

**Unclassified**

**CCNM/TD(2003)3/FINAL**



Organisation de Coopération et de Développement Economiques  
Organisation for Economic Co-operation and Development

**02-Oct-2003**

**English - Or. English**

**CENTRE FOR CO-OPERATION WITH NON-MEMBERS  
TRADE DIRECTORATE**

**Working Party of the Trade Committee  
Trade Relations with Economies in Transition**

**OECD EXPERT MEETING ON DEVELOPING GOVERNMENTAL ANALYTICAL CAPACITIES IN  
THE TRADE POLICY AREA**

**PROCEEDINGS AND IMPLICATION FOR RUSSIA**

**Moscow, June 3 2003**

**JT00150628**

Document complet disponible sur OLIS dans son format d'origine  
Complete document available on OLIS in its original format

**CCNM/TD(2003)3/FINAL  
Unclassified**

**English - Or. English**

### **Acknowledgement**

This report was drafted by Blanka Kalinova and George Holliday of the OECD Trade Directorate. The Secretary-General has agreed to declassify the document under his responsibility with the aim of bringing information on this subject to the attention of a wider audience. It can be found on the following website: <http://www.oecd.org/trade>

### **Copyright OECD, 2003**

Applications for permission to reproduce or translate all or part of this material should be made to:

OECD Publications, 2 rue André Pascal, 75775 Paris Cedex 16, France

## TABLE OF CONTENTS

### OECD EXPERT MEETING ON DEVELOPING GOVERNMENTAL ANALYTICAL CAPACITIES IN THE TRADE POLICY AREA

Session I. Institutional Arrangements for Trade Policy Analysis in OECD Countries .....	4
Trade Policy Analysis in New Zealand .....	5
Trade Policy Analysis in the European Commission .....	6
Korea's Trade Policy Regime and the role of KIEP .....	8
Session II. Techniques for Trade Policy Analysis .....	10
Developing Governmental Analytical Capacities in the Trade Policy Area .....	11
Trade Policy Analysis at the Australian Productivity Commission.....	14
Techniques for Trade Policy Analysis at the Centre d'Études Prospectives et d'Informations Internationales (CEPII).....	16
Review of studies of the effects of Russia's WTO accession.....	17
Session III. Communicating the Results of Analysis to Policymakers .....	23
Presentation of Technical Analyses to Non-Specialists .....	23
Trade Policy Analysis: How to Link Policy and Research.....	25
Trade Policy Research: Canada's Recent Experience .....	30
Concluding Remarks: Implications for the Russian Government .....	35
REFERENCES .....	37
FINAL PARTICIPANTS LIST .....	37

#### Tables and Charts

Chart 1. Trade-Related Ministries of the Korean Government.....	8
Table 1. Projected effects of Russia's WTO accession.....	21

## **OECD EXPERT MEETING ON DEVELOPING GOVERNMENTAL ANALYTICAL CAPACITIES IN THE TRADE POLICY AREA**

1. The OECD Trade Directorate organised a meeting on “Developing Governmental Analytical Capacities in the Trade Policy Area” in Moscow on 3 June 2003. The meeting was part of the Russia programme of the OECD Centre for Co-operation with Non-Members (CCNM) and was co-sponsored by the Russian Ministry of Economic Development and Trade (MEDT). It benefited from a voluntary contribution from the Government of Korea. Participants included representatives from 14 OECD member countries, the European Commission, and the World Bank and about 50 Russian officials and researchers from MEDT and other ministries, the Presidential Administration, the State Duma, the Russian Central Bank, and several research institutes and industrial associations.

2. The objective of the meeting was to present the experience of OECD member countries' governments in developing their analytical capacities in the trade policy area and thus contribute to the Russian government's current efforts to bolster its analytical capabilities in support of the WTO accession process. Participants discussed institutional arrangements for government agencies in charge of trade policy analysis in OECD member countries, different analytical approaches, including quantitative techniques, used in trade policy analysis, and good practices in using the results of such analysis in trade policy decision making and trade advocacy work. The main speakers were specialists who have been actively involved in the trade policy making and negotiating processes or who have practical experience in analysing the effects of trade policy measures for OECD member governments.

3. Mr. Maxim Medvedkov, Deputy Minister of the Ministry of Economic Development and Trade, opened the meeting by discussing Russia's progress in integrating its economy into the world economy, and noting that important work remained to be done. He concluded that improved trade policy analysis could make an important contribution to this process and welcomed the cooperation between the Ministry and OECD's Trade Directorate in this area.

4. Mr. Hervé Jouanjean, EC Director for WTO and OECD Coordination, also made opening remarks and described the status of EC-Russian negotiations on Russia's WTO accession. He emphasized that capacity-building efforts like the Trade Directorate's meeting in Moscow could contribute significantly to Russia's integration into the world economic system.

### **Session I. Institutional Arrangements for Trade Policy Analysis in OECD Countries**

5. The first session, which was co-chaired by Mr. Jean-Marie Metzger, OECD Director for Trade, and Mr. Vladimir Tkachenko, Director of MEDT's Department of Trade Policy Analysis, focused on the institutional arrangements in OECD governments for analyzing the effects of trade agreements or other trade policy measures. Jean-Marie Metzger opened the session by describing the objectives of the meeting and discussing the role of the Trade Directorate in carrying out trade policy analysis. He laid out three key themes or objectives of the Trade Directorate's work: strengthening the constituency for free trade; analyzing the intersection of trade policy and other policy areas, such as competition, investment and environmental policies; and carrying out analyses that facilitate trade negotiations. Vladimir Tkachenko observed that the benefits and costs of trade liberalization varied among different sectors/actors of the

economy. Effective analysis of trade policy is needed, he said, to ensure that the benefits of trade are maximized and that trade policy can be co-ordinated with other policies to address adjustment costs.

6. Three other speakers, Mr. Crawford Falconer, Principal Trade Policy Adviser in New Zealand's Ministry for Foreign Affairs and Trade, Mr. Wook Chae, Vice President of the Korea Institute for International Economic Policy, and Mr. Gustavo Martin Prada, Head of the Trade Analysis Unit in the European Commission's Directorate General for Trade, discussed the roles of their agencies in trade policy analysis. Participants discussed the legal and regulatory requirements for carrying out trade policy analysis, the institutional framework, analytical capacities of various governmental agencies, and the types of analysis they carry out. They also considered the role of non-governmental groups, such as think tanks and academic institutions, in developing governmental analytical capacities in the trade policy area.

### *Trade Policy Analysis in New Zealand<sup>1</sup>*

7. Economic analysis is not always the fundamental driver of trade policy, but it is important for a government to have analytical tools in place to provide balance to decision-making about trade agreements. Good technical analysis is useful for all trade policy initiatives, including unilateral measures and bilateral agreements, but it is particularly important for decisions about free trade agreements and multilateral trade negotiations. Negotiations on FTAs and in the WTO typically take place over an extended period of time and impact on many important commercial interests in the countries involved as well as third parties.

8. Trade policy analysis can contribute in different ways in various phases of trade negotiations. In New Zealand, for example, the government has relied heavily on the results of computable general equilibrium models before major trade negotiations begin. Such modelling is needed to know the broad outlines of the expected welfare benefits for the New Zealand economy. It plays a critical role in the inevitable political debate that accompanies all major trade negotiations. What are the overall benefits of a proposed trade agreement for New Zealand's economy? The government must have authoritative numbers, based on sound analysis, to respond to domestic critics of proposed trade agreements.

9. During major trade negotiations, negotiators need to have clear priorities for pursuing the interests of New Zealand's exporters. To gain support for any agreement, negotiators need to ensure that exporters will gain improved access to foreign markets. To do this effectively, negotiators need analysis at the microeconomic level that identifies specific export opportunities and provides estimates for the gains that specific export sectors can expect from trade agreements.

10. At the end of trade negotiations, the government needs good economic analysis to demonstrate the positive effects of an agreement. To convince the population, producers and other stakeholders, trade officials need a clear understanding of the distributional effects of the agreement, so that they can demonstrate the benefits to the economy as a whole and also address any adjustment costs.

11. To provide this kind of support to trade negotiators, it is important that governments have in-house analytical capacity. This does not necessarily mean extensive resources for modelling trade agreements: New Zealand, for example, does not have this kind of capacity. What is needed is a cadre of staff who can communicate with professionals who carry out such analysis in the private sector, academia, and international organisations. Such staff must be able to understand the technical analyses and communicate them effectively to policy makers and trade negotiators. Governments need to ensure that they provide career opportunities for people who can translate the technical language of economists into the political language of government officials.

---

1. Summary of the presentation by Crawford Falconer, Principal Trade Policy Adviser, New Zealand Ministry of Foreign Affairs and Trade and Deputy Chairman of the OECD Trade Committee.

12. While government trade analysts must pay particular attention to their own country's trade negotiators, they also have an important role in following trade developments around the world. Agreements signed by other countries may have important implications for their own country. New Zealand's trade analysts, for example, have studied the implications of an Australian-U.S. FTA, which is likely to have important effects on New Zealand's trade.

13. If governments do not develop an effective capacity for trade analysis, they risk putting public interests at a disadvantage to private interests. Private groups understand the importance of using trade policy analysis to pursue their own interests. When government officials are confronted with a technical analysis that promotes the position of an individual firm or industry, they must have the capacity to understand it and distinguish between public and private interests.

14. New Zealand's trade officials are confident in the government's capacity to analyse traditional trade issues, such as tariff issues and issues related to anti-dumping and safeguards actions. However, trade negotiators are currently confronting much more complicated issues, such as trade in services and trade related investment measures. The new issues frequently require more complex analysis, that are frequently beyond the capacities of in-house trade analysts. Thus, the government may increasingly rely on trade policy analyses done outside the government.

#### *Trade Policy Analysis in the European Commission<sup>2</sup>*

15. Since the end of the Uruguay Round, there has been a marked increase in the political visibility and interest in trade policy and its economic, social and environmental impacts. The trade policy debate has been transformed from a dialogue among trade policymakers and negotiators to a much wider dialogue with civil society at large.

16. This is partly the result of the deepening of WTO rules, which now directly influence domestic regulatory policies such as intellectual property protection, services, investment, environment and others, with the obvious effect of raising the interest of parliaments and interest groups in a much stronger way than ever before.

17. At the same time, the traditional political asymmetry between winners and losers from trade liberalisation has sharpened the debate. Trade opening benefits consumers in a diffuse way, whereas it affects some producers (including workers) in a much more direct way, and the latter tend to be much better organised and vocal.

18. As a result, all trade administrations have been forced to refine their analytical tools to assess the economic and other impacts of trade agreements, resulting in a notable improvement in their capacity in this area. However, one should remain modest as available models continue to struggle with the complexities of policy changes that affect economies and societies in multiple ways and that normally take place as parts of wider reform packages, notably in developing and transition countries.

19. The European Commission has reinforced its trade analysis capacity since 1999, with the creation of a specific unit within the Directorate General for Trade (DG Trade) in charge of economic policy analysis. The unit deals with the whole range of trade policy issues, from WTO negotiations to regional trade agreements, and from traditional tariffs and market access issues to more complex regulatory ones.

---

2. Summary of the presentation by Gustavo Martin Prada, Head of Trade Analysis Unit, Directorate General for Trade, European Commission.

20. Of course, trade analysis is also carried out by other operational services both within DG Trade as well as in other services in charge of sectoral policies, such as Economic and Financial Affairs, Agriculture, and Enterprise. The trade analysis unit is charged with providing economic and statistical input to such applied analysis, and works closely with the negotiators both in the preparation of specific negotiations and in the ex post analysis of their results.

21. The Trade Analysis Unit is a service provider to negotiating teams, and therefore has to be able to understand their needs and constraints, including timing and level of detail, but at the same time has to retain sufficient distance in order to be able to provide independent and sometimes critical analysis. It also must provide a wider perspective on economic and other effects. Keeping this equilibrium between closeness and autonomy vis-à-vis negotiators is crucial in the effectiveness of its role.

22. The wide range of issues at stake makes it almost impossible to develop sufficient in-house expertise, and therefore it is also essential to develop fruitful relationships with the academic world. The EC has tried to develop informal but sustained contacts with a series of European think tanks and research institutes which work in the trade policy field. This is done by commissioning specific studies and organising seminars on trade issues. Moreover, a longer term relationship has been established with CEPPII (Centre d'Études Prospectives et d'Informations Internationales, Paris), which includes a series of studies and workshops during the on-going negotiations of the Doha Development Agenda.

23. At the same time, the Commission works closely with the trade economists of EU member states and has also created an informal network of such services (which unfortunately do not exist in all member states) in order to exchange analysis with total independence from official negotiating positions. This network meets periodically to discuss various trade issues from an economic perspective and communicates daily with the outside world through a dedicated website.

24. Most of the trade analyses carried out in the EC are undertaken at the initiative of DG Trade and are not based on specific legal requirements. However, an economic impact assessment is always done at the beginning of each important negotiation, usually when the Commission requests its negotiating mandate from European Union member states. Moreover, the Commission has decided to undertake sustainability impact assessments of both WTO and bilateral trade negotiations (including a dialogue with civil society).

25. As to the use made by trade negotiators of economic analysis, it obviously depends on its relevance and credibility. Whereas economists operate in a neoclassical world and think in terms of global welfare, trade negotiators tend to have a more mercantilist perspective and focus on trade flows. The two approaches are not necessarily incompatible, but it is up to the economists to bridge the gap, as they enjoy the luxury of being sheltered from economic and political interests and pressures which constrain negotiators' room for manoeuvre.

26. Substantial further refinement of trade analytical tools, from assumptions and parameters to data quality (the well known statistical gaps in the services sector, not to mention the growing importance of FDI flows and their trade consequences, are cases in point) are essential if trade analysts are going to increase their relevance and credibility. Considerable progress has been made in recent years, but much remains to be done for trade analysis tools to become more useful in trade negotiations.

27. Finally, when we move from purely economic impacts into the complex social and environmental effects of trade agreements, the methodological difficulties increase substantially. This is the next challenge for trade economists to be able to better understand and explain the societal impact of trade policy. The EC has been at the forefront on the development and use of social impact analyses and, in spite of their complexity, they are bound to become an essential element in the trade economist toolkit.

***Korea's Trade Policy Regime and the role of KIEP<sup>3</sup>***

28. Korea, a founding member of the WTO, is actively participating in the Doha Development Agenda (DDA) negotiations to expand world trade liberalization. Korea considers that the multilateral trading system is very important to further economic development and, therefore, it continues to contribute to the improvement of the WTO system. Besides the rule-based multilateral trading system, Korea has been involved in various regional economic cooperation frameworks such as APEC and ASEM. While the importance of East Asian financial economic cooperation has been greatly recognized since the financial crisis of 1997, Korea has recently taken the issue of Northeast Asian economic cooperation as one of its major national agenda.

29. One of the major changes in trade policy since the late 1990s has been Korea's active engagement in regional trade arrangements. After successfully concluding a bilateral free trade agreement with Chile in 2002, Korea has been seriously considering bilateral FTAs with Japan, Mexico and Singapore. Korea is also studying the feasibility of a trilateral FTA among Korea, China and Japan.

30. In addition to such multilateral and regional approaches to trade policy, Korea tries to maintain sound and constructive bilateral trade relations with its major trading partners such as the United States, Japan and China.

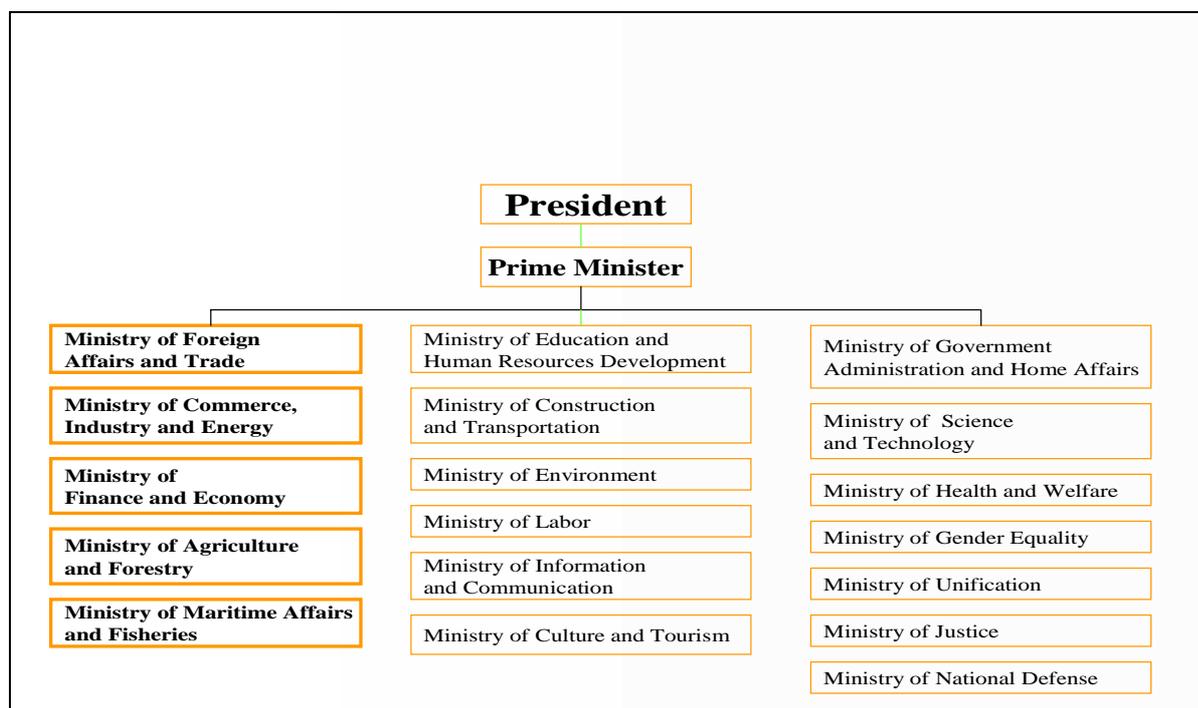
*Trade Policy Formulation*

31. The Korean government is officially structured with 18 ministries, most of which are involved in trade policy formulation in one way or another (see Figure 1). Among those ministries, however, the Ministry of Foreign Affairs and Trade (MOFAT), the Ministry of Commerce, Industry and Energy, the Ministry of Finance and Economy (MOFE), the Ministry of Agriculture and Forest and the Ministry of Maritime Affairs and Fisheries are most heavily involved in such tasks. MOFAT looks after both the political and economic aspects of Korea's foreign affairs, coordinating general trade policies among ministries and engaging in multilateral, regional and bilateral trade negotiations with assistance from other relevant ministries.

---

3. Summary of the presentation by Wook Chae, Vice President, Korea Institute for International Economic Policy.

Chart 1. Trade-Related Ministries of the Korean Government



32. In that regard, MOFAT has two ministers, the Minister of Foreign Affairs and the Minister of Trade. The latter deals, inter alia, with the development and coordination of international trade policies as well as with trade negotiations and economic cooperation. However, sensitive and major trade issues in which there are wide differences of opinion among the ministries are coordinated at the Council for Foreign Economic Policy Coordination, chaired by the head of the MOFE.

33. While trade policies are formulated and implemented by the government, many nongovernmental institutions or agencies play an important advisory role in the process. In most cases, government-funded research institutes, private economic research institutes and business associations also play such a role. From time to time, research institutes as well as professors from various universities participate in the process.

34. Recently, nongovernmental organizations involving farmers, environmentalists, workers and consumers are becoming increasingly influential in trade policy formulation.

#### *KIEP's Role in Trade Policy Formulation*

35. The Korea Institute for International Economic Policy (KIEP) was founded in 1990 as a government-funded economic research institute. It is the world's leading institute dealing with the international economy and its relationship with Korea. KIEP advises the government on all major international economic policy issues and also serves as a warehouse of information on Korea's international economic policies. Furthermore, KIEP carries out research for foreign institutes and governments in all areas of Korean and international economies.

36. KIEP has the most knowledgeable economic research staff in Korea. It now has more than 100 staff members, including 40 research fellows with PhDs in economics from international graduate

programs who are supported by more than 40 researchers. The staff at KIEP are augmented by two affiliates, the Korea Economic Institute of America in Washington, D.C. and the KIEP Beijing office, which provide crucial and timely information on their local economies. KIEP has been designated by the government as the Northeast Asia Research and Information Center, the National APEC Study Center and the secretariat for the Korea National Committee for the Pacific Economic Cooperation Council. KIEP also maintains a wide network of prominent local and international economists and business people who contribute their expertise to various projects.

37. KIEP continually strives to increase its coverage and grasp of world economic events. Expanding cooperative relations has been an important part of these efforts. In addition to many ongoing joint projects, KIEP is also aiming to be part of a broad network of the world's leading research institutes.

38. A major focus of KIEP's research and activities is the multilateral trading system. KIEP conducts various research programs to develop negotiation strategies in every area, from agriculture and manufacturing to services and rule making. KIEP also participates in the DDA negotiations and disseminates relevant information to the public. For that purpose, KIEP has been designated the National Doha Development Agenda Research Center. Similar research projects and activities are conducted for FTA policies. KIEP not only analyzes economic effects and develops negotiation strategies, but also participates in the negotiations. For example, KIEP provided essential ideas and information to the government in the process of Korea-Chile FTA negotiations. In operating the FTA Information Center, KIEP shares information and opinions with domestic interest groups and the media.

39. In early 2003, the Center for Northeast Asian Economic cooperation was established within KIEP to conduct cooperative research activities with China and Japan. Now KIEP is managing a joint research program to prepare summit reports on common policy recommendations with the Development Research Center of China and the National Institute of Research Advancement of Japan. In addition, KIEP conducts research on regional economies and other major economies in the world to maintain better bilateral and regional economic relations. For example, in response to the Chinese economy's growing importance, KIEP established an information network on the Chinese economy and the Chinese Specialist Forum. It is also managing a joint research project on Korea-China economic cooperation, and very recently published the first issue of the Report on the Chinese Economy, to be published once a year.

40. Finally, APEC-related activities and research are also a critical part of KIEP's work. It is noteworthy that KIEP is operating the secretariat office of the APEC Economy Committee as well as the National Center for APEC Studies.

## **Session II. Techniques for Trade Policy Analysis**

41. The second session, which was chaired by Mr. Crawford Falconer, focused on the use of quantitative analysis to examine the effects of trade agreements and other trade policy measures and, more specifically, the impact on Russia following its accession to the WTO. Mr. Robert Koopman, Director of the Office of Economics in the U.S. International Trade Commission, Mr. Patrick Jomini, Assistant Commissioner of the Australian Productivity Commission and Mr. Lionel Fontagné, Director of the French Centre d'Études Prospectives et d'Informations Internationales, discussed examples of how different OECD governments have analysed the effects of major trade agreements such as past GATT/WTO agreements, the ongoing Doha Development Agenda, or regional trade agreements. Ms. Ksenia Yudaeva, of Russia's Centre of Economic and Financial Research, provided a survey of major studies on the effects of Russia's accession to the WTO.

### *Developing Governmental Analytical Capacities in the Trade Policy Area<sup>4</sup>*

42. Economic analysis is but one part of the process of trade policy formulation in the U.S. Government. The U.S. International Trade Commission (ITC) and other government analytical groups provide economic analysis for policymakers (such as U.S. Trade Representative, the President, and Congress) as an input to their deliberations. Many others, including advisors, Congress, special interest groups, and think tanks, also provide important inputs.

#### *The Role of Analytics*

43. Understanding the role of analytics in the policy process is important. But one can also not take for granted that customers understand what the analysis is able to show. Economics predict that reducing or removing restrictive trade policies increases economic efficiency and enhances economic growth by expanding trade volumes; moving resources from less productive sectors of the economy to more productive sectors; reducing prices for imported goods that benefit consumers; raising prices for exported goods that may benefit exporting firms; and increasing investment in growing sectors that brings longer term economic growth.

44. The analyst needs tools and data to try and measure these effects. Typically the analyst uses economic models to simulate impacts on the economy and develops up-to-date, comprehensive data bases for use in policy formulation and in models. A critical factor is the need for the analyst to provide the information generated from models and databases to policymakers in a useful format.

45. Careful analytics can help identify who benefits and who may suffer losses, and by how much. This helps the policymakers weigh the benefits and costs of a change in policy. A good, independent analysis, with high quality tools will therefore position the policy maker with objective advice on benefits and losses, early warning on which sectors will have the greatest interests (positive or negative), and a comprehensive assessment of complicated economic interactions.

46. For the analysis to be most useful to policymakers the trade policy analyst must understand the frame of reference of the policymaker, rather than academic colleagues. Thus the analyst must define the question the policymaker wants answered in an understandable way, and also in a way that can be answered reasonably well. The analyst must also decide what kind of framework is appropriate to answer the question, and realize that the policymaker may know very little about how the analyst will answer the question. The policymaker is mainly interested in a defensible answer.

47. To do this work well, analysts must organize their thinking and devise a plan of attack that produces a timely, understandable, sensible, and defensible answer.

48. Economists often use economic models to organize their thinking. All models, applied and theoretical, are incomplete by definition. They are deliberately simple representations of a complex world, designed to let us focus on possible interactions in a subset of important elements. As a result, the answers we generate are often narrowly focused and sensitive to how we chose to simplify the world in our model. Our answers are often in the “neighbourhood” of what could actually happen. Sometimes we provide a range of outcomes. It is important for policymakers to understand how we use models, and what their strengths and limitations are.

---

4. Summary of the presentation by Robert Koopman, Director of the Office of Economics, U.S. International Trade Commission.

49. Applied modelling allows us to use real world data in combination with a specific representation of how we think these variables are related to one another. We state clearly, for others to see, both the data and the nature of the relationships. They may or may not agree, and they may apply the models to specify their own thinking.

50. It is important to keep in mind that institutions like the ITC conduct studies that seldom rely solely on modelling. Most ITC studies include extensive industry by industry discussions on the potential impact of the proposed policy change on that industry. They describe specific trends occurring in the industry, and what industry representatives think about the proposed changes. In addition the Commission collects, synthesizes, and analyzes/interprets large amounts of data.

51. What kinds of analytical simulation tools does the ITC use? All are “supply” and “demand” market equilibrium models. We use both partial equilibrium models and general equilibrium models.

52. In addition to simulation models we often use econometric models to provide insights on parameter values and to test the existence and size of specific economic relationships.

53. Most of the partial equilibrium models used at the ITC describe a single sector, in a multi-country setting, and can be very industry detailed – by tariff line. We also have a single country CGE model, which is a multi-sector model that describes all economic activity in the economy and captures intersectoral relationships. This model is much more aggregate than the partial equilibrium models, breaking the economy into hundreds of sectors that reflect large groups of similar tariff lines. The ITC also uses a multi-country CGE model called GTAP (Global Trade Analysis Project), which is a multi-sector, multi-country model that describes all economic activity in each economy. It captures intersectoral relationships and is highly aggregated, breaking economies into around 60 sectors

#### *The ITC's partial equilibrium models*

54. Among the partial equilibrium models, the ITC primarily uses “COMPAS”, which uses an Armington specification (that is goods are distinguished by country of origin). COMPAS is a multi-country, single sector, imperfect substitutes, perfect competition model. It focuses on equilibrium demand and supply within a single industry. COMPAS has several advantages: it is highly focused on one sector, easy to run, has very small data requirements, is highly flexible in applications, and is spreadsheet based.

55. COMPAS' disadvantages are that it does not capture interactions between the focus industry and other markets, and the analyst often must guess at values for economic relationships. The model also does not provide for highly specialized market specifications.

56. The skills required to use most partial equilibrium models include a good knowledge of economics (Masters Degree or better), knowledge of spreadsheets or simple modelling software, and trade databases. Models like COMPAS are relatively low cost to use and maintain.

57. There are many other partial equilibrium models. Many are used to link up- and down-stream sectors, such as sugar, cocoa, and the chocolate market. Others model a sub-sector of the economy, such as agriculture. Examples include E-SIM and SWOPSIM.<sup>5</sup>

---

5. Useful partial equilibrium models can be found at <http://www.intereconomics.com/handbook/Models/Index.htm>. Downloads or links to major applied modelling tools are also available at UNCTAD/WTO International Trade Center's website, <http://www.intracen.org/>.

*The ITC's Single Country CGE Models*

58. The ITC currently uses two large single country models, the USITC CGE and USAGE-ITC models. These are multi-sector (500 sectors), imperfect substitutes, perfect competition models with a 1999 base year. The ITC also uses a smaller single country model called TSCAPE model, which has 42 sectors, and a database covering 1978-2001.

59. These models focus on simultaneous changes in all product and factor markets within the U.S. economy, and on the "real" side of the economy, i.e., economy-wide versus macro model. Their main advantage is their capacity for simultaneous tracking of interactions between all product and factor sectors. They have important disadvantages: they are highly complex; they are very resource intensive; they have a single country focus; their data are relatively inflexible; and they have a relatively high level of aggregation.

60. The skills required to use these detailed single country CGE models include a high level of economic expertise (PhD), preferably with extensive experience in CGE work (for example, a dissertation.) They also require an excellent knowledge of relevant software, national income accounts, various trade databases, and tariff and NTM databases.

*The ITC's Multi-Country CGE models*

61. The ITC uses the Global Trade Analysis Project (GTAP) multi-country/regional (around 60 regions), multi-sector (about 50 sectors), imperfect substitutes, perfect or imperfect competition, "real" economy model. GTAP focuses on simultaneous changes in all product and factor markets across countries. GTAP's advantages include a global general equilibrium structure, a standard database, exceptional technical support, a user friendly interface, and an extensive user community. GTAP's disadvantages include a high level of complexity, resource intensiveness, an inflexible data base (currently 1997 base year), a high level of aggregation, and the need to check and confirm existing data.<sup>6</sup>

62. The skills required to use these multi-country CGE models include a high level of economic expertise (PhD), preferably with extensive experience in CGE work (for example, a dissertation). They also require an excellent knowledge of relevant software, national income accounts, various trade databases, and tariff and NTM databases.

*Econometric Estimation at the USITC*

63. Econometrics is the study of the application of statistical techniques to the analysis of economic relationships. Many of the statistical techniques were developed specifically to deal with situations typically encountered in empirical work in economics. Econometrics is often used to combine economic theory and statistical inference to modify, refine, and possibly refute conclusions drawn from economic theory. It is usually used to examine ex post relationships. Econometrics uses historical data to assess historical relationships between economic factors. It can look at microeconomic or macroeconomic relationships.

---

6. The website <http://www.intereconomics.com/handbook/Models/Index.htm> is a source for useful general equilibrium models. Also see downloads or links to major applied modelling tools, such as the International Food Policy Research Institute site, <http://www.ifpri.org/>. the Global Trade Analysis Project site, <http://www.gtapage.com.purdue.edu/>, and Deardorff and Stern's "Michigan Model" site <http://www.umich.edu/~fschool/rsie/model/>.

64. In trade policy, econometric estimation can be used to examine a very wide variety of topics: measuring the effect of certain variables or policies on one industry, assessing whether trade liberalization improves economic performance, testing the validity of policy tools (e.g. simulation models), and determining signs, specific values, and the reliability of variable coefficients in economic relationships (this often includes determining parameter values for simulation models). Econometrics is frequently very data intensive, and it is often hard to distinguish the separate effects of different factors.

65. The skills needed to conduct econometric analysis include generally a PhD in economics, with emphasis on econometrics, excellent understanding of economic theory and statistical properties, and excellent knowledge of databases and data handling software.

#### *Data Collection and Presentation at the USITC*

66. The ITC is a major source of data on trade and trade policy. The ITC is responsible for keeping the Official Tariff Schedule of the United States—the HTS. It collects data on trade from U.S. Government statistical agencies, and integrates the data into an easily accessible data base, DATAWEB. (See <http://dataweb.usitc.gov/>.) In addition, the ITC uses the World Bank, WTO, and UNCTAD Trains databases (<http://www.worldbank.org/data/>, [http://www.wto.org/english/res\\_e/statis\\_e/statis\\_e.htm](http://www.wto.org/english/res_e/statis_e/statis_e.htm), and <http://r0.unctad.org/trains/>). We also collect data through questionnaires and other sources. (See <http://www.usitc.gov/>.)

#### *Trade Policy Analysis at the Australian Productivity Commission<sup>7</sup>*

67. The Australian Productivity Commission advises the Australian government on micro-economic and industrial policies. Institutionally, the Commission is part of the Treasury portfolio, so Treasury coordinates requests from governments and departments. The Commission developed expertise in CGE analysis to demonstrate the economy-wide costs of tariffs protection. It has two branches, each consisting of 10-15 staff, specialised in quantitative methods to support its work program of Inquiries and other research projects.

#### *Examples of Quantitative Analysis at the Productivity Commission*

68. The Commission has undertaken a wide range of quantitative analyses in response to requests from the Department of Foreign Affairs and Trade. A few examples illustrate the kinds of studies we have undertaken.

- In 1989, the Department required a tool to understand the gains from APEC and Uruguay agreements. Our response led to the development of the SALTER model, the father of GTAP.
- Last year, the Commission produced a study which gave confidence to the government to eliminate tariffs on imports from least developed countries. We used GTAP in the analysis.
- The Commission also developed a gravity model to analyse the effects of Regional Trading Agreements on trade patterns.
- The Commission has devoted significant resources to develop tools to analyse services trade, focusing mainly on commercial presence. For example, we developed the FTAP model to estimate the global and distributional effects of liberalising services, including

---

7. Summary of the presentation by Patrick A. Jomini, Assistant Commissioner, Australian Productivity Commission.

telecommunications and banking. This work gave rise to a valuable collaboration with academics to develop frameworks to estimate the effects of regulations.

69. In addition, the Department periodically asks what impacts an agreement might have on Australian access to foreign markets. Here, the Commission looks at the possible effects of an agreement on bound tariffs and on applied rates as an indicator of market access and estimates quantitative effects using a general equilibrium model. This work is usually confidential in the first instance, in contrast to most work undertaken by the Commission, which is transparent and made available to the public soon after its completion (see [pc.gov.au](http://pc.gov.au)).

70. The Commission has other reporting duties which influence Australia's trade policy. In its Annual Report series, the Commission reviews the state of micro-economic policies and reforms. As part of this, the Commission reports on assistance to industries. Assistance is also regularly reviewed as part of Inquiries requested by government. Both of these activities reinforce the know-how required to develop a strong expertise in trade analysis and modelling.

#### *Frameworks for trade policy analysis*

71. The Commission carries out both partial and general equilibrium analysis of trade policy. Typical of the partial equilibrium analyses are studies on the effective rates of assistance to producers and studies on barriers to trade in services.

72. On the general equilibrium side, we use a variety of models designed to analyse different questions—GTAP for international trade in goods; FTAP for trade in services; MONASH for effects on the national economy; and MMRF for analysis of regional effects.

73. The development of CGE frameworks and expertise has required a major effort, which has received strong and long-lasting support from the Commission's Chairman and other senior managers. In addition, strong links with the academic community through the Centre of Policy Studies (the CoPS/Impact Project) have been critical to the success of the effort. The CoPs/Impact Project, a consortium of government agencies led by the Commission and a group of academics at various universities in Melbourne, developed the MONASH and MMRF models. The Commission developed the SALTER and FTAP models, with input from government and several academic researchers from Australia and abroad.

74. A large investment is required to produce up-to-date data. Our analyses are based on detailed data for trade barriers (tariffs, non-tariff barriers, subsidies, barriers to services trade), reference prices, input-output tables, trade in goods and services and foreign direct investment. One of the big challenges in obtaining good data is the ever-changing measures adopted by governments on border protection and assistance to domestic producers. With respect to Russian data, the government can now benefit from GTAP Version 5.3, which includes updated trade data and a Russian input-output table that replaces the FSU database that has been used in several accession and other studies of Russian trade.

#### *Staffing*

75. One practical point to consider is that of staffing. I have had to think more about staffing lately because we have lost a few staff to government departments and private consultants. Losing staff is not really bad: I believe that we contribute in this way to improving the ability of departments and society as a whole to understand the type of analysis that we conduct. But, it has to be recognised as a cost.

76. A team typically requires four staff persons to fulfil the following roles:

- A manager, responsible for communications, "client services," and quality control.

- A director, responsible for operationalising the question and producing the first draft.
- An assistant director, responsible for special problems, drafting, and running simulations.
- A junior staff person, who manages simulations.

#### *Reporting structure*

77. Most of the Commission's outputs are publicly available, at least in the long term. This helps the Commission provide advice that is independent of the government of the day. It also helps the general public to understand the arguments.

78. Typically, the output for a particular study includes a formal report, research memoranda, and Departmental briefings. The report consists of a (i) one-page summary of key points, (ii) an overview of the main results of the study, (iii) the full text of the report, and (iv) appendices that provide detailed results and a description of the model. Research memoranda provide information that would be required to reproduce the results. Departmental briefings are used to respond to specific questions asked about the study.

#### *Summing up*

79. Quantitative analysis of trade issues can be a powerful tool to support decisions or negotiating positions. It allows policymakers to measure the economic consequences of changes in policy and the costs of assistance to domestic producers. It also helps policymakers to think about the economic effects of policy choices. To be effective, quantitative analysis requires a commitment from the Government and the staff of government agencies to think in economic terms.

#### ***Techniques for Trade Policy Analysis at the Centre d'Études Prospectives et d'Informations Internationales (CEPII)<sup>8</sup>***

80. The Centre d'Études Prospectives et d'Informations Internationales (CEPII) is France's leading institute for research in international economics. It conducts research on a number of economic issues, including trade policy, for the French Government and the European Commission, and actively cooperates with several international trade policy research networks. It has about 50 people, including 30 economists, who work on a variety of international economic issues. It maintains research partnerships with other French and foreign research institutes working in related fields. In recent years, CEPII has put a major emphasis on analysis of trade policy, developing new tools for quantitative analysis of the effects of trade agreements and other trade policy measures.

81. The multilateral trade negotiations in the current Doha Round are a major focus of its current work. The demand for more intensive trade policy analysis has been motivated by recognition that, despite progress in past rounds of trade negotiations, many restrictions to market access remain. Moreover, with the reduction of tariffs, governments have sometimes replaced them with complex trade barriers and preferential schemes that require more sophisticated analytical tools.

82. To respond to the new analytical needs, CEPII, in collaboration with the International Trade Centre in Geneva, has developed two important tools, MIRAGE (Modelling International Relationships in Applied General Equilibrium) and MAcMaps (Market Access Maps) to analyse trade policies. MIRAGE

---

8. Summary of the presentation by Lionel Fontagné, Director, Centre d'Études Prospectives et d'Informations Internationales (CEPII), Paris.

is a multi-region, multi-sector computable general equilibrium model. It describes imperfect competition in an oligopolistic framework. It also accounts for product differentiation by variety and geographical origin and for foreign direct investment flows. Several features of MIRAGE—it's explicit modelling of foreign direct investment, its notion of vertical product differentiation and its use of the MAcMaps database--distinguish it from most other CGE models that have been applied to analyse trade policy.

83. MAcMaps is a database of major protectionist instruments, such as ad valorem or specific duties, tariff quotas, anti-dumping measures, and technical barriers to trade), which measures market access to 137 countries for 220 exporting countries. This information, which is available at the level of 5000 to 10,000 products (HS6 or HS10 classification, depending on the country) can be used not only to describe the initial level of trade barriers, but also to build scenarios of trade liberalisation. The MIRAGE-MAcMaps toolkit uses the standard GTAP5 trade database, which allows wide flexibility in choosing the sectoral and geographical aggregations of MIRAGE.

84. CEPII researchers think that MIRAGE and MAcMaps have considerable potential for analysing various scenarios of trade liberalisation in the ongoing trade round. They can be used, for example, to analyse the effects of alternative approaches to tariff reduction. They can clarify the importance of tariffs and tariff peaks in agriculture and industry, the income effects of trade liberalisation, and the effects of special treatment for developing countries. CEPII's research agenda includes extending the research on trade liberalisation to include analyses of the effects of reduction of domestic support and export subsidies in agriculture, the effects of tariff quotas, and the effects of trade liberalisation on agricultural production in developing countries.

#### *Review of studies of the effects of Russia's WTO accession<sup>9</sup>*

85. To date only a handful of quantitative studies have attempted to assess the effects of Russia's WTO accession. Although the negotiations started in 1993, they have only recently made substantial progress and, therefore, gained the attention of researchers.

#### *Overview of the studies*

86. Most of the existing studies of the effects of accession use a partial equilibrium approach, and try to estimate initial sectoral losses from accession. There are only two studies that employ CGE models--a common tool, considered by most economists to be also the best approach--to analyze the effects of trade reforms on welfare. The reason for this is twofold. First, most of existing studies were sponsored by the Russian government or lobbying groups, for which short-run problems with unemployment and the needs for labour reallocation are the major concerns. Second, due to data problems, building a general equilibrium model of the Russian economy requires more effort than for most of other countries. Until recently the GTAP database, which is used in most studies to predict the effects of changes in trade policy, did not contain recent data on Russia; it contained only 1989 data on the Soviet Union. Thus, using the GTAP dataset to evaluate the effects of Russia's WTO accession could lead to significant bias due to differences between trade structure of the USSR and Russia and the inability of separating Russia from other countries of the former Soviet Union. (The reliability of one study that used GTAP to evaluate the effects of creation of a Common European Economic Space is discussed below.)

---

9. Summary of the presentation by Ksenia Yudaeva, Centre of Economic and Financial Research (CEFIR), Moscow, and Moscow Carnegie Centre. Her remarks are based on a study that she prepared for the OECD: *Review of Studies on the Impact of Accession to the WTO on Russia's Economy*. CCNM/TD(2003)2, Centre for Co-operation with Non-Members and Trade Directorate, 20 May 2003.

87. Table 1 summarizes the results of quantitative studies that are relevant to evaluating the effect of Russia's WTO accession. (Full citations of the studies are listed at the end of the document under the 'References' part). Of these studies, six address the question of WTO accession directly. Two other papers analyze the effects of the formation of a free trade agreement (FTA) between Russia and the EU. Since the EU is Russia's largest trade partner, these studies provide a useful insight into the effects of accession. Another interesting feature of these two studies is that they make an attempt to model institutional changes of the Russian economy. Finally, the survey includes two papers, which attempt to evaluate the effects of electricity reform on Russian industry. Since the reform of the energy sector is likely to be a part of Russia's accession commitments, these two papers have a direct relevance to Russia's WTO accession.

88. The studies can be classified according to the methodology they use and the aspects of the accession they analyze. Only two of the studies use the computable general equilibrium approach. Three studies use gravity models, and the remaining studies use a partial equilibrium approach. Two of the latter are combined with macroeconomic models built around input-output tables. In terms of the aspects of WTO accession addressed in the papers, most of them limit their attention to changes in tariff policy. One study (Jensen et al, 2003) also analyses the effects of liberalization of services sector in general, and two studies (CEFIR, 2002, and Zemnitsky, 2002) address the issue of liberalization of the financial sector. As previously mentioned, two studies try to analyze the effects of institutional improvements (Sulamaa, Widgren, 2002 and Koukharchouk, Maurel, 2003), and two studies concentrate on the effects of electricity reform (IET 2002, CEFIR 2001). Finally, CEFIR (2002) addresses the issues of FDI inflows, and consumer benefits.

89. Among the surveyed studies, only those that use CGE models can make welfare prediction. Both such studies predict that Russia will gain from WTO accession or formation of a FTA with the EU, although gains from the pure trade policy changes will be fairly modest, and most of the gains will originate from liberalization of the services sector or institutional improvements. HSE (2002), which combines a partial equilibrium approach with a macroeconomic model, reaches a similar conclusion that changes in tariff policy after Russia's WTO accession will have an almost negligible effect on GDP. In terms of the effects on the trade volume, all papers using the gravity model approach, predict that WTO accession will have a particular large effect on change in size and composition of Russian imports from the non-CIS countries. Improvements in the quality of Russian institutions will help to further increase Russia's trade volume. In terms of changes in industrial composition, Jensen et al (2003) predict that, in the long run, metal producers will win the most from the WTO accession, while domestic providers of services will experience the highest losses. It should be noted, however, that this result may depend strongly on the absence of analysis of the effects of energy reform in this paper. The papers, which use the partial equilibrium approach, show that the short-run negative and positive effects on producers are going to be fairly small. As far as results for specific industries are concerned, surprisingly all studies, independently of the methodology they use, reach a similar conclusion that machine building, light, and some sub-industries of the food industry, will suffer from the accession, while metal producers will be the winners. Finally, both papers on electricity reform conclude that machine building is the industry that is most sensitive to changes in electricity prices.

#### *General observations about the studies*

90. The general conclusion of the studies reviewed in this report is that Russia's gains or losses from changes in its tariff schedule after the accession are going to be very small. Whether the effects will be positive or negative depends on the type of the analysis used: CGE models predict overall positive effects from tariff cuts, while partial equilibrium analysis of production in separate sectors predict negative results. Inclusion of institutional changes or productivity gains in the analysis significantly increases the volume of the effect. The results of such institutional or productivity changes are expected to be positive in all studies

that analyzed them. The same is true about liberalization of the services sector, which is analyzed in Jensen et al (2003). Unfortunately, none of reviewed papers analyses agriculture.

91. A number of studies use Russia's 2002 tariff offer, which is published on the [www.wto.ru](http://www.wto.ru) web site. They usually take it literally and consider scenarios in which tariffs go up at the time of the accession. Since Russian negotiators have never discussed it publicly, such a view is very popular among Russians. Discussions with representatives of the Ministry of Economic Development and Trade revealed, however, that the Russian government has no intention to treat these tariff rates as applied tariff rates. Instead they are seen as upper levels, to which tariffs may be raised if necessary. Therefore, the most relevant scenario so far is the one of tariffs being kept at the current level right after the accession, followed by a slow decline of tariffs during the grace period.

92. None of the reviewed studies on accession directly address the issue of energy reform. This is natural given Russia's resistance to include energy reform in its accession agreement. Taking energy reform into consideration could have changed the macroeconomic and sectoral results quite significantly, though. The metal industry, which is usually believed to be a winner of the accession, can suffer quite seriously from energy reform because it is an energy-intensive sector.

93. The studies that address institutional or productivity changes, address them in a very general and ad hoc way. A formal attempt to quantify the effects of legal changes on institutions could have improved the results significantly. Unfortunately, both data and methodological problems make such analysis almost impossible.

94. None of the studies discussed the issue of changes in subsidies and government support. Most subsidies in Russia are given on the regional level, often via price regulation or other non-monetary means. A study that collected information on such subsidies and analyzed which of them are likely to be reduced and which are likely to be left intact could contribute greatly to our understanding of the effects of accession.

95. None of the studies make an attempt to analyze the effects of accession on poverty and income distribution. The ILO (2003) study addresses the issue, but does not provide any quantitative assessment. A study by Jensen et al (2003) is expected analyze these effects in the future.

96. Another shortcoming of the studies is that none of them analyze the macroeconomic or sectoral effects of improvements in intellectual property rights protection. At the same time, some sectors, such as pharmaceuticals or IT, may have significant consequences from implementation of TRIPs.

97. Neither the CGE nor the macroeconomic models used in the studies take into consideration the large differences in economic and social structure of the Russian regions. For a country with such regional diversity as Russia, this fact tremendously decreases the reliability of the forecasts produced by such models. Introducing the regional aspect into CGE analysis is an absolute necessity, if one would like to have meaningful predictions of the results of accession. Direct consideration of the regional structure could also help to model the effects of low inter-regional mobility on the results of the accession. Unfortunately, no statistical information on inter-regional trade exists in Russia, so constructing such models requires a big data collection effort.

98. Another aspect of modelling, which was ignored by almost all papers, is multi-country analysis. Most of papers analyzed in the review were based on a two-country geographic composition, which, again, makes the analysis less reliable. Inclusion of data on Russia into the GTAP dataset may help to decrease this gap. The GTAP model, however, has some shortcomings, which make it a not very suitable tool for analysing the Russian case. The assumption of pure competition and labour mobility do not hold in the

Russian economy, so it would be better if a model applied to Russia took these problems into consideration. (Jensen et al (2003) use more realistic assumptions for analyzing the Russian economy, considering some sectors to be monopolistically competitive and also assuming some limits to cross-sectoral labour mobility.)

99. Most of the partial equilibrium models have problems with the data and econometric techniques they use. However, the surprising similarity of the conclusions of partial equilibrium, CGE, and descriptive papers suggests that these methodological problems are probably less important than they appear at first glance.

CCNM/TD(2003)3  
**Table 1. Projected effects of Russia's WTO accession**

Study	Model or Approach Used	Assumption about Russia's Entry, or Major Question Raised	Major Finding
Jensen <i>et al</i> (2003)	CGE model 32 sectors, which include both good producing and services sectors. Calibrated to 1995 Russian data. Two regions: Russia and the rest of the world.	Tariff on goods decrease by 50%, and all barriers to FDI in services are eliminated.	<i>Medium run effects:</i> welfare gains equal to 8.1% of consumption or 3.8% of GDP. Liberalization of FDI in services is the largest source of the gains: 6.8% of consumption. <i>Sectoral effects:</i> metals, chemicals and timber, wood, pulp and paper products will expand, while business services will contract. 5.5% of skilled labour and 4.8% of non-skilled labour will be reallocated. <i>Long-Run</i> welfare gains: 61.8% of consumption (28.8% of GDP)
Sulamaa, Widgren (2002)	GTAP 5.0, 1997 data for all countries with the exception of Russia, which is not separated from the FSU. 1989 data for FSU	EU enlargement and FTA between Russia-EU25. Scenarios: 1. Unilateral tariff abolishment on the Russian side 2. FTA 3. FTA+institutional convergence (modelled as increase in Armington elasticity) 4. FTA+factor productivity increase.	FSU's GDP and trade volume increases in all scenarios. Welfare increases only in scenarios 3 and 4 (particularly in the 4th one). Negative terms of trade effect in scenarios 1, 2, and 4.
Koukharchouk and Maurel (2003)	Gravity model, estimated on the sample of 42 countries for the period 1994-2001	Question: what would be the effect on trade if Russia's institutions improve to the EU or CEEC level?	1. Within CIS, trade is 6 times larger than it should be, while CIS trade with the rest of the world or the EU is 16% or 31% of the normal level respectively. 2. If Russia's institutions improve to the EU level, its trade volume will increase by 103%
Zemmitsky (2002)	CGE, same as Jensen <i>et al</i> (2003)	Effect of WTO accession on financial sector.	Skilled labour, specific to the financial sector, may suffer from WTO accession, unless foreign companies are required to hire at least a certain amount of Russian labour. Limits on foreign capital share in the sector cannot solve this problem.
Belyanin (2002)	Gravity	Liberalization of trade with the EU	Import from the EU will increase by a factor of 7, while export to the EU will increase by 50%.
National Investment Soviet (2002)	Input-output tables, RIM model	Effect of Russia's WTO accession 1. Russia's 2002 tariff offer 2. No initial increase in tariff rates	1. -initial GDP increase by 0.6% (regional variance from 0.13 to 0.67%) - initial increase in production of shoes (1.3%), clothing (1.6%), TV sets (1.7%), liquors (11.6%), poultry (12.4%), and wine (25%) 2. -initial decline of GDP of less than 1% - Initial decline in production of TV sets (3.5%), clothing (1.2%), shoes (0.7%) wines (10%), vodka and liquors (4.6%)

Note: For a detailed list of these studies, please see the References at the end of this document

Source: Ksenia Yudaeva, Center for Economic and Financial Research

Table 1 (con'd): Projected effects of Russia's WTO accession

Study	Model or Approach Used	Assumption about Russia's Entry, or Major Question Raised	Major Finding
HSE (2002)	Macroeconomic model of the Center for Macroeconomic Analysis and Short-term Forecasting, specially adjusted to predict the effects of tariff changes. The model allows making a forecast for Russian industrial sector in breakdown of 83 industries	Forecast of the effect of changes in tariff policy according to the following scenarios: 1. Russia's 2002 tariff offer. 2. Russia's 2002 offer, but in those cases where proposed rates are higher than the current level, the tariffs are set at the current level. 3. Russia's 2002 offer with all changes happening in the last year of the grace period 4. Russia's 2002 tariff offer + changes in calculation of VAT for industry (exclusion of tariffs from the VAT tax base).	In the case of WTO accession, increase in GDP by 2010 will be by 0.4% higher than if Russia does not join the WTO. Differences in other macroeconomic variables among 5 scenarios are also very small. Industries sensitive to changes in tariff rates (as envisaged by the 2002 tariff offer) are meat and milk processing, pharmaceuticals, automobile, production of tractors, microbiology.
CEFIR (2002)	Econometric estimations and partial equilibrium analysis.	1. Effect of universal 1% tariff decrease on sectoral and regional employment 2. Effect of import competition on productivity of Russian firms 3. Effect of tariff decline to 5% on consumer expenditure 4. Effect of WTO membership on FDI inflow 5. Effect of financial sector liberalization on economic growth	1. Vulnerable industries: Machine building, light and food. Regions: Ivanovskaya, Kurganskaya, Evreiskaya, Adygeya. 2. Positive, but small effect of import competition and availability of imported inputs. 4. Per capita household expenditure on durable goods decrease by 540 Rb. (2000 prices.) The biggest decline for household appliances and clothing. 5. Increase in FDI by USD 4 bn. (1.3% of 2001 GDP) 5. Doubling of transborder credits will lead to GDP growth rate increase by 1.6%. Doubling of the number of foreign banks will lead to GDP growth rate increase by 0.96%.
ILO (2003)	Econometric estimations and partial equilibrium analysis.	Effect of tariff changes under 2 scenarios: 1. Decline of tariffs from the current level to the binding level during the 5 years grace period 2. Russia's 2002 tariff offer	Overall decrease in industrial employment between 2002 and 2007 is -0.14%. Decrease in light and food industries is higher than the average one. The net change in employment between 2002 and 2007 is 0.12%, but the employment is more volatile than in the first scenario (increase in employment in the first year, followed by faster decrease to the end of the period).
IET (2002)	Estimation of short-run elasticities of prices and employment to prices, set by natural monopolists	What is the effect of changes in prices of natural monopolies on prices and employment in industry as a whole, and in separate industries?	The highest elasticity of output to prices of electricity is observed in machine building (-0.58), and non-ferrous metals (-0.39). Other sectors were so far able to pass on changes in electricity costs to prices of their final goods. Overall, industrial output and prices are less sensitive to changes in prices for gas and railway transportation than to changes in prices of electricity. An exception is ferrous metal industry, for which the price index reacts strongly to changes in prices of railway transportation services.
CEFIR(2001)	Estimation of elasticities of production to electricity prices	Analyze the short-run effects of electricity reform	The sensitive industries are machine building (-0.3), and food (-0.12)

### **Session III. Communicating the Results of Analysis to Policymakers**

100. The concluding session, chaired by Mr. Jean-Marie Metzger, considered the problems associated with presenting the results of technical economic analyses to policymakers and stakeholders. Mr. Geza Feketekuty, Professor, Monterey Institute of International Studies, discussed how trade policy analysts can best communicate the results of technical studies to non-specialists. Mr. Arne Melchior, Head of Department in the Norwegian Institute of International Affairs, discussed the conditions for successful use of trade policy analysis and the needs for capacity-building both within government and research institutions. Mr. Dan Ciuriak, Senior Economic Advisor for Trade and Economic Policy and Trade Litigation in the Canadian Department of Foreign Affairs and International Trade, discussed the Canadian government's complex process of stakeholder consultations and how trade policy is developed through inter-departmental discussions, which are informed by the positions of businesses, consumers and other advocacy groups.

#### ***Presentation of Technical Analyses to Non-Specialists***<sup>10</sup>

101. These comments focus on three important aspects of presenting of technical analyses to non-specialists: recognizing the needs of the target audience; the effective organization of written and oral presentations; and presenting economic data.

##### *The target audience*

102. Presentations to non-specialists need to consider the information needs, concerns, interests, and level of knowledge of the target audience. The non-specialists to whom the results of such technical studies may need to be communicated could be senior political leaders in the government, parliamentarians, key stakeholders, policy experts from other disciplines, the general public, negotiating partners or their stakeholders, and members of the public media – whether the press, radio or television. A stakeholder is someone who is affected by a contemplated policy measure and who has the political capacity to affect the government's decision or the negotiating outcome. Each of these groups has some special needs that we will address later. They also have some common needs that I will address first.

103. In most cases non-specialists will be interested in learning about the results of technical studies because it has a bearing on a policy decision or a negotiation. They are less likely to be interested in the technical aspects of the study than in the relevance of the study results for the policy action or negotiation under discussion. They will be interested in obtaining a description of the study and its results in terms they can understand, and an explanation of the relationship between the study results and the policy under consideration.

##### *Organization of written and oral presentations*

104. In making a presentation to non-specialists, the presenter has to remember that most senior officials and managers have severe time constraints and a limited attention span for technical data. One of the first Trade Representatives I worked for always said "you have three minutes to tell me what I need to know and why I should be interested in what you are telling me." Many of my superiors read my briefing papers on an issue on the way to their next meeting. The message therefore needs to be organized in such a way that the listener or reader can quickly absorb the basic information and its relevance to the policy action under discussion. The introduction should orient the listener or reader to the policy action under

---

10. Summary of the presentation by Geza Feketekuty, President, International Commercial Diplomacy Project and Professor, Monterey Institute of International Studies.

discussion, the relevance of any technical study to the policy issue, the results of the study, and the implications of the study results for the audience and for the contemplated policy action.

105. In addition to the content of the introduction, the presenter needs to organize the body of the presentation in terms of segments and subheadings that correspond to the key arguments, and together provide a convincing summary of the message. There are several key reasons for doing this. First it helps the listener or reader to understand the relevance of the detailed information being conveyed to the broader argument. It also helps the reader or listener to zero in on the portions of the presentation that most interest them, and finally it helps them to remember the key arguments.

106. Finally, each presentation should end with a concluding section that summarizes the key arguments and the implications of the technical study for the policy action under consideration.

107. Naturally, since the audience is made up of non-specialists, the presenter needs to frame the information in non-technical terms. I always told my former subordinates in the government and my students that they needed to explain an issue so their grandmother could understand it. Clear explanations that are understandable by everyone are always welcome, and can avoid placing the listener or reader in the uncomfortable position of having to ask for an explanation. The level of substantive detail included in the presentation, however, has to be geared to the listener or reader's level of expertise. Non-specialists with some understanding of the subject matter will expect more substantive details to be convinced, while too much data can quickly bore and confuse listeners or readers with no knowledge of the subject matter. In fact, adjusting the substantive content of a presentation to the knowledge and information needs of the audience is one of the most difficult and challenging, and yet also most important decisions a presenter has to make.

108. Some limited references to technical data can help reinforce the authority of the presentation, but such references need to be followed by clear explanations of the technical concepts involved in layman's language. Excessive references to technical data or citation of technical data and concepts without the accompanying explanation can easily create the impression that the presenter is trying to overwhelm the audience with technical prowess, without really understanding what it means in terms that are meaningful.

109. Non-specialists involved in the trade policy formulation process, including senior political officials in the government and parliament, rarely need highly precise data on the effects of policy actions since such effects are likely to be influenced by a number of other factors that are difficult to predict. What policymakers need are some quantitative data that provide the general magnitude of the probable impact. The use of accepted quantitative estimating techniques not only provides a basis for identifying the probable effects in an objective manner, but it also facilitates the development of a consensus among different stakeholders on the probable effects.

110. There are several techniques that can be used to increase the interest of the audience in the information being conveyed, and their ability to remember it. One such technique is to connect the information in some way to everyday experiences or to well-known recent events. We all learn to deal with abstractions when discussing issues on a national scale, but the meaning of the impact does not have its full impact until it is reduced to personal terms. How the action may impact individuals we can relate to on a one on one basis.

111. Another technique is to establish some interaction with the audience by posing questions, and presenting content in the form of answers to the questions posed. In oral presentations the presenter can ask members of the audience to answer common sense questions that form a natural platform or bridge to a discussion of particular elements of the presentation.

112. Many of the non-specialists who are to be briefed on the results of technical studies have special interests, and they will of course be interested not only in the impact of a particular policy decision or negotiating outcome on the economy or country as a whole, but more specifically in the impact on their particular interests. By addressing the implication of the study for the interests or concerns of particular members of the audience, the presenter can help establish a link that will facilitate communication and shape the listener or reader's perception of the study results.

113. Members of the media have special requirements that need to be considered. The presentation to the media should focus on what makes the story newsworthy – what is new and different from past studies, and how the study results will affect policy issues of concern to listeners or readers of the particular broadcast or newspaper.

#### *Presenting economic data*

114. A general discussion of the presentation of technical studies to non-specialists cannot possibly cover the wide range of subject matter that might be covered in technical studies covering the full range of issues that must be addressed in trade policy analysis. Before a decision can be made on a particular policy or negotiating issue, policy analysts may need to carry out technical studies of the potential impact on the economy as a whole, on particular industries and social groups, on domestic social objectives, and on domestic laws and regulations. I will limit myself here to a few comments about economic data.

115. One of the key dilemmas economists face when undertaking economic studies of the effects of trade policy actions is that most politicians and non-experts want to know about the impact on jobs and the trade balance, while we know that the principal objective of trade policy is not to create jobs or to improve the trade balance, but to increase the productivity, economic efficiency and growth of the economy. Macroeconomic tools are better suited to assure full employment and a sustainable trade balance, while trade policy and trade-related domestic economic reforms are best suited to create new growth opportunities and to cut costs of production.

116. The second problem is that increasing productivity, cutting costs, and pursuing new opportunities for growth requires the elimination of old jobs, the decline of old industries, and the restructuring of old firms. Schumpeter called capitalism a process of creative destruction. He pointed out that the strength of capitalism in promoting economic growth is its effectiveness in destroying non-productive activities and substituting more productive activities. The political dilemma is that the loss of old jobs, firms and industries is much more real to politicians and to the general public than the creation of new jobs, firms and industries in the future.

117. How does a trade policy analyst address this dilemma? In my experience, it is impossible to avoid a jobs debate. What analysts need to do is to focus first on the higher wages being earned in the export industries, and the benefits that will be derived from a growth of exports. Second, the policy analyst needs to point to the social programs available to individual workers to help them adjust to the new jobs that will be created in the economy as a result of the growth of exports.

#### ***Trade Policy Analysis: How to Link Policy and Research<sup>11</sup>***

118. The Norwegian Institute of International Affairs (NUPI) is a cross-disciplinary research institute covering foreign policy in general, and with research on international economics and trade as one of its components. Given my position as researcher and Head of the International Economics Department at NUPI, I shall focus particularly on the role of research institutions in the field of trade policy analysis.

---

11 . Summary of the presentation by Arne Melchior, Norwegian Institute of International Affairs.

*Reasons for doing trade policy research*

119. Trade policy research has several purposes, including (i) to improve the knowledge base of governments; (ii) to help negotiators – technically and by providing arguments and knowledge; and (iii) to provide inputs in the public policy debate. In addition to these well-known reasons for undertaking such research, it is important to add that (iv) *research is needed in order to import knowledge in the trade policy area*. As in almost any field and any country – whatever its size – it is generally the case that most new knowledge is developed abroad. In order to use this knowledge, understand it and evaluate it, a country needs its own research capacity. Using a term from the field of technology research, a country needs to improve its “absorptive capacity” in the field of trade policy analysis. A country may be faced with analysis undertaken elsewhere suggesting that it will have huge gains or losses from trade liberalisation, and it should be able to understand and to evaluate such results.

120. For several reasons, trade policy analysis has become more important over time. Due to “globalisation”, international issues have generally become more significant. Second, trade policy has become more complex, expanding into new areas where knowledge is still limited and policy positions are surrounded by uncertainty. For example, on services as well as the “Singapore issues”,<sup>12</sup> there is still much to be done in order to improve the knowledge base for policy. Third, trade policy has become more important for political reasons; while few people even noticed the tariff formulas used in the Tokyo Round in the 1970s, there is today more controversy and debate. Trade policy has expanded into new areas in which it interferes more directly in domestic policies, and this makes it more controversial. In many countries, trade policy is controversial not only for domestic reasons, but also from a global perspective – relating to how trade policy affects North-South gaps and poverty. Fourth, we could add the more technical argument that trade policy research is increasingly feasible due to better data access, better computers, and hopefully also improved research methods. For example, tariff policies may now be analysed using huge data sets on tariffs and trade, giving more accurate knowledge than in the past.

121. In addition to enhancing national research capacity in the trade policy area, it is important to observe that there are probably large international “externalities” in the field: Many research tasks could benefit from being undertaken through international cooperation. If every country in the world were to undertake a meticulous analysis of every trade policy issue, there would be a large amount of duplication and waste of resources. International organisations such as the World Bank, the OECD and the WTO have recently made important efforts to provide better data access, and some of these also have extensive analytical/research activity. More could however be done in this area, for example by joint international projects. Recently, we have undertaken projects on the impact of WTO tariff liberalisation for Norway. A considerable part of this activity is not nationally specific and would be useful to other nations. Furthermore, the results for Norway could probably also be made better in the framework of a larger-scale international project where more people, extended data sets etc. had been used.

*Researchers and governments: It takes two to tango*

122. Do officials know how to use research, and do researchers care for policy issues? Unfortunately, the answers to these questions are not always affirmative. Hence in order to establish a constructive role for research in the policy area, capacity-building is needed in both camps, as well as a dialogue between the two. The purpose should be to develop “skill clusters”; with government officials that have the capacity to use and understand research, and researchers that have the capacity to address important policy issues on the basis of solid methodological skills.

---

12. The “Singapore issues”—trade and investment, trade and competition policy, transparency in government procurement, and trade facilitation—originated at the Singapore Ministerial Conference in 1996, when working groups were set up to study whether they should be negotiated.

123. In ministries, there is the danger that officials become “slaves of their desks”; focusing only on day-to-day short-term issues and not acknowledging the need to work continuously on the strategic issues, and their underpinning. Since research is generally more useful with respect to the strategic rather than the very short-term issues, “desk slaves” may not give high priority to research activity. In order to use research, officials need the capacity to ask the right questions, and to assess the quality of research. The ministries may develop this capacity by (i) upgrading the quality of their staff; (ii) by focusing continuously on medium- or long-term strategic issues, and (iii) use research inputs for the education and training of their staff.

124. In research, there is a corresponding danger that researchers become “slaves of their careers”: Academic incentives *may* not support policy relevance, and policy-related work *may* be a waste of time in terms of promoting academic careers. We say *may*, because policy questions are also researchable and scientifically interesting, *if asked the right way*. Such questions may also help researchers to focus on important issues, which may be rewarding in terms of academic motivation and the general interest for their work.

125. In a “bad equilibrium”, the best researchers stay away from policy, and we may end up with irrelevant high-skill researchers on one side, and relevant consultants with lower research skills on the other. If government officials are not “demanding customers” that have sufficient capacity to distinguish between good and bad research, this outcome is more likely. In a “good equilibrium”, however, long-term research also supports short-term policy analysis, and government officials play a constructive role by asking for quality, and not only relevance.

126. In order to support such a “good equilibrium” in the area of trade policy analysis, several preconditions have to be fulfilled: (i) In the long run, the supply of education in relevant areas is crucial, for the supply of skilled officials as well as researchers. This applies to all levels of education, and teaching should cover institutions as well as economic aspects. (ii) In research, there should be a sufficient volume of long-term academic research in related fields, funded within the research system. (iii) There should also be a sufficient volume of short-term and policy-related research, funded by competent users that also act as “demanding customers” that promote quality. (iv) There should be a dialogue between researchers and officials over time, in order to promote competence and quality. Through this, “skill clusters” may develop and support a constructive cooperation between researchers and officials. It is a long-term process in order to create this outcome.

127. The borderline between what trade policy analysis the government should do itself, and what should be undertaken by external researchers, is not very sharp. Some forms of analysis require advanced methodological skills, while others only require less specialised knowledge. For example, descriptive work (e.g. mapping trade barriers) could be undertaken by the government itself, or alternatively by researchers. The government may also hire researchers with specialised knowledge in order to carry out research tasks. Some countries have chosen to establish separate government agencies in research. In Norway, the Central Bank research department, and Statistics Norway in the field of macroeconomic policy, are examples of such institutions. Some other countries also have similar institutions in the trade policy area. The main argument for internalising research activity in the government is to secure relevance. A counterargument is the lack of independence, which may hamper the freedom of researchers to ask controversial questions. If the government sets the research agenda, it is also a question whether researchers are given the necessary time to pursue general methodological competence. There is probably no universal answer concerning the virtues of internalising or sourcing out research on policy issues. If governments choose to internalise research, such governmental research institutions should have considerable autonomy in order to secure political independence, creativity and methodological skills.

*Norwegian experience*

128. In Norway, there is no separate government agency with a “computing” responsibility in the trade policy area. Hence day-to-day work on trade policy in the government is supplemented by ad hoc use of consultants and research institutions. Given the vast expansion of the trade policy field, a number of people and institutions are involved in specific areas. In the core area of multilateral trade policy, however, there is only a handful of research institutions involved, of which NUPI is one.

129. In Norway, there is not a “mandatory” requirement to use research to underpin trade policy. In some countries, negotiations of a single free trade agreement may spur big debates and research efforts, but this is not the case in Norway. For example, EFTA including Norway has entered into a number of free trade agreements with minimal public attention in Norway, and until recently little research. There are some issues, however, for which public attention is greater and more extensive research efforts have been undertaken. For example, there was a huge research effort when the European internal market was established in 1992, with piles of research or consultancy reports. Recently, the Ministry of Foreign Affairs also carried out a project on globalisation (more generally, but with some trade policy issues involved), with a substantial use of resources within as well as outside the Ministry. On the Doha Development Agenda, there has until a few months ago been some but modest research activity, but very recently there has been an acceleration of research activity in the field. Concerning EU enlargement and the implications for the EEA Agreement and Norway, there has been some but not very extensive research activity.

130. How far has Norway come in obtaining the “good equilibrium” described above? In general, my personal diagnosis is that we are moving in the right direction and there are improvements in all areas. Over the last decade, general research in the trade policy area has expanded, and this has improved the knowledge base in the field. Although with some cyclical movements, a considerable amount of policy-oriented research has been carried out. In the government, competition for jobs is tougher and staff with Ph.D. education is more common (this is an impression, although I do not have the statistics), and this will facilitate the utilisation of research by the government. Several ministries now also focus more extensively on long-term strategic issues, with more emphasis on the use of research inputs in their work. In some areas, there is continuity in the work and dialogue related to trade policy analysis, involving officials as well as researchers.

131. There are, however, still some shortcomings in the Norwegian “trade policy analysis nexus”: (i) While the general interest in trade policy among students has increased, this has not been fully matched by the education system. In the area of education, the supply of timely and competent education is too much driven by the varying local supply by teachers. People may leave high schools without having heard much about the WTO, or they may only have heard that it is a dangerous thing. At the university level, teaching is too much driven by the specialisation of the local staff, so important topics may be under-supplied. Economists may leave universities without learning much about institutions, which is important if they are to apply their models in the policy field. In a long run perspective, a focus on appropriate education is crucial. (ii) Concerning long-term research, the allocation of funding is thematically shifting over time. While trade issues have been reasonably well covered over the last decade, this is not guaranteed for the future. One may therefore lose efficiency by researching jumping from one thematic field to another, instead of developing their core expertise. (iii) In the field of user-funded and policy-oriented research, activity is too much ad hoc and variable over time, so strategic planning of such research over time could be improved upon.

*Controversial issues*

132. Researchers may arrive at different conclusions, and some of these conclusions may be politically controversial. Politicians may be tempted to ask for suitable policy conclusions rather than new

knowledge, and researchers may know that some conclusions may be more popular among their customers than other conclusions. How should this apparent contradiction between policy and research independence be handled? If researchers become servile, it will be counterproductive for the creation of new knowledge. While politicians may gain popularity in the short run if their policy is supported by research, the country may lose in the long run if the conclusions are weakly founded. Hence the purpose of research should be to improve the knowledge base for policy decisions, and leave to the politicians to draw the conclusions. Research can narrow the range of sensible policy options, but there will normally be enough left to be settled by officials and politicians. Given that independence and integrity are main assets held by researchers, they should not jeopardise these assets by being too tightly linked to policy-making.

133. Realistically, one cannot always avoid situations in which the focus and the questions asked in policy-related research are influenced by policy. But researchers should try to influence the questions asked, since they may be aware of issues that are not equally familiar to officials, and since they may assess which questions may be answered by available research methods. Hence projects should be developed in a dialogue. Officials should ask for positive knowledge rather than policy conclusions. The government should not control too tightly projects undertaken by external researchers, and quality control should be emphasised in order to insure that the projects give “knowledge for money”. For quality control to be strong, it is important to have a sufficient volume of independent research in an area. Competition between researchers and research groups is good for quality control, as well as transparency about projects and their conclusions.

134. Research may support policy by means of analysis and advice on very specific issues, or it may address broad issues that are important in shaping the public opinion on trade issues. Government officials are frequently concerned with the more specific issues for which they have responsibility (for example, specific issues in negotiations). Among the general public as well as among politicians, however, broad questions--“Is free trade good or bad?” “Is the WTO good for the poor?”--may be fundamental for shaping attitudes. Given increased controversy about trade policy, it is important that research is used also to address such issues. Hence governments should not only ask for research on the narrow and specific issues, but also on the broader issues. While some of this broader research may be undertaken as a part of long-term research funded in academia, the government has a responsibility to ensure that activity in this area is sufficient. The focus required will probably vary across countries. In some countries, general equilibrium calculations on the national gains from trade may be crucial, while the debate in other countries may have more focus on global issues about poverty and development.

*Projects, communication and target groups: Some examples*

135. Projects may vary considerably in terms of their target groups. While the need for general skills in communications applies generally, requirements differ with respect to the forms of communicating results. Some examples illustrate this:

- Tariff negotiations in the Doha Development Round: Projects have been undertaken by NUPI for the Ministry of Fisheries and the Ministry of Trade and Industry. Here the main focus has been to assist negotiators; hence communication from the project has been to a narrow expert group, with limited need for popularisation. Some results may later be communicated to a broader audience.
- The economic costs of textile quotas: Norway had one of the most restrictive textile and clothing quota systems in the 1980’s, but today Norway is among the most liberal nations. Research at NUPI, mainly funded by the Norwegian Research Council, played a role in changing policy attitudes, by demonstrating the economic costs of quotas. These results were communicated to policy makers as well as the public in general, also through media.

- Global inequality: Funded by the Ministry of Foreign Affairs, the results from this NUPI project in 2000 intervened in the public debate on globalisation, in Norway as well as abroad, with considerable attention in media, in research and among NGOs. While the project was not specifically concerned with trade policy, it addressed issues that are important for shaping attitudes also with respect to trade policy.

136. The media are quite selective with respect to covering research, given that there are many researchers competing for attention. If a project is of good quality and addresses an important issue, however, it will have a good chance of reaching the media as well. Hence the focus and the quality of a project are vital for success in reaching the broader public. In addition, the importance of addressing the intermediate-level target group of “experts” in government, research, policy and NGOs should not be underestimated. Policy is formed in an “epistemic community”, and if research reaches the influential members of this community, it will have an indirect impact on policy.

### ***Trade Policy Research: Canada’s Recent Experience***<sup>13</sup>

137. The disadvantage of speaking late in a program is that one runs a certain risk of having one’s thunder stolen by earlier speakers. The key contemporary features of trade policy formulation such as the consequence of the reach of trade rules behind the border, the primacy of transparency and consultations, and the increasing importance of rigorous analysis in support of policies have already been highlighted. As well, the description of the New Zealand case by Crawford Falconer, which reflects the context of the Westminster system of government which Canada like New Zealand has adopted, requires but little amendment to capture the essential features of Canada’s situation. For those interested, the specific details of Canada’s approach to trade policy formulation, and in particular the “permanent consultations framework” that has been developed over the years to support the policy formulation process (and continues to evolve as the context changes), are set out in the longer paper of which the present note is a summary;<sup>14</sup> given the context, the comments here seek to complement the discussion that has already taken place of the challenge of conducting and communicating trade policy research.

### *Building a research program*

138. Systematic, rigorous, quantitative research in support of trade policy formulation and communications, though highly desired, is difficult to achieve. Canada’s experience testifies to the presence of challenges but also that they are not insuperable. Within the Department of Foreign Affairs and International Trade (DFAIT), a trade-related research and analysis program has evolved based on several main activities:

- a) Current Trade and Economic Reporting and Analysis: This includes an annual report on Canada’s State of Trade, a document of record in which Canada’s trade and investment performance can be related to topical issues of the year in review. This serves as a public communications vehicle and “anchors” the research program.
- b) Economic Analysis of Trade Policy Issues: research output is compiled annually in the *Trade Policy Research* series and includes contributions from within government, some contracted research, and a sprinkling of papers from well-known trade policy figures—the latter have

---

13. Summary of the presentation by Dan Ciuriak, Senior Economic Advisor for Trade and Economic Policy and Trade Litigation, Canadian Department of Foreign Affairs and International Trade.

14. See Dan Ciuriak, Canadian Trade Policy Development: Stakeholder Consultations and Public Policy Research, forthcoming as an occasional paper of the Department of Foreign Affairs and International Trade.

included in the past such fixtures in the trade policy world as Jagdish Bhagwati, Gary Hufbauer, Sylvia Ostry and Keith Maskus. External validation is key to the credibility of a research group since it is likely to be situated in a department where most others are not likely to be able to fully appreciate the technical merits of analysis. Hence, participation by well-established figures, which is a measure of external validation, adds greatly to internal credibility. Requests to speak at national and international conferences also represent a form of external validation that is an important part of building internal support.

- c) Modelling Trade Initiatives (including development of computable general equilibrium and gravity modelling capacity): This activity is still in its early days in DFAIT. To date, two CGE-based studies have been completed: one of a possible Canada-EU Free Trade Agreement, and one of the impact of fully liberalizing least developed country exports to Canada which formed the basis for Canada's Africa Initiative at the 2002 G7/8 Summit in Kananaskis. Such an operation is proving hard to mount and hard to sustain. CGE modelling requires very specialized skills; finding and/or training skilled individuals to run the models—and keeping those individuals in place—is difficult. Other government departments with interests in international economic issues compete for these scarce individuals (e.g., in Canada, the Department of Finance and Industry Canada have CGE modelling capacity). A critical mass seems to be required; that can take time to put together. In the meantime patience is required. There is some virtue to low budgets—the challenge of seeking internal funding sets a market-like test for the research unit and a budget constraint focuses the mind on what is important. At the same time, one can take a good thing too far! To gear up the modelling function to the point where it is able to unpack the standard model and develop the Canadian aspect to the point where it is the last word as regards trade impacts on Canada requires a substantial investment.
- d) Economic analysis in support of Canada's position in international trade disputes: This activity is also still in a development stage. The most important contributions have been quantitative analysis in respect of Article 22.6 arbitrations—determining the quantum of retaliation—where the requirement for economic analysis is self-evident. This is high stakes activity for a research unit: the work goes into an adversarial context and legitimacy is ultimately based on success—failure to produce quality work that succeeds before arbitrators could be detrimental to the future of the group. By the same token, successes build confidence which works to expand opportunities to bring economics more fully to bear on shaping the development of arguments—including hopefully in due course at the initial panel (Article 21.5) stage.

139. There are some general lessons that are suggested by DFAIT's recent experience. First, a research unit can usefully think in terms of being an internal consultant. Building up a client base within a government department is just another way of insinuating a research division into operational files. However, it is a market-like way of achieving this objective, rather than the bureaucratic way which involves sketching organizational diagrams, reporting lines, and issuing “top-down” instructions from senior managers.

140. A research unit benefits from one or a few “flagship” products that become its face internally within its Department, to other government departments and to the rest of the world. Proliferation of products raises the cost of search for outsiders trying to navigate through a research division's work. DFAIT's Trade and Economic Analysis Division has two flagship products: *The Annual State of Trade* and the *Trade Policy Research* series. Together with the DFAIT's annual publication on Canada's trade priorities, these form a suite of products with a “common look and feel” that attract regular attention from those interested in Canada's international trade and economic policy and performance.

141. Most importantly, a research division has to deliver quality. The key to this is to attract and keep good researchers. In this regard, nothing succeeds like success. A successful program generates a charged atmosphere that will be attractive to researchers, and will go a long way to alleviating a typical problem of housing a research unit in a government ministry, namely that career paths are designed for those with management aspirations, not research aspirations. One way to make research positions within a government department attractive is to maintain a publications and conference participation program that allow the individuals to build up external professional credentials. More generally, while we tend to speak of “building” a research capacity, the appropriate metaphors are probably drawn from gardening than architecture—the approach matters.

142. There are also some issues that are more substantive. First, it is said “You can’t manage what you don’t measure”. In this regard, a trade research unit is an important client of the statistics ministry and it needs to press for better measures of the elements that go into its models, especially of services barriers—indeed, anything that contributes to the development of better measures of services barriers will elicit, free of charge, numerous studies by researchers who are starved for data.

143. Secondly, research on international economic issues tends to separate trade from finance. This is a problem since trade practitioners assume macroeconomic equilibrium conditions. But international finance research shows that disequilibrium conditions persist: exchange rates are often far from equilibrium and usually for long times. As well, significant external imbalances can persist over the medium term. Reduction of trade barriers laboriously negotiated over years of a trade round can be swiftly undone by overshooting exchange rates that price countries out of markets they were seeking to penetrate. Accordingly, the trade research function needs to be complemented by more general international economic research and ultimately the ability to integrate the two.

144. Finally, it is a useful message to underscore that trade is about domestic policy—about the optimal structure of producing the goods and services desired for consumption and investment—and thus ultimately about imports. Countries export in order to import; this point is not self-evident in the way that trade negotiations are organized, in which offers of domestic market access are made to elicit positive responses to requests for access to markets abroad. The apparently mercantilist framework for trade negotiations is often remarked on with bemusement by economists as a form of unreconstructed heresy. The reality is that this matters little; indeed, if this framework helps trade negotiators to expand a country’s budget to purchase imports, all the better. But for the general population, the fact that countries engage in trade in order to import needs constant emphasis. In Canada, the messaging on trade policy emphasizes the gains to be made in terms of better access to foreign markets for Canadian exports, but also the competitive stimulus from imports and the benefits of two-way investment flows.<sup>15</sup> Maintaining this balance can be a challenge, of course, when discussing objectives in trade negotiations since the formal objectives are, for the most part, set in terms of market access abroad.

#### *Communicating Research Findings*

145. The most significant issue in communicating research results—especially quantitative results—lies in the sensitivity of the results to the assumptions and modelling techniques. In one survey of the impact of services trade liberalization on Canada, the results differed wildly—from massive positive gains to small negative impacts.<sup>16</sup> Needless to say, policy officers were not impressed. Since numbers in trade

---

15 See “Canada’s Trade Policy Strategy” (Ottawa: Department of Foreign Affairs and International Trade, 2003); available online at [http://www.dfait-maeci.gc.ca/tna-nac/trade\\_policy-en.asp](http://www.dfait-maeci.gc.ca/tna-nac/trade_policy-en.asp).

16 These results are reported in Zhiqi Chen and Lawrence Schembri, “Measuring the Barriers to Trade In Services: Literature and Methodologies”, in John M. Curtis and Dan Ciuriak (Eds.) Trade Policy Research 2002, op cit. at pp. 242-243

studies rarely speak for themselves, it is essential that the accompanying *qualitative* analysis be first rate. Importantly for the services trade research noted above, some important lessons were actually learned—understanding the linkages in the models that generated the huge differences alerts policy makers to real life uncertainties in these domains (e.g., the response of investment inflows to liberalization of particular services sectors and the impact of liberalization of producer services on efficiency in goods production). While the numbers *per se* were unusable, the insights from the modelling exercise were valuable.

146. A second problem with quantitative analysis is that it has proved increasingly hard to generate impressive numbers for gains from trade in general equilibrium models. To some extent, this reflects the fact that, through eight GATT rounds, the relatively easy areas for liberalization had already been mined; remaining areas (services, agriculture, textiles/footwear, the hard wiring of differing socio-economic structures) pose much tougher problems. Dealing with the issue of expectations from further liberalization has been a thread that has run through the first three volumes of *Trade Policy Research*.<sup>17</sup>

147. A third challenge is to translate the often complex results of research into language that is accessible to the informed lay person, but is not “dumbed down” to the point of caricature. Notionally, research products aimed at the general public might be pitched to meet the level of assumed knowledge of readers of *The Economist* magazine, except perhaps in writing of the sort included in the *Trade Policy Research* series which aims to participate in professional discourse—albeit at the less technical end of the spectrum.

148. A fourth point that can be an issue for researchers operating within government lies in communicating negative results. It is essential to maintain objectivity and avoid sensationalism to attract readers. If research and analysis is to serve as the basis for policy development, it must almost by definition challenge the existing policy and identify areas where improvements can be made; the results can conflict with messaging trying to build support for current policies. There is no general answer to this communications issue since much depends on the operating culture of the organization and the country. In Canada, we are fortunate in that individual officers in DFAIT and other government departments are able to publish under their own names in professional journals—and those with an interest in trade policy are encouraged to do so in *Trade Policy Research*. Responsibility resides with the editors and the usual disclaimers apply for signed articles written in a personal capacity by officers of government departments—the contents are the responsibility of the authors and not to be attributed to the government. A difference in analytical results on the same issue obtained by different authors is not therefore an issue; indeed, in some ways it is an advantage as it underscores the active debate on many aspects of trade policy.

### *Conclusions*

149. Trade policy research is a difficult area. Globalization has resulted in a confrontational atmosphere between critics of global economic policies and those within the trade policy community. Further, with trade negotiations under way, individual countries have staked out positions. Research and analysis in this area thus raises many sensitivities. Yet, it seems self-evident that any trade ministry requires a professional economics research unit—to explain the actual results of trade, to provide rigorous underpinnings for both policy development and communication, and to support the development of positions in trade disputes (which are inevitably partly about economics as well as about trade law). Transparency and consultation are central to policy formulation in a democracy and these efforts are best built on solid analysis. To be able to contribute in these areas, members of a research division also need to

---

17 See for example, John M. Curtis and Dan Ciuriak, “The Nuanced Case for the Doha Round”, in John M. Curtis and Dan Ciuriak (eds.) *Trade Policy Research 2002* (Ottawa: Department of Foreign Affairs and International Trade, May 2002).

be actively engaged with the wider research community—by publishing, participating actively at conferences and so forth.

150. DFAIT's experience is largely encouraging in that these elements can be put together; at the same time, the contribution of rigorous research and analysis is still in a developmental mode, particularly in terms of building the modelling capacity, and many issues continue to be debated concerning how to fit a research group into an operational department.

### **Concluding Remarks: Implications for the Russian Government**

151. The meeting clearly demonstrated that the general role of trade policy has evolved considerably in recent years and that these changes have required adapting analytical instruments as well as institutional settings and communication skills in OECD countries. In particular, the increasing interaction between trade and domestic policies and a more active involvement of the business community and public at large in trade policy issues require that governments have solid economic arguments both *ex ante* and *ex post* for their trade policy decisions and are able to communicate them effectively to civil society.

152. The challenges in these areas are even greater in Russia, as trade policy has been at the centre of lively political and economic debates, and analytical capacities, both within the government and the research community, have just begun to develop. Participants agreed that the meeting presented a useful perspective on good practices in trade policy analysis, providing a representative sample of how trade policy analysis contributes to trade policymaking and trade negotiations in OECD countries. Not all of the OECD experiences are likely to be directly applicable to the situation in Russia. In fact, one lesson from the meeting is that very different institutional arrangements for trade policy analysis have succeeded in different OECD countries. Nevertheless, there was a general agreement among the participants of the meeting about some of the elements of an effective program for analysing trade policy.

- There is an important role for some capacity for trade policy analysis in government. Government analysts are in a unique position to combine the knowledge of latest research on trade, the skills to carry out research, and an understanding of the needs and political constraints of policymakers and negotiators. It is useful, if not always feasible, for trade ministries to have a capacity for quantitative analysis of trade measures.
- To be successful, a trade analysis program needs considerable resources, including staff with good technical training and communication skills, computer hardware and software, and good data. The most successful programs in OECD countries have benefited from institutional arrangements that ensure the objectivity and independence of researchers.
- Trade ministries should maintain close ties to outside researchers working on trade policy. Government ministries typically have limited resources, especially for carrying out costly quantitative analysis. In addition, even trade officials with extensive in-house capacity can benefit from the different approaches, and specialized knowledge of independent researchers.
- Research results must be communicated effectively not only to policymakers and negotiators, but also to stakeholders and the general public. Communicating the results of technical analysis requires special training and skills.

153. While these general ground rules for effective trade policy analysis also apply to Russia, its specific situation, in particular the still relatively rudimentary level of Russia's trade policy research and the early stage of development of governmental analytical capacities, must be taken into account. In setting priorities for enhancing its capacity to carry out trade policy analysis, the Russian government might consider several steps.

- Promote government and public recognition of the importance of trade policy research and analysis as an indispensable tool for effective trade policy making and trade negotiations. This could be done by drawing attention to trade policy research in other countries and showing how the analytical results influence countries' trade policy decision making. For example, Russia's

government website devoted to WTO issues ([www.wto.ru](http://www.wto.ru)) might be used more systematically to highlight the results of foreign research on the economic effects of multilateral trade agreements.

- Develop more systematically Russia's trade statistics and trade policy data, given their key importance for any serious professional research. The Russian government can contribute to this objective by devoting additional resources to collection of trade data and disseminating such data more widely in a timely manner to researchers and the general public.
- Strengthen human capacities for trade policy research in Russia. Several avenues should be explored in this context, in particular the possibility of offering favorable financial conditions and career paths for trade policy analysts within and outside the government. In particular, the government should consider the further development of the specialized trade policy analytical unit in the Ministry of Economic Development and Trade by hiring additional skilled trade policy analysts. The current WTO negotiating process, which has been a high governmental priority and has attracted wide public interest, represents a good opportunity to obtain the government's support for this policy.
- Expand relations with competent Russian experts outside of government (for example by sub-contracting studies on specific trade policy related themes), and further develop cooperation with international institutions and foreign research organizations. There are significant opportunities to benefit from the work of independent researchers, both in Russian and abroad.

154. Participants in the meeting identified several priority trade policy issues that are now of major concern to the Russian government, researchers, and the wider public, which would benefit from further analysis. They include in particular the costs and benefits of Russia's accession to the WTO, the impact of EU enlargement on Russia's economy and foreign trade, and the economic rationale and practical modalities of intra-CIS economic integration. Participants agreed that further OECD cooperation, involving Russian specialists, should be developed in these areas, particularly with respect to the analysis of the WTO impact on Russia's economy.

## REFERENCES

Belianin, Alexey (2002) "Opening a Pandora box: what we can expect from WTO, and how to access to it" (in Russian), *Pro et Contra*, V7, N2

CEFIR (2002) "Sectoral and regional analysis of consequences of Russia's WTO accession" (in Russian), *mimeo* CEFIR.

CEFIR (2001) "Effect of electricity reform on Russian economy" (in Russian), *mimeo*, CEFIR.

Higher School of Economics (HSE 2002) "Development of forecasts of socio-economic consequences of Russia's WTO accession" (in Russian), report for the Ministry of Economic Development and Trade grant.

Institute for Economics of Transition (IET 2002) "Estimation of the effect of increase of electricity prices on Russian economy", (in Russian), [www.iet.ru](http://www.iet.ru).

International Labour Office (ILO 2003) "Social Consequences of Russia's WTO accession" (in Russian), *mimeo*, ILO

Jensen, J., T. Rutherford and D. Tarr (2003) "Economy-Wide and Sector Effects of Russia's Accession to the WTO," paper prepared for the Allied Social Science Meetings, Washington DC, January 2-5.

Koukharchouk O. and M. Maurel (2003) "Institutions and trade in transition economies", *mimeo* CNRS-ROSES, Paris.

National Investment Soviet (2002) "Economic consequences of Russia's WTO accession" (in Russian), available at [www.wto.ru](http://www.wto.ru)

Sulamaa, Widgren (2002), "EU-Enlargement and the opening of Russia: lessons from the GTAP reference model," Keskusteluaiheita Discussion Paper No. 825, ETLA, Helsinki.

Zemnitsky, A.V. (2002) "Estimation of the effect of abolishing non-tariff barriers for foreign companies in services sector of Russian economy: structural approach" (in Russian), *mimeo*, CEFIR.

## PARTICIPANTS LIST FOR TRANSITION ECONOMIES

3 June 2003

### All Sessions

Ms. Victoria <b>ALEXANDROVSKAYA</b>	OECD Moscow Office
Mr. Massimo <b>BAGGI</b>	Conseiller d'Ambassade Département fédéral des affaires étrangères Ambassade à Moscou
Prof. Ali <b>BAYAR</b>	Professor Free University of Brussels Department of Applied Economics
Ms. Natalya Olegovna <b>BEGLETSOVA</b>	Attache Ministry of Foreign Affairs
Ms. Kerstin <b>BERGLÖF</b>	Senior Research Officer Swedish National Board of Trade
Ms. Natalya Vladimirovna <b>BOGDANOVA</b>	Senior Specialist for International Relations Ministry of Automotive Industry
Mr. Wook <b>CHAE</b>	Vice President KIEP
Mr. Dan <b>CIURIAK</b>	Senior Economic Advisor DFAIT
Mr. Mikhail Valentinovich <b>DANILOV</b>	Section of Cooperation with Germany, Higher School of Economics
Ms. Elena Vladimirovna <b>DANILOVA</b>	Head of Department for Trade Policy and Multilateral Relations, Ministry of Economic Development and Trade
Mr. Kenneth <b>DAVIES</b>	OECD Directorate for Financial, Fiscal, and Enterprise Affairs

Mr. Aleksey Alekseevich <b>DAVYDOV</b>	Chief Expert Department of Foreign Relations, TPP Russia
Miss Barbara-Laure <b>DESPLATS</b>	OECD TRADE DIRECTORATE
Mr. Sergey Ivanovich <b>DOLGOV</b>	Rector, VAVT
Mr. Vladimir <b>DREBENTSOV</b>	Senior Economist The World Bank Russia Country Office Poverty Reduction and Economic Management Unit
Mr. Sergey Viktorovich <b>DUBROVIN</b>	Advisor, Department of Economics Presidential Administration
Ms. Natalya Syaidovna <b>DUGUSHEVA</b>	Senior Specialist, Ministry of Agriculture
Mr. Aleksandr Petrovich <b>DZHABIEV</b>	Associate, Research Center, VNIIVS
Mr. Crawford <b>FALCONER</b>	Principal Trade Policy Adviser New Zealand Ministry of Foreign Affairs and Trade
Mr. Igor Pavlovich <b>FAMINSKIY</b>	Director, VNIIVS
Mr. Geza <b>FEKETEKUTY</b>	Director Monterey Institute of International Studies
Mr. Lionel <b>FONTAGNÉ</b>	Directeur CEPII
Ms. Catherine <b>GRAHAM</b>	Second Secretary Embassy of New Zealand in Moscow
Mrs. Grazyna <b>HENCLEWSKA</b>	Minister-Councillor Ministry of Economy, Labour and Social Policy of Poland

Mr. George <b>HOLLIDAY</b>	OECD TRADE DIRECTORATE
Mr. Patrick <b>JOMINI</b>	Assistant Commissioner Australian Productivity Commission Economic and Labour Market Research Branch
Mr. Hervé <b>JOUANJEAN</b>	EC Director for WTO and OECD Coordination
Mrs. Blanka <b>KALINOVA</b>	OECD TRADE DIRECTORATE
Mrs. Natalia <b>S. KARPOVA</b>	Director National Agency for Direct Investments School for Business Development
Ms. Elina Vsevolodna <b>KIRICHENKO</b>	Head of the Center of North American Studies, Institute for World Economy and International Relations
Prof. Sergey Viktorovich <b>KISELEV</b>	Head of Department of Agricultural Economics, Faculty of Economics, Moscow State University
Mr. Taras Valentinovich <b>KOBUSHKO</b>	OECD Moscow Office
Dr. Robert B <b>KOOPMAN</b>	Director, Office of Economics US International Trade Commission
Mr. Vladimir Mikhaylovich <b>KOPYLOV</b>	Head of Research Section, VES Russia
Mr. Viktor Grigorevich <b>KUREROV</b>	Institute for USA and Canada
Mr. Andrey Vladimirovich <b>KUZNETSOV</b>	Prorector, Higher School of Economics
Mr. Petr <b>KROUZEK</b>	Embassy of Czech Republic in Moscow

Mr. Aleksey Yevgenyevich <b>LIKHACHEV</b>	RF State Duma
Mr. Mikhail Vladimirovich <b>LOGSENKO</b>	Division of International Customs Cooperation, TTK Russia
Mr. Gustavo <b>MARTIN PRADA</b>	Head of Unit - Trade A2 European Commission Directorate General for Trade
Mr. Maxim <b>MEDVEDKOV</b>	Deputy Minister for Economic Development and Trade Ministry of Economic Development and Trade
Dr. Arne <b>MELCHIOR</b>	Norwegian Institute of International Affairs International economics
Mr. Jean-Marie <b>METZGER</b>	Director OECD TRADE DIRECTORATE
Mr. Dmitriy Aleksandrovich <b>MILOVANTSEV</b>	Deputy Minister, Ministry of Communications of Russia
Mr. Kirill <b>MOROZOV</b>	Institute for USA and Canada
Ms. Molly <b>O'NEAL</b>	Head of Unit US Embassy in Moscow Trade and Investment Unit
Mr. Valeriy Alekseevich <b>ORESHKIN</b>	Director, All Russian Market Research Institute
Ms. Niina <b>PAUTOLA-MOL</b>	Counsellor Economic and Financial Affairs Finnish Embassy in Moscow
Mr. Vladislav Valeryevich <b>PAVLOV</b>	Second Secretary, Russian Ministry of Foreign Affairs

Mr. Sergey Andreevich <b>PONOMAREV</b>	OECD Moscow Office
Mr. Valery <b>PONOMAREV</b>	Project Officer World Bank Institute Moscow office
Mr. Viktor Yurevich <b>PRESNYAKOV</b>	Director or Research Center, VNIIVS
Mr. Roman <b>ROMASHKIN</b>	Doctor of Economics, Senior Instructor Moscow State University Economic Faculty Chair of AGROECONOMICS
Mr. Vladimir Dmitrievich <b>RYZHOV</b>	Head of Section, Department of International Financial-Economic Relations, Bank of Russia
Mr. Raed <b>SAFADI</b>	Head of Division OECD TRADE DIRECTORATE
Mr. Rasul Magomedovich <b>SALMANOV</b>	Head of Section, Ministry of Transportation
Mr. Sergey Viktorovich <b>SELEZNEV</b>	Senior Specialist, Ministry of Industry and Science
Mr. Valeriy Aleksandrovich <b>SERGEEV</b>	Head of Section, Ministry of Industry and Science
Mr. Andrey Vladimirovich <b>SHINAEV</b>	Head of Division, Department of International Financial-Economic Relations, Bank of Russia
Mr. Aleksandr Aleksandrovich <b>SHIROV</b>	Research Associate, Institute for Economic Forecasting, Russian Academy of Sciences
Ms. Natalia <b>SMIRNOVA</b>	Ministry of Economic Development and Trade
Mr. Andrey Nikolaevich <b>SPARTAK</b>	Deputy Director, All Russian Market Research Institute
Ms. Svetlana Anatolyevna <b>STEPANOVA</b>	Director, Department of Support and Defense of National Producers, Ministry of Industry and Science

Mrs. Eva <b>THIEL</b>	OECD DIRECTORATE FOR FINANCIAL, FISCAL, AND ENTERPRISE AFFAIRS
Mr. Georgiy Yevgenyevich <b>TIMOFEEV</b>	Deputy Head of Section, Russian Ministry of Finance
Mr. Vladimir Vladimirovich <b>TIMOFEEV</b>	Deputy Director, Department of International Cooperation, Ministry of Transportation
Mr. Lyubov' Aleksandrovna <b>TIMOSHENKO</b>	Director of Department of Economic and Investment Policy, Russian Ministry of Communications
Mr. Vladimir <b>TKATCHENKO</b>	Director Russian Ministry of Economic Development and Trade Department of Trade Policy Analysis
Mrs. Béatrice <b>TOUREILLE</b>	Economist French Embassy in Moscow Economic Mission
Mr. Vladimir Andreevich <b>VERKHUSHA</b>	Deputy Director, Department of International Cooperation, Russian Ministry of Transportation
Mr. Sergey Konstantinovich <b>VINOGRADOV</b>	Head of Section of Multilateral Cooperation, Department of Foreign Relations, TPP Russia
Mr. Boris Borisovich <b>VISHNEVSKIY</b>	Advisor to the Chairman of the Council of Directors, OAO Severstal
Ms. Marina Olegovna <b>VORONINA</b>	Senior Specialist of Department, Russian Ministry of Energy
Mrs. Ksenia <b>YUDAEVA</b>	Hans-raising Assistant Professor of Economics Centre for Economic and Financial Research

Ms. Natalya Vazykhovna **ZABAROVA**

Head of Section,  
Foreign Exchange-Economics Department,  
Russian Ministry of Finance

Mr. Grigoriy **ZADOROZHNIY**

Resident Project Manager  
DFID  
DFID Russia Trade Policy Project/Adam Smith  
Institute

Mr. Vladislav Stepanovich **ZAGASHVILI**

Deputy Directory,  
Institute for World Economy and International  
Relations

Mr. Aleksey Alekseevich **ZAYTSEV**

Deputy Director,  
Department of Support and Defense of National  
Producers,  
Russian Ministry of Industry and Science

Mr. Leonid Grigorevich **ZAYTSEV**

Pro-rector,  
VAVT