

Non-Tariff Measures in EU-US Trade and Investment – An Economic Analysis

Reference: OJ 2007/S 180-219493

Final Report

Client: European Commission, Directorate-General for Trade

ECORYS Nederland BV

Dr. Koen G. Berden
Prof. Dr. Joseph Francois
Mr. Martin Thelle
Mr. Paul Wymenga
Ms. Saara Tamminen

Rotterdam, 11th of December 2009

*This report was commissioned and financed by the Commission of the European Communities.
The views expressed herein are those of the Consultant, and do not represent any official view
of the Commission.*

ECORYS Nederland BV
P.O. Box 4175
3006 AD Rotterdam
Watermanweg 44
3067 GG Rotterdam
The Netherlands

T +31 (0)10 453 88 00
F +31 (0)10 453 07 68
E netherlands@ecorys.com
W www.ecorys.com
Registration no. 24316726

ECORYS Macro & Sector Policies
T +31 (0)10 453 87 53
F +31 (0)10 452 36 60

Table of contents

List of abbreviations used	vii
Preface	xi
Summary	xiii
Main results	xiv
Sector-specific results	xv
Extended Summary of the Study	xvii
Main findings of the Study	xxvii
Sector-specific findings of the Study	xxi
Aerospace	xxiv
Automotives	xxv
Chemicals, cosmetics & pharmaceuticals	xxvi
Electrical machinery (Electronics & Office Information & Communication Equipment)	xxviii
Food & beverages	xxix
Communication services	xxx
Financial services	xxx
Insurance services	xxxi
Transport services	xxxii
100 percent container scanning	xxxiii
Public procurement	xxxiv
Intellectual property rights (IPR)	xxxiv
Methodology	xxxv
1 Introduction	1
1.1 Aims of this study	1
1.2 Definition of non-tariff measures and regulatory divergence	2
1.3 Structure of the report	2
2 Study context	3
2.1 Importance of the Transatlantic relationship	3
2.1.1 The importance of EU-US investment flows	3
2.1.2 The importance of EU-US trade flows	4
2.2 The importance of reductions in NTMs and regulatory convergence	4
2.3 Transatlantic policy developments and regulatory cooperation	4
2.4 Raising international awareness on both sides of the Atlantic	6
2.5 Looking forward to 2018	7

3	Methodology	9
3.1	Introduction	9
3.2	Literature review	9
3.3	Business survey	10
3.4	Special regression analysis: gravity regressions	11
3.5	Computable General Equilibrium (CGE) analysis	13
3.6	Competitiveness analysis	17
3.7	Forward-looking element	18
4	Quantifying NTMs and regulatory divergence	21
4.1	NTM indexes of regulatory divergence	21
4.2	Gravity estimations	22
4.2.1	Pooled regression results	22
4.2.2	Sector level regression results	23
4.3	Computable General Equilibrium (CGE) results	25
4.3.1	Overall macro-economic results of economy-wide NTM reductions	26
4.3.2	Economy-wide NTM reductions	27
5	Aerospace sector	33
5.1	Introduction	33
5.2	Identified NTMs and regulatory divergence	33
5.2.1	NTMs and regulatory divergence faced from EU to US	33
5.2.2	NTMs and regulatory divergence faced from US to EU	34
5.3	The importance of NTMs and the effects of NTM reductions	37
5.3.1	Overall level of restrictiveness of NTMs in the sector	37
5.3.2	Future EU & US trade and investment potential	37
5.3.3	Effects of NTM reductions on competitiveness	38
5.4	Conclusions	40
6	Automotives	43
6.1	Introduction	43
6.2	Identified NTMs and regulatory divergence	44
6.2.1	NTMs and regulatory divergence faced from EU to US	44
6.2.2	NTMs and regulatory divergence faced from US to EU	46
6.3	The importance of NTMs and the effects of NTM reductions	48
6.3.1	Overall level of restrictiveness of the NTMs in the sector	48
6.3.2	Future EU & US trade and investment potential	49
6.3.3	Effects of NTM reductions on competitiveness	50
6.4	Conclusions	52
7	Chemicals	53
7.1	Introduction	53
7.2	Identified NTMs and regulatory divergence	53
7.2.1	NTMs and regulatory divergence faced from EU to US	53
7.2.2	NTMs and regulatory divergence faced from US to EU	55
7.3	The importance of NTMs and the effects of NTM reductions	58
7.3.1	Overall level of restrictiveness of NTMs in the sector	58
7.3.2	Future EU & US trade and investment potential	59

7.3.3	Effects of NTM reductions on competitiveness	60
7.4	Conclusions	61
8	Cosmetics	63
8.1	Introduction	63
8.2	Identified NTMs and regulatory divergence	63
8.2.1	NTMs and regulatory divergence faced from EU to US	63
8.2.2	NTMs and regulatory divergence faced from US to EU	64
8.3	The importance of the NTMs and the effects of NTM reductions	66
8.3.1	Overall level of restrictiveness of the NTMs in the sector	66
8.3.2	Future EU & US trade and investment potential	67
8.3.3	Effects of NTM reductions on competitiveness	67
8.4	Conclusions	69
9	Electronics	71
9.1	Introduction	71
9.2	Identified NTMs and regulatory divergence	71
9.2.1	NTMs and regulatory divergence faced from EU to US	71
9.2.2	NTMs and regulatory divergence faced from US to EU	73
9.3	The importance of NTMs and the effects of NTM reductions	75
9.3.1	Overall level of restrictiveness of NTMs in the sector	75
9.3.2	Future EU & US trade and investment potential	75
9.3.3	Effects of NTM reductions on competitiveness	76
9.4	Conclusions	78
10	Food & beverages	79
10.1	Introduction	79
10.2	Identified NTMs and regulatory divergence	80
10.2.1	NTMs and regulatory divergence faced from EU to US	80
10.2.2	NTMs and regulatory divergence faced from US to EU	82
10.2.3	NTMs and regulatory divergence faced both ways	83
10.3	The importance of NTMs and the effects of NTM reductions	85
10.3.1	Overall level of restrictiveness of NTMs in the sector	85
10.3.2	Future EU & US trade and investment potential	86
10.3.3	Effects of NTM reductions on competitiveness	87
10.4	Conclusions	89
11	Office, information & communication equipment	91
11.1	Introduction	91
11.2	Identified NTMs and regulatory divergence	91
11.2.1	NTMs and regulatory divergence faced from EU to US	91
11.2.2	NTMs and regulatory divergence faced from US to EU	92
11.3	The importance of NTMs and the effects of NTM reductions	94
11.3.1	Overall level of restrictiveness of the NTMs in the sector	94
11.3.2	Future EU & US trade and investment potential	95
11.3.3	Effects of NTM reductions on competitiveness	95
11.4	Conclusions	97

12 Pharmaceuticals	99
12.1 Introduction	99
12.2 Identified NTMs and regulatory divergence	99
12.2.1 NTMs and regulatory divergence faced from EU to US	99
12.2.2 NTMs and regulatory divergence faced from US to EU	101
12.3 The importance of NTMs and the effects of NTM reductions	104
12.3.1 Overall level of restrictiveness of the NTMs in sector	104
12.3.2 Future EU & US trade and investment potential	104
12.3.3 Effects of NTM reductions on competitiveness	105
12.4 Conclusions	106
13 Communication services	109
13.1 Introduction	109
13.2 Identified NTMs and regulatory divergence	109
13.2.1 NTMs and regulatory divergence faced from EU to US	109
13.2.2 NTMs and regulatory divergence faced from US to EU	111
13.3 The overall importance and effects of NTM reductions	113
13.3.1 Overall level of restrictiveness of the NTMs in the sector	113
13.3.2 Future EU & US trade and investment potential	113
13.3.3 Effects of NTM reductions on competitiveness	114
13.4 Conclusions	118
14 Financial services	119
14.1 Introduction	119
14.2 Identified NTMs and regulatory divergence	120
14.2.1 NTMs and regulatory divergence faced from EU to US	120
14.2.2 NTMs and regulatory divergence faced from US to EU	121
14.3 The importance of NTMs and the effects of NTM reductions	122
14.3.1 Overall level of restrictiveness of the NTMs in the sector	122
14.3.2 Future EU & US trade and investment potential	122
14.3.3 Effects of NTM reductions on competitiveness	123
14.4 Conclusions	125
15 Insurance services	127
15.1 Introduction	127
15.2 Identified NTMs and regulatory divergence	127
15.2.1 NTMs and regulatory divergence faced from EU to US	127
15.2.2 NTMs and regulatory divergence faced from US to EU	129
15.3 The importance of NTMs and the effects of NTM reductions	130
15.3.1 Overall level of restrictiveness of the NTMs in the sector	130
15.3.2 Future EU & US trade and investment potential	130
15.3.3 Effects of NTM reductions on competitiveness	131
15.4 Conclusions	132
16 Transportation services	133
16.1 Introduction	133
16.2 Identified NTMs and regulatory divergence	133
16.2.1 NTMs and regulatory divergence faced from EU to US	133

16.2.2	NTMs and regulatory divergence faced from US to EU	136
16.3	The importance of the NTMs and the effects of NTM reductions	137
16.3.1	Overall level of restrictiveness of the NTMs in the sector	137
16.3.2	Future EU & US trade and investment potential	137
16.3.3	Effects of NTM reductions on competitiveness	138
16.4	Conclusions	140

17 Other sectors 141

17.1	Other sector summarised CGE results	141
17.2	Travel services	143
17.2.1	NTMs and regulatory divergence faced from EU to US	144
17.2.2	NTMs and regulatory divergence faced from US to EU	145
17.2.3	Overall levels of restrictiveness – Travel services	145
17.3	Construction services	145
17.3.1	NTMs and regulatory divergence faced from EU to US	146
17.3.2	NTMs and regulatory divergence faced from US to EU	147
17.3.3	Overall levels of restrictiveness – Construction services	148
17.4	Other business services	148
17.4.1	NTMs and regulatory divergence faced from EU to US	148
17.4.2	NTMs and regulatory divergence faced from US to EU	149
17.4.3	Overall level of restrictiveness – Other business services	150
17.5	Personal, Cultural and Recreational Services	150
17.5.1	NTMs and regulatory divergence faced from EU to US	150
17.5.2	NTMs and regulatory divergence faced from US to EU	151
17.5.3	General levels of restrictiveness – Personal services	151
17.6	Biotechnology	152
17.6.1	NTMs and regulatory divergence faced from EU to US	153
17.6.2	NTMs and regulatory divergence faced from US to EU	153
17.7	Machinery	154
17.7.1	NTMs and regulatory divergence faced from EU to US	154
17.7.2	NTMs and regulatory divergence faced from US to EU	155
17.7.3	Overall levels of restrictiveness – Machinery	155
17.8	Medical, Measuring and Testing Appliances	156
17.8.1	NTMs and regulatory divergence faced from EU to US	157
17.8.2	NTMs and regulatory divergence faced from US to EU	158
17.8.3	Overall levels of restrictiveness – MMTA	159
17.9	Iron, Steel & Metal Products	159
17.9.1	NTMs and regulatory divergence faced from EU to US	160
17.9.2	NTMs and regulatory divergence faced from US to EU	160
17.9.3	Overall levels of restrictiveness – iron, steel & metal products	161
17.10	Textiles, Clothing and Footwear (TCF)	161
17.10.1	NTMs and regulatory divergence faced from EU to US	162
17.10.2	NTMs and regulatory divergence faced from US to EU	163
17.10.3	Overall levels of restrictiveness – textiles, clothing & footwear	163
17.11	Wood, Paper, Wood Products and Paper Products	164
17.11.1	NTMs and regulatory divergence faced from EU to US	164
17.11.2	NTMs and regulatory divergence faced from US to EU	165

17.11.3	Overall levels of restrictiveness – Wood, paper, wood & paper products	165
18	Cross-cutting NTMs	167
18.1	Introduction and definition	167
18.2	Identification of cross-cutting NTMs and regulatory divergence	167
18.2.1	Cross-cutting NTMs in services sectors	168
18.2.2	Cross-cutting NTMs in goods sectors	169
19	Security issues – 100 percent container scanning	171
19.1	Introduction	171
19.2	Supply Chain Security	171
19.3	Legislation: 100 percent container scanning	174
19.4	Sectors affected by the NTM	176
19.5	The potential effects of NTM reduction at macro and sector level	177
19.5.1	Macro-economic effects of 100 percent container scanning	178
19.5.2	Sector-specific effects of 100 percent container scanning	179
19.6	Competitiveness effects and systemic impacts	181
19.7	Conclusions	182
20	Government procurement	183
20.1	Description of government procurement	183
20.2	Sectors affected by government procurement related NTMs	186
20.3	The potential effects of NTM reduction at macro and sectoral level	186
20.4	The competitive effects of the NTM reduction	188
20.5	Conclusions	188
21	Intellectual property rights	189
21.1	Introduction	189
21.2	Description of the Non-Tariff Measures	189
21.2.1	Cross-cutting IP measures	189
21.2.2	Identified IP measures affecting both the EU and the US	190
21.2.3	Cross-cutting IP measures – EU to US	190
21.2.4	Cross-cutting IPR measures – US to EU	191
21.2.5	Sector-specific IPR measures – EU to US	192
21.2.6	Sector-specific IP measures – US to EU	193
21.3	Sectors affected by the NTM	193
21.4	The potential effects of NTM reduction at macro and sectoral level	194
21.5	The competitive effects of the NTM reduction	196
21.6	Conclusions	197

List of abbreviations used

Abbreviation	Explanation
ACAA	Air Carrier Access Act
AEO	Authorized Economic Operator
ALA	American Automobile Labelling Act
AMCHAM EU	American Chamber of Commerce to the EU
ASEAN	Association of Southeast Asian Nations
ASME	American Society of Mechanical Engineers
ATC	Agreement on Textiles and Clothing
ATP	Advanced Technology Program
ATSC	Advanced Television Systems Committee
AVE	Ad Valorem Equivalents
BAA	Buy American Act
BRIC	Brazil, Russia, India and China
BSE	Bovine spongiform encephalopathy
CAA	Clean Air Act
CAFÉ	Corporate Average Fuel Economy
CBP	Customs and Border Protection Agency
CE	Conformité Européenne
CEN	Comité Européen de Normalisation = European Committee for Standardization
CENELEC	Comité Européen de Normalisation Electrotechnique = European Committee for Electrotechnical Standardization
CFR	Code of Federal Regulations
CGE	Computable General Equilibrium
CIAA	Confederation of the Food and Drinks industry in the EU
CFIUS	Committee on Foreign Investments in the United States
CISPR	Comité International Spécial des Perturbations Radioélectriques
CMRs	Carcinogenic, Mutagenic or Toxic for Reproduction
CPSC	Consumer Product Safety Commission
CSI	Container Security Initiative
C-TPAT	Customs-Trade Partnership against Terrorism
DOE	Department of Energy
DVB-H	Digital Video Broadcasting – Handhelds
DVB-T	Digital Video Broadcasting – Terrestrial
EABC	European American Business Council
EC	European Commission
ECB	European Central Bank
EDI	Electronic Data Interchange
EEA	European Economic Area

Abbreviation	Explanation
EFPIA	European Federation of Pharmaceutical Industries and Associations
EINECS	European INventory of Existing Commercial Substances
ELINCS	European LIst of Notified Chemical Substances
EMC	Electromagnetic compatibility Directive
EMA	European Medicines Agency
EMS	Electromagnetic Susceptibility
EPA	Environmental Protection Agency
EPCA	Energy Conservation Program for Commercial and Industrial Equipment
EPCAT	Energy Conservation for Commercial Equipment: Distribution Transformers Energy Conservation Act
ERP	ECORYS Research Project
ESPO	European Seaport Organisation
ESTA	Electronic System for Travel Authorisation
ETS	Emissions Trading Scheme
EU	European Union
EUCLID	Electronically Useful Chemistry Laboratory Instructional Database
EuP	Energy using Products
FASB	Financial Accounting Standards Board
F&B	Food & Beverage
FCC	Federal Communication Commission
FDA	Food and Drug Administration
FDCA	Food, Drugs and Cosmetics Act
FDI	Foreign Direct Investment
FMVSS	Federal Motor Vehicle Safety Standards
FSIS	Food Safety and Inspection Service
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GI	Geographical Indications
GLP	Good laboratory practices
GMO	Genetically Modified Organisms
GPA	Agreement on Government Procurement
GTAP	Global Trade Policy Analysis
HFCs	Hydrofluorocarbons
H.R.	House of Representatives
HTA	Health Technology Assessment
IAASB	International Auditing and Assurance Standards Board
ICATM	International Cooperation on Alternative Test Methods
ICCR	International Cooperation on Cosmetics Regulation
ICU	International Components for Unicode
IEC	International Electrotechnical Commission
IEUCLID	International Uniform Chemical Information Database
IFRS	International Financial Reporting Standards
IMO	International Maritime Organization
INCI	International Nomenclature Cosmetic Ingredient
IP	Intellectual Property
IPR	Intellectual Property Right

Abbreviation	Explanation
IRS	International Revenue Service
ISO	International Organization for Standardization
ITAR	International Traffic in Arms Regulations
LVD	Low-voltage Directive
MNC	Multinational Companies
MFA	Multi-Fibre Agreement
MFN	Most Favoured Nation
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
NAFTA	North American Free Trade Agreement
NAIC	National Association of Insurance Commissioners
NCIMS	National Conference on Interstate Milk Shipments
NHTSA	National Highway Traffic Safety Administration
NOP	National Organic Programme
NTM	Non-Tariff Measure
ODA	Orphan Drug Act
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturers
OICE	Office, Information and Communication Equipment
OSHA	Occupational Safety and Health Administration
OTC	Over-The-Counter Medicines
PCAOB	Public Company Accounting Oversight Board
PCR	Personal, Cultural, Recreational
PDA's	Personal Digital Assistants
PED	Pressure Equipment Directive
PET	Positron Emission Tomografie
PIF	Product Information File
PMO	Pasteurized Milk Ordinance
PMR	Product Market Regulation
POMs	Prescription Only Medicines
PRC	Postal Regulatory Commission
PRTs	Pathogen Reducing Treatments
QSAR	Quantitative Structure Activity Relationships
R&D	Research and Development
REACH	Registration, Evaluation and Authorisation of Chemical substances
RoHS	Restriction of Hazardous Substances
R&TTE	Radio and Telecommunication Terminal Equipment
SBIR	Small Business Innovation Research
SCCP	Scientific Committee on Consumer Products
SDoC	Suppliers Declaration of Conformity
SEC	Securities and Exchange Commission
SFI	Secure Freight Initiative
SME	Small and medium enterprises
SOCMA	Synthetic Organic Chemical Manufacturers Association
SPS	Sanitary and Phytosanitary
SUVs	Sport Utility Vehicles
TABD	Transatlantic Business Dialogue

Abbreviation	Explanation
TCE	Trade Cost Equivalents
TCF	Textiles, Clothing and Footwear
TEC	Transatlantic Economic Council
TIP	Technology Innovation Program
TLD	Transatlantic Legislators Dialogue
TPN	Transatlantic Policy Network
TRIPS	Trade Related Intellectual Property Rights
TSCA	Toxic Substances Control Act
UHF	Ultra High Frequency
UL	Underwriters' Laboratories
UNECE	United Nations Economic Commission for Europe
UPU	Universal Postal Union
US	United States
US DOT	US Department of Transportation
US GAAP	US Generally Accepted Accounting Principles
USPS	US Postal Service
VPN	Virtual Private Networks
VWP	Visa Waiver Program
WEEE	Waste Electrical and Electronics Equipment
WIPO	World Intellectual Property Organization
WRAP	Waste and Resources Action Programme
WTO	World Trade Organisation

Preface

An in-depth discussion on the strategic future of the transatlantic market in trade and investment took place during the EU-US Summit on April 30, 2007. In December 2007 a study on Non-Tariff Measures in EU-US Trade and Investment was awarded to the ECORYS-led consortium including IIDE (the Institute for International & Development Economics), Copenhagen Economics, The Trade Partnership, Risk & Policy Analysts (RPA), ICAP, Danish Technological Institute (DTI), CARIS and IFO. The goal of this study is to shed light on the existence of non-tariff measures (NTMs) and regulatory divergence at the sector level, the magnitude of this divergence and the potential economic impact of a reduction or harmonisation of these measures.

This final report includes:

- An introduction;
- The context of the study;
- A methodological overview of the analytical components used in this study;
- A summary of an extensive sector-specific literature review;
- Results of a novel business survey among US and EU firms (5,500 responses);
- Gravity and Computable General Equilibrium (CGE) modeling of goods and services sectors;
- An analysis of cross-cutting NTMs and regulatory divergence;
- Results of bilateral discussions and a survey among industry federations and business associations;
- Sector level competitiveness analyses to simulate the impacts of the overall NTMs and thereby provide a forward-looking perspective.

We would like to thank the Steering Committee for its critical and frank cooperation and communication throughout this study. In addition, we would like to thank the external advisers of the Steering Committee, Professor André Sapir (Université Libre de Bruxelles) and Professor Daniel S. Hamilton (Johns Hopkins University, the USA).

We are also grateful to the contractor's own Academic Advisory Team, consisting of Prof. Jeffrey Bergstrand, Prof. Peter Egger, Prof. James Anderson, and Prof. Joseph Francois. They have taken on the herculean task of co-designing state-of-the-art methodologies and techniques for the quantification of NTMs and regulatory divergence, and estimating the welfare impacts of addressing them. They have provided high-quality inputs in all phases of the study.

Moreover, we appreciate the support we have received from the very many companies across 23 sectors in both the EU and US, which have provided us with 5,500 responses to our business survey. The study has benefitted strongly from the involvement of over 40 sector experts who looked at the identified NTMs and regulatory divergence; over 100 business associations and industry federations in the EU and US who commented on sector-specific measures and drafts; and the many regulatory and legal experts in the EU (from the various Directorate-Generals

within the European Commission) and the US (from the USTR, USITC, Department of Commerce, and OMB).

Finally, the following organizations provided valuable support, discussion, help with survey questionnaire dissemination, and useful documentation on up-to-date regulatory issues which was greatly appreciated: The US Chamber of Commerce, Business Europe, European American Business Council (EABC), Transatlantic Business Dialogue (TABD), the American Chamber of Commerce to the EU (AMCHAM EU), and the many experts we met in the margins of the High Level Regulatory Cooperation Council meetings during 2008 and 2009.

On an individual basis, thanks are due to Eugen Albu, Daniel Anthony, Konstantinos Aivalis, Paul Baker, Laura Baughman, Philippe de Buck, Celine Carrere, Scévole de Cazotte, Shenjie Chen, Paul Corson, Helen Coskeran, Dan Curiak, Susan Dudley, David de Falco, Pete Floyd, Michael Gasiorek, Sean Heather, Peter Holmes, Svend Jespersen, Antonis Kondylis, Jim Mathis, Afke Mulder, Hanna Norberg, Eoin O'Malley, Annette Pelkmans, Reinhard Quick, Sherman Robinson, Anna Schouten, Anirudh Shingal, Floor Smakman, Lars Termansen, Charles van Marrewijk, Jan Vernon, Margreet Verwaal, and Günther Vieweg for their participation at the workshop in Brussels (March 2008), informative bilateral discussions, constructive comments on earlier drafts of this report or parts thereof, and data and methodological suggestions.

For the sake of results presentation and further communication, the project website for this study is www.ntb.ecorys.com and the e-mail address is ntb@ecorys.com.

This report was commissioned and financed by the Commission of the European Communities. The views expressed herein are those of the Consultant, and do not represent any official view of the Commission.

ECORYS

Rotterdam, 11th of December 2009

Summary

The European Union (EU) and the United States (US) are very open towards each other in terms of investments and trade, which is exemplified by the relative absence of transatlantic tariff barriers. Nevertheless, various non-tariff measures (NTMs, see box below) on both sides of the Atlantic continue to hinder the emergence of a truly free transatlantic market and constitute important impediments to greater transatlantic trade and investment flows. Trade and investments that are freed from these measures would potentially benefit both the EU and the US. Unlike tariffs, regulation cannot just be removed. It has a purpose. However, regulatory differences between countries and the trade and investment costs that they create can be reduced. Part of the regulatory differences is driven by geography, language, preferences, culture or history. In an ambitious scenario ECORYS has assessed that roughly 50% of NTMs and regulatory divergence can be eliminated. In a more limited scenario, a 25% alignment of NTMs and regulatory convergence is assumed to be realistic.¹ The assessment of the part of regulation that is realistically prone to convergence is the best possible estimate but nevertheless the results need to be interpreted with caution. This study looks at the economic potential, competitive effects and global regulatory implications of a better alignment of regulations across the Atlantic. Our horizon is 2018 and the focus is on both the EU and US economies as a whole, as well as on sector level effects.²

ECORYS has used several tools to achieve the results for this study: literature reviews, business surveys, econometric analyses, extensive consultations with regulators and businesses, and inputs by sector experts.³ The results are consistently cross-checked – including comparisons with and use of OECD work on FDI restrictiveness indicators and the Product Market Regulation (PMR) indices.

Non-Tariff Measures are defined as ‘all non-price and non-quantity restrictions on trade in goods, services and investment, at federal and state level. This includes border measures (customs procedures, etc.) as well as behind-the-border measures flowing from domestic laws, regulations and practices’ (Study Terms of Reference of the Study, p. 7). In other words, non-tariff measures and regulatory divergence are restrictions to trade in goods, services and investment at the federal or (member) state level.

¹ This is based on the opinions of sector experts, extensive discussions with regulatory and legal experts, interviews with business associations and industry federations, individual academic studies on specific divergences, and the business survey.

² The year 2018 was chosen because the Terms of Reference specifies the need for a forward-looking analysis of 5-10 years and because 10 years – if NTMs are addressed – is long enough for the economies to absorb the effects that regulatory alignment would bring.

³ 5,500 responses were collected by means of a business survey from EU & US firms in 23 sectors.

Main results

The study assesses the effects of NTMs on Gross Domestic Product (GDP), household incomes, wages, and trade. We focus on the results of the ambitious scenario where around 50% of the NTMs and regulatory divergences are aligned.

Effects on GDP

The ambitious scenario could push EU GDP to be 0.7% higher in 2018 compared to the baseline scenario (i.e. do nothing), which represents an annual potential gain of €122 billion (\$158 billion).⁴ For the US GDP the same operation yields a 0.3% gain per year in 2018 (compared to the baseline), which represents an annual potential gain of €41 billion (\$53 billion).

The difference in the estimated impact between the EU and US stems from the different volumes of affected trade and investment flows, different comparative advantages, and a mixed picture on differences in the height of measures for specific sectors in the EU and US, allowing the EU to gain more from cheaper imports, while both the EU and US gain from lower costs of production due to more aligned NTMs. Economic gains are achieved through different channels. First of all, cheaper prices for imported products increase consumer welfare. Second, exports and production for competitive sectors increase. Third, production costs are lower for companies due to more aligned regulation and lower levels of NTMs. Fourth, investment flows increase due to more harmonised investment regimes. NTMs and regulatory divergences are clearly more important and economically relevant than the remaining tariff levels.

Effects on household incomes

Since reducing trade and investment divergences has consequences for prices, households also benefit directly. In the EU, household incomes could rise by up to 0.8% per year in 2018 which, using standard discount methods, is equivalent to an additional €12.300 (\$15.990) per household over a working lifetime. In the US, an average US household would receive an annual additional 0.3% or an additional €6.400 (\$8.300) over a working lifetime. Households at both sides of the Atlantic Ocean gain significantly from NTM removal.

Effects on wages for high- and low-skilled workers

Dismantling NTMs would raise wages for both low- and high-skilled workers in the EU and US, making wage-earning households better off. This effect is caused by the productivity gains that result from dismantling NTMs. The increase in wages in the US is around 0.4% per year while in the EU this increase is around 0.8% annually.

Effects on imports and exports

Exports are expected to go up for both the EU and US, but the percentage increase in exports is higher for the US (6.1%) than for the EU (2.1%), even though in absolute terms the increases are similar in magnitude. Our results predict that net exports increase in all scenarios, implying that both the EU and US trade balances improve. This is an indication that bilateral liberalization (regulatory alignment and removal of NTMs) improves the global competitiveness of both the EU and US economies.

⁴ We use an exchange rate of 1 Euro = 1,3 US Dollar throughout the study, reporting the quantitative monetary effects in € (\$).

Sector-specific results

Economy wide versus sector specific

In this study, we look at the effects of overall NTM alignment in all sectors at the same time; i.e. economy-wide NTM alignment. We also look at the effects of NTM alignment at individual sector levels, assuming NTMs in all other sectors remain the same. If we compare the sum of all individual sector level effects, i.e. assuming there are no sector-interlinkages, with the economy-wide effects, i.e. assuming sector interlinkages, the differences are substantial. The sum of individual sector-specific gains are expected to be significant (€31 billion per year for the EU and €14 billion per year for the US) but these sector-specific gains do not nearly add up to the full annual economy-wide gains (€122 billion for the EU and €41 billion for the US) because the former are a sum of the individual sector effects only, without allowing for interactions between the sectors (e.g. lower costs for insurance services have effects for many other sectors in the economy). For national welfare, employment and national income, gains for the EU and the US are optimised when a broad economy-wide NTM reduction strategy is pursued rather than one that only focuses on individual sectors. However, if an economy-wide focus – which is economically by far the most beneficial approach for the EU and US – is not possible, sectors where expected gains are highest are motor vehicles, electrical machinery, chemicals, financial services, government procurement and intellectual property rights.

Effects on national income broken down by sector

The effects on national income can be broken down by sector. The most important EU annual national income gains are expected to come from motor vehicles (€12.0/\$15.6 billion); chemicals, cosmetics & pharmaceuticals (€7.1/\$9.2 billion); food & beverages (€5.0/\$6.5 billion); and electrical machinery (€1.6/\$2.1 billion). The most important US annual national income gains could stem from electrical machinery (€3.1/\$4.0 billion); insurance services (€2.3/\$3.0 billion); financial services (€2.0/\$2.6 billion); and chemicals, cosmetics & pharmaceuticals (€1.6/\$2.1 billion).

Effects on output

In the ambitious scenario (where NTMs are removed simultaneously for all sectors – economy-wide NTM alignment) the main output effects would occur in electrical machinery (+29% in the US versus -5.5% in the EU), motor vehicles (+5.7% in the EU and -1.4% in the US), and chemicals, cosmetics & pharmaceuticals (+2.2% in the EU and -3.3% in the US). In the ambitious scenario where NTMs are removed only by sector (i.e. assuming no effects in other sectors), the main output effects for the EU occur in motor vehicles (+2.3%), aerospace (+1.1%), insurance services (+0.7%), and electrical machinery (+0.4%). For the US, the output effects occur in electrical machinery (+9.5%), aerospace (-0.9%) and motor vehicles (+0.7%).

Output effects are driven by trade and investments opportunities, as well as productivity gains. Trade and trade related investment effects are always included in the results.

Results for the sectors

Removal of NTMs, notably in R&D, production preparation and detailed technical specifications, makes the aerospace sector more competitive in both the EU and the US, since productivity gains will enhance investment and trade opportunities. The same applies to the automotives sector, where the main NTMs are differences in safety and environmental standards. The chemicals,

cosmetics & pharmaceuticals sector (taken together here for data reasons) sees the EU gain more than the US, while both gain versus third countries. Electrical machinery is a global sector with relatively low NTMs. The main NTMs are constituted by different product, infrastructure, health and safety standards between the EU and US. This sector – for both the EU and US – is a major contributor to national income gains in case NTMs are aligned. In the food & beverages sector there are no significant output effects in the respective sectors in the EU and US following NTM alignment, but in terms of national income, the EU and US both gain compared to third countries.

Communication services see potential welfare gains for both the EU and the US. Reductions of NTMs are likely to benefit consumers in particular, as prices fall and quality and coverage of communication services increase. It is difficult to estimate what is likely going to happen with the financial services sector. It has the potential for both significant NTM alignment or for a significant divergence in NTMs if the EU and the US do not align policies – the latter at a great future cost for society. There are significant obstacles to trade in insurance services between the EU and the US. US gains from NTM alignment stem from benefits that accrue to US consumers and firms in terms of lower prices for insurance services. In the EU we expect a significant increase in insurance services production as well as increases in insurance services exports, implying benefits for insurance companies in the EU. Transport services are very diverse (road, rail, water, air transport). The gains of NTM removal are relatively small here.

Results for cross-cutting issues

The US government has passed legislation to commence with 100% container scanning in 2012. This comes with a potential economic cost, mostly for the EU, but also to a lesser extent for the US itself. Abolishing 100% container scanning in 2018 would lead to economic gains that add up to €9.7 billion (\$12.7 billion) per year for the EU and US economies combined. The gains go beyond the transport sector as costs are passed on to consumers.

Public procurement is a large cross-cutting issue. It is sometimes difficult to address NTMs in this area due to national security concerns. Main NTMs are legal provisions favouring domestic firms (especially in the US), discriminating against foreign firms in practice and the lack of transparency. The estimated welfare gains that could be reaped if government procurement restrictiveness were reduced amount to €10.7 billion (\$13.8 billion) for the EU and US together each year. The main gains accrue to the EU due to terms of trade effects, but there are also significant gains for the US.

Intellectual property rights are territorial based, which makes NTMs hard to align. The removal of NTMs in this area (i.e. convergence of IPR regimes between the EU and the US) is expected to result in a yearly increase in national income in both the US and the EU, by €0.8 billion (\$1.1 billion) and €3.7 billion (\$4.8 billion) respectively.

Extended Summary of the Study

Although economic relationships between the United States and the European Union are among the most open in the world and transatlantic markets are deeply integrated through large flows of investment and trade, various impediments on both sides of the Atlantic continue to hinder the emergence of a truly free transatlantic market. In general, transatlantic tariff barriers are actually quite low, imposing costs on trade that average between 3-4 percent of the €707 billion (\$919 billion) in annual EU-US trade in goods and services. Tariff levels are uneven across sectors, however, and both in the EU and US tariffs are higher on some sensitive products.

Because transatlantic tariff barriers are generally quite low and EU and US companies are deeply interlinked and invest heavily in each other's countries, "behind the border" non-tariff measures (NTMs) and regulatory differences are far more important impediments to greater transatlantic trade and investment flows than tariffs.

This study identifies important NTMs and regulatory divergences between the EU and the US. It looks at the economic potential that could be unleashed by reducing these measures and better aligning regulations across the Atlantic, and considers the potential economic implications and effects on the competitive position of EU and US industries and service sectors of NTM reduction and regulatory alignment, as well as broader consequences for efforts to achieve global regulations and standards. This study does not quantify the compliance costs for businesses of individual NTMs but focuses on the economy-wide and sector-level aggregate costs.

We measure the effects of NTM alignment and regulatory convergence over a period of 10 years (2008 – 2018) because that is a sufficiently long period of time to allow both the EU and US economies to adjust after the potential NTM alignment and return to their economic long-run steady states.

This summary has three parts. First, we report the impact of efforts to reduce or align NTMs and regulatory divergences on the EU and US economies. Second, we summarize the sectoral impact of NTM alignment. Third, we discuss briefly the methodology used to generate the results.

Main findings of the Study

To analyse the impact on the EU and US economies, we have postulated an ambitious scenario according to which by 2018 around 50 percent of all NTMs and regulatory divergence are addressed. We also examine a limited scenario that assumes a more modest 25 percent of all NTMs to be addressed by 2018. We analyse (for the two different scenarios) what happens if we remove the NTMs all at the same time (i.e. economy-wide NTM alignment) as well as sector by sector, keeping all other sectors constant (i.e. sector-specific NTM alignment).

It is not realistic to assume that all NTMs and regulatory divergence can be aligned, because some are driven by geography, language, preferences, culture or history. Therefore we introduce the concept of actionability, i.e. the degree to which an NTM or regulatory divergence can realistically be reduced (via various means and techniques) by 2018 if the political will to do so exists (see section on Methodology). We find that – ambitiously – around 50 percent of all NTMs are actionable. The calculations use actionability estimates that are based on expert opinions and cross-checks with regulators, legislators and businesses, supported by the business survey, and they should be interpreted with caution.

In addition to the focus on both the ambitious and limited scenarios, the study also distinguishes between short-run and long-run effects. Short-run effects can be viewed as the static and direct effects of removing the NTMs and regulatory divergence, without capital adjustments. In the long-run, investments are allowed to adjust, causing a forward-looking and dynamic investment effect that reinforces the comparative advantages of the EU and US economies. The difference between short- and long run effects illustrates the importance of (dynamic allocation of) investments as part of what defines the strong transatlantic relations.

The study finds that NTMs and regulatory differences can have two main effects. NTMs can increase the cost of doing business for firms or they can restrict market access for firms. We introduce the concepts of ‘cost’ and ‘rent’ to make a distinction between those NTMs that increase the cost of operation for firms and NTMs that reduce market access, thus increasing market concentration and economic power (and thus profits) of companies.

We find that NTMs cause higher costs for firms in about 60 percent of cases for both the EU and the US, while causing the creation of market power (economic rent) in 40 percent of the cases. With cost increases, consumer prices are expected to go up because firms increase prices to cover the higher cost of doing business, which constitutes a welfare loss to society. In case of an increase in market concentration, consumer prices may also go up, but part of that increase is transferred to companies as increased revenues and profits, thus redistributing welfare, not simply reducing it.

Effects on EU and US GDP

Eliminating all actionable NTMs and regulatory divergence (in all sectors) between the two economies, while taking the cost-rent effect into account, would boost EU GDP in the long term, i.e. by 2018, by 0.7 percent per year compared to the situation without this EU-US initiative (i.e. the baseline scenario). This is an annual potential gain of €122 billion (\$158 billion) in 2008 prices. Doing so would boost US GDP an extra 0.3 percent compared to baseline. This is an annual potential gain of €41 billion (\$53 billion) in 2008 prices. The overall dismantling of NTMs in all sectors at the same time is economically by far the most beneficial for both the EU and US.

Effects on EU and US household incomes

In the EU, household incomes could rise by up to 0.8 percent annually compared to the status quo of no NTM alignment. This is equivalent to giving each EU household an additional one-time payment of €12.300 (\$15.990) over a working lifetime at present value. For the US, an average US household would receive an additional 0.3 percent annually or an additional one-time payment of €6.400 (\$8.300) over a working lifetime at present value.

Effects on EU and US wages for the high- and low-skilled workers

Deep dismantling of EU-US regulatory divergences would raise wages for both the low- and high-skilled workers in the EU and US, making wage-earning households better off. Wages are 0.4 percent higher each year in the US and 0.8 percent each year in the EU.

Effects on EU and US exports

The value of exports is expected to go up in all scenarios for both the EU and US, but the percentage increase in exports is higher for the US (6.1 percent higher) than for the EU (2.1 percent higher). The total value of exports in 2018 for the EU is projected to be €6.6 trillion (\$8.6 trillion) and for the US, €1.9 trillion (\$2.5 trillion). The value of imports also expected to go up in all scenarios, though less than exports, i.e. both the EU and US trade balances improve. This is an indication that bilateral liberalisation through regulatory harmonisation improves the global competitiveness of both the EU and US economies.

Trade and trade related investment costs are only a part of total production and distribution costs of a good or service. This explains why the significant reductions of trade and trade related investment costs due to regulatory alignment presented in this study generate modest results in some sectors.

The positive effects of NTM reduction and regulatory convergence are mainly due to lower costs for firms operating in the transatlantic market place, including lower costs due to strong intermediate linkages between sectors. Increased competition leads in general to lower levels of market concentration and thus to higher trade and investment levels at lower prices for traded goods and services. Consumers get higher quality goods and more variety at lower cost. Competitiveness of downstream firms is also enhanced as part of the overall process of NTM reduction and regulatory convergence.

Differences in estimated impact for the EU and US are primarily attributable to three factors. First, different sizes of affected trade and investment flows are important, with the EU having higher volumes of trade and investment flows than the US. Where trade and investment flows between the EU and US are large (e.g. in the automotive sector, the electrical machinery sector), a percentage increase in costs (or rents) stemming from NTMs will be large in absolute terms (€ or \$).

Second, considerable NTM reductions occur in sectors where the EU has comparative advantages. This implies that NTM alignment, effectively increasing the extent of the market, will be seized upon more effectively by EU based firms (or affiliates) in some sectors like in the automotives, chemicals and insurance sectors.

Third, the mixed picture of NTMs for specific sectors allows the EU to gain more from cheaper imports, while both the EU and US gain from lower costs of production due to more aligned NTMs.

Table 1 Summary of macroeconomic changes following NTM reduction and regulatory convergence*

	Ambitious Scenario (full liberalisation) – Short Run	Ambitious Scenario (full liberalisation) – Long Run	Limited Scenario (partial liberalisation) – Short Run	Limited Scenario (partial liberalisation) – Long Run
Real income, billion € (\$)				
United States	19.0 (24.7)	40.8 (53.0)	7.8 (10.1)	18.3 (23.8)
European Union	45.9 (59.7)	121.5 (158.0)	19.4 (25.2)	53.6 (69.7)
Real income, % change				
United States	0.13	0.28	0.05	0.13
European Union	0.27	0.72	0.11	0.32
Real household income, % change				
United States	0.16	0.31	0.07	0.14
European Union	0.32	0.79	0.14	0.35
Real wages % change, unskilled workers				
United States	0.24	0.35	0.11	0.16
European Union	0.40	0.82	0.17	0.36
Real wages % change, skilled workers				
United States	0.26	0.38	0.11	0.17
European Union	0.36	0.78	0.16	0.34
Value of Exports, % change				
United States	6.12	6.06	2.72	2.68
European Union	1.69	2.07	0.74	0.91
Value of Imports, % change				
United States	3.97	3.93	1.76	1.74
European Union	1.63	2.00	0.72	0.88
Terms of trade, % change				
United States	-0.15	-0.23	-0.06	-0.10
European Union	0.11	0.07	0.05	0.03

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall.

The OECD concluded in its 2005 study (OECD, 2005) that potential welfare gains to the EU and the US could be as large as 3 – 3.5 percent of GDP. If we would assume that all regulatory divergence can be addressed (i.e. actionability is 100 percent) and that all NTMs are cost-inducing rather than also rent-inducing (i.e. having the maximum negative economic effect), our estimated welfare gain would be around 2.5-3.0 percent of GDP, close to but a bit lower than the OECD (2005) estimate.⁵ Realistically, not all NTMs can be addressed, and neither are all of them only cost-increasing. Taking these factors into account our realistic estimate drops to the abovementioned 0.7 percent per year for the EU and to 0.3 percent per year for the US. Table 1 reports the main macroeconomic variables for the four different scenarios (short-run, long-run, ambitious and limited scenarios) as explained above.

⁵ One of the reasons for this could be that we do not use the residual approach in our regression work, avoiding that all other factors are added to the NTM effect that do not belong there, i.e. we did not employ the residual approach but rather treated NTMs as a friction variable in the gravity regressions.

Sector-specific findings of the Study

Economy-wide NTM alignment versus sector-specific regulatory convergence

As said before, we look at two possible ways in which NTMs can be addressed and regulatory convergence can be achieved.

First, we look at what happens when all actionable NTMs are aligned in all sectors of the economy at the same time. Sectors in an economy are not independent from each other but influence each other heavily. For example, addressing regulatory divergence in financial and insurance services will have a large impact on the competitiveness of the motor vehicles sectors in the EU and US, changing the competitive position of this sector. These economy-wide results have been reported above (c.f. main results) and will be reported below at sectoral level.

Second, we look at what happens if all actionable NTMs are aligned in one sector at a time. That means we look at the effect of regulatory convergence in one sector at a time, leaving the other sectors unchanged. This informs us about the individual importance of sector-specific regulatory work.

Sector effects on EU and US GDP

Table 2 shows the effects of regulatory convergence and NTM reductions for national incomes (GDP) in the EU and US. We see in columns 2 and 3 that if we reduce all actionable NTMs in all sectors at the same time, EU GDP goes up by €122 billion (\$158 billion) per year while US GDP goes up by €41 billion (\$53 billion) each year. These are the overall results reported above.

It is also important to look at the sector-specific outcomes and analyse those in more detail:

1. If we align NTMs only for one sector at a time (columns 4 and 5) – ignoring the fact that sectors influence each other, we see that if we add up all individual sector gains, the total gains for the EU could be €31 billion (\$40 billion) per year and for the US €14 billion (\$18 billion) per year. The sum of the sector-specific gains in isolation is much less than the full economy-wide gains if NTMs are aligned. Thus for national welfare, jobs and national income, the gains for the EU and US as a whole are highest, when a broad economy-wide NTM alignment strategy is pursued, without excluding any sector.

Table 2 Summary of changes in national income following NTM alignment (billions €/ \$, ambitious scenario – Long Run)*

(1)	(2)	(3)	(4)	(5)
	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Processed foods (food & beverages)	40.8 (53.0)	121.5 (158.0)	1.2 (1.6)	5.0 (6.5)
Chemicals, cosmetics, pharmaceuticals			1.6 (2.1)	7.1 (9.2)
Electrical machinery (electronics, OICE)			3.1 (3.4)	1.6 (2.1)
Motor vehicles (automotives)			1.6 (2.1)	12.0 (15.6)
Other transport equipment (aerospace)			0.9 (1.2)	0.2 (0.3)
Metals and metal products			0.2 (0.3)	0.7 (0.9)
Wood & paper products			0.1 (0.1)	1.1 (1.5)

(1)	(2)	(3)	(4)	(5)
	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Transport			0.3 (0.3)	0.2 (0.3)
Finance			2.0 (2.6)	1.2 (1.6)
Insurance			2.3 (3.0)	-0.1 -0.2)
Business services & ICT			0.0 (0.0)	0.5 (0.6)
Communications			0.0 (0.1)	1.0 (1.3)
Personal, recreational & cultural services			0.1 (0.2)	0.3 (0.4)
Construction			0.0 (0.0)	0.0 (0.0)
Total			13.5 (17.5)	30.8 (40.0)

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall.

2. The effect of regulatory convergence and NTM alignment on national income are positive for almost all sectors. This shows that lowering costs – at the border and behind the border – as well as lowering market power (i.e. economic rent) leads to significant positive effects for both the EU and US economies.
3. Looking at the sector-level effects, the main gains for national income per year for the EU are expected to come from the: motor vehicles sector (€12.0/\$15.6 billion); chemicals, cosmetics & pharmaceuticals sector (€7.1/\$9.2 billion); food & beverages sector (€5.0/\$6.5 billion); and electrical machinery sector (€1.6/\$2.1 billion). For the US, the main gains for national income per year are expected to come from the: electrical machinery sector (€3.1/\$4.0 billion); insurance services sector (€2.3/\$3.0 billion); financial services sector (€2.0/\$2.6 billion); and chemicals, cosmetics & pharmaceuticals sector (€1.6/\$2.1 billion).

Sector effects for EU and US production

Table 3 shows the effects of regulatory convergence and NTM alignment on the levels of output for each sector. Again we look at economy-wide effects (columns 2 and 3) and sector-specific effects (columns 4 and 5).

1. If we would remove all actionable NTMs for all sectors simultaneously, the main output effects occur in electrical machinery (a 29 percent increase in US output and a 5.5 percent decrease in EU output), motor vehicles (a 5.7 percent increase in EU output and a 1.4 percent drop in US output), and chemicals, cosmetics & pharmaceuticals (a 2.2 percent increase in EU output and a 3.3 percent drop in US output). These results can be partially mitigated by the fact that through investments, affiliates of US companies benefit from EU sector performance in the EU and vice versa.

Table 3 Summary of sector level percentage changes in output following NTM alignment (ambitious scenario – Long Run)

(1)	(2)	(3)	(4)	(5)
	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Processed foods (food & beverages)	-2.1	0.9	-0.3	0.0
Chemicals, cosmetics, pharmaceuticals	-3.3	2.2	-0.6	0.4

(1)	(2)	(3)	(4)	(5)
	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Electrical machinery (electronics, OICE)	29.2	-5.5	9.5	0.4
Motor vehicles (automotives)	-1.4	5.7	0.7	2.3
Other transport equipment (aerospace)	1.6	-0.9	-0.9	1.1
Metals and metal products	-0.1	-0.5	0.2	0.0
Wood & paper products	-0.4	0.0	0.3	-0.2
Water transport	0.4	0.5	-0.2	0.0
Air transport	0.3	0.3	-0.2	0.2
Finance	0.1	0.4	-0.1	0.1
Insurance	-1.0	1.2	-0.7	0.7
Business services & ICT	0.3	0.5	0.0	0.0
Communications	0.4	0.2	0.2	-0.2
Personal, recreational & cultural services	0.4	-0.1	0.0	-0.1
Construction	0.4	0.8	0.2	0.0

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall.

2. Sector-specific removal of actionable NTMs is expected to lead to smaller effects because sectors are assumed not to influence each other. The main output effects for the EU would occur in motor vehicles (+2.3 percent), aerospace (1.1 percent), and insurance services (+0.7 percent), while for the US the main output effects would occur in electrical machinery (+9.5 percent), aerospace (-0.9 percent) and motor vehicles (+0.7 percent).

Overall, the combination of changes in output with expected increases in wages, suggests that sectors will compete for workers and investments due to the NTM reductions and regulatory convergence. Output and employment increase in sectors that become more competitive, drawing labour and capital away from sectors that lose relative competitiveness.

Sector effects on EU and US exports

When analyzing the effect of NTM alignment (both economy-wide and sector specific) on EU and US exports, we see that:

1. Overall export effects are in line with expected output changes at sector level and for the economy-wide NTM alignment the effects are much larger than for the sector-specific NTM alignment.
2. In the economy-wide NTM alignment scenario (columns 2 and 3) the largest export changes for the EU are expected to occur in motor vehicles (+10.7 percent), chemicals, cosmetics & pharmaceuticals (+6.2 percent), insurance services (+5.9 percent), and processed foods (+5.4 percent). For the US the largest export effects are expected to take place in electrical machinery (+42 percent), aerospace (+17 percent), metals & metal products (+14 percent), chemicals, cosmetics & pharmaceuticals (+12 percent), and communication services (+9.5 percent).
3. In the sector-specific NTM alignment scenarios, the largest EU export effects are expected to occur in motor vehicles (+4.3 percent), insurance services (+4.3 percent), aerospace (+2.2 percent), and financial services (+1.6 percent). For the US those sectors would be electrical

machinery (+14.1 percent), communication services (+8.7 percent), motor vehicles (+5.3 percent), wood & paper products (+4.8 percent), and metals & metal products (+3.6 percent).

Table 4 Summary of sector level percentage changes in exports following NTM alignment (ambitious scenario – Long Run)

(1)	(2)	(3)	(4)	(5)
	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Processed foods (food & beverages)	3.0	5.4	2.4	0.8
Chemicals, cosmetics, pharmaceuticals	11.8	6.2	1.5	1.1
Electrical machinery (electronics, OICE)	41.9	-4.6	14.1	0.8
Motor vehicles (automotives)	9.1	10.7	5.3	4.3
Other transport equipment (aerospace)	16.9	4.2	0.9	2.2
Metals and metal products	13.8	2.7	3.6	0.5
Wood & paper products	10.9	1.6	4.8	0.0
Water transport	1.6	0.9	0.1	0.1
Air transport	1.1	0.6	0.1	0.3
Finance	4.9	2.6	2.0	1.6
Insurance	2.4	5.9	2.3	4.3
Business services & ICT	3.4	0.6	0.6	0.0
Communications	9.5	0.3	8.7	-0.1
Personal, recreational & cultural services	5.4	-0.8	1.7	0.5
Construction	2.6	0.2	0.4	0.0

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall.

Interlinkages between sectors and between economies

In the sector results presented below, we find at a few occasions that at sector level, production decreases while the economy as a whole (in terms of national income) benefits. This may seem paradoxical at first, but because sectors are deeply integrated with each other, one sector's output (e.g. at lower prices) is another sector's input. Essentially, the cheaper inputs thanks to NTM alignments – through economic interlinkages – are likely to lead to overall improvement of national competitiveness. This effect occurs in the aerospace, automotives, chemicals, electronics, food & beverages, communication services, financial services, and insurance services sectors. The pattern of results highlights the importance of interdependence both within and between the transatlantic economies. This means that increased competitiveness should also be viewed at the level of the economy as a whole and not just for specific sectors alone.

Aerospace

The aerospace sector (consisting of the aeronautics and space sub-sectors) is strategic for both the EU and US. This implies that the economic reasoning needs to be put in a broader context and we need to keep in mind that also other strategic considerations play a role.

If full actionable regulatory convergence in aerospace is achieved between the EU and US (48 percent of NTMs are assumed actionable in the EU and 44 percent in the US), it is estimated that

trade and investment costs are reduced from 19 to 10 percent in both directions, production of aerospace parts and components and final products in the EU could grow by 1.1 percent each year while in the US, sector production could decline by 0.9 percent each year.

Trade and trade related investment flows are expected to increase both for the EU and US (albeit at a faster rate for the EU with 2.2 percent versus 0.9 percent for the US). Aerospace convergence is expected to modestly increase EU total GDP by €0.2 billion per annum (\$0.26 billion) and US GDP by €0.9 billion per annum (\$1.2 billion).

Main divergences between the EU and US regulatory systems are found in the areas of public procurement (e.g. ITAR and the Buy American Act), government support for R&D, safety and functional standards, and differences in patent systems.

The aerospace sector has a high R&D intensity, exhibits technological spill-over effects into other sectors of the economy (e.g. machinery, electronics), and – given the long-term, expensive and high-risk nature of investment decisions in the sector – is a sector that receives government support in all countries that have their own aerospace industries. Reducing preferences for domestic government procurement, increasing transparency of types and magnitudes of R&D support measures, continuing the regulatory convergence efforts (through the OECD) on diverging standards and simplification of procedures around ITAR would reduce trade and investment costs, increase transparency in the sector and create a more global level playing field with higher levels of international market access. Since the EU and US together account for 87.5 percent of global aerospace turnover, alignment of US and EU regulations would essentially form the basis for any global regulatory standard, and thus have considerable implications for other production centres for parts and components, e.g. Japan, Brazil, Canada, China, and Russia.

Automotives

The automotive sector is one of the most important and largest sectors in the EU-US commercial relationship. Non-tariff measures add approximately a significant 26 – 27 percent to the cost of trade and investment in the automotive sector (in both directions) that could be reduced to 14 percent in the EU and 15 percent in the US (a 42 percent and 48 percent reduction respectively, based on actionability of the NTMs found).

Reducing all actionable NTMs is expected to lead to EU output growth in the sector of 2.3 percent per year, and a US output increase of 0.7 percent per year. Alignment of NTMs in automotives could increase total EU GDP by €12.0 billion (\$15.6 billion) per year and total US GDP by €1.6 billion (\$2.1 billion) per year, which underlines the importance and size of the automotive industry in both economies. EU gains come from the comparative advantage it has in the sector but growth in the EU, however, would also benefit affiliates of US firms inside the EU and the US would also benefit from lower prices for parts and components imports from the EU.

Automotive trade and trade-related investment exports are expected to increase by 4.3 percent per year for the EU and by 5.3 percent per year for the US. Removal of NTMs in the automotive sector, both in the EU and US, also cause spill-over effects to trade and investment flows in other sectors (e.g. transport services, machinery).

Sector specific NTMs for the automotive sector are concentrated in the areas of safety and environmental standards, but also the Buy American Act, technological R&D support, and security measures limit trade and investment flows. Consumer safety requirements in the EU and US are of similar high standards, but there are differences, for example, in air pollution and noise standards.

Environmental and safety requirements in the automotive industry are becoming increasingly global and – as is shown by the EU and US cooperation through United Nations Economic Commission for Europe (UNECE) – there is potential for addressing standardisation issues at a global scale and achieving further convergence in this area, even though actionability is slightly reduced by the fact the US is not a signing member of the 1958 agreement and the EU has also its own Directives alongside UNECE standards. Full harmonisation of standards by 2018 is not likely, despite constructive cooperation (among others via UNECE) and despite the potential gains in trade and investment, because of other EU and US objectives such as health and safety or environmental policies.

Chemicals, cosmetics & pharmaceuticals

For modelling and data reasons, chemicals, cosmetics and pharmaceuticals are aggregated into one sector. Additional costs to trade and trade related investments stemming from regulatory divergences for each of the sectors are presented in the Table below. The levels of actionability are applied, resulting in the additional percentage costs after alignment of actionable NTMs.

Table 5 Additional trade and trade related investment costs coming from regulatory divergences (percentage)

Sector	Additional percentage increase in cost due to NTMs (flows from EU to US)	Additional percentage increase in cost after alignment of actionable NTMs (flows from EU to US)	Additional percentage increase in cost due to NTMs (flows from US to EU)	Additional percentage increase in cost after alignment of actionable NTMs (flows from US to EU)
Chemicals	21.0%	9.1%	23.9%	8.9%
Pharmaceuticals	9.5%	4.8%	15.3%	8.9%
Cosmetics	32.4%	15.1%	34.6%	14.6%

Reductions of NTMs in chemicals, cosmetics & pharmaceuticals would boost long-term output for these sectors in the EU by 0.4 percent each year, but reduce output for those sectors in the US by 0.6 percent each year.

EU GDP is projected to increase by €7.1 billion (\$9.2 billion) per year or 0.04 percent following alignment of roughly one-half of existing NTMs and regulatory divergence in these sectors. US GDP is expected to go up by €1.6 billion (\$2.1 billion) per year or 0.01 percent .

Taking account of a dynamic investment effect, EU exports of this sector would increase by 1.1 percent per year and total US exports by 1.5 percent per year.

Chemicals

Regulatory divergences between the EU and US in the chemical sector occur in particular in regulation, evaluation and authorisation of chemicals, classification and labelling of chemical products, notification procedures of new substances, marketing and application of chemicals, customs regulations, and legislation pertaining to transboundary movement of hazardous chemicals and pesticides.

The implications of systemic global standards depends on the level to which currently diverging EU and US standards can be harmonised with respect to regulation, evaluation and authorisation of chemicals. With regard to NTMs currently stemming from differences in classification and labelling, both the EU and the US are moving towards the Global Harmonised Standards (GHS), which is based on an agreed UN standard that is also being adopted more globally. The acceptance of OECD test methods, good laboratory practice and QSAR models would further reduce regulatory divergence. Cooperation in these latter areas is also important in reducing obstacles currently arising from differences in the legislative requirements of REACH (Registration, Evaluation and Authorisation of Chemicals) in the EU and TSCA (Toxic Substances Control Act) in the US.

Cosmetics

The cosmetics sector includes applications of nanotechnology. Nanotechnology has the potential to become a major area of regulatory divergence in the transatlantic marketplace. The EU ban on animal testing of cosmetic products and their ingredients is a regulatory divergence from the US, where such legislation is currently not proposed or envisaged. The more narrow US definition of ‘cosmetics’ compared to the EU is important in terms of the level of regulation that applies.

Areas of potential alignment include the level of testing to be performed, ingredients permitted for use in cosmetics and information to be provided to the consumer. Clearly the cosmetics sector is strongly linked to chemicals because of the mixture of ingredients used. As such, several of the important issues for chemicals also apply to cosmetics. Moreover, convergence on labelling, performance standards and product definition criteria would especially benefit Small and Medium Sized Enterprises (SMEs) in the cosmetics sector.

Pharmaceuticals

Reduction or alignment of US and EU NTMs and regulatory differences in the pharmaceutical sector would reduce trade and investment costs for US companies by 15.3 percent and for EU companies by 9.5 percent.

Looking at the issues facing US companies (e.g. EU pricing policies, Health Technology Assessment methods, parallel trading, reference pricing), the pharmaceuticals market in the EU is investment driven, regulated and based on different regimes in different EU member states. The partially fragmented state of the market itself is a constraint on greater competition, as outlined by the European Commission’s policy paper (EC, 2008). The nature of the health sector, with national health authorities operating as monopsony buyers, allows them to give prime attention to patients and tax payers, at the expense of profit margins for pharmaceutical companies. For EU firms, cost reductions are associated with removal of restrictions on specific chemicals, labelling requirements, re-exporting licences, US state level safety regulations, double-certification needs (like above for US firms), and differences with US patent legislation.

NTM reductions in the transatlantic market place that encourage a more coordinated approach to regulation, increasing the acceptance of EU/US approval standards and scientific advice, are also expected to assist in the development of more globally accepted principles and standards.

Electrical machinery (Electronics & Office Information & Communication Equipment)

While the market for electronics is among the most integrated in the world, additional trade cost estimates of 6.5 percent for both the EU and the US suggest that remaining differences in standards and norms prevent the emergence of a deeply integrated transatlantic market place. ‘Behind-the-border’ costs of regulatory divergences could add 19 percent of costs in the EU and 23 percent of costs in the US to trade and trade-related investments in OICE.

Our analysis shows that in OICE, costs from NTMs can realistically be reduced to 9 percent for US firms and to 11 percent for EU firms. This implies a level of actionability for the EU of 52 percent and the US of 53 percent. For electronics, costs from NTMs can be reduced to 4 percent in both EU and US, following a level of actionability in both countries of around 40 percent.

The US has a comparative advantage in the electrical machinery (electronics + OICE) sector, adding €3.1 billion (\$4.0 billion) per year to US GDP. EU GDP is expected to increase by €1.6 billion (\$2.1 billion) per year – the fourth highest increase of all affected sectors. US output growth gives an impetus to EU producers, due to lower costs of production and lower prices for electronics imports from the US and due to gains affiliates of EU firms get from US output growth. The global nature of this industry – characterised by a multitude of inter-linkages between the economies – allows for these gains. That is why the production of electrical machinery products is expected to grow 9.5 percent in the US while EU production is expected to increase but to a lesser extent (0.4 percent). The effect of NTM alignment for the Rest of the World is a decrease in output of 6.2 percent, which implies that the EU-US harmonisation leaves both the EU and US electrical machinery industries stronger vis-à-vis third countries.

Reductions of sector specific NTMs in the transatlantic economies are expected to increase trade flows for the US by 14.1 percent, and for the EU by 0.8 percent. The EU is already open in terms of electrical machinery as a consequence of EU efforts to open up the sector through suppliers declaration of conformity (S-Docs). Further opening by alignment of technical standards not yet included in the S-Docs, safety provisions, recycling and environmental protection are likely to accrue the benefits portrayed by these results: gains for producers (higher production) and large gains for consumers from increases in cheaper imports (e.g. from the US).

Other major NTMs include differing product standards, US state-level safety and power supply certifications, third party testing requirements, 100 percent container scanning, differences in IPR systems, residence requirements for staff, the EU’s Waste Electric and Electronic Equipment (WEEE) directive, differences in patent systems, different customs and border requirements and electromagnetic compatibility requirements.

The structure of this industry matters for the level of competitiveness and the way NTM reductions affect it. Given vertical specialisation in production, welfare gains would come from either more harmonisation of standards at an international level, or mutual recognition. For global regulatory standards, the International Electrotechnical Commission (IEC) plays an important

role, and support of the IEC for some joint EU-US initiatives and regulations would be very important in getting them accepted as world standards.

Food & beverages

The EU and US food and beverages sectors are facing high additional costs due to diverging regulations between the two economies, which result in additional trade and trade related investment costs of 73 percent from the EU to the US and 57 percent from the US to the EU. If joint initiatives would be able to tackle all actionable divergence (53 percent in the EU and 52 percent in the US), these costs would be reduced to 35 percent and 27 percent respectively.

Reducing additional regulatory trade and investment costs from 73 to 35 percent for EU firms and from 57 to 27 percent for US firms, operating in food & beverages would boost US GDP by an additional €1.2 billion (\$1.6 billion) each year even though the sector itself is projected to reduce output by 0.27 percent (this is possible due to consumers benefiting from lower prices). EU GDP would experience an increase of €5.0 billion (\$6.5 billion) per annum with food & beverages output remaining roughly the same.

Exports of processed foods are expected to increase by 2.4 percent per year for the US and 0.8 percent for the EU per year, indicating that this sector would become more international in the US, despite a decrease in production.

The food & beverages industry is characterized by low costs of raw materials and the exploitation of economies of scale. The current EU competitive position vis-à-vis the US is not very strong because of relatively high raw material costs and the lack of a level playing field.

Main regulatory divergences relate to US and EU protective legislation and tax policies related to farming, security related measures, and differences in trademark legislation. With respect to trade and investment, divergences matter in terms of Sanitary and Phytosanitary (SPS) measures, state-level regulations in the US and US customs refusal to acknowledge EU origin. Divergences regarding the admissibility of genetically modified organisms (GMO) and related labeling requirements are a further cause of NTMs. Some of these divergences relate directly to public health and consumer protection and may therefore be difficult to align.

A reduction in NTMs in food & beverages would allow for increases in market access that would benefit EU firms and consumers relatively more than US firms and consumers. Aligning NTMs would reduce significantly the cost of food & beverage production in the EU and US, leading to lower prices for consumers. Given that because of NTMs, SMEs face relatively higher costs due to their smaller scale of production, they benefit relatively more if administrative and regulatory costs are reduced. In various fields, reductions in NTMs are likely. However, with respect to GMOs, regulations and views on risk, health and safety standards are not likely to converge in the near future.

Communication services

In Communication services, NTMs add 1.7 percent additional costs to trade and trade related investments in the US and 11.7 percent in the EU. Actionability of these NTMs is estimated to be 70 percent in the US and 66 percent in the EU, reducing the trade and investment costs to 0.6 percent in the US and 3.5 percent in the EU.

The effects of a reduction in NTMs in communication services only – representing the pure sector effect, assuming constant cost structures and up- and downstream markets for communication services – are expected to show a decrease in output in the EU by 0.2 percent per year, and an increase in the value of output in the US by 0.2 percent per year. US exports would rise by 8.7 percent annually while EU exports would decline slightly by 0.7 percent each year.

Subsequent annual national income effects of a reduction in NTMs in the sector are expected, however, to be positive for both the EU (€1.0 billion / \$1.3 billion) and the US (€0.05 billion / \$0.06 billion), as consumers benefit from lower prices.

Potential NTM reductions, together with national income and sector data above, suggest that EU gains are larger with reductions in this sector, because it imports more products and services at lower prices.

Main regulatory divergences in the communication services sector relate to access to high speed internet connections, the incompatibility of Advanced Television Systems Committee (ATSC) technology with Digital Video Broadcasting Terrestrial (DVB-T) standards in the EU, differences in IPR systems, disadvantageous regulations applying to foreign companies in public procurement, the Buy American Act, Advanced Technology Programme, delays in opening telecom markets in the EU in some member states, monopolies in the postal market and delays in implementing the EU Utilities Directive.

Financial services

The levels of restrictiveness add up to 32 percent additional costs to trade and trade related investment with the US, while the EU restrictions are estimated to add 11 percent to trade costs in the sector, based on 336 survey responses and the OECD indicators. With actionability levels of 55 percent in the US and 49 percent in the EU, additional regulatory costs can be reduced to 14 percent for EU firms and 6 percent for US firms.

Looking at the financial sector alone, alignment of all actionable regulatory divergence would lead to a yearly 0.1 percent output growth of the sector in the EU, and a 0.1 percent decline in value of output for the US each year.

National income effects of such output change, however, are still positive for both the EU and US and even more so for the US. Addressing NTMs in the financial sector is projected to add €2.0 billion (\$2.6 billion) yearly to US GDP and €1.2 billion (\$1.6 billion) to EU GDP annually, and boost total US exports by 0.07 percent and EU exports by (0.02 percent) each year.

Financial services are an enabling sector. They provide input services for many other sectors. In particular, we identify positive national income effects as well as output gains for insurance services, chemicals and motor vehicles, both in the EU and US. This is a consequence of lower service costs.

The global financial crisis has underscored the negative consequences of regulatory divergence across the Atlantic and both sides are determined that recent events in global finance should not lead to increased regulatory divergence, as this could have adverse long-term consequences. At the moment, major remaining regulatory divergences include taxation issues for EU firms applying International Financial Reporting Standards (IFRS) instead of US Generally Accepted Accounting Principles (US GAAP); the Patriot Act; the Sarbanes Oxley Act; differences in implementation of Basle II; duplicative oversight and supervision of the European Central Bank (ECB) and the Federal Reserve; national treatment of non-EU branches of Foreign Credit Institutions; and divergences in intellectual property rights.

Reduction of NTMs in the industry could improve efficiency of the legal system and would offer greater market opportunities to US and EU companies. EU output in financial services would increase. Although financial services production in the US would decrease, lower prices could actually improve the competitive position of several US industries. Convergence of EU and US standards in accounting, that form the basis of financial reporting, could lay the groundwork for global reporting standards, due to the size of EU and US financial markets.

Insurance services

Addressing all actionable NTMs – 48 percent for the US and 52 percent for the EU – in the insurance sector, would increase the value of insurance services output in the EU by 0.7 percent per year, and decrease it by 0.7 percent in the US per year. These changes would boost US national income by €2.3 billion (\$3.0 billion) annually and have no significant effect on EU national income. This is because abolishing state level regulations (the most important NTM on the US side) would reduce significantly the cost for insurance services in the US.

The dynamic investment effect in the insurance sector appears to be important when looking at changes in national income. National income in the EU would decrease by €0.7 billion (\$0.9 billion) in the short run and stay roughly the same in the long-run. National income in the US would increase by €1.3 billion (\$1.7 billion) in the short-run and by €2.3 billion (\$3.0 billion) in the long run.

EU insurance service exports would increase by 4.3 percent and US insurance exports would go up by 2.3 percent.

NTMs in insurance services in the EU and US include the absence of regulatory convergence in capital and collateral requirements, lack of uniform federal US regulation, divergence of regulation between the EU's Solvency II and US regulation, and reciprocal national treatment clauses relating to insurance and investment services.

If NTMs in the insurance sector would be addressed, several major changes could be expected to occur. Federal pre-emption, that is the replacement of US state-level legislation by US federal-

level legislation, in insurance services in the US would significantly reduce the cost for insurance services in the US and change the insurance market structure. This would benefit both EU services providers through increased exports and a larger and more accessible US market and larger US service providers through less costly operating procedures and easier ‘inter-state access’, even though overall output may be reduced. Consumers could benefit from lower insurance premiums due to a more balanced spread of insurance risk. Smaller US insurance firms (typically those operating in a single state), may, however, see their market shares challenged by larger inter-state insurance firms. An integrated EU/US insurance market, with improved access to foreign re-insurers, would help the markets gain more capacity to underwrite special risks such as weather-related catastrophes.

Transport services

The transport services sector is diverse in nature because of its different modes: maritime, air, road and rail transport. Each mode has its own issues and is subject to different regulations. For EU-US trade and investment flows, maritime and air transport are the modes that matter most. We find 49 percent of US NTMs and 58 percent of EU NTMs actionable.

If actionable NTMs and regulatory divergences in transport services are fully reduced, the value of production of air and maritime transport services increases in the EU (0.04 and 0.2 percent respectively) and decreases in the US (0.2 and 0.2 percent respectively).

The positive national income effects of the change in the value of output of the transport sector are almost the same in both countries, but a bit higher in the US, with €0.2 billion (\$0.28 billion) per year for the EU and €0.3 billion (\$0.34 billion) per year for the US. The positive percentage change in the yearly value of air transport services is higher for the EU (0.3 percent) than the US (0.1 percent), but maritime transport in the US is projected to have a higher yearly growth in exports (0.14 percent versus 0.08 percent for the EU).

The recent EU-US Open Skies Agreement has already addressed many regulatory divergences in the air transport sector and the first phase is included in our baseline scenario, explaining why the quantitative impact of further liberalisation is rather modest. The second phase of the Open Skies Agreement planned for the next two years is expected to go further. Several areas of divergence remain, for example, regarding foreign ownership restrictions, the Fly American Act; environmental regulations (e.g. potentially Emission Trading Scheme); requirement of US airlines to be under actual control of US citizens; government procurement regulations; operating restrictions at airports; non-harmonised investment legislation; and differences in privacy vs. security laws. Based on the business survey responses, costs are expected to go up by 8.0 percent in maritime services and by 2.0 percent in air transport services for both the US and EU because of misaligned regulations.

Implementation of the Open Skies Agreement has the potential to change the structure of the market in the EU, the US, and globally, and increase consolidation of the sector, while increasing profitability in the airline industry.

100 percent container scanning

100 percent container scanning is US legislation adopted in 2007, mandating that all US-bound maritime containers be scanned before leaving foreign ports starting in 2012. This study has taken into account this measure because if nothing changes to the present legal situation by 2018, 100 percent container scanning will be in effect. Discussions on actual implementation are going on at present, but for now, full implementation of 100 percent container scanning (from some container scanning at present) has the potential to yield significant costs. We estimate that these costs can accrue to €9.7 billion (\$12.6 billion) per year.

100 percent container scanning means higher costs for many sectors in the economy. The transport sectors and sectors that ship goods via containerized transport are directly affected. These sectors include, for example, textiles and clothing, chemicals, electronics, OICE, cosmetics, wood and wood products, machinery, construction, and of course transport services. In addition, higher transport costs, if passed on to consumers through prices of final products, will have indirect negative effects on disposable household incomes in the EU and US, causing effects of this legislation to spread economy-wide.

The lion's share of costs (or of gains from avoiding these costs) would fall to the EU, with a potential effect on GDP of €8.9 billion (\$11.6 billion) per year, but also US GDP would be affected by 100 percent container scanning by a yearly amount of €0.8 billion (\$1.1 billion).

The gains from avoiding container scanning costs include €9.1 billion (\$11.8 billion) in export gains for the EU each year and €5.1 billion (\$6.6 billion) in export gains for the US each year. For the EU, the trade gains come mostly from processed foods (€2.9 billion), chemicals (€4.6 billion), motor vehicles (€3.3 billion) and other transport equipment (€0.8 billion). For the US the lion's share of trade gains come from electrical machinery (€2.9 billion) and wood and paper products (€1.0 billion).

Diverging legislation in this area not only creates direct costs for the EU and the rest of the world in terms of the costs of scanning equipment, training and purchasing of new technologies, but also fundamental changes in the supply chain in and around ports, costs of waiting lines and other more indirect costs need to be included. Some potential gains are expected for producers of scanning equipment, and developers of scanning technologies. Abolishing 100 percent container scanning by 2018 would also imply a greater scope for harmonisation of security standards and controls – by allowing for joint EU-US as well as global joint approaches to combat terrorism and crime, likely within the framework of the World Customs Organisation.

Removal of costs of 100 percent container scanning would benefit the manufacturing sectors – mostly those outside the US (since by far the largest share of the costs of 100 percent container scanning is borne by the countries exporting to the US) – that depend most on containerized transport, at the expense of some other manufacturing and service sectors. The reason for this is that some manufacturing sectors experience lower costs of inputs (containerized transport costs) and therefore become more competitive (at a lower cost base). This draws in capital and labour from other parts of the economy, i.e. from other manufacturing and service sectors.

Public procurement

Overall estimated welfare gains that could be reaped in the transatlantic market place if restrictions to government procurement were reduced or aligned could amount to €10.7 billion (\$13.8 billion) for the EU and the US combined. For the EU the yearly increase is expected to amount to €9.8 billion (\$12.7 billion) while for the US the yearly gains in national income are around €0.9 billion (\$1.2 billion) per year. Furthermore, real incomes are projected to increase, as are household incomes. EU NTMs are higher in metals and financial services while US NTMs are higher in chemicals, cosmetics & pharmaceuticals and motor vehicles. Reducing regulatory divergence in public procurement leads to significant terms of trade gains for the EU.

Government procurement is a significant NTM in various sectors, both in the EU and the US. Among the most important restrictions to government procurement in the US are the Berry Amendment, the Buy American Act⁶, the Buy America Act⁷, procurement restrictions on military purchases and discrimination against foreign companies, which together create relatively high NTMs in this area. Complaints about restrictions in the EU are more of a detailed and administrative nature and center on the levels of bureaucracy and onerous qualification requirements. While construction is the sector most affected by government procurement NTMs, they also distort the level playing field for public purchases in IT, financial services, aerospace, metals, transport, chemicals, machinery, automotive, wood, cosmetics and pharmaceuticals.

Intellectual property rights (IPR)

IPR related regulatory divergences are due to incongruent but legal domestic IP systems, because IPR systems are typically territorial-based. A full liberalization of actionable aspects of divergences in IPR would yield potential welfare gains of €4.6 billion (\$5.9 billion) per year for the EU and US combined. For the EU, the gains accrue to €3.7 billion (\$4.8 billion) per year while for the US the gains are €0.8 billion (\$1.1 billion) per year.

Total costs of IPR divergence are estimated to be much larger, but because this study assumes that only a small share of regulatory divergence can realistically be aligned, welfare gains are much lower.

IPR convergence would lead to small real income gains for the EU and US while the yearly value of exports would go up by 0.2 percent for the US and 0.1 percent for the EU. Also, real wages for both skilled and unskilled workers are expected to increase.

In terms of cross-cutting issues on the US side (i.e. challenges faced by EU firms in accessing the US market), remedies available for US patent holders to have foreign products removed from the market and differences with EU patent filing (the ‘first to invent’ versus ‘first to file’ principle) matter. As regards the EU market, US firms find that patent systems and patent filing procedures

⁶ Sections 10 (a-d) of Title 41 of the United States Code are known as the Buy American Act (BAA). U.S. government exceptions under NAFTA Chapter 10 and the WTO Agreement on Government Procurement allow for such procurement preferences. The Buy American Act applies to all U.S. federal government agency purchases of goods valued over the micro purchase threshold, but does not apply to services.

⁷ Section 5323(j) of Title 49 of the United States Code is known as the Buy America Act. Buy America provisions are applied to transit-related procurements valued over US\$100,000, for which funding includes grants administered by the Federal Transit Authority (FTA) or Federal Highway Administration (FHWA). Buy America provisions are a condition of U.S. federal government grants to state, municipal or other organizations.

differ among EU member states, and that the EU defines IPR more narrowly than the US. Sector-specific NTMs between the EU and US that are IPR related include limited recognition of performance and broadcasting rights in the US, geographical indications (GIs), software patentability, and EC exhaustion rules in the EU.

Given the broad range of sectors and broad range of differences between the EU and US in the field of IPR, even with limited levels of regulatory alignment, the welfare gains are considerable. Alignment of EU and US IPR systems would most likely result in systemic implications for a world standard on IPR, facilitating future regulatory convergence around a joint EU/US standard worldwide.

Methodology

The complexity of this study has required the use of many different methods and sources of information. NTMs and regulatory divergence are complex issues. In order to thoroughly examine them, the study has required a multi-pronged approach.

Non-Tariff Measures are defined as ‘all non-price and non-quantity restrictions on trade in goods, services and investment, at federal and state level. This includes border measures (customs procedures, etc.) as well as behind-the-border measures flowing from domestic laws, regulations and practices’ (ToR, p. 7). In other words, non-tariff measures and regulatory divergence are restrictions to trade in goods, services and investment at the federal or (member) state level that come from differences in regulation.

This study does not judge whether a specific NTM is right or wrong or whether one system of regulation is better than the other. Instead the study focuses on identifying divergences in regulatory systems that cause additional costs or limit market access for foreign firms.

The multi-pronged approach uses literature reviews, business surveys, econometric analyses (gravity, CGE), extensive consultations with regulators and businesses, and inputs by sector experts to reach the presented qualitative and quantitative results.

The literature review is carried out by over 40 experts. The novel business survey has generated 5,500 responses from US and EU firms in 23 sectors, with a response rate in some sectors representing over 60 percent of turnover of that sector. By construction, the survey has yielded estimates of overall levels of restrictiveness (NTM indexes) that have then been cross-checked against OECD (2007) restrictiveness indicators and against the Product Market Regulation (PMR) indexes. For the service sectors a combination of OECD restrictiveness indicators and survey results has been used. The research team has also conducted discussions with over 100 business associations and industry federations and numerous regulatory experts and legislators in the EU and the US to validate preliminary results.

Through economic modelling the effects of the estimated cost increases for EU-US and US-EU trade and investment flows are calculated from 2008 up to the year 2018. This allows the study to

explore the effects of NTM reductions over a medium- to long-term horizon on EU-US and US-EU trade and investment flows.⁸

It is unlikely that all areas of regulatory divergence identified can actually be addressed. There are many reasons why this is the case: because this would require constitutional changes, unrealistic legal work, or unrealistic technical change; because there is a lack of sufficient economic benefit to support the effort; because the set of regulations is too broad; because of consumer preferences, language and geography; or because of political sensitivities. In recognition of these difficulties, we have introduced the concept of *actionability* to refer to the degree to which an NTM or regulatory divergence can potentially and realistically be reduced (via various means) by 2018 if the political will to do so exists. This study finds that about half of the NTMs and regulatory differences that inhibit greater trade and investment flows between the US and EU could realistically be aligned or even dismantled through joint efforts. Actionability allows for a distinction between issues that can be realistically addressed if the political will to do so exists, and those that, while perhaps functioning as NTMs and regulatory differences, most likely cannot be changed through a joint process of negotiation and realignment. For each sector and the economies overall, the degree of actionability is determined by looking at the way and degree to which the identified individual NTMs and regulatory divergence could be addressed based on expert opinions, existing research, feedback from policy makers and comments from businesses on both sides of the Atlantic. The use of the actionability concept is an estimate and – although methodologically superior to assuming all regulatory divergence can be addressed – needs to be interpreted with caution.

⁸ 'Reduction' is used as a catch-phrase for approaches possible to address regulatory divergence and NTMs, like, for example, recognition of equivalence, MRAs, harmonisation of rules, or common international standard developments.

1 Introduction

1.1 Aims of this study

This study on EU-US regulatory divergence to trade and investment aims to identify and analyse existing non-tariff measures (NTMs) and regulatory divergence at the sectoral level. It then considers the potential economic impacts the alignment of these measures could have at the sectoral level as well as overall for the US and EU, including potential systemic implications for the global regulatory environment.

This study is analytical in nature and focuses on at-the-border and behind-the-border costs that emerge from regulatory divergence. It does not address whether or not NTMs or regulatory divergence are justified (e.g. for health, security or environmental reasons) or whether one regulatory system is superior to the other. This study analyses whether NTMs and regulatory divergence exist and how large or diverse they are. It also looks at the economic impacts of addressing NTMs and regulatory divergences.

The aim of this study is not to look at each of the individual NTMs and the way they should be aligned in order to achieve the proposed levels of NTM reduction. Rather the overall level of restrictiveness is analysed. A level that leads to potential economic effects for a sector as a whole, combined with a prioritization of important NTMs. Moreover, the study looks at the economic and competitive implications of reductions in regulatory divergence, either when they are reduced in a specific sector or when they are reduced in the economy overall. National income (GDP), wage effects, production effects, effects on household incomes, and trade and trade-related investment effects are included in the analysis.⁹

Cornerstones of the study

There are four cornerstones on which this study is based:

- Awareness of the context in which the study takes place;
- A solid academic methodology to analyse the degree and importance of NTMs and regulatory divergence, as well as an assessment of the potential economic impacts of lowering NTMs and regulatory convergence;
- Equal and continuous involvement of EU and US academics, policy makers and businesses;
- Broad and extensive participation of the US and EU (Transatlantic) businesses and regulators.

⁹ This implies that the methodology is not designed to look at individual measures in partial equilibrium.

1.2 Definition of non-tariff measures and regulatory divergence

Since the goal of this study is to shed light on the existence and degree of NTMs, it is imperative to properly define the concept. The definition of NTMs used in this study is:

Non-Tariff Measures are all non-price and non-quantity restrictions on trade in goods, services and investment, at federal and state level. This includes border measures (customs procedures, etc.) as well as behind-the-border measures flowing from domestic laws, regulations and practices (Terms of Reference of this study, p. 7).

This is a broad definition that includes any regulatory divergence that exists due, for example, to the fact that two different regulatory systems co-exist. It also means the addition of ‘non-price’ and ‘non-quantity’ signals. This means, for example, that quotas and direct subsidies are not considered NTMs. This definition includes analysis of ‘at border measures’ as well as ‘behind-the-border measures’ that impede trade in goods and services as well as investments.

The goal of this study is not to quantify each individual non-tariff measure or regulatory divergence and suggest how to address it. Rather this study looks at the sum of NTMs in terms of overall costs of regulatory divergence and states with specific legislations and measures are most important components of the divergence found.

1.3 Structure of the report

This report is structured as follows:

- Chapter 2 contains the context of the study and Chapter 3 summarises the methodology used. This includes a short analysis of the importance of transatlantic trade and investment flows, the issues of NTMs and regulatory divergence, the political process that has led to this study, and an overview of the methodological components used.
- In Chapter 4, the overall quantified results of the gravity regressions and computable general equilibrium (CGE) work are presented.
- In Chapters 5 to 17, specific sectors are reported in terms of regulatory divergence found, levels of ‘actionability’, impact of diverging measures on trade and investment costs, sector outputs, wages, and trade flows. Also, consumer effects and systemic implications of reducing regulatory divergence are covered where appropriate.
- Chapter 18 presents overall cross-cutting NTMs and regulatory divergence,
- Chapters 19 to 21 cover security measures (100 percent container scanning), government procurement and intellectual property rights (IPR).

2 Study context

The EU and the US share a deep, dynamic and mutually beneficial economic relationship that encompasses deep investment, trade and economic links. They share one of the most open relationships in the world and are deeply integrated. However, the existence of regulatory divergence and non-tariff measures are limiting further integration and the emergence of a truly integrated transatlantic market place.

2.1 Importance of the Transatlantic relationship

2.1.1 The importance of EU-US investment flows

- Profits of EU foreign affiliates in the US reached €70 billion (\$91 billion) in 2006;
- The United Kingdom has traditionally been the largest investor in the United States¹⁰ and the top two global destinations for US investment since 2000 are The Netherlands and the UK. The US invests in each of these countries more than it invests in Canada or Mexico;¹¹
- Mutual investments add up to €1.5 trillion (\$2 trillion) and a huge number of jobs in the transatlantic marketplace depend upon them. In 2008, both US goods and services exports to the EU (€211.2 billion (\$274.5 billion)) and EU goods and services exports to the US (€283 billion (\$367.9 billion)) hit a record high;
- US companies deliver goods and services to various markets in the EU mainly via affiliate sales rather than exports; foreign affiliate sales in the EU totalled €1.6 trillion (\$2.1 trillion), roughly nine times the value of US goods exports to the EU.¹² The US is the main destination for EU-controlled foreign affiliates;¹³
- US assets in the UK totalled €2.2 trillion (\$2.8 trillion) in 2006, roughly 25 percent of the global total and more than the combined US assets in Asia, South America, Africa and the Middle East;¹⁴
- EU investment in the US in 2007 was over €112.6 billion (\$146.38 billion) and was several times the level of EU investment in China and more than 5 times the level of EU investment in India.¹⁵

¹⁰ Congressional Research Service.

¹¹ Idem.

¹² Idem.

¹³ Eurostat (2008).

¹⁴ Idem.

¹⁵ Eurostat (2008).

2.1.2 The importance of EU-US trade flows

- As a combined trade block, the transatlantic economies constitute 58 percent of global Gross Domestic Product (GDP), and over half of world trade;
- In 2008, the EU-25 exported €250 billion (\$325 billion) worth of goods to the US, while it imported €187 billion (\$243 billion);
- With respect to services trade, in 2005, the EU-25 exported €123 billion (\$160 billion) to the US, while importing €116 billion (\$151 billion);
- While the US recorded a €63 billion (\$82 billion) deficit in goods trade with the EU in 2008, nearly 31 percent of the deficit was offset by America's €31 billion (\$41 billion) surplus in services trade.¹⁶

2.2 The importance of reductions in NTMs and regulatory convergence

The repeated reductions in tariffs resulting from the General Agreement on Tariffs and Trade (GATT) and World Trade Organisation negotiating rounds mean tariffs on goods have been replaced by measures affecting trade in services and NTMs as the major sources of import protection.¹⁷ Indeed, these measures can be quite substantial.¹⁸ In services, liberalisation of non-tariff measures is also a source of potentially significant gains (Francois, 2001; Francois, van Meijl, and Van Tongeren, 2005; Francois, Hoekman, and Woerz, 2007).

In the context of the European Single Market, Copenhagen Economics (2005) has carried out a study into the economic impacts of reductions in NTMs (including regulatory convergence) for the EU services directive.¹⁹ They conclude that the overall effects of the directive will be positive for the EU.

The transatlantic regulatory cooperation (TRC) deals with diverging regulations that constitute NTMs to trade and investment. Multiple efforts are being undertaken continuously to dismantle existing regulatory NTMs and prevent new ones from emerging.

2.3 Transatlantic policy developments and regulatory cooperation

In this study, many larger and smaller NTMs and areas for regulatory divergence between the EU and US have been identified for a large number of goods and services sectors. These NTMs do hamper trade and investment flows in the transatlantic market place. For each of the NTMs and regulatory divergence, discussions were held with sector experts, legal experts and regulatory experts to determine the extent to which divergences could realistically be reduced. The term used in this study for the realistic potential for reducing regulatory divergence is 'actionability' (more on actionability in section 3.5).

¹⁶ Hamilton, D.S. and J.P. Quinlan (2009) 'The Transatlantic Economy 2009, Annual Survey of Jobs, Trade and Investment between the United States and Europe', Center for Transatlantic Relations, 2009.

¹⁷ Albeit not for all sectors. Notably, some agricultural sub-sectors are still subject to significant tariff measures affecting trade, both in the EU and the US.

¹⁸ For example, Bradford (2003) estimates that US NTMs add 12 percent to the cost of trade with the United States, while European NTMs add between 48 percent and 55 percent to the cost of traded consumer goods.

¹⁹ Copenhagen Economics (2005), 'Economic assessment of the barriers to the internal market for services'.

A multitude of past and current transatlantic regulatory initiatives

On a regular basis, the EU and US – at different levels – meet to discuss the transatlantic relation. Every year, a high level EU-US Summit takes place to address economic cooperation and market integration at the highest political levels, to prevent disruptive and costly disputes and stimulate trade and investment flows by reducing both at-the-border and behind-the-border costs. With the Global Financial Crisis of 2008-2009 this is more imperative than ever before.

Below is a short and incomplete overview of some of the main milestones in transatlantic cooperation efforts.

- In 1990, the Transatlantic Declaration prompted a series of regular EU-US summits to strengthen the bilateral partnership including several of those mentioned below.
- In 1995, the New Transatlantic Agenda (NTA) was established, to make the EU and US work together to achieve the expansion of world trade and foster closer economic EU-US relations. The NTA was accompanied by an action plan and set up four dialogues: the TABD (Transatlantic Business Dialogue), the TALD (Transatlantic Labour Dialogue), TAED (Transatlantic Environmental Dialogues) and the TACD (Transatlantic Consumer Dialogue);
- In 1998, mutual recognition agreements were signed affecting electrical equipment, pharmaceutical products, medical devices, telecommunications and ICT equipment.
- Also in 1998, the Transatlantic Economic Partnership (TEP) was set up to further bilateral economic and trade relations.
- In Bonn, in 1999, a Joint Statement on Early Warning and Problem Prevention Mechanisms was adopted to identify regulations at an early stage that could become non-tariff measures to trade.
- In Lisbon, 2000, the Consultative Forum on Biotechnology was established.
- In 2002, in Washington, agreements were reached on Guidelines for Regulatory Cooperation and Transparency to encourage EU and US agencies to consult with each other on a voluntary basis.
- A Roadmap for EU-US regulatory Cooperation and Transparency was developed in 2004.
- In its May 2005 communication, “A Stronger EU-US Partnership and a More Open Market for the 21st Century”, the EC identified regulatory co-operation as a prime objective of transatlantic co-operation.
- In 2005, the High-Level Regulatory Co-operation Forum was set up to develop a joint regulatory work plan and the political leaders agreed to move forward in the fields of investment, public procurement, services and improvements in mutual recognition of professional qualifications.
- A set of ‘best practices’ was established to guide regulators and complement EU rules and regulations in areas like public procurement and professional qualifications;
- The 2007 EU-US Summit launched the Transatlantic Economic Framework and the Transatlantic Economic Council (TEC) to help further strengthen EU-US economic integration.

At various occasions, the hard work and initiatives have been successful, like for example in the following situations:

- Start of the New Transatlantic Agenda (NTA) with its four dialogues incorporated in it (Green Cowles, 2006).

- Successful conclusion of mutual recognition agreements in electrical equipment (WP29 on electronic stability control), pharmaceutical products FDA, EMEA and EC developed a workplan together to watch orphan drugs), telecommunications and IT equipment.
- NTA and following summits increased compatibility of EU and US approaches to competition policy (Anderson, 2008).
- Development of ‘good laboratory practices’ through a regulatory dialogue within the OECD.
- Improvement of mechanisms for dialogue and information exchange to improve mutual understanding among regulators, for example in areas like medical devices, financial services, pharmaceuticals and marine technology.
- The 2002 Guidelines for Regulatory Cooperation promoted procedural steps to provide consultations and dialogue (e.g. food safety and auto safety).
- The US-EU Safe Harbour Agreement of 2002 allowed US firms to meet stricter EU regulations on privacy.
- In 2004, the mutual recognition agreement on marine safety equipment was signed (Devereaux et al, 2006).
- In 2006 the Financial Markets Regulatory Dialogue had reached progress on recognizing mutual financial standards in specific areas (Posner, 2005).
- In 2008, the EU published new guidelines for Impact Assessment methodologies, increasing the importance of international involvement in drafting EU legislation. The Office of Management and Budget (OMB) in the US has successfully increased international awareness among US regulatory bodies when drafting legislation.
- On import safety and third party testing progress is made on cooperation between the EU and US, for example in inspections of active pharmaceutical ingredients plants in China (US-EU, October 15, 2008).

However, at several other occasions, high expectations of previous initiatives have not been met, both at the level of institutional dialogue and at the level of specific regulatory divergence or NTMs that were expected to be addressed:

- Several negotiated mutual recognition agreements were never implemented, mostly due to reluctance of regulators to allow intrusion on domestic sovereignty.
- In 2002, adoptions of legislations in both the EU and US caused increases in regulatory divergence. The EU adopted REACH on how to regulate chemicals while the US passed the Sarbanes-Oxley act on reforming accounting standards.
- Divergence in chemicals remains high across the Atlantic despite numerous cooperation efforts (Quick, 2008), and also on issues like hormones, GMOs, cosmetics, the EU and US continue to differ.

2.4 Raising international awareness on both sides of the Atlantic

In order to address the current regulatory divergences and/or potential future NTMs resulting from the abovementioned fundamental differences, it is imperative that EU and US regulators, businesses, business associations, industry federations and politicians meet in person, discuss and work collaboratively on broad ranges of issues and on a continuous basis.

In the past, on many occasions, national regulation was put in place without taking into account international consequences. On both sides of the Atlantic numerous NTMs have started this way – and mostly unintentionally so. Starting with the EU-US High Level Regulatory Cooperation

Forum, both EU and US sides have of late shown increasing international awareness among their national legislators. The Office of Management and Budget (OMB) has recently made strong and concerted efforts to increase awareness among US regulators of international implications of domestic US legislation. OMB has provided guidance to the Food & Drug Administration (FDA), Occupational Safety and Health Administration (OSHA), Consumer Product Safety Commission (CPSC) and others on good regulatory practices and promoted international dialogue and awareness. The EU through the Secretariat General has made important steps forward through the European Commission's new Impact Assessment guidelines (January 2009), putting increased emphasis on potential international effects in the process of drafting of new EU legislation. In other words: new legislation is to be tested against international implications before proposals are turned into EU law.

This study has found that international awareness among regulators and businesses is rising, both in the EU and US. However, research done for this study has also shown that many perceived NTMs indicated by EU or US firms in fact are partially or fully incorrect or outdated, all the more reason to urge for EU and US legislators, regulators and business representatives to meet frequently, exchange information and best practices and address at an early stage potential areas where regulatory differences could emerge at an early stage.

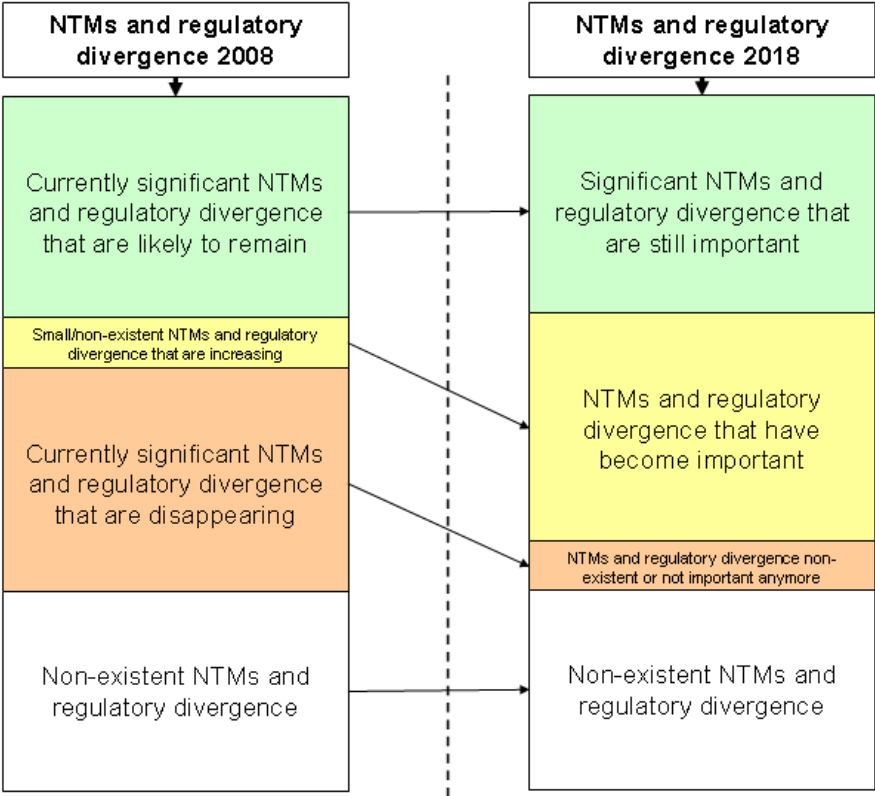
2.5 Looking forward to 2018

Time is an important factor when looking in detail at NTMs and regulatory divergence. First of all, because addressing existing NTMs and regulatory issues is very time-consuming. Second, current regulatory divergence and NTMs may disappear in the future and new divergences may arise due to fundamental differences between the EU and US or due to unexpected crisis situations (e.g. potentially the Global Financial Crisis of 2008-2009 could increase divergences between the EU and US). These differences may create additional costs to trade and investment flows and prevent the development of a deeply integrated transatlantic market place.

Figure 2.1 shows the potential changes in the NTM landscape between 2008 and 2018:

- Some significant NTMs and regulatory divergences remain;
- Some currently small/insignificant NTMs and regulatory divergence have grown to become important;
- Some currently significant NTMs and regulatory divergence have (largely) been aligned;
- Some potential, non-existent NTMs and regulatory divergence may never become existent.

Figure 2.1 Schematic NTM and regulatory divergence comparison between 2008 and 2018

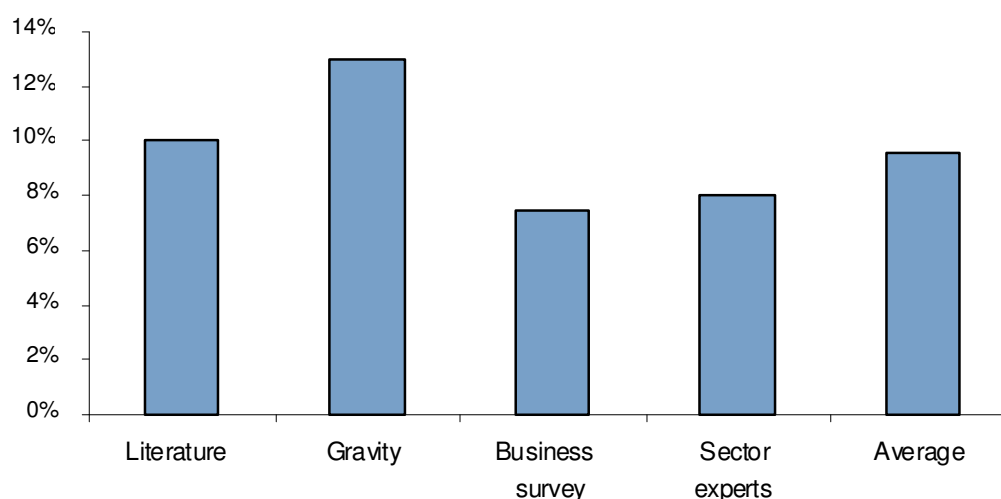


3 Methodology

3.1 Introduction

In order to gather enough data and information from multiple sources on existing regulatory divergences and their relative importance, a multi-pronged approach has been used. Figure 3.1 shows the approach employed for hypothetical regulatory divergence. The various methodologies – using different sources of information and components to measure the height of a hypothetical NTM (in percentage terms, i.e. measured as tariff equivalent) – are compared. In case a certain methodology does not yield clear or even *any* outcomes, it can be complemented by the other approaches. The variety and complementarity of approaches allows detailed analysis of various NTMs and regulatory divergence, both overall and at the sectoral level. Cross-validation across different methodologies is possible and the various approaches also allow for different types of inputs from various key stakeholders to the study (e.g. from academia, business, industry federations and associations, regulators and policy-makers).

Figure 3.1 Multi-pronged approach to NTM and regulatory divergence estimation, (in % of trade costs)



3.2 Literature review

The literature review has two aims:

- Summarise previous studies on NTMs and identify the NTMs that have been previously identified in various EU/US sectors for the business survey and gravity analysis;
- To find empirical data on regulatory divergence at the sectoral level, as well as trends in divergence, priorities and ‘actionability’, to be used for the gravity analysis.

The literature review was carried out by a team of 40 sector experts, supported by ECORYS, the TABD, Business Europe, US Chamber of Commerce, AMCHAM EU, and TPN. The full and stylised literature review results are presented in Annex II and summarised at the sectoral levels in Chapters 5 to 17.

3.3 Business survey

The novel business survey is an important component of the methodology to analyse NTMs and regulatory convergence:

- It supports and complements the literature review and sector expert work;
- It generates bilateral country-pair NTM indexes that tell us how restrictive the EU and the US are. These index numbers are needed for our quantitative analysis;
- It complements the sector expert work in getting sector-specific overviews of existing NTMs and their relative importance;
- It heavily involves US and EU businesses in the study and makes sure the concerns felt ‘on the ground’ are incorporated.

The involvement of US and EU firms is of great importance because it allows the study to reflect the grass-roots concerns of businesses operating in the transatlantic market place, cross-validating the NTMs and regulatory divergence found by the literature review. Having obtained over 5,500 survey responses from firms in 23 sectors in the EU and US, the survey was very successful, with the significant help of the TABD, Business Europe, US Chamber of Commerce, EABC, AMCHAM EU and many EU-wide and US-federal level business associations.

For the quantitative analysis, the business survey has generated bilateral NTM index numbers (between 0 and 100) based on the answers from 5,500 companies cross-checked against the OECD restrictiveness indicators and the Product Market Regulation (PMR) indexes. The question asked to the firms is presented below in Box 3.1. After re-arranging the index numbers we use them in a regression that allows us to calculate the impact the index has on EU-US trade and investment flows.²⁰ For the services sectors, the same question has been asked (A12a), but given the more limited response rates in the service sectors, the NTM indexes are combined (and cross-checked) with the OECD (2007) FDI restrictiveness indexes.

Box 3.1 Question on the overall level of restrictiveness²¹

Question A12a. Consider exporting to the US (EU), keeping in mind your domestic market. If 0 represents a completely ‘free trade’ environment, and 100 represents an entirely closed market due to NTMs, what value between 0 – 100 would you use to describe the overall level of restrictiveness of the US (EU) market to your export product (service) in this sector?

The full business survey questions are presented in Annex VI.

²⁰ Technically: the NTM indexes are converted into logarithms and then fed into a gravity equation as specific friction variable – allowing us to estimate the impact of these indexes on trade and investment flows. This method is superior to the residual approach that would gather all left-over effects into the NTM and would therefore be much more inaccurate. The gravity equation allows us to control for distance and size of GDP.

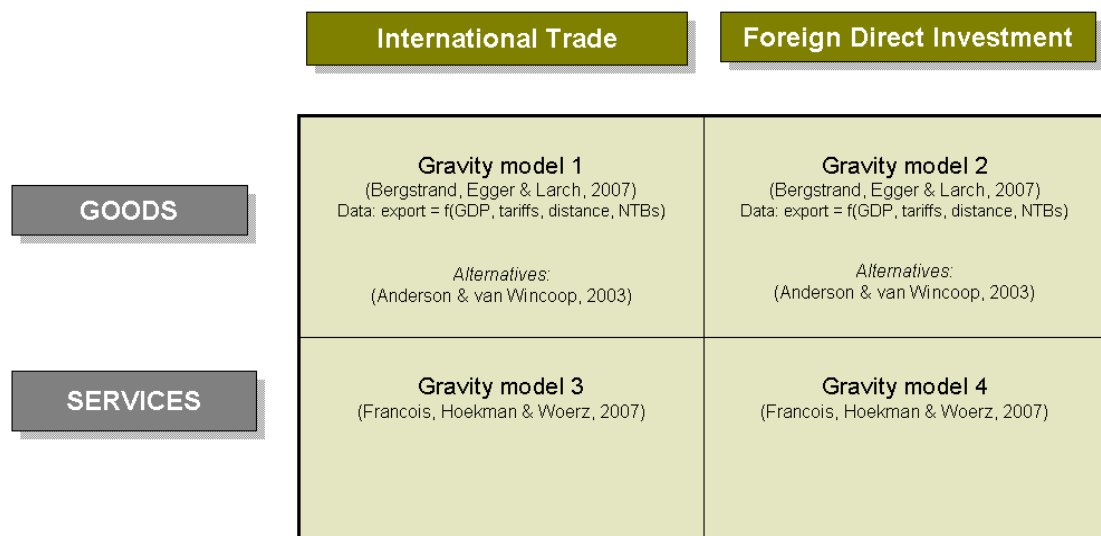
²¹ This question was discussed extensively in the NTM Workshop on March 31, 2008 in Brussels.

3.4 Special regression analysis: gravity regressions

We use a special type of regression analysis, called gravity regression, to calculate the effects of non-tariff measures (measured with the NTM indexes) on EU and US trade and investment flows. We expect them to have a negative effect, because the higher the regulatory divergence (i.e. the higher the NTM) the more trade and investments are inhibited. However, we also know empirically that countries trade and invest more with countries that are larger (i.e. with higher levels of GDP) and trade and invest less with countries that are further away. Gravity analysis corrects for size of GDP and distance and is therefore well-suited for analysing the effects on NTMs on trade and investment flows. Our methodology to combine the NTM indexes and gravity analysis is based on four influential articles from academic literature, applied as shown in Figure 3.2:²²

- For goods, our core methodology is based on Anderson & Van Wincoop (2003) and Bergstrand, Egger & Larch (2007);
- For services, our core methodology is based on Francois, Hoekman & Woertz (2007);
- For FDI flows, Bergstrand and Egger (2007) is used.

Figure 3.2 Use of different types of gravity models for goods and services trade and FDI



Source: Copenhagen Economics, own analysis.

Gravity analysis in goods for trade and FDI

The article by Anderson and van Wincoop (2003) forms the basis of the formulation of the empirical model for **goods sectors** that looks as follows:

²² This approach was also supported unanimously by the academic experts present at the NTM Workshop organised on March 31, 2008 in Brussels: though more data sensitive, especially in the need for NTM estimates (bilateral country-pairs), the specific variable use of NTM indexes is methodologically superior and more advanced than the 'residual approach'. The latter implies that all factors not controlled for in the gravity equation, show up as NTMs. There is consensus that the residual approach significantly overestimates the height of NTMs. Our approach does not suffer from this methodological caveat.

$$\ln X_{ij} = \ln \frac{1}{Y_{World}} + \ln \frac{Y_i Y_j}{\Pi_i^{1-\sigma} P_j^{1-\sigma}} + \sum_{k=1}^K \gamma_k (1-\sigma) \ln \tau_{k,ij} \quad (3.1)$$

X_{ij} is the export from country i to country j , Π_i represent the aggregated measures which affect exports of country i to all markets, P represents the aggregated measures which affect imports of country j from all markets, Y is GDP, and τ_{ij} is a set of bilateral trade measures. The essence of the model is that bilateral trade depends on the economic size of the trading partners (Y), and that large economies have a greater import demand, and when they search for trading partners, the likelihood that they find a trading partner in a large economy is larger than the likelihood of finding a trading partner in a small economy. On the other hand, trade measures can reduce the gains from trading and tend to reduce trade, *ceteris paribus*. For further information, see Annex III.²³

Gravity analysis in services for trade and FDI

Working with bilateral trade data, the following basic gravity equation for financial **services** trade is estimated for services trade, making use of Francois, Hoekman and Woertz (2007):

$$\ln(M_{i,j,t}) = \mathbf{B}'\mathbf{X}_{i,j,t} + \varepsilon_{i,j,t} \quad (3.2)$$

Where M_{ijt} is the imports by country j from country i in period t . The vector $\mathbf{B}$ is the set of coefficients to be estimated, while $\mathbf{X}$ is the set of explanatory variables. Our basic equation is estimated using panel regression methods.²⁴ From the basic regression results an importer effect variable or index is derived that measures the systematic variation on a country level of imports, after controlling for the variables in our basic regression equation. For further information, see Annex III.

Calculating trade and service cost equivalents of NTMs and regulatory divergence

The above-described gravity regressions are run with trade and investment flows for goods and services as the variables to be explained, including the NTM indexes. Since we have a lot of bilateral NTM data, we can calculate three types of NTMs that we then add up to look at the total effect of NTMs:

- A transatlantic non-tariff measure, measuring the increase in Transatlantic trade and investment in case of a one percent decrease in the NTM index;
- An intra-EU effect that tells us something about the preferential treatment given to other EU members, compared to external partners. This means that a reduction in non-EU NTMs (e.g. EU-US) will make the US more and other EU members relatively less attractive and thus divert trade and investments away from European partners towards (for example) the US;²⁵
- An intra-NAFTA effect that tells us the preferential treatment given to other NAFTA members, compared to external partners. So a reduction in non-NAFTA NTMs or regulatory

²³ The theoretical foundation of the empirical model is more thoroughly described by Anderson and van Wincoop (2003).

²⁴ The approach is robust to using a two-stage GLS process, GEE, and fixed effects with population averaging.

²⁵ Formally we have used an EEA dummy instead of an EU dummy due to data issues. As economic integrated inside the EU and EEA is similar this is not a large assumption.

divergence will make intra-NAFTA preferences less attractive and thus divert trade/investments away from NAFTA partners towards (for example) the EU.²⁶

Box 3.2 From business survey question to Trade Cost Estimates (TCE)

Step 1: Survey indexes from the business survey Responses to question A12a (Box 3.1) generate exporter-importer specific indexes of NTMs with a country-pair specific NTM variable valued between 0 (completely open) and 100 (completely closed).²⁷ More aggregate NTM-indexes are used, following a shortage of data, by combining responses from all exporters to a specific destination into one single variable per sector measuring the average perceived NTM for each country.²⁸
Step 2: From survey indexes to trade and FDI restrictions The survey index, that ranges from 0 – 100, is transformed into a log scale conform OECD best practice: Trade/FDI level of restrictiveness = $\ln(1 + 0.01 * \text{survey index})$. For services a combination of OECD and survey indexes is used.
Step 3: From level of restrictiveness to the coefficient of the gravity regression variable By multiplying the NTM_{ij} index with the dummy-variables for trading block membership (Transatlantic dummy, EU dummy or NAFTA dummy, generating the effects described above) a variable with a bi-directional dimension (exporter and importer) as in equation (9) in the background paper (Annex III) is obtained. This variable is used in the regression analyses. The coefficient on the NTM variable generated by running the gravity regressions specifies the effect of the NTM-transatlantic, NTM-EEA and NTM-NAFTA measures on trade and investment flows.
Step 4: From variable coefficient to specific trade cost estimate The coefficients on the NTM-transatlantic, NTM-EEA and NTM-NAFTA variables can then be changed into trade cost estimates. The trade cost estimate (in percent) is the estimated increase in trade costs as a consequence of the existence of NTMs and regulatory divergence in the EEA, NAFTA and Transatlantic market place.
Step 5: From specific trade cost estimates to the aggregate trade cost estimate at the sectoral level Knowing the individual EEA, NAFTA and Transatlantic trade cost estimates, they are aggregated (assuming intra-EEA and intra-NAFTA preferential treatment is extended across the Atlantic) into one single trade cost estimate at the sectoral level.

In the study two types of regulatory divergence and/or NTMs are distinguished: **sector-specific NTMs** and **cross-cutting NTMs**. A cross-cutting NTM is an NTM that occurs in more than one sector, while a sector-specific NTM is one that only is found in one specific sector.

3.5 Computable General Equilibrium (CGE) analysis

The gravity analysis calculates how much trade and investment costs can be reduced for each sector when NTMs are being aligned and regulatory convergence is achieved. However, the world economy, especially the EU and US economies are very complex in nature and completely inter-linked with each other. For example, a change in NTMs can lead to a more competitive steel

²⁶ We find that the preference granted between NAFTA members does not seem to respond to the overall level of NTMs or regulatory divergence faced, with the exception of the automotive industry. The latter is expected given the focus on the automotive industry in the NAFTA agreement.

²⁷ Measuring the importance of NTMs on bilateral trade flows from a survey is subject to some uncertainty, which is also reflected by quite large standard deviations.

²⁸ Since our analysis is covering trade between 40 countries (OECD plus India and China) in 23 sectors it would require more than 360.000 survey responses if we were to have at least ten responses for each country-pair. While the number of responses is large, it is short of this number (5.445 survey responses were received). To compensate for this, we have constructed more aggregate NTM-indexes by combining responses from all exporters to a specific destination into one single variable per sector measuring the average perceived NTM for each country. To be precise, for each sector, we sum the variable NTM_{ij} over all i 's (origins) to get the variable NTM_j (destination).

sector with lower prices. These lower prices are then used as (cheaper) inputs for the automotive, shipbuilding and aerospace sectors, leading to higher profits, more production and growth in these sectors. These links between sectors are captured in a so-called ‘Computable General Equilibrium’ model (CGE model for short) in a forward-looking way.

The CGE model uses the gravity model (and border effects) and based on defined scenarios looks at how the NTM reductions would work through the economy (EU, US and world economy) until 2018. The year 2018 has been chosen because – starting in 2008 – this gives a 10-year period in which the NTM reduction effects can work through the economy. This will generate the required information on costs and benefits of reducing NTMs and regulatory divergence, both in the short-run and in the long-run, from the EU to US and US to EU, on trade and investment potential in the next 5-10 years, on consumer effects, as well as on the overall macro-economic impact on for example welfare, GDP changes, high- and low-skilled wages, and trade flows.

Sector specification

The data we use come from the Global Trade Policy Analysis (GTAP) database. In the GTAP database, a total of 58 sectors are specified, but for the purpose of this study, these have been re-arranged and re-aggregated into a list of 20 sectors that are shown in Table 3.1.

Table 3.1 CGE sector specification and mapping to sectors for this study

CGE Sector Specification	Sector Specification for this study
Processed foods & beverages	Food & beverages
Chemicals	Chemical, Pharmaceuticals, Cosmetics
Electrical machinery	Electronics, Office, information & communication equipment
Motor vehicles	Automotive
Other transport equipment	Aerospace & space
Other machinery	Medical, measuring & testing appliances
Metals and metal products	Iron, steel & metals
Wood and paper products	Wood, paper, wood products, paper products
Other manufactures	Machinery, textiles, clothing & footwear
Water transport	Transport services
Air transport	Transport services
Finance	Financial services
Insurance	Insurance services
Business services & ICT	Other business services, Computer & Information services
Communication services	Communication services
Construction	Construction services
Personal services	Personal, cultural and recreational services
Other services	Travel services

Scenario analysis

The scenarios incorporate a strong forward-looking element, looking ahead 10 years, and identifying what the potential impact of reducing NTMs and regulatory divergence between the EU and US in the sectors and cross-cutting issues under investigation will be in the years to come.

Table 3.2 Scenarios for reductions of NTMs and regulatory divergence²⁹

Scenario	Short Description
1. Ambitious scenario	Full reduction of all actionable divergences identified in all sectors.
2. Limited scenario	Roughly 50 percent reduction of all actionable divergences identified in all sectors.
3. Ambitious cross-cutting issues scenario	Full reduction of all NTMs and regulatory divergences in cross-cutting issues (i.e. issues that affect multiple sectors).
4. Ambitious sector-specific issues scenario	Full reduction of all NTMs and regulatory divergences in sector-specific issues (i.e. issues that only affect one sector).
5. Ambitious IPR scenario	Full reduction of identified actionable IPR divergence.
6. Ambitious Government Procurement scenario	Full reduction of identified actionable Government Procurement divergence.
7. Ambitious 100 percent container scanning scenario	Full reduction of identified actionable 100 percent container scanning divergence.

Scenarios 1 and 2 will be analysed both for the economy as a whole (i.e., applying the scenarios to all sectors at the same time) and from a sector-specific point of view (i.e., applying the scenarios to the one sector at a time – keeping all other sectors constant). Furthermore, for each scenario the short- and long-run outcomes will be presented, to show the dynamic investment effects that can occur in the long run.

Actionability

The NTMs and regulatory divergence identified at the sectoral level via the business survey, literature review, sector expert work and bilateral consultations with EU and US regulators, cannot all simply be reduced to zero or fully aligned. Several regulatory divergences cannot realistically be reduced at all, while for some NTMs, partial reduction is possible at most. In order to remain focused on the goal of the study, i.e. to evaluate the economic potential that would be realised by a further reduction of NTMs, the definition presented in Box 3.3 is chosen.

Box 3.3 Definition of 'actionability' of addressing NTMs and regulatory divergence³⁰

"Actionability" is the degree to which an NTM or regulatory divergence can potentially be reduced (through various methods) by 2018, given that the political will exists to address the divergence identified.

Actionability criteria used for individual NTM analysis

- *Level of sensitivity* (e.g. national security, consumer perceptions) – the more sensitive, the lower the actionability potential;
- *Level of legal change required* for NTM reduction (e.g. constitutional change, EU member state or US state-level competence, embedded institutional policy like IPR and government procurement) vis-à-vis potential (economic) benefits – the higher the level of legal change required (given a potential economic benefit), the lower the actionability potential;
- *Incentive level for NTM reduction for industry*, reflected by the potential future economic gains that could be reaped;

²⁹ In this Table, the word 'reduction' is used as an overall catch-phrase for possible approaches to address regulatory divergence and NTMs, like for example recognition of equivalence, MRAs, harmonization of rules, common international standard development.

³⁰ In this definition, the word 'reduction' is used as an overall catch-phrase for approaches possible to address regulatory divergence and NTMs, like for example recognition of equivalence, MRAs, harmonisation of rules, common international standard development.

- *Level of technical work needed* for NTM reduction – the higher the level of technical work needed, the lower the actionability potential;
- *Level of “broadness” or “narrowness”* of the NTM or regulatory divergence – the ‘broader’ the measure, the lower the actionability potential.

Based on these criteria, all measures have been screened on actionability as well as level of priority (importance) of the regulatory divergence. Screening has taken place by the sector experts, businesses and the actionability figures have been checked with legislators and regulators. This information has been aggregated into a sector level of actionability as presented in Table 3.3.

Table 3.3 Actionability levels per sector

Sector	Potential NTM Reduction (percent)	
	EU – US	US – EU
Aerospace & space	51	59
Automobile	42	48
Chemicals	57	63
Communication services	66	70
Electronics	39	41
Cosmetics	52	58
Financial services	55	49
Insurance services	48	52
Food & beverages	51	53
OICE	51	52
Pharmaceuticals	47	42
Transport services	59	56
Biotechnology	42	41
ICT	43	35
Construction services	57	38
Machinery	49	55
Medical equipment	42	45
Other business services	49	51
Personal, recreational services	47	37
Steel	50	62
Textiles	54	50
Wood & paper products	61	60
Travel services	48	40
Total average	50	48

Results

Given the complexity and multi-dimensionality of NTMs, given the use of a business survey and given the complex methodologies used to quantify the overall level of divergence, how realistic are the results? In order to ensure realistic quantitative outcomes, the following reality checks have been done:

- The NTM indexes have been checked with the OECD FDI restrictiveness indexes for services and an 85 percent match was found, which is a solid robustness-check, validating the business survey answers. The OECD FDI restrictiveness indexes are based on various criteria and not on company answers. As such the levels of restrictiveness perceived by firms check with the OECD criteria and methodology to determine the restrictiveness indexes.

- Given the large number of answers from firms, there is a high degree of statistical relevance, averaging out any outlier answer given by an individual firm. Through the law of large numbers the variance is reduced and robustness of the results increased.
- To check the NTM indexes, two types of gravity regressions are run (type B.1 and B.2), one with the NTM indexes and one without, only looking at the trade dummies. Comparing results, it turns out that there is overall consistency between results, indicating that the NTM indexes are not biased.

3.6 Competitiveness analysis

As part of the competitiveness analyses, the following aspects are covered at the sectoral level:

- Main practices that affect fair competition in the EU and US markets;
- Competitiveness analysis following a reduction in NTMs and regulatory divergence, including actual market penetration;
- Systemic global implications of NTM reductions and regulatory convergence, with a special focus on new regulation and global standards.

The key question is how will the reduction (or removal) of NTMs and/or regulatory convergence impact on the relative competitiveness of sectors. To optimise the analysis, four types of goods and services can be distinguished, based on two characteristics:

1. Type of relevant trade:

- Goods and services traded at distance:** location of ‘production’ is unimportant. Development, production, and distribution of products in close proximity to the market is not necessary (e.g. transport costs, speed of delivery, and interaction with the client are unimportant). Implies (significant) commercial presence within the market is not a prerequisite for trade.
- Goods and services traded at (geographical) proximity:** location of ‘production’ is important. Development, production, and distribution can require being close to the market (e.g. transport costs, speed of delivery, and interaction with the client can be important). Implies commercial presence within the market is required for trade to take place.

Note: even for products and services traded at distance, commercial presence may be important; for example provision of accompanying services (after sales, customer support, maintenance, etc.) supplied alongside goods.

2. Characteristics of products and services:

- Standardised/scaleable goods and services:** products are standardised (i.e. demand / product characteristics are the same across markets) and/or production processes are characterised by high level of fixed/sunk costs (e.g. large capital or R&D investment). Competition is focussed mainly on price (i.e. low costs / production efficiency are key drivers of competitiveness). Overall market size is important for achieving economies of scale or scope (i.e. reduced costs)
- Customised/non scaleable goods and services:** products are non standard or customised (i.e. demand / product characteristics are segmented) and/or production process are characterised by high intensity of specific assets (e.g. knowledge, skills, technology). Competition is focussed mainly on product ‘quality’ (i.e. innovation / product effectiveness)

are key drivers of competitiveness). Overall market size (economies of scale or scope) is relatively unimportant.

These can be used to provide simple typology of sectors from a trade/investment and competition/competitiveness perspective as is shown in Table 3.4. For each of the sectors, this framework for analysis of the competitive effects is kept in mind.

Table 3.4 Sector and product typologies based on type of relevant trade and product characteristics

	Trade at distance	Trade at proximity
Standardised / scaleable	Type I Costs of production are key competitiveness driver:	Type II Cost of production and cost of delivery/supply (within market) are key competitiveness drivers:
	⇒ production efficiency	⇒ production efficiency ?? supply efficiency
Customised / non-scaleable	Type III Product attributes (innovation, technology etc) are key competitiveness driver:	Type IV Product attributes and quality of delivery/supply (within market) are key competitiveness drivers:
	⇒ product effectiveness	⇒ product effectiveness ⇒ supply effectiveness

The competitive effects of the various NTMs that are being reduced are analysed keeping the above typologies in mind. Arguably, some regulatory divergences apply more directly and strongly to a sector than others.

3.7 Forward-looking element

The goal of this study is not only to provide an overview of currently existing regulatory divergences, but also an idea of potential future issues. Some regulatory divergences may become more important or appear, while others may decrease in importance or disappear.

Upcoming regulatory divergences and NTMs

- Currently existing NTMs and regulatory divergences that are important and not converging in the upcoming years;
- Currently existing NTMs and regulatory divergences that are not important (yet) but increasing in importance and/or divergence in the upcoming years;
- NTMs and regulatory divergences that do not yet exist but may become important or divergent in the upcoming years.

Disappearing regulatory divergences and NTMs

- Currently existing NTMs and regulatory divergences that are important now but expected to converge in the upcoming years;

- NTMs and regulatory divergences that do not exist now and – even though they could emerge – do not because their potential emergence is addressed immediately.

Quantification of future regulatory divergences and NTMs

Through the CGE model, the effects of regulatory harmonisation and reductions in NTMs are modelled. The long-run scenarios simulate the dynamic effects (including investments) of regulatory convergence, showing changes in output and trade at sector level whereby some sectors gain and others lose.

4 Quantifying NTMs and regulatory divergence

This chapter contains the overall results of the gravity analysis and computable general equilibrium (CGE) model, based on the methodology explained in the previous Chapter. The gravity regressions – as explained before – yield trade cost equivalents (TCEs) at the sectoral level and at pooled group level, while the CGE model generates overall macro-economic information related to national income changes, and wage changes for high- and low-skilled workers, as well as changes in exports and imports.

4.1 NTM indexes of regulatory divergence

NTM indexes

The survey generated 5,445 data points for our bilateral country pair indexes. Of these 5,445, 3,518 data points relate to NTM indexes in trade and 1,927 in investments/FDI. The NTM index is calculated on a 0 to 100 scale, with 0 meaning there no regulatory divergence or any type of non-tariff measure and 100 meaning there are prohibitively high NTMs and levels of regulatory divergence. The Tables below show us the survey answers from firms on both sides of the Atlantic regarding the overall levels of restrictiveness in terms of NTMs and regulatory divergence of systems that they feel they face. The resulting averages for EU-US trade flows and EU-US investment flows are reported in Table 4.1.

Table 4.1 Overall levels of NTMs and regulatory divergence in **trade and investment/FDI** by sector

Trade	EU to US	US to EU	Investment	EU to US	US to EU
Travel	35.6	17.6	Travel	13.6	20.3
Transport	39.9	26.3	Transport	7.4	12.3
Financial services	29.7	21.3	Financial services	11.7	12.5
ICT	20.0	19.3	ICT	15.0	13.7
Insurance	29.5	39.3	Insurance	6.5	21.8
Communication	44.6	27.0	Communication	22.5	15.0
Construction	45.0	37.3	Construction	8.3	12.0
Other business services	42.2	20.0	Other business services	10.9	17.5
Personal, cultural and recreational services	35.8	35.4	Personal, cultural and recreational services	6.5	21.3
Chemicals	45.8	53.2	Chemicals	38.2	27.9
Pharmaceuticals	23.8	44.7	Pharmaceuticals	15.5	23.4
Cosmetics	48.3	52.2	Cosmetics	38.2	63.8
Biotechnology	46.1	50.2	Biotechnology	29.8	44.4
Machinery	50.9	36.5	Machinery	18.5	14.9
Electronics	30.8	20.0	Electronics	21.9	25.8

Trade	EU to US	US to EU	Investment	EU to US	US to EU
Office, information and communication equipment	37.9	32.3	Office, information and communication equipment	37.9	32.3
Medical, measuring and testing appliances	49.3	44.5	Medical, measuring and testing appliances	20.5	24.3
Automotive industry	34.8	31.6	Automotive industry	19.9	27.0
Aerospace and space industry	56.0	55.1	Aerospace and space industry	56.0	55.1
Food & Beverages	45.5	33.6	Food & Beverages	21.8	20.9
Iron Steel and Metal products	35.5	24.0	Iron Steel and Metal products	28.1	17.5
Textiles clothing and footwear	35.6	48.9	Textiles clothing and footwear	14.0	27.0
Wood & paper, paper products	30.0	47.1	Wood & paper, paper products	11.7	23.8

4.2 Gravity estimations

Gravity model estimates are used in this study to identify how NTMs and regulatory divergence impact on manufacturing and services trade and investment flows between the EU and the US. The methodological background is explained in Chapter 3 and Annex III. We have run multiple specifications of gravity regressions to make sure the results are robust under these different specifications: pooled regressions as well as sector specific ones.³¹ The pooled estimates provide robust and plausible estimates of the impact of NTMs on trade and investment, and therefore serve as a benchmark for the sector models. With respect to investments and FDI, sector-specific regressions in the goods sectors could not be run due to a severe lack of data on both the EU and US sides.

‘Services are the sleeping giant of the transatlantic economy – an economic force that, if awoken and unbound, would further deepen the commercial stakes between the United States and Europe and enhance the global competitiveness of both parties’ – Hamilton & Quinlan (2005).

For the services sectors, the OECD (2007) FDI restrictiveness indexes are used, combined with the survey NTM indexes and theoretical work by Fillat, Francois & Woertz (2008) on the complementarity of trade and FDI flows, to look at potential FDI effects for the services sectors. For the goods sectors the Anderson and Wincoop (2003) approach is used together with the survey NTM indexes.

4.2.1 Pooled regression results

Results of services sectors regressions

The regression work on the services sectors shows that there are significant effects of an EU interaction with the NTM index, NAFTA interaction with the NTM index and Atlantic interaction with the NTM index. This is strong evidence that NTMs matter significantly for trade

³¹ The main reason for running the pooled regressions in this chapter is to obtain broad estimates for tariff elasticities where the sector regressions (for different reasons) do not yield any consistent results.

and investment in services sectors, inside the EU, inside NAFTA and across the Atlantic. See Annex III for the exact specifications and results.

Results of goods sectors regressions

The pooled work has divided the goods sectors into three groups: technology goods sectors, durable goods sectors and non-durable goods sectors. The results show, first, that lower NTMs within the EEA (EU) significantly enhance trade in all pooled categories of goods distinguished, however in some specifications there is no measurable EEA (EU) effect for durable goods. Second, NTMs across the Atlantic hold back trade of technology goods and durable goods, while there is no measurable transatlantic specific effect for non-durable goods. Third, in none of the three broad groups of goods any statistical evidence of an intra-NAFTA effect was found, which reflects that (unlike the EU side) little preference is given within NAFTA with regards to NTMs. See Annex III for the exact specifications and results.

Pooled regression results for FDI

Gravity model estimations of bilateral foreign direct investment (FDI) flows between the EU and US have also been run with data stemming from Eurostat and the business survey NTM indexes, as well as additional data on tariffs and traditional gravity variables (distance, language and border). Gravity estimations are carried out at an aggregate level where all sectors are pooled, and on a disaggregate level where sectors are grouped into technology, durable goods and non-durable goods. There is not enough FDI data to carry out estimations on a sector level. Of the three gravity variables, only language turns out to have a significant impact on FDI.³² The positive tariff sign found, suggests FDI is driven by a tariff-jumping motive, i.e., foreign firms tend to invest in countries with high tariffs rather than serving the market through trade.

4.2.2 Sector level regression results

Having looked at the pooled effects of the EU, NAFTA and Transatlantic measures of non-tariff measures, we continued to run regression analyses for sectors specifically. In Table 4.2 below these regression results have been recalculated into trade cost equivalents – the estimated percentage cost increases to trade and investments across the Atlantic stemming from regulatory divergence and NTMs.

Table 4.2 Estimated Transatlantic trade cost reductions linked to NTMs (based on underlying regression coefficients)

no	Name	intra-EU preference margin	comparable US margin	Trans- Atlantic offset margins	Net NTB reduction: US exports to EU	Net NTB reduction: EU exports to US
1	Travel					
2	Transport					
3	Financial services				11,3	31,7
4	ICT services				14,9	3,9
5	Insurance				10,8	19,1

³² FDI typically involves a large degree of knowledge transfer in which case cultural ties (proxied by common language) matter. Trade in manufactures, on the other hand, involves the transfer of a physical product in which case transportation costs (proxied by distance and border) are important.

no	Name	intra-EU preference margin	comparable US margin	Trans- Atlantic offset margins	Net NTB reduction: US exports to EU	Net NTB reduction: EU exports to US
6	Communications				11,7	1,7
7	Construction				4,6	2,5
8	Other business services				14,9	3,9
9	Personal, cultural & recreational services				4,4	2,5
10	Chemicals	23,9	21,0	0,0	23,9	21,0
11	Pharmaceuticals	24,0	18,2	8,7	15,3	9,5
12	Cosmetics	34,6	32,4	0,0	34,6	32,4
14	Machinery					
15	Electronics			-6,5	6,5	6,5
16	Office & communications equipment	8,9	12,7	-10,2	19,1	22,9
17	Medical, measuring & testing appliances					
18	Automotive	16,3	17,6	-9,2	25,5	26,8
19	Aerospace	18,8	19,1	0,0	18,8	19,1
20	Food & Beverages	56,8	73,3	0,0	56,8	73,3
21	Metals	11,9	17,0	0,0	11,9	17,0
22	Textiles & clothing	11,0	8,5	-8,2	19,2	16,7
23	Wood & paper products	11,3	7,7	0,0	11,3	7,7

* For goods, estimates are based on intra-EU effects and index levels (so US effects are mapped from relative indexes);

** Services estimates are based on estimated NTM elasticities and indexes.

*** Not all cells in this table are filled, because only the statistically significant results are reported.

For each of the sectors studied in the regression analysis, we calculated three effects: the EU preference margin (EEA), the US preference margin (NAFTA) and the Transatlantic margin.³³ Correcting the EU and US preference margins for the Transatlantic margin, the last two columns show the additional costs for US exports to the EU and for EU exports to the US due to NTMs. Alignment of NTMs will lead to (partial) reductions in these costs, depending on the level of actionability and depending on the level of ambition assumed in the scenarios.

The gravity estimations of trade and trade-related investment costs caused by NTMs per sector are taken out of Table 4.2 and summarised in each of the following sector Chapters in sector specific tables. Table 4.3 provides an example of such a summary table for the sector level trade costs estimates. The first two rows summarise the trade restriction estimates from the business survey and from the OECD. The indexes vary between 0 and 0.7. The closer the index is to 0.7, the more restrictive the NTMs in the sectors trade or investments are found to be. The third row reports the value of bilateral imports at 2007 (e.g. the US column reports the imports from EU at 2007).

The fourth row reports the calculated trade costs estimations in percent. For example, in the insurance sector the trade costs in the US are estimated to add some 19.1 percent to trade and trade related investment costs, while in the EU the restrictions add some 10.8 percent to costs. The last two rows report the subsequent total welfare gains (sum of gain for the US and the EU in total) from potential reductions in NTMs. The first estimate (i.e. the unrealistic upper bound for

³³ We do so by using the tariff coefficient (or for services sectors an elasticity of 4).

welfare gains) does not take into consideration what share of the NTMs could realistically be reduced and, hence, reports an unrealistically high potential effect coming from reducing all NTMs. The last row reports a more realistic welfare gain estimation, which takes into consideration the share of NTMs that can be reduced within the coming 10 years. In addition, the final welfare estimation takes in to consideration the share of NTMs that represent pure additional costs vs. NTMs that create rents. These last two rows are not reported for the sectors that were not studied in detail, i.e. sectors analysed in Chapter 17. We report the quantitative effects in € (\$) using an exchange rate of 1 Euro = 1,3 US\$ consistently throughout the report.

Table 4.3 Example of a summary regression result table (insurance services)

	EU to US	US to EU
FDI restrictions (OECD)	0.175	0.102
Trade restrictions (survey)	0.353	0.202
Bilateral imports, € (\$) billion 2007	2.45 (3.19)	5.43 (7.06)
Impact of measure on trade costs, percent	19.1	10.8
Unrealistic upper bound for welfare gains € (\$)billion		0.59 (0.77)
Total actionable welfare for both nations, € (\$) billion		0.35 (0.45)

Note: trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

4.3 Computable General Equilibrium (CGE) results

The nature and scope of NTMs affecting various sectors making up the Transatlantic trade relationship between the European Union and the United States are spelled out in detail elsewhere in this report. On the basis of careful econometric analysis, business surveys, and consultations with legal and industry experts, NTMs are classified across several dimensions (see Section 3.5):

- Those that can realistically be addressed if the political will exists (a concept which has been termed “actionability”);
- The share of those that imply increased costs of trade, versus those that limit market access, generate rents, and protect domestic incumbents;
- Those that are cross cutting (i.e. not sector specific) and those that are sector specific;

These dimensions are covered in detail in the subsequent Chapters. In this section, the focus is on the results of the economy-wide impact of the NTMs identified in the study.

The baseline is defined to be 2008 but then projected to 2018, to include all changes in both the baseline and the two scenarios. Given the 2018 baseline, the short-run estimates provide an immediate impact assessment of imposing the NTM reductions. The long-run estimates, in contrast, provide a longer-term view of a 2018 global economy where regulatory convergence and NTM reductions have been achieved and dynamic linkages between the regulatory convergence and investment levels have had a chance to work through the economic system. Hence the long-run estimates provide an insight into likely dynamic effects that take a longer time (perhaps a decade) to be fully realised.

4.3.1 Overall macro-economic results of economy-wide NTM reductions

The overall macro-economic results are presented in Table 4.4 below for the EU and US for the full reduction/harmonisation of actionable NTMs and regulatory divergence (ambitious) scenario and partial reductions/harmonisation of actionable NTMs and regulatory divergence (limited) scenario (50 percent of the ambitious scenario). The results entail percentage change in national income, change in national income (€ billions), percentage changes in unskilled and skilled labour, percentage changes in total exports and percentage changes in total imports.

Table 4.4 Summary of macroeconomic changes following NTM reduction and regulatory convergence*

	Ambitious Scenario (full liberalisation) – Short Run	Ambitious Scenario (full liberalisation) – Long Run	Limited Scenario (partial liberalisation) – Short Run	Limited Scenario (partial liberalisation) – Long Run
Real income, billion € (\$)				
United States	19.0 (24.7)	40.8 (53.0)	7.8 (10.1)	18.3 (23.8)
European Union	45.9 (59.7)	121.5 (158.0)	19.4 (25.2)	53.6 (69.7)
Real income, % change				
United States	0.13	0.28	0.05	0.13
European Union	0.27	0.72	0.11	0.32
Real household income, % change				
United States	0.16	0.31	0.07	0.14
European Union	0.32	0.79	0.14	0.35
Real wages % change, unskilled workers				
United States	0.24	0.35	0.11	0.16
European Union	0.40	0.82	0.17	0.36
Real wages % change, skilled workers				
United States	0.26	0.38	0.11	0.17
European Union	0.36	0.78	0.16	0.34
Value of Exports, % change				
United States	6.12	6.06	2.72	2.68
European Union	1.69	2.07	0.74	0.91
Value of Imports, % change				
United States	3.97	3.93	1.76	1.74
European Union	1.63	2.00	0.72	0.88
Terms of trade, % change				
United States	-0.15	-0.23	-0.06	-0.10
European Union	0.11	0.07	0.05	0.03

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. See Section 3.5 for the detailed actionability levels assumed.

There are significant income gains for both transatlantic partners. For the EU, gains range from €19 billion (\$25 billion) to €122 billion (\$158 billion) per year, depending on the time horizon (short-or long-run) and the scope of NTM liberalisation (partial or full). For the US, estimated income gains range from €8 billion (\$10 billion) to €41 billion (\$53 billion) per year. These are all annual gains, based on our 2018 baseline and measured in 2008 prices. Estimated trade increases show that, measured by changes in the value of total exports, the effects range from 0.7 percent to 2.1 percent for the EU and 2.7 percent to 6.1 percent for the US. The EU export effects are smaller in percentage terms but of equal absolute magnitude due to larger EU base flows.

The effects of NTM reductions for households (consumers) in both the EU and the US are also identified. In the EU, real household incomes increase between 0.1 and 0.7 percent, while for the US estimated gains range from 0.1 and 0.3 percent. Wage effects are in a similar range for both skilled and unskilled workers, showing clear income and wage gains as a consequence of NTM reduction and regulatory convergence across the Atlantic.

4.3.2 Economy-wide NTM reductions

If we look at the national income effects in case of economy-wide NTM alignment (i.e. reductions of NTMs in all sectors of the EU and US economies simultaneously), we see that sector inter-linkages strongly affect the results. From Table 4.4 it becomes clear that most yearly gains come from the ambitious long run scenario (€122 (\$158) billion for the EU, €41 (\$58) billion for the US), and least from the limited short run scenario (€19.4 (\$25.2) billion for the EU, €7.8 (\$10.1) billion for the US).

For the sake of comparison, Table 4.5 shows the effects of regulatory convergence and NTM reductions for national incomes (GDP) in the EU and US economy-wide (columns 2 and 3) as well as sector-specific (columns 4 and 5). We see in columns 2 and 3 the results presented above. However, if we align NTMs only for one sector at a time (columns 4 and 5) – ignoring the fact that sectors influence each other – we see that – if we add up all individual sector gains – the total gains for the EU are around €30.8 billion (\$40.0 billion) per year and for the US around €13.5 billion (\$17.5 billion) per year. The sum of the individual sector-specific gains is much less than the full economy-wide gains when sectors are inter-linked if NTMs are aligned. Thus for national welfare and national income, and following from this, for jobs, the gains for the EU and US as a whole are highest, when a broad economy-wide NTM alignment strategy is pursued, without excluding any sector.

Table 4.5 Summary of percentage changes in national income following NTM alignment (ambitious scenario – Long Run)*

	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Processed foods (food & beverages)	40.8 (53.0)	121.5 (158.0)	1.2 (1.6)	5.0 (6.5)
Chemicals, cosmetics, pharmaceuticals			1.6 (2.1)	7.1 (9.2)
Electrical machinery (electronics, OICE)			3.1 (4.0)	1.6 (2.1)
Motor vehicles (automotives)			1.6 (2.1)	12.0 (15.6)
Other transport equipment (aerospace)			0.9 (1.2)	0.2 (0.3)
Metals and metal products			0.2 (0.3)	0.7 (0.9)
Wood & paper products			0.1 (0.1)	1.1 (1.5)
Transport			0.3 (0.3)	0.2 (0.3)
Finance			2.0 (2.6)	1.2 (1.6)
Insurance			2.3 (3.0)	-0.1 (-0.2)
Business services & ICT			0.0 (0.0)	0.5 (0.6)
Communications			0.0 (0.1)	1.0 (1.3)
Personal, recreational & cultural services			0.1 (0.2)	0.3 (0.4)

	Economy-wide NTM reductions (i.e. reductions of NTMs in all sectors simultaneously)		Sector-specific NTM reductions (i.e. reductions of NTMs only in the specific sector)	
	United States	EU	United States	EU
Construction			0.0 (0.0)	0.0 (0.0)

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. At sector level there is some divergence as presented in section 3.5.

Turning to output effects, at the sectoral level, they reflect relative regulatory divergences, resulting in changes in underlying trade and investment flows. It should be emphasised that these estimates follow from liberalising all actionable NTMs across all sectors at the same time. Table 4.6 shows the effects of regulatory convergence and NTM alignment on the levels of output for each sector. If we would remove all actionable NTMs for all sectors simultaneously, the main output effects occur in electrical machinery (a 29 percent increase in US output and a 5.5 percent decrease in EU output), motor vehicles (a 5.7 percent increase in EU output and a 1.4 percent drop in US output), and chemicals, cosmetics & pharmaceuticals (a 2.2 percent increase in EU output and a 3.3 percent drop in US output). The combination of changes in output with expected increases in wages for both economies as a whole, suggests that sectors will compete for workers and investments due to the NTM reductions and regulatory convergence. Output and employment increase in sectors that become more competitive (e.g. electrical machinery in the US and motor vehicles in the EU), drawing labour and capital away from sectors that may still be competitive but are so relatively less.

Table 4.6 Percentage change in output at sectoral level for the US*

	Ambitious scenario; full liberalization, short run	Ambitious scenario; full liberalization, long run	Limited scenario; full liberalization, long run	Limited scenario; full liberalization, long run
Processed foods	-2,2	-2,1	-1,0	-0,9
Chemicals	-3,5	-3,3	-1,5	-1,4
Electrical machinery	27,8	29,2	11,5	12,0
Motor vehicles	-2,4	-1,4	-0,6	-0,1
Other transport equipment (aerospace)	1,6	1,6	0,8	0,8
Other machinery	-1,0	-1,1	-0,4	-0,5
Metals and metal products	-0,2	-0,1	-0,1	-0,1
Wood and paper products	-0,4	-0,4	-0,2	-0,2
Other manufactures	-0,4	-0,3	-0,2	-0,1
Water transport	0,3	0,4	0,1	0,2
Air transport	0,2	0,3	0,1	0,1
Finance	0,0	0,1	0,0	0,0
Insurance	-1,1	-1,0	-0,5	-0,5
Business services	0,2	0,3	0,1	0,1
Communications	0,3	0,4	0,1	0,2
Construction	0,4	0,4	0,2	0,2
Personal services	0,3	0,4	0,1	0,2

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. See Section 3.5 for the detailed actionability levels assumed.

Table 4.7 Percentage change in output at the sectoral level for the EU*

	Ambitious scenario; full liberalization, short run	Ambitious scenario; full liberalization, long run	Limited scenario; full liberalization, long run	Limited scenario; full liberalization, long run
Processed foods	0,6	0,9	0,3	0,4
Chemicals	1,6	2,2	0,7	1,0
Electrical machinery	-7,5	-5,5	-3,0	-2,1
Motor vehicles	5,1	5,7	2,0	2,3
Other transport equipment (aerospace)	-1,1	-0,9	-0,5	-0,4
Other machinery	-2,3	-1,9	-1,0	-0,8
Metals and metal products	-1,0	-0,5	-0,4	-0,2
Wood and paper products	-0,4	0,0	-0,2	0,0
Other manufactures	-0,4	0,1	-0,2	0,1
Water transport	0,3	0,5	0,1	0,2
Air transport	-0,1	0,3	0,0	0,1
Finance	0,0	0,4	0,0	0,2
Insurance	0,9	1,2	0,4	0,6
Business services	0,0	0,5	0,0	0,2
Communications	-0,3	0,2	-0,1	0,1
Construction	0,3	0,8	0,1	0,4
Personal services	-0,6	-0,1	-0,3	0,0

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. See Section 3.5 for the detailed actionability levels assumed.

The sector-specific effects of economy-wide NTM reduction and regulatory convergence on trade (exports) and trade related investment flows are presented in Table 4.8 and Table 4.9 below. The main effects occur in electrical machinery, motor vehicles, chemicals and other transport equipment.

Table 4.8 Percentage change in exports at the sectoral level for the US*

	Ambitious scenario; full liberalization, short run	Ambitious scenario; full liberalization, long run	Limited scenario; full liberalization, long run	Limited scenario; full liberalization, long run
Processed foods	2,9	3,0	1,4	1,4
Chemicals	11,5	11,8	5,4	5,5
Electrical machinery	40,5	41,9	16,4	16,8
Motor vehicles	8,8	9,1	4,6	4,8
Other transport equipment (aerospace)	16,8	16,9	7,8	7,8
Other machinery	-1,4	-1,8	-0,6	-0,8
Metals and metal products	14,5	13,8	5,6	5,3
Wood and paper products	11,4	10,9	4,8	4,6
Other manufactures	-0,9	-0,9	-0,4	-0,4
Water transport	1,6	1,6	0,7	0,7
Air transport	1,1	1,1	0,5	0,5
Finance	4,8	4,9	2,4	2,4
Insurance	2,7	2,4	1,3	1,2
Business services	3,8	3,4	1,9	1,7
Communications	9,5	9,5	4,5	4,5
Construction	2,5	2,6	1,2	1,3
Personal services	5,9	5,4	2,8	2,6

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. See Section 3.5 for the detailed actionability levels assumed.

Table 4.9 Percentage change in exports at the sectoral level for the EU*

	Ambitious scenario; full liberalization, short run	Ambitious scenario; full liberalization, long run	Limited scenario; full liberalization, long run	Limited scenario; full liberalization, long run
Processed foods	5,2	5,4	2,3	2,4
Chemicals	5,5	6,2	2,5	2,8
Electrical machinery	-6,8	-4,6	-2,6	-1,7
Motor vehicles	10,0	10,7	4,1	4,3
Other transport equipment	4,0	4,2	1,8	1,9
Other machinery	-3,0	-2,6	-1,3	-1,1
Metals and metal products	2,3	2,7	1,0	1,2
Wood and paper products	1,4	1,6	0,7	0,8
Other manufactures	-0,9	-0,4	-0,4	-0,1
Water transport	0,8	0,9	0,3	0,4
Air transport	0,5	0,6	0,2	0,3
Finance	2,3	2,6	1,1	1,2
Insurance	5,8	5,9	2,8	2,9
Business services	0,3	0,6	0,2	0,3
Communications	0,0	0,3	0,0	0,1
Construction	-0,3	0,2	-0,1	0,1
Personal services	-1,1	-0,8	-0,4	-0,3

* The results depend to some extent on the assumption of actionability of NTMs in about 50 percent of the cases overall. See Section 3.5 for the detailed actionability levels assumed.

Aerospace

The aerospace sector is one that is of strategic importance for the EU and US due to its high-tech nature and potential commercial spill-over effects of R&D in this sector into other parts of the economies. In case of alignment of NTMs in aerospace only, US GDP will increase by €0.9 billion (\$1.2 billion) per year, while EU GDP will go up by €0.2 billion (\$0.3 billion). Exports go up yearly by 16.9 percent for the US and 4.2 percent for the EU following ambitious regulatory convergence.

Automotives

The EU automotive sector is expected to contribute significantly to EU as well as US GDP. We see an increase of 5.7 percent in EU sector output per year, while in the US output is expected to decrease by 1.4 percent annually. Some of the profits of US affiliates operating in the EU will benefit from this development. Growth in the auto sector in the EU draws in workers and capital from other sectors in the EU economy. Growth in other sectors in the US draws resources away from the automotive sector. US exports are expected to rise by 9.1 percent per year while EU exports go up by 10.7 percent per year. The finding where US output decreases slightly but exports rise can be explained by the fact that due to heavy intermediate parts & components trade the increase in the EU sector fuels demand for parts & components from the US, hence the increase in US exports. For US consumers of autos this is a positive development since prices for motor vehicles will go down, increasing the household incomes significantly. For the rest of the world, output declines by 12 percent, implying that the competitive positions of both the EU and US improve compared to third countries in the case of NTM alignment.

Electronics & OICE

Economy-wide reductions in NTMs show a positive impact on national incomes for both the EU and US economies and therefore will be very beneficial for both economies overall. The output effects for the US are positive (+29.2 percent) – given a comparative advantage for the US in the sector which leads to drawing in of workers and capital from other sectors. For the EU electrical machinery sector, output decreases by 5.5 percent compared to the baseline, because other EU sectors draw away capital and workers from electrical machinery. This result is mitigated to some extent if we take into account EU affiliates benefiting from US output growth. EU consumers benefit from cheaper imports from the US, leading to higher levels of disposable incomes for consumers across the EU. As far as parts and components trade for electrical machinery products is concerned, the US production increase is a positive development for US jobs in supplier industries. When we compare the effects of EU-US NTM alignment vis-à-vis third countries, we find that output outside the EU-US drops by 6.2 percent.

Chemicals, Cosmetics and Pharmaceuticals

Aligning measures hampering trade and investment will lead to an output increase of 2.2 percent per year in the EU, while in the US output is expected to drop by 3.3 percent per year, indicating a competitive advantage for the EU. Trade and investment flows increase significantly as US exports and trade related investments increase by 11.8 percent per year and EU trade and investment by 6.2 percent per year. Again the apparent contradiction between US output and exports can be explained by deep intermediate interlinkages between the EU and US economies. Growth in the EU chemicals sector increases demand for intermediate inputs, fueling US exports. Also US affiliates operating in the EU benefit from EU production growth in the sector.

Food & beverages

In the long run, with full economy-wide NTM alignment, the food & beverages sector in the EU is projected to increase its production by 0.9 percent annually, while in the US production decreases by 2.1 percent per year. Trade flows in terms of exports go up by 3.0 percent per year for the US and 5.4 percent per year for the EU. A potential drop in prices affects the US relatively more than the EU food & beverages sectors, but US consumers benefit from lower import prices. Also EU consumers benefit from increased and cheaper imports.

Communication

In the long run, with full economy-wide NTM reductions, communication services grow annually, not only in the US (+0.4 percent), but also in the EU (+0.2 percent). EU and US growth comes at the expense of growth in the rest of the world. This may be the consequence of changing cost and market structures for the communication services industry, increasing the level of competitiveness in the sector for the EU and US.

Financial services

Economy-wide reduction of NTMs and regulatory divergence show an increase in the value of output of 0.4 percent for the EU per year and 0.1 percent for the US per year, clearly suggesting a win-win situation. The rest of the world has an output decrease of 0.2 percent annually, indicating that NTM reduction makes the EU and the US more competitive versus the rest of the world.

Financial services exports go up by 2.6 percent per year for the EU and 4.9 percent per year for the US.³⁴

Insurance services

In the long-run, if NTMs are reduced in the whole transatlantic market place, the value of EU insurance sector output is projected to increase by 1.2 percent annually, while the value of output is expected to decrease in the US by 1.0 percent yearly. An important regulatory issue here is the state level regulation in the US that, if changed, would lead to drops in prices, but also scale economies in provision of services. US exports of insurance services increase by 2.4 percent per year, due to more efficiency in the US insurance sector and by 5.9 percent per year in the EU.

Transport services

If NTMs are reduced, not only in the transport services sector, but also in all other sectors in the economy at the same time, the model shows that the value of output of water transport is expected to increase on an annual basis for both the EU and the US (0.5 percent and 0.4 percent, respectively). Also air transport services in both the EU and US increase output (0.3 percent for both per year).

³⁴ Keeping in mind the Global Crisis (2008-2009) these results need to be interpreted with care as there is a large potential for NTM alignment but also scope for diverging legislations if the EU and US do not communicate sufficiently about domestic initiatives.

5 Aerospace sector

5.1 Introduction

The aerospace industry provides equipment for civil and military air transportation and for space missions. It is an R&D-intensive sector that requires many scientists and engineers for innovations. The manufacturing process is mainly characterised by small serial production and the need for qualified workers. Multinational enterprises dominate the market. However, the industry also comprises numerous small and medium enterprises (SME) in its complex value chain. The gross production value of the EU-27 aerospace industry added up to €112 billion (\$146 billion) in 2006, equal to about 1.9 percent of total manufacturing.³⁵ The total work force counted for about 380 000 employees. Extra-EU27 aerospace exports totalled €28 billion (\$36 billion) in 2007, of which 26 percent were US-bound.³⁶ In 2006, the gross production value of the US aerospace industry totalled €132 billion (\$174 billion).³⁷ The total work force accounted for 464 000 employees.³⁸ US exports of aerospace products amounted to €50 billion (\$65 billion) in 2006, of which 28 percent were EU-bound.³⁹

5.2 Identified NTMs and regulatory divergence

NTMs in the aerospace market are relatively high. The strategic and dual-use (civil-military) dimensions of the sector can explain this fact. Technological developments in the aerospace sector are driven by strategic, safety and security objectives. The maintenance of an autonomous manufacturing capability is a strategic objective on both sides of the Atlantic. The international commercial market is large and highly competitive and provides a strong incentive to US and EU firms, which need the civilian market to maintain their manufacturing capabilities. In that specific context, restrictions are concentrated in three sector specific areas:

- Public procurement;
- Government support for R&D;
- Safety and functional standards.

5.2.1 NTMs and regulatory divergence faced from EU to US

Since 1992 direct and indirect government support to the aircraft industry in the US and EU has been regulated by the EU-US Agreement on Trade in Large Civil Aircraft that incorporates rules

³⁵ Source: Eurostat combined with authors' calculations for missing data.

³⁶ Source: UN Comtrade.

³⁷ Exchange rate: 1 € = 1,3 USD.

³⁸ Source data: US Census Bureau (net sales) and AIA (employment)

³⁹ Source: Un comtrade

for public support, among them a cap on support of one- third of a project's volume. The US purported to unilaterally withdraw in October 2004 (a move that the EU considers invalid), and requested consultations and a WTO panel regarding alleged support to Airbus by the EU and some of the EU Member States. For its part, the EU is challenging in the WTO various US measures benefiting Boeing, including federal, state and local support (e.g. related to R&D expense reimbursements, benefits from extensive cooperation with NASA, free use of testing facilities and equipment and some patents and other technologies Boeing can use free of charge).

The US President's Space Transportation Policy (2004) requires the launch of US government payloads (satellites) on space launch vehicles manufactured in the USA. An exemption is provided only for use of foreign launch vehicles on a "no-exchange of funds" basis for limited scientific programmes. Moreover, the Commercial Space Act (1998) requires the Federal Government to acquire space transportation services from US commercial providers.⁴⁰ US Congress is now considering other restrictions to foreign launch services. The prohibition against foreign launch services could apply to NASA funded ISS-missions conducted with the EU's ATV, the Japanese HTV, or a Russian supply vehicle. The same situation exists for the providers of remote sensing capabilities, not only for military and homeland security, but also for civil uses. Furthermore, both US and EU manufactures in the space industry have complained about the restrictions and heavy procedures caused by the US International Traffic in Arms Regulations (ITAR). Box 5.1 provides for a short description of this measure affecting trade for the space industry. It needs to be noted that regulatory measures hampering access into the EU market exist also for the US space equipment manufacturers (see below).

Box 5.1 International Traffic in Arms Regulations (ITAR)

The **International Traffic in Arms Regulations (ITAR)** is a measure often referred to by firms, business associations and regulators as negatively affecting EU-US trade and investments in the space industry in **both** the US and the EU. ITAR regulations encompass the provisions of the Arms Export Control Act and are enforced by the US Department of State, incorporating a series of regulations laid down by the US government in order to control trade in various defence-related articles and services on the US Munitions List, with the double aim of safeguarding US national security and achieving foreign policy objectives. The core premise of these regulations is that US defence-related information and material can only be shared with non-US organisations (although there are different procedures for certain countries) if authorisation is given by the Department of State through a Technology Assistance Agreement or an Export License.

This became all the more relevant for the space industry after satellite elements were moved back onto the Munitions Control List by legislation in 1999. This resulted after Boeing/Hughes and Loral were found to have improperly assisted Chinese launch failure investigations. Since then, due to ITAR, the export of satellite and launch vehicle materials from the United States and technologies has become more difficult, since most components have been put on the Munitions Control List. EU space industry exports to the US face time-consuming procedures, and for US satellite producers, the regulations are also cumbersome because of production of parts and components for exporting is difficult.

The US industry's competitive position is negatively affected by ITAR on the one hand, but on the other, it benefits much from a much bigger indigenous market dominated by institutional demand than its European counterpart. It is much easier for US-firms to address this domestic demand than tapping into the global commercial and more contested market. The profit margins are lower and ITAR reduces market access. Nevertheless, there is a dependency of the European industry and other economies on US parts and components for the production of aerospace products.

The institutional EU market is limited, but European manufacturers are successful in the international commercial market where they gained a share of around 40 percent, representing a substantial part of around 40 percent of their turnover. However this commercial market is difficult and subject to cyclical fluctuations, creating the challenge for the industry of

⁴⁰ The Act's definition effectively excludes all foreign launch service providers by establishing domestic content in excess of 50 percent.

maintaining production capacity and qualified personnel (whose competency has been built up over years) in downturns.

The EU perceives the dependency on US deliveries in this market as a risk and has undertaken measures to catch up with the US lead. The cumbersome ITAR regulation also has contributed to the development of ITAR-free parts and components. To have an autonomous manufacturing capability is a strategic objective on both sides of the Atlantic. As a consequence in spite of the cumbersome ITAR the US indirectly benefits from the institutional and commercial European market.

In addition, the Buy American Act (BAA) creates challenges for EU producers. The US Executive Order 10582 of 1954 expands the scope of the BAA to reject foreign bids either for national interest or national security reasons. The BAA directly reduces the opportunities for EU exporters, and also discourages US bidders from sourcing in the EU via content requirements. In the current global climate, pressures to increase the scope and depth of the BAA seem to gain ground.

Table 5.1 Most important EU to US NTMs and regulatory divergence in trade and investment⁴¹

Rank	NTM or Dverging Regulation	Trend	Sector or Cross-cutting	Sources of information ⁴²
Trade measures				
1	US support to Boeing (aeronautics)	Constant	Sector	Expert & survey
2	Restrictions on foreign launching services (space)	Increasing	Sector	Survey
3	US support to aircraft engine manufacturers (aeronautics)	Increasing	Sector	Expert & survey
4	Very limited access of foreign companies to US government support programmes (e.g. Technology Innovation Programme)	Increasing	Cross-cutting	Survey
5	International Traffic in Arms Regulations (ITAR) (space sector)	Increasing	Cross-cutting	Experts & Literature
6	Buy American Act	Increasing	Cross-cutting	Survey
7	US product standards which differ from international standards	Constant	Cross-cutting	Survey
8	On-board equipment and instruments: Safety Standards for Flight Guidance Systems and Proposed Revisions to Advisory Circular 25-1329-1A, Automatic Pilot Systems Approval	Decreasing	Sector	Survey
Investment measures				
1	Limits to investment due to national security and strategic considerations	Increasing	Sector	Survey

5.2.2 NTMs and regulatory divergence faced from US to EU

Like the US, the EU also supports its airplane industry through R&D and production preparation. Support is provided to Airbus (EADS), but also to suppliers in the value chain, including engine manufacturers. On May 31, 2005, the US submitted a WTO panel request. Panel proceedings are currently ongoing. The US complaints allege a broad range of different schemes, from investment in infrastructure to the qualification of the workforce funded by Member States and occasionally by local authorities.

⁴¹ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁴² For more information on the source see Annex X.

Numerous technical specifications for aircraft imply a potential technical barriers to trade (TBT) in the EU. Among them are functional and safety standards that require additional testing and certification by the European Union's Authorized Economic Operator programme.

Similar to the US there exist measures that hamper access to the European space activities. Following the Framework Agreement established in 2004 between the European Space Agency (ESA) and the European Community, a comprehensive European Space Policy (ESP) was jointly developed and adopted in April 2007 by ESA and the European Commission. According to the ESP, Europe looks first to its own launcher resources when defining and executing European space programmes. The September 2008 Resolution of the Space Council "Taking Forward the European Space Policy" highlights the need to guarantee the continuity of autonomous, reliable and cost-effective access to space at affordable conditions for the EU, ESA and their respective Member States. This is and will also be based in the future on adequate and competitive world-class launchers and an operational European space port. The European Guaranteed Access to Space - Ariane 5 programme (EGAS) of the ESA commenced in 2004 aims at ensuring that Ariane 5 launchers will be available for future European missions.

The diverse European patent systems have also been identified as a potential burden for companies from the EU and a cause for regulatory divergence for companies from third countries, like the US. All firms (independently of their origin) have to undergo costly procedures to get patents in different EU Member States.

Table 5.2 Most important US to EU NTMs and regulatory divergence in trade and investment⁴³

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of Information ⁴⁴
Trade measures				
1	Government support for Airbus	Constant	Sector specific	Expert & survey
2	Government support for Airbus Suppliers	Increasing	Sector specific	Expert & survey
3	Government support for Aircraft Engines producers	Constant	Sector specific	Expert & survey
4	Prior authorisation for sensitive product categories	Constant	Cross-cutting	Survey
5	Trade measures due to technical specifications	Constant	Cross-cutting	Survey
6	Double certification need caused by The European Union's Authorized Economic Operator (AEO) program and the US Customs-Trade Partnership against Terrorism (C-TPAT)	Decreasing	Cross-cutting	Survey
7	EU Patent System	Constant	Cross-cutting	Survey
Investment measures				
1	Limits to investment due to national security and strategic considerations	Increasing	Sector-specific	Survey

⁴³ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁴⁴ For more information on the source see Annex X

5.3 The importance of NTMs and the effects of NTM reductions

5.3.1 Overall level of restrictiveness of NTMs in the sector

Table 5.3 below presents trade and FDI restrictions, as well as trade flows (2007). Given the methodology outlined in Chapter 3, the last row of Table 5.3 provides estimates of potential trade cost savings. EU restrictions on cross-border trade yield an 18.8 percent trade cost (tariff equivalent) for aerospace trade, while US restrictions yield a 19.1 percent trade cost. Since total bilateral trade amounted to roughly €36 billion (\$47 billion) in 2007, these costs point to potential, but totally unrealistic, welfare gains of as much as €6.8 billion (\$8.9 billion). This assumes the trade costs are dead-weight in nature. However, only a fraction of these costs are actionable and only some of the measures directly add costs. The fact that the abolition of many NTMs is not considered to be very actionable has been caused by the strategic interest of public policy in this sector, for security reasons and as a driver for the overall pace of technology. Hence, the total, actionable welfare costs are estimated to be only €1.9 billion (\$2.4 billion).

Table 5.3 Summary table regression results Aerospace

	US	EU
Trade restrictions (survey)	0.445	0.438
FDI restrictions (survey)	0.470	0.385
Bilateral imports, € (\$) billion 2007	13.44 (17.47)	22.88 (29.74)
Impact of measure on trade costs, percent	19.1	18.8
Unrealistic upper bound for welfare gains € (\$) billion	6.8 (8.9)	
Total actionable welfare for both nations, € (\$) billion	1.86 (2.42)	

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

5.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence projected to 2018 for the aerospace sector. The quantified summarised results can be found in Table 5.4. It should be noted that this section provides effects stemming from NTMs and regulatory divergence reductions in the aerospace sector only (the economy-wide reduction results have been reported in Chapter 4).

Main results (see Table 5.4)

- With sector-specific NTM reduction and regulatory convergence only, in the ambitious long run, the EU aerospace sector gains €0.2 billion (\$0.3 billion) per year and the US aerospace sector gains €0.9 billion (\$1.2 billion) per year;
- In case only aerospace NTMs and regulatory divergence is reduced, in the EU the sector gains in output (1.1 percent) and exports (2.2 percent). In the US, the sector declines in terms of output (-0.9 percent) but gains in terms of exports (0.9 percent);
- Sector-specific NTM reduction in the EU, leading to aerospace expansion, draws in resources mostly from electrical machinery and other machinery. In the US, the picture is reversed, i.e., resources go to those two sectors.

Table 5.4 Summarised sector-level CGE results

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect € (\$ bn)	0.0 (0.1)	0.2 (0.3)	0.3 (0.5)	0.9 (1.2)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.1	0.1
Value of imports (% change)	0.0	0.0	0.1	0.1
Value output at the sectoral level (% change)				
- Other transport (aerospace)	1.1	1.1	-0.9	-0.9
- Electrical Machinery	-0.1	-0.1	0.3	0.3
- Other Machinery	-0.0	-0.1	0.0	0.0
Value exports at the sectoral level (% change)				
- Other transport (aerospace)	2.2	2.2	0.9	0.9
- Electrical Machinery	-0.1	-0.1	0.3	0.3
- Other Machinery	-0.1	-0.1	0.1	0.1

5.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The strong interest of governments in the aerospace industry has led to a broad range of schemes initiated to provide support. Most important are schemes for R&D and product innovations. Two major channels exist for civil aircrafts: direct support via civil public budgets, and indirect support via defence projects that are dedicated to the development. Manufacturers of the final products, the so-called Original Equipment Manufacturers (OEMs), Boeing and Airbus, do not have to consider the total allocation of resources over the life cycle of a product. With regard to the tough competition in the market for large airplanes, both of the players in the market face strong price pressure. Table 5.5 provides the typology of competitiveness aspects for the aerospace industry, which provides the basis for the competitiveness analysis and considerations of NTM reductions effects.

Table 5.5 Typology of competitiveness aspects of the aerospace industry

Aerospace	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Commercial / civil aircraft production Military aircraft production		Military aerospace (specialised systems and applications) Space production	

Aerospace	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable

High fixed cost (including R&D) and capital intensity imply significant scale economies in commercial (and military) aircraft production; the sector is already dominated by only a few major international players. Markets are largely global, with significant international trade.

The customisation (i.e non-scaleability) requirements especially in military and space production primarily reflect political/security/strategic considerations rather than economic fundamentals. These considerations are also reflected in significant level of public support in the aviation sector, together with restrictions applied to FDI.

The strong public interest in this sector is not only owed to security issues but to the global pace in advanced technologies. The aerospace industry is a crystal nucleus for the technological development in other industries. Positive national effects from support to the aerospace industry by spin-off and spill-over of know-how to other industries can be expected. Moreover the development of dual use products that can be sold in civil markets to raises additional revenues. In addition, many of the new aircraft programmes could not be financed through private funding only, due to the large expenses, high levels of risk, and long run nature of the investments.

Reductions of NTMs and regulatory divergence would significantly increase market access for EU firms in the US market and vice versa, fundamentally altering the market structure into a more competitive one. The degree of rent-generating NTMs is a solid indication of this potential effect and the CGE estimations of sector specific NTM reductions show also the expected increase in EU production. In addition, third countries could benefit from cuts in the external support level in the transatlantic market. Therefore, an increase in competition would be evident, especially from emerging countries aerospace industries that heavily support their national industries. However, in this global environment the reduction of government support could create growing difficulties for producers on both sides of the Atlantic especially with regards to the risky and lengthy R&D operations. Furthermore, negative effects to other sectors that currently benefit from the R&D spill-overs would arise (e.g. developments in aerodynamics can also benefit the automotive sector).

Looking ahead

Government support in the sector is likely to remain. The future of these forms of support will partly depend on the outcomes of the WTO disputes (and, less likely in the near future, a possible renewal of the Agreement on Trade in Large Civil Aircraft, which includes rules for public support). Restrictions on foreign launch services in the US are also increasing, limiting market access for EU producers.

Systemic implications and global regulatory standards

Standards and safety provisions are especially important for the aerospace industry. Traditionally, the US and the EU have had their own regulations. The design of products must be adapted to different requirements and double certification is necessary. Most of the aerospace products are manufactured in small series, and NTMs are therefore costly. The problem has been recognised by the industry, and if harmonisation would occur to the extent assumed in the scenarios, a large part of the trade in parts and components of the world's aerospace industry would be

standardised. Given the international production fragmentation networks, this can have systemic implications for world standards.

Furthermore, intensifying transatlantic relations within common development and production projects will stimulate initiatives to harmonising standards, testifying and certifying procedures. A first step has been carried out by an EU-US initiative on co-operation in the regulation of civil aviation safety. The agreement⁴⁵ has been signed but not yet ratified. It will replace national agreements with the US on this subject. The main purpose of the BASA US-EC is to enable the reciprocal acceptance of findings of compliance and approval issued by the Technical Agents (FAA and EASA) and Aviation authorities. The scope of co-operation under this agreement is:

- Airworthiness approvals and monitoring of civil aeronautical products;
- Environmental testing and approvals of civil aeronautical products; and
- Approval and monitoring of maintenance facilities.

There are two different kinds of certifications. Some of the certificates are mutually accepted without any request. For other a request on recognition is necessary and technical specifications will be checked. Minor changes do not need any specific approval.

5.4 Conclusions

- The aerospace industry is especially important to the US and the EU. Firstly, the sector is crucial from the standpoint of security issues. Secondly, the sector is a driver to maintain or even extend their lead in high-tech areas in a globalised world. Spin-off and spill-over effects from this R&D driven sector to the rest of the economy are stimulating;
- There is a growing need for larger R&D budgets and time-spans for the development of new aeroplanes and new space technology. Financial institutions have become more and more cautious to fund new projects that are becoming riskier by growing budgets and longer pay back periods;
- The aerospace sector is characterised by strong government involvement on both sides of the Atlantic, a reduction of public activity cannot be expected;
- Main NTMs are found in the areas of public procurement, government support for R&D and safety and functional standards;
- ITAR is an example of diverging regulation that causes welfare losses to both EU and US producers of parts and components for satellites. However, there will always be a strict regulation in the area of aerospace and defence, because strategic security considerations are of exceptional political importance;
- The overall levels of restrictiveness are high, both in the EU and US (18.8 percent and 19.1 percent, respectively), but relatively higher in the US, mainly due to national security considerations;
- Actionability of the identified regulatory divergence range from 51 to 59 percent (i.e., 41 to 49 percent of the identified NTMs cannot be addressed);
- Reduction of NTMs only in the aerospace sector will see the EU aerospace industry increase output by 1.1 percent and US output decline by 0.9 percent;

⁴⁵ Agreement between the United States of America and the European Union on Co-operation in the Regulation of Civil Aviation Safety (BASA US-EC)

- On the other hand, overall reduction of NTMs in all sectors at the same time would lead to sector growth in the US and a decline of the aerospace sector in the EU;
- The apparent contradiction between the previous two conclusions comes from the fact that in an overall reduction, comparative advantage in the EU is higher in other sectors than in aerospace, compared to the US;
- Reducing NTMs in the transatlantic market place is expected to increase competition between firms, as market access is significantly improved (many of the NTMs were reducing market access before);
- Reductions in government support (diverging programmes in the EU and US) could cause challenges for producers in the aeronautics and space sub-sectors and other sector currently benefitting from the R&D spillovers. Unilateral or bilateral (US-EU) reductions would not only induce short-term challenges for the concerned sectors in the economies. In the long-run the competitive position would shift more to those countries who stick to the fact that aerospace is a strategic sector for the overall technical progress and security policy. This is in particular true for those subsectors, such as space, that are above all dependent on public orders.

6 Automotives

6.1 Introduction

The automotives industry⁴⁶ is dominated by very large enterprises with multi-nationally oriented activities. However, in the sub-sectors of parts and accessories – besides some champions – numerous small and medium enterprises (SME) exist. The gross production value of the automotives industry in the EU-27 amounted to €551 billion (\$716 billion) in 2007, while value added (at factor cost) was € 121.3 billion (\$158.3 billion).⁴⁷ These figures represent 6.5 percent of EU GDP. In the US, the gross production value of the automotives industry totalled \$494.6 billion (€394.0 billion) in 2005, and the value added amounted to \$99.1 billion (€79.6 billion).⁴⁸ The figures represent about 10.9 percent of gross production value and 7.3 percent of value added, of total manufacturing in the US.⁴⁹

The importance of EU-US trade relations for the sector is reflected in the fact that the US is the biggest export destination for EU car manufacturers, with 41.2 percent of total EU automotives exports destined for the US in 2006. In that same year, the US was the third largest source of EU automotives imports for the EU (16.4 percent of total EU imports).⁵⁰ The EU thus had a positive trade balance with the US of approximately €52.6 billion (\$68.4 billion).

The physical characteristics of the car fleets in the EU and US are quite different due to differences in fiscal and regulatory regimes as well as cultural preferences, traffic situations, spatial planning and average distances driven. As a result, the current US car fleet consists of petrol-powered vehicles that are on average larger, heavier and more fuel-consuming than in the EU, with around half of the new passenger vehicle market in the US before the economic crisis consisting of light trucks whereas the EU fleet is dominated by passenger cars with a high share of diesel-powered vehicles.

⁴⁶ The automotives industry provides capital goods like commercial vehicles, commercially operated cars and buses, as well as consumer goods like privately operated cars and light duty vehicles.

⁴⁷ ACEA (2008).

⁴⁸ Exchange rate 2005: 1 € = 1,2441 USD.

⁴⁹ Source: US Bureau of Economic Analysis.

⁵⁰ http://www.acea.be/images/uploads/files/20081003_Pocket_Guide.pdf

6.2 Identified NTMs and regulatory divergence

6.2.1 NTMs and regulatory divergence faced from EU to US

Generally speaking, the level of NTMs in the automobile market can be assessed as medium, but there are various discriminating elements. The restrictions are concentrated in two specific areas including:

- Product testing - conformity assessment procedures;
- Safety and environmental hazards.

Sector specific NTMs

Different standard setting. The main reason for regulatory divergence and the existence of NTMs in the automotive sector arises from differences in the way standards and regulations are set in the EU and US. In the US, not a signing party to the international 1958 agreement, the Federal Motor Vehicle Safety Standards (FMVSS) applies, entailing 42 different standards to which products sold in the US need to conform. These federal safety standards are regulations written in terms of minimum safety performance requirements for motor vehicles or items of motor vehicle equipment to which manufacturers of motor vehicle and equipment items must conform and certify compliance.⁵¹ In the EU, EU Directives apply alongside and are partially harmonised with the international UNECE system of standards. The EU Directives entail over 50 different standards, monitored by the EU and member state governments that encompass the whole vehicle type approval system (not yet fully existing in UNECE). This is a different approach from the one applied in the US. These differences in regulatory environments give rise to many costly measures that hamper trade for EU firms to the US, and vice versa.

The Corporate Average Fuel Economy (CAFÉ) Payment for automobiles forms a measure affecting entry to the US market. CAFÉ payment is a civil penalty payment levied on a manufacturer or importer whose range of models has a sales-weighted average fuel efficiency below a certain level, currently 27.5 miles per gallon (approx. 10.3 litres per 100 km). CAFÉ favours large integrated automakers or producers of small cars, rather than those who concentrate on the top end of the car market, such as manufacturers of EU premium cars. However, the volume of CAFÉ payments is modest by comparison. For example, in 2004 the total amount of such fines paid by EU car manufacturers was ca \$20 million⁵² which is 0.03 percent of the trade balance of \$68.4 billion as noted in section 6.1.

The Gas Guzzler Tax is a medium-sized US NTM affecting EU car exports to the US. Manufacturers who sell cars that fail to meet certain minimum economy levels have to pay this tax (per car), which was introduced as part of the 1978 Energy Tax Act and expanded in the 2007 Energy Tax Act. The tax contains several elements, which in practise discriminate against some EU car manufacturers. First, the fuel economy cut-off point is not clearly defined and can thus not be objectively ascertained. Second, the Gas Guzzler Tax is applied on a rising scale beginning with a tax of \$1,000 per vehicle sold applied to vehicles achieving less than 22.5 mpg and rises to \$7,700 for vehicles achieving less than 12.5 mpg. Third, the Gas Guzzler Tax does not apply to mini-vans, sport utility vehicles (SUVs), and pick-up trucks which are produced mainly by US manufacturers.

⁵¹ <http://www.fmvss.com/>

⁵² <http://www.nhtsa.gov/cars/rules/CAFE/FINES-COLLECTED-SUMMARY.html>

The American Automobile Labelling Act of 1992 (AALA) provides that passenger cars and other vehicles must be labelled with the proportion of US and Canadian-made parts and the location of the final point of assembly. These requirements are intended to influence consumers to buy cars of US-Canadian origin. There is also an obligation to indicate the origin of engines and gearboxes that could discourage US manufacturers from importing parts from the EU.

Another challenge for EU auto producers is the quality of diesel fuel available in the US. The cetane rating of the fuel is different (lower) in the US than in the EU, forcing EU exporters to tune their US-bound diesels to the lower fuel standards, at considerable costs.

There are several more sector specific NTMs, which are of lower priority and are not elaborated here. They are listed in the table below and the Annexes.

Cross-cutting NTMs

The most important cross-cutting NTMs can be seen in the government programs for public support like Technology Innovation support (under TIP), as well as in the double certification procedures due to protection from terrorism. Another general future issue – both in the EU and the US – relates to trends in environmental regulation, which are of particular relevance to the automotive industry. Finally US consumer preferences for gasoline vehicles may pose challenges to EU car exporting firms to the US.

Table 6.1 Most important EU to US NTMs and regulatory divergence in trade and investment⁵³

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁵⁴
Trade measures				
1	US product standards (FMVSS) differ from the international standards (UNECE); for instance with regards to roof crush resistance and occupant protection in interior impact.	Constant	Sector specific	Expert & survey
2	Taxation of cars with high fuel consumption (CAFE = Corporate Average Fuel Economy)	Increasing	Sector specific	Expert & survey & literature
3	Gas Guzzler Tax	Increasing	Sector specific	Expert & survey & literature
4	American Automobile Labelling Act		Sector-specific	Survey & literature
5	Very limited access of foreign companies to US government subsidy programmes (e.g. Technology Innovation Programme)	Constant	Cross-cutting	Survey
6	Different cetane levels in diesel fuel between EU and US – leading costs to tune engines to these different levels	Constant	Sector specific	Expert
7	Double certification need caused by The European Union's Authorized Economic Operator (AEO) program and the US Customs-Trade Partnership against Terrorism (C-TPAT)	Decreasing	Cross-cutting	Survey
8	Reporting requirement on container transport: 10+2 regulation	Increasing	Cross-cutting	Expert
9	Buy American Act, which causes measures affecting access to the US government procurement markets	Increasing	Cross-cutting	Survey
10	US Intellectual property right system (with first to invent	Constant	Cross-cutting	Survey

⁵³ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁵⁴ For more information on sources see Annex X

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁵⁴
	principle)			
Investment measures				
1	State level investment regulations on tax benefits and infrastructure that differ	Constant	Cross-cutting	Survey
2	US product standards (FMVSS) differ from the international standards (UNECE); for instance with regards to roof crush resistance and occupant protection in interior impact	Constant	Sector specific	Expert & Survey
3	Civil Penalties for violations of statutes and regulations NHTSA pertaining to motor vehicle safety, bumper standards, and consumer information.	Constant	Sector specific	Survey & literature

6.2.2 NTMs and regulatory divergence faced from US to EU

Sector specific NTMs

As mentioned above, for US firms exporting to the EU, the main NTMs in the automotive sector also arise from **differences in the way standards and regulations are set and enforced**. This particularly concerns functional and safety standards, such as protection of pedestrians, approval procedures, e.g. with respect to re-usability or recyclability, emissions, access to repair information, hydrogen powered motor vehicles, etc. For an illustration of the effect of differences in standards and regulations, see Box 6.1.

Box 6.1 Differences in the introduction of a new car type

A clear illustration of the **differences in standards and regulations** across the Atlantic with respect to the automotive industry is the case of the introduction of a new type of car. After a prototype car has been produced in the EU, and before it can be sold to consumers, it is tested extensively by an EU authority to ensure compliance with EC Directives respectively with UNECE production and safety standards. If these tests are passed successfully, it is certified and thus approved for sale to consumers and further production. This implies **that the government takes on at least some moral (not so much legal) liability** if problems arise – unlike in the US, **where the manufacturer self-certifies and is thus totally liable**. In the US, firms design and produce the new car, test it within the company to check if it meets the FMVSS standards and if so, start producing it. US firms adhere strictly to the FMVSS code because of the ‘recall system’ that applies if any problem is found or if the government checks and finds, for example, a safety hazard when sample-testing. The FMVSS standards are particularly ‘functionally-based’, for example, whether the brake in a car meets the functional demands asked of it, like slowing the car down within X seconds or Y meters given speed Z.

The **different philosophies behind standards** between the EU and US (i.e. degree of functionality-based) and the difference between a relatively more bottom-up approach of voluntary self-certifications (US) as opposed to a more top-down approach of regulatory standards bodies (EU) constitute a regulatory divergence between the EU and US. The fact that requirements for car head- and tail lights in the US are based on the need “to see”, while in the EU the main aim is “to be seen”, illustrates this point.

To illustrate the problems inherent to this divergence, here is an example. A new Ford Mondeo is tested by Ford and approved based on the functionality of the whole car and its parts and components (so it can be sold in the US). However, it does not have (EU) government approval and proof that design of the car and its parts and components meet EU standards and therefore, it **cannot be sold without additional checks (and thus costs) in the EU**. Vice versa, a new BMW Z3 is tested on design-standards for all components in line with EU regulations (so can be sold in the EU), but does not have any testing results to show proof of meeting the functionality-standards the US based regulatory system requires, and therefore **cannot be sold without additional testing (and thus costs) in the US**.

Even though there are differences in standards at a detailed level, there is some consensus that the results in terms of safety do not differ much. There is a large degree of functional equivalence between UNECE and FMVSS standards.

Over the past years, various initiatives have been taken to internationalize standards (UNECE, TABD, GTR) resulting in a tendency towards “**practical convergence**”, as a US approved car, for example, in practice has almost immediate access to the EU market.

Cross-cutting NTMs

A new topic on the trade and investment agenda can be expected with the discussion on the specification of bio-fuels (bio-ethanol and bio-diesel)⁵⁵ as well as the regulation of the emission of fluorinated gases (f-gases) by vehicle air conditioning systems (HFCs = hydrofluorocarbons), whereby first measures already were taken in Denmark and Austria.

EU consumer preferences for diesel-fuelled cars also pose a challenge – and cost-increasing factor – for US firms who do not offer these engines in their line-up. This NTM is not considered to be very actionable.

US firms and business associations also indicate that the EU REACH regulation, which applies to US and EU firms alike, is a potential NTM, because with the global nature of the automotives industry’s production chains, the REACH requirement to trace any chemical substance on the dangerous substances list back to where it originated for each part and component can burden car producers and their suppliers with substantial administrative costs.

Finally, at present, EU member states develop their own tax-based regulations related to CO₂ emissions in order to meet the Kyoto Agreement goals set for 2020. These new regulations and standards are not harmonized and are increasing in number and divergence, giving rise to an increase in regulatory divergence and NTMs.

Table 6.2 Most important US to EU NTMs and regulatory divergence in trade and investment⁵⁶

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁵⁷
Trade measures				
1	EU/international product standards (UNECE) differ from US standards (FMVSS).	Constant	Sector-specific	Expert & survey
2	Trade measures due to numerous technical specifications.	Increasing	Cross-cutting	Survey & literature
3	REACH regulation	Decreasing	Cross-cutting	Survey
4	Safety and health measures	Constant	Cross-cutting	Survey
5	Different cetane levels in diesel fuel between EU and US – leading to costs to tune engines to these different levels	Constant	Cross-cutting	Expert
6	Patent system	Constant	Cross-cutting	Survey
7	Double certification need caused by the European Union’s Authorized Economic Operator (AEO) program and the US Customs-Trade Partnership against Terrorism (C-TPAT)	Decreasing	Cross-cutting	Survey
8	Customs administration differences between EU Member States	Decreasing	Cross-cutting	Survey
Investment measures				
1	EU/international product standards (UNECE) differ from US	Decreasing	Sector-specific	Expert &

⁵⁵ In the US, a far larger variety of ‘regular’ (not bio) gasoline is already on the market than in the EU, leading to differing regional requirements within the US with respect to fuel grades and refinement that in turn lead to price divergences. This context might be complicated with respect to the issue of (international) specification of biofuels.

⁵⁶ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁵⁷ For more information on sources see Annex X

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁵⁷
	standards (FMVSS).			survey
2	Security related prohibitions on investments	Constant	Cross-cutting	Survey
3	EU member state level differences in investment regimes (e.g. infra-structure, taxes, training or R&D support)	Decreasing	Cross-cutting	Survey

6.3 The importance of NTMs and the effects of NTM reductions

6.3.1 Overall level of restrictiveness of the NTMs in the sector

In the Table below, the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in section 3.

Table 6.3 Summary table regression results Automotives

	US	EU
Trade restrictions (survey)	0.300	0.277
FDI restrictions (survey)	0.182	0.239
Bilateral imports, € (\$) billion 2007	31.96 (41.55)	9.06 (11.78)
Effects of measure on trade costs, percent	26.8	25.5
Unrealistic upper bound for welfare gains € (\$) billion		12.6 (16.4)
Total actionable welfare for both nations, € (\$) billion		11.51 (15.0)

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

The final row shows the estimations of the percentage cost additions in each market based on the gravity analysis. The results show that EU restrictions on cross-border trade yield a 25.5 percent trade cost for automotives trade, while in the US the restrictions lead to a 26.8 percent increase in trade costs. Since total bilateral trade amounted to roughly € 40.7 billion (\$ 53 billion) in 2007, these costs point to potential welfare gains of as much as € 12.6 billion (\$ 16.4 billion) per year, based simply on multiplying trade levels by trade costs. This assumes the trade costs are dead-weight in nature (i.e., they do not involve actual trade taxes). However, only a fraction of these costs are actually actionable and only a certain share of the measures directly adds costs. The total, actionable welfare costs are thus estimated to be €11.5 billion (\$15 billion) per year.

Box 6.2 WP29

In 1952, the United Nations Economic Commission for Europe, Inland Transport Committee, created a subsidiary body to focus on the safety of vehicles constructed within Europe by creating rules for their approval. This body was known as the *Working Party on the Construction of Vehicles* and involved a group of experts on technical requirements for vehicles working together to implement the Geneva Convention on Road Traffic (1946). The efforts of this group and its member governments led to the establishment of an international agreement (i.e. the 1958 agreement on Adoption of Uniform Technical Prescriptions for Vehicles) on the reciprocal recognition on motor vehicles and parts that has become the basis of work on automotive standards harmonisation among fifty countries. The main focus areas of the WP29 were **active safety, passive safety** and **environmental protection**.

In 1998, the US proposed that a **Global Agreement** be made under the existing body. The impetus for this change of focus was due to the growing number of vehicles across the world and the globalisation of engine-powered vehicle

markets. In addition, the EU and the US had differing certification procedures: type approval and self-certification, respectively. The WP29 was meant to harmonise these. The 1998 agreement came into force in 2000 under the new official name of the **World Forum for Harmonising Vehicle Regulations** and its aim was to look at global issues in automotives manufacturing. The first eight contracting parties included the US and the European Community and there are now several more contracting parties. It is open to all members of the United Nations or Economic Integration Organisations formed by UN Member States. Japan's accession to the 1958 Agreement (in 1998) and that of Australia, New Zealand and South Africa strengthen the process of international harmonisation that takes place in WP29, even though only a few global technical regulations have been adopted until now under the 1998 Agreement which has proven to be less effective than the 1958 Agreement.

As well as increasing vehicle safety levels and protecting the environment, the WP29 is an excellent example of **global harmonisation of risk assessment procedures** for issues such as vehicle safety, environmental pollution, energy and anti-theft. Contracting parties meet publicly to discuss technical requirements and safety practices.

Sources: United Nations (2002). World Forum for Harmonising Vehicle Regulations: How it Works, How to Join It, New York and Geneva: UN. UNECE (1999), World Forum for Harmonising Vehicle Regulations: Terms of Reference and Rules of Procedures, Geneva: UNECE.

6.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence to 2018 for the automotives sector. The quantified summarised results can be found in Table 6.4 below. It should be noted that the sector effects have been looked at in two ways: economy-wide NTM alignment (i.e., in all sectors of the economy at the same time) and sector-specific NTM alignment (i.e. NTMs are only addressed in the automotive sector). The share of regulatory divergence that can be addressed is estimated to at the maximum in the range of 42 to 48 percent.

Main results

- With sector-specific NTM reduction and regulatory convergence only, in the ambitious long run, the EU automotives sector adds an additional €12 billion (\$15.6 billion) per year to EU national income, while the US automotives sector adds an additional €1.6 billion (\$2.1 billion) per year to national income (income effect);
- In the EU the sector is expected to gain substantially in terms of output (2.2 percent) and substantially in exports (4.3 percent). In this case, the US automotives sector is expected to gain also, but to a smaller degree (0.7 percent) with sector exports increasing by 5.3 percent;
- Sector-specific NTM reduction in the EU, leading to substantial automotives output and trade expansion, draws in resources mostly from electrical machinery and other machinery, other transport equipment and to a lesser extent the metals and metal products sector. In the US, the picture is reversed, i.e., resources go to electrical machinery and other machinery as well as other transport equipment.

Table 6.4 CGE results for the automotive sector – various scenarios

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$)) bn	5.4 (7.0)	12.0 (15.6)	0.2 (0.3)	1.6 (2.1)
National income effect (% change)	0.0	0.1	0.0	0.0

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Value of total exports (% change)	0.2	0.3	0.2	0.2
Value of total imports (% change)	0.2	0.3	0.2	0.1
Value output at sectoral level (% change)				
- Motor vehicles	2.3	2.2	0.3	0.7
- Electrical Machinery	-1.4	-1.2	0.4	0.1
- Other machinery	-0.4	-0.4	-0.1	-0.2
Value exports at sectoral level (%change)				
- Motor vehicles	4.3	4.3	5.2	5.3
- Electrical Machinery	-1.5	-1.3	0.5	0.1
- Other machinery	-0.6	-0.52	-0.1	-0.3

6.3.3 Effects of NTM reductions on competitiveness

Sector Competitiveness

Automobiles are high value durable goods that are largely manufactured in a complex system of mass production. The intensity of competition in the automotive sector is very high because of worldwide overcapacity in the EU and North America, as well as East and South Asia, Latin America and the Commonwealth of Independent States countries. As a consequence, the level of production costs in the overall production chain is a central parameter for determining the competitive position of the major players.

Table 6.5 Typology of competitiveness aspects of the automotives industry

Automotives	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Automobile production (mass market)		Automobile production (specialised)	
Competitiveness in the automobiles sector is extremely sensitive to production costs/efficiency (cf. relocation to lower cost production sites) but subject to important 'quality' aspects (technology, design, marketing/ branding). Markets still retain regional aspects but global production organisation dominates, international trade is significant. Proximity effects primarily reflect consumer susceptibilities (e.g. national producer preferences) and social/political considerations rather than economic fundamentals.				

Overall, removal of NTMs that have the effect of fragmenting US and EU markets for automobiles, and of (disproportionately) raising relative costs for 'non-domestic' production, should create more uniform market conditions. This in itself should raise the potential market

size available for specific products and, therefore, the scope for achieving economies of scale in production. In turn, this should reduce overall costs and provide benefits to consumers (both EU and US) in the form of lower market prices for automobiles.

The modelling results indicate that bilateral efforts to reduce NTM would tend to strengthen the relative competitive positions of both the EU and US car industries – especially vis-à-vis the rest of the world. This would seem to be in accordance with the assessments that NTMs fragment the EU-US market and prevent scale economies to be used to their full potential. The US automotive sector stands to gain, but relatively less, possibly because of the relative situation of US and EU-based automobile production, notably the higher cost-base of US manufacturers and greater need for structural rationalisation of the US industry.⁵⁸ Thus the removal of NTMs leads to an expansion of relatively more efficient EU production, which in turn should engender productivity gains and further enhance the relative competitiveness of EU products. NTM alignment, however, also strengthens the US automotive sector.

Strengthening the EU-US level of integration in the auto markets leads to significant trade and investment diversion effects away from third countries towards the EU and US. The creation of more uniform market conditions could therefore increase EU and US competitiveness on global markets, but also increase competition between EU and US producers. One foreseeable industry response of EU and US producers to increased EU-US competition, however, could be to accelerate delocalisation of production while – under the overarching consideration of energy efficiency and environmental concerns – at the same time emphasising investment in technological development and innovation.

Looking ahead

Technical standards will remain important, but international convergence of standards is becoming more likely (see below). Environment-related measures (notably taxes) have increased lately, and this trend is unlikely to be reversed. As some of these taxes have discriminatory elements, they distort competition by limiting market access. The other area is public procurement, where measures such as the Buy American clause in the American Recovery and Reinvestment Act (ARRA)⁵⁹ create further impediments on the US side. As the crisis persists, these may become increasingly important.

Systemic implications and global regulatory standards

The market for automotive products is increasingly a global market. The environmental burden and hazards are partly global phenomena (notably climate change) while other aspects such as air pollution and noise are regional and local in nature. The functional and safety requirements seem to become increasingly global as well although social and political choices of desirable requirements continue to differ by region. On balance, the regulation of environmental protection and functional and safety standards have the potential to lead to increasing convergence at a global level, as the case may be in a tiered system, although important differences are likely to persist.

⁵⁸ Due to the Global Crisis, this may be changing – especially for the 'new' post-bankruptcy General Motors and Fiat-Chrysler organisations.

⁵⁹ This is discussed in detail below in the chapter on government procurement.

6.4 Conclusions

- Current sector specific NTMs for the automotives sector are concentrated in the areas of: (1) functional and safety standards; and (2) environmental hazards.
- The share of regulatory divergence that can be addressed is in the range of 42 to 48 percent;
- Reduction of NTMs only in the automotives sector is expected to lead to a increase of sector output in the EU by 2.2 percent and an increase of 0.7 percent for the US automotives sector;
- National income effects yield €12.0 billion (\$15.6 billion) per year for the EU and €1.6 billion (\$2.1 billion) per year for the US;
- As health and safety requirements in the industry are becoming increasingly global, there is potential for addressing standardisation issues on the global scale and achieving further convergence in this area;
- Reduction of NTMs in the sector could positively affect prices for consumers and producers alike;
- The current economic downturn and the substantial impacts of this crisis on the automotives sector globally, and in the US specifically, are likely to pose serious challenges to addressing NTMs arising from bailout packages and the Buy American clause in the ARRA for public procurement.

7 Chemicals

7.1 Introduction

The chemicals industry plays an important role in the economies of both the EU and the US. It is a major industry in its own right, and at the same time an enabling industry that provides the necessary materials for the majority of other manufacturing industries. With a turnover of €537 billion (\$698 billion) in 2007, the EU accounts for about 29 percent of world chemicals sales. NAFTA countries (US, Canada, Mexico) represent around 22 percent of world chemical sales with €405 billion (\$527 billion) in 2007 (Cefic, 2008). Table 7.1 compares imports and exports of chemicals across the world.

Table 7.1 Regional shares in world exports and imports of chemicals (percent)

	Europe	Asia	NAFTA	Latin America	Others
Exports	61.4	21.1	14.3	1.9	1.3
Imports	52.9	24.4	16.5	3.6	2.6

Source: Cefic (2008).

The EU chemicals industry generates about 1.2 million jobs in more than 29,000 companies. In 2007, the EU chemicals industry alone exported goods worth €125 billion (\$163 billion) and imported goods worth €90 billion (\$117 billion), resulting in a trade surplus. The sector has also consistently been one of the major contributors to the EU's entire manufacturing trade surplus (26 percent in 2007), and it accounts for 12 percent of the EU manufacturing industry's value added (EC, 2008). The US chemicals industry accounts for 1.9 percent of US GDP and is the nation's top exporter. It supplies more than one-tenth out of every US export dollar and consistently runs large trade surpluses (US Technology Administration, undated). The business of chemistry directly creates over 869,000 high paying jobs in the US. For every job in the chemicals industry, a further 6.5 jobs are created elsewhere in the US economy (American Chemical Council, 2008).

7.2 Identified NTMs and regulatory divergence

7.2.1 NTMs and regulatory divergence faced from EU to US

Sector-specific NTMs

The differences in legislation between the US and EU create divergences in both directions, with importers from both countries facing similar variations in requirements and hence potential obstacles to trade. In exporting from the EU to the US, EU chemicals companies may have to fulfill different testing requirements, meet different licensing requirements, provide different

classification and labelling documentation, provide notification of new substances, provide evaluations and notification of new uses or may be prevented from exporting specific chemicals, the marketing and use of which may be restricted in the US. Furthermore, there are support measures in place with regard to metals and mineral products and food packaging material requirements.

Cross-cutting NTMs

Cross-cutting NTMs faced by EU firms include US testing, classification and labelling requirements which differ from those in place in the EU. Such differences are expected to be reduced at least in part through the forthcoming implementation by both the US and EU of the UN Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals⁶⁰. However, as noted below, the US has not yet adopted the GHS and delays in doing so may give rise to on-going NTMs for EU companies. Divergence may also be reduced through successful OECD programmes, e.g. the Mutual Acceptance of Data.

Customs issues, especially those that are security-related, also create some of the main cross-cutting divergence affecting the chemicals sector. EU exporters face prior notification requirements, plans for 100 percent container scanning and the 10+2 rule, as well as differing certification requirements for C-TPAT and AEO. The need to get a separate re-export license for products that contain US origin content and that have both commercial and military or proliferation applications is also viewed as an NTM. Other areas where specific legislation creates cross-cutting obstacles include intellectual property rights (the first-to-invent (US) versus the first-to-file principle (EU)), security issues, requirements on metrology (labelling in both metric and US customary units) and on treatment of confidential business information.

Table 7.2 Most important EU to US NTMs and regulatory divergence in trade and investment⁶¹

Rank	NTM or diverging regulation	Trend	Sector/Cross-cutting	Sources of information ⁶²
Trade measures				
1	Classification and labelling requirements for chemical products	Constant – Decreasing in longer term (UN GHS)	Sector	Expert & survey
2	Threat of 100% container scanning	Increasing	Cross-cutting	Expert & survey
3	Restrictions on use of specific chemicals	Constant	Sector	Survey
4	Different state level chemical security regulations	Constant - Increasing	Sector	Survey
5	Different local governments (below state level) implementing chemical security regulations	Constant	Sector	Expert & survey
6	Evaluation and notification of new significant new uses	Increasing	Sector	Expert
7	Pesticide/biocide testing and evaluation for licensing	Increasing	Sector	Expert
8	Indirect effects from food safety legislation – packaging in contact with food	Increasing	Cross-cutting	Expert & survey
Investment measures				

⁶⁰ In this study classification and labelling is a cross-cutting issue since it comes back in various sectors. The Classification and Labelling of Chemicals is a special case thereof.

⁶¹ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁶² For more information on the source see Annex X.

Rank	NTM or diverging regulation	Trend	Sector/Cross-cutting	Sources of information ⁶²
1	Discrimination of foreign companies in public procurement	Constant	Cross-cutting	Survey
2	Foreign Investment and National Security Act, which can create excess costs for FDI	Constant	Cross-cutting	Survey
3	Very limited access of foreign companies to US government support programmes (e.g. Technology Innovation Programme)	Constant	Cross-cutting	Survey
4	Tax Code Reporting Requirements applied to foreign owned companies	Constant	Cross-cutting	Survey
6	US Intellectual Property Right system (with first to invent principle)	Constant	Cross-cutting	Expert & survey
7	US Accounting Standards (affected by Sarbanes-Oxley Act)	Increasing	Cross-cutting	Survey

7.2.2 NTMs and regulatory divergence faced from US to EU

Sector-specific NTMs and regulatory divergence

US representatives at meetings of the Technical Barriers to Trade Committee of the WTO have expressed concerns in relation to the following EU measures and their potential for creating trade obstacles:

- Proposed changes in the classification and labelling of particular substances under the Dangerous Substances Directive;
- The REACH Regulation and its potential impacts on: in particular SMEs exporting substances to the EU in terms of administrative burden and the provisions concerning use of an Only Representative; the potential adoption of non-OECD test methods; the potential for inconsistent enforcement across Member States; impacts on substances used in cosmetics and which are not able to take advantage of 'phase-in' status for registration purposes because they are not listed in EINECS or ELINCS; and
- The Restrictions on Hazardous Substances Directive (RoHS) restrictions on the use of certain substances in electronic and electrical equipment.

From the US perspective, the most important divergence currently is the difference between the new EU Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and US regulatory systems (TSCA). However, several of these concerns stem from either a misunderstanding or incomplete understanding of REACH's requirements.⁶³

⁶³ Pre-REACH legislation: Council Regulation 793/93 of 23 March 1993 (the Existing Substances Regulation) placed systematic data reporting requirements on the production or import of existing substances into the EU at above 10 tonnes. This included information on the quantity produced, its classification, information on reasonably foreseeable uses, and available data on the hazard properties of the substances (with the information to be provided varying by tonnage – i.e. a higher level of data required on toxicity etc for those substances supplied in over 1000 tonnes per year). In addition, this information had to be updated to reflect new uses, new data on hazard properties, changes in classification or changes in volume supplied. Thus, similar obligations existed in the past for EU manufacturers and firms importing into the EU. Previous reviews of the entries in IUCLID (the International Uniform Chemical Information Database), however, indicated that the above requirements were not met by all importers. Major manufacturers/importers did register tonnages with IUCLID but data provision was patchy and in some cases poor; many smaller manufacturers and importers did not seem to be aware of these requirements or did not fully fulfil them (with this type of problem being one of the factors leading to the introduction of the more elaborated registration requirements under REACH).

Although REACH deals with complex issues, and is itself a complex piece of legislation, it applies indiscriminately to all companies placing substances on the EU market, thus retaining a level-playing-field. In addition, guidance and support tools are freely available from the European Chemicals Agency, for use by any company, whether in the EU or US.

The above concerns fail to recognise the fact that REACH places greater obligations on EU based manufacturers of chemicals than it does on US firms that export to the EU. In particular, EU based manufacturers must meet REACH testing and registration requirements applicable to the total tonnage produced of a chemical; a US manufacturer must only meet the REACH requirements relevant to the tonnage imported into the EU, thus facing a burden which may be far lower than their EU counterparts⁶⁴. Similarly, US companies do not have to appoint an Only Representative in the EU unless they choose to do so; the obligation to register substances lies with the EU importer.⁶⁵ Should a US company choose to appoint an Only Representative, then issues concerning the treatment of confidential business information should be addressed in contractual agreements between the two parties⁶⁶; this is no different from the need for EU companies making use of a third party representative to contractually agree such issues with that representative.

It is also understood that the EU is aware of the issue of cosmetics ingredients and is working with US authorities to address these. Concerns over the even enforcement of REACH across different Member States is also an issue which the EC and the European Chemicals Agency are trying to address, as it is also of concern for EU companies.

With regard to the harmonised classification and labelling of particular chemicals under the Dangerous Substances Directive, this is viewed by the EC as being the least trade restrictive measure available to convey information on the hazardous properties of a substances; the changed classification would not ban or restrict the use of the substances in consumer end-products. Any proposals to restrict the use of the classified substances or preparations in final consumer products would be subject to a risk assessment and impact assessment.

The EU has also indicated that it is reviewing requirements under the RoHS and the list of chemicals which are restricted under it for use in electronic and electrical equipment. However, it also stresses that such requirements, together with those of REACH and any changes to the classification of particular chemicals are only adopted with the aim of achieving a high level of protection for health and the environment. In meeting this aim, the EC has made considerable efforts to ensure that the measures taken do so in a manner which avoids the creation of obstacles to trade, even though in the short run transition to new products there may be adverse trade and investment effects. The additional view is that any short term effects on chemical product

⁶⁴ In addition, US manufacturers would only need to assess the risks associated with those life-cycle stages which are relevant to use of the chemical in the EU; i.e. exposure scenarios covered in the chemical safety assessment of a substance do not need to reflect manufacturing or processing that occurs in the US.

⁶⁵ EU manufacturers' obligations versus importer obligations: According to REACH Article 5 all substances on their own, in preparations or in articles must be registered before being placed on the market in the EU. This obligation applies equally to substances on their own, in preparations or in products manufactured in the EU and those imported from outside the EU. The purpose of such registrations is for suppliers to be able to demonstrate safe use of the substances that they supply throughout its lifecycle in the EU. Therefore, for all substances that they place on the market in the EU, EU manufacturers have to demonstrate safe use during the manufacturing process through to end use. However, for substances imported from outside of the EU, the need is only to demonstrate safe use during the lifecycle stages which occur in the EU, which will not include manufacture and may not include some formulation stages. There is therefore evidence to suggest that the burden of REACH registration is less for manufacturers based outside of the EU.

⁶⁶ Moreover REACH has specific rules on confidentiality that protect product formulae in Article 118 (2).

portfolios will be offset in the longer term by an increase in ‘greener’ trade and investment in chemicals, which will off-set any initial impacts.

Cross-Cutting NTMs and regulatory divergence

The key, identified cross-cutting NTMs include differences in legislation on classification and labelling of chemical substances and their mixtures. However, while the EU recently adopted Regulation 1272/2008 implementing the Globally Harmonised System (GHS) on Classification and Labelling of Chemicals (United Nations), the adoption of GHS in the US has not yet progressed to the same extent.

EU legislation on the harmonisation of laws, regulations and administrative provisions relating to the application of the principles of good laboratory practice (Directives 2004/9/EC and 2004/10/EC) was also identified as a cross-cutting NTM, although these requirements are consistent with OECD guidance on good laboratory practice; indeed considerable effort has been undertaken by the OECD to reduce any divergences between requirements, see Box 7.1.

Box 7.1 Good laboratory practices

Good laboratory practices (GLP) is a system of management controls for laboratories and research organisations which ensures that data produced throughout the world are consistent and reliable. The system was introduced by the **Organisation for Economic Co-operation and Development (OECD)** in its Principles of GLP and is also incorporated in various national regulations. Other than the chemicals sector, GLP also applies to data related to medicines, cosmetics and food ingredients.

Thanks to **high levels of cooperation** between the EU and the US, a potentially high measure hindering the sharing of research data has been successfully avoided. Although both the EU and the US have their own legislation on GLP, overall regulations are rather harmonised. The EU's two Directives on GLP relate to the harmonisation of laws, regulations and administrative provisions relating to the application of the principles of good laboratory practice (**Directive 2004/10/EC**). This encompasses Member States' obligations to designate the authorities responsible for GLP inspections in their territory, as well as reporting and internal market requirements. **Directive 2004/09/EC** maintains the inspection and verification of GLP and makes the use of the OECD Revised Guides for Compliance Monitoring Procedures for GLP and the OECD Guidance for the Conduct of Test Facility Inspections and Study Audits obligatory during laboratory inspections. The EU REACH regulation also refers to GLP obligations, as does the EUCLID (Electronically Useful Chemistry Laboratory Instructional Database), which is a database of industrial chemicals tested in Europe and maintained by the European Union. In the US, the Food and Drug Administration has rules on GLP in **Code of Federal Regulations 21 Part 58** and the correspondence of this CFR with the EU legislation is extremely high. Research outside the US that is not carried out in accordance with these regulations may be inadmissible, but in the case of the EU, this risk has been deflected owing to the synergy created.

The EU has Mutual Acceptance Agreements pertaining to GLP with Israel, Japan and Switzerland, but none with the US.⁶⁷ However, any divergences in GLP between the two regions have been **made to correspond** as a result of efforts on both sides of the Atlantic to cooperate in this area with OECD support. Various methods (such as joint laboratory visits) have helped **harmonise** several aspects of laboratory work, including EUCLID documentation, testing methods and **risk assessments**. All of these developments **build confidence** on both sides that high quality data is being obtained.

Another cross-cutting divergence identified by US companies is legislation on the transboundary movement of hazardous chemicals and pesticides (Prior Informed Consent Regulation 304/2003 and Council Decision 2006/730/EC), implementing the Rotterdam Convention. Given that this

⁶⁷ Though the OECD Council Decision on Mutual Acceptance of Data (MAD) from 1981 is binding for all OECD countries.

Convention, which has not been ratified or approved by the US, operates at an international level, it would not be appropriate to identify it purely as an EU to US NTM.

Data exclusivity rules in some of the new Member States related to agricultural chemical products and pharmaceuticals are viewed with concern by US firms. However, EU directives concerning the marketing of these products contain provisions for the protection of confidential data and it may be expected that any such NTMs will decrease over time with full implementation of these directives.

The final area where specific legislation may not necessarily apply, but where NTMs have the potential to introduce obstacles to trade, are different approaches to intellectual property rights (IPR).⁶⁸

Table 7.3 Most important US to EU NTMs and regulatory divergence in trade and investment⁶⁹

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁷⁰
Trade measures				
1	Divergence in risk assessment requirements between REACH and TSCA	Constant	Sector	Survey & expert
2	Classification of chemicals under the Dangerous Substances Directive	Decreasing	Sector	Expert
3	RoHS and restrictions on hazardous substances	Constant - increasing	Cross-cutting	Expert
4	Product Labelling requirements (including eco-labelling)	Constant	Sector	Expert & survey
5	Testing requirements / Risk assessment for plant protection and biocidal products	Constant	Cross-cutting	Survey & Expert
6	Double certification need caused by the European Union's Authorised Economic Operator (AEO) program and the US Customs-Trade Partnership against Terrorism (C-TPAT)	Decrease	Cross-cutting	Survey
7	Different Member State legislation on chemicals security	Constant	Sector	Survey
8	Customs administration differences between EU Member States	Constant	Cross-cutting	Survey
9	Pre-shipment inspections	Increasing	Cross-cutting	Survey
Investment measures				
1	EU Intellectual property rights definition which is less broad than the US ones	Constant	Cross-cutting	Survey & literature

7.3 The importance of NTMs and the effects of NTM reductions

7.3.1 Overall level of restrictiveness of NTMs in the sector

Table 7.4 summarises the overall level of restrictiveness of NTMs in the chemicals sector, and bilateral trade based on the methodology explained in Chapter 3. Table 7.4 provides estimates of

⁶⁸ Confidential production techniques and formulae may have to be disclosed.

⁶⁹ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

⁷⁰ For more information on the source see Annex X.

potential trade cost savings running the chemicals sector gravity model. NTMs affecting US exports to the EU cause a 23.9 percent trade cost for the chemicals trade and a 21.0 percent trade cost for EU exports to US. Since total bilateral trade amounted to roughly €45 billion (\$59 billion) in 2007, these costs point to potential welfare gains of as much as €10.2 billion (\$13.2 billion) per year. As not all NTMs and regulatory divergence can be reduced, the total, actionable welfare potential for both nations is € 5.0 billion (\$ 6.5 billion) per year.

Table 7.4 Summary table gravity regression results Chemicals

	US	EU
Trade restrictions (survey)	0.372	0.425
FDI restrictions (survey)	0.322	0.247
Bilateral imports, € (\$) billion 2007	27.01 (35.12)	18.63 (24.22)
Impact of measure on trade costs, percent	21.0	23.9
Unrealistic upper bound for welfare gains € (\$)billion	10.2 (13.2)	
Total, actionable welfare potential for both nations € (\$) billion	5.0 (6.5)	

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

7.3.2 Future EU & US trade and investment potential

Looking forward to 2018, the model estimates for the chemicals sector are presented here and in Table 7.5. It should be noted that this section provides effects stemming from NTMs and regulatory divergence reductions in the chemicals sector only (the economy-wide reduction results have been reported in Chapter 4).

Main results

- In case only NTMs and regulatory divergence only in the chemicals sector are addressed, the long run national income effects are positive, both for the EU and the US, albeit more positive for the former (€7.1 billion/\$9.2 billion) per year than for the latter (€1.6 billion/\$2.1 billion) per year;
- The values of exports and imports rise for both the EU and the US, but increases in the values for chemicals exports for the US are higher in the long run than for the EU (0.3 percent versus 0.1 percent). However, given the much larger EU trade flow base, in absolute terms, EU exports increase by €0.8 billion (\$1.0 billion) and US exports by €0.6 billion (\$0.7 billion). In the long run, because imports increase faster than exports, the EU will witness a deterioration in the trade balance;
- Output growth in the EU chemicals sector draws in resources, mainly from electrical machinery and other machinery;
- In the long run, the enabling character of the chemical sector becomes apparent, since growth in this sector also leads to growth in the construction and processed food sectors (for the EU) and for electrical machinery in the US.

Table 7.5 Summarised sector-level CGE results

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
National income effect (€ (\$ bn)	2.7 (3.5)	7.1 (9.2)	0.8 (1.0)	1.6 (2.1)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.1	0.1	0.3	0.3
Value of imports (% change)	0.1	0.2	0.1	0.2
Value output at sectoral level (% change)				
- Chemicals (+ pharma/cosmetics)	0.4	0.4	-0.6	-0.6
- Electrical machinery	-0.5	-0.3	0.7	0.7
- Other machinery	-0.2	-0.1	0.1	0.1
Value exports at sectoral level (% change)				
- Chemicals (+ pharma/cosmetics)	1.0	1.1	1.6	1.5
- Electrical machinery	-0.5	-0.4	0.8	0.8
- Other machinery	-0.2	-0.2	0.2	0.2

Because of relative sizes of sectors, in CGE the chemicals sector refers to chemicals, pharmaceuticals and cosmetics together.

7.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

As a result of reducing NTMs affecting EU to US (and US to EU) trade flows, the upper bound gravity estimate is €10.2 billion (\$13.3 billion) in potential welfare gains, as well as the €8.6 billion (\$11.2 billion) coming from CGE suggest that there is currently a lack of a level playing field, or at least a large potential for cost reductions for actors within this sector. US representatives at meetings of the Technical Barriers to Trade Committee of the WTO have expressed concern about REACH as an important NTM affecting the future trade and investments in chemicals. As discussed above, however, these concerns are generally based on misconceptions or misperceptions of REACH. The latter has been developed so as to ensure a level playing field for both domestic manufacturers and importers.

Table 7.6 Typology of competitiveness aspects of the chemicals industry⁷¹

Chemicals	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Bulk chemicals (low processing)	Bulk chemicals (low transportability or high processing)	Special chemicals	Special chemicals (low transportability or customisation)
The chemicals sector is extremely heterogeneous, with differing economic logic applying across segments depending inter alia on production technologies, R&D/innovation intensity, location in the production chain (e.g. intermediate vs. final market products), market scale and extent of specialisation. Markets for bulk product (i.e. chemical commodities) are typically highly cost/price sensitive, but proximity to markets may be necessary (e.g. where product characteristics limit transportability) or desirable where there is a high degree of processing required close to the market. Such segments are typically characterised by relatively high levels of producer concentration. Special chemicals sectors are typically characterised by higher degree of R&D investment and product innovation. Proximity to markets may be necessary, particularly where a high degree of customisation is required to meet specific end-market requirements.				

⁷¹ For the developed typologies, see Section 3.6.

Furthermore, there is currently a high level of cooperation between the US and EU in the field of chemicals legislation, aimed at greater regulatory harmonisation. The various initiatives underway at the OECD level, such as those concerning GLP, are examples of this, with current initiatives covering risk assessment, GHS, alternative test methods, development of IT for data submissions and the risks from manufactured nano-materials.

At present, differences remain between the US and EU in testing, registration licensing/authorisation, and classification and labelling regimes for chemicals (including pesticides and biocides). Addressing these differences will change competitive advantages within the industry. Similarly, variations in restrictions on the marketing and use of chemicals in both the US and EU will have an impact on market access for individual firms; however, under both legislative systems, restrictions will be based on a process involving risk assessments and impact assessments and will be adopted due to a need to ensure a high level of protection for health or the environment. In addition to sector-specific NTMs, issues surrounding differences in the systems for obtaining patents in particular and IPR in general (including protecting confidential business information), if addressed, are expected to further increase competition in the sector.

Looking ahead

As indicated earlier, there are already initiatives to reduce regulatory divergences that affect the chemicals sector (e.g. the UN GHS and OECD). Some differences in testing, evaluation, registration and authorisation of chemicals are likely to remain, however, and even appear to be increasing. This causes both costs and uncertainty for exporters, thereby limiting market access and reducing consumer and producer gains.

Systemic implications and global regulatory standards

With regard to NTMs currently stemming from differences in classification and labelling, both the EU and the US are moving to the GHS, which is based on an agreed UN standard that is also being adopted more globally. The ability to use the results of tests undertaken in the EU to meet US legislation for classification and labelling purposes should further reduce NTMs, as will the acceptance of OECD test methods, good laboratory practice and QSAR models. Cooperation in these latter areas is also important in reducing obstacles currently arising from differences in the legislative requirements of REACH in the EU and TSCA in the US.

As REACH type of legislation is likely to become important globally, and to be adopted at least in part by other countries, initiatives at the OECD and UN levels are likely to become even more important to international trade and investment. Also in the US pressure is mounting as to a review of the TSCA in the direction of EU REACH legislation.⁷²

7.4 Conclusions

- The chemicals sector is one of the most important manufacturing sectors for both the EU and US, in terms of employment, value-added and trade;

⁷² See the testimony before the Senate of Linda Birnbaum, director National Institute of Environmental Health Sciences, National Institutes of Health, December 2, 2009. See also <http://www.khlaw.com/Resources.aspx?show=TSCA>.

- The EU and US differ in their approach to regulation, which shows in the chemicals sector as the US places relatively a greater reliance on self-regulation, while the EU places a greater reliance on the use of regulations⁷³;
- Differences exist in the detailed legislative requirements of the two countries in relation to the evaluation and authorisation of chemicals, classification and labelling of chemical products, notification procedures of new substances, customs regulations, and legislation pertaining to transboundary movement of hazardous chemicals and pesticides;
- Action at OECD level on Mutual Acceptance of Data, harmonisation of test methods and QSAR models and the definition of Good Laboratory Practice are aimed at reducing any NTMs stemming from the above differences and, hence, costs to both industry and governments;
- Patent legislation in particular and IPR legislation in general are two regulatory divergences of a cross-cutting nature that are important for the sector;
- UN initiatives also help to reduce regulatory divergence. GHS is being implemented in the EU and is under evaluation for implementation in the US;
- Overall levels of restrictiveness are significant, given that NTMs are estimated to add more than 20 percent to trade costs in the sector, in both directions;
- The total actionable welfare costs are estimated to be €5.0 billion (\$6.5 billion) for both EU and US together.
- In case only NTMs and regulatory divergence in the chemicals sector are addressed, the national income effects are positive, both for the EU and US, albeit more positive for the former (€7.1 billion (\$9.2 billion) per year) than for the latter (€1.6 billion (\$2.1 billion) per year);
- The production of chemicals will increase slightly (0.4 percent) in the EU, while the US will face a 0.6 percent decrease in output.
- The values of exports and imports rise for both the EU and the US, but percentage increases in the chemicals exports for the US are higher in the long run than for the EU (0.3 percent versus 0.1 percent). In absolute terms, EU exports increase more, however, than US exports.
- In the long run, the enabling character of the chemical sector becomes apparent, since growth in this sector also leads to growth in the construction and processed food sectors (for the EU). For the US, a similar picture emerges through links in export flows between chemicals and electrical machinery;
- NTM reduction can lead to more market access, capitalising on OECD and UN initiatives;
- Any systemic implications or impact on global regulatory systems that removal of NTMs may have will depend on the level to which cooperation between the EU and US can deliver greater harmonisation in test methods, etc. at the OECD level.

⁷³ This is not necessarily true for all sub-categories in Chemicals (e.g. pesticides).

8 Cosmetics

8.1 Introduction

The EU's cosmetics market is almost as large as the US and Japanese markets combined, due to its large population. In 2006, the US cosmetics market amounted to €38.2 billion (\$49.7 billion), while Japan's was €23.7 billion (\$30.8 billion) and China's was €8.2 billion (\$10.7 billion) (Global Insight, 2007). The size of the EU cosmetics market (retail sale prices) was over €63 billion (\$84.5 billion). Over 150,000 people are directly employed in the EU cosmetics industry, with a further 350,000 indirect jobs (EC, 2008b). In the US, about 54,000 people work in the cosmetics industry. Employment in the EU increased by 7 percent between 1999 and 2004, while the US industry shed over 15 percent of its workforce over that same period.

8.2 Identified NTMs and regulatory divergence

There are considerable differences between the regulatory frameworks in this sector for cosmetic preparations in the EU and US.

8.2.1 NTMs and regulatory divergence faced from EU to US

Sector-specific NTMs

The Food, Drugs and Cosmetics Act (FDCA) applies a number of regulations to which EU cosmetic products have to adhere. Products defined as cosmetics under US regulations face similar, but slightly more limited, regulation than cosmetics in the EU. However, products which are classified as drugs or 'over-the-counter' (OTC) drugs in the US, but are classified as cosmetics in the EU (for example sunscreens, fluoride toothpaste and anti-perspirants) face tighter controls in the US than in the EU. These tighter controls include: registration,⁷⁴ formulation changes⁷⁵, testing⁷⁶ and labelling.⁷⁷

There are also differences in labelling affecting products classified as cosmetics in the US. Mislabelling or misbranding could result in criminal prosecution. This relates to ingredient

⁷⁴ OTC drugs must be registered before they can be placed on the market and manufacturers are required to register their establishments in the US within five days of beginning operations (and to re-register every year).

⁷⁵ When products are categorised as quasi-drugs or OTC drugs, such categorisation puts further restrictions on changes to formulations.

⁷⁶ Active ingredients approved for use in OTC drugs are specified in relevant OTC drug monographs. Any new active ingredients have to undergo New Drug Application/Approval.

⁷⁷ There are more stringent labelling requirements for OTC preparations. The US FDA only recognises Sun Protection Factor (SPF) values of up to 30+, whereas the recommended limit of SPF on sunscreen products is SPF 50+ in many countries, including the EU.

names, warning statements, size and location of information, measurement units and limited advertising to avoid claims and litigation.

Cross-cutting NTMs

The fact that some products classified as cosmetics in the EU are considered to be drugs in the US results in the creation of more ‘borderline’ products. Also divergent measures may result from the application of different Good Manufacturing Practices.⁷⁸

Table 8.1 Most important EU to US NTMs and regulatory divergence in trade and investment⁷⁹

Rank	NTM or Diverging Regulation	Trend	Sector/Cross-cutting	Sources of information ⁸⁰
Trade measures				
1	Restrictions on use of chemicals used in cosmetics	Constant	Sector	Survey & expert
2	Classification and labelling requirements for chemical products	Constant – Dec-reasing, UN GHS ⁸¹	Sector	Survey & expert & literature
3	US state level safety certifications	Constant	Cross-cutting	Survey
4	Threat of 100% container scanning	Increasing	Cross-cutting	Survey
5	Prior authorisation for sensitive product categories	Constant	Cross-cutting	Survey
6	Restrictions on formulation changes	Constant	Sector	Expert & literature
7	Labelling differences	Constant	Sector	Expert & Survey & literature
Investment measures				
1	Discrimination of foreign companies in access to government subsidy programmes	Decreasing	Cross-cutting	Survey
2	Discrimination foreign firms in public procurement	Constant	Cross-cutting	Survey
3	Foreign Investment and National Security Act, which can create excess costs for FDI	Constant	Cross-cutting	Survey
4	US Intellectual Property Right system (with first to invent principle)	Constant	Cross-cutting	Survey
5	US Accounting Standards (affected by SOX)	Increasing	Cross-cutting	Survey

8.2.2 NTMs and regulatory divergence faced from US to EU

Sector-specific NTMs

The Cosmetics Directive⁸² poses specific requirements that have to be met before products are placed on the market. They include: regulated ingredients (EU laws on ingredients are based on two negative and three positive lists while, in US legislation for cosmetics, there is a short list of prohibited or restricted ingredients and a list of colorants included in FDCA), a general ban on substances classified as carcinogenic, mutagenic or toxic for reproduction (CMRs) (categories

⁷⁸ Good manufacturing practice" or "GMP" refers to the [quality control](#) of [manufacturing](#) for [foods](#), [pharmaceutical](#) products, and [medical devices](#). GMPs are guidelines that outline the aspects of production that would affect the quality of a product. Many countries have legislated that pharmaceutical and medical device companies must follow GMP procedures, and have created their own GMP guidelines that correspond with their legislation.

⁷⁹ For extended list of NTMs see Annex IX

⁸⁰ For more information on sources see Annex X

⁸¹ United Nations General Harmonised System (UN GHS) for classification and labelling is expected to reduce the measure.

⁸² The Cosmetics Directive will shortly be replaced by a new Cosmetics regulation, which will introduce a range of measures to address some of the NTMs described below.

1 and 2 cannot be used in cosmetics, with the potential for risk assessment-based exemptions for Category 3 CMRs on a case-by-case basis), evaluation (substances to be included in the positive and negative lists are evaluated by Scientific Committee on Consumer Products (SCCP)), animal testing (which is now mostly prohibited in the EU but allowed in the US, see Box 8.1), notification differences (notification is compulsory under EU rules but voluntary for products classified as cosmetics under US rules); access to information for competent authorities (manufacturers must maintain a product information file (PIF) readily accessible in the EU, but not in the US); and labelling (in the EU, labels are required for all cosmetic preparations. In the US, products not distributed for retail sale are exempt from these requirements). Also, the requirements on durability labelling and labelling of fragrance allergens require different labels for the EU market, increasing costs for both new and existing products.

Box 8.1 Animal testing

On March 11, 2009, the EU introduced a ban on testing of cosmetic products and their ingredients on animals and on the sale of any such products in the region. Some animal-testing practices have been banned in various EU countries for some time, but this new legislation means these restrictions will apply to **all EU Member States**.

While animal welfare organisations rejoice, other countries, notably the US (where the US Food and Drug Administration advises cosmetic manufacturers to employ animal testing wherever appropriate and effective), will see a reduction in the amount of cosmetics products they can export to the EU. However, work is being done to **harmonise regulations** on reducing animal testing by the validation organisations from the US, EU, Japan and Canada. These bodies have worked together as the International Cooperation on Cosmetics Regulation (ICCR) to create a Framework for International Cooperation on Alternative Test Methods (ICATM), which will serve to achieve the recognition of alternative methods.

Sources: *Cosmetics and Animal Tests*, European Commission, Enterprise and Industry.

Framework for International Cooperation on Alternative Test Methods (ICATM) DRAFT agreed upon at ICCR-2, as slightly revised and agreed on 25 September 2008 by representatives of ICCVAM-NICEATM, ECVAM, and JaCVAM

Cross-Cutting NTMs

There are other sources of NTMs which are not solely related to cosmetics. Borderline legislation issues that could cause confusion include the Medicinal Products Directive (interpretations of the definition of a medicinal product could vary by Member State), the Biocidal Products Directive (producers consider that some questions remain regarding products that combine UV filters with insect repellents, and regarding preservatives and deodorants recognised to have anti-microbial effects) and REACH (which could result in the loss of chemical inputs as manufacturers rationalise their product range and fail to support certain substances through REACH). US producers were also concerned that the transition period to register inputs under the REACH Regulation only applied to substances listed in the European Inventory of Existing Chemical Substances (EINECS). However, many substances in cosmetics that were manufactured outside the EU were not listed in EINECS or the European List of Notified Chemical Substances (ELINCS) and would therefore not benefit from the transition period

Table 8.2 Most important US to EU NTMs and regulatory divergence⁸³

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁸⁴
Trade measures				
1	Animal testing: a ban on animal testing of cosmetic products and on products containing ingredients tested on animals	Increasing	Sector	Survey & expert & literature
2	Product notifications differ from Member State to Member State	Constant	Sector	Survey
3	Notification: Compulsory in EU, not in US	Constant	Sector	Expert & literature
4	Evaluation by SCCP	Increasing	Sector	Expert
5	Access to information – different requirements in US	Increasing	Sector	Expert
6	Use of CMR substances	Constant	Sector	Expert & literature
7	Differing requirements for labelling products	Increasing	Sector	Expert & literature
8	US non-retail products exempt from certain labelling requirements but not in the EU	Constant	Sector-specific	Expert
Investment measures				
1	A ban on animal testing of cosmetic products and on products containing ingredients tested on animals	Increasing	Sector	Survey & literature
2	Product notifications differ from Member State to Member State.	Increasing	Cross-cutting	Survey & literature

8.3 The importance of the NTMs and the effects of NTM reductions

8.3.1 Overall level of restrictiveness of the NTMs in the sector

In the table below, the overall levels of trade and FDI restrictiveness in the cosmetics sector are shown. Based on the methodology explained in Chapter 3, the potential trade cost savings can be calculated.

Table 8.3 Summary table regression results Cosmetics

	US	EU
Trade restrictions (survey)	0.392	0.419
FDI restrictions (survey)	0.322	0.495
Bilateral imports, € (\$) billion 2007	2.34 (3.04)	1.6 (2.08)
Impact of measure on trade costs, percent	32.4	34.6
Unrealistic upper bound for welfare gains € (\$) billion		1.3 (1.7)
Total actionable welfare for both nations, € (\$) billion		0.4 (0.6)

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level and our own restrictiveness index calculations.

NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

It is estimated that US and EU restrictions on cross-border trade yield, respectively, a 32.4 and 34.6 percent trade cost for cosmetics trade. Since total bilateral trade amounted to roughly €3.8

⁸³ For extended list of NTMs see Annex IX.

⁸⁴ For more information on sources see Annex X.

billion (\$5 billion) in 2007, these costs point to potential welfare gains of as much as €1.3 billion (\$1.7 billion).⁸⁵ However, only a fraction of these costs are actually actionable and only share of the measures are directly adding costs. The total, actionable welfare costs are estimated to be only €0.4 billion (\$0.6 billion).

8.3.2 Future EU & US trade and investment potential

The results for the cosmetics sector are presented in the Chemicals chapter of this report (Chapter 7) because chemicals, cosmetics and pharmaceuticals have been aggregated. Below is an overview of some of the main results for the chemical sector (the composite sector).

Main results

- In case only NTMs and regulatory divergence in the chemicals, cosmetics and pharmaceuticals sectors are addressed, the national income effects are positive, both for the EU and the US, albeit more positive for the former (€7.1 billion/\$9.1 billion) per year than for the latter (€1.6 billion/\$2.1 billion) per year;
- The production will increase slightly (0.4 percent) in the EU, while the US will face a 0.6 percent decrease in the output.
- The values of exports and imports rise for both the EU and the US, but increases in the values for chemicals, cosmetics and pharmaceuticals exports for the US are much higher in the long run than for the EU (0.3 percent versus 0.1 percent).⁸⁶
- In the long run, the EU will witness deterioration in the trade balance.
-

8.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The structure of the cosmetics sector is characterised, on the one hand, by large multinational marketing global brands, with a high proportion of their products across all key markets⁸⁷; for example around 25 large (multinational) companies participate in the EU cosmetics market⁸⁸. On the other hand, there are a much larger number of smaller companies supplying narrower ranges of products, mainly in specific market segments; for example the majority of the approximately 4,000 EU cosmetics companies are SMEs. Table 8.4 provides further insights to the main characteristics of the sector that affect its competitiveness analysis.

⁸⁵ This figure is slightly different from the IHS Global Insight Study (2008) for 2007 – concluding Total bilateral trade flows to be around €3 billion – due to slightly different definitions of cosmetics products.

⁸⁶ Even though output in the US chemicals sector decreases, exports can still increase. Due to competition from the EU output of the US chemicals sector decreases, while exports to the EU go up since they are diversified away from third countries when NTMs between the EU and US are becoming more aligned.

⁸⁷ RPA (2004) report for DG Enterprise 'Comparative Study of Cosmetics Legislation' (http://ec.europa.eu/enterprise/cosmetics/doc/j457_-_final_report_-_cosmetics.pdf)

⁸⁸ Ibid

Table 8.4 Typology of competitiveness aspects of the cosmetics industry

Cosmetics	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Mass market (toiletries etc.)		Special Cosmetics	Branded products (high-marketing)
The cosmetics sector can be differentiated between mass market products (e.g. toiletries, etc), where a limited number of multinational firms already dominate the market. Lower-end segments can be extremely price sensitive but marketing effectiveness (e.g. branding) is important. For higher-end and specialised/differentiated markets product 'innovation' is more important for competitiveness. Though proximity is not necessary for production <i>per se</i>, the importance of product marketing/branding and awareness of local consumer preference may mean that significant local presence is required				

Regulatory divergences, such as differences in approved ingredient lists and standards, limit the production and distribution of products on a global scale. Some degree of competition, product choice and efficiency savings in the production process are consequently lost. However, differences in product formulation are likely to continue regardless of regulatory convergence, as products are formulated differently in different markets to reflect consumer preferences and reflect cultural and ethnic issues (e.g. hair dyes, tanning and skincare products). Therefore the scope for reduction of NTMs to have a clear definable impact on (relative) competitiveness is limited to some degree.

The removal of NTMs – particularly better alignment/harmonisation of regulations on ingredients, performance standards, labeling and product definition criteria – should provide some benefits in terms of economies of scale in distribution, marketing and branding. This may encourage further concentration of supply, especially for multinational suppliers of global branded products. Equally, market entry costs should be reduced for new products (both domestic and imported), which can act as a significant regulatory divergence for SME producers. Increased market opportunities, together with the presence of more products in the marketplace is likely to encourage innovation, particularly as a means to increase price-cost margins in the face of increased competition.

For consumers, benefits from the reduction of NTMs should come in the form of greater variety of products available in the market. There may also be psychological effects; for example, the ability to purchase a product from the same brand or manufacturer, knowing that products purchased in the EU and US are equivalent, should promote confidence and trust in producers and regulators.

Looking ahead

Although the fundamental differences in the definition of cosmetics between the US and EU do not appear likely to change, a range of initiatives is under way to reduce the impacts of these differences. Some reduction in regulatory divergences is provided by the new Regulation on

Cosmetics, recently approved by the European Parliament: a centralised notification system addresses the issues of diverging notification requirements in EU Member States; a degree of flexibility is introduced in the general ban of CMR substances. It will be implemented progressively, over 42 months after entry into force.⁸⁹

The new Regulation includes specific requirements on nanomaterials, i.e. a cosmetics-specific definition of nanomaterials, which is easily adaptable to scientific progress, pre-market notification of new nanomaterials contained in products put on the market after the entry into application of the Regulation and labelling of nano- ingredients.

In addition, such issues as animal testing and the development of alternative methods, different regimes on UV-filters, INCI labelling and nanotechnologies are discussed multilaterally within ICCR. A Confidentiality Agreement, signed in the summer of 2007, should increase bilateral regulatory co-operation through an intensive exchange of information on cosmetics (and medical devices).⁹⁰ Cooperation between the EU and US competent authorities has the potential to further reduce NTMs and their impacts.

Systemic implications and global regulatory standards

With the US and EU as the largest consumer markets for cosmetics products, any reduction in NTMs stemming from regulatory divergence could promote the emergence of globally recognised standards and regulatory procedures for the placing on the market of cosmetic products. There is evidence that such a process is already occurring, with the Cosmetics Directive serving as the model in many markets.

Areas of harmonization include the level of testing to be performed, the permitted ingredients, the information to be provided to the consumer and the procedures to be completed by the manufacturer/importer.

Establishing a more consistent and mutually recognized approach between the two regions should also help in the regulation of new and progressive technologies, such as nanotechnologies, provided the same principles and methods are followed. However, the differences in the two regimes are long-standing and, despite extensive moves to encourage harmonization, significant problems remain at present.

8.4 Conclusions

- The US operates on a model where only a limited number of products are classified as cosmetics, and these are subject to relatively light regulation. On the other hand, some products which are defined as cosmetics in the EU are treated as over-the-counter drugs in the US, and subject to a more restrictive regulatory regime;
- As such products include some of the key areas of innovation for the sector, such as sunscreens and the use of nanotechnologies, there is a risk that NTMs could have an increasingly limiting effect on trade and investment flows;

⁸⁹ European Parliament legislative resolution of 24 March 2009 on the proposal for a regulation of the European Parliament and of the Council on cosmetic products (recast) (COM(2008)0049 – C6-0053/2008 – 2008/0035(COD))

⁹⁰ EU-US High Level Summit, April 2007.

- REACH has been identified as an important NTM by US companies and the EU ban on animal testing of cosmetic products and their ingredients creates regulatory divergence with the US where such legislation is currently not proposed or envisaged⁹¹;
- Overall restrictiveness can be classified as high, given that NTMs add more than 30 percent in both directions to trade costs in the sector;
- The total, actionable welfare costs based on the gravity results are €0.4 billion (\$0.55 billion) per year;
- Cut of actionable NTMs in the sector would increase slightly (0.4 percent) the production in the EU, while the US will face a 0.6 percent decrease in output. This would mean an increase in market share for the EU on the EU-US market. Third countries lose out in case of NTM alignment in the cosmetics sector;
- Dynamic investment effects mitigate part of the short-term negative output effect for the US chemicals, cosmetics and pharmaceutical industry in the long run;
- The removal of NTMs should provide benefits in terms of economies of scale in distribution, marketing and branding. In addition, they are likely to encourage innovations and could increase price-cost margins;
- The impact on prices will vary between product categories, with minimal impact on premium brands, but potential price reductions in more commodity products.

⁹¹ However, cooperation is taking place at the ICCR level.

9 Electronics

9.1 Introduction

The electronics industry is comprised of electrical products, such as power generators, electric motors, electricity distribution and control apparatus, wires and cables, batteries and accumulators, lighting and lamps and electrical equipment for vehicles and electronic products such as intermediary mass products, components for TV, radio transmission, telephone networks and terminal equipment. The EU electronics industry has a workforce of around 2.1 million employees and reached an output of €442 billion (\$574.6 billion) in 2007. Nearly 60 percent of its production comprises electrical products, while 40 percent are electronic products. After the internet bubble burst in 2001, both sub-sectors shrank. Afterwards electrical products enjoyed a strong recovery and exceeded the former peak by 2007, whereas electronic products did not fully compensate for former losses.

The US electronics industry has a workforce of around 1.3 million employees. Its output reached €291 billion (\$378.3 billion) in 2007. Only 35 percent of production comprises the broad range of electrical products and 65 percent of its production is electronic products. In 2001, the output of the sub-sectors fell further than in the EU, but the subsequent recovery was more dynamic than in the EU and by 2007 both sub-sectors exceeded the previous best year, the year 2000.

9.2 Identified NTMs and regulatory divergence

9.2.1 NTMs and regulatory divergence faced from EU to US

Sector specific NTMs

The US cooperates with the IEC, but still some of the US standards diverge from the internationally agreed IEC rules and create regulatory divergence not only to EU manufacturers but also to domestic firms. One of those diverging standards is the Encryption Control Policy of the US that is not in line with the international Wassenaar arrangement. As a result, interoperability is not granted and third party testing is required. The US specific standard is backed by the US government as a necessity for high safety standards.

Another challenge pertains to the Underwriter's Laboratories (UL), a major independent product certification organisation in the US that has complete discretion over standards on electrical safety at federal level. Satisfying information, necessary for the design of products in compliance with US regulations, is difficult to collect for manufacturers exporting to the US.

Moreover, there is no single market for electrical and electronic products in the US. In addition to federal provisions, as there are divergent technical regulations and procurement specifications put

into effect by state and local authorities in the US that split the market and pose additional NTMs and create regulatory divergence in areas such as:

- Consumer protection;
- Occupational health and environmental protection (e.g. Electronic Waste Recycling Act, 817 of New Jersey).

Important initiatives that cause diverging legislation from EU legislation include Energy conservation, such as the Energy Conservation Program for Commercial and Industrial Equipment (EPCA) and the Energy Conservation for Commercial Equipment: Distribution Transformers Energy Conservation Act (EPCAT), which are put into force by the Department of Energy (DOE). Again more provisions are implemented by state governments and local authorities:

- The Energy Efficiency Standards Act of 2007 (DC B 211) for lighting and certain domestic appliances of the District of Columbia.

Various technical and safety regulations regulated and implemented by the Occupational Safety and Health Administration (OSHA) in the US are not in line with EU regulations adding significant costs for EU firms to trade with and invest in the US. An important example is the National Electric Code and Industry Safety Standards.

Acting as a NTM to both EU and US companies is the fact that the US adopted ATSC technology while the EU adopted the DVB-T standard and these two are incompatible.

Cross-cutting NTMs

A cross-cutting NTM affecting also the electronics sector is the different patent systems of the EU (based on the first-to-file principle) and US (first-to-invent principle). Another relevant cross-cutting NTM relates to the plans for the security-related measure of 100 percent container scanning. The proposed legislation is expected to raise costs and reduce efficiency of transatlantic trade.

Table 9.1 Most important EU to US NTMs and regulatory divergence in trade and investment⁹²

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁹³
Trade measures				
1	US product standards that differ from international standards	Constant	Sector	Expert & survey & literature
2	US state level safety certifications requirements	Increasing	Sector	Expert & survey
3	3rd party testing for import products with EU declarations of conformity	Constant	Sector	Survey & literature
4	Non-transparency of standards	Increasing	Cross-cutting	Expert & survey & literature
5	Energy Conservation Program for Commercial and Industrial Equipment (EPCA)	Increasing	Sector	Expert & survey & literature
6	Safety of electrical and electronics products Non-harmonized standards – differences per State	Increasing	Sector	Expert & survey & literature
7	Standards developed by different bodies, e.g. the	Constant	Sector	Expert & survey

⁹² For extended list of NTMs see Annex IX

⁹³ For more information on sources see Annex X

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁹³
	Occupational Safety and Health Administration (OSHA), and National Electric Code and Industry Safety Standards, e. g. Underwriter's Laboratories (UL)			& literature
8	Encryption Control Policy not in line with the Wassenaar arrangement (new US requirements on crypto functionality).	Constant	Sector	Expert & survey & literature
Investment measures				
1	Nationality or residence requirements for staff	Increasing	Cross-cutting	Survey
2	US legal liability philosophy	Increasing	Cross-cutting	Survey
3	US IPR system (with first to invent principle)	Increasing	Cross-cutting	Survey
4	US government aid and subsidies (e.g. Advanced tech programme), accessible only for US companies	Constant	Cross-cutting	Survey

9.2.2 NTMs and regulatory divergence faced from US to EU

Sector specific NTMs

The Restriction of the Use of Hazardous Substances (RoHS) Directive (2002/95/EC) is important for the value chain of production of electrical machinery products. It is applied indiscriminately on EU and on US products but since the US regulators do not have such regulation it diverges from US practices. Substitution of certain heavy metals in products requires additional research to identify other applicable materials adding to the cost of compliance if exporting to or investing in the EU.

Under the Waste Electrical and Electronics Equipment (WEEE) Directive 2002/96/EC, all producers are held liable for the collection, treatment and recycling of waste arising from their products, indiscriminately if these products are manufactured in the EU or the US. Regulations in the US are not of the same level and therefore – if US firms want to be active on the EU market – they must adapt to these higher standards.

The Framework on Energy using Products (EuP) Directive 2005/32/EC asks for the integration of energy efficiency and environmental aspects in the design phase of a product. Design elements that have proven to be most successful in this respect shall become legally binding. As a result, all manufacturers indiscriminately if they are from the EU or the US have to adopt design features developed and agreed upon in the EU. This is arranged differently in the US and the difference thus presents an NTM for both EU and US firms. The most recent requirement under the EuP is an implementing measure to reduce standby losses for widely applied electric products.⁹⁴

Various EU standards have been introduced to protect users, save energy, protect the environment and guarantee interoperability, such as the Low-voltage Directive (LVD) 2006/95/EC, Electromagnetic compatibility Directive (EMC) 89/336/EEC and Radio and Telecommunication Terminal Equipment (R&TTE) Directive 1999/5/EC. US industry has expressed concerns and believes the EU is increasingly establishing regulations that lack technical justification that would not be in line with the bilateral framework agreement between

⁹⁴ Commission Regulation (EC) No 1275/2008 of December 2008, see: OJR 18 Dec 2008, L 339/45

the US and the EU on mutual recognition of conformity assessment procedures (Official Journal of the European Communities 4.2.1999 L 31/3). This is an area of disagreement between the EU and US.

Cross-cutting NTMs

The cross-cutting main issue on the EU side relates to the EU's concern for climate change and resulting environmental measures and standards. The REACH Regulation (EC 1907/2006) is a cross-cutting issue also considerably affecting the electronics sector. EU directives which concern initiatives for environmental protection and energy savings give freedom of action for national regulators to maintain or introduce more stringent protective measures. Electronics are high-tech products, and differences in EU and US IPR systems constitute cross-cutting NTMs. Moreover the EU patent system forces both EU and non-EU companies to undergo costly procedures at Member State level. The EU Data Protection Directive (1995/46) allows the transmission of EU data to third countries only if those countries are deemed by the European Commission to provide an adequate level of protection by reason of their domestic law or of the international commitments they have entered into (Article 25 (6)).⁹⁵

Table 9.2 Most important US to EU NTMs and regulatory divergence in trade and investment ⁹⁶

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ⁹⁷
Trade measures				
1	Restriction on Hazardous Substances (RoHS) Directive	Constant	Sector	Expert & literature
2	WEEE	Decreasing	Sector	Expert & survey & literature
3	REACH regulation	Constant	Cross-cutting	Expert
4	Several directives for energy efficiency, e.g. Framework for Energy-using Products, Low Voltage Directive	Increasing	Sector	Expert & survey & literature
5	EU standards in the field of information technology and telecommunications	Decreasing	Sector	Expert & survey & literature
5	Differences in testing standards and certification procedures	Decreasing	Sector	Expert
6	Customs and border protection/controls	Decreasing	Cross-cutting	Survey & literature
7	European patent system	Constant	Cross-cutting	Survey & literature
8	Pre-shipment inspections	Increase	Cross-cutting	Survey
Investment measures				
1	EU Data Protection Directive (1995/46)	Constant	Cross-cutting	Experts
2	European patent system	Constant	Cross-cutting	Survey & literature
3	Local licensing requirements	Constant	Sector	Survey
4	Requirement for professional qualifications for foreign firms	Decreasing	Cross-cutting	Survey

⁹⁵ US companies can only receive or transfer employee and customer information from the EU by using one of the exceptions to the Directive's adequacy requirements or by demonstrating they can provide adequate data protection. These requirements can be burdensome in particular for US firms with affiliates or subsidiaries in the EU.

⁹⁶ For extended list of NTMs see Annex IX

⁹⁷ For more information on sources see Annex X

9.3 The importance of NTMs and the effects of NTM reductions

9.3.1 Overall level of restrictiveness of NTMs in the sector

In Table 9.3 below, the overall levels of trade and FDI restrictiveness in electronics are presented (cross-validated by OECD restrictiveness indexes). Based on the methodology explained in Section 3.4, the table provides estimates of potential trade cost savings based on the application of a gravity model.

Table 9.3 Summary table regression results for electronics⁹⁸

	US	EU
Trade restrictions (survey)	0.270	0.336
FDI restrictions (survey)	0.199	0.231
Bilateral imports, € (\$) billion 2007	13.84 (17.99)	10.12 (13.16)
Impact of measure on trade costs, percent	6.5	6.5
Unrealistic upper bound for welfare gains € (\$) billion		1.5 (1.95)
Total actionable welfare for both nations, € (\$) billion		0.9 (1.1)

Note: trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates.

OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

It is estimated that EU restrictions on cross-border trade yield a 6.5 percent trade cost for electronics trade. Addressing US restrictions will also lead to a 6.5 percent reduction in trade costs. Since total bilateral trade amounted to roughly €23.8 billion (\$31 billion) in 2007, these costs point to potential welfare gains of as much as €1.5 billion (\$1.95 billion) per year. However, only a fraction of these costs are actually actionable and only a share of the measures is directly adding costs. The total, actionable welfare costs are estimated to be only €0.9 billion (\$1.1 billion) per year.

9.3.2 Future EU & US trade and investment potential

The CGE results presented show the effects of NTM reduction and regulatory convergence projected to 2018 for the electronics and OICE sectors combined⁹⁹. The quantified summarised results can be found in Table 9.4 below. Actionability analysis shows that around 40 percent of the NTMs in the sector found could be addressed in both countries if political will to do so is there.

Main results

- With sector-specific NTM reduction and regulatory convergence in the electronics and OICE sector only, in the ambitious long run, the sector is the fourth largest contributor to additional EU national income because of NTM alignment with €1.6 billion (\$2.1 billion) per year, while alignments of NTMs lead in the US to electronics and OICE sector contributing €3.1 billion (\$4.0 billion) to US national income per year;
- In case only the electronics/OICE NTMs and regulatory divergence are reduced, the value of output and exports is expected to increase for the US (by 9.5 and 14.1 percent, respectively),

⁹⁸ See chapter 4 for the methodology.

⁹⁹ Due to the data provisions these two sectors were combined in the CGE analysis.

while showing also an increase – albeit smaller – for the EU in terms of output (0.3 percent) and exports (0.8 percent) for electrical machinery;

- Sector-specific NTM reduction in the EU is expected to lead to a shift of resources from the electronics and OICE sector – which registers a decline in output – to the water and other transport sectors. The growth of the US sector in this case is expected to pull away resources from the other machinery and transport sectors.

Table 9.4 CGE results for the electronics sector – various scenarios

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ bn)	0.3 (0.4)	1.6 (2.1)	2.3 (3.0)	3.1 (4.0)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.3	0.4
Value of imports (% change)	0.0	0.0	0.2	0.2
Value output at the sectoral level (% change)				
- Electrical machinery	0.0	0.3	8.7	9.5
- Motor vehicles	0.0	0.0	-0.8	-0.8
- Other machinery	0.0	0.0	-0.6	-0.6
- Other transport	0.1	0.1	-0.2	-0.2
Value exports at the sectoral level (% change)				
- Electrical machinery	0.5	0.8	13.2	14.1
- Insurance	0.1	0.1	-0.2	-0.2
- Other transport	0.1	0.1	-0.4	-0.4
- Other machinery	0.0	0.0	-1.0	-1.0
- Motor vehicles	0.0	0.0	-0.7	-0.7

Because of sector limitations in CGE, the electronics and OICE sectors are combined into 'electrical machinery' in the CGE model.

9.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The EU is at the leading edge of competitiveness in the area of electrical products. In electronics, the US is leading in key-technologies of importance for information and communication, in particular in computer processors. Analysing the quantitative results, we find that the level of competitiveness of the US and EU increases in the long run – albeit more for the US. Production levels increase and so do exports. The increase in competitiveness of the EU-US electrical machinery markets comes at the expense of third countries. The large national income gains for the EU and US can be explained by increased imports of lower prices electronics goods from the US (for the EU) and vice versa. Moreover, EU affiliates in the US benefit from the growth in the US production and vice versa.

Manufacturers of final products that are designed for specific markets with a multitude of different clients are affected by the broad range of NTMs that limit market access or cause fragmentation of international markets. A US-EU harmonisation of technical standards, safety provisions, recycling and environmental protection would have a direct impact on enhancing their market access and enable greater international supply of products at lower prices.

For products of the electronics sector that are more intermediary goods (i.e. components, production inputs) the market environment is different. Where such products are essentially traded as commodities, the prices are set in international (global) markets and price/cost competitiveness dominates. Alternatively, where the number of clients is limited, long-term relationships are predominant and manufacturers have to meet the requirement specifications of their clients. In most cases, NTMs only have a limited and indirect impact on the market / supplier-customer relationships.

In many areas of electronics the production and the market is globalised. Big players are active in all important economic regions and sell big quantities. A reduction of NTMs will reduce their adjustment costs to meet different market requirements, which may only have a small impact of the cost burden per unit, but can be extremely important in terms of relative (price) competitiveness and the impact on mass-market supplier's profitability.

Looking ahead

Product standards, testing and certification will likely remain important in the sector, although there are initiatives for international standards (see below). The EU work on S-Docs has created a relatively open global market. This is one of the reasons why consumer gains can be so large. NTMs related to safety and environmental concerns show an increasing trend due to diverging legislation, thereby increasing trade and production costs for producers, reducing competitiveness and competition (the latter due to the fact that some of these diverging environmental regulations reduce market access).

Systemic implications and global regulatory standards

The electronics design is affected by a broad range of provisions that are directed towards the user's safety, energy efficiency, interoperability, environmental protection, etc. Therefore, standards, testing and certification are important prerequisites to get access to the domestic and foreign markets. There are global initiatives for common standards under the umbrella of the International Electro-technical Commission (IEC). Most of the member countries have agreed on these provisions and the access to their markets is eased by internationally harmonized standards and procedures. The EU system includes a Suppliers Declaration of Conformity (SDoC), to be completed for electronic goods in which a manufacturer guarantees conformity. The activity of US organizations in standardization and certification is more diverse than in the EU (involving states and a number of independent organisations) and the pace of progress is slower. This has an impact on the involvement of US organizations in international initiatives, e.g. the IEC and provides some disadvantages in the sense that EU firms can less easily access the US market and vice versa as difference in systems remain.

A reduction of NTMs for electronics in the area of user safety, energy conservation and environmental protection will accelerate the integration of markets. Such initiatives are carried out permanently by the IEC, and refer not only to technical but also to environmental aspects. They will improve and ease the exchange of information between users and increase the benefit from electronics. The EU has a very close communication with the IEC in advance of any initiative of relevance for electronics and similar further cooperation by the US could reduce and prevent NTMs.

9.4 Conclusions

- The market for electronics is among the most integrated in the world, due to low levels of tariffs and – due to concerted efforts – also relatively low levels of regulatory divergence;
- The main NTMs are constituted by different product, infrastructure, health and safety standards between the EU and US;
- The industry has recognized the potential of welfare gains that can be exploited by globally co-ordinated activities and the IEC is working in this area;
- Overall restrictiveness can be classified as medium to high, adding as much as 6.5 percent to trade costs in the sector;
- Reductions of sector specific NTMs in the transatlantic economies are expected to increase trade flows, both for the EU and US and to lead to an expansion of the electronics and OICE sectors in the US with output growth of 9.5 percent and an EU output growth of 0.3 percent. Third countries see their output reduced by 6.2 percent. This is the consequence of lower costs due to higher levels of NTM alignment, making both the EU and US electrical machinery sectors more competitive vis-à-vis third countries;
- Reducing sector specific NTMs in the transatlantic market place is expected to reduce firms' adjustment costs to meet different market requirements, which in turn leads to lower prices for import products, benefiting EU and US consumers.
- The output increases – combined with lower prices for import products due to the fact that firms have a lower input cost base and pass on some of these lower costs to the consumers – lead to significant national income gains coming from the electrical machinery sector: €1.6 billion (\$2.1 billion) for the EU per year and €3.1 billion (\$4.0 billion) for the US per year.

10 Food & beverages

10.1 Introduction

The food & beverage (F&B) industry is a regulated industrial sector in both the EU and US. While the EU and the US have important F&B industries, there are important NTMs affecting the trade between the two sides and guiding investments in a different manner in both regions. The EU and the US play a key role in the F&B market, as they command almost a third of global trade. The EU is the world's largest exporter with a share of around one fifth, and a net-exporter at the same time. The US with a share of 12% is a net importing economy. The US sector has shown significantly higher production value growth over the past years.

In the EU, the Common Agricultural Policy (CAP) is affecting this sector more than any other manufacturing sector. The focus of this study is not on the effects of the CAP – as the system pertains to price measures and our definition on NTMs excludes this (see Chapter 3) – but we realise the NTM alignments take place within the context of the existence of the CAP in reality.

The US and EU labeling procedures follow different paradigms. The EU food safety legislation is based on the information flow along the food value chain. The fundamental requirement is the traceability in order to ensure the production of healthy food on all levels. The US approach is different: US authorities focus on testing the final product. Both of these procedures are based on safety and health aspects. However, the different approaches can cause obstacles to EU-US trade. The sector is characterised by a clear distinction between MNCs (multinational companies) that constitute 1% of the total number of companies in the sector but are responsible for around 52% of the turnover and SMEs (Small and Medium Sized Enterprises) that constitute 99% of the total number of companies in the sector but are responsible for 48% of the turnover in the sector. They face different transatlantic challenges.

Table 10.1 Characteristics of the EU and US food & beverages market

Entity	Labour Productivity 2006 (value added / employee)	Labour Productivity Growth p.a. (2000-2006)	Production Value Growth over Last 5 years	Shares in Global Food & Drink (% of total expressed in \$)	
				exports	imports
EU-25	58.000	7.8%	10%	20.8%	18%
US	92.287	3.7%	25%	11.3%	18.1%

Source: CIAA (2008), CIAA review of key competitiveness indicators 2008 report; and CIAA (2007), CIAA annual report 2007.

10.2 Identified NTMs and regulatory divergence

10.2.1 NTMs and regulatory divergence faced from EU to US

In general, the F&B sector consists of many sub-sectors. NTMs that affect all the sub-sectors are considered the most important ones. The sector-wide measures are also rather cross-cutting. For example, all customs related measures, such as tightened security measures (and the threat of 100 percent container scanning) affect the food & beverages sector widely. The lack of harmonisation within the US and various state and municipal regulations (which can be stricter than the federal ones), create extra costs for both EU and US producers. In addition, retaliatory measures rising from alleged non-compliance to WTO rules in one sub-sector often harm other sub-sectors as well.

The sub-sector specific measures are manifold and concern particularly the dairy, meat and beverages sectors. Regarding the dairy exports, the Grade A dairy safety Pasteurized Milk Ordinance (PMO) stipulates a number of rules and inspection requirements regarding various dairy products and the possibilities for registering to the National Conference on Interstate Milk Shipments (NCIMS) list of authorized operators is nearly impossible for EU producers¹⁰⁰. In addition, the dairy sector faces the threat of a mandatory dairy promotion and research assessment bill, which would pose an additional import levy on dairy products from the EU and elsewhere to fund promotional campaigns in the US¹⁰¹.

In the framework of Sanitary and Phytosanitary measures, the US has banned the import of bovine animals and derived products from EU countries due to the outbreak of BSE in the 1990s. This ban is not in line with the international standards of the World Organisation for Animal Health (OIE).

Principally the EU exports of uncooked meat products (such as German sausage, Ardennes ham, Parma ham etc.) do not face specific restrictive measures. However, the US is strict with regard to the animal health status. If there is a health risk, a US ban on the import of uncooked meat products is put into effect. Two examples of meat related measures include 1) restrictions due to the “non-comminglement”¹⁰² rule concerning mixed meat products and 2) EU meat-based product processing facilities facing problems obtaining approval from the US veterinary services¹⁰³.

Box 10.1 Import Safety Initiative

In November 2007, the Interagency Working Group on Import Safety made several recommendations regarding safety standards and the certification of imports. As a result of these recommendations, progress was made by way of international forums, bilateral and **multilateral discussions** and information sharing on this topic. Internationally, the US and EU have held discussions with several countries such as China, Canada, Australia, Mexico, India, Brazil, etc.

¹⁰⁰ See the Annexes (section 1.20) for further explanations.

¹⁰¹ Source: CIAA

¹⁰² The rule prohibits the imports of meat products from countries that are not recognised as being free from certain diseases of concern to the US or any meat products that mix meat products from such countries. Similar rules in the EU provide for an establishment to handle both categories of meat provided that there is a separation in the time between handling them. The US doesn't apply this provision and hence these products are just prohibited. CIAA, 13 3 2008.

¹⁰³ The US approval process is stringent and requires large investments in time and money from the complete food chain for the approval.

Import safety is particularly relevant for the food & beverages industry. For this reason, the Food Safety and Inspection Service (FSIS) of the United States Department of Agriculture has on-going dialogues with countries eligible to export meat, poultry or egg products, and has completed **on-site audits** in nineteen countries over the past six months.

The agreements on food safety with China are particularly advanced. The FDA has signed two Memoranda of Agreement with China to **work together to improve safety** on food imports and the Consumer Product Safety Commission (CPSC) also has a Memorandum of Understanding with its Chinese counterpart.

The mutual recognition and certification of meat factories could have the potential to reduce regulatory trade divergences. This initiative has not yet made much progress in negotiations with the EU and it is too early to assess the impact of the initiative on the bilateral trade. However, incremental progress so far and past experience suggest a cautious stance and at least initially NTMs will grow. With regard to the Dingell Bill and the Lacey Act the concerns are substantiated.

Sources: Interagency Working Group on Import Safety (2008), *Import Safety: Action Plan Update*, Washington.

Other NTM measures include the Marine Mammal Protection Act, which establishes import prohibition in the area of fisheries, while Section 211 of the Omnibus Appropriations Act prohibits the renewal of certain trademarks (e.g. “Havana Club”) in the US market. The issue of the protection of geographical indications (GIs) of wine and spirits is a cause for concern. Collective trademarks or certification trademark systems in the US are considered insufficient by the EU to fully protect GIs of EU wine and spirit brands. Moreover, EU exporters face difficulties in the distribution, rebottling and retailing of their wine due to some US state-level legislations. In addition, chocolate products with alcohol content face a restriction in some of the US states due to differing legislation on the control of the sale of alcohol-containing products.

In addition, the US National Organic Program (NOP) uses country of origin specific criteria to certify agricultural products as organic, and those criteria differ from EU standards. Furthermore, the *Bioterrorism Act* is a burdensome horizontal measure for all foreign exporters, including EU exporters to the US, as it requires extensive documentation and registration of all food facilities with the US authorities (FDA), prior notice of all imported food shipments and detailed record-keeping by foreign companies, to allow imports to be traceable.

There are also future concerns with respect to the final decisions on the Dingell Bill on US Food Safety Imports, possibly restricting entry ports and increasing fees for border inspections, together with uncertainty regarding the implications of the Lacey Act¹⁰⁴ on food products.

The separate import into the USA of almost all sorts of plants and growing media (except soil) is permitted. However, when the plants are in growth media (i.e. authorised plants in authorised growing media), the import is not permitted, unless a special Pest Risk Assessment (PRA) has been performed by the USDA/APHIS.

Table 10.2 Most important EU to US NTMs and regulatory divergence in trade and investment¹⁰⁵

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁰⁶
Trade measures				
1	Direct and indirect government support by means of	Constant	Sector	Expert & survey

¹⁰⁴ The Lacey Act prohibits trade in wildlife, fish, and plants that have been illegally taken, possessed, transported or sold.

¹⁰⁵ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹⁰⁶ For more information on the source see Annex X.

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁰⁶
	subsidies, protective legislation and tax policies to US farmers			& literature
2	Container Security Initiative, causing delays for all sea cargo	Constant	Cross-cutting	Survey
3	US product standards which differ from international standards	Constant	Cross-cutting	Expert & survey
4	Custom surcharges	Constant	Cross-cutting	Expert & survey
5	US prohibition to register/renew a trademark or a trade name which is identical or similar to a trademark or trade name used in connection with a confiscated business	Constant/ increasing	Sector	Expert & survey & literature
6	Threat of 100% container scanning	Constant	Cross-cutting	Survey
7	Double certification need caused by the European Union's Authorized Economic Operator (AEO) program and the US Customs-Trade Partnership against Terrorism (C-TPAT)	Decreasing	Cross-cutting	Survey & literature
8	US Customs Refusal of "Made in EU"	Constant	Cross-cutting	Expert & survey & literature
Investment measures				
1	Need to get a re-export license for products that contain content of US origin and that have both commercial and military or proliferation applications	Increasing	Cross-cutting	Survey
2	US Buy American Act	Constant	Cross-cutting	Survey & literature
3	High and different level of SPS measures	Increasing	Cross-cutting	Expert & survey & literature
4	State-level regulations that differ across states	Constant	Cross-cutting	Survey & literature

10.2.2 NTMs and regulatory divergence faced from US to EU

The lack of a uniform approval process of agricultural biotechnology products in combination with two important EC directives about the traceability and labelling of biotechnology food and feed (EC 1829/2003 and EC 1830/2003) are perceived as an NTM for a variety of US exports, in spite of EU laboratory approval. In the past there was a moratorium on product approvals. However, since the establishment of the WTO panel on biotech products in August 2003, 21 authorisations have been granted.

US enterprises and experts note other NTMs when exporting to the EU: (i) the maximum limits on mycotoxins and other SPS for a variety of foodstuffs (including cereals, fruit and nuts), which in many cases are lower than those set by USFDA; (ii) the recently updated legislation on organic foods, which imposes a number of requirements on US products to classify them as "organic" imports; (iii) the regulation on animal by-products, which sets trade conditions regarding pet foods; (iv) the restrictions on microbial-treatments for meat products; and (v) the obstacles in the trade of vitamins and health food products. This issue also affects substances in beverages, e.g. which sweeteners can be used for 'light' or 'diet' products, as well as whether water enhanced with vitamins can be called 'enhanced water'.

Recently the US exporters express growing concern that SPS testing by EU authorities aggravates deliveries. However, there are actions taken by the US for the development of international standards for mycotoxin within the CODEX Alimentarius. The EU legislation is in

line with the CODEX standards or in the process of alignment with the CODEX standards for those standards on which the EU can agree. Alignment of EU legislation with the CODEX standard has been concluded with regards to Aflatoxin totals in unprocessed peanuts and Ochratoxin A in raw wheat. The alignment of aflatoxin totals in pistachios, almonds and hazelnuts, unprocessed and ready-to-eat, is in the process of finalisation. However, there is no CODEX standard in progress for deoxynivalenol (vomitoxin) in wheats.

Because of SPS measures, the EU currently curbs the imports of US beef from cattle treated with growth promoting hormones and has done so since the 1980s. This EU ban, which is believed to have been the cause of substantial trade losses on both sides of the Atlantic, has been the subject of a dispute within the WTO framework since 1996, but without a result so far. It has been listed by the industry as one of the more important measures affecting the meat industry.

For various food products like fish and dairy products, differences in certification regulations between the EU and US complicate trade conditions. The difference with respect to the effects of up- or downstream components in products (the EU requires component information) is seen by the US industry as especially cumbersome.

The different approaches to the protection of geographical indicators (GIs) of wine and spirits relates to EU derogations for current US wine-making practices and restrictions placed upon US wine labels. Labeling issues include the use of the so-called “traditional terms”, which for the most part, are terms used with certain other expressions (often GIs) to describe a wine (e.g. “ruby”, “tawny” etc.).

The impending REACH regulations have no direct impact on the F&B sector. However there may be some indirect impacts, because substances on the REACH list may be used for packaging products and because R&D in the sector may be affected (e.g. clean processing additives). If so, the effects of REACH for the F&B sector are currently not clear, leading to uncertainty in the industry.

10.2.3 NTMs and regulatory divergence faced both ways

In addition to the mentioned measures above, various customs-related issues (such as the customs security regulations) affect the F&B industries. However, their effect is generally smaller than many of the other measures listed above.

Another important regulatory divergence between EU and US legislation pertains to food hygiene and labeling legislation, which is adding small amounts of costs, especially cumbersome for Small and Medium Sized Enterprises (SME), both on the EU and US side. Also access to R&D and ICT is more difficult for SMEs compared to the large producers.

A potential future NTM to trade and investment is ‘nanotechnology’. The technique itself is not being challenged, but the regulatory, trade and investment consequences of introducing this technology in various sectors is of the highest importance and can potentially lead to high NTMs, not least in the food-producing and processing sectors. For more information on international cooperation regarding nanotechnology, see Box 10.2. In addition, food additives, carbon miles, traceability schemes, private standards and nutrition labeling policies have been identified as

possible future measures affecting trade, depending on how they will be treated in the national regulations and in the transatlantic cooperation. Cloning could also become an important future issue, depending on how it will be approached. With regard to cloning, cooperation in definition issues, such as the definition of cloned animals' offspring, could also be important in order to prevent the rise of NTMs.

Box 10.2 Nanotechnology

Nanotechnology (the study of matter on an atomic and molecular scale) is an upcoming technology which could potentially create several new materials and devices in sectors such as medicine and electronics, but may also apply to cosmetics and food & beverages. However, as with any new technology, it also raises issues about the toxicity and environmental impact of its introduction and related procedural safeguards. Given that this technology is still very much in development, this is **a potential measure** which could hamper EU-US trade and investment, when looking forward. The particular sectors which could be affected significantly by this include **cosmetics, chemicals, pharmaceuticals, OICE, electronics, medical devices, and food & beverages.**

For this reason, **cooperative dialogues** on this topic have been conducted between experts from several nations, including the EU and US, since 2004. Following this first International Dialogue, the EU adopted an Action Plan on Nanotechnology in 2005 with the aim of furthering international debate in this area and ultimately creating **a worldwide 'code of conduct'** in this area. The EU and US are already aware of the influences these technological developments could have on their bilateral trade and investment flows. For this reason, the subject was discussed as part of the European Union and the United States Initiative to Enhance Transatlantic Economic Integration and Growth. This states that *"the EU and the US will increasingly rely on innovation and advanced technologies to stimulate economic growth and prosperity. Our aim is to increase synergies across the Atlantic as we become more knowledge-based economies. To achieve this, we will work to ... support an international dialogue and cooperative activities for the responsible development and use of the emerging field of nanotechnology"* (Source: EC Cordis). With a forward-looking perspective, this is a development which needs to be monitored carefully and discussed intensively by both sides to avoid future regulatory divergence.

Other EU SPS measures related to safety and health aspects have become NTMs for the imports of US poultry.¹⁰⁷ The meat has been washed with low concentration Pathogen Reducing Treatments (PRTs). The introduction of rules related to safety and health issues on US pork imports requiring trichinae and additional residue testing, etc. have also led to restrictions of market access. The EU is aware of these difficulties and pursues a clear road map asking scientific support on the safety of treatments; but for now these cause additional costs for US firms. With regard to trichinae possibilities exist to defer from testing and opting for the status of trichinella free holdings.

In general, the US food industry is concerned about decisions of EU authorities mostly regarding GMO, food additives chemical treatment of food or beverages. This refers also to the discussion on poultry exports from the US to the EU mentioned before.¹⁰⁸

With respect to future NTMs, it is important to understand how the current approaches can create or solve NTMs. For example, US meat producers would currently actually prefer to be allowed to export their products to the EU and label them as "hormone-treated meat", which would leave the

¹⁰⁷ This has become a heavily-loaded political issue over the past years, even though in economic terms the impact of this NTM – given the size of the traded part of the sector is very small (estimates range the impact around €20 million).

¹⁰⁸ The US exporters of poultry perceive the non-acceptance of US PRTs by European authorities as a NTM. They mention that the European Food Safety Authority (EFSA) does not see a threat by the US PRT to food safety, <http://useu.usmission.gov/agri/Ptryexp.html>. The EFSA states that the US treatment is inoffensive. However, the substances can only get an approval after scientific investigations. http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753824_1178699362775.htm

final decision to the consumer. However, when the issue was first raised in the 1980s, US producers did not want to label the meat and hence, the EU decided to restrict it completely.

Table 10.3 Most important US to EU NTMs and regulatory divergence in trade and investment¹⁰⁹

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹¹⁰
Trade measures				
1	EU product standards (SPS) which are higher than international standards	Constant	Cross-cutting	Expert & survey
2	Custom surcharges	Constant	Cross-cutting	Survey
3	EU labeling requirement laws	Increasing	Cross-cutting	Survey & literature
4	Double certification need caused by the European Union's AOE program and the US C-TPAT)	Decreasing	Cross-cutting	Survey & literature
5	Direct and indirect government support by means of protective legislation and tax policies to EU farmers	Constant	Sector	Survey & Experts
6	Traceability and labelling of biotechnology foods	Increasing	Sector	Expert & survey & literature
7	Maximum limits on mycotoxins for a variety of foodstuffs (including cereals, fruit and nuts)	Constant	Sector	Expert & literature
8	US product requirement to classify them as "organic"	Constant	Sector	Expert & literature
Investment measures				
1	Different Member State- level regulations on some food products	Constant	Sector	Survey & literature
2	High level of food and safety standards resulting in high SPS measures	Increasing	Cross-cutting	Expert & survey & literature
3	Long and difficult authorisation procedures	Constant	Sector	Survey

The EU does only have limited possibilities to reduce these NTMs. The Member States have the right to introduce own national provisions in areas that concern the protection of consumers, threats to the environment and health. In these cases the national authorities are allowed by Articles 152, 153 of the EC Treaty to restrict market access. Therefore the NTMs ranked 1, 3 and 6 in Table 10.3 under Trade Measures and the NTMs ranked 1 and 2 under Investment Measures are not very actionable.

10.3 The importance of NTMs and the effects of NTM reductions

10.3.1 Overall level of restrictiveness of NTMs in the sector

In the table below, the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in Chapter 3. The fourth row shows the estimations of the percentage costs additions in each market based on the gravity analysis.

¹⁰⁹ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹¹⁰ For more information on the source see Annex X.

Table 10.4 Summary gravity regression results food & beverages

	US	EU
Trade restrictions (survey)	0.378	0.293
FDI restrictions (survey)	0.247	0.207
Bilateral imports, € (\$)-billion 2007	12.24 (15.92)	2.55 (3.31)
Impact of measure on trade costs, percent	73.3	56.8
Unrealistic upper bound for welfare gains € (\$)-billion	10.4 (13.5)	
Total actionable welfare for both nations, € (\$)-billion	6.89 (8.96)	

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

EU restrictions on cross-border trade yield a significant 56.8 percent additional cost for food & beverages trade and US restrictions an even larger 73.3 percent. With total bilateral trade of roughly €14.6 billion (\$19 billion) in 2007, these costs point to potential welfare gains of €10.4 billion (\$13.5 billion) per year based on multiplying trade levels by trade costs.¹¹¹ However, only a fraction of these costs are actionable and only a certain share of the measures is directly adding costs. The total, actionable welfare costs are thus estimated to be €6.9 billion (\$9.0 billion) per year for EU and US combined per year.

10.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence projected to 2018 for the food & beverages sector. The quantified summarised results can be found in Table 10.5.

Main results

- With sector-specific NTM reduction and regulatory convergence, in the ambitious long run, the EU food & beverage sector gains €5.0 billion (\$6.5 billion) per year while the US food and beverage sector gains €1.2 billion (\$ 1.5 billion) per year. This constitutes only a small percentage change effect (0.03 percent) on national income for the economies as a whole. The differences in the absolute size of the sector in the countries should be also noticed. The EU gains do not only come from increased output but also from cheaper US imports. For the US this also holds;
- In the EU the sector is expected to gain marginally in output (0.04 percent) and a little more in exports (0.8 percent). In the US, the sector declines in terms of output (-0.3 percent) but is expected to gain a lot more in terms of exports (2.4 percent);
- The total, national value of exports is expected to grow for both the EU and US, albeit a faster for the US (0.22 percent) than for the EU (0.14 percent) as the food & beverages exports grow in both countries (0.8 percent and 2.4 percent in the EU and US respectively).¹¹² The same holds for imports, although US import growth (0.1 percent) is expected to be slightly lower than export growth;

¹¹¹ This assumes the trade costs are dead-weight in nature (i.e., they do not involve actual trade taxes). Moreover, these are not general equilibrium welfare effects.

¹¹² It needs to be noted here that the EU exports include intra-EU trade flows and therefore a percentage change is much larger for the EU.

- Sector-specific NTM reduction in the EU, leading to marginal food & beverages output expansion, draws in resources mostly from electrical machinery and other machinery. In the long run, for the EU, an increase in food & beverages leads to an increase in water transport. On the other hand, the US the food & beverages industry is expected to subtract slightly, because of strong growth in the electrical machinery and machinery industries, where capital yields higher returns.

Table 10.5 Summarised sector-level CGE results

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$ bn)	1.7 (2.2)	5.0 (6.5)	0.3 (0.4)	1.2 (1.5)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.1	0.2	0.2
Value of imports (% change)	0.0	0.1	0.1	0.1
Value output at the sectoral level (% change)				
- Food processing	0.0	0.0	-0.3	-0.3
- Electrical machinery	-0.1	0.0	0.3	0.2
- Other machinery	0.0	0.0	0.0	0.0
- Chemicals (+ pharma/cosmetics)	0.0	0.0	0.0	0.0
- Water transport	0.0	0.1	0.0	0.0
Value exports at the sectoral level (% change)				
- Processed food	0.8	0.8	2.4	2.4
- Electrical machinery	-0.1	0.0	0.3	0.3
- Water transport	0.1	0.1	0.1	0.1
- Chemicals	-0.0	0.0	0.1	0.1
- Other machinery	-0.0	0.0	0.1	0.1

10.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The food and beverage industry (F&B) comprises a broad range of sub-sectors (between 20 and 30 sub-sectors can be identified depending on the level of disaggregation). The production of flour, milk, dairy products, meat and sausages is carried out in the F&B, as well as the production of non-alcoholic and alcoholic beverages. A second dimension to be taken into account for the understanding of this heterogeneous industry is the processing level. There are products, such as packed potatoes that have not been changed from the basic agricultural product, and convenience food that has been processed and prepared close to the state of consumption. In recent years food and beverages have become more and more differentiated to meet the requirements of different groups of consumers, for instance seniors, consumers who have to follow certain diets. Ecologic food, ethnic and lifestyle have become more prominent by consumers. This means that the sectoral report on NTMs of importance for the F&B can only refer to those regulations that are of major relevance. Table 10.6 provides more details on the typology of the sector.

Table 10.6 Typology of competitiveness aspects of the F&B industry

F&B	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Transportable (bulk) commodity products	Perishable (bulk) commodity products	Transportable specialised / branded products	Perishable specialised / branded products
At a basic level, the degree of processing involved in production, the extent to which products are traded as commodities, and the extent to which they are perishable, influence the nature and degree to which processed food products and beverages are traded internationally and the underlying nature of competition. For products that are based on domestic inputs, the quality of agricultural inputs, productivity and support measures will influence the competitiveness of domestic products relative to imports. For the types of higher value added food and beverage items that typically characterise the internationally traded production of EU and US processed food and beverages industries, characteristics such as product innovation and marketing/branding are often key characteristics of competition and competitive performance. Nonetheless, the high investment in product development and marketing means that economies of scale can be very important, and relatively high levels of industry concentration and multi-national producers are a feature of some segments both in the EU, US and globally.				

The differentiation of the sector by companies' size also unveils a heterogeneous picture. The smallest companies are handicraft establishments with only one sales outlet. This refers above all to bakeries and butchers. Although there is a structural change to bigger companies with more sales outlets and a more industrialized production of food, in many EU countries the small establishments play a major role. This kind of companies are vertically integrated, they combine production and distribution. Typically they serve local or regional markets only. Cross-border activities are the exception.

F&B companies are working in a quite challenging environment that changes permanently and the regulatory framework is becoming more and more complex. The growing concentration in the retail trade puts much pressure on companies. In the coming years pressure on those companies that have their businesses in the mass market for food & beverages will increase – especially on those that are not able to exploit economies-of-scale comparable to the market leaders. Moreover the final customers of F&B, the consumers, are becoming more demanding both on quality and price. Therefore addressing some of the cost-increasing NTMs would be very beneficial for margins and profitability in the F&B sector. The administrative costs that derive from, for example, labelling requirements, container security issues, mismatching product standards, specific certification of products etc., and have a great impact on the operational costs of a company and hence the majority of NTMs in the sector induce rather large administrative costs on enterprises. Reducing those would lead to substantial gains on both sides of the Atlantic.

Competitiveness will be affected by productivity growth in the industry. Low costs, access to cheap agricultural products and the exploitation of economies of scale are important factors for

the food industry's performance. These elements are of outstanding importance for success in mass markets which are dominated by big global players. The US has had relatively higher protection levels in the sector, but the actionability of the trade and investment divergences in the US is considered to be slightly higher than in the EU. In other words, reduction of NTMs in the sector are expected to increase competition in the US relatively more than in the EU compared to the previous situation, which explains also the expected small cut in the output levels in the US, but significant national income gains (through cheaper (import) prices for US consumers), even though the US has a relatively strong position with regards to the e.g. costs, access to products and economies of scale at this moment.

An important competition issue for the EU food industry has been the ability to produce and export differentiated food and beverage products, based on traditional and cultural characteristics and features. Brand protection, standards for geographical indications (GIs) and labeling requirements have enhanced the EU exports of these products to foreign markets (and especially to the US). A reduction of these NTMs could lead to the loss of this advantage, but is not likely to happen. The success of EU originated F&B in the US is closely linked to product differentiation by regional and quality labelling. On the other hand, thanks to the various competition advantages that the US has compared to the EU in the sector¹¹³, further opening up of the EU market for US exports could provide tough competition to the local (EU) producers.

Looking ahead

Many of the sector-specific NTMs are likely to remain, notably those related to health and consumer safety. NTMs related to sources of innovation in the sector (notably biotechnology and nanotechnology) could cause additional NTMs in the future. With respect to future NTMs, it is important to understand how the current decisions can create or solve NTMs (see above the example on “hormone-treated meat”).

Systemic implications and global regulatory standards

Reductions of NTMs would contribute to the simplification and improvement of EU, US and global regulatory frameworks. In order for these reductions to take place and to be effective, there is a need for co-regulation, communication and legal harmonisation for both sides. New regulations should be based on common, possibly existing standards and not new, different ones. The food & beverages sector is a challenging one due to the existence of strongly diverging NTMs and views on reducing the differences (e.g. GMO) and due to the fact there are many diverging legislations, especially coming from issues related to health and consumer safety.

10.4 Conclusions

- The F&B sector is relatively sensitive to cross-sector NTMs, such as labelling requirements, product standards and custom related measures in particular;
- The total, actionable welfare costs of NTM removal in the sector are estimated to be €6.9 billion (\$9.0 billion) per year;

¹¹³ DG Enterprise and Industry (2007), Competitiveness of the European Food Industry; an economic and legal assessment, EC

- Reduction of NTMs only in the F&B sector would not really affect production levels in the EU and US vis-à-vis each other, but would increase the competitive position of the more integrated EU-US F&B sector versus third countries;
- Sector-specific NTM reduction, leading to small F&B output expansion in the EU, draws in resources mostly from electrical machinery and other machinery. In the long run, through inter-sectoral linkages, an increase in F&B also leads to an increase in water transport. On the other hand, the growth in electrical machinery in the US will draw some capital (and workers) from the food & beverages industry that is therefore to contract slightly.
- Another reason for the small reduction in output for the US comes from increased competition which leads to lower (import) prices for F&B consumer products leading to significant national income gains (€1.2 billion / \$1.5 billion) per year. This effect also holds for the EU (€5.0 billion / \$6.5 billion) per year;
- Low cost, good access to raw materials and economies of scale are among the most important drivers behind the industry's competitiveness, both in the EU and US;
- The relatively high current NTMs will lead to significant increase in the market competition in the transatlantic market place if reductions in the measures are made, with large benefits for EU and US consumers.

11 Office, information & communication equipment

11.1 Introduction

The office, information and communication equipment (OICE) sector includes all manufacturing activities related to office machinery, computers and other information processing equipment. Most items in the sector can also be found in other sectors and consequently, most of the measures affecting trade and investment related to this sector relate to others sectors as well. The EU-25 imported €12.3 billion (\$16 billion) worth of office equipment (including electronic data processing equipment) from the United States in 2006. The import value of office equipment into the US amounted to €4.2 billion (\$5.5 billion) in that same year.¹¹⁴

11.2 Identified NTMs and regulatory divergence

11.2.1 NTMs and regulatory divergence faced from EU to US

Sector specific NTMs

EU firms face a measure affecting trade for exporting OICE to the US constituted by a declaration required at the custom authorities stating how the equipment meets appropriate Federal Communication Commission (FCC) technical specifications. This applies for certain radio-frequency devices, including computers, processors, and advanced telephones.

In 2007, the Technology Innovation Program (TIP)¹¹⁵ was established, which financially supports the development of innovative technologies, and is focused on technologies that address “areas of critical national need.”¹¹⁶ EU companies do not have equal access to this funding programme. In order to receive financial assistance under this programme, a company must show that its participation will be in the economic interest of the US, as evidenced by investments in the US in research, development and manufacturing. In addition, eligibility is restricted to US-owned companies, or companies active in the US whose parents are based in a country that provides reciprocity access and IPR protection.

Acting as an NTM to both EU and US companies is the fact that the US adopted ATSC technology is incompatible with the DVB-T standard adopted in the EU.

¹¹⁴ Source: World Trade Organization International Trade Statistics 2007, Table II.39.

¹¹⁵ This program is the follow up of the Advanced Technology Program (ATP) that financially supported the development of innovative technologies in a broader range of technologies and had similar requirements to the TIP. The programme was abolished in mid-2007, but continued support for previously awarded projects and the 56 new FY 2007 awards were still allowed.

¹¹⁶ For more information, see: <http://www.nist.gov/tip/>.

Cross cutting NTMs

As of January 2007, new standards for power supplies came into effect in the US state of California. These standards have an effect on external power supplies used with laptop computers, mobile phones, printers, print servers, scanners, personal digital assistants (PDAs) and digital cameras. Just like in the EU, there is an increasing environmental interest in California and generally in the US, and the resulting environmental standards and regulations increasingly constitute regulatory divergences to trade and investment for the OICE sector as well if not properly communicated and addressed in advance.

A potential horizontal NTM relevant to the OICE sector is the proposed “10+2” programme. It is a customs and border protection regulation, which will require importers to administer information, in the form of Importer Security Filing, at least 24 hours in advance of shipping.

Table 11.1 Most important EU to US NTMs and regulatory divergence in trade and investment¹¹⁷

Rank	NTM or Diverging Regulation	Trend	Sector/Cross-cutting	Information sources ¹¹⁸
Trade measures				
1	US product standards which differ from the international standards	Constant	Sector	Expert & survey
2	US state-level safety and power supply certifications	Increasing	Sector	Survey
3	Third party testing for import products with EU declarations of conformity	Constant	Cross-cutting	Survey
4	Non-transparency of standards	Increasing	Cross-sector	Survey
5	Conformity assessment procedures	Increasing	Cross-sector	Survey
6	Threat of 100% container scanning	Increasing	Cross-sector	Survey
7	Energy efficiency programme for certain commercial and industrial equipment	Constant	Cross-cutting	Survey
8	US patent legislation	constant	Cross-cutting	Survey
Investment measures				
1	Nationality or residence requirements for staff	Increasing	Cross-cutting	Survey
2	US legal liability philosophy	Increasing	Cross-cutting	Survey
3	US product standards which differ from the international standards	Increase	Cross-cutting	Expert & survey
4	Safety of electrical and electronics products, non-harmonised standards, different from state to state	Constant	Sector specific	Survey
5	US intellectual property rights system (with first to invent principle)	Increase	Cross-cutting	Survey & literature

11.2.2 NTMs and regulatory divergence faced from US to EU

Sector specific NTMs

An important regulatory challenge for US exporters to the EU regarding electronics in general and the OICE sector in particular, is Electromagnetic Compatibility (EMC). The EU requires that electronic devices are unaffected by electromagnetic disturbances from other electronics (a problem known as Electromagnetic Susceptibility, or EMS). Moreover, they should not send out

¹¹⁷ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹¹⁸ For more information on the source see Annex X.

electromagnetic emissions. These requirements differ from the requirements that US firms need to comply with in the US market and they are also not yet fully harmonised between EU Member States.

Another regulation for electronic devices is the Low Voltage Electrical Safety Directive. This is designed to make sure that electronic devices are safe to use. US firms claim there are differences between the EU Member States with respect to the implementation details of the Directive.

From the US perspective, another regulatory deviation from US regulation is Council Decision 93/465/EEC concerning the modules for the various phases of the conformity assessment procedures and the rules for affixing and using 'CE' conformity marking (Conformité Européenne), which are intended to be used in the technical harmonisation directives. All electronic devices imported into the EU are required to have the CE marking to show that they comply with the directive. This decision is being replaced by Decision 768/2008/EC, which was adopted in 2008 and will become effective on January 1, 2010. This new Decision sets out a common legal framework for industrial products. It does not change technical or safety requirements, but strengthens horizontal elements in order to create coherent, simple common definitions and procedures for the marketing of industrial products.

Environmental concerns are an important priority for the EU, which is reflected in the fact that its environmental regulations are often far ahead of those in other countries. Examples of these regulations are the prohibition of the use of certain dangerous materials (the Restriction on Hazardous Substances (RoHS) as a result of Directive 2002/95/EC that came into effect July 1, 2006) and the obligation to recycle and take back electronic equipment (the Directive on Waste Electrical and Electronic Equipment (WEEE), 2002/96/EC). Applied indiscriminately to EU and US producers, they create additional costs for US firms who want to export to the EU (who also have to adhere to different US standards, and if exporting to other countries, to the standards of these countries).

For FDI from the US into the EU, the fact that the EU network of mobile television is not technology-neutral forms an NTM from the US perspective. For the purpose of EU-harmonisation, the European Commission has asked its Member States to adopt DVB-H as the main technology for their networks. Since this technology requires UHF frequencies, supply will be limited in some EU Member States until they have switched to digital television.¹¹⁹

Cross-cutting NTMs

A cross-cutting regulation that affects US exporters of OICE to a limited extent is the fact that patents have to be filed separately in every Member State because the EU patent system is not harmonised across the whole EU. This is recognised as an issue within the EU as well, as it affects EU OICE producers in ways similar to US producers. Initiatives to harmonise these patent filing systems are currently undertaken at EU level but proceed slowly due to the difficulties regarding national legislation.

¹¹⁹ TIA 2008 Telecommunications Market Review and Forecast (2008) by the Telecommunications Industry Association.

Table 11.2 Most important US to EU NTMs and regulatory divergence in trade and investment¹²⁰

Rank	NTM or Diverging Regulation	Trend	Sector/Cross-cutting	Information sources ¹²¹
Trade measures				
1	Waste electric and electronic equipment directive	Decreasing	Sector	Expert & survey
2	Other technical measures	Decreasing	Cross-cutting	Expert & survey & literature
3	Customs and border protection	Decreasing	Cross-cutting	Survey
4	EU standards in the field of information technology and telecommunications	Decreasing	Sector	Expert & survey
5	European patent system	Constant	Cross-cutting	Survey & literature
6	Transfer delays, slow custom procedures		Cross-cutting	Survey
7	Council Decision 93/465/EEC concerning the modules for the various phases of the conformity assessment procedures	Constant	Sector	Expert & literature
8	EU Electromagnetic Compatibility requirements	Constant	Sector	Expert & literature
Investment measures				
1	Waste electric and electronic equipment directive	Decreasing	Sector	Expert & survey
2	EU Member States to adopt DVB-H as the main technology for networks	Increasing	Sector	Expert
3	Other technical measures	Decreasing	Cross-cutting	Survey
4	European patent system	Constant	Cross-cutting	Survey & literature
5	Local licensing requirements	Constant	Sector	Survey & expert

11.3 The importance of NTMs and the effects of NTM reductions

11.3.1 Overall level of restrictiveness of the NTMs in the sector

In Table 11.3 below the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in Chapter 3.

Table 11.3 Summary table regression results Office, information & communication equipment (OICE)

	US	EU
Trade restrictions	0.322	0.227
FDI restrictions	0.247	0.148
Bilateral imports, € (\$) billion 2007	€2.76 (\$3.59)	€6.94 (\$9.03)
Impact of measure on trade costs, percent	22.9	19.1
Unrealistic upper bound for welfare gains € (\$) billion	9.6 (12.5)	
Total actionable welfare for both nations, € (\$) billion	1.0 (1.3)	

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level and our own restrictiveness index calculations.

NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

The fourth row shows the estimations of the percentage costs additions in each market based on the gravity analysis. The results show that EU restrictions on cross-border trade yield a 19.1

¹²⁰ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹²¹ For more information on the source see Annex X.

percent trade cost for OICE trade. Addressing US restrictions will lead to a 22.9 percent reduction in trade costs. Since total bilateral trade amounted to roughly €9.7 billion (\$12.6 billion) in 2007, these costs point to potential welfare gains of as much as €1.5 billion (\$2 billion) per year.¹²² However, only a fraction of these costs are actually actionable and only a share of the measures are directly adding costs. The total, actionable welfare costs are estimated to be €1.0 billion (\$1.3 billion) per year.

11.3.2 Future EU & US trade and investment potential

The results for the OICE sector are presented in the Electronics chapter of this report. For aggregation purposes (due to the small size of the OICE sector) electronics and OICE have been aggregated into one sector. Below is an overview of some of the main results for electrical machinery (the composite sector).

Main results

- With sector-specific NTM reduction and regulatory convergence in the electronics and OICE sector only, in the ambitious long run, the sector is the fourth largest contributor to additional EU national income because of NTM alignment with €1.6 billion (\$2.1 billion) per year, while alignments of NTMs lead in the US to electronics and OICE sector contributing €3.1 billion (\$4.0 billion) to US national income per year;
- Regulatory and NTM alignment leads to an increase in competitiveness of the EU and US sectors for electrical machinery, reflected in an increase in output for the US of 9.5 percent and EU of 0.4 percent. Output in third countries in the sector declines by 6.2 percent.
- Sector-specific NTM reduction in the EU is expected to have only minor redistributive effects of resources. However, growth in the US sector of electrical machinery is expected to pull away resources from the other machinery, motor vehicles and transport sectors.

11.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The market for office equipment is very heterogeneous and dominated by a number of multinational companies (MNCs), and competition in this market is therefore global. Most MNCs operate in one or more segments of the office, information and communication equipment sector. Some well-known companies include Hewlett-Packard (HP), Dell, Ricoh, Canon, Nokia and Samsung. Next to these MNCs, there are a large number of smaller companies that produce intermediate goods (i.e. parts and components).

The relatively high level of concentration in the sector can be explained by high sunk costs and economies of scale.¹²³ In recent years, further consolidation in the sector has taken place, for example, with the mergers of HP and Compaq, and Ricoh and IKON. Telecommunications equipment is among the more concentrated sectors in the EU, with some 80 percent of value added produced by the largest firms (those firms which have more than 250 employees), who

¹²² This figure is based simply on multiplying trade levels by trade costs. It assumes the trade costs are dead-weight in nature (i.e., they do not involve actual trade taxes).

¹²³ Source: European Competitiveness report 2006.

employed 75 percent of all employees in this segment. According to the ‘EU Industrial Structure 2007 – Challenges and opportunities’ by DG ENTR (2007) office machinery and other instruments sector are at the lower end of the competitiveness ranking from an EU perspective.

Increasing vertical specialisation in the sector over the past ten years has led to increased trade in intermediate products, as MNCs search for the most efficient production, especially in the more standardised equipment segments. As a result of relatively low wages, Southeast Asia is an important region in the manufacturing of OICE. Measures affecting investment are thus equally important as measures affecting trade to competitiveness in the sector.

Table 11.4 Typology of competitiveness aspects of the OICE sector¹²⁴

Office, Information and Communications Equipment (OICE)	Mass market equipment (e.g. basic computers, mobile phones, etc.)	Mass market products and applications	Specialised products (e.g. R&D, innovation intensive)	Specialised applications
The OICE sector is combined with the electronics sector. Please look at Chapter 9 for the typology analysis.				

Despite an overall level-playing field (i.e. no discrimination between domestic and foreign firms), differing health and safety standards for the OICE sectors in the EU and US yield trade costs as exporters have to meet different requirements. In the US, there are also differences between states, further complicating the problem. Given the vertical specialisation in production, most welfare gains in the sector would come from either more harmonization of standards at an international level or, if that is not feasible, mutual recognition/convergence.

Although this chapter focuses on OICE (i.e., manufacturing), in practice the distinction is sometimes hard to make as the same companies increasingly offer services with their products. Examples of these services include software, maintenance, help desk support, etc. Competition is therefore not only related to the products, but also to the accompanying services. As these services are usually provided on the ground, reducing measures affecting investment would further stimulate competition in the sector and possibly improve the quality and coverage of services.

Despite a reduction in trade and investment costs that would result from reducing these measures, and which would yield welfare gains, concentration in the sector is likely to remain high. Margins are relatively low compared to other sectors, indicating a highly competitive environment. Further harmonisation and convergence are likely to result in benefits for consumers primarily.

Looking Ahead

The most important sector specific NTMs relate to standards. Within the International Electrotechnical Commission (IEC), discussions on international standards are taking place (see below). In the US, standards are set at different levels. In addition to the federal level, there are

¹²⁴ For the developed typologies, see Section 3.6.

also standards set by the states or independent bodies. This makes the involvement of the US in the IEC more difficult, and it is therefore hard to predict to what extent progress in the IEC (e.g. on environmental standards) would also facilitate transatlantic trade.

Systemic implications and global regulatory standards

There are a number of international standards that apply to the sector. The IEC prepares and publishes International Standards for all electrical, electronic and related technologies. This organisation has a technical committee working on environmental standardisation for electrical and electronic products and systems. Part of the IEC, the *Comité International Spécial des Perturbations Radioélectriques* (CISPR or special international committee on radio interference) sets standards for controlling electromagnetic interference. The implementation of these international standards is probably equally important, as this is what often causes the divergence. These issues, including for example the possibilities for an SDoc, are also being discussed.

As both the US and EU are highly competitive and important players in the OICE markets, convergence of their regulatory and standards environments may contribute to global standard setting. Using international bodies – such as the IEC – to promote these standards could further assist this process. This would require a more active involvement of the US, in particular, in this body.

11.4 Conclusions

- Many NTMs facing the OICE sector are cross-cutting;
- The main sector-specific NTMs – and the ones affecting the sector most directly – concern the use of different standards, notably those related to product safety and the environment;
- Measures in the EU give rise to a trade cost equivalent of 19.1 percent of total bilateral trade, while the US measures yield a trade cost equivalent of 22.9 percent;
- The total, actionable welfare costs are estimated to be €1.0 billion (\$1.3 billion) per year for OICE-sector specifically.
- Aligning NTMs and regulatory divergence will increase competitiveness of both the EU and US sectors vis-à-vis third countries – reflected by output increases for both the EU (+0.4 percent) and US (+9.5 percent) electrical machinery sectors.
- Harmonisation of standards seems the most effective way for reducing measures affecting trade and investments;
- Although concentration in the sector is relatively high, margins are modest, which indicates healthy competition in the market. Any reductions in trade costs are therefore likely to be transmitted to consumers through lower prices and improved quality and coverage of services. This is supported by evidence of the annual positive national income effects generated – through lower prices for consumers – for the EU (€1.6 billion / \$2.1 billion) and US (€3.1 billion / \$4.0 billion) electrical machinery sectors.

12 Pharmaceuticals

12.1 Introduction

According to statistics of the European Federation of Pharmaceutical Industries and Associations (EFPIA, 2008), the production of the EU-27 pharmaceuticals industry in 2007 was estimated at €190 billion (\$247 billion) with exports equivalent to €210 billion (\$273 billion) and imports accounting for €161 billion (\$209 billion), giving a total trade surplus of €49 billion/\$64 billion.¹²⁵ The world pharmaceutical market was worth an estimated €484 billion (\$663.5 billion) at ex-factory prices in 2007. The North American market (the US and Canada) remained the world's largest market with a 45.9 percent share, well ahead of the EU and Japan. In 2007, the EU market outpaced the US market in terms of growth but the Asian region is by far the fastest growing market. The growth of the North American market was estimated at 4.2 percent in 2007, compared with an estimated market growth of 6.7 percent for Europe and 13.1 percent for Asia (EFPIA, 2008b).

Since the mid-1990s, US research-based companies have significantly increased their share in the world's top selling medicines. They launched 45.8 percent of the new chemical and biological entities during the period 2003-2007 versus 33.3 percent for the EU companies. Of the top ten worldwide products in 2007, six originated from the US and four from the EU (EFPIA, 2008b).

12.2 Identified NTMs and regulatory divergence

12.2.1 NTMs and regulatory divergence faced from EU to US

The following NTMs for EU manufacturers of pharmaceuticals have been identified:

- **Technical measures** – According to the EC Market Access Database, in the US, products are increasingly being required to conform to multiple technical regulations regarding consumer protection (including health and safety) and environmental protection. The complexity of US regulatory systems can represent an important structural impediment to market access as for example in the case of pharmaceutical approval;
- **Drug precursor legislation** – The law provides US manufacturers with the opportunity to seek protection on the grounds of national security, but in some cases they may simply be trying to curb foreign competition. In addition, the chemicals sector is affected by import restrictions for certain drug precursor chemicals;
- **Pharmaceutical and herbal products (FDA Approval)** – The Food and Drug Administration (FDA) must approve a new medicinal product before it can be commercialised. The approval process includes a verification of the product labelling. For

¹²⁵ Data include EU-27 intra-trade, which leads to some double counting.

innovative products, the procedure lasts several years, because all the laboratory tests must be performed. Delays for non-US new medicinal products are often longer than for US developed medicinal products. The current system restricts market access for over-the-counter products with lengthy marketing experience in countries with equally sophisticated medicines regulatory systems and particularly constrains access for plant-based (herbal) medicinal products, which have a long tradition in the EU (but not in the US). This creates additional costs for EU producers, both for investments and in trade. However, over-the-counter drugs do not need preliminary approval by the FDA. They can be imported in the United States if they respect the US labelling requirements;

- **Scientific advice and their acceptance** – Differences in the scientific research methods in the field of medicine and their effectiveness, and variations in the methods approved by authorities as proof of their effectiveness cause extra costs for pharmaceutical companies trying to operate in both markets. In some cases, companies have to use multiple methods in order to get approval in both markets for their products.

Current political initiatives in U.S. Congress which aim at allowing imports of certain medicinal products from a list of approved source countries (including the EU), i.e. parallel trade, could lead in the future to transatlantic re-importation of medicinal products. This could cause a shortage in the availability of some products, particularly in countries where lower prices are charged compared to the US. The situation could be further perpetuated by demand spikes and corporate decisions taken to target the US market with certain products, increasing re-imports.

In addition, the labelling of pharmaceutical products (drugs) in the US in accordance with the Food, Drugs and Cosmetics Act, which is a cross-cutting measure in nature, is believed to significantly affect trade for prescription drugs and over-the-counter drugs, due to differences in labelling procedures with the EU. Other cross-cutting issues to affect trade include Section 337 of the Tariff Act of 1930, which provides remedies for holders of US IPR by keeping the imported goods which are infringing such rights out of the US (“exclusion order”) or having them removed from the US market once they have come into the country (“cease and desist order”). These procedures are not used against domestic products infringing US patents.

Regulatory divergence affecting investments include very limited access of foreign companies for subsidies from the US government under the Technology Innovation Program (see chapter 11.2 for further information on the issue) and differential treatment of foreign companies with regard to public procurement (mostly due to the BAA).

Table 12.1 Most important EU to US NTMs and regulatory divergence in trade and investment¹²⁶

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹²⁷
Trade measures				
1	Restrictions or bans on use of specific chemicals	Constant – Increasing	Sector	Survey
2	Classification and labelling requirements for chemical products	Constant – Decreasing	Sector	Survey & expert

¹²⁶ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹²⁷ For more information on the source see Annex X.

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹²⁷
3	Threat of 100% container scanning	Increasing	Cross-cutting	Survey
4	FDA New Drug Approval Process	Increasing	Sector	Expert
5	Drug precursor legislation	Constant	Sector	Expert
6	Double certification need caused by the European Union Authorized Economic Operator programme and the US Customs CTPAT program	Constant	Sector	Survey & expert
7	US state level safety certifications	Constant-Increasing	Cross-cutting	Survey
8	Prior authorization for sensitive product categories	Increasing	Cross-cutting	Survey
Investment measures				
1	Very limited access of foreign companies to US government subsidy programmes (e.g. Technology Innovation Programme)	Decrease	Cross-cutting	Survey & expert
2	Restricted access for foreign companies in public procurement (especially due to BAA)	Constant	Cross-cutting	Survey & expert
3	Foreign Investment and National Security Act (FINSAs), which can create excess costs for FDI	Constant	Cross-cutting	Survey & expert
4	Long/difficult authorisation and registration procedures	Increase	Cross-cutting	Survey
5	US Intellectual Property Right system (with first to invent principle)	Constant	Cross-cutting	Expert

12.2.2 NTMs and regulatory divergence faced from US to EU

From a US perspective, the EU presents a highly complex and fragmented environment in terms of pharmaceuticals, giving rise to price, volume, and access controls on medicines by Member State governments. The EU treaties assign competence for pricing and reimbursement of medicines to Member States. EU legislation provides for basic procedural guarantees for national pricing and reimbursement decisions in the Transparency Directive 89/105.¹²⁸ However, these guarantees are not consistently enforced throughout the EU.

The EU has recently held a High-level Pharmaceutical Forum,¹²⁹ which has produced important consensus conclusions in the areas of:

- **Information to patients:** While opposing the advertising of pharmaceuticals to the general public, the Forum recognised the need for EU patients to have better access to high-quality information from a range of sources.
- **Relative effectiveness:** EU Member States apply Health Technology Assessment (HTA) procedures before permitting market access but greater alignment of these could be achieved without compromising the autonomy of the Member States. The Forum has identified common definitions of key concepts (such as relative effectiveness) and endorsed good practice principles for relative effectiveness assessments. Furthermore, it supports efforts to establish an EU network of HTA authorities, and provides clear recommendations regarding

¹²⁸ Council Directive 89/105/EEC, of 21 December 1988, relating to the transparency of measures regulating the pricing of medicinal products for human use and their inclusion within the scope of national health insurance systems.

¹²⁹ The forum was organised by DG Enterprise and Industry and included ministers from all EU Member States and representatives of the European Parliament, the EU Pharmaceutical industry, health care professionals, patients and insurance funds.

how the network should work to enhance the evidence base and interaction between authorities and marketing authorisation holders.

- **Pricing and Reimbursement:** There is pressure from (some) EU Member States to push down prices for new medicines to keep national health systems affordable. The Forum urges Member States to comply with the Directive 89/105, and supports the Commission's efforts to endorse the concept of non-extra-territoriality.

Box 12.1 Success story: Orphan Drugs

The size of the market for the associated drugs and treatments produced by the pharmaceutical industry for diseases and illnesses contracted by only a very small proportion of the population is inherently limited. Burdened with high development costs, and the fact that many developers of these 'Orphan Drugs' are small biotech firms with limited resources, the financial incentives for such companies to develop new products are severely restricted. Consequently, in 1983 the US passed the Orphan Drug Act (ODA) to provide incentives for the pharmaceutical industry to invest and develop such drugs. The EU has also adopted similar legislation for this purpose (Regulation 141/2000 of 16 December 1999 and Commission Regulation 847/2000) administered by the Committee on Orphan Medicinal Products of the European Medicine Agency (EMA), providing the same type of incentives to the EU industry. Incentives include providing the manufacturer with exclusive access to the market (i.e. a monopoly position on a specified drug for a predefined number of years), tax credits for clinical research expenses and grant support for investigating rare disease treatments. The administering authorities involved determine the exact incentives offered.

The application process initially involved drug developers submitting separate applications to both the US Food and Drug Administration (FDA) and EMA, creating extra financial and time costs for the companies involved. However, since 2007 a **common application process** has been agreed and implemented by the FDA and EMA. This permits drug manufacturers to apply to both jurisdictions at the same time with one application. A common format also helps agencies gain better understanding of the similarities and differences in each other's application process. This illustrates how cooperation between EU and US authorities can lead to reductions in potential NTMs. However, it should be highlighted that these measures do not prevent different outcomes emerging in each jurisdiction, as no uniform standards for the drug approval process have been established.

Sources: US Food and Drug Administration, European Medicines Agency.

Other important regulatory divergences may arise from the following:

- **National authorisation systems** – Undertakings that very often operate globally, but on the basis of purely national authorisations, may be confronted with different rules in different Member States. However, European Medicines Agency (EMA) EU-wide authorisations are decreasing the importance of this divergence;
- **Data protection** – The industry has voiced concern that in particular in some of the new EU Member States, there is a need to improve compliance with EU standards on protection for undisclosed data submitted to obtain marketing approval;
- **Parallel trading** – Parallel trade in medicines is a source of patient risk, due to the risks from counterfeit medicines, and can also undermine business opportunities. Furthermore, parallel trade drives down medicine prices, which can negatively impacts the R&D operations of pharmaceuticals companies;
- **Competition in off-patent sector** – Innovative pharmaceutical companies in the EU and US rely on intellectual property protection to secure appropriate returns on investment in research and development. Following the expiry of such protections, however, companies expect that generic competition will stimulate price reductions. In the US, this works very

successfully because of the low level of price regulation and the price sensitivity of consumers enable such competition to take place. Neither condition applies in the EU. Compensating mechanisms deployed by Member States often have the effect of unnecessarily masking competition and decreasing returns to innovation, while not improving competition in the off-patent sector;

- **International reference pricing** – Some EU countries require producers to reveal the three lowest prices for their medicine within the EU, and often require the lowest price be applied in their country as well, a practice known as so-called international reference pricing. This can lead to the lowest prices becoming the EU benchmark, even though other EU customers with much higher purchasing power could pay much more;
- **Therapeutic reference pricing** – In addition, reference pricing for therapeutic medicines in some Member States is based on placing medicines that treat the same medical condition into groups or clusters with a single common reimbursed price. This method is common practice in some Member States (e.g. Greece), and leads to lower, state-imposed, prices for medicines. Problems arise especially when products that are not identical are clustered together (e.g. newer medicines are clustered with older medicines).
- The key **obstacles to investment** would appear to be similar to those affecting trade: the different rules that exist in EU Member States with regard to the authorisation of pharmaceuticals, and prohibitions placed on certain products.

Table 12.2 Most important US to EU NTMs and regulatory divergence in trade and investment¹³⁰

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹³¹
Trade measures				
1	EU pricing policy – Member State differences	Increasing	Sector	Survey & expert
2	Health technology assessment differences	Increasing	Sector	Survey & expert
3	Different rules in various Member States concerning authorization of pharmaceuticals	Constant	Sector	Survey & expert
4	International reference pricing	Constant	Sector	Expert
5	Therapeutic reference pricing	Constant	Sector	Expert
6	Differences in the enforcement of the unified customs system across EU Member States	Decreasing	Cross-cutting	Survey & expert
7	Parallel trade allowance	Constant- Decreasing	Sector	Survey & expert
8	Restrictions concerning information distribution to patients	Constant	Sector	Survey & expert
Investment measures				
1	Export restraint arrangements	Increasing	Cross-cutting	Survey & experts
2	Different rules in different Member States concerning authorization of pharmaceuticals	Decreasing – Constant	Sector specific	Expert
3	Prohibitions against investment by foreign companies (e.g. security, sensitive products, etc.)	Increasing	Cross-cutting	Survey

¹³⁰ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹³¹ For more information on the source see Annex X.

12.3 The importance of NTMs and the effects of NTM reductions

12.3.1 Overall level of restrictiveness of the NTMs in sector

Based on the methodology explained in Chapter 3, Table 12.3 presents the survey index results for trade and investment restrictions in pharmaceuticals, in addition to the estimates of trade costs (fourth row).

Table 12.3 Summary table regression results pharmaceuticals

	US	EU
Trade restrictions (survey)	0.495	0.372
FDI restrictions (survey)	0.148	0.207
Bilateral imports, € (\$) billion 2007	27.39 (35.62)	14.62 (19.01)
Impact of measure on trade costs, percent	9.5	15.3
Unrealistic upper bound for welfare gains € (\$) billion	5.6 (7.3)	
Total actionable welfare for both nations, € (\$) billion	2.2 (2.9)	

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTB elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

The fourth row in the table above shows the estimations of the percentage costs additions in each market based on the gravity analysis. The results show that EU restrictions on cross-border trade yield a 15.3 percent trade cost for pharmaceutical trade. Addressing all US restrictions would lead to a 9.5 percent reduction in trade costs. Since total bilateral trade amounted to roughly €42 billion (\$54.6billion), these costs point to potential welfare gains of as much as €5.6 billion (\$7.3 billion) per year.¹³² However, as only a fraction of these NTMs are actually actionable and only a share of the measures are directly adding costs, the total, actionable welfare costs are estimated to be a more limited €2.2 billion (\$2.9 billion) per year.

12.3.2 Future EU & US trade and investment potential

The results for the pharmaceutical sector are presented in more detail in the Chemicals chapter of this report because chemicals, cosmetics and pharmaceuticals have been aggregated. Below is an overview of some of the main results for the chemical sector (the composite sector).

Main results

- In case only NTMs in the chemicals, pharmaceuticals and cosmetics sector are addressed, the national income effects are positive, both for the EU and the US, albeit more positive for the former (€7.1 billion/\$9.2 billion per year) than for the latter (€1.6 billion/\$2.1 billion per year);
- The value of exports and imports rise for both the EU and the US overall, but increases in the values for chemicals, pharmaceuticals and cosmetics exports for the US are much higher in the long run than for the EU (0.3 percent versus 0.1 percent). In the long run, the EU will witness deterioration in the trade balance.

¹³² This figure is based simply on multiplying trade levels by trade costs. It assumes the trade costs are dead-weight in nature (i.e., they do not involve actual trade taxes).

12.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

The EU is composed of very different markets and regulatory regimes. For example, the degree of price control and reimbursement, differences in national authorizations, differences in the definition of products, such as prescription only medicines (POMs) and over-the-counter medicines (OTC), and their associated regulatory requirements, can vary significantly between the different Member States. The US is – with respect to pharmaceuticals – a more uniform market. In the EU, both EU and US companies face similar challenges in placing products in the market. The partially fragmented state of the EU market itself may act as a constraint to greater competition, as outlined by the Commission’s recent policy paper on the subject.¹³³ Table 12.4 provides further information on the main competitiveness factors.

Table 12.4 Typology of competitiveness aspects of the Pharmaceuticals industry¹³⁴

Pharmaceuticals	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Mass market and generic products		Specialised products	
High fixed cost in new product development and marketing (including market authorisation) imply significant economies of scale in the production of many pharmaceutical products. These costs, combined with nature of the market for products (e.g. government involvement in health policy and financing), strongly influence the competition environment. Successful product development (R&D, innovation) are key determinants of competitive performance. However, as development of generic products illustrate, underlying production costs/efficiency are also important. Proximity to markets is not in itself a pre-requisite for trade, though it can be important for the development and introduction of new products. More important can be proximity to specialised R&D, technology and innovation centres.				

Reductions in most of the NTMs in the sector would affect the efficiency and costs to producers (e.g. reduction of customs related measures and approval processes), but are not expected to directly affect the relative competitiveness of any specific producer due to the non-discriminatory nature of the measures. Similarly, reference pricing and therapeutics pricing mostly affect the overall market structure. With many national health authorities operating as monopsony buyers of particular drugs in a Member State, such pricing methods allow the buyer to gain valuable

¹³³ EC (2008), “Safe, Innovative and Accessible Medicines: a renewed vision for the Pharmaceutical Sector [COM(2008) 666 final]”. The three key objectives for the sector set out in this paper are: the development of a single and sustainable market; to take on the opportunities and challenges of globalization; and to ensure that science delivers for EU patients, with the EU becoming the home for innovations.

¹³⁴ See sub-section 3.6 for the further explanation on the typology.

market information, ensuring the best deal for patients and tax payers. On the other hand, reference pricing can limit pharmaceuticals producers from recovering significant research and development costs or drug approval testing costs in a proportionate manner across different countries.

Arguably, in the US market the abolishment of discrimination of non-US producers in US R&D support (Technology Innovation Programme) and in public procurement could have the most direct effect on competition in the market and relative competitiveness by creating a more level playing field.

Looking Ahead

NTMs play an important role in pharmaceutical trade, and regulatory differences are likely to remain, given that the sector is more regulated when compared to other sectors. Nevertheless, there seems to be potential for reducing NTMs in the sector, as can be seen in the results of the EU High-level Pharmaceutical Forum, and there has been increased transatlantic co-operation on some of the issues (such as the common application process described in Box 12.1) especially between the US FDA and the European Medicines Agency (EMA).

Systemic implications and global regulatory standards

NTM reductions that encourage a more coordinated approach to regulation, increasing the acceptance of EU/US approval standards and scientific advice, will also assist in the development of more globally accepted principles and standards regarding pharmaceutical products, as the EU and US represent the largest markets for most drug products (although this may change in the future as the sector increasingly heads towards the BRIC economies). The BRICs also represent the markets where the returns on investment are currently the greatest, therefore making compliance with the relevant legislation a prerequisite for pharmaceutical companies. NTM reductions related to transatlantic trade and investment can only facilitate this process of harmonisation.

12.4 Conclusions

- The pharmaceuticals sector is important for both the EU and US economies, and transatlantic trade is affected by several important regulatory divergences leading to NTMs for this sector;
- The most important issues for US companies exporting to the EU – constituting the estimated trade costs of 15.3 percent – relate in particular to EU pricing policies, the EU Health Technology Assessment methods, divergent national authorisation systems (although decreasing in importance), data exclusivity, parallel trading, international and therapeutic reference pricing and customs administration differences and delays;
- For EU firms, the potential trade cost reductions of 9.5 percent in pharmaceuticals when exporting to the US are associated with the removal of restrictions on specific chemicals, labelling requirements, re-exporting licences, US state level safety regulations, double-certification needs (like above for US firms), and differences with US patent legislation;
- Many of the measures in the sector have high potential to be reduced. For example, in the EU High-level Pharmaceutical Forum, work has already started on addressing some issues. Also, in the Transatlantic Economic Council, US and EU authorities have increased cooperation on addressing some of these issues;

- Total, actionable welfare gains of reducing NTMs amount to €2.2 billion (\$2.9 billion) per year;
- Most of the NTMs in the sector will directly affect the market structure, efficiency and costs of producers. For example, the possible end to discrimination of non-US producers in US R&D support (Technology Innovation Programme) and in public procurement could create a more level playing field.

13 Communication services

13.1 Introduction

The communication services sector includes all post and telecommunications activities. The sector is currently subjected to change due to technological improvements both in the US and the EU, and because of the liberalization of the postal market in the EU. These changes create measures that affect trade, but can also have the effect of decreasing these measures. The EU-25 exported € 23.1 billion (\$30 billion)¹³⁵ worth of communication services in 2005, of which € 6.6 billion (\$8.6 billion) was exported to destinations outside of the EU. Imports of communication services amounted to € 22.3 billion (\$29 billion), of which € 7.4 billion (\$9.6 billion) came from outside the EU. In that same year, US exports of communication services amounted to € 3.8 billion (\$5 billion), while imports were valued at € 4.1 billion (\$5.3 billion)¹³⁶.

13.2 Identified NTMs and regulatory divergence

13.2.1 NTMs and regulatory divergence faced from EU to US

Sector specific NTMs

The most important measure affecting entry to the US postal market is the fact that the US Postal Service (USPS) enjoys a monopoly for a large part of the market, which prevents both domestic and international competition (see also Section 13.3.3).

For the US telecommunications market, other measures affecting trade exist as well. When an EU company wants to take over a US communications firm, Federal Communications Committee (FCC) approval is required to make sure that there are no national security concerns related to the takeover. The FCC also poses challenges for EU satellite operators when they want to access the US market, because of different regulations. When the FCC has concerns regarding trade or competition, a license to operate in the US will not be granted. As a consequence of the Communications Act, it is hard for foreign companies to invest in US companies with a common carriers radio license. Only 20 percent of total investments can be foreign. Licenses for broadcasting and fixed radio are also limited, while FCC technical specifications have to be met in order to get approval of the customs authority to import radio frequency devices into the US.

The telecommunications sector faces additional obstacles to investment: The Committee on Foreign Investments in the United States (CFIUS) includes provisions which make the telecommunications (or ‘telecom’) market in the US less open than in the EU. This forms an

¹³⁵ The original US\$ amounts have been converted into € for purpose of consistency in the report. The exchange rate used is 1.3 \$/€.

¹³⁶ Source: World Trade Organization International Trade Statistics 2007, Table III.13.

impediment to some EU telecom operators, as new EU entrants to the US do not get equal access to the high-speed internet connections needed to define Virtual Private Networks (VPNs). The US is not obliged to provide such access, as US internet services fall under ‘information services’ rather than ‘telecommunications services’ under the WTO rules, while the EU categorises internet access under ‘telecommunications’.

Although the sector only covers services, differences in technology (e.g. ATSC and DVB-T technology and mobile communications standards) affect the sector indirectly, as the services are partly based on the technology used. Uncertainty with regard to US regulations in the future, due to court proceedings, constitutes an NTM for communication services firms as well.¹³⁷

Cross-cutting NTMs

The most important cross-cutting NTMs relevant to the communications services sector for entry into the US markets include differing licensing systems, IPR systems (patenting) and diverging standards.

Table 13.1 Most important EU to US NTMs and regulatory divergence in trade and investment¹³⁸

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹³⁹
Trade measures				
1	ATSC technology which is not compatible with DVB-T standards in EU	Constant	Sector	Expert & survey & literature
2	Licenses	Decreasing	Cross-cutting	Survey & literature
3	US standards differ from international standards	Constant	Cross-cutting	Survey
4	Monopoly of the USPS in the US market	Decreasing	Sector	Expert
5	Restricted access to high speed internet connections for foreign firms	Constant	Sector	Expert
6	US Intellectual property right system (with first to invent principle)	Constant	Cross-cutting	Survey
7	Transfer delays, slow custom procedures (postal)	Constant	Cross-cutting	Survey
8	US Customs Refusal of “Made in EU”	Constant	Cross-cutting	Survey
Investment measures				
1	Restrictions in the access to local finance	Constant	Cross-cutting	Survey
2	Discrimination of foreign companies in public procurement	Constant	Cross-cutting	Survey
3	Limits imposed by CFIUS on the number/share of (foreign) firms	Constant	Cross-cutting	Expert & survey
4	Requirements regarding professional qualifications for foreign firms	Constant	Cross-cutting	Survey
5	Very limited access of foreign companies to US government subsidy programmes (e.g. Technology Innovation Programme)	Constant	Cross-cutting	Survey
6	Tax Code Reporting Requirements applied to foreign owned corporations	Decreasing	Cross-cutting	Survey
7	Limitations on land ownership	Constant	Cross-cutting	Survey
8	Buy American Act, which causes measures affecting	Increasing	Cross-cutting	Survey

¹³⁷ Market Access Database.

¹³⁸ For extended list of NTMs see Annex IX.

¹³⁹ For more information on sources see Annex X.

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹³⁹
	access to the US government procurement markets			

13.2.2 NTMs and regulatory divergence faced from US to EU

In most EU countries, the postal market is still a national monopoly, which affects US trade and investments. The EU Member States have agreed that by the year 2011 all postal markets should be liberalised, but exceptions to this rule have already been made. For countries that are not able to make the 2011 deadline, it has been moved to 2013 (this applies to eleven countries in total).¹⁴⁰ On the other hand, some Member States have decided to liberalise their postal markets sooner than the EU guideline. The UK, for example, opened up its postal market to competition as early as 2006.

Another measure affecting US investments in the EU postal market is caused by delays by some of the EU Member States in implementing the Utilities Directive, while this Directive poses a measure affecting trade in its own right as well, since it gives EU Member States the possibility to shield their postal markets from outsiders for the sake of protecting and ensuring their national postal service (national coverage). For public procurements, there are still EU content requirements of 50 percent and more.

Although the postal market will be fully opened up to competition in theory following implementation of the relevant EC postal directives, in practice there may be a variety of measures affecting entry that may ultimately result in a *de facto* continuation of limited competitive pressure on the incumbent postal organizations and the absence of real competition in the addressed mail market. The most important measures affecting competition include: (i) the VAT exemption of many of the incumbent postal organizations; (ii) access to letterboxes, most notably in Austria and Poland; (iii) strategic measures, in particular arising from (alleged) exclusivity contracts, price discrimination, loyalty bonuses, and bundling and tying; (iv) measures arising from how the universal service obligation will be defined, its net cost established and the cost of financing of the universal service obligation shared between market participants; (v) labour legislation and in particular collective labour agreements applicable to all operators if these would in fact pose unfair restrictions to the business model of competitors; (vi) the different requirements that have to be met for obtaining a license or authorisation to provide postal services (Directive 2008/6/EC provides further guidance in this matter, but attention to the application of the Directive is required); (vii) the varying extent to which access to the postal infrastructure has been regulated and/or arranged in practice, including how interoperability has been taken care of at Member State level; and (viii) the diverse mail requirements in the Member States, in particular with regard to local address formats, barcodes, and the definitions used to distinguish a letter from a parcel (relevant to internationally operating postal operators and customers).

Even though there are challenges to investments in the postal sector, there is a trend towards more openness, and progress has been made. Market openness as well as procurement issues are

¹⁴⁰ An option available to Cyprus, Czech Republic, Greece, Hungary, Lithuania, Luxembourg, Latvia, Malta, Poland, Romania and Slovakia.

actionable. Together with increased market openness, public procurements in the postal market are likely to become more open too.¹⁴¹

US companies face similar measures affecting trade in the EU telecommunications market as in the postal market. Here the direction of new legislation is also towards a more open market. The pace in which markets open up and new regulations are put in place differs between the Member States, causing uncertainties for US firms. In addition, there are some country specific measures where US telecommunication companies face problems accessing the mobile and landline telephone market.

The US-adopted ATSC technology is incompatible with the DVB-T standard adopted in the EU, which acts as a NTM to both EU and US companies. An additional compatibility problem is the EU requirement that the performance of ICT products is not influenced by electromagnetic disturbances of other electronic devices. This is referred to as Electromagnetic Susceptibility (EMC) and causes a measure affecting trade, because the Federal Communication Committee does not have such requirements.¹⁴²

An important cross-cutting NTM affecting US Communication services providers is the option of EU countries to grant companies the use of defensive measures against hostile takeovers.

Table 13.2 Most important US to EU NTMs and regulatory divergence in trade and investment¹⁴³

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁴⁴
Trade measures				
1	Delays in implementation of opening up telecom markets in EU in some member states	Decreasing	Sector	Expert & survey
2	ATSC technology which is not compatible with DVB-T standards in EU	Constant	Sector	Expert & survey & literature
3	National monopolies in the postal market	Decreasing	Sector	Expert & survey & literature
Investment measures				
1	Delays in implementing Utilities directive	Decreasing	Sector	Survey & literature
2	National monopolies in the postal markets in some EU member states	Decreasing	Sector	Expert & survey & literature
3	Takeover directive	Constant	Cross-cutting	Survey & literature
4	Use of defensive measures against hostile takeovers	Constant	Cross-cutting	Survey & literature
5	Specific EU member legislations and practices related to utilities investments	Decreasing	Sector	Survey

¹⁴¹ USTR 2008.

¹⁴² Hamilton and Quinlan (2005).

¹⁴³ For extended list of NTMs see Annex IX.

¹⁴⁴ For more information on sources see Annex X.

13.3 The overall importance and effects of NTM reductions

13.3.1 Overall level of restrictiveness of the NTMs in the sector

Based on both our survey data for trade, and recent OECD (2007) indexes on FDI restrictions in communications services, the US market is relatively more open than the average level prevailing across EU Members for FDI, but more closed for direct trade.

In the table below, the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in Chapter 3.

Table 13.3 Summary table of regression results Communications services (BOPS 245)

	US	EU
FDI restrictions (OECD)	0.025	0.111
Trade restrictions (survey)	0.331	0.214
Bilateral imports, € (\$) billion 2007	1.72 (2.24)	1.95 (2.53)
Impact of measure on trade costs, percent	1.7	11.7
Unrealistic upper bound for welfare gains € (\$) billion	0.2 (0.3)	
Total actionable welfare for both nations, € (\$) billion	0.1 (0.2)	

Note: Trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

The fourth row shows the estimations of the percentage costs additions in each market based on the gravity analysis. The results show that the US restrictions on cross-border trade yield a 1.7 percent trade cost for communications services trade. For the European Union, the impact of NTMs is an 11.7 percent increase in trade costs. The combination of trade costs and trade volumes implies potential gains in the range of €0.2 billion (\$0.3 billion) per year based on multiplying trade levels by trade costs. This assumes the trade costs are dead-weight in nature (i.e. they do not involve actual trade taxes). As only a fraction of the costs are actually actionable and only a share of the measures are directly adding costs, the total, actionable welfare costs are estimated to be a more limited €0.1 billion (\$0.2 billion) per year.

13.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence projected to 2018 for the communication services sector. The quantified summarised results can be found in Table 13.4 below. It should be noted that this section provides effects stemming from NTMs and regulatory divergence reductions in the communication services sector only (the economy-wide reduction results have been reported in Chapter 4).

Table 13.4 CGE results for the communication sector – various scenarios

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$) bn)	0.6 (0.8)	1.0 (1.4)	-0.2 (-0.2)	0.0 (0.1)
National income effect (% change)	0.0	0.0	0.0	0.0

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Value of total exports (% change)	0.0	0.0	0.0	0.0
Value of total imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change)				
- Communication	-0.2	-0.2	0.2	0.2
- Electrical Machinery	0.0	0.0	-0.1	-0.1
- Other machinery	0.0	0.0	-0.0	-0.0
Value exports at the sectoral level (%change)				
- Communication	-0.1	-0.1	8.7	8.7
- Electrical Machinery	0.0	0.0	-0.2	-0.1
- Other machinery	0.0	0.0	-0.0	-0.0

Main results

- With sector-specific NTM reduction and regulatory convergence only, in the ambitious long run, the EU communication services sector adds €1.0 billion (\$1.3 billion) annually to EU national income, while in the US the sector contributes an additional €0.05 billion (\$0.1 billion) per year to US national income;
- The value of overall exports is expected to grow for both the EU and US, but only marginally so. The same holds for imports;
- In case only communication services NTMs and regulatory divergence are reduced, the EU sector is expected to see a small decline in output (-0.2 percent) and an insignificant effect on exports (-0.1 percent). In this case, the US communication services sector is expected to increase slightly (in terms of output) by 0.2 percent, while exports are expected to increase substantially by 8.7 percent;
- This shows that the main economic gains for the EU come from increased cheaper imports of communication services from the US, while increased exports increase the national income gains for the US.
- The resources freed up due to the slight decrease of the EU communications services sector as a result of sector-specific NTM reduction, are expected to be absorbed by the electrical machinery and other machinery sectors. In the US, the picture is the reverse, as the growth of the sector pulls away resources from these two other sectors.

13.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

Telecommunications

The US was ahead of the EU in liberalising its telecommunications sector, which it started to do in the mid-1980s. The US approach in opening up the market was also much more radical than in the EU, starting with the break-up of AT&T in 1984, thereby breaking telecom monopolies by means of competition law. Liberalisation of the telecommunications sector at national level in the EU has been more gradual, by regulating former incumbents with the introduction of sector-specific regulation at the EU level.

As a result of liberalisation and technological progress, competition in telecommunications has intensified significantly in the EU. The traditional monopoly players in the sector have experienced a decline in their market shares and consumers have witnessed falling prices. For

example, in Germany, end-consumer prices in the fixed line network have fallen by 61 percent for long-distance domestic calls and by 68 percent for international calls since 1995.¹⁴⁵

In regulating the telecom market, the EU uses the investment ladder model, which assumes that a new service provider initially uses the existing infrastructure of the former incumbent, but will increasingly build up its own infrastructure to tailor its products to its customers. This way, increased services competition will also lead to more infrastructure competition. In contrast, the US puts more emphasis on infrastructure competition and assumes that infrastructure competition will also lead to competition at service level.

Table 13.5 Typology of competitiveness aspects of the Communication services sector¹⁴⁶

Communication services	Public (mass) communication services	Specialised communication services
Typically the provision of communication services requires a high degree of proximity between supplier and customer, particularly where provision of the service is itself conditional upon provision of the supporting communications infrastructure. This condition, reflected in high capital investment in physical communication networks, has traditionally implied significant scale economies in the provision of mass communication services. However, as market liberalisation has sometimes demonstrated, market entry by new service providers is possible where appropriate access to infrastructure networks is available. At the other end of the spectrum are specialised service providers, targeting specific market segments, for which market size and price competition are less important. Moreover, technological developments (notably internet) and the falling cost of telecommunications have increased possibility of digital delivery of services (not only in communications services) at distance, thus weakening traditional need for a degree of proximity.		

According to Heng (2008), the US has indeed achieved intensive competition at the infrastructure level (long distance operators, local telecom operators and cable operators), but competition at the service level is less pronounced than in the EU. In the US, the break-up of AT&T's monopoly has not resulted in much increased competition over the past 20 years, as currently only two companies (AT&T and Verizon) dominate the market.

In the EU, there is less competition in infrastructure, with mostly vertically integrated telecom companies. Partly as a result of this lack of infrastructure competition, investments in infrastructure appear to be more limited in the EU, especially in next generation access networks like high-speed fibre access lines. In addition, in the EU the former incumbents still play an important role, accounting for about 70 percent of aggregated revenues in the EU telecom market

Reduction of NTMs would benefit both EU and US telecom companies and consumers alike. As indicated above, competition in telecom services appears to be more limited in the US than in the EU. In the EU, incumbents also continue to dominate the market. Increased market access for the US and the EU is therefore likely to increase competition in this segment of the market on both sides of the Atlantic. This could lead to substantial reductions in prices for consumers, as the example of the opening up of the German telecom sector has illustrated.

¹⁴⁵ Source: Heng, S. (2008) Telecom regulation in the EU facing change of tack: competition requires a clear policy line, Deutsche Bank Research, Economic 66, 8 July 2008.

¹⁴⁶ For the developed typologies, see Section 3.6.

Postal market¹⁴⁷

The postal market in the US is markedly different from that in the EU in terms of competition. In contrast to other sectors in the US, the postal sector has not been liberalized. Since starting its postal operations in 1970, the United States Postal Service (USPS) enjoyed a monopoly in this market¹⁴⁸, with only some exceptions in the parcel and express markets. Although the USPS has a monopoly on the delivery end of the mail pipeline (mailbox monopoly), the upstream part of the market is increasingly opened up to competition, through work-sharing, for example, in pre-sorting and bar-coding by private parties.

There are a number of competition issues that hinder a level-playing field. The USPS enjoys an ‘implicit subsidy’ for being an entity of the federal government. This implicit subsidy entails avoided costs associated with various federal, state, and local legal requirements that its private competitors incur, avoided costs due to preferential interest rates on its debt, and certain other less quantifiable advantages. On the other hand, the USPS incurs costs for fulfilling the requirements of the Postal Regulatory Commission (PRC).

Despite the small number of measures affecting entry in the US postal market, the monopoly powers of the USPS certainly have a deterring effect on market entry. Liberalising the US postal market by reducing the monopoly powers will increase competition, both from domestic and foreign companies.

The already-planned opening of the EU postal markets is likely to attract investments in the sector from the US, although a number of measures that hinder competition are likely to prevent the creation of a level playing field, given the still strong position of incumbent firms. As for telecom, the divergence in regulations and in the speed of opening up the postal market in the different EU Member States causes uncertainties and hinders an overall EU approach in entering the market.

Looking Ahead

As a result of the trend towards liberalisation in the telecom and postal markets, NTMs are expected to decrease in the near future. Tackling investment divergences seems to be most important. Some of these regulatory divergences could be reduced, but others will be more difficult (notably the CFIUS and FCC approval, and the EU Takeover Directive) and are therefore likely to remain.

Systemic implications and global regulatory standards

The differences between the EU and US in ATSC and DVB-T technology and in mobile communication standards are difficult to tackle, and they only affect the sector indirectly, as the sector only covers services.

Some international standards in the Information Technology sector have been developed, notably the Unicode standard and International Components for Unicode (ICU), which were initiated from within the sector and are thus voluntary. ICU was originally developed by the Taligent

¹⁴⁷ This information is based on van der Lijn, N. et al (2008) Main developments in het postal sector 2006-08, ECORYS report commissioned by the EC DG Internal market and services.

¹⁴⁸ About 90 percent of USPS's revenue comes from monopoly or from de facto monopoly products.

company. The Taligent team later became the Unicode group at the IBM Globalization Center of Competency in Cupertino, which received significant input from the open source community worldwide. ICU is comprised of a widely used set of C/C++ and Java libraries providing Unicode and Globalization support for software applications. ICU is released under a non-restrictive open source license that is suitable for use with both commercial software and with other open source or free software.

ICU closely tracks the *Unicode standard*, providing easy access to all of the many Unicode character properties, Unicode Normalization, Case Folding and other fundamental operations as specified by the Unicode Standard.¹⁴⁹

The Unicode Consortium is a non-profit organization founded to develop, extend and promote use of the Unicode Standard, which specifies the representation of text in modern software products and standards. The membership of the consortium represents a broad spectrum of corporations and organizations in the computer and information processing industry. Unicode (and the parallel ISO 10646 standard) defines the character set necessary for efficiently processing text in any language and for maintaining text data integrity.¹⁵⁰ The widespread adoption of Unicode over the last decade made text data truly portable and formed a cornerstone of the Internet.¹⁵¹

As one of the most globalised sectors at present, the development of international standards is seen as crucial for all major players in the sector, which have a common interest.

In the postal sector, some international standards are developed through the Universal Postal Union (UPU), which was established as early as 1874. The UPU is a specialised agency of the United Nations with 191 member countries, which fulfils an advisory, mediating and liaison role, and renders technical assistance where needed. It sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail volumes and to improve the quality of service for customers. The UPU's Standards Board develops and maintains a growing number of technical standards and electronic data interchange (EDI) message specifications to improve the exchange of postal-related information between posts, and promotes the compatibility of UPU and international postal initiatives. It works closely with posts, customers, suppliers and other partners, including many international organizations. The Standards Board ensures that coherent standards are developed in areas such as electronic data interchange (EDI), mail encoding, postal forms and meters.¹⁵² The EU and US are both founding members of this organisation.

¹⁴⁹ <http://site.icu-project.org/>.

¹⁵⁰ In addition to global character coverage, the Unicode standard is unique among character set standards because it also defines data and algorithms for efficient and consistent text processing. This simplifies high-level processing and ensures that all conformant software produces the same results.

¹⁵¹ The Unicode Standard has been adopted by such industry leaders as Apple, HP, IBM, JustSystems, Microsoft, Oracle, SAP, Sun, Sybase, Unisys and many others. Unicode is required by modern standards such as XML, Java, ECMAScript (JavaScript), LDAP, CORBA 3.0, WML, etc., and is the official way to implement ISO/IEC 10646. It is supported in many operating systems, all modern browsers, and many other products. (<http://www.unicode.org/standard/WhatIsUnicode.html>).

¹⁵² <http://www.upu.int/>.

13.4 Conclusions

- The communications sector poses a number of NTMs that prevent a level playing field in the EU-US market from materialising.
- Although EU postal and telecom sectors are opening up, there are marked differences in speed and implementation across Member States. For US companies entering the EU market, this implies that an important NTM comes from divergence in regulations and in opening up the telecom market;
- On the US side, a number of specific rules and uncertainties for investing in the US (restriction of CFIUS, approval of the FCC) seem troublesome for EU (and other foreign) firms, while the high degree of concentration in the postal sector also pose a *de facto* NTM to trade and investments in restricting market access;
- Removal of sector specific NTMs is expected to result in a decline in Communication Services output (-0.2 percent) and exports (-0.1 percent) in the EU, and an increase in output and exports for US Communication Services by 0.2 percent and 8.7 percent, respectively;
- Due to cheaper imports of communication services from the US, EU welfare gains accrue to €1.0 billion (\$1.4 billion) per year, while US welfare does not change significantly.
- Further reduction of NTMs in the sector is likely to benefit consumers in particular, as prices fall and quality and coverage increase. The US gains most from the removal of NTMs, and will see the competitive position of its industry increase, not just vis-à-vis the EU, but especially vis-à-vis other sectors in the US economy, implying that resources will reallocate towards the Communication Services sector.

14 Financial services

14.1 Introduction

Financial services are important for both transatlantic economies and there is determination on both sides that recent events in global finance should not lead to increased protectionism and unilateralism. A recent G20 communiqué¹⁵³ encouraged all members to not implement any regulation which may be perceived as a measure affecting either trade (export of services from the national base) or investment (direct provision of services in another country). Given the global crisis of 2008-2009 this is a possible effect. In essence the global crisis creates the potential to address significant NTMs – thus reducing regulatory divergence – but also has the potential – if the EU and US do not communicate and discuss sufficiently about impact for each others' markets and firms – to significantly increase regulatory divergence. This is why the results for this Chapter need to be interpreted with caution as much of the regulatory surroundings is still in flux on both sides of the Atlantic. Yet, crisis or not, there remain significant obstacles to the trade and investment of these services between the EU and the US. Here, the NTMs in this sector and the potential impact of reductions in NTM on trade and investment in financial services across the Atlantic are examined. While US and EU market activity in the financial sector dominates the globe, in terms of absolute value, financial service exports are more important for the EU than the US. Exports of financial services account for 8.4 percent of total service exports for the EU-15¹⁵⁴ and rose from €21.9 billion (\$28.5 billion) to €71.7 billion (\$93.2 billion) over 1996-2005, registering a growth of 227 percent over time. For the US, the increase was more than threefold (from €6.3 billion (\$8.2 billion) to €27.6 billion (\$35.9 billion)) and their share (in total services exports) was slightly higher at 9 percent. There are also high levels of investment in both directions. EU investments in US equity amount to 39% of total foreign investments, while those in US debt securities were at 32%. EU holdings of US debt and equity amounted to €1.6 trillion (\$2.1 trillion) and €0.9 trillion (\$1.2 trillion), respectively, in 2007.¹⁵⁵

Table 14.1 Summary information on financial services¹⁵⁶

Entity	Exports, 1996	Exports, 2005	Growth rates (%)	Share of total services exports (percent)	
				1996	2005
EU-15	€ 21.9 (\$28.5)	€ 71.7 (\$93.2)	227.1	5.1 percent	8.4 percent
US	€ 6.3 (\$8.2)	€ 27.6 (\$35.9)	314.2	3.5 percent	9.0 percent

Source: OECD Stats Online (most recent data available for both countries); own calculations

¹⁵³ Text of the G-20 Communiqué, 10 November 2008, <http://www.iht.com/articles/2008/11/09/business/9g20text.php> accessed 9 December 2008.

¹⁵⁴ For data up to 30 April 2004.

¹⁵⁵ Ibid, p6.

¹⁵⁶ The original US\$ amounts have been converted into € for purpose of consistency in the report. The exchange rate used is 1,3\$/€.

14.2 Identified NTMs and regulatory divergence

14.2.1 NTMs and regulatory divergence faced from EU to US

In financial services, most EU concerns relate to specific US laws and provisions such as Section 319 of the Patriot Act, information reporting requirements of the US Tax Codes, the Sarbanes-Oxley Act of 2002 as well as the general absence of convergence in regulation including accounting standards, differences in the implementation of the Basle-II framework for banks and the Securities and Exchange Commission (SEC) regulation. EU investors find licencing requirements such as rule 15a-6, which mandates supervisory obligations, as especially burdensome. Furthermore, there is a lack of convergence in the regulation of financial services across various US states.

The global economic crisis has also served to highlight differences in the treatment of foreign investors on both sides. Support packages have been used on both sides, which could affect the competition, and e.g. the future of Basle-II¹⁵⁷ is unclear.¹⁵⁸ The situation could provide an opportunity to look more thoroughly at the difference in transatlantic standards.

Table 14.2 Most important EU to US NTMs and regulatory divergence in trade and investment¹⁵⁹

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁶⁰
Trade measures				
1	Discriminatory taxation of European financial institutions that apply IFRS instead of US GAAP ¹⁶¹	Decreasing	Sector	Survey & literature
2	Section 319 of the PATRIOT Act that requires US correspondent banks to maintain certain records concerning foreign banks with a US correspondent account	Increasing	Sector	Survey & expert & literature
3	Tax Code Reporting Requirements applied to foreign-owned corporations	Constant	Sector	Survey & expert & literature
4	Registration requirements for foreign banks in the US providing global custody and related services directly to US investors	Increasing	Sector	Survey
5	Differences in the implementation of the Basle II framework for banks	Constant	Sector	Survey & expert & literature
6	Sarbanes Oxley Act	Constant	Cross-cutting	Expert
7	Lack of convergence in the regulation of financial services across US states	Increasing	Cross-cutting	Expert
Investment measures				
1	Duplicative consolidated supervision of EU Central Bank and Federal Reserve	Constant	Sector	Survey & literature

¹⁵⁷ **Basel II** is the second of the [Basel Accords](#), which are recommendations on banking laws and regulations issued by the [Basel Committee on Banking Supervision](#). The purpose of Basel II, which was initially published in June 2004, is to create an international standard that banking regulators can use when creating regulations about how much capital banks need to put aside to guard against the types of financial and operational risks banks face.

¹⁵⁸ This could result in Basle III being introduced.

¹⁵⁹ For extended list of NTMs see Annex IX

¹⁶⁰ See for more information on sources Annex X

¹⁶¹ This has been raised by the TABD (http://www.tabd.com/storage/tabd/documents/annex_to_tabd_letter_to_tec_12_12_08.pdf)

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁶⁰
2	Local licencing requirements	Constant	Sector	Survey
3	Absence of convergence regulations in reporting standards	Decreasing	Cross-cutting	Survey & expert & literature
4	Requirement for professional qualifications for foreign firms	Decreasing	Cross-cutting	Survey

14.2.2 NTMs and regulatory divergence faced from US to EU

The US side finds the absence of convergence in regulation including accounting standards and differences in the implementation of the Basle-II framework for banks, as well as different regulatory requirements for banking and other financial services by different EU Member States burdensome. These relate to reciprocal national treatment clauses, local licensing requirements, regulatory approval for setting up operations, and the absence of national treatment in some cases. Currently, these NTMs in the EU and the US have an adverse impact on all banks, hedge funds, private equity funds, venture capitalists, mortgage firms and security firms.

The lack of regulatory convergence in accounting between the EU and the US, however, has shown signs of improvement with the SEC-Commission roadmap to equivalence, the IFRS/FASB roadmap for convergence, the November 2007 recognition of IFRS-SEC equivalence, the August 2008 SEC roadmap to adoption of IFRS for US issuers and the recognition of equivalence of US GAAP by EU. However, in recent developments, the FASB has decided to propose changes to US accounting rules. If these were to become effective, it would be a unilateral move away from convergence with IFRS. Similarly, in the area of auditing, work is ongoing between the EC and PCAOB on equivalence (mutual reliance on respective public oversight systems). In addition, both sides need to promote international standards in auditing in cooperation with the International Auditing and Assurance Standards Board (IAASB). The TABD has recommended an action plan to be created by both the EU and the US, to allow more convergence of these auditing issues.

Table 14.3 Most important US to EU NTMs and regulatory divergence in trade and investment¹⁶²

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁶³
Trade measures				
1	Differences in the implementation of the Basle II framework for banks	Constant	Cross-cutting	Survey & expert & literature
2	Auditor oversight and lack of cooperation between EU and US financial regulators	Decreasing	Sector	Survey & literature
3	EU intellectual property rights which are less broad than the US ones	Constant	Cross-cutting	Survey
4	US and other investment firms from non-EU countries may operate with authorisation from Italy's securities market regulator, CONSOB, only.	Constant	Sector	Survey & literature
5	Different regulatory requirements and local licensing	Decreasing	Cross-cutting	Survey & expert &

¹⁶² For extended list of NTMs see Annex IX

¹⁶³ See for more information on sources Annex X

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁶³
	requirements			literature
6	National treatment may be applied to non-EC branches of Foreign Credit Institutions (FCIs) on the basis of reciprocity.	Constant	Cross-cutting	Survey & expert & literature
7	Absence of convergence between EU Member States	Constant	Cross-cutting	Expert
Investment measures				
1	Individual Member State authorisation and regulation applied to direct branches of non-EU financial service institutions	Constant	Sector-specific	Survey
2	Government procurement only open to national companies	Decreasing	Cross-cutting	Survey

14.3 The importance of NTMs and the effects of NTM reductions

14.3.1 Overall level of restrictiveness of the NTMs in the sector

In the table below the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in Chapter 3. The fourth row presents the gravity analysis based trade cost estimates. The US restrictions on cross-border trade yield a 31.7 percent trade cost increase and the EU restrictions are estimated to add 11.3 percent to the costs. Since total bilateral trade amounted to over €7.7 billion (\$10 billion) in 2005, these costs point to potential welfare gains of as much as €2.4 billion (\$3.2 billion) per year. However, as only a fraction of the costs are actually actionable and only a share of the measures are directly adding costs, the total, actionable welfare costs are estimated to be a more limited €0.7 billion (\$0.8 billion) per year.

Table 14.4 Summary table regression results Financial services (BOPS 260)

	US	EU
FDI restrictions (OECD)	0.275	0.107
Trade restrictions (survey)	0.254	0.131
Bilateral imports, € (\$) billion 2007	4.09 (5.32)	3.79 (4.93)
Impact of measure on trade costs, percent	31.7	11.3
Unrealistic upper bound for welfare gains € (\$)billion		2.4 (3.2)
Total actionable welfare for both nations, € (\$) billion		0.7 (0.8)

Note: trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

14.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence looking forward to 2018 for the financial services sector. The quantified summarised results can be found in Table 14.5 below. It should be noted that the sector effects have been looked at in case NTMs and regulatory divergence are addressed at an economy-wide level (i.e. in all sectors of the economy at the same time) and in case they are only addressed in this sector (i.e. sector-specific).

Main results

- With sector-specific NTM reduction only, in the ambitious long run, the EU financial services sector gains €1.2 billion (\$1.6 billion) each year, while in the US the sector gains contribute to a €2.0 billion (\$2.6 billion) increase in national income each year;
- The value of exports is expected to grow marginally for both the EU and US albeit at a slightly faster rate for the US (0.07 percent) than the EU (0.02 percent). The same holds for imports;
- In case only financial services NTMs and regulatory divergence are reduced, in the EU the sector is expected to gain marginally in terms of output (0.06 percent) and slightly more in exports (1.6 percent); in this case the US financial services sector is expected to decline (in terms of output) by approximately 0.1 percent, while exports are expected to increase by 2.0 percent;
- For the EU the short-term effects are negligible. Apparently, only when the dynamic investment effect kicks in, a positive national income effect can be measured;
- Sector-specific NTM reduction in the EU, leading to small increases in output and exports, draws in resources mostly from electrical machinery and other machinery; in the US the picture is reversed; i.e. resources go to electrical machinery and other machinery as well as chemicals.

Table 14.5 CGE results for the financial services sector – various scenarios

	Ambitious scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$ bn)	0.0 (0.0)	1.2 (1.6)	0.9 (1.2)	2.0 (2.6)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.1	0.1
Value of imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change)				
- Finance	0.1	0.1	-0.1	-0.1
- Electrical Machinery	0.0	0.0	0.3	0.4
- Insurance	0.0	0.0	0.0	0.0
- Chemicals	0.0	0.0	0.0	0.0
- Motor vehicles	0.0	0.0	0.0	0.0
Value exports at the sectoral level (%change)				
- Finance	1.6	1.6	2.0	2.0
- Electrical Machinery	0.0	0.0	0.4	0.5
- Other Machinery	0.0	0.0	0.0	0.0
- Insurance	0.0	0.0	0.0	0.0

14.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

Greater financial integration is considered to be a necessary (but not sufficient) condition for increasing the overall efficiency of the financial sector; corporate governance, efficiency of the legal system in resolving conflicts in financial transactions and structural features of the banking system are other determinants. NTM reductions - especially those directly addressing regulatory and governance issues in this sector - should contribute to enhancing efficiency whilst also contributing to greater transparency and, in turn, improved regulatory oversight. Such conditions

should provide for a more level playing field and a more open competition environment among financial service providers. Overall, where international compliance costs are reduced and competition is increased then costs of financial services should fall. However, in terms of the relative competitiveness of EU and US based financial services, the CGE modelling results suggest only minimal impacts on sector output which tends to indicate that neither area has a strong relative competitive advantage vis-à-vis the other. Thus, NTM reductions are unlikely to result in significant changes in the relative positions of the EU and US, though there is a small ‘advantage’ to EU suppliers given the higher level of protection afforded to US financial services under the existing NTMs.

Table 14.6 Typology of competitiveness aspects of the Financial and insurance services industry

Financial and insurance services	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Back-office functions	Retail financial and insurance services	Offshore and some specialised services	Specialised financial services
Retail banking and, to a lesser extent, retail insurance services have traditionally required investment in local branch networks to provide proximity to clients. With the rise of online banking services this requirement is being eroded. In addition, some relatively labour intensive financial service activities have already been subject to off-shoring to lower labour cost locations. Moreover, some specialised financial services (e.g. specialised corporate and insurance services) have traditionally been provided internationally at distance. While competitiveness of retail banking has for some time focussed on the efficiency of service production, other areas have been characterised by competition driven through product innovation. As recent events have demonstrated, it could be claimed that many areas of financial services have actually suffered from excessive innovation. Arguably, the future basis of competitiveness will be based on more prudent business behaviour.				

Looking Ahead

As a result of the financial crisis, it is likely that there will be new discussions on regulations in financial services, especially those related to supervision. At this time, it is difficult to predict whether this will lead to increased or reduced NTMs, as this will depend on the extent to which countries will co-operate on this internationally, or will unilaterally take measures at national levels. From an economic point of view diverging regulation in the sector may be very costly – and the unique opportunity to do the opposite currently exists. The recent developments in reducing NTMs related to divergence in accounting and auditing in financial services show at least a clear interest in reducing NTMs in transatlantic trade from both sides. This is a development also reflected in the TEC agenda.

Systemic implications and global regulatory standards

Inconsistent practices and provisions across states in the US and Members in the EU and divergent regulatory practices between the EU and the US have adversely affected competitiveness of this sector and the emergence of a level-playing field in both economies.

Possible reductions in NTMs would both promote the harmonization of regulatory standards and cooperation and coordination between supervisory bodies. Given the importance of these two economies in global financial trade, it is also possible that any regulatory harmonization between them may also serve as a model for the rest of the world and lead to an improvement in international standards and practices in this sector.

14.4 Conclusions

- The financial services sector is a key sector for both the EU and the US and there is determination on both sides that recent events in global finance should not lead to increased protectionism and unilateralism, nor – having learnt from the 1930s – to a negative spiral of effects in the banking sector;
- Most NTMs in financial services in these two economies relate to the absence of regulatory convergence;
- Several of the identified NTMs lead to an increase in the cost of doing business for exporters from both sides. In view of these problems and the importance of these sectors in their overall services trade, greater transatlantic cooperation and leadership should and can lead to these issues being addressed;
- The absence of regulatory convergence in accounting and auditing in financial services has been addressed by several recent milestones primarily on the side of the EU;
- The levels of restrictiveness add up to 31.7 percent to cross-border trade costs with the US, while the EU restrictions are estimated to add 11.3 percent to trade costs in the sector;
- Actionability of the identified regulatory divergence range from 49 to 55 percent (i.e. 45 to 51 percent of the identified NTMs cannot be addressed);
- As a consequence of sector specific NTM reduction, financial services trade flows are expected to increase in the future, both for the EU and US (0.02 and 0.1 percent respectively);
- Reduction of sector specific NTMs, will see the financial services sector increase slightly in the EU by 0.1 percent, while US sector output is expected to decline marginally by -0.1 percent;
- Reduction of NTMs in overall in the transatlantic economies would, lead to very small changes in output for the EU and US (+0.1% for the EU, -0.1% for the US);
- The apparent contradiction for the US between the decline in output if only this sector is harmonised and a rise in output if economy-wide NTMs are addressed, can be explained by the enabling character of the industry and relative competitive position of the industry in the overall economies;
- Reduction of NTMs in the industry could improve corporate governance, efficiency of the legal system in resolving conflicts in financial transactions and structural features of the banking system, thus improving competitiveness.

15 Insurance services

15.1 Introduction

In terms of absolute value, insurance services exports are more important for the EU than for the US, but their share in each country's total services exports is pretty much similar. Exports of insurance services account for 2 percent of total services exports for the EU-15¹⁶⁴ and rose from €11.1 billion (\$14.4 billion) to €18.3 billion (\$23.8 billion) over 1996-2005, registering a growth of 65.5 percent over that period. For the US, the increase was more than threefold (from €1.3 billion (\$1.7 billion) to €5.2 billion (\$6.8 billion)) but the insurance services share (in total services exports) was slightly lower than that in the EU. The absolute value of insurance services is much lower in the US compared to the EU.

Table 15.1 Summary information on financial and insurance services

Entity	Exports, 1996	Exports, 2005	Growth rates (%)	Share of total services exports (percent)	
				1996	2005
EU-15	€11.1 (\$14.4)	€18.3 (\$23.8)	65.5	2.6 percent	2.1 percent
US	€1.3 (\$1.7)	€5.2 (\$6.8)	313.3	0.7 percent	1.8 percent

Source: OECD Stats Online (most recent data available for both countries); own calculations.

15.2 Identified NTMs and regulatory divergence

15.2.1 NTMs and regulatory divergence faced from EU to US

The lack of convergence in regulation across various US states, each of which has its own set of rules and the absence of (optional) federal regulation provides the main serious obstacle for providing insurance services in an efficient manner. The overregulation perceived by EU firms as a consequence hereof, is illustrated e.g. by the pre-approval requirement for each life insurance product at state level. Given this regulatory context, the largest specific issue for EU firms is the collateral and capital requirement in the US of cross-border reinsurance transactions, leading to cost escalations. The collateral requirements are sometimes even more than 100 percent.

In December 2008, the US National Association of Insurance Commissioners (NAIC) approved a Modernisation Framework Proposal that will reduce the collateral requirements for non-US re-insurers based on jurisdictions which are recognised as equivalent¹⁶⁵. The NAIC's Proposal is an important and significant step in the right direction but the conceptual framework needs to be

¹⁶⁴ For data up to 30 April 2004.

¹⁶⁵ See "http://www.naic.org/Releases/2008_docs/reinsurance_reform.htm"

worked out further and requires federal legislation to ensure a quick and consistent implementation across all US States to establish a more regulatory level playing field between US and non-US re-insurers.

Another issue is a ruling¹⁶⁶ by the US International Revenue Service (IRS), which interprets the Federal Excise Tax on insurance transactions as a “cascading” tax that applies to all reinsurance transactions involving two or more foreign insurance undertakings, where the underlying risk is in the US. Apart from the tax itself, especially the administrative burden associated with it is the main hindering issue.

A **future potential measure** could be faced by EU firms providing services in the US if a bill on offshore affiliated reinsurance transactions is passed in the US Congress¹⁶⁷. This bill would limit the deduction for any premiums reinsured to non-US resident related parties. The proposal is agnostic to the level of taxation of the entity which provides the reinsurance and therefore it would equally affect EU (re)insurers and thus leads to unfair competition since EU (re)insurers already are paying tax in their home jurisdictions.

On a more general level, a process of internationalisation and consolidation is taking place in the insurance market at present (with the advantage that e.g. natural catastrophe risks can be transferred and spread worldwide). The EU moving towards Solvency II is seen as a large leap forward in this process of creating an international level playing field.¹⁶⁸ In this context, the way in which the US will reform its regulatory system, in the same direction as the EU or not, is the main overall issue of importance for EU and US firms doing business in the Transatlantic market.

Table 15.2 Most important EU to US NTMs and regulatory divergence in trade and investment¹⁶⁹

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁷⁰
Trade measures				
1	Collateral requirements (or especially US reinsurance services)	Increasing	Sector	Survey & Expert & literature
2	Lack of federal legislation and differences in state legislation	Constant	Sector	Survey & Expert & literature
3	Federal excise tax for insurers (cascading tax)	Increasing	Sector	Expert
Investment measures				
1	Diverging state-level regulations	Increasing	Sector	Survey & Expert
2	No operating licenses for government controlled insurance companies	Constant	Sector	Survey & Expert

¹⁶⁶ IRS Revenue Ruling 2008-15 and Announcement 2008-18

¹⁶⁷ See HR 6969 (110th Congress) “To amend the Internal Revenue Code of 1986 to disallow the deduction for excess non-taxed reinsurance premiums with respect to United States risks paid to affiliates” as well as Senate discussion draft: <http://finance.senate.gov/PublicComment2008/Tax%20Treatment%20of%20Reinsurance%20Companies%20Staff%20Discussion%20Draft.pdf>

¹⁶⁸ After intensive negotiations between the Commission, the European Parliament and the European Council, the three institutions agreed on a compromise text for the Solvency II Framework Directive that was adopted by the European Parliament’s plenary session on 22 April 2009. For further information, see http://ec.europa.eu/internal_market/insurance/solvency/index_en.htm.

¹⁶⁹ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹⁷⁰ For more information on the source see Annex X.

15.2.2 NTMs and regulatory divergence faced from US to EU

The US finds that the lack of convergence in insurance and reinsurance regulation in the EU, as well as regulatory capital requirements in reinsurance, lead to cost-escalations. It also is concerned about reciprocal national treatment clauses of the EU banking, insurance and investment services directives.

Two **potentially important future** issues relate to the proposed introduction of Solvency II in the EU¹⁷¹ - equivalence determination and group-wide supervision. Equivalence in Solvency II may lead to gaps being identified in the US system which would require US firms to fill in the regulatory 'gaps.' Even in case of harmonisation of standards, the different regulatory framework may lead to diverging *de facto* results in insurance markets in the EU and US, given the domestically focused state-based legislation in the US.

Finally, even though Solvency II is generally viewed as a system that is the current best practice in an increasingly international market for insurance services, difficulties and uncertainties exist (e.g. caused by US and EU accounting rules and standards being very different¹⁷²) at a technical level, which may give rise to implementation difficulties resulting in NTMs and regulatory divergence.

Table 15.3 Most important US to EU NTMs and regulatory divergence in trade and investment¹⁷³

Rank	NTM or diverging regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁷⁴
Trade measures				
1	Solvency II regulations – equivalence determination and group-wide supervision	Increasing	Sector	Survey & literature
2	Other licenses	Constant	Cross-cutting	Survey
3	Lack of convergence in insurance and reinsurance regulation in the EU	Constant	Sector	Survey & Expert & literature
4	Compulsory national services	Decrease	Cross-cutting	Survey
5	Regulatory capital requirements in reinsurance	Increasing	Sector	Expert
Investment measures				
1	"Reciprocal" national treatment clauses in EU banking, insurance and investment services directives	Decreasing	Sector	Survey & Expert & literature
2	The proposed EC legislation known as Solvency II	Increasing	Cross-cutting	Survey & literature
3	Requirements regarding professional qualifications for foreign firms	Decreasing	Cross-cutting	Survey

¹⁷¹ Solvency II is currently not in force and will not be for the next couple of years, but it was adopted by the European Parliament on 22nd of April 2009.

¹⁷² The US Securities and Exchange Commission (SEC) has, however, made a roadmap which makes clear that US financial institutions will be able to use IFRS standards from 2011.

¹⁷³ This table shows the most important NTMs and regulatory divergence only. For a full account, see Annex IX.

¹⁷⁴ For more information on the source see Annex X.

15.3 The importance of NTMs and the effects of NTM reductions

15.3.1 Overall level of restrictiveness of the NTMs in the sector

Based on both our survey data and recent OECD (2007) indexes on FDI restrictions in services, the US market is relatively more restricted than the average level prevailing across EU Members. In the Table below the overall levels of trade and FDI restrictiveness of NTMs in the sector are presented, based on the methodology explained in Chapter 3.

Table 15.4 Summary table regression results Insurance services (BOPS 253)

	US	EU
FDI restrictions (OECD)	0.175	0.102
Trade restrictions (survey)	0.353	0.202
Bilateral imports, € (\$) billion 2007	2.45 (3.19)	5.43 (7.06)
Impact of measure on trade costs, percent	19.1	10.8
Unrealistic upper bound for welfare gains € (\$)billion	0.59 (0.77)	
Total actionable welfare for both nations, € (\$) billion	0.35 (0.45)	

Note: trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

Based on these results, it is estimated that US restrictions on cross-border trade will yield a 19.1 percent trade cost increase, while in the EU, the impact of NTMs is a 10.8 percent increase in trade costs. Based on the bilateral trade of over €7.8 billion (\$10 billion) in 2007 in insurance services, the costs point to potential welfare gains of as much as €0.6 billion (\$0.8 billion) per year. However, as only a fraction of the costs are actually actionable and only a share of the measures are directly adding costs, the total, actionable welfare costs are estimated to be only €0.4 billion (\$0.5 billion) per year.

15.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence looking forward to 2018 for the insurance sector. The quantified summarised results can be found in Table 15.5 below.

Main results

- In case of the reduction of sector specific NTMs, EU trade increases (equally for imports and exports), while the US trade balance for insurance products will improve, as exports increase more than imports (0.1 percent);
- In case only insurance sector NTMs and regulatory divergence are reduced, in the EU the sector is expected to gain in terms of output (0.7 percent) and see substantial increases in exports (4.3 percent); in this case the US insurance sector is expected to decline (in terms of output) by approximately 0.7 percent, while exports are expected to increase by 2.3 percent;
- The national income effects are more positive for the US (€2.3 billion / \$3.0 billion per year) than for the EU (no effect), mostly because of increased imports of insurance services from

the EU and a much more efficient and risk-spreading insurance sector – crossing state lines – in the US.

- Sector-specific NTM reduction in the EU, leading to increases in output and exports, draw in resources mostly from electrical machinery and other machinery; in the US the picture is reversed; i.e. resources go to electrical machinery and other machinery.

Table 15.5 CGE results for the insurance sector – various scenarios

	Ambitious scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$)) bn	-0.7 (0.9)	-0.1 (-0.1)	1.3 (1.7)	2.3 (3.0)
National income effect (% change)	0.0	0.0	0.01	0.0
Value of exports (% change)	0.0	0.0	0.10	0.1
Value of imports (% change)	0.0	0.0	0.06	0.1
Value output at the sectoral level (% change)				
- Insurance	0.7	0.7	-0.7	-0.7
- Electrical Machinery	-0.2	-0.1	0.6	0.8
- Other machinery	-0.1	-0.1	0.1	0.1
Value exports at the sectoral level (%change)				
- Insurance	4.3	4.3	2.3	2.3
- Electrical Machinery	-0.2	-0.2	0.7	0.8
- Other machinery	-0.1	-0.1	0.1	0.1

15.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

As with financial services, reduction of existing NTMs – especially related to regulatory divergence - would help promote more open competition and increased efficiency; in particular where product approval and marketing costs are reduced through greater harmonisation of regulations, within the EU and US and between the two economies. Also harmonising US state level insurance regulations at federal level would have a major impact. This should foster the development of new or improved insurance products and ultimately reduce costs for the individual consumer and the economy at large due to increased size (and therefore better spreading of risks) of EU and US insurance companies. Moreover, greater harmonisation of EU and US regulations may have ‘spill-over’ effects in terms of setting global standards for regulation of the sector and reducing insurance costs in many other sectors in the EU and US economies.

It could also reduce the letter of credit capacity especially in the current financial crisis. In addition, improved access to foreign reinsurance providers could help the markets to gain more capacity to underwrite special risks, such as weather-related catastrophe risks or other high exposures risks. The typology of the sector has been described together with the financial services in section 14, Table 14.6.

Looking Ahead

In the insurance sector, some NTMs have shown an increasing trend recently, notably the NTMs related to reinsurance. In the US, these NTMs could increase further if a bill on offshore affiliated reinsurance transactions is passed in US Congress. In the EU, the introduction of Solvency II

may increase NTMs, as it may cause more divergences with US regulations. As in financial services, it is likely that there will be new discussions on regulations in financial services, especially those related to supervision, as a result of the financial crisis. The outcome of this process in terms of NTMs is difficult to predict.

Systemic implications and global regulatory standards

Impediments to trade in insurance in these two economies stemming from the absence of regulatory convergence would need to be addressed by transatlantic harmonization and cooperation (also specifically regarding future issues) and the willingness to remove related NTMs within the domestic economies as well. Overtime, this could also lead to an improvement in and harmonization of global standards and practices within the insurance sector.

15.4 Conclusions

- Most NTMs in insurance services in these two economies relate to the absence of regulatory convergence and to costly and burdensome capital and collateral requirements;
- While some of these issues differ in priority, they are clearly significant obstacles to trade in insurance services between the EU and the US;
- It is estimated that EU restrictions on cross-border trade will yield a 10.8 percent trade cost increase, while towards the US, the impact of NTMs is a 19.1 percent increase in trade costs;
- Actionability of the identified regulatory divergence ranges from 48 to 52 percent (i.e. 52 to 48 percent of the identified NTMs cannot be addressed);
- With sector-specific NTM reduction and regulatory convergence only, in the ambitious long run, the EU insurance sector does not see a change in national income, while in the US sector gains contribute to a €2.3 billion (\$3.0 billion) per year increase in national income, stemming from benefits of US consumers and firms in terms of lower prices for insurance services;
- In the EU we do see a significant increase in insurance services production (0.7 percent) as well as increases in insurance services exports (4.3 percent), implying strong benefits for insurance companies in the EU.
- Reduction of existing NTMs would help promote fair competition in both markets and foster the development of new or improved insurance products and ultimately reduce costs for the individual consumer and the economy at large. It could also reduce the letter of credit capacity especially in the current financial crisis.

16 Transportation services

16.1 Introduction

Transport is a multifaceted sector, comprising infrastructure, fleets and transportation of passengers and freight, by various modes of transport: i) roads, ii) railways, iii) maritime and inland waterways and ports, iv) aviation and v) multimodal transport & logistics, domestic, and international. In the sub-sectors included in this report, NTMs are prominent – in terms of importance and priority – in two major segments: the sub-sector “international aviation” (passenger transport), and the cross-cutting angle “supply chain security”, particularly pertaining to maritime (freight) transport. This is why the chapter concentrates on the NTMs in these two sub-sectors.

16.2 Identified NTMs and regulatory divergence

16.2.1 NTMs and regulatory divergence faced from EU to US

Air transport

Rigorous market regulation of the airline industry has been a global and common practice since the early years of aviation. Laws on international air transport have traditionally been governed by the principle of national sovereignty in order to keep control over national airspace. Moreover, national airlines are frequently wholly or partly government-owned, particularly in the EU, although this is a diminishing trend. International transport is usually regulated by bilateral agreements on landing rights (e.g. destinations and frequencies), based on the reciprocity principle.

The most important NTMs for the air transportation sector are the foreign ownership and control restrictions due to a prevailing attitude that aviation is a strategic, national asset. EU airlines are also affected by the ‘Fly American Act’ (1974), which demands that air travel financed by the government (e.g. for federal employees) be provided by US flag air carriers. Another issue affecting competition in the EU-US aviation market is the Aircraft Leasing Act (e.g. prevention in the US to wet lease to non-US registered companies, see Annex IX).

During the past decade, the EU (and US) air transport policy has been geared to establishing true open skies between the EU and the US. This is known as the EU-US Open Aviation Area, and popularly referred to as the “Open Skies Agreement. This agreement aims to:

- Remedy the elements of the existing bilateral agreements that were found to be incompatible with the EU law by bringing all aspects of relations under the legal umbrella of an European Community-level agreement, and by ensuring that there is no discrimination between EU airlines on the basis of nationality;

- Create a single market for air transport between the EU and US in which investment can flow freely and in which EU and US airlines can provide air services without any restriction, including in the domestic markets of both parties.

Following a series of negotiations, the Agreement was finally signed during the EU-US Summit on April 30, 2007 and took effect on March 30, 2008. Additional (second-stage) negotiations aimed at removing further measures affecting EU-US aviation started in 2008, with an agreement target date of November 2010, which at present looks quite ambitious. The issues to be discussed are ownership and control, the Fly American Act and aircraft leasing. However, immediate effects of the Open Skies Agreement (OSA) are difficult to estimate, as growth in aviation has been negatively affected by external factors such as the economic crisis and is therefore not in a growth mode. It will only be possible to assess the effects of the OSA in a number of years.¹⁷⁵

At present, there are three additional important themes affecting trade in the air transportation sector: environmental regulations, security issues, and passengers with reduced mobility. The US federal pre-eminence on aviation issues has been challenged by some states, but the Supreme Court has been clear on federal pre-emption. With regards to *environmental regulations*, the US “Clear Air Act” (which gives the Environmental Protection Agency responsibility for improving the nation’s air quality) allows some states (i.e., California) to more strictly regulate aircraft emission standards. In the EU, there is again a recent initiative to include aviation in the Emissions Trading Scheme (ETS).

With respect to *security issues*, different viewpoints prevail with respect to security and privacy (e.g. regarding passenger information). Also, diverse security standards are being implemented worldwide, leading to measures affecting trade (e.g. air cargo screening).¹⁷⁶ The introduction of ESTA (Electronic System for Travel Authorisation) is an example of an administrative security issue on the US side.

Regarding *passengers with reduced mobility*, the US State Department of Transportation (US DOT) has published its final rule on non-discrimination on the basis of disability in air travel, amending its Air Carrier Access Act (ACAA). It became effective on May 13, 2009. The main feature of this new legislation is to extend the scope of the US rules to foreign carriers, including EU carriers. Potential conflicts of law between the new ACAA and Regulation (EC) 1107/2006 have been identified and could thus imply that an airline flying a transatlantic route is subject to both regimes.

¹⁷⁵ In October 2008, the IATA organised the Istanbul Summit, which aimed to facilitate badly needed investment in international civil aviation through open ownership and control. However, the timing of the summit was sub-optimal, given the current economic and political climate, and persisting measures affecting market entry and exit are thus likely to remain. Many countries see aviation as a strategic sector, and most countries limit foreign ownership of their national carriers (in the EU there are ownership restrictions for non-EU nationals).

¹⁷⁶ The US TSA Cargo Security measures require different screening measures than the EU Regulation 2320/2002 to be applied for cargo accepted for flights departing from an EU airport to the US (currently at least 50% of cargo on passenger flights must be screened). The European airlines consider these TSA security measures as redundant and to possibly cause widespread impacts on the manufacturing and supply chain reaching far beyond EU airports. Source: European Commission, DG TREN F/5 (Aviation Security Unit) and AEA Cargo Security Working Group.

Maritime transport

The US “Safe Port Act” and “Implementing Recommendations of the 9/11 Commission Act” of 2007 will enforce 100 percent container scanning of all cargoes to be loaded on board of vessels bound for the USA as of July 1, 2012, while in EU seaports sample screening (based on risk management procedures in line with the World Customs Organisation SAFE Framework of Standards) is, and is expected to remain, common practice.

For US bound vessels, substantial additional costs of cargo handling, maritime transport and logistics are expected, distorting competition to the detriment of the market position of EU carriers. In the EU, the vast majority of port operators and the entire trade community are concerned about this new US legislation, in particular with respect to the potential cost of the scanning requirement, its possible effects on competitiveness and its negative impact on transatlantic trade flows. Actions to reduce the expected costs could be difficult to pursue as the unilateral measure is part of the Homeland Security Act of the USA, but alternative measures could be considered. EU companies, among others through the European Seaport Organisation (ESPO), continue to advocate a risk-based approach, instead of 100 percent container scanning.

Further restrictions in international maritime shipping imposed by the US government pertain to the requirement for all items procured or owned by military departments, and at least half of all US government generated cargoes, are to be carried exclusively on US-flag vessels.

Table 16.1 Most important EU to US trade and NTMs and regulatory divergence¹⁷⁷

Rank	NTM or Diverging Regulation	Trend	Sector Specific or Cross-cutting	Sources of Information ¹⁷⁸
Trade measures				
1	Foreign ownership restrictions	Constant	Cross-cutting	Expert & survey & literature
2	Fly American Act, which demands that all federal government-funded flights are provided by US-flag air carriers	Constant	Sector	Expert & survey
3	Requirement for all items procured/owned by the military departments be carried exclusively on US-flag vessels	Constant	Sector	Survey & literature
4	Proposal of 100% container scanning	Increasing	Cross-cutting	Expert & survey & literature
5	Environmental regulations (e.g. Clean Air Act)	Increasing	Sector	Expert
6	Requirement for at least 50% of all US government-generated cargoes to be transported on US-flag vessels	Constant	Sector	Expert & survey & literature
7	Security data collection (e.g. fingerprints)	Constant	Sector	Survey
8	Requirement for 100% of any cargoes generated by US Government loans (i.e., commodities financed by Export-Import Bank loans) to be carried on US flag vessels	Constant	Sector	Expert & survey & literature
Investment measures				
1	Foreign ownership restrictions	Constant	Cross-cutting	Expert & survey & literature
2	Restrictions on the use of foreign temporary workers	Constant	Cross-cutting	Survey
3	Requirement for US airlines to be under the majority control of US citizens in order to be licensed for	Decreasing	Sector	Survey & literature

¹⁷⁷ This is a short list of the NTMs. Please see Annex IX for the whole list.

¹⁷⁸ For more information on the source see Annex X.

Rank	NTM or Diverging Regulation	Trend	Sector Specific or Cross-cutting	Sources of Information ¹⁷⁸
	operation.			
4	Lack of unified state level investment legislation across US	Constant	Cross-cutting	Survey

16.2.2 NTMs and regulatory divergence faced from US to EU

Airport congestion pricing reflecting slot constraints at major hubs may constitute a potentially increasing measure affecting trade, both in the EU and the US. On the EU side, more operational restrictions exist, such as access to customs and flying time limits, which affect competitiveness.

One specific cross-cutting NTM, faced from US to EU, refers to *environmental legislation* i.e., the upcoming EU Emissions Trading Scheme. The ETS aims to reduce greenhouse gas emissions in a cost-effective way. A directive to that end (that came in to force on February 2, 2009) requires all flights into and out of EU airports to pay for their carbon emissions as from 2012.

As to *international maritime transport*, recent maritime transport has been affected by the EU Authorised Economic Operator (AEO) scheme, an amendment to the Community Customs Code, which requires the participating trading party to meet enhanced criteria on customs compliance, record keeping, financial solvency and safety/security standards. The US Customs authorities set similar requirements, thus generating double certification needs. However, a mutual recognition has been planned, which will reduce the measure.

Table 16.2 Most important US to EU trade and investment NTMs and regulatory divergence¹⁷⁹

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁸⁰
Trade measures				
1	Restrictions on foreign ownership and control	Constant	Cross-cutting	Expert & survey & literature
2	Double certification need caused by the European Union's Authorized Economic Operator (AEO) program and the U.S. Customs	Constant	Cross-cutting	Survey
3	Differences in privacy laws vs. security considerations	Increasing	Cross-cutting	Survey
4	Introduction of ETS (future)	Increasing	Cross-cutting	Expert & survey
5	Operating restrictions at airports (access to customs, flying times, etc.)	Constant	Sector	Expert & survey
6	Technical EU regulations (e.g. product characteristics requirements, labelling requirements, testing requirements, etc.)	Constant	Cross-cutting	Survey & literature
7	Differences in the enforcement of the unified customs system across EU member states	Decreasing	Cross-cutting	Survey
Investment measures				
1	Restrictions on the use of foreign temporary workers	Constant	Cross-cutting	Survey & literature
2	Lack of unified investment legislation across EU	Decreasing	Cross-cutting	Survey

¹⁷⁹ This is a short list of the NTMs. Please see Annex IX for the whole list.

¹⁸⁰ For more information on the source see Annex X.

Rank	NTM or Diverging Regulation	Trend	Sector or Cross-cutting	Sources of information ¹⁸⁰
	member states. (This does not apply to air transportation services. ¹⁸¹)			
3	Airline investments limited due to strategic & security concerns in the EU	Constant	Sector	Survey

16.3 The importance of the NTMs and the effects of NTM reductions

16.3.1 Overall level of restrictiveness of the NTMs in the sector

With respect to international air and maritime transport, it is generally seen that the US rules are more restrictive than the EU ones. Making use of the methodology explained in Chapter 3, and the FDI (OECD consistent) and trade restrictions reported in Table 16.3, the overall trade cost restrictions can be calculated to be 8 percent for maritime transport and 2 percent for air transport.

Table 16.3 Summary table regression results Transport services (BOPS 205)

	US	EU
FDI restrictions (OECD)	0.346	0.242
Trade restrictions (survey)	0.333	0.183
Bilateral imports, € (\$) billion 2007	30.2 (39.3)	18.8 (24.4)
Trade cost estimate %, Maritime transport	8.0	8.0
Trade cost estimate %, Air transport	2.0	2.0

Note: Trade costs are calculated using pooled services regression results. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from the Eurostat BOPS database (2007).

16.3.2 Future EU & US trade and investment potential

The results presented show the effects of NTM reduction and regulatory convergence projected to 2018 for the transportation services sector. The quantified summarised results can be found in Table 16.4. It should be noted that the sector effects have been looked at in case NTMs and regulatory divergence are addressed only in this sector.

Main results

- In the ambitious long run scenario¹⁸², the EU transportation services sector gains €0.2 billion (\$0.3 billion) per year, while in the US the sector gains accrue to a €0.3 billion (\$0.4 billion) per year in national income annually compared to the baseline. These effects are modest compared to other sectors;
- For both the EU and the US, the trade balance is expected to improve slightly as export increases are larger than import increases;

¹⁸¹ The EU Air Transport policies and single air transportation market have harmonised and liberalised the EU market.

¹⁸² See Chapter 4 for the definition and overall methodology.

- In case only transportation services NTMs and regulatory divergence are reduced, in the EU the air transportation sector is expected to gain in terms of output (0.2 percent) and slightly more in exports (0.3 percent);
- The US transportation services sector is expected to decline in terms of output by -0.2 percent, while exports are expected to increase by 0.1 percent.

Table 16.4 CGE results for the transport (maritime and air) sector – various scenarios

	Ambitious Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US
Sector-specific NTM reduction and regulatory convergence				
National income effect (€ (\$ bn)	0.0 (0.0)	0.2 (0.3)	0.1 (0.2)	0.3 (0.4)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.0	0.0
Value of imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change)				
- Air transport	0.2	0.2	-0.2	-0.2
- Water transport	0.0	0.0	-0.2	-0.2
- Electrical machinery	0.0	0.0	0.1	0.1
- Personal services	0.0	0.0	0.0	0.0
Value exports at the sectoral level (%change)				
- Air transport	0.3	0.3	0.1	0.1
- Water transport	0.0	0.1	0.1	0.1
- Electrical machinery	0.0	0.0	0.1	0.1
- Personal services	0.0	0.0	0.1	0.1

16.3.3 Effects of NTM reductions on competitiveness

Sector competitiveness

In the air transportation sector, the current market structure is still rather disaggregated with many national airlines that are trying to gain synergies through alliances. In addition, the access to domestic markets is still very limited in most countries, and only some bilateral agreements allow for the access to foreign airlines, even though there has been a trend towards opening the markets further.

Table 16.5 Typology of competitiveness aspects of the Transportation services industries¹⁸³

Transportation services	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable
	Air and maritime transport services	Land and inland water transportation service Transport infrastructure (ports, airports)		Logistics services

¹⁸³ See Chapter 4 for the definition and overall methodology.

Transportation services	Type I	Type II	Type III	Type IV
	Distance	Proximity	Distance	Proximity
	Scaleable	Scaleable	Non-scaleable	Non-scaleable

International trade in transportation is something of a special case, since a degree of market access is necessary for the service to be delivered. However, conditional on this access (e.g. airport slots, access to ports), delivery of international air and maritime service does not require commercial presence in the market *per se* (i.e. European airlines do not need to be based in the USA to provide transport services to US passengers or cargo customers). For land based transport within national boundaries commercial presences is normally necessary, however.

Basic transportation services are largely standardised products with limited differentiation, implying that competition is largely based on price/cost. Similarly, provision of transport infrastructure services (e.g. ports, airports, etc.) is typically capital intensive, and subject to economies of scale. More specialised services (e.g. specialist logistics), that often require close interaction with customers, typically necessitate proximity.

In *Aviation*, consumers are likely to experience improvements in the quality of services if deeper consolidation of the market is made possible via the reduction of current NTMs. Consumers are also likely to get better network possibilities and less problems due to operational issues. An EU-US second stage Open Skies Agreement would encompass markets that, when combined, total more than 1 billion airline passengers a year, and more than 50 percent of global aviation traffic. In-depth studies forecast increased competition, lower fares and higher demand, yielding economic benefits in terms of consumer surplus of €6-12 billion and generation of 70,000 jobs over a period of five years.¹⁸⁴ Increased access to each other's markets and reduction of limitation to foreign investments (e.g. via the OSA) could bring large changes to the EU-US air transport sector, and also to the global market. A deeper consolidation of the market is likely and the profitability of the airlines could improve.¹⁸⁵

In *Maritime Transport*, reductions e.g. in the US-requirements for the use of domestic vessels for government cargo transportation could increase competition and decrease prices. New security related requirements can also affect the market structures heavily and create e.g. needs for new services and possibilities for various other industries linked to the transportation services (such as security service companies and security equipment manufacturers).¹⁸⁶

Looking Ahead

Although the sector has traditionally been characterised by a high degree of regulation, over the past decades there has been a clear trend towards liberalisation. Nevertheless, new requirements or rules especially on environmental matters and security have created new NTMs for the sector, and this trend is not likely to be reversed.

Systemic implications and global regulatory standards

Traditionally, transport markets have been subject to a wide variety of regulations and controls, for military and governance purposes, and economic protection. Whereas domestic markets in the

¹⁸⁴ Booz/Allen/Hamilton (2007) The Economic Impact of an Open Aviation Area between the EU and the US.

¹⁸⁵ IATA Economic Briefings No 7 (April 2007) Lessons from other industries on the impact of removing operational, ownership and control restrictions.

¹⁸⁶ ECORYS (2009), Study on the competitiveness of the European Security Industry, Prepared for EC DG Enterprise

OECD liberalized during the second half of the twentieth century, international transport lagged behind, frequently hampering potential growth in trade. To date, the EU Transport Policy proclaims level-playing-field on fully liberalized transport markets and the US has embraced similar liberalisation principles.

It is concluded that international transport is generally and gradually heading for global liberalisation in support of an increasing level playing field. An important example is the anticipated lifting of NTMs under the EU-US Open Skies Agreement. Also, in international transport, the cross-cutting environmental issues are expected to become increasingly dominant.

16.4 Conclusions

- The main NTMs for EU trade and investments into the US are formed by foreign ownership restrictions, the Fly American Act, requirements that all items procured/owned by the defence departments to be carried exclusively on US-flag vessels and the cross cutting issues of the proposed 100 percent container scanning of containers bound to US;
- The main NTMs for the US transportation sector to trade and investment in EU markets include restrictions on foreign ownership and control, double certification needs caused by the European Union's Authorized Economic Operator (AEO) program and the U.S. Customs C-TPAP program; differences in privacy laws vs. security considerations, the imminent introduction of the ETS and operating restrictions at airports (e.g. access to customs, flying times etc);
- Levels of restrictiveness differ between the EU and US, with the EU being somewhat more open, on average, than both OECD and non-OECD markets, and the US being more closed (based on OECD rankings);
- As a consequence of sector specific NTM reductions, overall trade balances for both the EU and the US are expected to improve;
- Removal of sector specific NTMs and regulatory divergence are expected to lead to an EU transport sector output increase of 0.2 percent and export gains of 0.3 percent; for the US these figures are -0.2 percent and 0.1 percent, respectively;
- The national income gains from aligning NTMs for the US accrue to €0.3 billion (\$0.4 billion) per year and for the EU to €0.2 billion (\$0.3 billion) per year – following from reduced costs for the sector and increased market access into each other's markets;
- The EU sector, which is already more open, appears to have a slight competitive advantage over the US sector, and this is expected to increase with opening up of the US markets due to NTM reductions.

17 Other sectors

This Chapter briefly summarises the other analysed sectors, the main measures and estimated level of restrictiveness and the potential welfare effects. The reason for not covering these sectors in the same level of detail as the Chapters up to now is that they were not prioritized for in-depth analysis based on the levels of NTMs found, and sizes of trade and investment flows. The full measure lists for these sectors can be found in Annex IX. The methodology used for the construction of the restrictiveness indexes and trade cost estimated is again presented in Chapter 3.

17.1 Other sector summarised CGE results

The two tables below summarise the CGE results for the ‘other sectors’ covered in this chapter. When looking at Table 17.1, the ambitious long run scenario shows that wood & paper products is a sector that declines both in the EU and US, albeit more in the latter. The same holds for iron & steel. However, the sectors classified as other services, construction and business services and ICT show output growth because of NTM reduction

Table 17.1 CGE results various sectors in case of economy wide full NTM reductions

	Ambitious Scenario				Limited Scenario			
	Short Run	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run	Long Run
	EU	EU	US	US	EU	EU	US	US
Personal, recreational and cultural services								
Value output at the sectoral level (% change) for personal services	-0.8	-0.1	0.3	0.4	-0.3	0.0	0.1	0.2
Value output at the sectoral level (% change) for other services	0.0	0.6	0.2	0.5	0.0	0.3	0.1	0.2
Wood & paper products								
Value output at the sectoral level (% change)	-0.9	-0.3	-0.9	-0.9	-0.3	-0.1	-0.4	-0.4
Iron & steel								
Value output at the sectoral level (% change)	-1.7	-1.1	-1.7	-1.8	-0.6	-0.4	-0.5	-0.6
Construction								
Value output at the sectoral level (%)	0.4	1.2	0.6	0.7	0.2	0.5	0.2	0.3

	Ambitious Scenario				Limited Scenario			
	Short Run EU	Long Run EU	Short Run US	Long Run US	Short Run EU	Long Run EU	Short Run US	Long Run US
change)								
Business services and ICT								
Value output at the sectoral level (% change)	-0.1	0.7	0.4	0.6	0.0	0.3	0.1	0.2

The table below shows the effects on various sectors in case NTMs and regulatory divergence are reduced only in one specific sector. The largest national income effect is found in the ambitious long run scenario for wood & paper products, where €1.1 billion (\$1.4 billion) gains occur for the US per annum. Half of that amount goes to the EU.

Table 17.2 CGE results various sectors in case of sector-specific NTM reductions

Sector and variable	Long Run EU	Long Run US	Short Run EU	Short Run US
Personal, recreational & other services				
National income effect (€/\$ bn)	0.2 (0.3)	0.3 (0.4)	0.0 (0.0)	0.1 (0.1)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.1	0.1
Value of imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change): Personal services (-0.05 EU / 0.03 US), Electrical Machinery (0.03 EU / -0.05 US)				
Value exports sector level (%): Personal services (0.54 EU / 1.72 US), Electrical Machinery (0.03 EU / -0.05 US), Other Machinery (0.01 EU / -0.02 US)				
Wood & paper products				
National income effect (€/\$ bn)	0.6 (0.7)	1.1 (1.4)	0.0 (0.1)	0.1 (0.2)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.1	0.1
Value of imports (% change)	0.0	0.0	0.1	0.1
Value output at the sectoral level (% change): Wood and paper (-0.22 EU / 0.25 US), Electrical machinery (0.09 EU / -0.31 US), Other machinery (0.04 EU / -0.04 US), Water transport (0.03 EU / 0.00 US)				
Value exports at the sectoral level (%change) Electrical Machinery (0.1 EU / 0.35 US), Other machinery (0.04 EU / -0.07 US), Wood and paper products (0.03 EU / 4.77 US), Water transport (0.03 EU / 0.03 US), Metals and metal products (0.03 EU / -0.03 US)				
Iron & steel				
National income effect (€/\$ bn)	0.2 (0.3)	0.7 (0.9)	0.1 (0.2)	0.2 (0.2)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.1	0.1
Value of imports (% change)	0.0	0.0	0.1	0.1
Value output at the sectoral level (% change): Metals and metal products (-0.02 EU / 0.16 US), Electrical Machinery (-0.01 EU / -0.16 US), Other machinery (0.01 EU / -0.02 US)				
Value exports at the sectoral level (%change): Metals and metal products (0.48 EU / 3.62 US), Electrical Machinery (-0.01				

Sector and variable	Long Run EU	Long Run US	Short Run EU	Short Run US
EU / -0.16 US), Chemicals (0.00 EU / -0.02 US), Other machinery (0.01 EU / 0.03 US)				
Construction				
National income effect (€/\$ bn)	0.0 (0.0)	0.0 (0.1)	0.0 (0.0)	0.0 (0.1)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.0	0.0
Value of imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change): N/A				
Value exports at the sectoral level (%change): Construction (0.02 EU / 0.38 US)				
Business & ICT				
National income effect (€/\$ bn)	0.3 (0.4)	0.5 (0.7)	-0.1 (-0.1)	0.0 (0.0)
National income effect (% change)	0.0	0.0	0.0	0.0
Value of exports (% change)	0.0	0.0	0.0	0.0
Value of imports (% change)	0.0	0.0	0.0	0.0
Value output at the sectoral level (% change): Electrical Machinery (0.03 EU / -0.08 US), Business services (-0.01 EU / 0.02 US)				
Value exports sector level (%): Business services (0.01 EU / 0.58 US), Electrical Machinery (0.03 EU / -0.09 US), Other Machinery (0.01 EU / -0.02 US)				

N/A = not available

17.2 Travel services

The travel services sector is heterogenous in nature. In a very general sense, it relates to all those services involving people travelling from one place to another. More specifically, and in accordance with NACE codes, it also includes certain other sectors, such as hotels, restaurants and tour agency and operator activities/services.¹⁸⁷ Due to the sector's diverse nature, the value of exports and imports is not easy to calculate. The following statistic gives an impression of the size of the industry: in 2007, the related tourism sector generated more than 13 percent of EU GDP (direct and indirect), 6 percent of EU employment and 30 percent of EU external trade.¹⁸⁸

In addition to related sector statistics, there have been studies on the travel services sub-sectors. For example, the Transatlantic Business Dialogue recommended to the 2008 US-EU Summit leaders that free and secure movement of people is an integral part of a measure-free Transatlantic market. Horizontal and sector measures related to people travelling are the most prevalent NTMs in the sector, and are increasing, in part due to the recent increased security measures put in place as a result of 9/11.

¹⁸⁷ For this study we have defined the travel services sector by NACE codes, which are categorised as the following; H .0.00 - Hotels and restaurants, H .55.0- Hotels and restaurants, H .55.10 – Hotels, H .55.20 - Camping sites and other provision of short-stay accommodation, H .55.21 - Youth hostels and mountain refuges, H .55.22 - Camping sites, including caravan sites, H .55.23 - Other provision of lodgings n.e.c, N79.. - Travel agency, tour operator and other reservation service and related activities, N79.1. - Travel agency and tour operator activities, N79.1.1 - Travel agency activities, N79.1.2 - Tour operator activities, N79.9. - Other reservation service and related activities, N79.9.0 - Other reservation service and related activities.

¹⁸⁸ Source: http://themes.eea.europa.eu/Sectors_and_activities/tourism/indicators/tourism_intensity/to05gdp.pdf.

17.2.1 NTMs and regulatory divergence faced from EU to US

As noted above, since 9/11, there have been a number of initiatives designed to provide a smoother journey through airports, such as the Registered Traveller Program in the US, Irisscan in the UK and Privium in The Netherlands (TABD, 2008). In comparison to the EU, the US appears to have more travel service customs and security-related measures (trade NTMs). For example, the TABD (2008) urged the US to increase the number of H1-B and B-1 visas that are issued each year. This recommendation was based on the fact that the US currently has a cap on these types of visas, restricting the ability of businesses to hire or transfer many skilled foreign employees (TABD, 2008).

The US currently requires airlines to provide access to their reservations database (PNR) and also to provide information about customers boarding aircraft on the day of departure (APIS). Two more recent initiatives from different parts of the US government have recently been proposed which in essence address the same objective. These are the Secure Flight Initiative, which requires information on passengers to be provided 72 hours before departure. The second initiative is the “Improving America’s Security Act 2007” which includes a provision requiring an extension of the Visa Waiver Programme to include all EU countries (TABD, 2008).

The US Visa Waiver Program (VWP) enables nationals of certain countries to travel to the United States for tourism or business for stays of 90 days or less without obtaining a visa. The VWP relies upon individual EU Member State-level agreements (there is no agreement on visa-free travel between the EU and the US). Twenty European Countries are currently accepted by the VWP, including the UK, France and Germany.¹⁸⁹ The US Visa Waiver Programme (VWP) is classed as an NTM of medium importance. Accompanying the VWP is the Electronic System for Travel Authorization (ESTA), which has become mandatory for VWP travelers in 2009. ESTA is a fully automated, electronic system for screening passengers before they begin travel to the US under the Visa Waiver Programme.¹⁹⁰ TABD is concerned that additional security obligations may be required in order for Visa Waiver status to be granted or extended. The most burdensome of these requirements will be the necessity for all EU citizens from Visa Waiver countries to apply online for security clearance (ETA) at a cost of approximately \$20 (€15.3) per passenger per clearance.

The use of data could also be perceived as a potential NTM, should it deter people from traveling, and also has an influence on passenger rights. In 2007, the US Authorities agreed that the use of passenger name records data for every passenger flying into the country¹⁹¹ would comply with EU data protection principles. This agreement was signed in July 2007¹⁹² and reflects the agreed process for handling, collection, use and storage of personal data. This agreement does however state that data can be used in exceptional circumstances, which, given

¹⁸⁹ Source: http://travel.state.gov/visa/temp/without/without_1990.html#wvp. The seven countries excluded from VWP are Romania, Lithuania, Poland, Latvia, Bulgaria, Slovakia and Hungary (Source: http://www.usatoday.com/news/world/2007-08-09-visas_N.htm).

¹⁹⁰ Source: http://travel.state.gov/visa/temp/without/without_1990.html.

¹⁹¹ These passenger name record files are created whenever you book a ticket and can include: data on frequent flyers; credit card numbers; email addresses; phone numbers; information on travelling companions. Source: http://ec.europa.eu/news/transport/070717_1_en.htm.

¹⁹² AGREEMENT between the European Union and the United States of America on the processing and transfer of Passenger Name Record (PNR) data by air carriers to the United States Department of Homeland Security (DHS) (2007 PNR Agreement. Official Journal of the European Union, L 204/18, 4.8.2007.

the motive of preventing terrorism behind the PNR Agreement, could be used more frequently in the future. In conclusion, EU–US security passenger controls are increasingly making trade and investment more restrictive.

17.2.2 NTMs and regulatory divergence faced from US to EU

As is the case for EU exporters to the US, US exporters to the EU encounter differences in the travel registration programmes. For example, Ireland and the UK are not part of the common EU visa programme, an NTM that is classed as of medium importance, decreasing in trend, and actionable.

In reaction to the US visa policy, the EU is currently considering a response which will also ensure passengers from the US meet similar requirements to those of EU travelers (TABD, 2008). Whilst this measure has not been finalised, it is something that could impact trade and investments in the future.

17.2.3 Overall levels of restrictiveness – Travel services

Based on our own survey data, the US market is relatively more closed to direct trade than the average level for EU Members. The gravity estimates do not yield any significant results here. It should be noted, however, that “travel services” is a problematic sector for measurement. Most travel expenditures are actually a mix of passenger transport, personal services (including recreational services) and even goods purchased by tourists.

Table 17.3 Summary table regression results Travel services (BOPS 236)

	USA	EU
FDI restrictions (OECD)	N/A	N/A
Trade restrictions (survey)	0.199	0.18
Bilateral imports, € (\$) billions 2007	19.3 (25.1)	16.9 (21.9)
Estimated direct trade costs, percent	N/A	N/A

Note: Trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat). N/A = not available

17.3 Construction services

The construction services sector is strategically important for both the EU and the US but overall more domestically focused. All sectors of the economy depend on it, as it provides the essential infrastructure needed for manufacturing activity, such as buildings, roads, airports, water development, and power stations. At the same time it supports the services sectors that utilise this infrastructure and fund its development, such as tourism, retail, real estate, business and financial services. For non-US investors, entry into the US construction market is primarily achieved through the acquisition of existing US firms. For operational and regulatory reasons, and except for certain management and advisory services that can be supplied cross-border, foreign construction firms must establish or purchase US entities, hire US sub-contractors, or be represented by US joint venture partners in order to operate in the US market. US contractors

operate in a similar fashion in non-US markets (including the EU market) as non-US firms operate in the US market.

The construction sector is one of the EU's key industries in terms of both output and employment. The EU market is estimated to be growing modestly (below 1%) per year in the coming years, with an exception for 2009 where a small contraction is expected. Regarding the US construction sector, residential demand fell by nearly 40 percent until the end of 2008, with a nascent recovery being underway. This decline was somewhat balanced by growth in the US non-residential construction market, which rose by 13.5 percent thanks to high growth in lodging, office and commercial construction. However, the construction sector is not projected to be a main source for growth in the near and medium term.

17.3.1 NTMs and regulatory divergence faced from EU to US

In the US, both the *Buy America Act* and *Buy American Act* create market access difficulties for the construction industry: the *Buy America Act* for example for highway and transit construction bids and *Buy American* for other construction bids. They cover a number of measures that apply to government-funded purchases (over certain threshold in the *Buy American Act*) including for example restrictions to state and local government procurement, domestic preference and local contents requirements. The (new) *Buy American* provision in Section 1110 of the American Recovery and Reinvestment Act (ARRA) of 2009 imposes a general requirement that any public building or public works project funded by the new stimulus package use only iron, steel and other manufactured goods produced in the United States. The stimulus package includes about \$48 billion in transportation projects, roughly \$30 billion in infrastructure improvements and additional other spending that could be covered by the *Buy American* provision. However, the bill also stipulates that the *Buy American* provision be "applied in a manner consistent with United States obligations under international agreements." It thus requires the United States to comply with its obligations under the WTO's GPA, under NAFTA and other US free trade accords. The trade compliance language gives members of the WTO's GPA, including the European Union, some comfort that they could provide material for a public works project funded by the stimulus bill. However, the trade compliance clause does not protect non-members of the GPA such as Brazil, Russia, India and China (BRIC). Moreover, the ARRA makes it possible for the *Buy American* mandate to be waived if the federal agency overseeing a particular project deems it would be "inconsistent with the public interest" or if iron, steel and the relevant manufactured goods "are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality" or if it would increase the overall cost of a project by more than 25 percent. However, it should be noticed that foreign construction companies are still able to enter the market especially via sub-contracting agreements with US companies.

A more indirect impediment to EU contractors is created by the Small Business Act (SBA), which requires US executive agencies to make a fair proportion of their purchases from US small businesses. Passed in 1953, the Small Business Act (SBA) established the Small Business Administration to "encourage" and "develop" small business growth, and to aid minorities and other disadvantaged peoples in securing loans and learning management techniques. In 2003, a total of **95 billion dollars** in public procurement contracts was awarded to American SMEs (an independent company with less than 500 employees), through the framework of the SBA. Excerpt from the Small Business Act founding article II (1953): *It is the declared policy of the*

Congress that the Government should aid, counsel, assist, and protect, insofar as is possible, the interests of small-business concerns in order to preserve free competitive enterprise and to insure that a fair proportion of the total purchases and contracts or subcontracts for property and services for the Government be placed with small-business enterprises.

This policy is put in practice according to the following rules:

23% of direct contracts and 40% of subcontracts are targeted for SMEs. Each Agency has to measure and communicate its annual results to the Administrator of the SBA and the President of the United States.

Several programmes are implemented to reach these objectives:

- All small contracts (< 100 K\$) are reserved for SMEs;
- Subcontracting plans must be negotiated for all large contracts (> 1 M\$), where the prime contractors commit to allocating a share of subcontracts to SMEs;
- Contracts to which at least 2 SMEs can make a credible offer are set aside for SMEs;
- SBIR programme: 2.5 % of external R&D budgets from main Agencies are awarded to SMEs through a fast and light procedure.

The Foreign Direct Investment and National Security Act (FINSIA) is a horizontal provision, as are the Tax Code Reporting Requirements.

Finally, the large number of different and often mutually inconsistent state-level safety requirements concerning building construction or installation, further encumbers EU contractors from serving the US market.

17.3.2 NTMs and regulatory divergence faced from US to EU

Even though the EU is a party of the WTO Government Procurement (GPA) and has already a rather open public procurement market, many member state practices in public procurement processes are still considered to be non-transparent by US firms. In other words, restrictive public procurement practices and some reciprocity based prohibitions on tendering exist on both sides of the Atlantic. US firms report that in the EU, in some member countries, procurement authorities tend to favour EU firms, even when bids from US firms appear to be technically superior or lower in price. Hence, despite the harmonized approach in the EU towards public procurements and the international agreement, the practical implementation and the diverse national and local practices with respect to government procurement generate a number of difficulties to foreign bidders. US companies also complain about the lack of statistics in procurement contracts, which would provide a better picture of US companies' access to the EU procurement market.¹⁹³

Furthermore, foreign companies sometimes complain about significant delays in finalising contracts and commencing work. Also, in some cases the documentation required by local authorities cannot be issued in the US due to lack of an equivalent, competent US authority to issue the documents in question. In addition, there are reciprocity requirements which restrict non-EU companies from providing architectural or construction services in some EU member states.

¹⁹³ USTR, 2007

17.3.3 Overall levels of restrictiveness – Construction services

Based on our business survey data, the US market is relatively more closed for trade than the average level prevailing across EU Members. Based on our regression results, it is estimated that US restrictions on cross-border trade will yield a 2.5 percent trade cost for construction services trade. EU NTMs add again 4.6 percent to the cost of trade in construction services.

Table 17.4 Summary table regression results Construction services (BOPS 249)

	US	EU
FDI restrictions (OECD)	0.025	0.045
Trade restrictions (survey)	0.206	0.168
Bilateral imports, € (\$) billion 2007	0.8 (1.1)	0.8 (1.0)
Trade cost estimates, percent	2.5	4.6

Note: Trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

17.4 Other business services

The *Other business services* sector category mainly includes professional services and other heterogeneous business services. The sector covers business-to-business knowledge-intensive activities such as legal, management and technical consultancy, but some manual services too, for instance industrial cleaning or packaging activities.

Most of the measures described in this report horizontally affect the whole sector considered, as well as both flows (EU to US and vice versa). Nevertheless the main available information is given for the specific category of *professional services*. This sector includes all the consulting and professional advice activities such as *Legal activities*, *Accounting book-keeping and auditing activities* and *Architectural and engineering activities and related technical consultancy*. The high number of measures registered here is a significant indication of the fact that this sector is particularly the most burdened by measures and impediments.

Business services, mainly formed by professional services and other business services, represent the most dynamic sector in recent decades. This has happened in the context of a service-led economy. United States stands a high dominance of the service economy: the share of the American tertiary sector in the total economy, both in employment and in value added, exceeds that of the EU even though the share is also considerable in the EU.

17.4.1 NTMs and regulatory divergence faced from EU to US

Like American firms, EU firms in their complaints, mainly focus on measures linked to the establishment of and permissions given for the free distribution of services. In the US, in-state residency requirements are particularly reported, as well as the Buy American Act. Horizontal restrictions like those of the visa-reciprocity regimes are also remarkable. Particular cases are reported on legal services, accounting and auditing and engineering services.

In general, the US ‘other business services’ markets are more liberalised and open than the EU ones, and restrictions are concentrated to limited areas and horizontal issues. However, some sectors face particular restrictions, like legal services, in which conditions for free provision of services varies quite a lot depending on each of the US states. Another specific issue is the equal treatment proposed for express delivery and express courier services for foreign service suppliers. However, so far the US has proposed no commitments that would threaten the monopoly of the US Postal Service. In the case of accounting and auditing, restrictions emerged when the Sarbanes-Oxley Act of 2002 was adopted as a reaction to US corporate scandals. SOX has a significant impact on US-listed EU companies, as well as EU auditing firms, which could face conflicting laws on audits and corporate governance.

17.4.2 NTMs and regulatory divergence faced from US to EU

US companies have played a crucial role in the development of many professional and other business services activities. Most of the restrictions faced by US firms in the EU do not apply exclusively to non-EU firms, but also affect intra-EU trade. The restrictions to trade in services from one EU member state to another are also fully applicable to US companies and professionals. From this perspective, measures can be identified following the 2000 Internal Market strategy. All the measures can also be classified into two groups, legal and non-legal. All the impediments derived from national legal constraints, such as laws or regulations which cause discrimination between domestic and foreign operators, belong to the former group, and all the difficulties not directly originated by public act as, for example, cultural and language measures or lack of necessary information, belong to the latter.

The yearly trade barrier reports from the US Trade representative and the OECD on exceptions to national treatment do not include the full set of existing diverging measures across the EU markets, including those that affect US exporters (among others). From the sub-sectoral point of view, particular measures are identified in sectors such as legal services, accountancy and auditing and engineering services. Other non-professional business sectors receive less attention, since some have few or no restrictions (e.g., management consultancy, market research and linguistic services). Other sectors have been often considered out of bounds for the free trade negotiations due to some particular characteristics (e.g., security services, supply of some personnel services, some architectural, engineering and quality control services).

A particular case refers to the role of professional associations of bodies in the EU. For example, in 2003 law firms could establish their commercial presence in any Member State and provide legal services with respect to the law of any country in which the lawyers were qualified. Problems for American firms could come when important differences in each regulation and professional body – some more restrictive, and some more liberal – in each EU country would hinder a level playing field. The implementation and application of principles and agreements seems to be very heterogeneous and the Services Directive may not solve all existing problems in this respect, unless its implementation will be used to open EU and non-EU markets in a very liberal way.¹⁹⁴

¹⁹⁴ See http://ec.europa.eu/internal_market/services/services-dir/index_en.htm for more information.

17.4.3 Overall level of restrictiveness – Other business services

Based on the gravity results, it is estimated that US restrictions on cross-border trade and investment yield a 3.9 percent trade cost for business services trade. For the European Union, the impact of NTMs that work directly as trade restrictions is a 14.9 percent increase in trade costs.

Table 17.5 Summary table regression results Other Business and ICT services (BOPS 268, 262)

	US	EU
FDI restrictions (OECD)	0.038	0.139
Trade restrictions (survey)	0.275	0.201
Bilateral imports, € (\$) billion 2007	47.1 (61.2)	48.9 (63.6)
Trade cost estimates, percent	3.9	14.9

Note: Trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

17.5 Personal, Cultural and Recreational Services

In terms of value added to the EU economy as a whole, the personal, cultural and recreational services sector represented 2.6 percent of the EU's current GDP in 2003.¹⁹⁵ However, the relative importance of the sector becomes more apparent when its value added to the EU's GDP is compared to that of other industries. For instance, real estate activities account for just 2.1 percent of the EU's GDP and the economic contribution of the personal, cultural and recreational services sector is also higher than that of the food, beverages and tobacco manufacturing sector (1.9 percent), textile industry (0.5 percent) and chemicals, rubber and plastic products industry (2.3 percent).

According to WTO statistics,¹⁹⁶ intra-EU exports in the sector amounted to \$7250 million in 2005, more than half of total EU exports. In contrast, the EU only exported personal, cultural and recreational services to the US worth \$2208 million (approximately 16.4 percent of total exports). The US, however, remains by far the largest importer of EU services in the sector, which leads to the conclusion that, although the EU side is very much focused on exporting to other EU countries, the US is nevertheless a significant market for personal, cultural and recreational services. Indeed, the sector accounts for approximately 5 percent of US GDP, meaning that the sector is relatively more important to the US economy than it is to the EU economy.

17.5.1 NTMs and regulatory divergence faced from EU to US

All in all, seven non-tariff measures to EU-US trade and investment have been identified. The single most important NTM in the sector is that EU service providers and performers do not enjoy broadcasting rights or public performance rights in the US. This is due to the fact that the US has not joined the Rome Convention of 1961, which recognises these rights, and has taken an

¹⁹⁵ http://www.keanet.eu/Ecoculture/Study_percent20new.pdf.

¹⁹⁶ http://www.wto.org/english/res_e/statis_e/its2007_e/its07_trade_category_e.htm.

exception under the World Intellectual Property Organisation (WIPO) Performances and Phonograms Treaty (WTPP) of 1996 that actively excludes them. By contrast, the EU does grant these rights to both service providers and performers from the US through the Rental Directive (2006/115/EC), which was implemented in 1992. This NTM trend is constant, as no solution is currently underway.

Four NTMs of medium importance concern general US copyright legislation, as well as remedies for US patent holders to have foreign products removed from the market; prevention of foreign internet gambling services; and problems for EU businesses in obtaining clear information on the procedures for seeking customs IPR protection in the US. Of these, the latter two are involved in consultations on the “Framework for Advancing Transatlantic Economic Integration”, decided upon at the April 2007 Summit. It can therefore be expected that a solution might be found that removes or lowers the NTM.

Two NTMs categorised as being of low importance are restrictions to foreign investment in US companies holding a broadcasting or common carrier radio licence, and the creation of an exclusive transmission standard for digital terrestrial television in the US (ATSC). The latter has prevented technology such as the EU-developed DVB-T-standard from entering the US market. Both these NTMs show a decreasing tendency, however, as legislation has been eased several times since its introduction.

17.5.2 NTMs and regulatory divergence faced from US to EU

Two NTMs to US-EU trade and investment have been identified, both of which are categorised as being of medium importance. The first NTM concerns the EU Broadcast Directive (also known as the Television without Frontiers Directive), which includes a provision requiring that the majority of television transmission time is reserved for programmes of EU origin wherever this is “practicable” and can be done “by appropriate means.” The US has objected to this on the assumption that the clause limits the EU market for films and programmes produced in the US. In its negotiations with the EU, the US has tried to ensure that the flexibility built into the Directive is preserved and that individual broadcasting markets are allowed to develop according to their specific conditions and needs, so as to practically limit the market restrictions caused by the provision.

The second NTM concerns the fact that US businesses face difficulties in obtaining clear information on the procedures for seeking customs IPR protection in the EU. This NTM is similar to the one mentioned above, as EU companies face comparable difficulties when operating in the US. A solution is therefore being sought via the “Framework for Advancing Transatlantic Economic Integration”, so that this particular NTM can be either removed or lowered. The TEC could play a facilitating role in addressing this NTM.

17.5.3 General levels of restrictiveness – Personal services

Based on our regression results, it is estimated that US restrictions on cross-border trade will yield a 2.5 percent trade cost for personal and recreational services trade. For the European Union, the impact of NTMs is a 4.4 percent increase in trade costs.

Table 17.6 Summary table regression results Personal, cultural and recreational services (BOPS 287)

	US	EU
FDI restrictions (OECD)	.025	.043
Trade restrictions (survey)	0.255	0.175
Bilateral imports, € (\$) billion 2007	1.7 (2.2)	3.6 (4.6)
Trade cost estimates, percent	2.5	4.4

Note: Trade costs are based on a demand elasticity of 4.0. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from BOPS data (Eurostat).

17.6 Biotechnology

The biotechnology sector as a sector classification is different from others as it refers only to a common technology. In general, it is divided into three parts: agricultural biotechnology (green biotech); medical equipment products and other health-related products (red biotech); and other industrial (chemical) biotechnology (white biotech). Most of the measures between the EU and US in the sector are found in the field of agricultural products.

For biotechnology, the key trade measures identified to date relate to the difficulty that US products face in entering the EU market, the extent of which varies according to each individual Member State. Furthermore, the provisions of intellectual property rights appear to differ between the EU and US and this has led to claims on the part of the US authorities of difficult access of US biotechnology products to EU markets. To give a short snapshot of the biotechnology industry Table 17.1 is shown below:

Table 17.7 Snapshot of the Biotechnology industry in 2006 in both the EU and US

Entity	Number of Companies	Number of New Companies Formed	Number of Employees	R&D Expenditure	Revenues
EU	2330	131	98.500	€ 7.6 billion (\$ 9.9 billion)	€ 21.5 billion (\$ 28 billion)
US	1991	78	190.500	€ 12 billion (\$ 15.6 billion)	€ 41.5 billion (\$ 54 billion)

Source: EuropaBIO (2008), annual report 2008. Information gathered by dedicated biotechnology industries.

The EU dedicated biotechnology industry employs 98,500 people in total, mostly in SMEs. The industry is highly research-intensive with 42,500 employees involved in research and development functions. Although the US has almost twice as many employees and twice as much revenues, its R&D expenditures are only 1.5 times as much. Moreover, it can be seen that the companies in the EU are smaller than those of the US, looking at the number of both existing and new companies (Jonsson, 2007).

No estimations on the overall costs increases of the NTMs in the sector could be made due to the low percentage of companies replying to the ECORYS business survey and, more importantly, due to the lack of statistics for the sector.

17.6.1 NTMs and regulatory divergence faced from EU to US

There have been very few measures identified from the EU to the US in the biotechnology sector. Most EU exports are related to either health or industrial biotechnology, and these sectors do not have many difficulties when exporting to the US.

Some more general measures have been identified which especially affect the non-food biotechnology products. For example, diverging intellectual property rights create extra costs for SMEs in particular and hurt innovation. Furthermore, the US government programmes providing subsidies only for US companies (such as the Technology Innovation Programme) put the EU companies involved in the US market in a disadvantaged position compared to their US competitors. Again, the smaller EU companies in particular are hurt by these programmes. Moreover, long authorisation procedures (e.g. in the US Food and Drug Administration) have also been seen to affect EU (non-food biotechnology) producers on occasion.

17.6.2 NTMs and regulatory divergence faced from US to EU

The non-tariff measures for US biotechnology products that have been identified relate mainly to the agricultural biotechnology sector, and in particular, the following parameters of the EU regulatory regime, which jointly create measures for US (and other third countries) exports:

- **Traceability and labelling** – EU regulations include mandatory traceability and labelling for all biotechnology and downstream products, and US authorities and firms claim that these regulations have already restricted market access because US food producers have reformulated their products to eliminate the use of biotechnology products. In principle, the products could be put into supermarkets with the requested labels. However, in practice, because of consumer perceptions, supermarkets do not want to sell GMO products;
- **Co-existence requirements** – A number of Member States (including Spain, Denmark, Germany, Italy, the Netherlands, and most regions in Austria) have reportedly drafted new co-existence laws or have chosen to provide industry guidance. France is in the process of developing its co-existence legislation. While the decrees/laws vary substantially from country to country, they generally require extensive control, monitoring, and reporting of biotechnology crops;
- **Authorisation/restriction** – US exporters of agricultural biotechnology products have been affected by a slow EU approval procedure¹⁹⁷ for new products and large data requirements. In 2003, the US, Canada and Argentina challenged the alleged general EC moratorium on approvals of biotech products between 1999 and 2003. The Panel found that a general de facto moratorium on approvals of biotech products was in effect on the date of panel establishment, i.e., August 2003. Moreover the panel found that the general moratorium led to undue delay in the completion of the EC approval procedure conducted in respect of at least one biotech product at issue and thereby to the European Communities acting inconsistently with SPS Annex C(1)(a) and, by implication, Art. 8; and
- **National action** – Several Member States have imposed marketing restrictions (e.g. safeguard measures) on some agricultural biotechnology products that had been previously approved at the EU level.

¹⁹⁷ <http://www.epo.org/about-us/press/releases/archive/2005/27102005.html>.

Furthermore, health biotechnology products face some measures caused by the varying Health Technology Assessment methods across the different Member States (and occasionally between different regions). As in the case of EU producers exporting to the US, the divergences in Intellectual Property Rights between the EU and US affect also US producers, especially smaller ones. Also, EU Member States have differing methods for prosecuting IPR violations.

17.7 Machinery

US mechanical engineering production was €252 billion (\$327.6 billion) in 2007. The industry suffered a setback between 2000 and 2002, when output declined by 10 percent. During the subsequent years, the industry enjoyed growth in new orders. In 2007, output surpassed the 2000 level by 15 percent. Mechanical engineering shows strengths in some sub-sectors. Traditionally, the US has a competitive supply in off-road machinery for agriculture, mining and construction. A demand pull from the aerospace and defence industry, on the one hand, and the electronics industry on the other, has contributed to the creation of internationally strong players in drive technology, micro machining and non-mechanical machining.

In 2007 EU-25 mechanical engineering production reached €482 billion (\$626.6 billion). The industry only experienced a phase of stagnation during the more difficult years between 2000 and 2003. In subsequent years, the industry enjoyed soaring demand, and in 2007, output surpassed the 2000 level by 35 percent. This sector has benefited strongly from the industrialisation of emerging countries, the scarcity of raw materials and energy feedstock. EU mechanical engineering provides much broader product ranges than competitors from the US or Japan. Many of the sub-sectors in EU companies are leaders in market share and technology, for instance textile, printing machinery, packaging and mining machinery. A strong position is held in plant engineering, steel works, power plants, etc. This situation is reflected in the diversity of the sector and specialisation in the Member States. A noteworthy prerequisite is a strong cluster in metalwork industries that provide high quality intermediary products.

17.7.1 NTMs and regulatory divergence faced from EU to US

Third party testing for machinery with high risk potential is mandatory in both the EU and the US. There is a large intersection of EU and US products that are liable to such a procedure, but mutual recognition has not yet been effective in practice. This means that additional third party testing is necessary for transatlantic market access. This is a burden to an industry, such as the mechanical engineering sector which is comprised of a majority of medium-sized companies who market their products globally. Moreover, many products are only customised and manufactured in small numbers with numerous variants. In addition, the US Security Initiative (CSI) and threat of 100 percent container scanning affect the sector heavily.

With respect to environmental measures, there are several US emission standards for a broad range of engines applied in vehicles, such as locomotives, ships, off-road machinery or as stationary source for power, pressure supply, etc. The US has its own regulations concerning type approval of engines imported to the US. Also other areas of relevance for the machinery industry are characterised by parallel development of regulations. This is particularly true for emission

standards in the US (usually under the Clean Air Act (CAA)) and in the EU, despite transatlantic communication.

The Non Road Mobile Machinery (NRMM) Global Technical Regulation developed under the UNECE flag, can become a regulatory divergence. A number of countries, including the US, have indicated to intend to use this in the future. As discussed at the Working Party on Pollution and Energy of the United Nations Economic Commission in Geneva (June 10, 2009), there is no agreed policy on the implementation of the Global Technical Regulation. This could mean that potential divergences may arise and it will be difficult to address the elevated cost of laboratory investments, allocating scarce funds, time limitations for the use of equipment in the laboratories and training of personnel. EU-US discussions in this field are demanding and challenging.

The Department of Energy (DOE) launched an initiative on energy conservation which suggested efficiency standards for commercial and consumer products that fall under machinery. They have been published in an advance initiative, though much work needs to be done in this field. Two further cross-cutting issues are the Average Banking and Trading (ABT) system and state-level legislation. The ABT system is used in the US but not in the EU, causing challenges in legislation implementation and creating economic costs not only for engine suppliers but also for pollutant emissions evaluation and actions in order to reduce those. The second additional cross-cutting measure to trade for this sector on the US side is the fact that state-level legislation can differ from federal legislation or amongst states.

17.7.2 NTMs and regulatory divergence faced from US to EU

Generally speaking, there are four sector-specific areas to be taken into consideration: standards and compatibility, safety of the machinery, occupational health and safety and environmental hazards. As mentioned, differences in testing and certification procedures in the EU and the US constitute measures on both sides. The Machinery Directive 2006/42/EC (98/37/EC old) has provided a comprehensive reduction of NTMs within the EU, as well as in trade with third countries. A distinction is made between potentially risky and dangerous machinery (for which third party testing is required) and not dangerous machinery. If harmonised standards are used, the standard procedure is self-certification. One of the few more important exemptions lies in the roading approval of off-road machinery, which has not yet been harmonised and requires third country suppliers to meet the regulation of individual Member States. In addition, conformity with the Machinery Directive is not always sufficient for licit set-up in a Member State. There are national occupational health and safety regulations that ask for additional safety features.

Environmental concerns lead to ever-stricter rules. This is important above all for machinery burning fossil fuels, such as marine-, locomotive-, off-road machinery engines, burner and heating equipment. Generally, EU standards differ from US ones.

17.7.3 Overall levels of restrictiveness – Machinery

When looking at econometric analysis, the machinery sector is a special case. It seems to be a sector where tariffs are still important, partly due to the high levels of value added. In fact tariffs appear to be more important than NTMs and regulatory divergence. When looking for additional

trade costs, in none of the econometric analyses machinery was statistically significant with respect to NTMs and regulatory divergence. This suggests that NTMs and regulatory divergence are not of the highest importance in the sector, even though they may matter for specific parts of the machinery sector. This is confirmed with the questions on the ‘discriminatory level’ of EU/US for US/EU firms in the machinery sector, where the results were not statistically different from being ‘treated equally’.

Table 17.8 Summary table regression results Machinery

	US	EU
Trade restrictions (survey)	0.494	0.322
FDI restrictions (survey)	0.174	0.140
Bilateral imports, € (\$) billion 2007	32.2 (41.9)	17.7 (23.0)
Measure impact on trade costs, percent	N/A	N/A

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates.

OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

N/A = not available

17.8 Medical, Measuring and Testing Appliances

The medical, measuring and testing appliances sector includes the manufacture of medical, precision and optical instruments, watches and clocks. Total EU imports from the US for this sector roughly amounted to €20.5 billion (\$26.7 billion) and total EU exports to the US amounted to €17.7 billion (\$23 billion) in 2007.¹⁹⁸ As such, this sector is very diverse in nature and various subsectors are subject to very different pieces of legislation (e.g. clocks and precision instruments versus medical devices).

The medical device sector, similarly to pharmaceuticals, is a highly regulated industry in order to ensure the safety and efficacy of the products. The US Food and Drug Administration (FDA) is the regulation authority in the United States and it oversees all medical equipment utilised within the United States borders. In the EU the authority has been divided between national government agencies and certified notified bodies which, depending on the medical device type, act as regulatory authorities within the EU. The philosophies of how a new medical device can get a marketing clearance in EU and the US differ mainly in two ways: (1) products may be classified differently due to different regulations, and (2) different kinds and/or levels of evidence on safety and efficacy is required. Therefore, manufacturers trading across the Atlantic need to maintain records that demonstrate safety and efficacy as required by both systems.

The US regulation is based on three different product classes with increasing regulatory control: Class I, Class II, and Class III devices. Class I devices typically carry low risk to the patient treatment and are used outside of the patient’s body or by a healthcare professional (e.g. most standard surgical instruments belong to Class I). The FDA provides a list of these devices in their guidance documents. Class II devices require a 510(k) pre-market notification be submitted by the manufacturer for FDA review and clearance before marketing a device in the US. For example many surgical implants which are substantially equivalent in operational and material

¹⁹⁸ Source: TRAINS database, 2007.

specifications to at least one product which is already available in the US (“Predicate Device”) belong to this class. Class III products are either novel or high risk medical devices which do not have equivalent products on the market yet. These products require a Pre-market Approval (PMA) with clinical pre-market study data as a part of the application. FDA allows some exemptions to these classifications and may reclassify products after review of evidence.

EU regulation also divides products into classes I-III with increasing regulatory requirements as in the US, although EU regulation divides Class II products into two: Class IIa and Class IIb products, depending on the use/type of the device. A manufacturer can choose a Notified Body to act as the regulatory authority which grants product marketing approvals, the *CE Mark*.

The most significant difference between the US and the EU regulations is how they treat the medium and high risk devices. In the US, a favourable comparison to a “predicate device” showing substantial equivalence to an existing product yields a marketing clearance to Class II products. Class III products (and a few Class II products) require clinical safety and efficacy data prior to approval. In the EU, Class IIa, IIb and III products are required to either have publicly available clinical evidence, or are shown to be equivalent to a product which has clinical evidence. There is a subtle difference between the approaches in the US and the EU: in the US, as long as the product has a predicate device, and substantial equivalence can be shown, marketing clearance will be granted regardless of the availability of clinical evidence to support its use. In the EU, clinical evidence either in the form of a clinical and preclinical literature review or a clinical study is required. Most often manufacturers use literature reviews based on the publicly available scientific evidence and augment the literature review with a rationale why a product-specific clinical study is not necessary. Despite these differences, if a manufacturer complies with either US or EU regulations, they are well equipped to adapt their operations to comply also with the other regulatory systems’ requirements.¹⁹⁹ Hence, the level of NTMs in the sector between the EU and US is relatively low and only few real issues have been identified.

17.8.1 NTMs and regulatory divergence faced from EU to US

Regarding trade from the EU to the US, before exporting to the US, EU manufactures must be registered with the FDA and devices must be listed, labelled, specifications and reporting processes need to be available for review according to the FDA Quality System Regulations. Premarket Notification or Premarket Approval must be obtained (unless exempted) from the FDA depending on the classification of the device.²⁰⁰

Some US states and cities require all electro-medical devices to be certified to the Underwriters Laboratories (UL) standard on electrical and fire safety. This requirement adds to the general federal regulatory requirements for medical devices (i.e., those administered by the US FDA) which include clinical and technical safety.

¹⁹⁹ It should be noticed that a professional and operationally sound manufacturer/organisation does not experience any of the regulatory requirements as something that inhibits trade as the requirements concentrate on demonstrating safety and efficacy, and they actually guide new product development process.

²⁰⁰ Code of Federal Regulations; 1938 Federal Food, Drug and Cosmetics Act; 1990 Safe Medical Appliances Act; 2002 Medical Device User Fee and Modernization Act.

17.8.2 NTMs and regulatory divergence faced from US to EU

Before being exported to the EU, US-manufactured devices must have export clearance in the US, complying with EU “essential requirements” (like domestic products) which resemble the Quality System Requirements in the US and to work with a Notified Body to obtain a CE mark.

Further harmonisation and work on *de facto* implementation of mutual recognition between the EU and US is in progress, for example, in the field of conformity assessments so that US manufacturers can also work with US instead of EU assessment bodies. The TEC and High Level Regulatory Council also deal with regulatory harmonisation and administrative simplification to reduce regulatory divergence with the US system. It should be noted that the three directives that now form the ‘medical devices regime’ have already been a large step in harmonisation regulations within the EU. They set harmonised requirements for the safety and performance of medical devices at EU level and leave little room for Member States to regulate.

For the sub-sectors ‘manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment’ and ‘manufacture of industrial process control equipment’, there is a similar lack of implementation of the agreed mutual recognition (see Annex III for further legislative details). However, parallel harmonisation processes are underway (e.g. Directive 2004/22/EEC, harmonising regulation for measuring instruments). Also, the aforementioned EU/US Mutual Recognition Agreement contains annexes on both Electromagnetic Compatibility and Electrical Safety.

Some other issues complicating (both external and intra-EU) trade especially in the medical equipment sector can be attributed to national policies on pricing and reimbursement in EU Member States. Some EU countries have restrictive national policies, for example regarding investments in the publicly held medical sector, which can impede US manufacturers from meeting a certain investment thresholds required for profitability. Also, due to the diverging levels of hybrid public-private health systems in Member States, the medical sector is both supply- and demand-driven. For example, in some EU countries medical insurance companies influence whether certain devices will be financed or not. However, it should be noticed that similar issues with regards to the reimbursements exist in the US. As these issues touch upon the fact that some Member States see public health and safety as an internal affair, harmonisation of public health policies at the EU level would be complicated and time-consuming.

Relevant horizontal issues (applying to both US-EU imports and EU-US imports) that affect the sector as a whole include environmental regulations, “strategic goods” restrictions and IPR issues. Regarding environmental regulations in the EU (at Community level), the use of certain hazardous substances, e.g. lead, mercury and cadmium, in electronic equipment, is subject to restrictions.²⁰¹ Also, there is an obligation for manufacturers of electronic equipment to collect and recycle certain equipment free of charge.²⁰² Restrictions on strategic goods (export control) exist at a national level in EU Member States, at the Community level and in the US.²⁰³ It applies to “dual-use” devices (devices that can be used for both civil and military purposes) and is

²⁰¹ Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

²⁰² Directive 2002/96/EC on waste electrical and electronic equipment.

²⁰³ Council Regulation (EC) 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology; Export Control Act 2002 (UK); Strategic Goods, Import, Export and Transit Act (Estonia); US Strategic Goods Control System (Bureau of Industry and Security).

relevant for devices using nano- and nuclear-technology. The PET scan is an example of this. Harmonisation is progressing. For example, there is a general Community export authorisation for some product categories destined for the US. Finally, IPR issues generally play a hampering role in trade for this sector. The slow progress with the EU-wide Community Patent has been for example hindering the medical appliances sector.

17.8.3 Overall levels of restrictiveness – MMTA

The MMTA sector is a special case when examining the specifications for the gravity regressions. It seems to be a highly specialised sector with a high R&D intensity. When the pooled specification is employed, there is no statistical significance on either of the NTM indexes. This suggests that NTMs and regulatory divergence (given that none of the NTM variables have any statistical significance), do not matter much in this sector.

Table 17.9 Summary table regression results Medical, measuring and testing appliances (MMT)

	US	EU
Trade restrictions (survey)	0.398	0.371
FDI restrictions (survey)	0.148	0.207
Bilateral imports, € (\$) billion 2007	13.6 (17.7)	15.7 (20.5)
Measure impact on trade costs, percent	N/A	N/A

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates.

OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

N/A = not available

The involvement of both EU and US since 1992 (together with Australia, Canada and Japan) in the Global Harmonization Task-Force for Medical Devices (GHTF) where guidance for medical device regulations are developed, is important for further convergence of the legislation in the respective jurisdictions. In addition, DG Enterprise of the European Commission and the US FDA concluded a confidentiality arrangement to facilitate the exchange of regulatory information (July 2007).

17.9 Iron, Steel & Metal Products

While the metal sectors (especially steel) have had quite some restrictive trade measures in the past, there are currently very few measures to investment or exports. For exports from the US to the EU, the estimated Product-Market Regulation (PMR) index was low, with no sub-sectors emerging as more restricted than the others.

The metal industries have been strategic industries for the EU and US for a long time due to their nature as providers of intermediate inputs for numerous other sectors of the economy. Currently, the sector accounts for around just 2.5 percent of value added in the EU and around 1.5 percent in the US. Similarly, the employment share of the sector is 2.4 percent of total employment in the EU and 1.5 percent in the US after the sector's heavy technological changes. Globally, the EU is the world's second largest metal product producer after China and the US is the fourth largest.

17.9.1 NTMs and regulatory divergence faced from EU to US

An NTM that EU exporters face relates to the lack of federal pre-emption in pressure equipment regulations, allowing states to ask for diverging standards and regulations.²⁰⁴ Another NTM related to the pressure equipment sector, is the divergence in legislation between the ASME Code in the US from the Pressure Equipment Directive (97/23/EC) in the EU. This leads to higher compliance costs for EU firms that want to export to the US. Also, in order to have products accepted in the US market, EU manufacturers need to have their welders and non-destructive testing (NDT) personnel certified according to ASME requirements, which leads to higher costs.

The other important NTMs affecting the sectors are also horizontal in nature. Due to heavy transportation costs, a large share of metal product trading is already done through Foreign Direct Investments to avoid the hindrances caused by custom procedures and payments.²⁰⁵ However, the Foreign Investment and National Security Act of the US and the Committee on Foreign Investment in the United States (CFIUS) that reviews the investment based on the act restrict and delay investments to the US. According to this act, strategically important investments²⁰⁶ and mergers need a security clearance from the US President (including some²⁰⁷ investments in the metal sector).

In addition, the Buy American Act and local content requirements create relatively high NTMs in the government procurement markets for foreign-owned companies in the US.²⁰⁸ Investments are also limited by restrictions placed on foreign companies in 6 US states on owning, or even just renting land for foreign companies.²⁰⁹ Customs-related measures that affect the sector include, for example, the threat of 100 percent container scanning, slow customs procedures and transfer delays. Other horizontal issues causing measures to trade and investment in the US contain, for example, tax code reporting requirements, non-use of the metric system and the aforementioned requirement for a security-based double certification (see e.g. Chapter 12).

17.9.2 NTMs and regulatory divergence faced from US to EU

Metal product imports and investment from the US to the EU face some NTMs, but most of them are rather low. The divergence in regulatory requirements between the EU Pressure Equipment Directive (97/23/EC), which uses EU standards for the material specifications, and the US ASME Code (as well as US state legislation) causes higher costs for metal producers providing materials for pressure equipment in the EU. The EU does allow companies (both EU and foreign ones) to show compliance in alternative ways to the Pressure Equipment Directive, but this also leads to compliance costs for US firms.

²⁰⁴ Although the ASME code is the basis, most of the local jurisdictions' regulations complement it by additional and locally slightly different provisions mainly on administrative procedures

²⁰⁵ Source: sector experts

²⁰⁶ Any transaction proposed or pending after August 23, 1988, by or with any foreign person, which could result in control of a U.S. business by a foreign person are classified as "covered transactions" for the CFIUS to study. <http://www.treas.gov/offices/international-affairs/cfius/regulations.shtml>

²⁰⁷ Between 2005 to 2007 some 12 cases in the iron, steel and metal sector were investigated according to the CFIUS Annual Report 2008.

²⁰⁸ See Section 17.3.1.

²⁰⁹ OECD, Exceptions on national treatment 2008.

Other sector standards, such as product form definitions, which differ between the two areas, are also causing extra costs for producers. These standards are, however, often not mandatory, but are required by the client. Harmonisation of these could help the sector by reducing the number of different standards. Further, few individual EU countries have imposed specific restrictions for example on public procurement contracts, for mining rights and an prohibition of stainless steel pipes from the US.²¹⁰ In addition, another measure is faced by enriched uranium exports to the EU in the form of a quota.

More horizontal issues affecting the US producers are also evident. For example, double certification is required due to the separate EU Authorised Economic Operator (AEO) programme and the US Customs-Trade Partnership against Terrorism (C-TPAT), which are similar security initiatives causing double work for companies operating in both areas. Differences in enforcement of a unified customs system between the EU Member States also cause extra difficulties for US (and other foreign) exporters.

17.9.3 Overall levels of restrictiveness – iron, steel & metal products

Based on the gravity and survey results, it is estimated that EU restrictions on cross-border trade will yield a 6.0 percent trade cost for iron, steel and metals trade. Similarly, in the US the NTMs add some 8.5% on costs in trade and investment.

Table 17.10 Summary table regression results Iron, steel & metal products

	US	EU
Trade restrictions (survey)	0.307	0.215
FDI restrictions (survey)	0.247	0.166
Bilateral imports, € (\$) billion 2007	10.8 (14.1)	5.5 (7.2)
Measure impact on trade costs, percent	8.5	6.0

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007)

17.10 Textiles, Clothing and Footwear (TCF)

The textile, clothing and footwear industries have been at the core of many worldwide trade disputes and up until 2005 were subject to an extensive quota regime (Multi-Fibre Agreement – MFA), which covered most products and most markets. Despite these measures, substantial restructuring in the developed countries and rapid globalisation of entire production networks and value chains have taken place in these industries. Production and exports in developed countries have therefore seen a steady decline. Thanks to the phasing out of the quota system from the mid-1990s onwards under the Agreement on Textile and Clothing, trade has become more liberalised. At the same time, this has meant that NTMs have become more important in the industries.

²¹⁰ OECD , Exceptions on national treatment 2008 and USTR 2007.

Trade between the US and EU, although not affected by the MFA as such due to the non-existence of quota between them,²¹¹ has also seen a steady decline; however, it is still substantial in several higher end segments, with a positive trade balance for the EU. This chapter provides an overview of the industries in the EU and US, and trade between these two regions, as well as an overview of the main NTMs currently experienced on both sides of the Atlantic.

17.10.1 NTMs and regulatory divergence faced from EU to US

NTMs to the textiles, clothing and footwear sector tend to be fairly similar, although they can be more stringent for certain sub-categories, and, in the case of EU textile exports to the US, particularly related to specific materials, such as cotton and wool and products containing these. In general, there are very few investment measures and the most important trade measures relate to customs rules, rules of origin regulations, and IPR enforcement and counterfeiting.

Customs rules are in part a horizontal issue (e.g. the 100 percent container scanning policy and bond requirements) affecting all sectors, but for certain sub-categories of TFC, they can be more specific and prohibitive still. For instance, wrong product classification can lead to higher import duties for wool, viscose and cotton products, while certain products require extensive technical details for information to be provided to customs (this is particularly an issue with wool and cotton). The security related measures have also risen. For example, the forthcoming 10+2 rule²¹² of US customs is likely to create delays at customs and will require substantially more information for shipments. Origin markings can be considered NTMs in some cases, as they are seen to reduce the value of the EU brand name: 'Made in Italy' is only allowed on the label if a minimum level of content is derived from Italy; as EU producers are increasingly using imported inputs, this issue has become more pertinent.²¹³ In addition the US does not recognise the EU as a country of origin and thus does not accept EU certificates.

Another category of NTMs is formed by the differing measurements, labelling and marking requirements in the US and differing standards across states. Labelling requirements appear to be stricter (or rather more strictly enforced) and more complicated for importers than for domestic (US) producers. In addition they tend to be more extensive in the US than in the EU (including e.g. care labeling, origin marking, elaborate product descriptions, etc.).²¹⁴ Some textile and footwear products also contain wood and plant-based materials (e.g. cotton and hemp). In future, these products risk entailing large extra costs (due to the extra documentation requirements) if the revised Lacey Act on illegal logging will also be applied to textiles and footwear, as proposed in May 2008. EU industry associations have therefore been campaigning to prevent the scope of the Lacey Act²¹⁵ being extended, and to reduce its scope during the phase-in periods, in order to

²¹¹ However, the emergence of low cost producers in Asia, that were increasingly able to provide higher quality garments, in combination with a phasing out of quota for these countries has deflected some of the EU-US trade towards these countries, so there is an indirect effect of the quota phase out on EU-US trade.

²¹² This rule requires all importers to the US to provide 10 points of information for all shipments and also 2 additional information details from the shipper of the products. Because of this, the shippers are also likely to require all information to be submitted earlier than is currently the case, leading to delays in the shipments. Moreover, in the US, the National Association of Manufacturers (NAM) has made it clear that this measure applied to each individual container would be extremely difficult and costly to implement.

²¹³ In some cases some leniency is allowed, e.g. by stating a product is made in China, based on Italian design.

²¹⁴ EU legislation is compulsory only for the labelling of materials for the main parts of footwear and for the labelling of fibre names for textiles, in addition to which some Member States have regulations on the flammability of textiles.

²¹⁵ As of May 22, 2008, the Lacey Act makes it unlawful to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce any plant, with some limited exceptions, taken, possessed, transported or sold in violation of the laws of the United

avoid these higher costs being incurred. This measure would be a non-discriminatory one in nature and hence would affect both EU and US producers similarly, however, given the need for import declarations, it could be argued to affect EU producer more.

Finally, at the moment, the lack of Design Protection in the USA is also creating measures for EU clothing designers and producers. Although these measures could be reduced by the proposed Design Piracy Prohibition Act that is likely to be passed in the US, the current situation is still one of uncertainty.

17.10.2 NTMs and regulatory divergence faced from US to EU

In fact, some of the NTMs that apply to EU trade and investment in the TCF sector into the US apply to US trade and investment flows into the EU in similar ways. This includes, for instance, the issues of measurements, labelling and marking requirements, and differing standards across EU Member States. The latter is particularly relevant to flammability technical standards for textiles and products in which they are used

Different national Member State enforcement of uniform customs systems are also challenging for US firms with Member State competency in customs authority, whereas in the US, there is a single customs authority. If entry points matter, US firms may choose the road of least resistance (PROP 65 – The Safe Drinking Water and Toxic Enforcement Act of 1986).

As in the case of the US, other potential measures relate to EU consumers becoming increasingly concerned and aware of environmentally unfriendly practices and the resultant environmental regulations and standards. Thus, there is a need to comply with increasingly strict environmental standards advocated by bodies such as WRAP so as to retain market share.

17.10.3 Overall levels of restrictiveness – textiles, clothing & footwear

Based on our own survey data, the EU market is relatively more closed to trade than the US. However, the gravity results (data) for the sector were distorted heavily by the former ACT quota effects not only in the EU and US but also in third countries²¹⁶. Therefore no significant results on the effects of NTMs (i.e. trade costs estimations) could be derived from the model.

States, a State, an Indian tribe, or any foreign law that protects plants. The Lacey Act also now makes it unlawful to make or submit any false record, account or label for, or any false identification of, any plant covered by the Act. In addition, Section 3 of the Lacey Act, as amended (16 U.S.C. 3372), makes it unlawful, beginning December 15, 2008, to import certain plants and plant products without an import declaration. The scope of products that will require a declaration under the Lacey Act is broad and includes certain live plants, plant parts, lumber, wood pulp, paper and paperboard, and products containing certain plant material or products, which may include certain furniture, tools, **umbrellas, sporting goods**, printed matter, musical instruments, products manufactured from plant-based resins, and **textiles** (www.aphis.usda.gov/plant_health/lacey_act/downloads/FederalRegisterNoticeLaceyActImplementationPlan.pdf)

²¹⁶ Due to trade data-limitations, textile trade were used through 2005. However, these data were heavily influenced by ATC quotas which have since been eliminated (both in the EU and US). On the US side, the barriers estimations were also affected by the quotas on new Members (Bulgaria, Romania, Poland), which have since been lifted after 2006. As gravity analysis comprises global trade flows, these distortions also affected EU-US gravity results, which could thus not be clearly derived.

Table 17.11 Summary table regression results textiles, clothing & footwear (TCF)

	US	EU
Trade restrictions (survey)	0.307	0.399
FDI restrictions (survey)	0.131	0.239
Bilateral imports, € (\$) billion 2007	6.6 (8.5)	1.6 (2.1)
Measure impact on trade costs, percent	N/A	N/A

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates.

OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

N/A = not available

17.11 Wood, Paper, Wood Products and Paper Products

Overall, there are very few trade or investment measures (tariff or non-tariff) remaining between the EU and the US, and most of the existing measures are relatively low. Especially for EU exporters, the measures are more horizontal issues (affecting all sectors) than sector-specific for the wood and paper industries. The low measures are also evident in the Product Market Regulation (PMR) indexes, which are a mere 0.10 for US exports, and 0.08 for EU exports on a scale from 0 to 1. Lately, the industry has been challenged by energy and climate change issues and policies. Trade measures are more of an issue in trade with other countries than between the EU and US.²¹⁷

In the EU, wood and paper industries account for around 2 percent of the total value added and just under 2 percent of total employment. In the US, the employment share of the sectors is even smaller, around 1 percent of total employment and 0.7 percent of the value added. In global terms both Northern EU countries and the US are, however, the largest exporters of wood and paper products in the world. The actual trade flows between the EU and the US in wood and paper products are not very large, however, due to the heavy transportation costs, and the fact that trade is more regionally concentrated. In recent years, the US has actually had a net deficit in its wood and paper trade.

17.11.1 NTMs and regulatory divergence faced from EU to US

For EU exporters to the US, there are a few sector-specific measures, while most of the measures affecting the sector are more horizontal in nature. First of all, the 2008 Amendment to the Lacey Act, which poses additional requirements of the import declarations of wildlife and wild plants, including timber or associated wood products, is becoming obligatory (in phases from 2009 onwards) and is expected to create additional costs and delays to importers. Further, the US suppliers do not face the same requirements. Secondly, US standards for inspection, sampling and analyses of treated wood and standards for treated timber products in Missouri are potentially becoming stricter than international standards. A current issue has also risen with the application of the Alternative Fuel mixture Credit to “black liquor” mixtures in the US²¹⁸, which has provided the US pulp and paper producers large monetary benefits.

²¹⁷ UN (2007), “Forest Products Annual market review 2006-2007”, Geneva Timber and Forest Study Paper 2, UN.

²¹⁸ However, due to the large cost on US tax payers of this issue, the loophole in the legislation is likely to be abolished soon.

Additional horizontal issues affecting the sector include, for example, the Container Security Initiative (CSI) posing delays at customs for sea cargo, requirement for double certification caused by the European Union's Authorized Economic Operator (AEO) programme and the US Customs-Trade Partnership against Terrorism (C-TPAT) and tax code reporting requirements for foreign companies. However, only the CSI could be considered to create medium level measures. All other measures mentioned are rather low in level.

17.11.2 NTMs and regulatory divergence faced from US to EU

For the exports and investment from the US to the EU, some measures, mostly low ones, can still be identified. First of all, EU regional development programmes offer support for wood, paper and pulp processing projects in some Member States, hence creating an unequal competition position. Eco-labelling requirements for paper products in the EU have also created some measures for US exporters, due to the different standards used (though the label is voluntary). Furthermore, differences in enforcement of the uniform EU custom legislation between the EU Member States create additional difficulties for US exporters.

17.11.3 Overall levels of restrictiveness – Wood, paper, wood & paper products

Based on these results, it is estimated that EU restrictions on cross-border trade will yield a 11.3 percent trade cost for wood, paper, and wood & paper products, while in the US the restriction add some 7.7 percent additional costs.

Table 17.12 Summary table regression results wood, paper, wood & paper products

	USA	EU
Trade restrictions (survey)	0.262	0.385
FDI restrictions (survey)	0.113	0.215
Bilateral imports, € (\$) billion 2007	6.4 (8.3)	5.0 (6.5)
Measure impact on trade costs, percent	7.7	11.3

Note: Trade costs are calculated using the estimated tariff elasticity at the sectoral level. NTM elasticities are from our gravity estimates. OECD indexes are from OECD (2007). Bilateral import values are from TRAINS data (2007).

18 Cross-cutting NTMs

18.1 Introduction and definition

Analysis of the different NTMs and different levels of regulatory divergence shows that many are clearly sector specific, but many are also cross-cutting in nature, that is they occur in more than one sector at the same time. This implies that even though cross-cutting NTMs may not be of the highest level of significance in a particular sector, since they apply across the economy, their overall impact may be considerable when the effects for all sectors are added up. Clearly some NTMs are more cross-cutting than others.²¹⁹

Box 18.1 Definition of cross-cutting non-tariff measure or cross-cutting regulatory divergence

A cross-cutting non-tariff measure or regulatory divergence is one that occurs in more than one sector.

Identification of cross-cutting issues is done via the literature review, business survey and interviews with business associations and industry federations²²⁰, while quantification of the cross-cutting issues is carried out through CGE modeling. This chapter focuses on the overall cross-cutting NTMs, while the next chapters focus on 100 percent container scanning legislation, government procurement and intellectual property rights, three specific cross-cutting areas of regulatory divergence that have been found to be relatively important for various sectors.

18.2 Identification of cross-cutting NTMs and regulatory divergence

Each cross-cutting issue is checked at the sectoral level, keeping three elements in mind:

- The number of sectors affected by the cross-cutting issue;
- The relative level of importance of the cross-cutting issue in each sector (low, medium, high);
- The trend in the cross-cutting issue (decreasing, constant, increasing – forward looking).

The total overview on cross-cutting NTMs and regulatory divergence is presented in three tables in Annex X.

In this manner, a clear picture of the true cross-cutting issues emerges, including their relative importance (with variation across sectors) and a forward-looking element at NTM-level detail

²¹⁹ For example, IPR and government procurement apply to more than 8 sectors under investigation, but registration of hazardous substances refers to 'only' 4 sectors and is therefore narrower in nature. Also, 100 percent container scanning legislation applies to all sectors whose good are traded in containers.

²²⁰ Our overall study analysis will be based on a grouping of all three of these methods. The complementarity and difference in these sources allows us to present a varied and more inclusive picture of the cross-cutting issues.

(i.e., is this a cross-cutting issue of concern for the future (increasing) or is it for example being addressed in the regulatory and policy process?).

18.2.1 Cross-cutting NTMs in services sectors

When analysing the literature review and business survey answers for cross-cutting issues and regulatory divergence, the following core NTMs emerge across sectors.

Table 18.1 Overview of most important cross-cutting NTMs in services sectors

Cross-cutting NTM	Sectors Where It Applies	Other Observations
Differences in security controls on passengers/cargo between EU and US	Travel services, transport services, construction services, other business services, personal, cultural and recreational services	In most sectors a medium effect, but from a forward-looking point of view, a divergence that is increasing
Intellectual property rights differences between EU and US	Travel services, computer & IT services, and personal, cultural and recreational services	For some sectors the level of divergence is high
Patriot Act – specific tax code requirements	Financial services, insurance services, computer & IT services, and personal, cultural and recreational services	Relative importance is not clear
Sarbanes Oxley Act (SOX)	Financial services, insurance services, and computer & IT services	This was designed in 2002 after the ENRON scandal. The issue of ‘accounting standards’ appears to be important in the services sectors.
Restricted public procurement (e.g. the Buy American Act, Berry Amendment, ARRA and SBA)	Insurance services, communication services, computer & IT services, and construction services	This is a relatively important measure for various sectors and has shown recently a growing trend.
The ‘fourth mode’ in the GATS (the temporary presence of natural persons from one country in another country to provide a service)	All services sectors	Visa waivers make it easier for EU citizens to enter the US, but problems remain, for instance, because every country has its own regulation regarding ‘mode 4’. ‘Mode 4’ was not intended as a route to permanent immigration but US long-term immigration problems are often attributed to ‘mode 4’, pushing the regulation in a more protective direction.
Patent filing costs and differences in EU and US patent systems	Financial services and computer & IT services	This measure is important to a lesser extent than the cross-cutting issues mentioned above

18.2.2 Cross-cutting NTMs in goods sectors

When analysing the literature review and business survey responses for cross-cutting NTMs and regulatory divergence, the following core issues that recur in the analysed goods sectors have been noted.

Table 18.2 Overview of most important cross-cutting NTMs in goods sectors

Cross-cutting NTM	Sectors Where It Applies	Other Observations
Intellectual property rights differences between the EU and US	Chemicals, pharmaceuticals, electronics, medical, measuring and testing appliances, food & beverages and textiles, clothing and footwear	This is a measure that affects many sectors on both sides of the Atlantic.
Environmental regulations (e.g. EU Emission Trading Scheme)	Office, information and communication equipment, medical measuring and testing appliances, textiles and clothing	This is also affecting the automotive industries and wood & paper products, and is set to increase yet more with time
Classification and labeling differences between the EU and US	Chemicals, the automotive industry, iron, steel & metals, textiles, clothing and footwear, cosmetics, and biotechnology	This constant measure affects several sectors in both the EU and the US.
Restrictions in Government procurement (e.g. the Buy American Act, ARRA and SBA)	Most of the sectors and especially in iron & steel and metals, aerospace, chemicals, machinery and automotive	These measures have shown a tendency of increasing recently.
Differences between EU and US borderline measures	Chemicals, pharmaceuticals and cosmetics (US to EU)	Both the EU and US face measures affecting trade across sectors due to the Container Security Initiative (CSI). Looking ahead, this is a measure whose effects are still increasing
REACH	Chemicals, pharmaceuticals and cosmetics (US to EU)	On the basis of the business survey, this seems to be a high measure affecting chemicals and a medium measure affecting pharmaceuticals and cosmetics
Diverging regulations in EU and US patent systems	Machinery and aerospace and space (EU to US); pharmaceuticals, cosmetics, biotechnology, machinery, aerospace and space and the automotive industry (US to EU)	These varying regulations have impacts on different sectors on both sides of the Atlantic and could cause increasing problems, looking to the future
100 percent container scanning	Aerospace, automobiles, chemicals, electronics, cosmetics, food & beverages, OICE, pharmaceuticals, transport services, construction services,	This measure applies to all US-bound containerized maritime transport

Cross-cutting NTM	Sectors Where It Applies	Other Observations
	machinery, iron, steel & metal products, wood & wood products	
Diverging technical standards	Machinery, electronics, automotive industry, textiles, clothing & footwear, aerospace & space and office, information & communication equipment	The aerospace and OICE sectors are particularly affected by this measure and this could increase with time.

19 Security issues – 100 percent container scanning

19.1 Introduction

The terrorist attacks of September 11, 2001 in the US caused a structural change in the history of the country, and as a consequence, for the rest of the world, forcing immediate action by the US government and others around the world to secure their territories to avoid further strikes. The term used was “Supply Chain Security”, referring to the new practices of the international trade community to enhance security levels in the flows of world trade and investments. Supply Chain Security in general is a full set of measures aimed at increasing security that includes various specific (potential) initiatives (e.g. CSI, Megaports, WCO SAFE Framework of Standards and 100 percent container scanning). One of the most far-reaching proposals is the 100 percent Container Scanning Legislation, adopted in 2007, mandating that all US-bound maritime containers be scanned before leaving foreign ports starting in 2012. This study has taken into account this measure because if nothing changes to the present legal situation by 2018, 100 percent container scanning will be in effect. Discussions on actual implementation are going on at present, but for now, full implementation of 100 percent container scanning (from some container scanning at present) has the potential to yield significant costs and become a significant cause for regulatory divergence between the EU and US security practices.

19.2 Supply Chain Security

Various organisations, public and private, have developed security programmes to enhance the security level of the supply chain. These programmes focus on the following three aspects:

- Secure the flow of goods throughout the global supply chain, from origin to final destination;
- Secure the different transport modes used to move goods within the supply chain;
- Secure the connection nodes that link the global supply chain.

The measures and practices adopted in these three areas include security standards within the organisations and modes of transport. These measures include, but are not limited to, the exchange of information of entities between connection nodes, inspection and validation of the contents within the transport modes, the use of new and current technologies to enhance security levels, joint cooperation between partner countries, administration security standards adopted within the organizations, and analysis of historical data from shippers and cargo.

The most important current programmes implemented originate from the WCO. In light of the 9/11 attacks, it is also important to focus on measures taken by the US government aimed to enhance security of the supply chain.

SAFE Framework of Standards

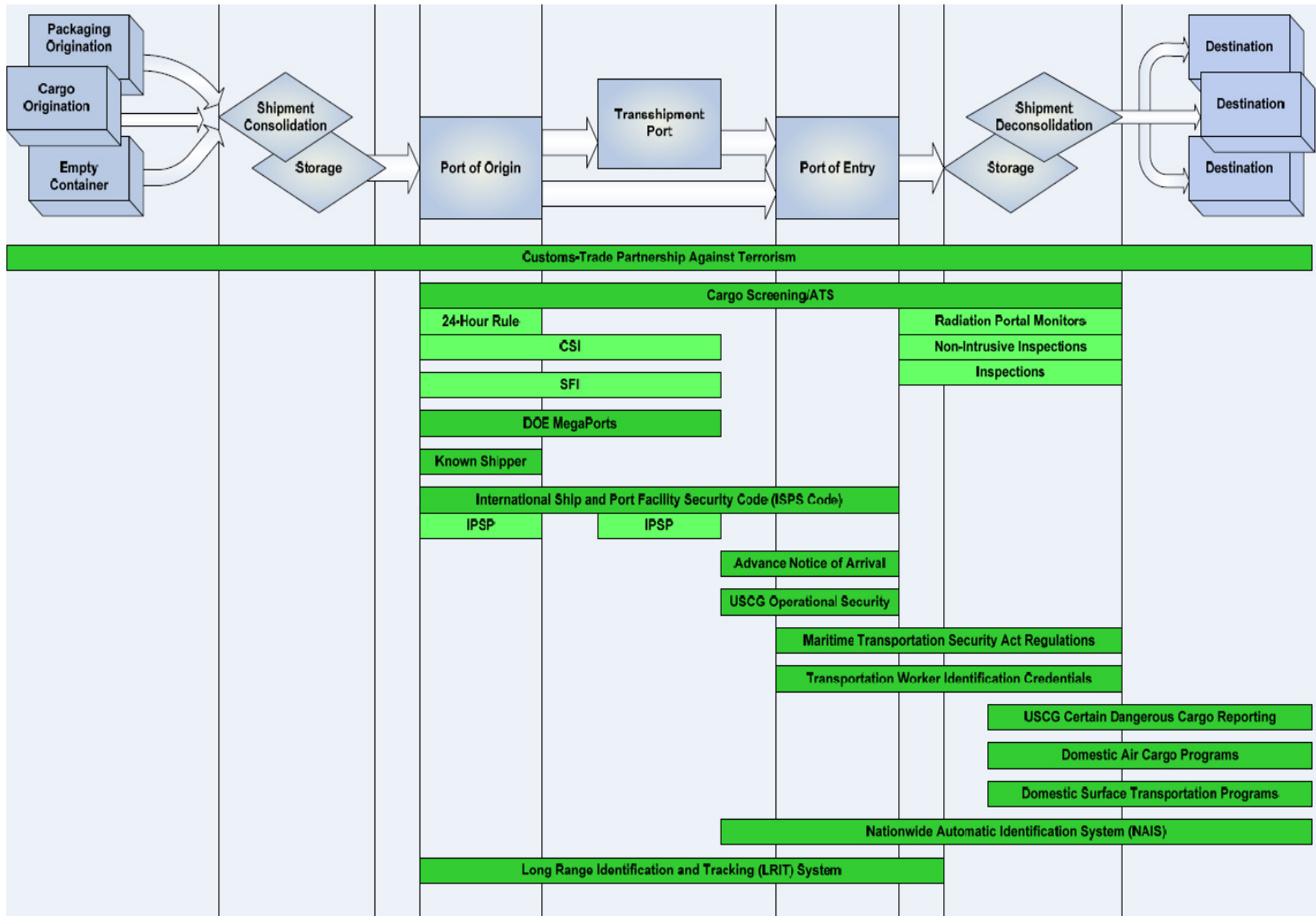
The WCO SAFE Framework (WCO, 2007) aims to establish standards that provide supply chain security and facilitation at a global level to promote certainty and predictability, enable integrate supply chain management for all modes of transport, enhance the role, functions and capabilities of customs to meet the challenges and opportunities of the 21st century, strengthen co-operation between customs administrations to improve their capability to detect high-risk consignments, strengthen customs-business co-operation and promote the movement of goods through secure international trade supply chains. Four elements are at the core of the SAFE framework:

- Harmonising advance electronic cargo information requirements on shipments;
- Employing a consistent risk management approach to address security threats;
- At reasonable request of the receiving nation, based on comparable risk targeting, the sending nation's Customs administration will do an inspection of high-risk containers and cargo;
- Defining benefits to business that meet supply chain security standards and best practices.

The elements are captured in two pillars: customs-to-customs and customs-to-business. Many different initiatives fall inside these pillars, for example, integrated supply chain management, cargo inspection, modern technology in inspection equipment, risk-management systems, high-risk cargo or container, targeting and communication, port security assessment, partnerships with business.

In the US, the following measures are being or may potentially be taken: the Customs Trade Partnership Against Terrorism (C-TPAT), the Container Security Initiative (CSI), the Megaports initiative, the Secure Freight Initiative (SFI), the 24-hour rule, and the 10+2 rule. The overview of measures is schematically presented in Figure 19.1.

Figure 19.1 US Supply Chain Security Program Overview



Source: DHS, 2007a.

In the EU, customs administrations have taken actions to overhaul control procedures, techniques, resources and relevant legislative tools, summarized in the ‘security amendment’ of the EC Customs Code that entered into force in December 2006 with the full range of security measures coming into play in July 2009²²¹. The EU complies with ISPS code and enforces security standards for all ships sailing under an EU Member State flag. Systematic check on port facilities, vessels and cargoes are required to be carried out in ports throughout the EU.

²²¹ The security amendment of the EC Customs Code (in combination with the relevant Implementing Provisions) require traders to provide customs authorities with information on goods prior to import to or export from the EU (pre-arrival & pre-departure information). They also provide reliable trades (AEO) with trade facilitation measures in order to achieve the right balance between security/safety requirements and facilitation of legitimate trade. Also the amendment introduces a mechanism for setting uniform Community risk-selection criteria for controls, supported by computerised systems. Finally, more efficient export controls / outbound inspections of high risk consignments are introduced in order to ensure not only the protection of EC customs territory, but also to aim at secure international end-to-end supply chains.

Box 19.1 C-TPAT

The *Customs-Trade Partnership Against Terrorism* (C-TPAT) was formed after 9/11 to increase security measures in imports. Over 7000 firms are members of the government-private sector partnership and include importers, customs brokers, terminal operators, carriers and foreign manufacturers. These members work with the US Customs and Border Protection Agency (CBP) to ensure the protection of their imports from the concealment of terrorist weapons. In return, they enjoy speedier and **more efficient customs procedures**.

For imports from other countries, this means an increased chance of security and compliance examinations as compared to C-TPAT member firms. Given that currently 68 percent more examinations occur as compared to the pre-9/11 period, lowering the chance of inspection is a significant advantage. As a result of this, the US has signed **mutual recognition agreements** with New Zealand, Canada and Jordan, thereby eradicating the need for double certification for imports to the US originating from these countries. As a consequence, these imports are also dealt with in a more efficient fashion and US exports to these countries marked with the C-TPAT membership can enjoy similar benefits.

This is a positive example of cooperation on security issues and these reciprocal agreements are thereby helping to stimulate the **globalisation** of supply chain security standards.

Sources: CBP (2004), *Securing the Global Supply Chain: Customs-Trade Partnership Against Terrorism, Strategic Plan*, Washington: CBP.

19.3 Legislation: 100 percent container scanning

Legislation

Derived from the 9/11 Commission Report aimed to protect the US against further terrorist attacks, the first session of the 110th Congress enacted the House of Representatives 1 (H.R.1) legislation, also called the “Implementing Recommendations of the 9/11 Commission Act of 2007”. Inside, title XVII “Maritime Cargo”, subsection 1701, sub point (a) Container Scanning; amends Section 232(b) of the SAFE Port Act (6 U.S.C. 982 (b)), and establishes a “Full Scale Implementation” to all containers destined to the US to be scanned at foreign ports prior to their arrival, i.e., 100 percent Container Scanning.

“(b) Full-scale implementation –

(1) IN GENERAL – A container that was loaded on a vessel in a foreign port shall not enter the United States (either directly or via a foreign port) unless the container was scanned by nonintrusive imaging equipment and radiation detection equipment at a foreign port before it was loaded on a vessel.”

The 100 percent container scanning legislation was approved without following the specifications of the SAFE Port Act of 2006, which require full pilot program implementation reports and DHS approval before a full scale implementation.

Challenges posed by the 100 percent container scanning legislation

Evidence from pilot projects on SFI and the Megaports initiative have shown that gate container traffic can be managed when introducing the 100 percent scanning legislation, albeit at a certain cost. This is a different matter when looking at port re-design needs for transshipment flows and waiting line costs.

“... trans-shipped cargo continues to present a significant challenge for both SFI and Megaports implementation. Because shorter dwell times for containers, space constraints, availability of shipping data and the difficulty of identifying

chokepoints within the container terminals, capturing transshipments without seriously impacting port operations requires new and creative solutions” (Huizenga [2008 p.5]).

Further challenges that the proposed initiative needs to address is the cost/benefit ratio²²², functioning of scanning equipment in extreme weather conditions, re-configuring costs of port lay outs, diverging local response protocols in case of scanning alarms, health and safety concerns surrounding the gamma ray scanning technology, defining who will incur the costs for operating and maintaining the scanning equipment and analyzing the scanned data and data privacy concerns. From a forward-looking perspective, the potential for reciprocal scanning of US exports is an important challenge that needs to be addressed.

Box 19.2 US-Bound container flows and 100 percent container scanning

Because the overall methodology of this study focuses more on the general equilibrium impact and overall competitive impacts of harmonizing this NTM, this case study highlights some of the partial equilibrium effects and effects of the 100 percent container scanning legislation were it to be implemented. The purpose of this analysis is to look at the cost aspects of 100 percent container scanning, not also at the potential benefits – and is as such not assessing the ‘need’ for this legislation, but rather its economic efficiency.

Various studies have been carried out and are being carried out to look at 100 percent container scanning and its effects (Carluer, 2008; US CBP report to Congress on 100% container scanning, 2008; US CBP update to Congress on 100% container scanning, 2008; Martinosi et al, 2006; World Shipping Council, 2007; ECORYS, 2008; World Customs Organization, 2007, DG Taxud, 2009).

Looking at these studies and analyses carried out to estimate the effects of 100 percent container scanning legislation, different types of costs have to be taken into account:

- Direct costs, including installing and maintaining scanning equipment, hardware, changing procedures, redesigning the infrastructure of port systems, software development, and engaging additional resources (e.g. new personnel).
- Indirect costs, including waiting lines for – especially transshipment – containers when scanning capacity is outstripped by container inflow, congestion problems, problems with multi-modal incoming container flows, diversion of transport routes, and slowing down exchanges between the EU and US.

Cost estimates that take these costs into account have been increasing over time as new studies evolved and range from a lower estimate of €265 (\$345) per container from CBP Report to Congress on Integrated Scanning System (2008) to higher estimates of €450 (\$580) per container from CBP Update to Congress on Integrated Scanning Systems (2008), ECORYS estimates of €365 (\$460) per container (excluding port infrastructure and slower rate of transactions between the EU and US) in 2008, to EU estimates of over €385 (\$500) per container (EC response to CBP Report to Congress on Integrated Scanning System, 2008).

When costs of 100 percent container scanning are estimated it is important to do so in an EU-US context that allows for market, sector and port specifics to be included. In the SFI pilot projects only Southampton was involved in the EU, but due to the limited size of this port, the near single-modal container inflows into the port and the limited number of containers to which the scanning was applied, the estimates may not be an accurate reflection of the impacts for the EU. For the EU the following need to be taken into account:

- The largest ports exporting to the US from the EU are Bremerhaven (Germany, 573,105 TEU = 21.9% of US bound

²²² “Even if technology is developed to effectively scan 100% of US-bound containers with both the detection and the imaging systems without impacting port operations, it may not necessarily be a cost effective risk management strategy to equip the 700+ ports that ship directly to the United States” (Huizenga [2008 p.6]).

container exports from the EU), Antwerpen (Belgium, 447,667 TEU), Rotterdam (The Netherlands, 400,343 TEU), La Spezia (Italy, 143,551 TEU), and Le Havre (France, 114,698 TEU). This top-5 of EU ports constitutes 65% of all US-bound container traffic originating from the EU (Eurostat, 2006).

- As said, Southampton does not have multi-modal incoming container traffic (but only single-modal truck-based inflows) and as such would not experience the largest difficulties in implementing 100 percent container scanning legislation. However, some other ports do have container traffic from trains, feeder vessels, barges as well as trucks. If procedures diverge per mode of transport, costs may be much higher.
- In a large seaport like Rotterdam – with only 5.9 percent US bound container exports and the development of 'Maasvlakte II' in the sea, there is not an immediate space problem. However, in various other EU ports (e.g. Bremerhaven, La Spezia) such space is not available to accommodate extra storage space or extra transshipment areas.

As of yet, a full partial equilibrium cost analysis of 100 percent container scanning has not been done; i.e. an analysis that includes both all the abovementioned direct and indirect costs; but indications from the analyses carried out on some of the sub-components indicate the effects could easily run into billions of dollars. This general equilibrium study – that includes national income effects on top of the abovementioned effects – finds the total costs to EU and US GDPs combined to be a total of €9.7 billion (\$12.7 billion) annually.

19.4 Sectors affected by the NTM

Essentially, all sectors in the world economy where containerized sea transport occurs will be affected by 100 percent Container Scanning and pre-shipment inspections. From our business survey, sector experts and discussions with legislators and business associations, the following cross-cutting picture emerges, whereby mostly trade flows (not investment flows) are affected and whereby trade flows from the EU-US are affected more strongly than US-EU flows.²²³ The Table shows all sectors where 100% container scanning was mentioned by businesses as a future NTM. In the middle column, the relative ranking of 100% container scanning in the list of total significant NTMs is presented, while the last column shows the source of information on which this assessment is based.

Table 19.1 Goods and services sectors in trade facing this future regulatory divergence

Sector	Ranking (out of total number of NTMs)	Sources of Information
Aerospace & space (EU-US)	6(10)	Survey, Business Associations, Experts
Automobile (EU-US)	7(26)	Survey, Business Associations
Chemicals (EU-US)	2(23) & 18(23)	Survey, Business Associations, Experts, Legislators
Chemicals (US-EU)	7(20)	Survey, Business Associations
Electronics (EU-US)	11(11)	Survey, Business Associations, Experts, Legislators
Electronics (US-EU)	8 (9)	Survey
Cosmetics (EU-US)	5(12)	Survey
Food & beverages (EU-US)	6(17)	Survey, Business Associations, Experts

²²³ This is based on the assumption that the EU will not reciprocate.

Sector	Ranking (out of total number of NTMs)	Sources of Information
OICE (EU-US)	6(9)	Survey, Experts
Pharmaceuticals (EU-US)	3(21) & 10(21)	Survey, Experts
Transport services (EU-US)	6(12)	Survey, Experts
Construction services (EU-US)	4(12)	Survey
Machinery (EU-US)	6(10)	Survey, Business Associations, Experts, Legislators
Textiles & clothing (EU-US)	7(10)	Experts
Iron, Steel & Metal products (EU-US)	1(6)	Survey, Experts
Wood & wood products (EU-US)	3(11)	Survey
Wood & wood products (US-EU)	1(7)	Survey

The 100 percent container scanning legislation is an important potential cause for regulatory divergence. The cost increases for the transport supply chain, especially for those sectors depending on containerized transport (see Table above) – and therefore costs shared by firms and consumers alike – are expected to increase significantly.

19.5 The potential effects of NTM reduction at macro and sector level

This study provides a general equilibrium analysis of the importance of the potential regulatory divergence based on indicated levels of NTMs. Assuming the legislation will be introduced in 2012, and keeping in mind the study looks at the situation in 2018, elimination of 100 percent container scanning at that time is analysed as regulatory convergence in terms of economic and competitive implications.

The economy-wide effects of harmonization – which is what general equilibrium looks at – include not only the direct and indirect costs affecting trade flows across the Atlantic, but also indirect effects.

- Costs of containerized transport increase significantly. This directly affects the transport sector as well as those sectors where containerized transport is a large share of their trade;
- 100 percent container scanning also significantly affect the ports where US-bound container traffic flows originate – via installments of expensive scanning technologies, re-allocations of their supply chain systems and port infrastructure, waiting lines, congestion problems, diversion of transport routes, etc.
- Higher transport costs reduce the margins for firms that engage in containerized transatlantic trade, lowering their margins, reducing profitability and reducing current and future employment possibilities;
- Some sectors will diverge away from containerized transport into for example bulk transport to avoid the 100 percent scanning legislation;
- Part of the increase in costs is passed through into the transported intermediate and eventually final goods leading to price increases for consumers. If prices rise (and wages do not), disposable incomes for consumers are reduced leading to less consumption, not only of the products that have been transported in containers and therefore become more expensive, but also of all other types of products and services.

19.5.1 Macro-economic effects of 100 percent container scanning

Making use of the calculated NTM indexes provided by the business survey, and linking these to 100 percent container scanning, which was mentioned in various sectors (see Section 19.4), the effects of 100 percent scanning for the overall economy can be calculated, including effects on real household incomes, trade flows and wages.

Table 19.2 shows the overall results of a near complete alignment on 100 percent container scanning. Total aggregate welfare gains for the transatlantic economy accrue to €9.7 billion (\$12.7 billion). EU GDP increases to €8.9 billion (\$11.6 billion) per year, while the gains for the US are €0.8 billion (\$1.1 billion) per year. The one-sided nature of the legislation is indeed such that removing it would yield higher gains on the EU-side, but through price changes, re-export effects, and investment potential increases, also the US is benefiting.

The values for exports, both for the EU and the US, go up significantly (0.13 percent and 0.27 percent, respectively) as do the values for imports (0.17 percent for the US and 0.13 percent for the EU). In absolute terms, this means EU exports go up by €9.1 billion (\$11.8 billion) and US exports by €5.2 billion (\$6.8 billion). EU exports go up because the costly legislation is abolished and therefore trade and trade related investment flows increase (cost prices drop). US exports increase also, due to re-export effects of EU imports of parts & components, larger consumption demand of EU households US products, increases in investment potential, and lower prices.

Table 19.2 Summary of macroeconomic changes of 100 percent container scanning legislation

	full liberalization, short run	full liberalization, long run
Real income, billion € (\$)		
United States	-0.1 (-0.1)	0.8 (1.1)
European Union	3.3 (4.2)	8.9 (11.6)
Real income, %		
United States	0.0	0.0
European Union	0.0	0.1
Real household income, %		
United States	0.0	0.0
European Union	0.0	0.1
Real wages %, unskilled workers		
United States	0.0	0.0
European Union	0.0	0.1
Real wages %, skilled workers		
United States	0.0	0.0
European Union	0.0	0.1
Value of Exports, %		
United States	0.3	0.3
European Union	0.1	0.1
Value of Imports, %		
United States	0.2	0.2
European Union	0.1	0.1

Real household incomes go up by 0.01 percent in the US and 0.06 percent in the EU, as do real wages for skilled workers. This causes increased demand for EU products in the US, but even more EU demand for US products.

19.5.2 Sector-specific effects of 100 percent container scanning

At the sectoral level, the effects of aligning 100 percent container scanning legislation show a more detailed picture, in line with the presented overall effects.

Table 19.3 Summary of sector-specific production effects of 100 percent container scanning legislation (percentage change)

	United States		European Union	
	full liberalization, short run	full liberalization, long run	full liberalization, short run	full liberalization, long run
Agr, forestry, fisheries	-0.01	-0.01	0.00	0.00
Other primary sectors	0.00	0.00	0.00	0.00
Processed foods	-0.33	-0.32	0.11	0.13
Chemicals	-0.46	-0.47	0.21	0.25
Electrical machinery	2.32	2.28	-0.36	-0.21
Motor vehicles	-0.20	-0.16	0.24	0.28
Other transport equipment	-0.17	-0.17	0.17	0.19
Other machinery	0.14	0.12	-0.25	-0.21
Metals and metal products	0.00	0.00	-0.07	-0.03
Wood and paper products	-0.01	-0.02	-0.05	-0.01
Other manufactures	0.00	-0.01	-0.04	-0.01
Water transport	0.03	0.03	0.01	0.03
Air transport	0.04	0.04	-0.04	-0.01
Finance	0.01	0.01	-0.01	0.02
Insurance	0.01	0.01	-0.02	0.01
Business services	0.02	0.02	0.00	0.04
Communications	0.01	0.01	-0.01	0.02
Construction	0.03	0.00	0.02	0.06
Personal services	0.01	0.01	-0.03	0.01
Other services	0.01	0.01	0.00	0.03

The relative changes in production show in general that reducing the 100 percent container scanning legislation leads to decreases in output for US manufacturing sectors in favour of US services sectors and an increase in output for EU manufacturing sectors at the expense of EU service sectors. Abolishing the 100 percent container scanning legislation makes exports of containerized transport to the US cheaper, leading to more competition for the domestic US manufacturing sectors, worsening their relative level of competitiveness vis-à-vis US services sectors. For the EU the opposite effects are expected. An exception to this picture is the electronics sector – in spite of electronics being partially containerized – where the comparative advantage gain for the US outstrips the expected loss of competitiveness due to abolishing of the 100 percent container scanning legislation.

Table 19.4 Summary of sector-specific export effects of 100 percent container scanning legislation (% change and absolute values)

	United States		European Union	
	Full liberalization, long run (% change)	Full liberalisation long run (€ billion)	Full liberalization, long run (% change)	Full liberalization, long run (€ billion)
Agr, forestry, fisheries	0.15	0.5 (0.6)	-0.10	-0.4 (-0.5)
Other primary sectors	0.07	0.1 (0.1)	0.00	0.0 (0.0)
Processed foods	-0.25	-0.2 (-0.2)	0.71	2.9 (3,7)
Chemicals	-0.14	-0.3 (-0.4)	0.52	4.6 (6,0)
Electrical machinery (electronics, OICE)	2.98	2.9 (3.8)	-0.05	-0.1 (-0.1)
Motor vehicles	-0.04	-0.1 (-0.1)	0.50	3.3 (4.3)
Other transport equipment (aerospace)	0.39	0.4 (0.5)	0.47	0.8 (1.1)
Other machinery	0.23	0.5 (0.6)	-0.28	-2.4 (-3.1)
Metals and metal products	0.06	0.0 (0.1)	0.16	0.4 (0.5)
Wood and paper products	1.76	1.0 (1.3)	0.23	0.7 (0.9)
Other manufactures (machinery, textiles)	0.02	0.0 (0.0)	-0.05	-0.5 (-0.6)
Water transport	0.12	0.0 (0.0)	0.02	0.0 (0.0)
Air transport	0.08	0.0 (0.0)	0.00	-0.0 (-0.0)
Finance	0.06	0.0 (0.0)	0.02	0.0 (0.0)
Insurance	0.03	0.0 (0.0)	-0.05	-0.0 (-0.1)
Business services	0.04	0.0 (0.1)	0.00	0.0 (0.0)
Communications	0.06	0.1 (0.1)	0.01	0.0 (0.0)
Construction	0.11	0.0 (0.0)	0.00	-0.0 (-0.0)
Personal services	0.13	0.1 (0.1)	-0.15	-0.2 (0.3)
Other services	0.09	0.2 (0.3)	-0.04	-0.1 (0.2)
Total		5.2 (6.8)		9.1 (11.8)

Trade (and trade related investment) exports increase significantly for the EU in processed foods, chemicals, motor vehicles, other transport equipment, and wood and paper products. In all these sectors containerized transport is important, so this is a likely direct consequence of abolishing 100 percent container scanning. The other machinery sector and other manufactures are the only two manufacturing sectors where less is exported to the US. The total increase in trade and trade related investments is €9.1 billion (\$11.8 billion) for the EU.

For the US exports to the EU increase at the aggregate with €5.2 billion (\$6.8 billion) whereby electrical machinery, other machinery, wood & paper products and other transport equipment gain most. In other sectors, like processed foods, chemicals and motor vehicles, declining export levels can be observed, due to relative loss of competitiveness created by the 100 percent container scanning legislation. The main reason for the overall trade increase, even though some sectors that compete directly with EU sectors export less, is the fact that consumer demand for products in the EU (and also US but to a more limited extent) has gone up because disposable incomes have risen.

Looking at the aggregation into agricultural, manufacturing and services sectors, abolishing 100 percent container scanning leads to a redistribution of output and resulting exports from agricultural and services to manufacturing in the EU since the manufacturing competitive position has improved relative to the other sectors. In the US, due to re-exports, parts & components trade and improved aggregate demand both in the EU and US, all sectors benefit from abolishing 100 percent container scanning, although, on the aggregate to a lesser extent than the EU.

Table 19.5 Summary of sector-specific export effects of 100 percent container scanning legislation (absolute values – in billion)

Sectors	EU	US
Agricultural	-0.36	0.54
Manufacturing	9.77	4.30
Services	-0.30	0.34
Total	9.10	5.18

19.6 Competitiveness effects and systemic impacts

Looking at the effects of abolishing 100 percent container scanning in 2018 – presuming it has indeed been introduced in 2012 – will generate large shifts in welfare, have significant competitive effects and systemic impacts.

100 percent container scanning causes significant increases in transport costs for containerized traffic from the EU to the US and – due to re-exports – even increases in costs for some products transported back from the US to the EU (e.g. in electronics and chemicals). From the quantitative analysis it follows that 100 percent container scanning, when abolished, reduces transport costs for containerized transport significantly.

This means that the EU sectors – originally most hit by its introduction – now stand to gain from its abolishment, like textiles & clothing, chemicals, electronics, OICE, cosmetics, wood & wood products, machinery, construction, and of course transport services. This study finds that – with the exception of machinery – this is indeed the case. However, while EU container transport related manufacturing sectors gain and become more competitive vis-à-vis their US counterparts, they also become more competitive vis-à-vis other sectors in the EU economy, notable those manufacturing sectors that are not dependent on containerized transport, agricultural sectors and services sectors – sectors that compete for limited resources.

Replacing 100 percent container scanning – or significantly adapting it – into a system supported by the WCO SAFE Framework of Standards and within the EU-US joint initiatives on multi-layered risk-based approaches is very important when looking at systemic implications and harmonization of standards. The 100 percent container scanning initiative is taken unilaterally and could cause large regulatory divergences at significant cost if introduced in 2012 (as the analysis has shown) *‘It would tend to undermine the development and implementation of an international consensus on higher standards worldwide’* (EC response to Report to Congress on Integrated Scanning System, 2008). Furthermore, harmonization of security standards and controls, for example through mutual recognition, would avoid duplication of EU and US efforts (and funds) towards a more secure transatlantic trade and investment market, hence increasing

joint effectiveness with respect to combating terrorism and criminality. This joint example may also have a positive impact on the rest of the world, by example and through WCO SAFE Framework of Standards initiatives.

19.7 Conclusions

- Abolishing 100 percent container scanning would cause economic gains that add up to €9.7 billion (\$12.7 billion) per year for the EU and US economies combined;
- Most gains or near-full regulatory harmonization would go to the EU (€8.9 billion – \$11.6 billion per year) but also US GDP increases by €0.8 billion (\$1.1 billion) per year;
- 100 percent container scanning directly affects sectors that trade from the EU-US via containerized transport most heavily, as well as the transport sector itself;
- The sectors most affected are: textiles & clothing, chemicals, electronics, OICE, cosmetics, wood & wood products, machinery, construction, and transport services;
- 100 percent container scanning appears to protect US sectors that compete with EU sectors using containerized transport – distorting the global level playing field.
- Reduction of 100 percent container scanning divergence benefits manufacturing sectors (mostly in the EU) increasing their levels of competitiveness, causing a competition for resources with other sectors in the EU economy (e.g. agriculture and services).
- In the US, through re-export effects and increases in disposable incomes of EU and US consumers, exports will go up. However, some of the US sectors will experience a decrease in production due to stronger EU competition when a 100 percent container scanning level playing field is restored.
- Abolishing 100 percent container scanning in 2018 (assuming it has been introduced in 2012) or not introducing it in 2012, will lead to much stronger harmonization of security standards and controls – opening up possibilities for developing joint EU-US as well as global joint approaches to combat terrorism and crime.

20 Government procurement

Public procurement practices have far-reaching cross-border trade and competition effects and market access implications for firms that bid on government contracts. The size of government procurement markets in the EC and the US ranges from 15-20 percent of their GDPs. Given the size of these markets, there are significant competition and market access implications for international bidders from either side. Despite the fact that both these economies are Contracting Parties to the WTO's Agreement on Government Procurement (GPA), bidders from either side face many NTMs in accessing these markets. This chapter covers NTMs in cross-Atlantic public procurement in both these markets and their coverage by sector and the impact of possible reductions in these NTMs.

20.1 Description of government procurement

The GPA does not apply to all government procurement undertaken by its Contracting Parties. The Annexes of the GPA outline government entities and purchases of goods and services that are potentially disciplined by the Agreement. The GPA applies only to entities listed in Appendix 1 of the Agreement. This contains five Annexes for each signatory: Annex 1 lists cover central government entities; Annex 2 lists sub-central government entities; Annex 3 lists all other entities (such as utilities) that procure in accordance with the provisions of the GPA; Annex 4 lists covered services; and Annex 5 covers construction services.

In addition, the GPA's requirement of international competitive bidding drafted in the Uruguay Round does not apply to all procurement of the covered entities. Coverage depends on whether the value of the procurement is at or above a certain threshold value. Thresholds differ depending on the type of procurement and on the level of government making the purchase and these are stated in terms of Special Drawing Rights (SDR) of the International Monetary Fund (IMF). For Annex 1, central government entities, the threshold values are SDR 130,000 for procurement of goods and services and SDR 5 million for procurement of construction services. For Annex 2, sub-central government entities, the thresholds are SDR 200,000 for goods and services, (except for example the United States, which applies a SDR 355,000 threshold), and SDR 5 million for construction services. For Annex 3 entities, the threshold values are SDR 400,000 for goods and services (with the exception that the United States applies a SDR 250,000 threshold for federally owned utilities) and SDR 5 million for construction services.

In line with their commitments under the GPA, both the EU and the US have subjected their above-threshold goods procurement to the disciplining requirements of the GPA in terms of market access and national treatment. With respect to services, the picture is somewhat different. While the EU follows a positive list approach to including above-threshold services procurement in the GPA, the US has a negative list. However, this coverage of goods and services does not

reflect the complete picture as both countries have derogations for procurement by designated sectors; the EC requires reciprocal commitments by the US in several services (such as water, airports, urban transport, dredging and ship-building) procured by utilities in Annex 3; and the US has subjected only 37 of its 51 states to the disciplines of the GPA in Annex 2 (and even these have further derogations for example that cities are not necessarily covered).

EU firms complain about the following NTMs and regulatory divergence from EU practice in accessing the US public procurement market.

Table 20.1 Overview of most important cross-cutting NTMs accessing the US market²²⁴

Cross-cutting NTM	Sectors Where It Applies	Other Observations
Berry Amendment ²²⁵	IT, insurance, communication, constructions, transport and chemicals	This regulation restricts procurement to US firms for national security reasons
The Buy American Act ²²⁶	IT, construction, aerospace, iron & steel and metals, transport, chemicals, machinery and automotive	This divergence is currently increasing* in the wake of the financial crisis
The Buy America Act ²²⁷	Transport, Highway and Transit construction projects	
All items procured by military departments are required to be carried exclusively on US-flag vessels	Maritime transport and cargo handling services (at least 50% of all US government-generated cargoes)	
Discrimination against foreign companies	Construction, communication, financial and other business services as well as in chemicals	
Lack of transparency in sub-federal procurement	Construction	This is an NTM that is constant
Stipulated purchases from small businesses (the US Small Business Act)	Construction	
Local (domestic) content requirements	Iron and steel	

* The (new) Buy American provision in Section 1110 of the American Recovery and Reinvestment Act (ARRA) of 2009²²⁸

²²⁴ Information in this table is drawn from the business survey, sector experts, EU reports on US non-tariff measures.

²²⁵ The concept of national security was originally used in the 1941 Defense Appropriation Act to restrict procurement by the Department of Defense (DoD) to US sourcing. Now known as the Berry Amendment, its scope has been extended to secure a wide range of products only tangentially-related to national security concerns. The FY2006 Defense Authorization Act (Section 833) contains changes to the Berry Amendment that expand the coverage of this amendment's Buy American provisions. The new language requires DoD to notify Congress within seven days if it awards a contract to a foreign manufacturer and place the contract on a General Services Administration Web site.

²²⁶ The Buy American Act (BAA) is the core domestic preference governing US procurement. It covers a number of discriminatory measures which apply to government-funded purchases. The Executive Order 10582 of 1954 expands the scope of the BAA to reject foreign bids either for national interest or national security reasons. Buy American restrictions not only directly reduce the opportunities for EU exports, but via content requirements, also discourage US bidders from using European products or services.

²²⁷ This pertains to projects funded by the Federal Transit Authority and the Federal Highway Administration.

²²⁸ The Buy American provision imposes a general requirement that any public building or public works project funded by the new stimulus package use only iron, steel and other manufactured goods produced in the United States. The stimulus package includes about \$48 billion in transportation projects, roughly \$30 billion in infrastructure improvements and additional other spending that could be covered by the Buy American provision. However, the bill also stipulates that the Buy American provision be "applied in a manner consistent with United States obligations under international agreements." It thus requires the United States to comply with its obligations under the WTO's GPA, under NAFTA and other US free trade accords. The trade compliance language gives members of

On the other side, US firms complain about the following NTMs and regulatory divergence in accessing the EU public procurement market. Most of the EU measures are not by nature measures based on legislation (like many of the US ones), but are still perceived to create difficulties for US companies and lack of transparency in the EU government procurement market.

Table 20.2 Overview of most important cross-cutting NTMs accessing the EU market²²⁹

Cross-cutting NTM	Sectors where it applies	Other observations
Favouritism of EC firms	Construction	
Diverse national and local practices ²³⁰	All sectors	
Unavailability of procurement statistics ²³¹ (regarding foreign bidders)	All sectors ²³²	This NTM is decreasing in importance.
Local (domestic) content requirements in the bid (at least 50% European) ²³³	Water ²³⁴ (production, transport, and distribution of drinking water), energy (gas and heat), urban transport (urban, railway, automated systems, tramway, bus, trolley bus, and cable), and postal services	
Excessive delays in finalizing the contract and beginning of work	Infrastructure projects	
High level of bureaucracy and corruption	Public works	
Onerous qualification requirements	Government procurement	
Use of offsets in defence procurement	Defence	

the WTO's GPA, including the European Union, some comfort that they could provide material for a public works project funded by the stimulus bill. However, the trade compliance clause does not protect non-members of the GPA such as China, Brazil, Russia and India. Moreover, the ARRA allows the Buy American mandate to be waived if the federal agency overseeing a particular project deems it would be "inconsistent with the public interest" or if iron, steel and the relevant manufactured goods "are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality" or if it would increase the overall cost of a project by more than 25 percent.

²²⁹ Information in this table is drawn from the business survey, sector experts, and the section on Government Procurement in the latest US Trade Barriers Report for the EU.

²³⁰ For example, the International Public Procurement Conference describes in their book from 2004 "Challenges in Public Procurement: an international perspective" the varying national and local practises within the EU member states day-to-day GP. http://www.ipppa.ws/IPPC1/BOOK/Chapter_10.pdf.

²³¹ The EU has also faulted on its data reporting requirements on public purchases under Article XIX:5 of the WTO's GPA; the last time it submitted procurement data to the Committee on Government Procurement was in 1992.

²³² Please see the section on Government Procurement in the latest US Trade Barriers Report for the EU for this. This has been also validated by other sources.

²³³ Note: the EC Directive 2004/17/EC stipulates that a bid **may** be rejected and the requirement does not apply to procurement covered by the GPA.

²³⁴ Please see the section on Government Procurement in the latest US Trade Barriers Report for the EU for this. This has been also validated by other sources.

While the NTMs in both Tables above have been consistent irritants, steps to address these concerns in public procurement have been taking place since 2005²³⁵. In the current 2008-2009 climate of recession, this may prove to be more difficult.

20.2 Sectors affected by government procurement related NTMs

The table below shows the existence of NTMs in the area of public procurement between the EU and US by sector, and also shows the relative importance of the NTM in total measures affecting trade and investment in that particular sector. For instance, NTM in public procurement is the top ranked measure (amongst four) affecting construction services, while it is the second most important measure (amongst six) affecting iron, steel and metal products. On the whole, sectors affected by NTMs in public procurement include IT, construction, financial, communication, aerospace, iron & steel and metals, transport, chemicals, machinery, automotive, wood, cosmetics and pharmaceuticals. The Table shows all sectors where government procurement related regulatory divergences occur, as mentioned by businesses. In the middle column, the relative ranking of government procurement in the list of total significant NTMs is presented, while the last column shows the source of information on which this assessment is based.

Table 20.3 Goods and services sectors facing government procurement related regulatory divergences

Sector	Ranking (out of total number of NTMs)	Sources of Information
Trade		
Iron, Steel and Metal Products (US to EU)	2/(6)	Expert & Survey
Construction Services (US to EU)	1/(4)	Expert & Survey
Investment		
Chemicals (EU to US)	2/(11) & 8/(11)	Survey
Wood (US to EU)	1/(1)	Expert
Iron, Steel and Metal Products (US to EU)	2/(5) & 1/(3)	Expert & Survey
Financial (US to EU)	2/(9) & 9/(9)	Survey
Communications services (EU to US)	1/(1)	Expert
Construction services (EU to US & US to EU)	2/(7)	Survey
Cosmetics (EU to US)	2/(2)	Survey
Pharmaceuticals (EU to US)	2/(6)	Survey

20.3 The potential effects of NTM reduction at macro and sectoral level

The results presented in Table 20.3 show the effects of NTM reduction and regulatory convergence in the field of public procurement.

²³⁵ At the 2005 EU-US Summit Declaration, a new EU-US Economic Integration and Growth Initiative was launched. The high-level Regulatory Co-operation Forum was set up and the political leaders agreed to move forward in the fields of investment, public procurement, services and improvements in mutual recognition of professional qualifications.

The general macroeconomic changes are expected to be slightly higher for the EU than the US in line with the assumption that the government procurement measures in the US seem to be more restrictive than in the EU at the moment. They are also expected to be somewhat more actionable in the US than in the EU (though still not easy to remove). In general, the US economy is expected to benefit some €0.9 billion (\$ 1.2 billion) per year in the long run and the EU around €9.7 billion (\$12.6 billion) per year from reductions of actionable NTMs in the field of government procurement market. Trade flows will grow slightly on both sides, but in percentage terms more growth will occur in the US. Long term household impact and wage level effects range between 0.0 and 0.01 percent for the US and between 0.03 and 0.07 for the EU.

With regard to the impacts on the sectoral level, the motor vehicles, chemicals and food & beverages sectors will benefit in percentage terms the most in the EU. In the US, electronics, metal production and machinery will win the most (in line with the general results). Noticeably, construction is also expected to benefit in both regions.

Table 20.4 Macroeconomic effects and percentage change in output at the sectoral level for the US and the EU, Public procurement (Ambitious scenario)

	Macro-economic Effects			% Change in Output at Sector Level			
	Short Run	Long Run		Short Run		Long Run	
			Sector	US	EU	US	EU
Real income, billion € (\$)							
United States	-0.1 (-0.1)	0.9 (1.1)	Agriculture, forestry & fisheries	0.00	-0.01	0.00	-0.01
European Union	3.8 (4.9)	9.8 (12.7)	Other primary sectors	0.00	0.00	0.00	0.00
Real income, %			Processed foods	-0.11	0.04	-0.10	0.06
United States	0.00	0.01	Chemicals	-0.49	0.22	-0.49	0.27
European Union	0.02	0.06	Electrical machinery	1.05	-0.77	0.93	-0.63
Terms of trade, %			Motor vehicles	-0.56	0.69	-0.47	0.74
United States	-0.03	-0.03	Other transport equip.	-0.11	0.10	-0.11	0.13
European Union	0.01	0.01	Other machinery	0.16	-0.25	0.13	-0.21
Value of Exports, %			Metals & metal products	0.29	-0.20	0.27	-0.16
United States	0.29	0.27	Wood & paper products	0.02	-0.06	0.01	-0.02
European Union	0.13	0.16	Other manufactures	0.03	-0.04	0.03	0.00
Value of Imports, %			Water transport	0.01	-0.02	0.01	-0.01
United States	0.19	0.18	Air transport	0.03	-0.05	0.02	-0.02
European Union	0.13	0.15	Finance	0.02	-0.06	0.02	-0.03
Real household income, %			Insurance	0.01	-0.02	0.01	0.01
United States	0.00	0.01	Business services	0.00	0.00	0.00	0.04
European Union	0.03	0.06	Communications	0.00	-0.01	0.01	0.02
Real wages %, unskilled workers			Construction	0.03	0.02	0.00	0.06
United States	0.00	0.00	Personal services	0.01	-0.03	0.02	0.00
European Union	0.03	0.07	Other services	0.00	0.00	0.01	0.03
Real wages %, skilled workers							
United States	0.00	0.01					
European Union	0.03	0.06					

20.4 The competitive effects of the NTM reduction

Procurement markets in these two economies are saddled with NTMs and therefore they are not as competitive as they could be. Most NTMs stem from legal provisions favouring domestic firms in matters of procurement, especially in the US, discriminating against foreign firms in bidding and award of government contracts and lack of transparency, all of which raise procurement costs for the government. Reducing these NTMs would thus lead to mitigating these costs and improving competition in these markets in the EU and the US.

The impact of NTM reduction on global regulatory standards depends on the nature of the reductions. If these reductions lead to regulatory convergence in terms of making statistical data on government procurement in the EU and the US more easily available, ensuring uniformity of purchase practices across states in the US and Members of the EU, and improving transparency in procurement in general, then the impact of NTM reductions would be positive.

20.5 Conclusions

- There are significant NTMs in public procurement in both the EC and the US, and a tendency for measures to grow has been evident recently, especially in the US (with the latest Buy American provision in the ARRA);
- Most of these relate to legal provisions favouring domestic firms (especially in the US), discriminating against foreign firms in practice and the general lack of transparency;
- While construction is the sector most affected by these NTMs, NTMs also distort a level playing field in public purchases in IT, financial and communication services, aerospace, iron & steel and metals, transport, chemicals, machinery, automotive, wood, cosmetics and pharmaceuticals;
- The US economy is expected to benefit some €0.9 billion (\$ 1.2 billion) per year in the long run and the EU around €9.7 billion (\$12.6 billion) per year from reductions of actionable NTMs in the field of government procurement market.
- In addition to being Contracting Parties to the GPA, both these economies have been active in liberalizing procurement in their bilateral and regional agreements with partner countries. NTM alignment between the EU and US would generate large potential benefits.

21 Intellectual property rights

21.1 Introduction

Intellectual property rights (IPR) refer to national laws that seek to protect innovation by providing for domestic systems that allow inventors and creators to register their innovations and be granted certain rights within the territory in order to enforce their exclusivity against misappropriation or other misuse. The main categories of IPR are patents (product innovation), trademarks (commercial marks) and copyrights (artistic and literary property).

IPR are ‘territorial-based’ in that they grant rights only in the territory where a registration is completed and recognized. This is a key aspect to their identified nature as NTMs that affect trade and investment.

The US and a number of the EU member states are historical originators of domestic intellectual property (IP) systems, which is also a reason for their divergence. They have been leaders in promoting international regimes to recognize IP rights across national boundaries. The primary international treaties in this regard have been formed under the auspices of the World Intellectual Property Organization (WIPO), and more recently, within the WTO, which was established with an annex agreement for Trade Related Intellectual Property Rights (TRIPS). While these international regimes have mainly focused on establishing core principles of IP definitions, recognition and enforcement as well as sponsoring negotiations to form higher levels of IP recognition and convergence among the myriad of national systems significant differences among national IP protection systems both in substantive protection and institutional procedures remain a feature of the global IP rights system.

This chapter will outline the IP measures identified as cross-cutting, and then treat sector specific measures respectively. The approach is to concentrate on those identified as being ‘middle or higher’ measures, as reflected by the composite of literature, expert, and survey information obtained in the study.

21.2 Description of the Non-Tariff Measures

21.2.1 Cross-cutting IP measures

Many IP measures identified as measures affecting trade and investment between the US and the EU are cross-cutting measures which affect more than a single sector. They tend to be well-established substantive or procedural features of the systems concerned and not (overtly) discriminatory against foreign right holders or applicants by design, but arise more as a result of

the historical underpinnings of the different systems and different cultural approaches to IPR protection. These measures are identified in the study under the following cross-cutting NTMs:

1. Different approaches to and definitions of ‘Intellectual Property Rights’;
2. Diverging patent systems and patent filing procedures;

The number and diverse nature of the different issues within the IP basket suggests that a very broad negotiating approach to convergence between the different national laws would be needed to address them.

It is not clear that this sort of convergence exercise could be taken up on a purely bilateral basis, given the international treaty foundations and their use of national treatment and most-favored nation (MFN) clauses. At the same time, the US and EU members are among the recognized leaders in the global IP system, and with several others, have the best opportunity to address divergent national laws.

21.2.2 Identified IP measures affecting both the EU and the US

One IP-related NTM is identified by both parties and involves difficulties in obtaining clear information on the procedures for seeking customs IP protection in the US and the EU. This is a bilateral problem and has been raised in the consultations on the “Framework for Advancing Transatlantic Economic Integration” (April 2007 Summit).

Since it is an issue on both sides, there is some expectation in the documentation that this measure can be lowered by detailing and transparency. It is also inherently multilateral in nature, in that enhancements in domestic transparency are subject to MFN requirements in the applicable international treaties.

21.2.3 Cross-cutting IP measures – EU to US

1. Remedies for US patent holders to have foreign products removed from the market – Section 337 of the US Tariff Act of 1930.

For **services**, the literature survey shows this measure as ‘high’ in computer/IT services and ‘medium’ in personal, cultural and recreational (PCR) services. The business survey shows it as ‘present’ in the computer/IT sector. For goods, the literature survey shows this measure as ‘present’ in chemicals, pharmaceuticals, food & beverage, and ‘high’ in electronics and textiles.

This measure relates to the different procedures employed to challenge and remove foreign produced goods, as compared to domestic produced goods. This is one of the few identified measures that refers to a possible national treatment violation. It was the subject of a 1989 GATT panel (US – 337). The European Commission report on US barriers to trade and investment 2007 raised it as a continuing issue as the result of US ITC investigations commencing in 2000. The EU requested WTO dispute settlement consultations and requests were made to join by both Canada and Japan. There is no reported outcome of any further action in the WTO.²³⁶

²³⁶ If the national treatment violation is persistent, then the EU can take its appropriate consultation and legal actions in the WTO, both under general GATT Articles (III.4) and under the relevant provisions in the TRIPS Agreement.

2. The US patent filing system based upon 'first to invent' rather than the 'first to file' principle.

This measure is shown to be present for services in the communications sector and for a number of goods sectors.

The procedure for filing a patent is specific for the US system and is defended as being fairer to smaller inventors who do not have systematized access to the patent filing system. However, the measure can be characterized as being possibly 'de facto' discriminatory, where the difficulties of demonstrating the actual inventive steps may fall more heavily on foreign claimants. The abovementioned EC (2007) report on US measures affecting trade and investments, indicates that legislation has been drafted in the US to change the patent procedure.

It is not clear when (or whether) the US will unilaterally adapt the system, but it appears that there is a domestic interest for promoting such a change, and that this is technically feasible without undue disruption. Canada has made the change successfully to a 'first to file' system. Since domestic inventors filing abroad operate by 'first to file', there is a domestic interest in the US to align with the majority practice. As it stands, this is a convergence issue that is not subject to the existing minimum requirements of either the TRIPS or the WIPO treaties.

Box 21.1 Operation 'Infrastructure'

Many counterfeit goods contribute to the global issue of piracy. In 2006, the EU and US committed to the implementation of the *EU US Action Strategy for the Enforcement of Intellectual Property Rights*. This targeted counterfeit semiconductors and computer networking equipment, and led to the introduction of the "**joint IPR border enforcement action**".

In November-December 2007 and May-June 2008, the US Customs and Border Protection Agency (CBP) implemented two enforcement operations on counterfeit computer parts **in cooperation with the EU**, the first being dubbed as *Operation Infrastructure*. The aim of the programme was to stem the flow of illegal goods between the two regions and thereby protect consumers and businesses from the effects of these fake products.

The EU and US worked together to ensure the inclusion of **mutual benefits** in the establishment of this first joint operation to enforce IPR. The combined results of the two operations were the seizure of around 780 000 counterfeit circuits and computer network components, which play an important role in the infrastructure of society.

This, however, was not the end of the fight against counterfeit products. These products threaten national security and health and safety as they have no quality assurance and little is known about the standards by which they were produced. The failures associated with these products mean significant costs on both sides of the Atlantic in sectors such as automotives, transportation, telecommunications and medical equipment. For this reason, the US and EU are **continuing to cooperate** in this field by working on a five-point IPR customs action plan.

Source: www.cbp.gov

21.2.4 Cross-cutting IPR measures – US to EU

1. Diverging patent systems and patent filing procedures among EU member states.

This issue was identified as an NTM in the literature for a number of sectors including pharmaceuticals, biotech, machinery, office and communications equipment, automotive and aerospace. It is a less apparent NTM in the business survey, although it is noted in the electronics sector.

While there is harmonization among EU Member States as regards patents and provisions for single filing, divergent languages and issues of court jurisdiction appear to limit the conclusion of a fully integrated community patent system. Article 118 TEU of the Lisbon Treaty codifies the existing situation, but also indicates a political commitment to create a community patent by qualified majority legislation. However, the problem of legal translations and their legal effect would remain under the unanimity procedures, thus remaining a blockage to integration on a single Community patent. The Lisbon Treaty provisions for commercial policy also grant a competence for the Commission to negotiate external agreements for IP, although this category also remains under unanimity, making it a weak expression of competence.

There is ongoing internal institutional movement to more fully harmonize the system in the EU, recognizing that there is a limitation to what convergence can achieve among the different national systems in the absence of a Community-wide patent. The systems as they stand are not in violation of international law. This is a convergence issue not subject to the requirements of either the TRIPS or the WIPO.

2. EU intellectual property rights that are 'less broad' than those of the US.

This measure is noted in the business survey for financial services and pharmaceuticals, and refers to differences in the scope and duration of IP protection. In some cases the US provides for longer periods of protection or for a broader subject scope than do other countries' IPR laws. Some EU laws also provide for more additional protection than do US laws. All national laws are subject to the minimum requirements contained in the TRIPS Agreement, which in turn are drawn from the relevant WIPO treaties. Other than what is mandated by TRIPS, countries do not have an international obligation to provide for broader subject and period coverage. Both the EU and US are in compliance with the TRIPS and WIPO treaties regarding the scope and duration of IPR protection. As such, the differences in the systems are a matter of convergence rather than of legality.

21.2.5 Sector-specific IPR measures – EU to US

1. Recognition of performance and broadcasting rights in the US.

This is listed as a cross-cutting measure, but it effectively falls within the single sector of personal, cultural and recreational services. It is the measure with the highest effects identified in this category.

The US does not recognize performance and broadcasting rights for either US or foreign performers for FM and AM radio broadcasts. This is a minority position; most developed countries including the EU members states are signatory to the WIPO Rome Convention and apply the provisions for recognition contained in the TRIPS Agreement. The EU has harmonized recognition of these rights via Community regulation. The US does recognize these rights in satellite, cable and internet radio. There is continuing action within the US to have the exemption removed, most recently in legislation submitted in February 2009.

The US exemption is lawful under the TRIPS, which contains a provision for non-application of these rights. The EU has not suggested that this is challengeable in the WTO. If there is a change in US law, this will apply to EU rights holders as a matter of national treatment.

A related measure in this sector is the US exemption for certain performance rights in food service and drinking establishments (Section 110, Irish Music Case). This was the subject of an EC WTO complaint resolved in its favour by an Appellate Body report in 2000. Proposed EU sanctions were the subject of a WTO arbitration procedure in 2003 that has since been suspended. The US continues to state in the WTO that the parties are working toward a mutually satisfying solution. It is not clear what the current EC position is regarding resolution either by agreement or by sanctions.

2. Food & Beverages – geographical indications (GIs).

The absence of secure GI protection in the US is identified as an important measure for EU agriculture and food producers. The EU has an extended GI protection system based upon listing. The US relies on trademark protection and provides for rights of action for misleading commercial marks. For EU producers, the US system is expensive to monitor and litigate when misleading commercial marks appear in the market

The EU objectives to obtain a global registry with legal effect, to extend protection for wines and spirits, and to ‘clawback’ identified generic products are all pursued actively in the WTO Doha Round negotiations. While this multilateral track proceeds, there is some indication that progress can be made in a bilateral setting for at least selected products, as indicated by other EU bilateral activities.

21.2.6 Sector-specific IP measures – US to EU

1. Software patentability and EC exhaustion rules.

These measures are listed in cross-cutting issues, but fall heavily in the information and communication technology (ICT) sector where software patenting rules in the EU Member States diverge from the US approach. EU (EEA) territory exhaustion rules are noted within the same sector as an EU IPR related NTM.

The EU member state rules on software patents are not in violation of the TRIPS, and this matter falls within the process of convergence for the respective national IP laws. Exhaustion is also not treated at all within the TRIPS. Both the US and the EEA apply a system of territorial exhaustion and do not grant exhaustion for otherwise legal parallel imports. Neither of the territories is seeking exhaustion rules in the TRIPS, since global exhaustion would not benefit their IP holders. This is a significant NTM affecting trade, but the likelihood of action on this is small where exhaustion benefits a number of US and EU producers.

21.3 Sectors affected by the NTM

As regards service sectors, NTMs appear in the following sectors: travel services, computer & IT services, and personal, cultural and recreational services. For some sectors, like computer & IT services, the impact is high. For goods, IPR NTMs affect chemicals, pharmaceuticals, electronics, medical, measuring and testing appliances, food & beverages and textiles, clothing and footwear. The table below summarises these findings. The higher ranked measures affecting trade are shown in bold. The Table below shows all sectors where IPR was mentioned by businesses as an NTM. In the middle column, the relative ranking of IPR in the list of total significant NTMs is

presented, while the last column shows the source of information on which this assessment is based.

Table 21.1 Goods and services sectors facing NTMs in trade

Sector	Ranking (out of total number of NTMs)	Sources of Information
PRC services (EU to US & US to EU)	2/(4) & 4/(4) & 1/(2)	Survey & Expert
Medical equipment (EU to US & US to EU)	6/(9) & 7/(9) & 8/(10)	Expert & survey
Machinery (EU to US & US to EU)	10/(10) & 12/(12)	Survey & Expert
Biotechnology (US to EU)	5/(6) & 6/(6)	Survey & Expert
Automotives (EU to US)	13/(18) & 16/(18)	Survey
OIC-equipment (EU to US & US to EU)	8/(9) & 5/(7)	Survey
ICT services (EU to US & US to EU)	6/(6) & 3/(6)	Survey & Expert
Communication services (EU to US)	2/(9) & 7/(9)	Survey
Construction services (US to EU)	4/(4)	Expert
Chemicals (EU to US)	17/(18)	Survey
Pharmaceuticals (EU to US)	17/(20)	Survey & Expert
Textiles (EU to US)	11/(13)	Expert
Food & Beverages (EU to US)	16/(19)	Survey
Cosmetics (EU to US)	6/(13)	Survey
Electronics (US to EU)	6/(14)	Survey
Financial services (US to EU)	2/(7)	Survey

Table 21.2 Goods and services sectors facing NTMs in investment

Sector	Ranking (out of total number of NTMs)	Sources of Information
Electronics (EU to US & US to EU)	6/(11) & 11/(11), 4/(9) & 8/(9)	Survey, Expert & Survey
Pharmaceuticals (EU to US & US to EU)	6/(7), 7/(7)	Survey & Expert
Machinery (EU to US & US to EU)	5/(8), 7/(7)	Survey & Expert
Chemicals (EU to US and US to EU)	7/(9) & 7/(11)	Expert & survey
OIC-equipment (EU to US & US to EU)	5/(8), 3/(7)	Survey
Aerospace (US- EU)	2/(2)	Expert
Biotechnology (EU to US)	3/(3)	Expert & survey
Construction services (US to EU)	3/(3)	Expert
PRC services (US to EU)	1/(1)	Survey & Expert
Textiles (EU to US)	1/(1)	Expert
Automotives (US to EU)	5/(6)	Expert
Cosmetics (EU to US)	4/(6)	Survey
ICT services (EU to US)	3/(6)	Expert

21.4 The potential effects of NTM reduction at macro and sectoral level

The results presented in Table 20.3 show the effects of NTM reduction and regulatory convergence projected to 2018 for the IPR.

Main results – macro-economic effects

- Removal of all actionable IPR NTMs (i.e., convergence to some degree of IPR regimes between the EU and the US) is expected to result in an increase in national income in both the US and the EU, with more substantial increases of up to €3.7 billion (\$4.8 billion) per year for the EU (or a 0.02 percent increase) and €0.8 billion (\$1.1 billion) annually for the US;
- Terms of trade are expected to increase for only the US by 0.01 percent, which is also reflected in the slightly bigger increase in total exports for the US as a result of IPR NTM removal;
- Long-term household impact and wage level effects range between 0.01 and 0.02 percent for the US and EU, respectively.

Main results – sector level effects

- Effects of IPR NTM reductions on sectoral output is most pronounced in the electrical machinery sector in the US, where it is expected to contribute to as much as 1.43 percent increase in output in the long run;
- Other sectors in which the IPR NTM reductions are expected to have a relatively significant impact are other transport equipment, where the US long term output increases (0.49 percent) are mirrored by an EU output decrease (-0.42 percent), and motor vehicles (0.26 percent increase in EU output and -0.25 decrease in US output);
- For most other sectors the expected effects are more limited.

Table 21.3 Macroeconomic effects and percentage change in output at the sectoral level for the US and the EU IPR (Ambitious scenario)

	Macro-economic Effects			% Change in Output at Sector Level			
	Short Run	Long Run		Short Run		Long Run	
			Sector	US	EU	US	EU
Real income, billion € (\$)							
United States	0.3 (0.4)	0.8 (1.1)	Agriculture, forestry & fisheries	0.00	0.00	0.00	0.00
European Union	1.5 (2.0)	3.7 (4.8)	Other primary sectors	0.00	0.00	0.00	0.00
Real income, %			Processed foods	0.01	0.00	0.01	0.01
United States	0.00	0.01	Chemicals	-0.24	0.09	-0.24	0.10
European Union	0.01	0.02	Electrical machinery	1.34	-0.13	1.43	-0.04
Terms of trade, %			Motor vehicles	-0.27	0.25	-0.25	0.26
United States	0.01	0.01	Other transport equip.	0.49	-0.43	0.49	-0.42
European Union	0.00	0.00	Other machinery	-0.11	-0.05	-0.11	-0.03
Value of Exports, %			Metals & metal products	-0.08	-0.02	-0.08	-0.01
United States	0.20	0.19	Wood & paper products	-0.02	-0.01	-0.03	0.00
European Union	0.05	0.06	Other manufactures	-0.05	-0.01	-0.05	0.01
Value of Imports, %			Water transport	0.01	0.01	0.01	0.01
United States	0.13	0.13	Air transport	0.03	0.02	0.03	0.03
European Union	0.05	0.06	Finance	0.01	-0.01	0.01	0.00
Real household income, %			Insurance	0.00	0.00	0.00	0.01
United States	0.00	0.01	Business services	0.00	0.00	0.00	0.02
European Union	0.01	0.02	Communications	0.00	0.00	0.01	0.01
Real wages %, unskilled workers			Construction	0.01	0.01	0.01	0.02

	Macro-economic Effects		Sector	% Change in Output at Sector Level			
				Short Run		Long Run	
	Short Run	Long Run		US	EU	US	EU
United States	0.01	0.01	Personal services	0.08	-0.12	0.09	-0.11
European Union	0.01	0.02	Other services	0.00	0.00	0.01	0.02
Real wages %, skilled workers							
United States	0.01	0.01					
European Union	0.01	0.02					

21.5 The competitive effects of the NTM reduction

Most of the measures in the IP field are either identified as ‘present’ or ‘medium’. Measures are ranked ‘high’ in only a few cases. Because national IP laws tend not to change, the measures affecting trade tend to be listed as constant, with only a few cases showing the potential for increase or decrease. With a few exceptions, it would seem that IP measures could function like a medium to lower level brake on overall competitiveness, as almost every sector has more pronounced identified competitiveness issues generated by NTMs. This is not to say that competitiveness is not affected by IP measures, but that the effects may be more systemic and not so distinct for any particular sector. There are exceptions to this of course, as noted above.

IPR issues may be more prevalent in the IP-centric sectors, such as PRC, ICT and communications. Removing the NTMs related to IPR through regulatory convergence could thus improve the competitiveness of such sectors in both markets.

Systemic implications and global regulatory standards

The US and the EU (and its member states) are signatories to the WTO Agreement and apply its Annex 1C Agreement on TRIPS, which prescribes minimum substantive and procedural aspects which must be adopted for IP protection within the domestic legal systems of all the WTO Members. The US and the EU have strong common interests in IP protection and cooperate extensively in the global IP system.

While the measures noted above for both the US and the EU impact multiple sectors of trade and have a cumulative effect of having important effects on trade, they do not (with very few possible exceptions) appear to present measures that are actionable for treatment in the WTO dispute settlement system. While the TRIPS agreement imposes a number of standards for IP systems, members retain flexibility to operate their own laws, as long as these do not deny national or MFN treatment to foreign right holders.

Both the US and the EU (and its member states) have been active in the current Doha Round negotiations for the TRIPS Agreement. A review of the last two years of those negotiations does not indicate that either has sought to engage in any broader convergence negotiation on the underlying substantive or procedural standards of national IP laws. This either recognizes that other WTO Members will not tolerate additional changes or enhancements for IP protection in their systems – or that there are more significant issues for both the EU and the US to discuss in the TRIPS.

Reductions of the main IP-related NTMs between the EU and the US would arguably not have significant effects on establishing new global regulatory standards. There is little appetite for enhancing these standards in the TRIPS among other WTO Members, at least in the absence of major market access commitments in traded sectors by the US and the EU. As it stands, the primary issues that have come forward in the negotiations concern the EU position to extend GIs, recognition of biodiversity and the treatment of traditional knowledge property. Only GI is identified in this survey as a measure affecting trade in the transatlantic context.

The US – and to a somewhat lesser extent the EU - have been active in extending IP rights via its regional trade agreements. Some suggest that these new standards raise a *de facto* level for higher standards in the TRIPS. That remains to be seen. However, for the regional signatories, their new standards are applied on an MFN basis, thus extending IP protection on a country by country basis.

21.6 Conclusions

- The IPR NTM area is characterized by a number of different provisions that cause divergence between national laws. These tend to be longstanding features of the US and EU domestic systems.
- Removal of all actionable IPR NTMs (i.e. convergence to some degree of IPR regimes between the EU and the US) is expected to result in a yearly increase in national income in both the US and the EU, by €0.8 billion (\$1.1 billion) and €3.7 billion (\$4.8 billion) respectively;
- A few measures, notably Section 337, denial of broadcasting rights, or software patentability, constitute current NTMs. Both the US and the EU have been users of the WTO dispute settlement system for IP issues against the other. The US has been a complainant against the EU for its GI registry system, and the EU has been a complainant against Section 110(5) of the US Copyright Act.
- It is not clear how high the level of actionability of NTMs in the field of IPR really is. These NTMs have tended to be ‘constant’ and both the EU and the US have long understood their respective IP issues;
- In both the EU and the US a number of the divergence areas have their own internal movement for changes in the laws. This is the case for both the US ‘first to invent’ patent system and for continuing EU patent system harmonization;
- TRIPS rules do not discourage ‘plurilateral’ discussions on convergence issues since national treatment and MFN apply to national laws in any case. Convergence discussions, either bilateral or plurilateral, do not increase regionalism issues and do not raise new NTMs to other WTO Members.