

Newsletter
Number 59, Aug 2024

INTERNATIONAL INPUT-OUTPUT ASSOCIATION

Welcome from the Editor



Dear **IIOA** member,

I am pleased to release the latest issue of the *International Input-Output Association Newsletter*. My sincere thanks go to all of you that have contributed to this and previous editions.

The current issue contains a message from the IIOA President Sanjiv Mahajan, an obituary for Clopper Almond, information about a new library, details about some upcoming conferences and the latest ESR articles.

I look forward to any feedback, comments or suggestions, and I encourage that you will continue to contribute with your activities to forthcoming issues.

Jing Meng

IIOA Newsletter Editor

University College London

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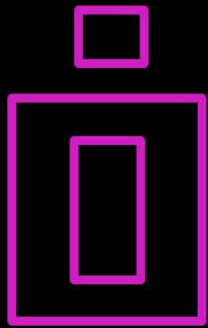
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Would you like to contribute to the IIOA
newsletter?

Send us your news at newsletter@iioa.org

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INTERNATIONAL INPUT-OUTPUT ASSOCIATION

A message from the IIOA President – Sanjiv Mahajan



Dear **IIOA** member,
Hope you and your families are all well.



2024 IIOA Conference

For those of you who were able to attend **the 2024 IIOA Conference in Santiago, Chile**, I hope you had an enjoyable conference, learned new things, caught up with old friends and made new friends as well has good trips back home. For those “newbies” attending for the first time, hope we met your expectations and it is the first of many IIOA conferences you are able to attend. I was very happy to see so many new faces as well as previous Conference attendees.

A BIG thank you to all involved, in particular the organisational teams led by **José E. Durán Lima** (LOC Chair and his Team), **Luis Enrique Pedauga** (SPC Chair and his Team) and **Kuishuang Feng** (CLO). This was another successful IIOA Conference with the usual array and variety of events, in particular, the focus on the **younger scholar** with the 12th year of the ISIOA, the Buddy Scheme, Flash Presentations, Development Scheme Initiative, etc.



With particular thanks to UN ECLAC, achieving the **outreach** to several Latin American countries and a successful roundtable of **regional policymakers** linking to the I-O community – with the growth in the use of the I-O domain, both objectives are important to me as well as the IIOA.

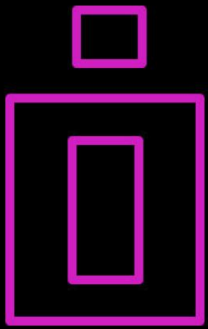
[Authorities, Experts and Academics from Across the World Meet at ECLAC to Examine Industrial and Trade Policies Using Input-Output Analysis | CEPAL](#)



Some general IIOA matters

Some particular items of note mentioned through this year’s Conference and the Annual General Assembly:

- IIOA now has **888 members from 65 countries** and 20 institutional members. China and Japan form around 42% of the membership.
 - For the first time, number of members from **non-high income countries are greater than those from high-income countries**.
 - **Average age of IIOA members is getting lower** – 56% of members were born in 1984 or after.
 - **Females form 37%** of the membership.
- IIOA is in a **healthy financial position** with around \$360,000 in assets allowing for further investment and expansive activity – ideas welcomed.



INTERNATIONAL INPUT-OUTPUT ASSOCIATION

A message from the IIOA President continued – Sanjiv Mahajan



Other IIOA organisational matters

- The IIOA is committed to the highest standards of professional conduct and circulated a **Code of Professional Conduct** statement as agreed by all Council Members to all IIOA Members recently. Thanks to **Monica Serrano** and **Oliver Fritz** in leading this work. A supporting by-law will follow.
- The role of **Secretary and Treasurer** are crucial in supporting the function of the IIOA. To ensure stability, continuity and minimise uncertainty, we have completed the election process earlier than usual. **Oliver Fritz** (Secretary) and **Christof Paparella** (Treasurer) were successful and their new terms start in January 2025. BIG congratulations to both.

2025 IIOA Conference

The IIOA Council have discussions underway, including whether we move from an annual conference to a biennial conference and the location of the 2025 IIOA Conference. We will communicate decisions as soon as possible.

Coming back to 2024 IIOA Conference “newbies”

As with each IIOA Conference, for many attendees it is their first IIOA Conference experience - welcome. Here are some brief quotes from some newbies this year, thank you all.

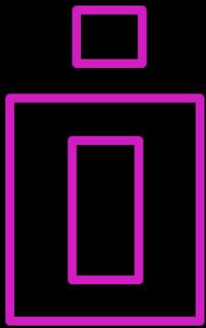


Participating in this high-level academic and professional meeting has been an incredible experience. The challenge has been gratifying, and I am delighted by the high calibre of participants as well as the involvement of policymakers and economists from Latin American and Caribbean countries.

Jose Duran (UN ECLAC)

Although Leontief apparently never met Raul Prebisch, their ideas regarding industrial policy and regional integration had many points in common. The 30th IIOA Conference at ECLAC demonstrated how I-O analysis is extremely useful to identify key industrial sectors within and between economies to serve as catalysts for development and regional value chains. The Conference showed how methodology can be applied to policymaking. Wassily has finally met Raúl.

Keiji Inoue (UN ECLAC)



INTERNATIONAL INPUT-OUTPUT ASSOCIATION

A message from the IIOA President continued – Sanjiv Mahajan



I would like to congratulate the excellent organisation of the international input-output event. It was remarkable how the variety of parallel sessions enriched the experience, keeping it dynamic and engaging. I appreciate the effort in creating a productive and welcoming environment for all participants.

José Firmino Sousa Filho (Center of Data and Knowledge Integration for Health (CIDACS-Fiocruz, BA))

The IIOA conference was an exceptional experience. I appreciated the welcoming programs for newcomers and the transparent reporting on conference management. The presentations on cutting-edge research and data in input-output analysis were particularly valuable, offering insights into the latest developments in the field. These four days were highly productive and informative. I'm grateful to have been welcomed into the IIOA family and look forward to attending future conferences.

Yoko Uchida (IDE-JETRO)

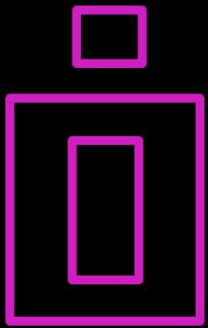
Attending the International Input Output Association (IIOA) conference for the first time was a remarkable experience. The IIOA community was warm and welcoming, creating an environment conducive to engaging in insightful discussions with renowned experts and fellow participants. The conference, set against the majestic Andes mountains in Santiago de Chile, provided ample networking opportunities. The setting was as inspiring as the diverse topics discussed, ranging from the changing nature of work due to emergence and reconfiguration of global value chains to the environmental pressures from changing consumption and production patterns. These crucial topics are essential for understanding and improving human well-being in the coming decades. I look forward to attending future conferences.

Hylke Dijkstra (PhD student at University of Groningen)

Finally, it was sad to hear that Clopper Almon passed away on 17th May 2024 – a long-serving I-O expert and an IIOA Fellow. There is an in memoriam article in this edition of the Newsletter.

Hope you all remain safe, take care and enjoy the summer holiday period.

Best regards
Sanjiv Mahajan



INTERNATIONAL INPUT-OUTPUT ASSOCIATION

In memoriam



Clopper Almon, Jr
25th January 1934 – 17th May 2024

Clopper Almon, Jr., Fellow of the International Input-Output Association, student of Leontief and founder of Inforum, passed away peacefully on Friday 17th May, 2024, at 4:43pm. Clopper was in the company of his wife Judy, and they had just returned from a walk around the Rudolf Steiner Fellowship Community where they live, when he collapsed. The cause of death was not determined but he had suffered a few minor strokes previously. Clopper died as he lived, happy, always ready for good conversation and working on several projects at once.

Clopper wrote his PhD with Wassily Leontief at the Harvard Economic Research Project, and while with Leontief, Clopper built the first working I-O based detailed computer model of the U.S. economy, written in Fortran. While at Harvard, Clopper also served as lecturer and then Assistant Professor.

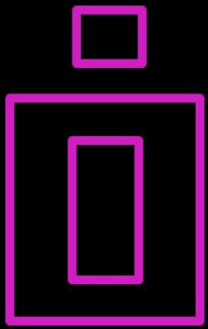
Clopper came to the University of Maryland in 1966, with his then wife Shirley, also a Harvard economics graduate. In addition to founding and developing the Inforum project, which continued and extended the work Clopper had started with Leontief, Clopper brought mathematical rigor to the teaching of Microeconomics and Econometrics to UMD.

Clopper's courses were some of the first where graduate students were expected to understand advanced calculus and matrix algebra, and some students were assigned problems which had to be solved using the Univac, which was the only computer at UMD at the time!

In addition to his graduate courses, Clopper taught an undergraduate course in macroeconomic forecasting and model building, which also required the students to use the computer. At one point, 90 per cent of the use of the computer time by courses outside the science and mathematics departments was either by Inforum, or Clopper's students. The text of this course was *The Craft of Economic Modeling*, which later was expanded to include chapters on the development of input-output models.

Clopper developed relationships with economists from many countries, who came to Maryland as visiting researchers, and built similar models of Austria, France, Germany, Italy, Russia, China, Japan, Canada, Mexico and Korea. Many of these models were integrated into a bilateral trade linked system of models, which forecast 20 years ahead, and in which bilateral trade flows were endogenous. Around this effort grew an international group that met every year, from 1993 to 2019.

The international work resulted in the development of a common software for building macro/IO models in C++, called *Interdyme*, and a regression and model building program *G7*. A method for compiling product-to-product direct requirements using product technology with no negatives was used routinely in Inforum models, though not published in ESR until 2000.



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In memoriam

A system of personal consumption functions named PADS (Perhaps Adequate Demand System) addressed many of the asymptotic problems of AIDS (Almost Ideal Demand System) and the Linear Expenditure System. Econometric estimation of equations in Inforum models made extensive use of “soft constraints,” which consist of a weighting of closeness of fit and satisfaction of prior objectives either dictated by economic theory or desired model dynamics.

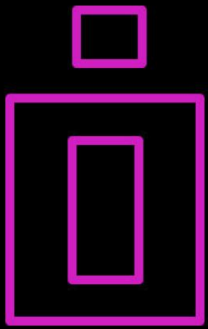
Clopper retired from active teaching in 2003 and became Professor Emeritus, while continuing to work with Inforum and to pursue other research projects from his office in Morrill Hall at the University of Maryland.

In addition to his interests in input-output, econometrics, personal consumption, investment, productivity and other topics in economics, Clopper has maintained a lifelong interest in the teachings of Rudolph Steiner, and the study of Anthroposophy. Clopper was a founding member of the Washington Waldorf School (which is based on the teachings of Rudolph Steiner), the Rudolph Steiner Institute and the American Association of Anthroposophy. Other interests include the study of Chinese characters and their history, as well as Ancient Egyptian and early Greek spiritual practices.

Clopper was pre-deceased by his wife Shirley in 1975. Clopper married his second wife Joan in 1976, and they were married until she died in July 2019. An exchange of mail after an initial consolation letter led to meeting his wife Judy, with whom Clopper lived in Chestnut Ridge, NY since 2020.



Clopper Almon, Jr
25th January 1934 – 17th May 2024



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Libraries

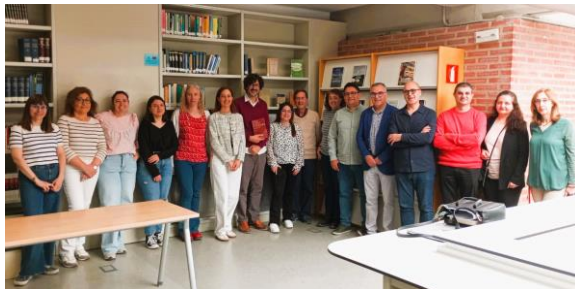
Graham Pyatt's Library

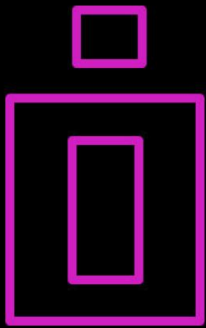
After the passing of the prominent input-output scholar Prof. Graham Pyatt, his personal library was left deserted. In order to prevent the destruction of this large number of high-quality books, the IIOA acted immediately and found a new location for the books.

The Graham Pyatt library is currently located in the Faculty of Economics and Business Administration at the University of Castilla-La Mancha (Albacete, Spain). This Faculty is very grateful for the trust and generosity shown in this donation, which enriches the library's book collection, including topics of great interest such as economic theory, poverty and input-output analysis, amongst others.

The library was inaugurated on 9th May 2024 by the dean of the faculty and the members of the University's input-output group (GEAR group). A commemorative plaque has been unveiled in honour of Graham Pyatt and the IIOA Association. Currently, the books are available to the entire scientific community upon inter-university request.

This project owes its success to the collaborative efforts of Jeffery Round, Albert Steenge, Josef Richter and Pilar Osorio.





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Conferences



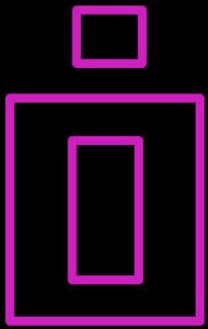
Inforum World Conference – 2025

The Inforum International group is planning to organise an **Inforum World Conference in 2025**. This conference is planned to take place in **Palma de Mallorca**, a location which is easily accessible due to a large international airport. The preferred period for the 3-day conference is likely to be **7-9 May 2025**. An alternative period would be 14-16 May 2025. Papers would include submissions by Inforum modelling teams but we heartily welcome participants who have an interest in empirical input-output and policy studies.

There will joint activities on the beautiful island of Mallorca on the Saturday after the conference. The German Inforum team at GWS is undertaking to arrange for the conference facilities.

In addition to the presentations, the conference will also include a tribute to Clopper Almon who passed away on 17th May 2024.

Please contact either Douglas Meade (meade@inforumecon.com) and/or Frederik Parton (parton@gws-os.com) if you would be interested in joining and whether the period from 7-9 May 2025 is suitable for you, or whether you would prefer 14-16 May 2025.



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Conferences



10th Conference on
Input-Output Analysis

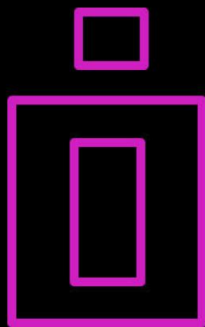


The 10th Spanish Conference on Input-Output Analysis of the Hispanic-American Input-Output Society (SHAIO) will take place in Gijón, Spain, on the 4-6th September 2024.

It will be a great honor for SHAIO to return to the University of Oviedo. The seed of what is now SHAIO was planted at this university. Back in 2005, they organised the first Conference of our association. Ten editions later, we come back to Asturias. The colleagues from the University of Oviedo and the REGIOlab will organize this event, which will be held at the School of Commerce and Tourism of the University of Oviedo, located on the Gijon campus. Gijon is the most populated city in Asturias and offers a wide range of hotels and a vibrant social and cultural life, especially during the summer season. The School of Commerce and Tourism is within the stunning Laboral-Ciudad de la Cultura and offers an excellent setting to host the Conference.

The Conference's official languages will be English and Spanish. The program will include the fifth edition of the Spanish School of Input-Output Analysis (ESAIO), plenary and parallel sessions, the Emilio Fontela Award ceremony, and some other amazing surprises that will make this event a perfect opportunity to visit the region of Asturias, one of the multiple Spanish's cultural and natural jewels.

More information at: <https://io10.shaio.es/en/>



INTERNATIONAL INPUT-OUTPUT ASSOCIATION

Published papers and books in Input-Output Analysis and related methods

Latest ESR articles

[Economic Systems Research](#)

Journal of the [IIOA](#)

[Latest articles](#) (up to 23 July)



María T. Álvarez Martínez, María Gesualdo & Jonathan Pycroft

[Storm in the Cloud: A Study on the Macroeconomic Impact of the UK's Digital Service Tax](#)

The nature of the digital economy puts pressure on traditional tax practices, as it is frequently characterised by high returns from intangibles. In this paper, we assess the macroeconomic impact of the digital services tax introduced in the UK in 2020. We employ the CORTAX model, which is a macroeconomic model elaborated for the Member States of the European Union, the UK, the US, and Japan. The model strongly focuses on corporate taxation and multinational firms. To be able to represent the digital sector, a major extension of the model has been introduced to expand the model from one sector to two, allowing the digital sector to be modelled separately from the rest of the productive economy. The results suggest a negative impact on GDP from the introduction of the tax but a gain in welfare and consumption for the UK and small positive spillovers for close trading partners.

Cormac Lynch, Yeliz Simsek, Jean-Francois Mercure, Panagiotis Fragkos, Julien Lefèvre, Thomas Le Gallic, Kostas Fragkiadakis, Leonidas Paroussos, Dimitris Fragkiadakis, Florian Leblanc & Femke Nijse

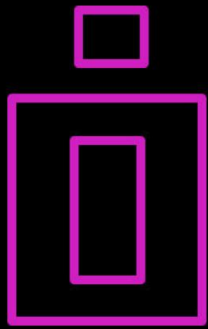
[Structural change and socio-economic disparities in a net zero transition](#)

A net zero transition is likely to generate substantial and irreversible economic transformation. High-carbon industries and their related occupations will disappear, while new low-carbon industries and occupations will be created. In the aggregate, the impact of the transition on GDP and employment is commonly projected to be relatively moderate. However, such estimates hide drastic distributional issues that are sectorally and regionally concentrated. We use three sectorally detailed and regionally disaggregated macroeconomic models to explore the possible levels and impacts of structural change in a well below 2°C scenario. In addition to the expected decline in the carbon-intensive industries, we observe secondary impacts, particularly in the services sectors, that vary significantly between models. The risks entailed with structural change involve worsening economic disparity and societal division that could exacerbate existing socioeconomic and political polarisation. Impact assessments of decarbonisation should consider such distributional issues to avoid post-industrial decline and widening socioeconomic inequalities.

Andrzej Torój

[Estimating high-resolution interregional input-output tables: a Bayesian spatial approach](#)

Due to the scarcity of subnational interregional input-output (IRIO), various approaches to their estimation are actively under investigation in the literature. This paper focuses on the application of spatial econometric method. It determines intra- and interregional coefficients through a joint procedure which successfully avoids the direct recycling of estimates for other geographies and granularities. Instead, the use of Bayesian methods is proposed, which formally integrate limited evidence from existing regional tables (Finland) with a set of sectoral data on value added for 73 NUTS-3 regions in Poland, the latter being dominant. An empirical test of replicating the Korean survey-based IRIO table demonstrates that the accuracy of this approach slightly outperforms an alternative IRIOLQ procedure. The incorporation of time-based distance measurement has only modest effects on empirical fit, and the use of big geolocation dataset to account for commuting relocates 18.9% of the induced effect from a city to its periphery.



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Kehan He, D'Maris Coffman, Xingzhe Hou, Jinkai Li & Zhifu Mi

[An electricity big data application to reveal the chronological linkages between industries](#)

Effective integration and compromise between theories and empirical data are essential for an operational economic model. However, existing economic models often neglect the intricate fluctuations and transitions that occur in weeks and days. This research proposes an Input-Output-based algorithm to introduce the time domain into economic modelling. Using daily electricity consumption big data in Chongqing as a proxy for economic activities, we quantitatively analyse the chronological interactions among industrial sectors and reveal that a longer duration is required by the heavy industry sector to signal an intermediate production in the service sector than any other sectors in this municipality. With the proposed model, we forecast the economic impact induced by demand changes for consumer goods under three growth scenarios. The model not only serves as a methodological bridge between theoretical and data-driven approaches but also offers new insights into the dynamic interplay of sectoral activities over time.

Ahmed Owais Durrani & Yousaf Ali

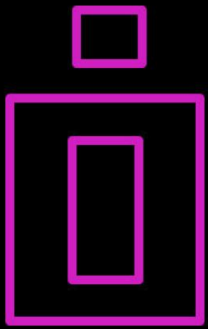
[Risk-based dynamic inoperability input-output and non-linear optimisation models to analyse resilience in the construction industry](#)

Pakistan has faced significant economic losses due to catastrophes, specifically floods. This study aims to assess the ripple effects of the 2022 floods, focusing on the Construction Industry, which has been gaining importance in the national economy, and on the resilience of economic sectors absorbing the negative shocks from floods. The study uses the Asian Development Bank's (ADB) Input-Output database for Pakistan using the Dynamic Inoperability Input-Output Model (DIIM) with the Fuzzy Full Consistency Method (F-FUCOM). The analysis revealed that the Construction Industry's weak resilience resulted in a prolonged recovery period and that the lack of flood risk mitigation infrastructure was identified as the most critical. The results suggest that policymakers prioritise such infrastructures, like dams, early warning systems, and transportation infrastructure, to enhance the resilience of the overall economy.

Elisa Bardazzi, Gabriele Standardi, Francesco Bosello & Ramón E. Key Hernández

[Toward the full implementation of the water-energy-food nexus in computable general equilibrium modelling: methods and macroeconomic implications](#)

This paper contributes to the advancement of Computable General Equilibrium (CGE) modelling in addressing the Water-Energy-Food (WEF) Nexus. As such, it introduces water resources as a production factor for both the energy sector and irrigated agriculture, as well as their competition for the endowment, aiming to explicitly represent additional components of the WEF with respect to a standard CGE in the literature. Thus, it develops different modelling structures by computing impacts on regional GDP, sectorial prices, and production outputs in response to hypothetical water scarcity scenarios. This analysis allows for the determination of the role of data and modelling assumptions, such as production function, water substitutability with other endowments, water mobility across sectors, and sectorial water intensity, in influencing the results. Finally, the paper develops a dynamic scenario analysis, showing that an enhanced representation of the Nexus can significantly affect the macroeconomic dynamics of the simulations and their regional implications.



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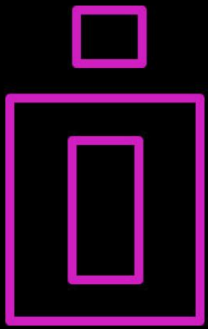
Angela García-Alaminos, Jorge Zafrilla & Fabio Monsalve

[Forced labour in the fashion industry: a hypothetical EU-driven reorganisation of textile value chains](#)

Given recent breakdowns in global value chains, like the COVID-19 crisis or the conflict in Ukraine, developed economies are trying to develop resilience to address future drawbacks. Backshoring and nearshoring arise as attractive solutions to reduce exposure to global disruptions and undesirable practices such as forced labour. This study analyses the labour impacts of a hypothetical EU-driven reconfiguration of value chains of the fashion industry through a multi-regional input-output model. Using the Structural Path Analysis methodology, how forced labour is transmitted within Europe is explored. Once the forced labour hotspots are determined, we explore the socioeconomic consequences of a trade-restructuring strategy simulated through the source-shifting technique. Our results show that the forced labour embodied in the European final demand for fashion products could fall by up to 34.2%. This strategy could generate more than 190,000 jobs in Europe, while China and India could lose more than 1.5 million jobs each.

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Highlights in journals

Yingzhu Li, Bin Su

[Identification of the bias in embodied emissions flows and their sources](#)

Energy Economics

Input-output (IO) table has been widely used to investigate the relationship between the environment and the economy. As pre-analysis data treatment could give rise to information distortion in the adjusted tables, a large body of national IO-based analysis on environmental issues potentially suffer from imports data treatment. When national IO tables with different imports assumptions are available, it is important and possible to investigate the distortion and corresponding bias in findings. Via embodied carbon emissions, a set of IO-based techniques are utilized to analyze the source and transmission of the bias. The empirical study of China shows that relative indicator (embodied intensity) performs more robustly than absolute indicator (embodied emissions) at all transmission layers. Bias in embodied emissions accumulates to ± 183.6 Mt. across the products. Supply chains of S27-Construction, S20-Electronic equipment and S18-Transport equipment are most distorted, with sectors such as chemicals, metals and non-metallic minerals as key nodes in transmitting the bias. The decomposition analysis also shows that the bias in S27 (137.9 Mt), S20 (34.7 Mt) and S18 (24 Mt) is primarily due to distorted intermediate use, while the bias in S14 (35.0 Mt) is mainly caused by distorted final demand. Implications on policies and other IO-based studies are discussed.