-0.29	1	Conflict
		0.0262	0.55	0.0822	0.0716	0.0024	0.0028		
		107	107	107	107	107	107		
	2000	0.01	0.06	-0.20	-0.14	-0.27	-0.27		
		0.9509	0.5374	0.0242	0.127	0.002	0.0026		
		124	124	124	124	124	124		
	Change	-0.21	-0.22	0.08	0.10	0.08	0.07		
		0.0526	0.0372	0.4542	0.3476	0.4821	0.4849		
		89	89	89	89	89	89		
Battle deaths in period, as % of mean population	1975-2002	-0.01	0.15	-0.12	-0.18	-0.14	-0.20	2	
		0.9013	0.1418	0.2339	0.0695	0.1733	0.0518		
		98	98	98	98	98	98		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:		
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman				
Foreign direct investments, net inflows as % of GNI	1975	-0.04	-0.24	0.06	0.00	0.19	0.26	1	Capital markets		
		0.7164	0.0166	0.5645	0.9847	0.071	0.0098				
		96	96	96	96	96	96				
	2002	-0.04	-0.07	0.12	0.11	0.23	0.08				
		0.5819	0.3768	0.1464	0.1767	0.0044	0.3072				
		153	153	153	153	153	153				
	Change	-0.10	-0.23	0.18	0.24	0.07	0.17				
		0.3703	0.0297	0.0982	0.0225	0.4874	0.1189				
		89	89	89	89	89	89				
Gross fixed capital formation, % of GDP	1980	-0.23	-0.21	0.02	0.03	-0.14	-0.05	1	Capital markets		
		0.0122	0.0234	0.8306	0.7275	0.142	0.568				
		118	118	118	118	118	118				
	2001	-0.15	-0.15	0.17	0.27	-0.08	0.14				
		0.0642	0.0569	0.0382	0.0006	0.3166	0.0851				
		153	153	153	153	153	153				
	Change	-0.01	-0.01	0.12	0.24	0.05	0.17				
		0.9231	0.9206	0.2065	0.0154	0.6488	0.0816				
		104	104	104	104	104	104				
Stocks traded, trade value as % of GDP	2000	-0.17	-0.18	0.33	0.49	0.19	0.30	1	Capital markets		
		0.105	0.0793	0.0012	<.0001	0.0716	0.004				
		93	93	93	93	93	93				
Domestic credit to private sector (% of GDP)	1975	-0.21	-0.22	0.31	0.36	0.05	0.20			1	Capital markets
		0.0351	0.022	0.0012	0.0002	0.6018	0.0437				
		104	104	104	104	104	104				
	2002	-0.28	-0.29	0.40	0.40	0.24	0.25				
		0.0005	0.0002	<.0001	<.0001	0.0027	0.0015				
		155	155	155	155	155	155				

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Domestic credit to private sector (% of GDP)	Change	-0.06	-0.09	0.09	0.27	0.06	0.15	1	Capital markets
		0.5431	0.3677	0.3663	0.0082	0.5582	0.1451		
		98	98	98	98	98	98		
Least Developed Countries (dummy)	2005	0.10	0.10	-0.12	-0.12	-0.05	-0.08	3	Country group
		0.2094	0.2094	0.1284	0.1284	0.4906	0.339		
		164	164	164	164	164	164		
Small island developing states, definition 1 (dummy)		-0.02	-0.02	-0.03	-0.03	-0.18	-0.15		
		0.8248	0.8248	0.723	0.723	0.0198	0.0515		
		164	164	164	164	164	164		
Small island developing states, definition 2 (dummy)		-0.02	-0.02	-0.01	-0.01	-0.19	-0.15		
		0.7658	0.7658	0.9421	0.9421	0.0138	0.0557		
		164	164	164	164	164	164		
Landlocked countries (dummy)		0.16	0.16	-0.24	-0.24	-0.16	-0.13		
		0.0376	0.0376	0.0016	0.0016	0.0422	0.0947		
		164	164	164	164	164	164		
IDA only (dummy)	2005	0.20	0.20	-0.25	-0.25	-0.17	-0.20		
		0.0112	0.0112	0.001	0.001	0.0347	0.0085		
		164	164	164	164	164	164		
Low income group of countries (dummy)	2002	0.15	0.15	-0.23	-0.23	-0.09	-0.11		
		0.0636	0.0636	0.0035	0.0035	0.2761	0.152		
		164	164	164	164	164	164		
Severely indebted (dummy)	2004	-0.01	-0.01	-0.22	-0.22	-0.10	-0.10		
		0.9171	0.9171	0.0046	0.0046	0.1878	0.1854		
		164	164	164	164	164	164		
Crude death rate per 1000 people, % of population	1975	0.05	0.02	-0.23	-0.24	-0.04	-0.06	1	Health
		0.5566	0.8026	0.0041	0.0036	0.6226	0.4688		
		150	150	150	150	150	150		

Table S7 continued...		Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable	Year	Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Life expectancy at birth (years)	1975	-0.08	-0.09	0.34	0.36	0.14	0.20	1	Health
		0.3352	0.2621	<.0001	<.0001	0.094	0.0145		
		151	151	151	151	151	151		
	2002	-0.09	-0.16	0.38	0.42	0.15	0.20		
		0.2477	0.0413	<.0001	<.0001	0.0509	0.0109		
		165	165	165	165	165	165		
	Change	-0.08	-0.11	0.17	0.14	0.13	0.07		
		0.3483	0.1639	0.039	0.0863	0.115	0.4061		
		151	151	151	151	151	151		
Population density (people per square km)	1975	-0.05	-0.20	0.01	0.32	-0.01	0.19	1	Health
		0.5304	0.0196	0.9265	<.0001	0.9387	0.023		
		141	141	141	141	141	141		
	2002	-0.09	-0.15	0.21	0.26	0.16	0.14		
		0.2577	0.0605	0.0087	0.0007	0.0378	0.0757		
		161	161	161	161	161	161		
	Change	0.36	0.32	-0.40	-0.49	-0.21	-0.29		
		<.0001	0.0001	<.0001	<.0001	0.012	0.0006		
		139	139	139	139	139	139		
Infant mortality rate, per 1000 births	1980	0.09	0.09	-0.32	-0.35	-0.16	-0.22	1	Health
		0.2906	0.2608	<.0001	<.0001	0.0411	0.0059		
		154	154	154	154	154	154		
	2002	0.14	0.15	-0.36	-0.43	-0.14	-0.22		
		0.0793	0.0525	<.0001	<.0001	0.0791	0.0042		
		162	162	162	162	162	162		
	Change	0.16	0.18	-0.41	-0.42	-0.23	-0.22		
		0.0542	0.0235	<.0001	<.0001	0.005	0.0059		
		154	154	154	154	154	154		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Public health expenditure, % of GDP	2000	-0.11	-0.07	0.33	0.28	0.15	0.14	1	Health
		0.1605	0.3646	<.0001	0.0004	0.0588	0.0832		
		161	161	161	161	161	161		
Crude death rate per 1000 people	2002	0.09	0.07	-0.24	-0.17	-0.10	-0.01		
		0.2684	0.3834	0.0015	0.0313	0.2238	0.8835		
		165	165	165	165	165	165		
GDP per capita, PPP (Note: Due to limited data are growth rates calculated for a shorter period for some countries)	1975	0.03	-0.12	0.26	0.34	0.08	0.23	1	Income level
		0.7694	0.1836	0.0051	0.0002	0.4172	0.0153		
		115	115	115	115	114	114		
	2002	-0.19	-0.23	0.46	0.44	0.35	0.31		
		0.0145	0.0034	<.0001	<.0001	<.0001	<.0001		
		158	158	158	158	157	157		
Growth 1975-2002	-0.47	-0.53	0.49	0.62	0.23	0.33			
	<.0001	<.0001	<.0001	<.0001	0.0025	<.0001			
Voice and accountability	1996	-0.19	-0.18	0.39	0.38	0.17	0.23	4	Institutions
		0.017	0.0187	<.0001	<.0001	0.0336	0.0034		
		162	162	162	162	162	162		
	2002	-0.18	-0.19	0.35	0.36	0.16	0.22		
		0.0215	0.0158	<.0001	<.0001	0.0404	0.004		
		164	164	164	164	164	164		
	Change	0.05	0.06	-0.16	-0.19	-0.05	-0.10		
		0.5348	0.4293	0.045	0.0154	0.4997	0.1904		
		162	162	162	162	162	162		
Political stability	1996	-0.11	-0.10	0.31	0.34	0.17	0.21		
		0.1841	0.2297	<.0001	<.0001	0.0294	0.009		
		159	159	159	159	159	159		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Political stability	2002	-0.09	-0.10	0.30	0.32	0.08	0.12	4	Institutions
		0.2748	0.2029	<.0001	<.0001	0.3064	0.1109		
		164	164	164	164	164	164		
	Change	0.05	0.05	0.02	0.02	-0.03	-0.04		
		0.5104	0.4995	0.7624	0.7644	0.7104	0.5904		
		159	159	159	159	159	159		
Government effectiveness	1996	-0.28	-0.29	0.50	0.49	0.33	0.35		
		0.0003	0.0002	<.0001	<.0001	<.0001	<.0001		
		161	161	161	161	161	161		
	2002	-0.24	-0.24	0.45	0.43	0.19	0.21		
		0.0016	0.0022	<.0001	<.0001	0.017	0.0065		
		164	164	164	164	164	164		
	Change	0.11	0.14	-0.11	-0.12	-0.27	-0.26		
		0.1746	0.0764	0.1593	0.134	0.0004	0.0009		
		161	161	161	161	161	161		
Regulatory quality	1996	-0.27629	-0.24637	0.42806	0.43302	0.32438	0.35911		
		0.0004	0.0016	<.0001	<.0001	<.0001	<.0001		
		162	162	162	162	162	162		
	2002	-0.22	-0.21	0.41	0.41	0.18	0.23		
		0.0048	0.0069	<.0001	<.0001	0.021	0.0035		
		164	164	164	164	164	164		
	Change	-0.09	-0.09	0.27	0.28	0.00	0.07		
		0.272	0.2527	0.0006	0.0003	0.9776	0.4091		
		162	162	162	162	162	162		
Rule of law	1996	-0.26	-0.26	0.47	0.44	0.28	0.31		
		0.0012	0.0015	<.0001	<.0001	0.0004	0.0001		
		151	151	151	151	151	151		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Rule of law	2002	-0.22	-0.22	0.44	0.41	0.18	0.18	4	Institutions
		0.0054	0.0056	<.0001	<.0001	0.0204	0.0182		
		164	164	164	164	164	164		
	Change	0.07	0.09	0.15	0.16	0.02	0.01		
		0.3851	0.298	0.0604	0.0544	0.8296	0.8558		
		151	151	151	151	151	151		
Control of corruption	1996	-0.29	-0.26	0.48	0.47	0.31	0.33		
		0.0007	0.0022	<.0001	<.0001	0.0002	<.0001		
		138	138	138	138	138	138		
	2002	-0.20	-0.19	0.41	0.39	0.16	0.17		
		0.0112	0.0149	<.0001	<.0001	0.0351	0.026		
		164	164	164	164	164	164		
	Change	0.17	0.19	-0.02	-0.07	-0.09	-0.12		
		0.0419	0.0287	0.7943	0.444	0.3021	0.1739		
		138	138	138	138	138	138		
Tax revenue, % of GDP	1975	-0.24	-0.34	0.14	0.33	0.13	0.28	1	Public sector
		0.0215	0.0009	0.1731	0.0013	0.2055	0.0053		
		95	95	95	95	95	95		
	2000	-0.09	-0.08	0.00	0.03	0.02	0.03		
		0.4784	0.5114	0.9894	0.8203	0.8863	0.8051		
		67	67	67	67	67	67		
	Change	-0.03	-0.08	0.12	0.06	0.05	0.08		
		0.7637	0.4739	0.286	0.5855	0.6706	0.4694		
		80	80	80	80	80	80		
GDP, 2002, current USD	2002	-0.09	-0.27	0.20	0.39	0.12	0.38	1	Country size
		0.2442	0.0004	0.0107	<.0001	0.1209	<.0001		
		163	163	163	163	163	163		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:	
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman			
GDP, PPP	2002	-0.11	-0.24	0.25	0.36	0.17	0.38	1	Country size	
		0.1753	0.0019	0.001	<.0001	0.0253	<.0001			
		164	164	164	164	164	164			
Mean population, 1975-2002	1975-2002	-0.08	-0.17	0.20	0.19	0.16	0.29			
		0.2874	0.0272	0.009	0.0169	0.0421	0.0002			
		166	166	166	166	165	165			
Literacy rate, adult total, % of people aged 15 or above	1975	0.19	0.23	0.20	0.18	0.03	0.01		1	Skills
		0.0413	0.0159	0.0364	0.0554	0.7385	0.8768			
		112	112	112	112	112	112			
	2000	0.10	0.21	0.15	0.13	-0.02	-0.05			
		0.2946	0.0317	0.1263	0.1825	0.8616	0.6095			
		106	106	106	106	106	106			
	Change	-0.15	-0.24	-0.20	-0.14	-0.01	0.04			
		0.1211	0.0126	0.0396	0.1446	0.8843	0.6934			
		106	106	106	106	106	106			
School enrolment, primary, % gross	1975	-0.17	-0.19	0.40	0.42	0.25	0.32	1	Skills	
		0.0568	0.0365	<.0001	<.0001	0.0064	0.0003			
		122	122	122	122	122	122			
	2000	-0.13	-0.16	0.21	0.20	0.11	0.19			
		0.1276	0.0599	0.0093	0.0171	0.198	0.0198			
		148	148	148	148	148	148			
	Change	0.06	0.11	-0.30	-0.35	-0.15	-0.23			
		0.5009	0.2651	0.0016	0.0002	0.1271	0.0152			
		111	111	111	111	111	111			
School enrolment, secondary, % gross	1975	-0.17	-0.17	0.40	0.41	0.22	0.28	1	Skills	
		0.0656	0.0556	<.0001	<.0001	0.0151	0.0017			
		124	124	124	124	124	124			

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
School enrolment, secondary, % gross	2000	-0.03	-0.01	0.22	0.17	0.09	0.10	1	Skills
		0.7491	0.9405	0.0118	0.0511	0.2941	0.2599		
		129	129	129	129	129	129		
	Change	-0.04	0.02	-0.10	-0.11	-0.12	-0.06		
		0.7081	0.8568	0.346	0.303	0.2422	0.5749		
		93	93	93	93	93	93		
School enrolment, tertiary, % gross	1975	-0.19	-0.21	0.40	0.41	0.19	0.24		
		0.0512	0.028	<.0001	<.0001	0.0513	0.0105		
		109	109	109	109	109	109		
	2000	0.04	0.04	0.21	0.22	0.13	0.14		
		0.7045	0.7186	0.028	0.025	0.1825	0.149		
		108	108	108	108	108	108		
	Change	-0.06	-0.33	-0.07	0.26	-0.10	0.32		
		0.5701	0.0008	0.5151	0.0097	0.3294	0.0013		
		98	98	98	98	98	98		
Internet users per 1000 people	2002	-0.21	-0.21	0.42	0.39	0.22	0.04		
		0.0082	0.0081	<.0001	<.0001	0.0045	0.6934		
		158	158	158	158	158	106		
	Change 1995-2002	0.02	0.10	-0.24	-0.42	-0.12	0.25		
		0.8607	0.3083	0.0108	<.0001	0.2	0.0015		
		110	110	110	110	110	158		
Food exports, % of merchandise exports	1975	0.10	0.09	-0.13	-0.10	-0.04	-0.22	1	Specialisation
		0.3094	0.3614	0.1806	0.3032	0.7044	0.0191		
		106	106	106	106	106	110		
	2000	-0.06	-0.09	-0.27	-0.18	-0.16	-0.05		
		0.4678	0.3007	0.0018	0.0352	0.0698	0.6144		
		133	133	133	133	133	106		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Machinery and transport equipment, % of value added in manufacturing	1975	-0.08	-0.13	0.41	0.42	0.14	-0.06	1	Specialisation
		0.4676	0.2454	0.0002	0.0001	0.2216	0.5126		
		79	79	79	79	79	133		
	1995	-0.09	-0.09	0.38	0.39	0.26	0.26		
		0.4224	0.4222	0.0006	0.0005	0.0219	0.0624		
		76	76	76	76	76	54		
	Change 1975-95	0.16	0.14	0.14	0.16	0.13	0.30		
		0.2375	0.3021	0.3084	0.2409	0.3302	0.008		
		57	57	57	57	57	79		
Manufacturing exports, % of merchandise exports	1975	-0.19	-0.21	0.38	0.39	0.17	0.06	1	Specialisation
		0.0502	0.0312	<.0001	<.0001	0.0744	0.6411		
		105	105	105	105	105	57		
	2001	-0.24	-0.24	0.47	0.46	0.27	0.37		
		0.0089	0.0069	<.0001	<.0001	0.0022	<.0001		
		122	122	122	122	122	119		
	Change	0.03	-0.09	-0.13	-0.11	-0.04	0.31		
		0.7742	0.4156	0.2185	0.2849	0.7284	0.0004		
		89	89	89	89	89	122		
Manufacturing imports, % of merchandise imports	1975	-0.03	-0.05	-0.15	-0.19	0.11	0.22	1	Specialisation
		0.78	0.5927	0.1135	0.0515	0.2633	0.0241		
		106	106	106	106	106	105		
	2000	-0.39	-0.34	0.39	0.42	0.33	-0.07		
		<.0001	<.0001	<.0001	<.0001	<.0001	0.439		
		132	132	132	132	132	123		
	Change	-0.04	-0.10	-0.01	0.45	-0.25	-0.09		
		0.6759	0.3399	0.9492	<.0001	0.0194	0.4042		
		90	90	90	90	90	90		

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Employment in agriculture, % of total employment	1980	0.27	0.24	-0.42	-0.43	-0.23	0.20	1	Specialisation
		0.0126	0.0303	<.0001	<.0001	0.0352	0.0476		
		84	84	84	84	84	103		
	2000	0.32	0.33	-0.18	-0.25	-0.19	0.28		
		0.0046	0.0038	0.1265	0.0326	0.1046	0.0127		
		75	75	75	75	75	76		
Food exports, % of merchandise exports	Change 1975-2000	-0.04	0.07	-0.18	-0.22	-0.30	-0.04		
		0.7316	0.512	0.0942	0.0344	0.0047	0.7902		
		90	90	90	90	90	42		
Employment in industry (% of total employment)	1980	-0.28	-0.27	0.41	0.40	0.19	-0.34		
		0.0112	0.0123	0.0001	0.0002	0.0763	0.0017		
		84	84	84	84	84	84		
	2000	-0.26	-0.19	0.18	0.15	0.19	-0.28		
		0.0251	0.1079	0.1291	0.2037	0.1059	0.0167		
		75	75	75	75	75	75		
	Change	-0.03	0.03	0.00	-0.11	0.13	0.19		
		0.8353	0.8531	0.9758	0.4657	0.3918	0.018		
		46	46	46	46	46	149		
Employment in services, % of total employment	1980	-0.22	-0.23	0.39	0.38	0.24	0.30		
		0.0423	0.0356	0.0003	0.0003	0.0278	0.0053		
		84	84	84	84	84	84		
	2000	-0.28	-0.32	0.16	0.19	0.14	0.14		
		0.0162	0.0056	0.1623	0.0953	0.219	0.2444		
		75	75	75	75	75	75		
	Change	-0.20	-0.26	0.09	-0.01	-0.02	-0.03		
		0.2026	0.091	0.5666	0.9692	0.9163	0.8226		
		42	42	42	42	42	46		

Table S7 continued...		Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:				
Variable	Year	Pearson	Spearman	Pearson	Spearman	Pearson	Spearman						
Fuel imports (% of merchandise imports)	2000	0.32	0.25	-0.18	-0.19	-0.15	0.24	1	Specialisation				
		0.0002	0.0043	0.0412	0.027	0.0859	0.0396						
		132	132	132	132	132	75						
	Change 1975-2000	-0.03	0.09	-0.11	-0.33	0.00	-0.10						
		0.7651	0.396	0.3198	0.0013	0.9691	0.3901						
Fuel exports (% of merchandise exports)	2000	90	90	90	90	90	80			1	Specialisation		
		0.13	0.15	-0.24	-0.09	-0.17	-0.17						
		0.1541	0.0878	0.0086	0.3095	0.0576	0.0533						
High-technology exports, % of manufacturing exports	1990	123	123	123	123	123	132					1	Specialisation
		0.01	0.06	0.27	0.24	0.32	0.33						
		0.9433	0.6683	0.0483	0.0843	0.0183	0.0024						
	2001	54	54	54	54	54	84						
		-0.13	-0.18	0.32	0.37	0.32	0.42						
		0.1537	0.0492	0.0003	<.0001	0.0004	<.0001						
Services etc., % of GDP	1975	119	119	119	119	119	132	5	Trade policy				
		-0.24	-0.20	0.25	0.30	0.16	0.06						
		0.0147	0.0467	0.0099	0.0024	0.0999	0.5262						
	2001	103	103	103	103	103	106						
		-0.23	-0.22	0.28	0.31	0.17	-0.01						
		0.0057	0.0082	0.0005	0.0001	0.0441	0.9247						
	Change	149	149	149	149	149	89						
		-0.23	-0.18	0.22	0.23	0.20	-0.10						
		0.0223	0.0807	0.0331	0.0221	0.0559	0.3497						
Simple tariff average, ad valorem tariffs	2001-2005	95	95	95	95	95	90	5	Trade policy				
		-0.05	-0.04	-0.16	-0.20	-0.06	0.23						
		0.5173	0.6559	0.053	0.0107	0.424	0.0233						
		155	155	155	155	155	95						

Table S7 continued...	Year	Dummy 30 "negative" countries		Dummy 54 "positive" countries		Income-openness elasticity		Data source	Variable related to:
Variable		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman		
Weighted tariff average, ad valorem tariffs	2001-05	-0.03	-0.06	-0.20	-0.24	-0.21	-0.09	5	Trade policy
		0.7646	0.5271	0.0226	0.0054	0.0173	0.2789		
		130	130	130	130	130	155		
Import duties, % of tax revenue	1975	0.13	0.17	-0.43	-0.43	-0.42	-0.17	1	
		0.222	0.1069	<.0001	<.0001	<.0001	0.0582		
		95	95	95	95	95	130		
	1980	0.11	0.15	-0.36	-0.37	-0.33	-0.41		
		0.2684	0.1166	0.0002	0.0001	0.0005	<.0001		
		105	105	105	105	105	95		
	Change	0.19	0.21	-0.40	-0.39	-0.27	-0.31		
		0.1173	0.0881	0.0007	0.001	0.0241	0.0014		
		69	69	69	69	69	105		
WTO membership (dummy)	2005	-0.17	-0.17	0.14	0.14	0.15	-0.30	WTO	
		0.0351	0.0351	0.0778	0.0778	0.0635	0.0119		
		155	155	155	155	155	69		