

FOREWORD

The World Trade Report 2005 follows the pattern established in previous years and takes up a number of key trade policy issues facing the international trading system for analysis and discussion. The underlying objective of the Report is to contribute to a deeper understanding of trade policy issues facing governments. The core topic in this year's report is standards and international trade. Shorter essays have been prepared on three other topics – the use of quantitative economic analysis in WTO dispute settlement, international trade in air transport services, and offshoring services.

First, however, the Report examines recent trends in international trade. The year 2004 saw impressive growth in trade, against a background of strong output growth. At 9 per cent in real terms export growth was twice

Commonwealth of Independent States.

Prospects for trade growth in 2005 are not as promising as in 2004, but at a predicted real rate of 6.5 per cent, trade would still expand faster than the average rate since 1994. Downside risks in the world economy include the dampening effect on economic activity of high oil prices, as well as persistent sluggishness in some economies, and interest rate and exchange rate volatility arising from imbalances in others. I urge governments to address these challenges in a timely and decisive fashion.

Last year was a good year for the WTO. After the disappointing Fifth Ministerial Conference in Cancún in September 2003, Members worked hard in the first half of 2004 to put the Doha negotiations back on track. This they succeeded in doing with the "July package", which embodied a set of clear mandates for bringing the negotiations to successful completion. But much work remains to be done. The present Report is being launched on the eve of a significant milestone in the negotiating process. By the time of the August break in Geneva, we need to see the shape of a set of clear results emerging from the Sixth Ministerial Conference in Hong Kong, China that will set the scene for completing the Doha negotiations in 2006. This is a shared responsibility of the entire WTO membership, requiring constructive engagement and a willingness to act in the collective interest despite sometimes difficult trade-offs.

An interesting debate has taken place over the years about the relationship, at different points in time, between the health of the world economy and progress in building a stronger international trading system. Some have argued, perhaps with certain justification, that governments need to be faced with bad economic news and the threat of worse to come before they can muster the political momentum for difficult decisions on trade – decisions whose benefits may not always be immediate. If bad times are needed for good decisions and good times induce complacency, we surely miss valuable opportunities to make real progress in strengthening the world economy and addressing the core challenges of our time – development and poverty alleviation. Let us not permit today's good economic news to blind us to the pressing need for action to bolster and advance international cooperation in matters of trade policy. Let us mark ten years of the existence of the WTO with decisive action that will set the scene for real progress in the year ahead.

Turning to the specific topics covered in WTR 2005, a stable and mutually supportive relationship between important in facilitating well-functioning markets where technical compatibility (network externalities) is important. But the design and operation of standards must also be such as to avoid the misappropriation or capture of public policy in these areas to construct unwarranted obstacles to competition and trade.

The underlying issues can be complex. Among the questions to be considered are whether standards should be harmonized, whether they should be voluntary or mandatory, how far standard-setting should be a public or a private activity, whether production processes as well as product standards should be the subject of international obligations, and who should be responsible for ensuring that producers and suppliers conform with established standards. Many of these questions do not have straightforward answers. Trade-offs must be made and desirable outcomes are often sensitive to the specificity of circumstances. Not all governments share the same public policy preferences or priorities.

A particular challenge for the WTO is to ensure that everything possible is done to enable developing countries to participate effectively in the trading system. This is as important in the field of standards as anywhere else. Among the challenges here are those which ensure that developing countries possess the requisite infrastructure to meet standards and to shape their own standards regimes, that they are not disadvantaged in the area of conformity assessment and that they can participate effectively in international standard-setting activities. A good deal is being done in these areas, but many developing countries still face formidable challenges.

The first of the three shorter essays, on the use of quantitative economic analysis in WTO dispute settlement, deals with a fascinating issue of increasing importance in the trading system. Broadly, we have seen growing interest in using quantitative analysis to address questions about the trade effects of policy measures and the effects of imports on the markets of domestic products and producers. Resort to arbitration has continued to

DISCLAIMER

The World Trade Report and any opinions reflected therein are the sole responsibility of the WTO Secretariat. They do not purport to reflect the opinions or views of Members of the WTO. The main authors of the Report also wish to exonerate those who have commented upon it from responsibility for any outstanding errors or omissions.

SUMMARY OF CONTENTS

FOREWORD	iii
ACKNOWLEDGEMENTS	vii
DISCLAIMER	viii
ABBREVIATIONS AND SYMBOLS	xvii
EXECUTIVE SUMMARY	xxiii
I RECENT AND SELECTED MEDIUM-TERM TRADE DEVELOPMENTS	
A RECENT TRENDS IN INTERNATIONAL TRADE	1
B SELECTED MEDIUM-TERM DEVELOPMENTS	13
II TRADE, STANDARDS AND THE WTO	
A INTRODUCTION	29
B THE ECONOMICS OF STANDARDS AND TRADE	31
C INSTITUTIONS AND POLICY ISSUES	75
D STANDARDS IN THE MULTILATERAL TRADING SYSTEM	129
E CONCLUSION	159
III THEMATIC ESSAYS	
A QUANTITATIVE ECONOMICS IN WTO DISPUTE SETTLEMENT	171
B INTERNATIONAL TRADE IN AIR TRANSPORT: RECENT DEVELOPMENTS AND POLICY ISSUES	213
C OFFSHORING SERVICES: RECENT DEVELOPMENTS AND PROSPECTS	265
TARIFF PROFILES	303
TECHNICAL NOTES	329

II TRADE, STANDARDS AND THE WTO

A	INTRODUCTION	29
B	THE ECONOMICS OF STANDARDS AND TRADE	
	1. Different types of standards and some definitional issues.....	31
	2. Why standards are set and their effects on trade	35
	3. Harmonization versus mutual recognition.....	51
	4. The impact of standards on international trade flows: empirical evidence	57
	5. Summary and conclusions	72
	CHARTS	
	Chart 1 Total number of TBT notifications since 1995.....	59
	Chart 2 Number of total and shared standards by sector (1980-2004)	62
	TABLES	
	Table 1 Standards and labels: economic versus legal terminology	34
	Table 2 A taxonomy of environmental standards.....	49
	Table 3 Tariff lines covered by technical measures in selected markets.....	58
	BOXES	
	Box 1 The mobile phone industry in Europe and the United States.....	38
	Box 2 Technology diffusion and the technology content of standards	41
	Box 3 Services as credence "goods"	43
	Box 4 US Federal Motor Vehicle Safety Standards and Regulations	45
	Box 5 Standards, trade and welfare	46
	Box 6 Standards within the European Union: the "new approach"	52
	Box 7 The Perinorm database.....	60
C	INSTITUTIONS AND POLICY ISSUES	
	1. Standardization	75
	2. Conformity assessment.....	96
	3. Conclusions	117
	CHARTS	
	Chart 3 Alternative approaches to standards development.....	84
	Chart 4 Number of ISO Members by categories and by region	85
	Chart 5 Total number of standards published and number of international standards adopted by national standard bodies (31/12/2002), averages by region	87
	Chart 6 Share of mandatory standards in total number of standards developed by national standard bodies, average by region	89
	Chart 7 Government subsidy in percentage of total revenue of national standardizing bodies, average by region	91

, aver

.02.9(e)-1ndhy7(a)-416875(H-2)-354973(M)

ABBREVIATIONS AND SYMBOLS

3G	Third Generation
AACC	American Association of Cereal Chemists
AB	Appellate Body
ACIL	American Council of Independent Laboratories
ACP	African, Caribbean and Pacific Group of States
AECMA-STAN	European Association of Aerospace Industries
AEO	European Association of Manufacturers of Quality Metal Expansion Joints, Metal Bellow and Metal Hoses
AFNOR	Association Française de Normalisation
ALOP	Appropriate Level of Protection
AMPS	Advanced Mobile Phone Service
APEC	Asia Pacific Economic Co-operation
APLAC	Asia Pacific Laboratory Accreditation Co-operation
ARSO	African Regional Organization for Standardization
ASEAN	Association of South East Asian Nations
ATP	Airline Tariff Publishing Company
BIPM	Bureau International des Poids et Mesures
BIS	Bureau of Indian Standards
BOP	Balance of payment
BP	Business process
BPO	Business process outsourcing
BPOM	Agency for Drug and Food Control
BSE	Bovine Spongiform Encephalopathy
BSI	British Standard Institute
CAC	Codex Alimentarius Commission
CAFTA	Central American Free Trade Agreement
CAP	Common Agricultural Policy
CASCO	Committee on Conformity Assessment
CB	Certification Bodies
CD	Compact disc
CDI	Centre for the Development of Industry
CDMA	Code-division multiple access
CE	Conformité Européenne
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CES	Constant elasticity of substitution
CFIA	Canadian Food Inspection Agency
CIS	Computer and information services
CIS	Commonwealth of Independent States
CO ₂	Carbon dioxide
COMTRADE	Commodity Trade Statistics Database of the United Nations
COPOLCO	Committee on Consumer Policy
CPC	Central product classification of the United Nations
CPE	Cross price elasticity
CRS	Computer reservation system
DIN	Deutsches Institut für Normung
DOJ	Department of Justice
DOT	Department of Transportation
DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding

The following symbols are used in this publication:

...	not available
0	figure is zero or became zero due to rounding
-	not applicable
\$	United States dollars
€	euro
Q1,Q2,Q3,Q4	first quarter, second quarter, third quarter, fourth quarter
-	break in comparability of data series. Data after the symbol do not form a consistent series with those from earlier years.

EXECUTIVE SUMMARY

The World Trade Report 2005 begins with a brief review of salient trends in international trade, focusing firstly on recent developments and then examining medium-term developments in the oil sector and the pharmaceutical sector. Section II of WTR 2005 contains the core topic of this year's Report, which is standards and trade in the context of the WTO. The Section looks first at the economics of standards and trade, and then at a range of institutional and policy issues. This is followed by a discussion of standards in the multilateral trading system. Section III of the Report takes up three discrete and topical issues of relevance to international trade. The three thematic essays in this Section are on the use of quantitative economics in WTO dispute settlement, trade in air transport services and offshoring services. The essay on the use of quantitative economic analysis in WTO dispute settlement procedures explains the kinds of quantitative techniques and econometric models that have been applied in various WTO legal disputes and discusses the use that was made of such analysis in a selected range of cases. The essay on trade in air transport services takes a close look at key characteristics of the industry and examines how it has evolved over time. The analysis also considers the economics of this sector, and a number of issues relating to competition, regulation, governance and trade in air transport services. Finally, the essay on offshoring services considers the economic characteristics of the activity, its scope and implications, and how it is relevant to the General Agreement on Trade in Services.

I. RECENT AND SELECTED MEDIUM-TERM TRADE DEVELOPMENTS

Global GDP growth amounted to 4 per cent in 2004, providing a solid basis for strong trade growth. For some regions, notably Central and South America and the Commonwealth of Independent States (CIS), this represented the best growth for more than a decade. In all seven regions defined in this Report, output and export growth were higher than the average annual rates for the 1990s.

Global GDP growth amounted to 4 per cent in 2004, providing a solid basis for strong trade growth. For some regions, notably Central and South America and the Commonwealth of Independent States (CIS), this represented the best growth for more than a decade. In all seven regions defined in this Report, output and export growth were higher than the average annual rates for the 1990s.

Real merchandise trade grew by 9 per cent, the best performance since 2000 and the third highest rate over the last decade. In line with the prevailing post-war pattern, trade growth outstripped GDP growth by a significant margin – on this occasion by 5 percentage points. As this pattern continues, trade becomes an ever more crucial component of global economic activity. The most dynamic traders in 2004 were in Asia, South and Central America, and the CIS. Average trade growth in all of these regions was in double digits. Africa's trade grew strongly on average in 2004, buoyed in part by firmer commodity prices, particularly for oil and metals. Oil prices also had a strong influence on trade growth in the Middle East. North America's exports gained further momentum in 2004 compared to previous years, but growth was below the global average. Similarly, improved merchandise trade growth in Europe in 2004 was also very important for world trade growth, but Europe's trade and output growth remained well below the global average.

Price movements and exchange rates exerted a significant influence on trade flows measured in current dollar terms. Prices of primary commodities increased faster than prices for manufactured goods. The most notable exchange rate development in 2004 was the weakening of

Developing countries as a group are large net exporters of fuels, while the developed countries aggregate are net importers. As a result of higher oil prices, developing countries taken together have enjoyed higher export earnings, improved external balances and terms of trade gains. However, higher oil prices also mean production cost increases in many industries, such as petrochemicals, plastics, aluminium and transport services. The oil intensity of output tends to be higher in developing than developed countries, and has been increasing in recent decades while that of developed countries has been falling.

Increasingly, the destination of developing country fuel exports is other developing countries. In 2002-2003, 40 per cent of developing country oil exports went to other developing countries, up from less than 30 per cent in the 1990s. Higher energy prices affect individual developing countries and regions in quite different ways. Among the four developing country regions identified in this report, only the Middle East and Africa are large net exporters of fuel. Developing Asia, in particular, has become a large net-fuel importer.

Since 2000, growth in world exports of pharmaceutical products has been four times stronger on average than the equivalent figures for other chemical products and manufactures as a whole. The share of pharmaceuticals in world trade has risen to some \$200 billion, or 3 per cent of total trade. This share exceeds those of textiles and iron and steel.

Trade in pharmaceuticals takes place largely among developed countries, who account for 90 per cent of world exports and more than 80 per cent of world imports. The developed countries dominate research and development (R&D) activity, enjoy a high level of intra-industry and intra-firm trade, and high levels of health expenditures compared to developing countries. A number of factors explain the expansion of the pharmaceutical industry. One is strong demand growth in rich countries, stimulated by an aging population and increased use of "lifestyle" drugs. Another is corporate consolidation (mergers and acquisitions) resulting

By the end of 2004, the International Organization for Standardization (ISO) had published some 14,900 international standards. Perinorm, a consortium of European standards organizations, maintains a database of around 650,000 standards (national, regional and international) from about 21 countries. The bulk of these standards have been set by the private sector and many of them are international in scope. Non-governmental organizations (NGOs) have also been involved in standard-setting, working with industry and international

signaling the... the facJ-16.arU asc11.96citing woit5.4(m)-0.7(n)tandardiz term emnd cb5.3(g)0.(ac1.7(i)-3.r)5.4(ms5.8(eume)-35.2(U a)11.3(o)-3.r

Process standards are introduced for different reasons – because they affect the goods that are produced (e.g. hygiene standards), because they affect the efficiency of the production process (e.g., in the case of network externalities) or because they affect the environment (e.g., pollution standards). In the first case, process standards are reflected in the final good and thus have a direct impact on trade. WTO terminology would refer to such standards as “incorporated process and production methods (PPMs)”. In the other two cases, the process standards are not reflected or incorporated in the final product. Yet at the same time, consumers or governments in an importing country may care about the way in which an imported good is produced – for instance, because they care about the environmental impact of the production process.

Compatibility standards play an important role in increasing economic efficiency in the case of network externalities. There are circumstances where the value of a product for a consumer does not depend only on the quantity or the quality of the product itself, but also on the availability and variety of complementary goods and/or the number of people using the same product. A mobile phone, for example, is more valuable for a consumer the higher the total number of people using the same or a compatible mobile phone network. A computer is more valuable the more compatible software is available in the market. It may happen, however, that lack of information about the size of the network, different preferences and firms’ marketing actions may generate a non-optimal outcome: markets may oversupply varieties and the size of the network may be too small, or it may happen that users delay the adoption of a new technology or rush to an inferior technology for fear of becoming stranded. In all these cases, by setting a standard, the industry is able to solve the problem of coordination among consumers.

There is little scope for government intervention in network industries, as compatibility standards are likely to result from the interaction of market forces. Network industries have a tendency to tipping – that is, when a certain technology has reached a critical mass it tends to dominate the whole market. Therefore, firms owning different technologies will either cooperate and agree on a standard or engage in fierce competition in the attempt to reach the critical mass.

Compatibility standards can create pr

about the good or service not available to the buyer. This asymmetry can significantly hamper the efficient functioning of markets, and standards can help solve the problem and increase efficiency.

Product safety is an important area where standards are used to address information asymmetry problems. A wide range of consumer goods – food, drugs, vehicles, electrical appliances, safety equipment – face many types of requirements, from design (e.g., toys), to ingredients (e.g., chemicals), to the process of manufacture or production (e.g., pasteurisation of milk), and to performance (e.g., helmets). The economic cost from accidental injuries and deaths can be large. In the United States for example, there were more than 12 million accidents in 2003 from the use of consumer products that required patients to be treated in hospitals. The US Consumer Product Safety Commission estimates the economic costs of these accidental deaths and injuries at \$700 billion annually. The potential gains from safety standards are therefore significant.

If mandatory safety standards differ across countries, they may increase trade, decrease it, or leave it unaltered. The outcome will depend to a large extent on the effect of a standard on the relative costs of domestic and foreign producers. But it also depends on many other factors, like the level of competition in exporting and importing countries and the willingness of consumers in different countries to pay higher prices for safer products.

Welfare effects are even more difficult to predict than trade flows. When trade flows decrease as a result of a standard in the importing country, the reduction in imports represents a welfare loss for the country setting the standard. On the other hand, the standard increases product safety, i.e. it corrects an existing market failure. This has a positive effect on domestic welfare. The optimal standard from the point of view of the country setting the standard is the one that leads to the best trade-off between a negative trade effect and a positive welfare effect due to increased product safety. In other words, safety standards may increase national welfare even if they decrease imports. The effect on exporters' welfare may be positive or negative. If consumers in the exporting countries have the same preferences as those in the importing country (they prefer the higher standard product), their welfare may also increase. In this case global welfare increases despite a fall in trade volume. But a decrease in the exporting countries' welfare cannot be excluded. In theory at least, standards may create conflicts of interest between trading partners even if they are not set with the intention of protecting domestic producers.

An important area where governments around the world have increased regulatory activity in recent decades is in relation to the environment. Government intervention aims in this case to create incentives for consumers and producers to take into account the effects of their actions on the environment.

Economic theory recommends the use of price-based policy instruments (e.g. taxes or charges) to manage environmental externalities. However, there is a strand in the literature in which price-based and quantity

about product quality, enhancing compatibility with domestically produced goods and intensifying competition. On the other hand, harmonization imposes a cost in terms of reduced variety. Insofar as demand for foreign goods is driven by a love of variety, a reduced degree of product differentiation would hamper trade. Another potential advantage of mutual recognition is that it allows any firm to pick a standard and to sell its products in the whole region.





WTO Members have committed themselves to ensure that technical regulations and standards do not create unnecessary obstacles to international trade, while also recognizing that governments should not be prevented from using standards to pursue other legitimate policy objectives. This implies that, in case of a dispute, a panel may be required to distinguish between a "legitimate" standard and an "illegitimate" standard, i.e. one that is inconsistent with WTO law.

The TBT and SPS Agreements seek to ensure that when governments pursue non-trade-related policy objectives through the use of standards, they do so with the least disruptive effect on trade consistent with

Arbitrators have been open to quantification on the basis of economic models where they have found it useful to fulfil their mandates, even though parties have sometimes argued against such analysis. In the *US-CDSOA* case, the arbitrator concluded that while “evaluating the trade effects [of a measure] cannot be accomplished with mathematical precision, ... economic science allows for the consideration of a range of possible trade effects with a certain degree of confidence.” (*US-CDSOA (22.6)*: para. 3.125).

In the *US-FSC (22.6)* and *US-CDSOA (22.6)* cases, the arbitrators had to choose among competing models. In the *US-FSC* case, the arbitrator noted that his “task would not be to judge, with absolute precision which is the single correct model or which are the correct parameters, but to examine the results of these models to see if they provide an insight into the range of trade effects caused” (*US-FSCs (22.6)*: para. 6.47). The arbitrator in *US-CDSOA (22.6)* also rejected models proposed by parties in favour of his own approach.

The specific type of analysis submitted by parties in some Panel and AB proceedings has varied depending on the nature of the claims and legal provisions involved. In cases involving “serious prejudice”, a complaining party needs to show that its trade flows are affected, for instance, because prices it obtained previously or could be expected to receive have been suppressed due to subsidization. There have only been three serious prejudice disputes to date, and in only one of them – the recent *US-Upland Cotton* case – did a party rely on economic modelling in presenting its claims and arguments.

The Panel was willing to grant that the outcomes of the simulations submitted were consistent with the general proposition that subsidies distorted production and trade and that the effects of a subsidy may vary depending upon its nature. But the Panel did not rely upon the quantitative results of the modelling exercise. This may be understandable when disagreements about a model turn on many technical issues, when documentation is not fully available and when economists themselves give conflicting views on the issues.

In some of the disputes involving taxes on alcoholic beverages (different cases involving Chile, Japan and the Republic of Korea), parties have adduced econometric evidence, in particular on cross-price elasticities, to see whether products were “directly competitive or substitutable”. The advantage of using this type of analysis is that it is possible to control for other influences affecting the demand of the relevant good. Yet, in order for results to be reliable, the list of variables includ

A limited but encouraging record is being built of how quantitative economics can be employed constructively in dispute settlement proceedings. One reason why the use of quantitative economics may intensify in the future is that cases seem to become more and more “fact-intensive”. Parties are not subject to restrictions as to the type of evidence they wish to furnish, and panels themselves have often requested more detailed factual information. Hence, it is possible to discern a trend towards a higher level of technical sophistication upon which the legal argumentation is founded. If properly understood in its supporting role, there is no futon

Trade in international air transport services is regulated by a system of bilateral agreements that were developed in 1944. Competitive pressures have resulted in the development of a new breed of more liberal bilateral agreements called "Open Skies" agreements. A number of regional initiatives to govern international air transport have also been developed.

export oriented business services can only account for a rather small part of the overall rise of the labour force in developing countries in the years to come. Moreover, evidence from India suggests that most of the recent growth in offshoring services has not been at the high-skill end of the IT sector.

The importing countries are able to release resources for more efficient uses elsewhere. Neither the efficiency gains nor the adjustment costs of new offshoring arrangements entered into in recent years are particularly large, as the activity is small from an economy-wide perspective.

Improvements in the GATS, such as a clearer distinction in the definition of mode 1 and mode 2, and more clarity in the nomenclature used in schedules of commitments, could facilitate new commitments and reduce