GLOBAL VALUE CHAINS IN A POSTCRISIS WORLD

A DEVELOPMENT PERSPECTIVE

Editors

Olivier Cattaneo • Gary Gereffi • Cornelia Staritz





GLOBAL VALUE CHAINS IN A POSTCRISIS WORLD A DEVELOPMENT

Olivier Cattaneo Gary Gereffi, and Cornelia Staritz



PERSPECTIVE

© 2010 The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington, DC 20433 Telephone: 202-473-1000 Internet: www.worldbank.org

All rights reserved

1 2 3 4 13 12 11 10

This volume is a product of the staff of the International Bank for Reconstruction and Development / The World Bank. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgement on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development / The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; telephone: 978-750-8400; fax: 978-750-4470; Internet: www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street, NW, Washington, DC 20433, USA; fax: 202-522-2422; e-mail: pubrights@worldbank.org.

ISBN: 978-0-8213-8499-2 eISBN: 978-0-8213-8503-6 DOI: 10.1596/978-0-8213-8499-2

Library of Congress Cataloging-in-Publication Data

Global value chains in a postcrisis world: a development perspective / Olivier Cattaneo, Gary Gereffi, and Cornelia Staritz, editors.

p. cm.

Includes bibliographical references and index.

ISBN 978-0-8213-8499-2 — ISBN 978-0-8213-8503-6 (electronic)

1. International trade. 2. International economic relations. 3. Global Financial Crisis, 2008–2009. I. Cattaneo, Olivier. II. Gereffi, Gary. III. Staritz, Cornelia.

HF1379.G587 2010

337-dc22

2010031476

Cover images: © iStockphoto.com/Devonyu (Trade War); © iStockphoto.com/Wrangel (Golden Coins Texture) Cover design by Tomoko Hirata/World Bank

CONTRIBUTORS

Olivier Cattaneo, Trade and Integration team in the Development Research Group at the World Bank, Washington, D.C.

Hubert Escaith, Economic Research and Statistics Division at the World Trade Organization, Geneva

Masuma Farooki, Development Policy and Practice Department at the Open University, Milton Keynes, U.K.

Karina Fernandez-Stark, Center on Globalization, Governance, and Competitiveness at Duke University, Durham, N.C.

Stacey Frederick, Center on Globalization, Governance, and Competitiveness at Duke University, Durham, N.C.

Gary Gereffi, Center on Globalization, Governance, and Competitiveness at Duke University, Durham, N.C.

Raphael Kaplinsky, Development Policy and Practice Department at the Open University, Milton Keynes, U.K.

Momoko Kawakami, Institute of Developing Economies at the Japan External Trade Organization, Chiba, Japan

Nannette Lindenberg, Institute of Empirical Economic Research at the University of Osnabrück, Germany

William Milberg, Department of Economics at the New School for Social Research, New York, N.Y.

xiv Contributors

Sébastien Miroudot, Trade and Policy Linkages and Services Division in the Trade and Agriculture Directorate at the Organisation for Economic Co-operation and Development, Paris

Cornelia Staritz, International Trade Department in the Poverty Reduction and Economic Management Network at the World Bank, Washington, D.C.

Timothy J. Sturgeon, Industrial Performance Center at the Massachusetts Institute of Technology, Cambridge, Mass.

Anne Terheggen, Development Policy and Practice at the Open University, Milton Keynes, U.K.

Julia Tijaja, Development Policy and Practice at the Open University, Milton Keynes, U.K.

Johannes Van Biesebroeck, Center for Economic Studies at Katholieke Universiteit Leuven, Belgium

Deborah Winkler, International Trade Department in the Poverty Reduction and Economic Management Network at the World Bank, Washington, D.C.

FOREWORD

The global economic crisis of 2008–09 has revealed the interdependence of the world economy. The financial crisis originated in the United States, but the resulting economic downturn quickly spread to the rest of the world. Trade, along with finance, was one of the main vectors of transmission of the crisis. In 2009, there was a massive contraction in global trade—minus 13 percent. The contraction was largely a reflection of a drop in demand, especially for durable goods.

The fact that the shock was transmitted very rapidly reflects the increasing reliance by businesses on so-called global value chains (GVCs)—the process of ever-finer specialization and geographic fragmentation of production, with the more labor-intensive parts of the production process transferred to developing countries. In a world where GVCs are the prevalent business model for multinational corporations, a reduction in demand for final products by global buyers implies that demand shocks are immediately transmitted "upstream" to subcontractors in developing countries.

The studies that are collected in this volume analyze the operation and likely implications of the ongoing "rebalancing" of the world economy for global value chains. The studies suggest that the crisis will not reverse globalization; instead, in the postcrisis period, it is likely that there will be faster consolidation of GVCs and a shift in demand from the traditional high-income markets in the North to the rising economic powers in the South.

As discussed in the contributions, the shift in the center of gravity of global demand and the growth in South-South trade create a number of challenges. These include the need to adjust production to satisfy different consumer preferences in emerging markets, a greater emphasis on price competitiveness, as well as possibly greater hurdles for low-income countries to move up the value chain given the structure of demand for—and supply of—exports by high-growth emerging markets.

The chapters collected in this book offer a comprehensive, in-depth analysis of one of the major drivers of global integration, shedding new light on recent

xvi Foreword

developments and likely trends in the prospects for global production sharing going forward.

I am very grateful to the volume editors—Olivier Cattaneo, Gary Gereffi, and Cornelia Staritz—for their initiative in organizing the contributed chapters and to the Global Trade and Financial Architecture project (supported by the U.K. Department for International Development) that provided financial support for the effort.

Bernard Hoekman Director, International Trade Department Poverty Reduction and Economic Management Network World Bank

ACKNOWLEDGMENTS

After the May 2009 London Summit, where leaders of the Group of Twenty designed a global plan for recovery and reform, the World Bank brought together researchers and trade policy practitioners to analyze responses to the global economic crisis of 2008–09 and their impact on trade and development. This work led to the 2009 publication of a first volume on the responses of national governments to the crisis—*Effective Crisis Response and Openness: Implications for the Trading System*, edited by Simon J. Evenett, Bernard Hoekman, and Olivier Cattaneo. This second volume focuses on business responses to the recent economic crisis.

The editors are grateful for the dedicated way in which the authors delivered, under serious time constraints, far more than we could have reasonably expected. The fast and constant evolution of the economic situation, from crisis to recovery, increased the difficulty, but also the value, of their task. At the time this volume was edited, the fate of the world economy was still uncertain, and the timid signs of recovery should not distract us from the revealed problems and changes prompted by the crisis.

The editors thank Bernard Hoekman, Director of the International Trade Department at the World Bank, for his guidance and support throughout the project. Michelle Chester and Rebecca Martin provided outstanding administrative support. They also acknowledge the impetus of the BIS-DFID (Department for Business Innovation and Skills—Department for International Development) Joint Trade Policy Unit that has been decisive in the launch of the project.

Analysis of the reactions to the crisis was part of the Global Trade and Financial Architecture (GTFA) project. Designed to build on the findings of the U.N. Millennium Task Force report on *Trade for Development*, GTFA is led by a steering committee of leading researchers and policy makers and cochaired by Ernesto Zedillo, Yale Center for the Study of Globalization, and Patrick Messerlin, Groupe d'Economie Mondiale de SciencesPo. GTFA's objectives are to identify and promote concrete policy options for reinvigorating and strengthening

xviii Acknowledgments

the multilateral economic system and institutions that have supported the process of globalization. A particular focus of the work, sponsored by DFID and managed by the World Bank, is on making the globalization process more sustainable and inclusive.

The views expressed in this volume are those of the authors and do not represent a position, official or unofficial, of the World Bank, GTFA, or the authors' organizations of affiliation.

Reference

Evenett, Simon J., Bernard Hoekman, and Olivier Cattaneo, eds. 2009. Effective Crisis Response and Openness: Implications for the Trading System. London: Centre for Economic Policy Research (CEPR) and World Bank.

ABBREVIATIONS

\$ All dollar amounts are U.S. dollars unless otherwise indicated

ARDL autoregressive distributed lag

ASEAN Association of Southeast Asian Nations
ASICS application-specific integrated circuits
ATC Agreement on Textiles and Clothing

BCG Boston Consulting Group
BEC Broad Economic Category

BIOS board-level operating system (also basic input-output system)

BPO business process outsourcing

BRIC Brazil, Russia, India, and China (economies)

CAD computer-aided design

CAFTA Central American Free Trade Agreement

CAGR compound annual growth rate

CAP Common Agricultural Policy (European Union)

CEEC Central and Eastern European Countries

CGE computable general equilibrium

CGGC Center on Globalization, Governance, and Competitiveness

CMT cut, make, and trim

CNC computer numerical control (also computer-controlled)

CPU central processing unit CSF critical success factor

CSR corporate social responsibility

DR-CAFTA Dominican Republic and Costa Rica, El Salvador, Guatemala,

Honduras, and Nicaragua, member countries in the Central

American Free Trade Agreement

ECM error correction model

EIU Economist Intelligence Unit
EMS electronics manufacturing services

xx Abbreviations

EPZ export processing zone

EU 15 European Union 15 members (before 2004) (Austria, Belgium,

Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the

United Kingdom)

EU 27 European Union 27 members (Austria, Belgium, Bulgaria, Cyprus

[Greek part], Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania,

Slovakia, Slovenia, Spain, Sweden, and the United Kingdom)

FDI foreign direct investment

FLEGT Forest Law Enforcement, Governance and Trade Programme

(European Union)

FOB free-on-board

FSC Forest Stewardship Council

FTA Free Trade Agreement
GDP gross domestic product

GMP Good Manufacturing Practice
GSP Generalized System of Preferences
GTAP Global Trade Analysis Project

GVC global value chain

HACCP Hazard Analysis and Critical Control Point certification

HHI Herfindahl-Hirschman Index

IC integrated circuit

ICT information and communication technology

IDE-JETRO Institute of Developing Economies-Japan External Trade

Organization

IDH independent design house IDM integrated device manufacturer IMF International Monetary Fund

IMVP International Motor Vehicle Program

I-O input-output

IRF impulse response function

ISO International Organization for Standardization

JV joint venture

KPO knowledge process outsourcing

LDC less developed country

MDG Millennium Development Goal MFA Multi-Fibre Arrangement

MIG manufactured intermediate goods

MNC multinational corporation
MNE multinational enterprise

NAFTA North American Free Trade Agreement NBER National Bureau of Economic Research

n.e.s. not elsewhere specified

OBM original brand manufacturing ODM original design manufacturing

OECD Organisation for Economic Co-operation and Development

OEM original equipment manufacturing

OLB Origine et Légalité des Bois

OPT outward processing trade arrangement (European Union)

PND portable navigation device
PPP purchasing power parity
QCD quality, cost, delivery
R&D research and development
RMG ready-made garments
ROW rest of the world

SAFTA South Asian Free Trade Area

SITC Standard International Trade Classification

SOC system-on-chip technology

UNITAD United Nations Conference on Trade and Development UNIDO United Nations Industrial Development Organization

USITC United States International Trade Commission

WDI World Development Indicators

WEO World Economic Outlook

WITS World Integrated Trade Solution
WOS wholly owned foreign subsidiary
WTO World Trade Organization

YTY year-to-year

CONTENTS

	Contributors	xii
	Foreword	X۱
	Acknowledgments	xvi
	Abbreviations	xix
Part I	INTRODUCTION AND OVERVIEW	1
1	Global Value Chains in a Postcrisis World: Resilience, Consolidation, and Shifting End Markets Olivier Cattaneo, Gary Gereffi, and Cornelia Staritz	3
Part II	THE CRISIS AND TRENDS IN GLOBAL TRADE, DEMAND, AND PRODUCTION	21
2	Trade, Crisis, and Recovery: Restructuring Global Value Chains William Milberg and Deborah Winkler	23
3	Global Value Chains and the Crisis: Reshaping International Trade Elasticity? Hubert Escaith, Nannette Lindenberg, and Sébastien Miroudot	73
4	Global Value Chains, the Crisis, and the Shift of Markets from North to South Raphael Kaplinsky and Masuma Farooki	125
Part III	GLOBAL VALUE CHAINS AND DEVELOPING COUNTRIES POSTCRISIS: SECTORAL PERSPECTIVES	155
5	The Global Apparel Value Chain, Trade, and the Crisis: Challenges and Opportunities for Developing Countries Gary Gereffi and Stacey Frederick	157

vi Contents

6	Effects of the 2008–09 Crisis on the Automotive Industry in Developing Countries: A Global Value Chain Perspective Johannes Van Biesebroeck and Timothy J. Sturgeon	209
7	Global Value Chains in the Electronics Industry: Was the Crisis a Window of Opportunity for Developing Countries? Timothy J. Sturgeon and Momoko Kawakami	245
8	What Happens When the Market Shifts to China? The Gabon Timber and Thai Cassava Value Chains Raphael Kaplinsky, Anne Terheggen, and Julia Tijaja	303
9	The Offshore Services Value Chain: Developing Countries and the Crisis Gary Gereffi and Karina Fernandez-Stark	335
	Index	373

	Contents	VII
Boxes		
3.1	Trade Elasticities	70
3.2	Offshoring, Outsourcing, and the Measure of	76
J.2	Vertical Integration	80
8.1	Standards Governing Production in the Thai Cassava GVC	308
8.2	Standards Governing Production in the Thai Cassava GVC Standards Governing Access to EU and Other Markets	300
0.2	in the Organisation for Economic Co-operation and Development	320
	in the organisation for Beolionic Go operation and Development	320
Figure	S	
2.1	U.S. and EU 27 Goods and Services Imports	24
2.2	Exports from Low- and Middle-Income Countries	27
2.3	Goods Exports from Low- and Middle-Income Countries	
	by Product Category, 1970–2008	28
2.4	U.S. Goods and Services Imports Growth,	
	August 2008–December 2009	32
2.5	U.S. Income Elasticities and Incremental Import-GDP Ratios,	
	First Quarter 1970 to Third Quarter 2008	34
2.6	Quarterly U.S. Goods Import Growth Rates during	
	the Past Three Crises: 1990, 2001, and 2007	40
2.7	EU 27 Goods Imports by Product Category, Ranked by	
	August 2009 Growth	43
2.8	U.S. and EU 27 Goods Imports of Top-Five Importers	44
2.9	Goods Exports of Low- and Middle-Income Countries, 2009	46
2.10	Herfindahl-Hirschman Index by Standard International	
	Trade Classification, 1970–71 to 2007–08	49
2.11	Vertical Consolidation of Global Value Chains	52
2.12	Horizontal Consolidation of Global Value Chains	53
2.13	Herfindahl-Hirschman Index by Broad Economic Category,	
	Ranked by 2007–08 Growth Rate	55
2.14	Export Growth and Herfindahl-Hirschman Index	
	Growth by Broad Economic Category, 2007–08	56
2.15	South-South Trade by Broad Economic Product Category,	
	1970–2009	60
2A.1	World Exports by Region, 1970–2007	62
2C.1	U.S. Goods Imports by Product Category, Ranked by	
	Fourth-Quarter 2009 Growth	64
2D.1	U.S. Services Imports by Service Category, Ranked by	
	Fourth-Quarter 2009 Growth	65
3.1	World Merchandise Exports and GDP, 1960–2009	75
3.2	Worldwide GDP Elasticity of Imports, 10-Year	
	Rolling Window, 1980–2009	77
3.3	Asia and the United States—Export Orientation and	
	Imports of Intermediate Goods: 1990, 1995, 2000, and 2008	89

viii Contents

3.4	Change in World Production and GDP Response, 1980–2009	94
3.5	GDP Elasticity of Imports: Clusters Based on	
	Elasticity Patterns, 1989–2009	98
3.6	GDP Elasticity of Imports, 10-Year Rolling Window:	
	Hypothesis of Clusters Based on Export Specialization,	
	1980–2009	99
3.7	GDP Elasticity of Imports: Hypothesis of Clusters	
	Based on Regions, 1989–2009	101
3.8	Impulse Response Function: Impact of an Exogenous	
	Decrease in GDP on Trade in 24 OECD Countries	108
3A.1	GDP Elasticity of Imports: Export Specialization	
	(Main Product)	116
4.1	China's Intensity of Metals and Minerals Exports in	
	Total Manufactures Exports, 1990–2006	141
4.2	Disposable Income Brackets of Households in China,	
	India, Russian Federation, and Brazil, 2002–07	143
4.3	Per Capita Consumption of Base Metals, 1960-2005	144
5.1	Types of Lead Firms in the Global Apparel Value Chain	177
5A.1	Shifts in Regional Structure of U.S. Apparel Imports,	
	1996–2008	203
5A.2	Shifts in Regional Structure: EU 15 Apparel Imports,	
	1996–2008	204
5A.3	Industrial Upgrading by Asian Economies in the	
	Apparel Value Chain	205
6.1	Supplier Defect Rates for New-Generation Lead Firms	235
7.1	World Imports of Intermediate, Capital, and Consumption	
	Goods, 1962–2006	252
7.2	Position of the Guadalajara Electronics Cluster in	
	Electronics GVCs	270
7.3	Guadalajara "High-Tech" Employment and Exports,	
	1996–2009	271
7.4	Taiwan, China's Production of Desktop and Notebook PCs,	
	1986–2006	277
7.5	Value Capture in Notebook PC GVC in Three Competitors	279
8.1	Thailand's Share in World Cassava Exports, 1961–2007	304
8.2	Domestic Dried Cassava and Cassava Starch Value Chains	
	in Thailand	305
8.3	Thai Dried Cassava Exports to Main Destinations, 1999-2008	310
8.4	Thai Cassava Export Composition, 1976–2009	311
8.5	Composition of Thai Cassava Starch Exports to China, 2001–06	311
8.6	Domestic Timber GVC in Gabon	316
8.7	Production Volumes of Selected Wood Products in Gabon,	
	1990–2007	317

8.8	Gabon's Exports of Logs and Processed Wood Products to	
	France, 1997–2006	318
8.9	China's Imports of Logs and Selected Wood Products,	
	1970–2007	321
8.10	EU and Chinese Buyers' Requirements: Wood Logs	322
8.11	EU and Chinese Buyers' Requirements: International	
	Regulations and Standards	323
8.12	Chinese and French Tropical Wood Product Import	
	Structures from Gabon: Log and Wood Product Volumes,	
	1997–2006	324
8.13	Log and Wood Product Demand Distribution for China,	
	France, and the EU 27 Countries, 1997–2006	327
9.1	Business Models in Outsourcing and Offshore Services	337
9.2	The Offshore Services Global Value Chain	339
9.3	Global Demand for Offshore Services, by Activity, 2005–10	344
9.4	Actual and Potential Adoption of Offshore Practices	349
9.5	How Firms Respond to the Economic Crisis	352
9.6	Changes in Key Drivers of Offshoring Decisions,	
	November 2008	353
9.7	India's Offshore Services Industry Growth Rate, 2006-09	366
Maps		
7.1	Celestica's Global Operating Footprint, 2001	267
9.1	Global Supply and Demand for Offshore Services	346
Tables		
2.1	Goods and Services Offshoring Intensities in Selected	20
	Countries, 1991 versus 2006	29
2.2	"Crisis" versus Long-Run Income Elasticities of	2.0
2.2	U.S. Import Demand	36
2.3	U.S. Sectoral Import Shares by Top-10 Importers,	
an 1	January–September 2008 versus January–September 2009	57
2B.1	Classification of Sectors by Broad Economic Category	63
2E.1	U.S. Import Elasticities, 1999–2008	67
3.1	Quarterly Growth of World Manufactures Exports	70
2.2	by Product, First Quarter 2008 to Fourth Quarter 2009	79
3.2	Asia and the United States: Annual Growth of	or
2.2	Intermediate Inputs and Exports, 1990–2008	85
3.3	Asia and the United States: Changes in Exports	0-
2.4	and Imported Inputs Elasticity, 1990–2008	87
3.4	Share of Value-Added and Imported Inputs, 1990–2008	90
3.5	Asia and the United States: Imported Inputs Coefficients, 2008	93
3.6	Estimation of the Error Correction Model and	10
	Long-Run Trade Elasticity for 24 OECD Countries	104

Contents