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Trade Workshop: The Fragmentation of Global Production and Trade in Value-Added - Developing New Measures of Cross Border Trade

Location: World Bank Headquarters, MC2-800
Begins: Jun 09, 2011 14:00
Ends: Jun 10, 2011 17:30
Contact Person: Francis K. T. Ng

Sponsor: Development Research Group - International Trade and Integration (DECTI)

Top experts in the field presented cutting-edge research on developing better measures of trade in a world of increasingly fragmented production and deepening international integration.

Background: Global production has become increasingly fragmented and different stages of production are now regularly performed in different countries. As inputs cross borders multiple times, traditional statistics on trade values - measured in gross terms - do not reflect economic reality in respect of the value-added in any particular country. International economists and trade statisticians are developing new measures of trade to meet the increasing demand from policy makers and the public for a better understanding of the nature of cross-border trade in today's increasingly integrated world.

The aim of this workshop was to bring together experts in this subject to present their ongoing work in an effort to identify the state-of-the-art, as well as existing data gaps, and the direction of future work in this area. Besides building consensus and identifying opportunities for collaboration among experts in different groups, the workshop contributed to forming a network of researchers and international agencies.

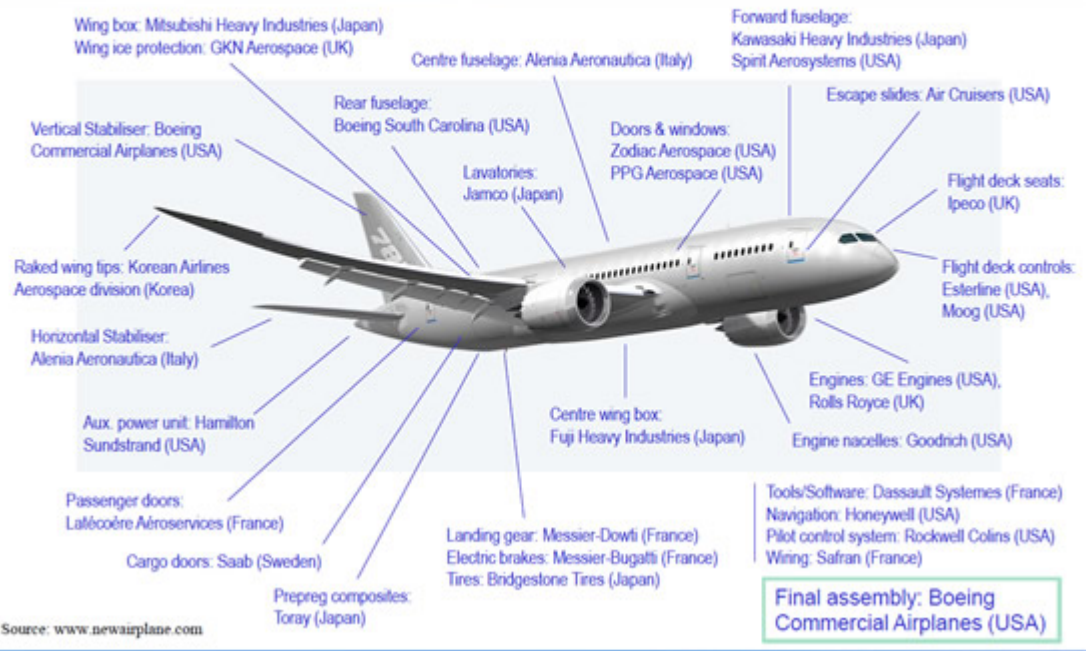
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Fragmentation of production: the example of the Boeing 787 Dreamliner



The workshop focused on both conceptual and practical issues: The first session was devoted to the conceptual framework and methodology for computing trade in value-added terms based on statistics currently available; the second session focused on the statistical challenges in measuring value-added trade and in improving statistics; the third session discussed policy insights we may gain from the proposed new measures of trade; the fourth session provided evidence on value-added trade from two developing countries, China and Mexico; the fifth session concentrated on specific data issues, such as identifying intermediate and final demand in goods and services as well as methods to integrate and reconcile trade and national account statistics in a multi-country framework; and the final session discussed future work on integrating value-added trade statistics into the system of national accounts.

Examples of initial empirical insights: Some that are emerging from the work that was presented include:

- Robert Johnson and Guillermo Noguera showed that bilateral imbalances measured in value-added differ from gross trade imbalances. Most prominently, the U.S.-China imbalance in 2004 is 30-40% smaller when measured in value-added.
- Neil Foster, Robert Stehrer, and Gaaitzen de Vries, showed that patterns of trade in net value-added closely resemble net trade flows but there are distinct patterns when looking at individual factors. For example, NAFTA countries are net exporters of highly-educated labor mostly to EU-15 but have increasingly become net importers of less-educated labor from China.
- Justino De La Cruz, Robert Koopman and Zhi Wang showed on average, Mexico's manufacturing exports have a foreign value-added share of about 66 percent. Those industries that have a foreign content share of 50 percent or more account for 80 percent of the Mexico's manufacturing exports.
- Robert Koopman, William Powers, Zhi Wang, USITC, and Shang-Jin Wei, show that among emerging markets, East Asian countries are more tightly integrated into international production chains, with greater foreign content in their exports and a larger share of intermediate inputs sent to third countries for further processing. Among major developed economies, the United States uses the most imported intermediate inputs to produce exports, while Japan has the most value-added embodied in intermediate exports processed in multiple countries before reaching their final consumers.
- Abdul Azeez Erumban, Bart Los, Robert Stehrer, Marcel Timmer and Gaaitzen de Vries use a new world input-output database to find that for most countries an increasing part of domestic final output is captured as income by foreign production factors. Between 1995 and 2006, the foreign income share of final manufacturing output in China increased from 14 to 21 per cent. This share is now on par with the US but smaller than in any European country. The share of China in foreign final output is increasing even faster, although it is still smaller in value terms.

Potential policy implications of measuring trade in value-added: Advances in this area can influence the way we deal with a range of issues.

- Trade imbalances: the reallocation of bilateral trade deficits and surplus across partner countries could alleviate protectionist pressures.
- Trade disputes: accounting for domestic value-added in foreign products can modify notions of "them" and "us" and create a greater awareness of mutual dependence.
- Trade and industrial policy: if there is a case for pro-active policy, then the focus may need to be less on the industry and more on occupations and tasks.
- Trade and macro-economic shocks: an empirical study of global value chains may help us to understand how crises are transmitted through trade channels.
- Trade and employment: the study of global value chains can help identify the links between trade and job creation/destruction in different locations.

Workshop Program and Materials:

Thursday, June 9, 2011

2:00 - 2:15 pm **Opening Remarks:** **Aaditya Mattoo**, Manager, Trade and International Integration, Development Economics Research Group, World Bank

Tracing Value-Added in International Trade: An Overview of Issues and a Proposal

Aaditya Mattoo, World Bank, **Zhi Wang**, USITC, and **Shang-jin Wei**, Columbia University

- [Paper](#) (pdf - 355k)

2:15 - 4:05 pm

Session I - Measuring Value-Added Trade: Conceptual Framework and Estimation Methods

Chair: **Aaditya Mattoo**, Manager, Trade and International Integration, Development Economics Research Group, World Bank

Patterns of Net Trade in Value-Added and Trade in Factors

Neil Foster and **Robert Stehrer**, Vienna Institute for International Economic Studies, Austria; **Gaaitzen de Vries**, University of Groningen

- [Paper](#) (pdf - 300k) | [Presentation](#) (pdf - 240k)

Give Credit Where Credit is Due: Tracing Value-Added in Global Production Chains

Robert Koopman, **William Powers**, **Zhi Wang**, USITC, and **Shang-Jin Wei**, Columbia University

- [Paper](#) (pdf - 465k) | [Presentation](#) (pdf - 1.9mb) | [Presentation](#) (pdf - 190k)

Accounting for Intermediates: Production Sharing and Trade in Value-Added

Robert Johnson, Dartmouth College, and **Guillermo Noguera**, Columbia University

- [Paper](#) (pdf - 690k) | [Presentation](#) (pdf - 1mb)

Trade in Value-Added: Concepts, Methodologies and Challenges

Norihiko Yamano and **Sébastien Miroudot**, OECD

- [Paper](#) (pdf - 640k) | [Presentation](#) (pdf - 1.8mb)

4:30 - 6:00 pm

Session II - Statistical Challenges in Measuring Value Added Trade: What We Can Do with Available Statistics?

Chair: **Bernard Hoekman**, Director, International Trade Department, World Bank

Evaluating Estimates of Material Off-shoring from U.S. Manufacturing

Robert C. Feenstra, University of California, Davis and **Bradford Jensen**, Georgetown University

- [Paper](#) (pdf - 325k) | [Presentation](#) (pdf - 530k)

Service Linkage and the Value-Added Content of Trade

Joseph Francois, Johannes Kepler Universität Linz and **Miriam Manchin**, University College, London

- [Paper](#) (pdf - 1.1mb) | [Presentation](#) (pdf - 1.4mb)

Measuring Trade in Value-added and Gross National Income Using Firm-level Data

Nadim Ahmad, National Accounts Division, OECD and **Sonia Araujo**, OECD

- [Paper](#) (pdf - 1.1mb) | [Presentation](#) (pdf - 800k)

Gravity Chains: Estimating Bilateral Trade Flows When Parts and Components Trade is Important

Richard Baldwin, Graduate Institute, Geneva and **Daria Taglioni**, PRMTR, World Bank

- [Paper](#) (pdf - 335k) | [Presentation](#) (pdf - 300k)
-

Friday, June 10, 2011

9:20 - 9:35 am **Keynote: Justin Lin**, Chief Economist and Senior Vice President of Development Economics, World Bank

9:35 - 11:00 am **Session III - Policy Implications of Value-Added Trade: Why it is important?**

Chair: Ann Harrison, Director of Development Policy, World Bank

Participants:

- **Gene Grossman**, the Jacob Viner Professor of International Economics, Princeton University
 - [Note](#) (pdf - 50k)
- **Kei-Mu Yi**, Senior Vice President and Director of Research, Federal Reserve Bank of Minneapolis
 - [Presentation](#) (pdf - 110k)
- **Judith M. Dean**, Professor of International Economics, Brandeis University
 - [Note](#) (pdf - 180k) | [Presentation](#) (pdf - 1.3mb)
- **Robert Koopman**, Chief Economist, U.S. International Trade Commission
 - [Note](#) (pdf - 295k) | [Presentation](#) (pdf - 405k)
- **Bertin Martens**, Deputy Chief Economist, Directorate General Trade, European Commission
 - [Note](#) (pdf - 75k)
- **Ranil Salgado**, Chief, Trade, Institutions, and Policy Review Division, IMF
 - [Note](#) (pdf - 315k) | [Presentation](#) (pdf - 525k)

11:15 - 12:45 pm **Session IV - Measuring Value-Added Exports from Major Developing Countries**

Chair: Robert Koopman, Chief Economist, U.S. International Trade Commission

How Much of Chinese Exports is Really Made in China? Assessing Domestic Value-Added When Processing Trade is Pervasive

Robert Koopman and **Zhi Wang**, U.S. International Trade Commission; **Shang-jin Wei**, Columbia University and NBER

- [Paper](#) (pdf 1.4mb)

Slicing Up Global Value Chains: The Role of China

Abdul Azeez Erumban, **Bart Los**, **Robert Stehrer** (VIIES), **Marcel Timmer** and **Gaaitzen de Vries**, University of Groningen

- [Paper](#) (pdf - 395k) | [Presentation](#) (pdf - 525k)

Estimating Foreign Value-Added in Mexico's Manufacturing Exports

Justino De La Cruz, **Robert Koopman** and **Zhi Wang**, U.S. International Trade Commission, **Shang-jin Wei**, Columbia University and NBER

- [Paper](#) (pdf - 380k)

Discussant: K.C. Fung, University of California at Santa Cruz

- [Comments](#) (pdf - 250k)

2:00 - 3:30 pm **Session V - Reconciling National Account and Official Trade Statistics: Building Consistent Time Series Database for Measuring Value-Added Trade**

Chair: Koen De Backer, STI/SPD, OECD

World Input-Output Database (WIOD): Construction, Challenges and Applications
Abdul Azeez Erumban, **Reitze Gouma**, **Bart Los**, **Robert Stehrer** (VIIES), **Umed Temurshoev**, **Marcel Timmer**, and **Gaaitzen de Vries**, University of Groningen

- [Paper](#) (pdf - 500k) | [Presentation](#) (pdf - 220k)

A Model to Construct Time Series Databases for Global Trade, Production, and Consumption Linkages

Zhi Wang, U.S. International Trade Commission

- [Paper](#) (pdf - 1.2mb) | [Presentation](#) (pdf - 5.3mb)

Wish List for Modifying National Statistical Infrastructures for Improved International Input-Output Databases

Satoshi Inomata, IDE-Jetro, **Norihiko Yamano**, OECD and **Bo Meng**, IDE-Jetro

- [Paper](#) (pdf - 700k) | [Presentation](#) (pdf - 700k)

3:45 - 5:15 pm

Session VI - Looking Forward: Perspectives on Integrating Value-Added Trade Statistics into System of National Accounts and What to Do Next

Chair: **Eric Swanson**, Senior Advisor, Development Data Group, World Bank

Participants:

- **Ronald Jansen**, Chief, Trade Statistics Branch, United Nations Statistics Division
 - [Note](#) (pdf - 95k) | [Presentation](#) (pdf - 825k)
- **Robert Yuskavage**, Associate Director for International Economics, Bureau of Economic Analysis
 - [Note](#) (pdf - 120k) | [Presentation](#) (pdf - 325k)
- **Andreas Maurer**, Chief, International Trade Statistics Section, World Trade Organization
 - [Note](#) (pdf - 85k)
- **Nadim Ahmad**, Head, National Accounts Division, OECD
 - [Note](#) (pdf - 10k)
- **Thomas Alexander**, Senior Economist, Statistical Department, IMF

5:15 - 5:30 pm

Concluding Remarks: **Aaditya Mattoo**, Manager, Trade and International Integration, Development Economics Research Group, World Bank

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