

The Structure of WIOD

WORLD INPUT-OUTPUT Database

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Main Source of this Presentation

- Timmer(2010) “WIOD:WORLD INPUT-OUTPUT DATABASE construction and applications” World KLEMS conference Slides
- Timmer, et al.(2014) “Incomes and Jobs in Global Production of Manufactures” World KLEMS conference Slides
- Erik Dietzenbacher , Bart Los , Robert Stehrer , Marcel Timmer & Gaaitzen de Vries (2013) “The Construction of World Input–output Tables in the WIOD Project”, Economic Systems Research, 25:1, 71-98

World Input-Output Database

(www.wiod.org)



WIOD

Production processes increasingly fragment across borders. This fundamentally alters the nature of international trade with deep consequences for the location of production. The World Input-Output Database (WIOD) is the first public database that contains new information on these trends and provides the opportunity to analyse the consequences of fragmentation, for example for shifting patterns in demand for skills in labour markets, or for local emissions of air pollutants. The World Input-Output Database (WIOD) provides time-series of world input-output tables for forty countries worldwide and a model for the rest-of-the-world, covering the period from 1995 to 2011. These tables have been constructed in a clear conceptual framework on the basis of officially published input-output tables in conjunction with national accounts and international trade statistics. In addition, the WIOD provides data on labour and capital inputs and pollution indicators at the industry level that can be used in conjunction enlarging the scope of possible applications.

When using this database, a reference should be made to the following paper:

- 2. Marcel P. Timmer (ed) (2012), "The World Input-Output Database (WIOD): Contents, Sources and Methods", WIOD Working Paper Number 10, downloadable at <http://www.wiod.org/publications/papers/wiod10.pdf>

This paper provides an overview of the contents, sources and methods used in compiling the World Input-Output Database:

WIOD main data tables

Data type	Description
World Input-Output Tables	World Input-Output Tables including 40 countries and a model for the rest of the world.
National Input-Output Tables	National input-output tables based on the world input-output tables.
Socio-Economic Accounts	Data on employment (number of workers and educational attainment), capital stocks, gross output and value added at current and constant prices at the industry level.
Environmental Accounts	Data on energy use, CO ₂ emissions and emissions to air at the industry level.

WIOD characteristics

- Supply and use tables as the basis
- Time-series benchmarked on National Accounts data
- Explicit attention for (trade in) services
- Constant price tables
- Satellite accounts (socio-economic and environmental)
- Based on official statistics with maximum of transparency in calculations

WIOD: Data and Coverage

- SUTs and IOTs in current and constant prices
 - Harmonized national supply and use tables (purchasers' and basic price)
 - Bilateral trade flows of goods and services
 - Inter-country SUTs
 - Inter-country IO tables
- Socio-economic accounts : labour and capital types
- Environmental accounts : energy, air emissions, natural resources

The tables in the WIOD-database will cover period from 1995 to 2011:

- 27 EU countries and 13 other major countries
- 35 industries
- Last updated Nov. 2013

List of Countries

- EU-27
- plus 13 non-EU:
 - Canada
 - United States
 - Brazil
 - Mexico
 - Turkey
 - Russia
- ROW
 - China
 - India
 - Japan
 - South Korea
 - Taiwan
 - Indonesia
 - Australia

Overview of DBs

DB	Institution	Source	C	I	Years	Web
WIOD	11 Consortium, EU funded	National SUT	40	35	1995-2011	www.wiod.org
Inter-Country-Input-Output model (ICIO)	OECD	National IOT	40	18	1995,2005,2008,2009	www.oecd.org
Asian International I-O tables	IDE-JETRO	National accounts and firm surveys	10	76	1975, 1980, 1985, 1990, 1995, 2000, 2005	http://www.ide.go.jp/English/Research/Topics/Eco/lo/
GTAP	Purdue Univ.	Contributions from individual researchers and organizations	129	57	2004, 2007	https://www.gtap.agecon.purdue.edu/
UNCTAD-Eora GVC Database	UNCTAD/Eora	National Supply- Use and I-O tables, and I-O tables from Eurostat, IDE-JETRO and OECD	187	25–500	1990–2010	http://worldmrio.com/

Source: UNCTAD (2013) **World Investment Report 2013**

Structure of national supply and use table

	Supply product	Intermediate use industry	Domestic final use C I G		Total
country A product			Domestic final use	Exports	Total use by product
country A industry	Domestic supply				Total output by industry
	Imports	Gross value added			
Total	Total supply by product	Total input by industry			

Structure of national supply and use table

	Supply product	Intermediate use industry	Domestic final use C I G		Total
country A			Domestic final use	Exports	Total use by product
country A	Domestic supply				Total output by industry
	Imports				
		Labour by type			
		Capital by type			
		Profit			
Total	Total supply by product	Total input by industry			

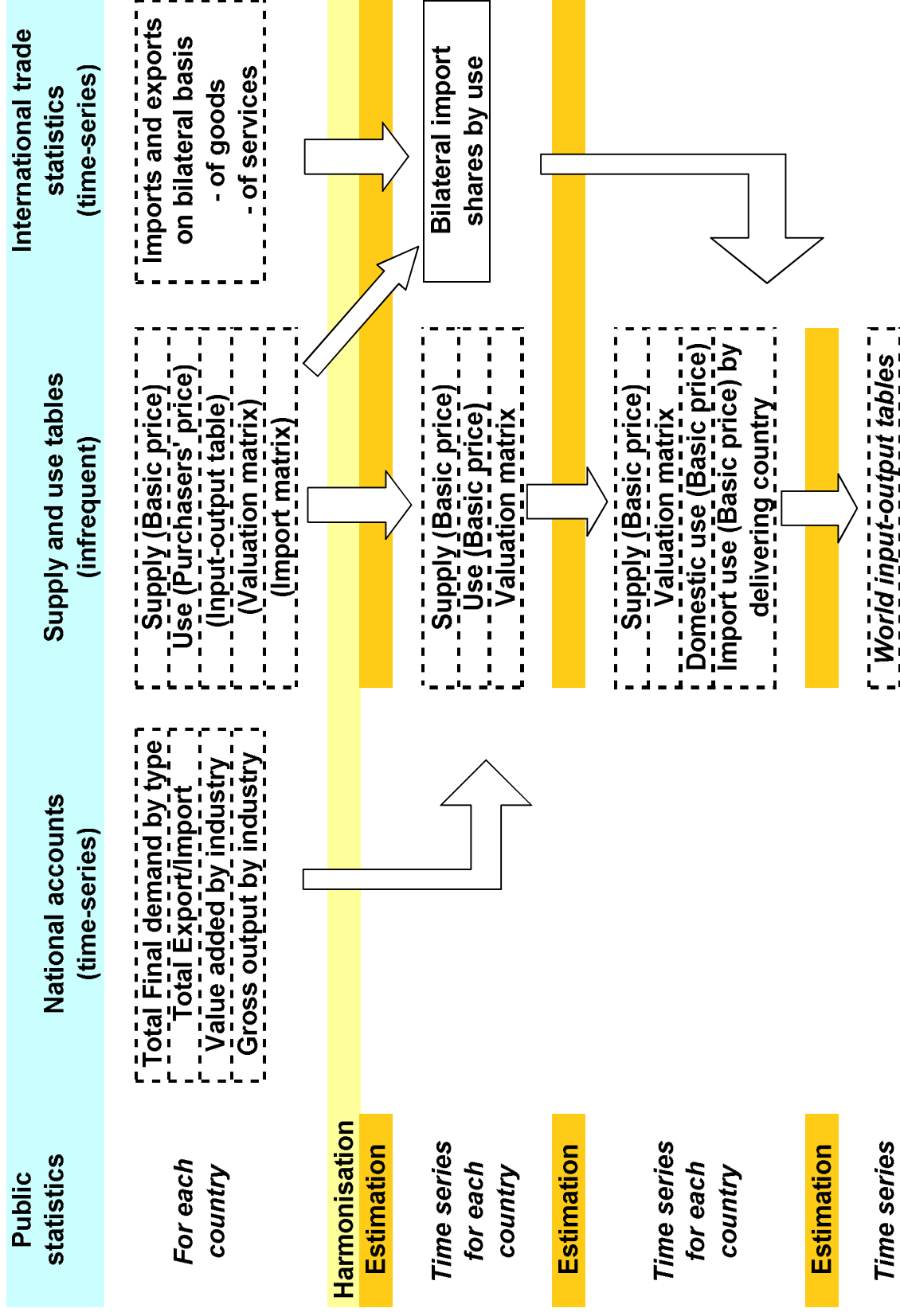
Structure of inter-country SUT for country A

	Supply product	Intermediate use industry	Domestic final use C I G	Exports to country B	Exports to country C	Total Use
country A	product	Intermediate use of domestic output	Domestic final use of domestic output	Exports to B	Exports to C	Total use of domestic output
country B	product	Intermediate use of imports from B	Domestic final use of imports from B	-	Re- exports	Total use of imports from B
country C	product	Intermediate use of imports from C	Domestic final use of imports from C	Re- exports	-	Total use of imports from C
country A	industry					
country B	Domestic supply					
country C	Imports from B					
	Imports from C					
	Total supply					
		Gross value added				
		Gross output				

Structure of inter-country input-output table for the world (industry-by-industry type)

	Country A Intermediate use industry	Country B Intermediate use industry	Country C Intermediate use industry	Country A Final domestic use (C, I, G)	Country B Final domestic use (C, I, G)	Country C Final domestic use (C, I, G)	Total output
country A	Intermediate use of domestic output by A	Intermediate use by B of imports from A	Intermediate use by C of imports from A	Final use of domestic output by A	Final use by B of imports from A	Final use by C of imports from A	Total output in A
country B	Intermediate use by A of imports from B	Intermediate use of domestic output by B	Intermediate use by C of imports from B	Final use by A of imports from B	Final use of domestic output by B	Final use by C of imports from B	Total output in B
country C	Intermediate use by A of imports from C	Intermediate use by B of imports from C	Intermediate use of domestic output by B	Final use by A of imports from C	Final use by B of imports from C	Final use of domestic output by C	Total output in C
	Gross value added	Gross value added	Gross value added				
	Total output in A	Total output in B	Total output in C				

WIOT construction process



GVCs in WIOT

[illegible]

GVCs in WIOT

	Sweden	Sweden			Japan			USA			Sweden			Japan			USA			Tot		
		M	...	S	...	C	M	...	S	...	C	M	...	S	...	C	H	I	G	H	I	G
Sweden	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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USA	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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CO2 emissions		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Swedish exports of cars require:
production in Swedish car manufacturing

GVCs in WIOT

	Sweden				Japan				USA				Sweden	Japan	USA	Tot		
	M	...	S	...	C	M	...	S	...	C	M	...	S	...	C	H	I	G
Sweden																		
Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Japan																		
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Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USA																		
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Total	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Employment	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CO2 emissions	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Swedish car manufacturing requires:
inputs from Japanese steel manufacturing

and Swedish labor

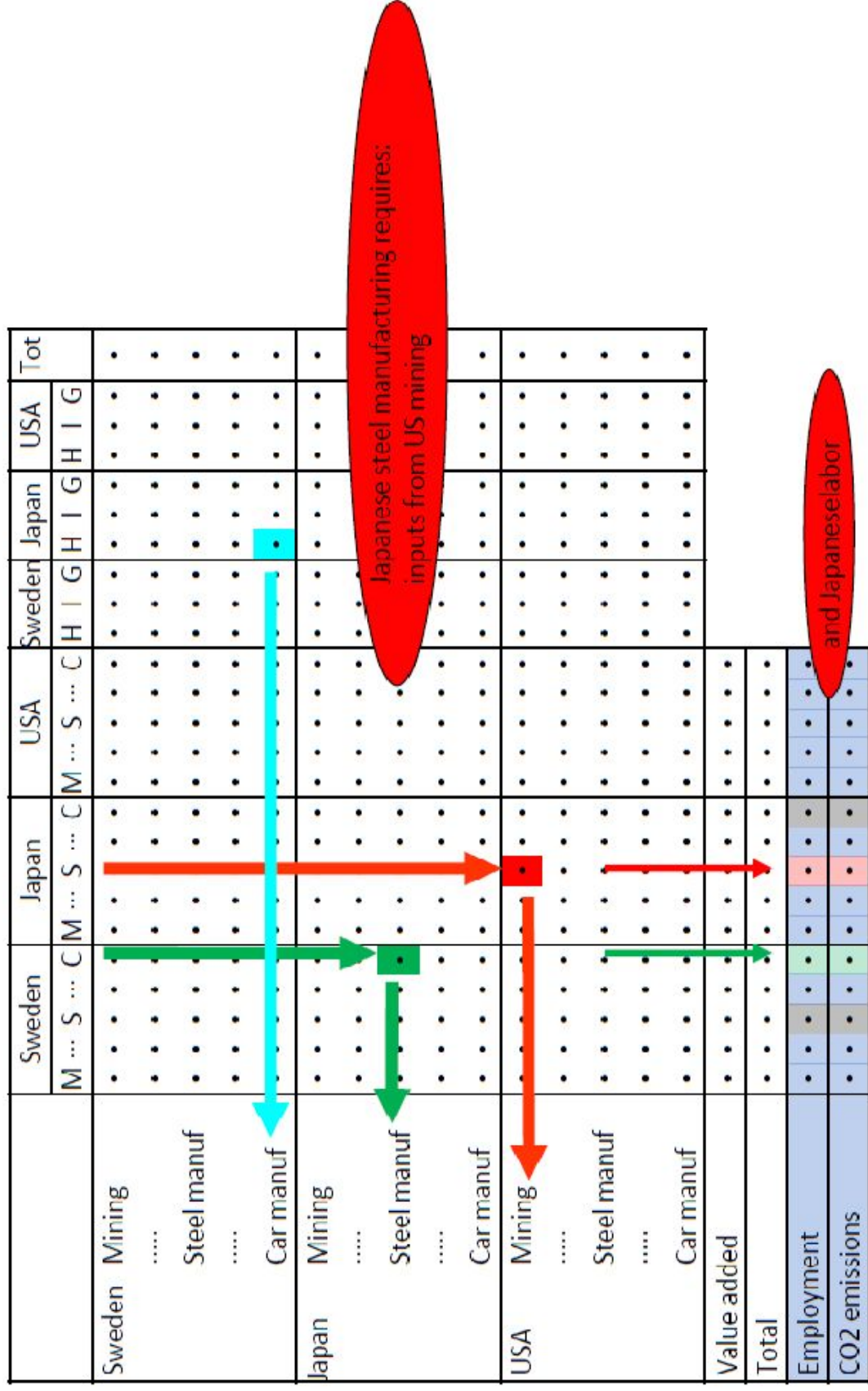
GVCs in WIOT

	Sweden				Japan				USA				Sweden	Japan	USA	Tot		
	M	...	S	...	C	M	...	S	...	C	M	...	S	...	C	H	I	G
Sweden																		
Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Employment	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CO2 emissions	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Swedish car manufacturing requires:
inputs from Japanese steel manufacturing

and Swedish labor

GVCs in WIOT



GVCs in WIOT

	Sweden			Japan			USA			Sweden	Japan	USA	Tot		
	M ...	S ...	C ...	M ...	S ...	C ...	M ...	S ...	C ...	H	I	G	H	I	G
Sweden															
Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Japan															
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Employment	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CO2 emissions	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

US mining requires:
US labor

US mining requires:
US labor

Research based on WIOD

- Trade in Value Added and GVCs
 - Trade imbalance in value added terms much less than in gross terms
 - Different angle on competitiveness and trade policy effects, and effects on wage inequality
- Energy and Environment
 - Production and Consumption of Greenhouse Gas emissions

Thanks a lot !!

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