EE

Patricia Sourdin • Richard Pomfret

Trade Facilitation

Defining, Measuring, Explaining and Reducing the Cost of International Trade

Trade Facilitation

Defining, Measuring, Explaining and Reducing the Cost of International Trade

Patricia Sourdin

The Johns Hopkins University Bologna Center, Italy

and

Richard Pomfret

University of Adelaide, Australia

Edward Elgar

Cheltenham, UK • Northampton, MA, USA

Published by
Edward Elgar Publishing Limited
The Lypiatts
15 Lansdown Road
Cheltenham
Glos GL50 2JA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Control Number: 2011936416

MIX
Paper from responsible sources
FSC® C018575

ISBN 978 0 85793 742 1

Typeset by Servis Filmsetting Ltd, Stockport, Cheshire
Printed and bound by MPG Books Group, UK

Trade Facilitation

Tables

2.1	Time–cost comparison for two routes from Vientiane, 2003	20
2.2	Average trade costs (cif–fob gap), Australian, Brazilian, Chilean and US imports, 1990–2008	34
2.3	Average *ad valorem* trade costs by exporting country; Australian, Brazilian and US imports, 2008	37
2.4	Average *ad valorem* trade costs, EU member countries exports	38
2A.1	Average trade costs (cif–fob gap) by trading partner: Australian, Brazilian, and US imports, 2008	41
3.1	Merchandise imports by country, 2009; million US dollars	47
3.2	Average trade costs by country, Australian import data, 2007	50
3.3	Baseline regressions, 2007 data	56
3.4	Baseline regressions, 1998–2007 data	59
3.5	Regression by HS 2-digit industry, 1998–2007 data	63
3.6	HS 2-digit industries in which institutions are significant determinants of trade costs	67
4.1	*Logistics Performance Index* by region, income groups and selected importers	78
4.2	*Enabling Trade Index* and infrastructure quality index, 2008	79
4.3	*Doing Business*: trading across borders, by region and selected importers	81
4A.1	Gravity models of bilateral imports and logistics measures	92
4A.2	Gravity models using customs data for Australia, Brazil, Chile and United States	94
4A.3	Aggregate gravity regressions for seaborne trade using the World Bank's *Doing Business* metrics	98
4A.4	Exporting country logistics index value and value of exports to Australia, Brazil, Chile and United States for 2008	99
4A.5	Correlation between World Bank's LPI logistics metrics	105
4A.6	Correlation between GCR infrastructure indices	107
4A.7	Correlation between GCR *Enabling Trade* indices	108
5.1	French manufactured exports by wholesalers and by direct exporters, 2007	111

5.2	Shipment size by mode of transport, USA 2005	113
7.1	Landlocked countries	126
7.2	Trade agreements in effect in East Asia in 2011	131

Abbreviations

ALADI	Asociación Latinoamericana de Integración/Associação Latino-Americana de Integração
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System for Customs Data
BTI	Base de datos de Transporte Internacional (of CEPAL)
CAREC	Central Asian Regional Economic Cooperation
CEPAL	Comisión Económica para América Latina y el Caribe – UN Economic Commission for Latin America and the Caribbean
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales (Paris)
CGE	computable general equilibrium
cif	cost insurance freight
COMTRADE	United Nations Commodity Trade Statistics Database
DB	*Doing Business* (report published by the World Bank)
ERIA	Economic Research Institute for ASEAN and East Asia
ES	Employment Surveys (by the World Bank)
ESCAP	Economic and Social Commission for Asia and the Pacific (of the UN)
ETI	*Enabling Trade Index* (published by the World Economic Forum)
EU	European Union – preceded by European Communities; EU15 refers to membership of 15 countries after the 1995 enlargement
fob	free on board
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GCR	Global Competitiveness Report (published by the World Economic Forum)
GDP	gross domestic product
GMS	Greater Mekong Subregion
HS	The Harmonized Commodity Description and Coding

	System of tariff nomenclature (developed and maintained by the WCO)
ICC	International Chamber of Commerce
ICT	information and communication technology
ISO	International Organization for Standardization
LPI	*Logistics Performance Index* (published by the World Bank)
OECD	Organisation for Economic Co-operation and Development
RTA	regional trade agreement
Sijori	Singapore, Johor and Riau
SITC	Standard International Trade Classification
SPS	Sanitary and Phytosanitary (WTO Code on SPS measures)
TBT	Technical Barriers to Trade (WTO Agreement on TBT)
TF	trade facilitation
TIR	Transports Internationaux Routiers
TRS	Time Release Study (of the WCO)
UN	United Nations
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UN-OHRLLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States
WCO	World Customs Organization
WEF	World Economic Forum
WTO	World Trade Organization

$ refers to US dollars unless otherwise stated.

Preface

> Even though trade costs are currently of great interest, little is known about the magnitude, determinants, and consequences of trade costs.
>
> Jacks et al., 2009, p. 3

This book is about measuring and explaining the size of trade costs, which is a separate question from theorizing about or estimating the consequences of trade costs, although the two literatures obviously overlap. Chapters 2 and 3 primarily report our own published work, drawing conceptually on the seminal paper by David Hummels (2007) advocating the cif–fob measure of trade costs and utilizing the relatively scarce appropriate national trade statistics. We are grateful to the School of Economics at the University of Adelaide for purchasing the data on which our cif–fob calculations are based. Patricia Sourdin also contributed to companion papers written for various research projects at the Organisation for Economic Co-operation and Development (OECD), coordinated by Jane Korinek; at the Economic Research Institute for ASEAN and East Asia (ERIA), coordinated by Misa Okabe and So Umezaki; and for Asia-Pacific Economic Cooperation (APEC), coordinated by Christopher Findlay.

Papers developing the methodology and presenting our results have been presented at workshops and conferences organized by the International Economics Association in Istanbul (2008), the American Committee on Asian Economic Studies in Rimini (2008), the Forum for Research in Empirical International Trade in Melbourne (2009), the Economic Research Institute for ASEAN and East Asia in Jakarta (2010), and the European Trade Study Group in Lausanne (2010), as well as in seminars at the Universities of Adelaide, South Australia and Western Australia, Curtin University, Monash University, Ruhr-Universität Bochum, Sciences Po Paris, Università di Trento and the Australian National University. We are grateful for comments received from participants.

Some parts of this book draw on our past work published in the following articles:

- 'Have Asian trade agreements reduced trade costs?' *Journal of Asian Economics,* **20** (3), May 2009, 255–68.
- 'Trade facilitation and the measurement of trade costs', *Journal of International Commerce, Economics and Policy,* **1** (1), April 2010, 145–63.
- 'Why do Trade Costs Vary?' *Review of World Economics (Weltwirtschaftliches Archiv),* **146** (4), December 2010, 709–30.

We are grateful to the publishers for permission to use this material and to reprint some of the figures.

Contents

List of figures	vi
List of tables	vii
List of abbreviations	ix
Preface	xi
1. Introduction	1
2. Measurement	18
3. Explanations	45
4. Logistics and trade costs	71
5. Intermediaries in trade	109
6. Corruption and trade costs	118
7. Policy issues	123
8. Conclusions	140
Bibliography	144
Index	163

Figures

1.1	The price wedge in a small country	7
1.2	Trade costs on an imported good with no domestic production	8
2.1	Time–cost comparison for two routes from Vientiane, 2003	21
2.2	Time release study for sea and air cargoes in Japan	23
2.3	Average trade costs (cif–fob gap); Australian, Brazilian, Chilean and US imports, 1990–2008	35
2.4	Distribution of trade costs; Australian, Brazilian and US imports, 2008	36
3.1	Average trade costs, Australian imports, 1990–2007	49
3.2	*Ad valorem* trade costs, adjusted for exporter–commodity effects, 1990–2007	52
4.1	Cost saving to Korean firms due to trade facilitation reforms	76
7.1	Trade costs for ASEAN-5 countries, 1990–2007	130

1. Introduction

A striking feature of the world trading system in the half century between 1945 and 1995 was the dramatic decline in formal trade taxes, quantitative restrictions and other non-tariff barriers to international trade. Much of this was carried out under the General Agreement on Tariffs and Trade (GATT), which provided a set of agreed rules governing trade among its signatories, whose number increased from 23 in 1947 to 123 in 1994, when the World Trade Organization (WTO) superseded GATT as an international organization.[1] At the same time, substantial reductions in transport costs, such as containerization and improved jet aircraft, and in logistics also contributed to the rapid growth of trade.

Despite these changes, international trade remains more costly than domestic trade, and emphasis has turned to other costs of international trade. The issue was highlighted in the 1990s by research on the border effect, the mystery of missing trade, and puzzles in international economics. John McCallum (1995) showed that, despite the openness of the USA–Canada border, trade between a US state and a Canadian province is substantially lower than between two states or two provinces, other things equal; in 1988, British Columbia's exports to Ontario were $1400 million and to Texas $155 million, for example, even though Texas and Ontario are equidistant from British Columbia and the Texan economy was 50 per cent larger than that of Ontario. A border effect of this magnitude was striking because the two countries had reduced tariff barriers to very low levels, the USA–Canada border was one of the most open in the world, and cultural differences between the two countries were small.[2] In another

[1] The WTO, established on 1 January 1995, incorporated the GATT as its umbrella treaty for trade in goods, updated as a result of the Uruguay Round negotiations and supplemented by other agreements such as the General Agreement on Trade in Services (GATS). The WTO provided a formal institutional structure with dispute settlement procedures. In 2011 the WTO had 153 members. Most non-members had observer status and were negotiating accession; the only exceptions are Turkmenistan, North Korea and some micro-states.

[2] The differences in bilateral trade flows, depending on whether the international border is crossed or not, are substantial and robust to specifications (John Helliwell, 1998; Howard Wall, 2000). Charles Engel and John Rogers (1996) found large border effects on the basis of price dispersion, claiming that crossing the border is equivalent to adding 75 000 miles to the distance between two North American cities, but Yuriy Gorodnichenko and Linda

striking empirical study, Daniel Trefler (1995) found that the level of international trade was far below that predicted by standard trade models. In an influential paper that appeared at the end of the 1990s, Maurice Obstfeld and Kenneth Rogoff (2000) argued that the six major problems in international economics could all be explained by home country bias.

These studies suggested that there are significant obstacles to international trade over and above the costs of domestic trade, and that the added costs are not explained by traditional trade barriers such as tariffs or quotas on imports. The difference between the costs of domestic and international trade, other than those costs related to traditional trade policy instruments such as import duties, came to be referred to as trade costs. Reduction in trade costs, or trade facilitation, began to feature explicitly in international trade negotiations, such as the Doha Development Round, and in regional or bilateral trade agreements.[3]

The studies in the 1990s did not provide any guide to the magnitude of the obstacles or to the reasons why international trade should be more difficult or costly than domestic trade. In an article simply called 'Trade costs', James Anderson and Eric van Wincoop (2004) publicized the potentially large costs of trading internationally. They estimated that in the high-income countries trade costs amount on average to a 170 per cent *ad valorem* barrier to trade, and that tariffs and non-tariff barriers account for less than a fifth of the 44 per cent at-the-border trade costs. Although widely quoted, the headline figure of 170 per cent is based on an extremely broad definition of trade costs: all the costs of getting a good to the final user apart from the marginal cost of producing the good itself. Moreover, the empirical base for their estimates relied on indicative case studies or indirect evidence from gravity models.

An alternative approach, reported in a number of World Bank studies, breaks down trade costs into various components and estimates their impact on trade with a gravity model. John Wilson, Catherine Mann and Tsunehiro Otsuki (2003) use four broad trade facilitation indicators, and find that port efficiency has the largest positive effect on trade flows, regulatory barriers deter trade, and customs environment and e-business

Tesar (2009) show that their results are driven by price heterogeneity among cities within the USA and within Canada. Carolyn Evans (2001) estimated that McCallum's border effect can be decomposed into the imperfect substitutability of domestic and foreign goods (20 per cent), traditional trade barriers (34 per cent) and other transactions costs of crossing the border (46 per cent).

[3] Some trade-facilitating measures had been part of the original GATT, or featured in the work of other institutions such as the World Customs Organization, or appeared in regional trade agreements such as the European Single Market, but trade facilitation became identified more explicitly as a component of trade policy negotiations after the turn of the century.

usage are statistically significant but less important. Simulating a scenario in which Asia-Pacific countries with below-average port efficiency improve to half the Asia-Pacific Economic Cooperation (APEC) average, they estimate that intra-APEC trade would increase by $254 billion a year. This result suggests that the impact of trade facilitation on international trade flows could be large, but it does not provide any guide to the magnitude of trade costs.

Since these pioneering quantitative studies, much work has been done on conceptualizing trade costs. An important part of the agenda is to design agreed measures of trade costs that can be used, among other things, to assess implementation of trade facilitation measures.[4] It is also desirable to have agreement on the nature of trade costs in order to understand why trade costs exist and why they are high. Finally, measurement and understanding can contribute to the policymaking process by highlighting where the greatest reductions in trade costs are possible and likely.

DEFINITIONS

We define trade facilitation as a reduction in trade costs. Trade costs refer to the difference between the costs of domestic and international trade other than those costs related to traditional trade policy instruments such as import duties. Trade costs include transport costs and the costs of clearing borders, but there is a grey area concerning which behind-the-border costs should be included in a measurement of trade costs.

The narrowest definitions restrict trade facilitation to customs and other border operations, in practice to at-the-border measures. The World Customs Organization (WCO) definition of trade facilitation is associated with its mission, which is 'to enhance the efficiency and effectiveness of Customs administration by harmonizing and simplifying Customs procedures'.[5] The WCO, established in 1952 and now with 176 members, is

[4] A parallel can be drawn with international negotiations on agricultural trade, which was a notorious exception to the pre-1995 trade liberalization within GATT. Agreeing on appropriate aggregate measures of barriers to trade in agricultural goods, such as the producer subsidy equivalents developed by the Organisation for Economic Co-operation and Development, facilitated negotiations compared to when trade negotiators had to deal with a heterogeneous bundle of country-specific restrictions on agricultural trade. On its own, agreement on measurement was not enough to produce rapid liberalization of agricultural trade, but it did eliminate many fruitless arguments about which practices and policies were the biggest obstacles to trade.

[5] The online definition (at http://www.wcoomd.org/home_pfoverviewboxes_pfoverview.htm) goes on to say, in a circular fashion, 'In order to further trade facilitation, the WCO has developed and maintained Conventions, standards and programmes and provided technical assistance and support for capacity building. Through these instruments and

the intergovernmental organization most clearly focused on facilitation of international trade. Its work includes the development of global standards, simplification and harmonization of customs procedures, trade supply chain security, enhancement of customs enforcement and compliance activities, anti-counterfeiting and piracy initiatives, integrity promotion, and sustainable global customs capacity building programmes. The WCO also maintains the international Harmonized System of goods nomenclature, and administers the technical aspects of the WTO Agreements on Customs Valuation and Rules of Origin. Even the WCO, with its focus on customs operations would, however, recognize the need for coordination at the border between customs, quarantine and other agencies (integrated border management) and the desirability of coordination between the border countries' exit and entry posts (one-stop).

The definitions used by Asia-Pacific Economic Cooperation (APEC) and the International Chamber of Commerce (ICC) also focus on at-the-border processes and procedures, related to preparation of customs and trade documents, customs clearance procedures, border control and release.[6] The APEC Second Trade Facilitation Action Plan in 2008 defined trade facilitation as:

> The simplification and rationalization of customs and other administrative procedures that hinder, delay or increase the cost of moving goods across international borders.

A 2007 paper prepared by the ICC Commission on Customs and Trade Regulation advocating an International Trade Facilitation Agreement as an outcome of the Doha Development Round included the statement:

> ICC has long advocated a trade facilitation agreement with mutually-agreed rules for trade procedures that will improve the efficiency of managing the movement of goods across national borders.

although the ICC does also address a wide range of behind-the-border issues under other headings.

The definitions used by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and the OECD reflect a broader

activities, its Member Customs administrations have been able to offer their governments and other stakeholders enhanced trade facilitation combined with effective Customs control'.

[6] Both of the quoted documents are available online. The APEC Second Trade Facilitation Action Plan is at http://www.apec.org/Groups/~/media/Files/Groups/CTI/07_2ndTFAP_fnl.ashx and the ICC report is at http://www.iccwbo.org/policy/customs/id16114/index.html.

approach to trade facilitation, covering international trade procedures and associated information flows and payment along the entire supply chain. These definitions include some behind-the-border measures such as standards and conformity assessment measures, business facilitation, e-commerce, trade finance and logistics services.[7]

The scope of the UN/CEFACT definition derives from the UN/CEFACT Buy–Ship–Pay Model, which identifies three processes involved in international trade. 'Buy' groups the activities of identifying a potential trading partner, establishing a business agreement and placing an order. 'Ship' is broken down into five activities, from preparing for export, export, transport, to preparing for import and import itself. 'Pay' represents the payment activity from buyer to seller. The Buy–Ship–Pay Model suggests the application of a total transaction approach to trade facilitation encompassing both at-the-border and other processes involved in international trade.

World Trade Organization trade facilitation negotiations focus on rules to define permissible and non-permissible trade-related procedures. Accordingly, the WTO's definition of the scope of trade facilitation refers to administrative processes at the border which are the focus of trade negotiations in the WTO (Philippa Dee, Christopher Findlay and Richard Pomfret, 2008). However, the WTO also deals with aspects of trade facilitation covered by other Agreements, such as Technical Barriers to Trade (TBT) or Sanitary and Phytosanitary (SPS) measures, and some behind-the-border trade-related services are covered by the General Agreement on Trade in Services (GATS).

According to the World Bank, trade facilitation has both narrow and broad definitions. In a narrow sense, trade facilitation simply addresses the transportation logistics and customs administration associated with cross-border trade. In a broad sense, it covers the environment in which trade transactions take place, which includes the transparency of trade policy and regulation, as well as product standards, infrastructure to support trade, and technology as it applies to lowering trade costs.

Irrespective of how one defines trade facilitation, its ultimate objective is to ease the movement of goods between buyer and seller across international borders. A broad definition is more economically meaningful because it holistically captures all costs involved in the international trade transaction. The Anderson and van Wincoop approach of including all the costs of getting a good to the final user apart from the marginal cost of

[7] An example of a broad approach by the OECD is the statement that 'Trade facilitation covers all the steps that can be taken to smooth and facilitate the flow of trade' (Michael Engman, 2005).