Newsletter
International Input-Output Association (IIOA)
Number 38, November 2018

Welcome from the Editor

Dear IIOA member,

I am pleased to deliver to you the latest issue of the *International Input-Output Newsletter*. I thank all contributors and anyone else who sent us items.

This issue features information about the next IIOA Conference in Glasgow, Scotland. We hope to see all of you there.

You can also find a Call for Nominations for IIOA Fellows; abstracts for the latest *ESR* articles; Highlights of Other Journals; Books (*Handbook on Supply, Use and Input-Output Tables with Extensions and Applications*), Reports (*EU Exports to the world: effects on employment and income*. Edition 2018); Courses (2019 Short Course in Dynamic Global Trade Analysis, ERSA Summer School 2019, 7th Annual Short Course in Global Trade Analysis) and Events (5th National Input-Output Conference – Iran, Input-Output Workshop Special; 58th Annual Meetings of the Southern Regional Science Association; XXXVII International Congress of the Latin American Studies Association; 22nd Annual Conference on Global Economic Analysis; the 26th APDR Congress and the 59th ERSA Congress).

I hope you enjoy it! Any feedback, comments or suggestions are greatly appreciated.

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Would you like to contribute to the IIOA newsletter?
Contact us newsletter@iioa.org

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Next IIOA Conference

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The Office for National Statistics in collaboration with the University of Strathclyde, Fraser of Allander Institute, Glasgow Convention Bureau and the Scottish Government will ensure that we make the 2019 IIOA Conference a truly memorable occasion.

We will deliver an inclusive, innovative, accessible, affordable and enjoyable conference for all delegates in a state of the art conference centre in Glasgow, which is one the UK's most vibrant, cultural and friendly cities located at the gateway to the magnificent Scottish Highlands.

The 2019 Conference will build on the successes of previous IIOA Conferences as well as provide a programme to inspire the next generation and encourage partnerships and collaborations in the field of Input-Output and the much wider field of economic statistics.

Mr Sanjiv Mahajan
Chair of Local Organisation Committee
Office for National Statistics

The International Input-Output Association (IIOA) will be holding its annual Conference in 2019, for the first time ever in the UK, in Glasgow, Scotland

Destination appeal

Glasgow is an incredibly friendly, cosmopolitan city with beautiful architecture, numerous cultural attractions combined with some of the world's most breath-taking scenery right on its doorstep. Glasgow has been named by the New York Times in the Top 10 best places to visit in 2018.

Easily accessible destination

Over 170 direct flights to international locations across the globe. Linked to the main European hubs with multiple daily flights from Heathrow, Amsterdam, Frankfurt, as well as direct flights to Dubai, Qatar, Abu Dhabi, Newark, Toronto and Chicago.

Safe, friendly and welcoming destination

Glasgow has been voted the friendliest city in the world and delegates can be assured of a warm welcome from the moment they arrive in the city.

Affordable and vibrant city to enjoy

Glasgow's accommodation is 16% below the UK average and the cost of living is considerably less than other major European cities, meaning delegate's budgets will stretch much further.

Modern, purpose built Convention Centre with room for growth

Situated in the heart of the city centre within walking distance to a range of hotels, bars and restaurants, the TIC provides the perfect setting for IIOD

Sample the Magic of Scotland

100 whisky distilleries, 500 golf courses and countless castles, lochs and mountains for delegates to enjoy, all within easy reach of the centre of Glasgow.

NEXT STOP GLASGOW

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Dear IIOA Members,

The 27th IIOA Conference will be held in Glasgow Scotland from 30th June to 5th July 2019 and will be hosted by the UK Office for National Statistics in collaboration with University of Strathclyde, Fraser of Allander Institute, Scottish Government and Glasgow City Council.

The goal of the conference is to promote and stimulate the worldwide exchange of ideas among economists, government officials, policy makers, engineers, scientists, national accountants and managers with interests in input-output analysis and related methods.

We are calling for members to participate in two ways:

Organised Sessions

We strongly encourage all members to suggest and organise special sessions for the conference. In the past, these have been most successful in terms of the number of attendants and participant interaction. Please send proposals for thematic sessions or sets of sessions as soon as possible to the Chair of the Scientific Program Committee (SPC), Tommy Wiedmann, via e-mail (t.wiedmann@unsw.edu.au) and include all of the following:

1) title(s) of the organised session(s)
2) the name(s) and institutional affiliation(s) of the organizer(s)
3) abstract(s) describing the theme/objectives of the session(s)
4) name(s) and institutional affiliation(s) of session chair(s)
5) titles of the presentations therein (3 presentations per session)
6) names and institutional affiliations of the presenters.

The deadline for proposing Organised Sessions is Friday, **28th December 2018**.

Once the session proposal is accepted by the SPC Chair, the abstracts of individual articles should follow the information as specified below for each of the presentations planned for the proposed sessions.

Individual submissions

We ask that authors submit their names, institutional affiliation(s), the paper title and an abstract of the presentation (of not more than 300 but not less than 200 words) and select a topic from the list provided. Please follow the navigation through our online article submission system "COPASS" at https://copass.iioa.org.

Abstracts are individually reviewed by members of the scientific committee before they can be accepted for inclusion in the conference program. Authors are requested to provide in their abstracts the following information about the submitted articles:

1) the research question,
2) the method used,
3) the data used (if any), and
4) the novelty of the research.

Failing to do this may disadvantage the selection of the article. On the other hand, if a corresponding full paper (of at least 2,000 words) is accompanied at the time of abstract submission, it will significantly increase the possibility of acceptance.

Each author is permitted to present a maximum of two papers at the conference – one paper maximum in an organised session and one paper maximum in an individual session. Participants can be, however, a co-author on more than two submitted papers.

Abstract submission in COPASS opens on 3rd December and closes on **21st January 2019**.

For further details, please visit the conference website at

https://www.iioa.org/conferences/27th/conference.html.

Thank you.

Tommy Wiedmann
Chair of the Scientific Programme Committee

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Development Programme, IIOA Conference in Glasgow, 2019

You are cordially invited to apply for participation in the Development Programme, a new event at the IIOA conference in Glasgow, 2019. The scheme aims to provide young researchers with opportunities to learn individually from experienced researchers in the community, enhancing the quality of papers. The basic idea of the scheme is that the conference organizers will assign an experienced discussant to your presentation. He/she advises during the session, not only on the choice of methods and data, but even more so about the style/structure of the paper, about how to position the study relative to the existing literature, about how to appeal to a wider range of readers, etc. etc. You will be also given a chance to consult directly with your discussant on what kind of advices you are seeking for. Development Programme sessions can be attended by non-presenters as well.

So, if you are interested, please don't be shy and consider your active participation!!

Satoshi INOMATA
Development Programme Organiser

Date & time:

Tuesday 2 July, 2019 (either in parallel session 1, 2, or 3 -> to be specified in the conference timetable).

Session format:

Presentation (15 min.) + Comments (20 min.) + Q&A with floor (10 min.) = 45 min.

* Presentations should be focused on the research questions, key findings, and implications rather than the detailed deployment of methodology.

Requisites for presentation:

(1) The principal author should be under 40 years of age, or within four years after obtaining a PhD degree, at the time of application.

(2) The paper to be presented must be unpublished work of substantial quality, such that a future version might satisfy the academic standards expected for publication in Economic Systems Research or comparable journals.

(3) An appropriate discussant for your paper (in terms of experience and specialisation) can be found within the community.

Application procedure:

Prior to the application for the Development Programme, you must have:

(1) registered in COPASS (open from 3 December 2018);

(2) submitted an abstract by the deadline (21 January 2019) and had it accepted by the Scientific Program Committee (notification by 11 March 2019); and

(3) submitted a full paper by the deadline (1 April 2019).

If you are under 40, you will see a checkbox in your own individual paper page in COPASS. Please mark it to apply for the Development Programme.

If you are over-aged but still within 4 years after obtaining a PhD degree, please send your full paper directly to the Development Programme Organiser at

satoshi_inomata@ide.go.jp

with an e-mail title in the form of

DP application <your Paper ID from COPASS> <your first name, then last name in CAPITAL LETTERS> <The year of obtaining PhD degree>

Example: DP application <3052> <Wassily LEONTIEF> <2017>

Important note:

*** Only ONE paper per author is allowed for the application for the Development Programme.**

*** The submitted full paper can be revised until the end of May, but thereafter it must be frozen.**

THE DEADLINE FOR APPLICATION: 1 April, 2019

Applicants will be notified about the decision regarding admission by the mid-May 2019.

In order to confirm your participation, the successful applicants are requested to complete the payment of conference fee (as specified in the conference website) within **ONE WEEK** from the notification of acceptance. Please prepare for the payment well in advance.

Even in the case that you are unsuccessful in the application, either because of the competitive selection process or unavailability of an appropriate discussant, your paper will be automatically considered for inclusion in a regular session.

Please note that, by participating in the program, we regard that you have agreed to share your e-mail address with all other participants in the Development Programme for further correspondence.

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Important Dates

NOTE: all the following dates refer to a deadline of 23:59 hours Central European Time.

Submission of organised session proposals open	1 October 2018
Abstract submission through COPASS begins	3 December 2018
Last date for submission of organised session proposals	28 December 2018
Last date for submission for abstracts	21 January 2019
Conference registration opens	1 February 2019
Hotel registration opens	1 February 2019
Last date for submission for travel grants	1 February 2019
Final date for notification of acceptance abstract	11 March 2019
Last date for submission for Leontief Prize	1 April 2019
Last date for applying for Development Programme	1 April 2019
Early registration ends	1 May 2019
Last date for submission of full papers	1 May 2019
On-line registration ends	1 June 2019
27th IIOA Conference Opens	30 June – 5 July 2019
IIOA Council Meeting	30 June 2019
International School of Input-Output Analysis	1 July 2019

Check here for updates!

Leontief Memorial Prize

The IIOA is pleased to announce a Leontief Memorial Prize 2019 for the best conference paper of young authors (under 40 years of age at the time of the submission; unpublished work combining theory and application). All co-authors must meet the above "young author" criterion. The Leontief Memorial Prize Committee of the IIOA will verify applicant qualifications and select the winning paper, which will be automatically considered for publication in the journal of the Association, *Economic Systems Research*. Besides COPASS submission, authors who want to compete for the 2019 Leontief Memorial Prize should submit their full paper to the SPC Chair by the specified deadline.

Call for Nominations for IIOA Fellows

Nomination of IIOA Fellows is open for new Fellows to be announced at the 27th IIOA conference scheduled to take place June 30 – July 5, 2019 in Glasgow, Scotland, UK. IIOA members may nominate any members of the association according to the guidelines described below. For consideration during this year's nomination process, the current Secretary of the Fellows, Geoffrey Hewings, must receive all nomination materials (at hewings@illinois.edu) no later than **January 31, 2019**. Selection of up to two additional Fellows will be made by vote of the current Fellows.

Fellows of the IIOA are elected to honor them for their scientific contributions to the field of input-output analysis broadly defined. Members of the IIOA, not themselves Fellows, are invited to nominate other members. A nominee must have been a member of the IIOA for at least six years. Each nomination should include include: name, current address, current email, current institution, brief curriculum vitae, list of up to ten key publications, and a description of the candidate's contribution to input-output analysis of no more than 100-200 words. Two additional IIOA members, excluding the nominee and the Fellows, must provide letters of support for each nomination. Nominations from previous years are not carried over; in this case, re-nominations will be required.

All Fellows are eligible to vote on the nominees. Up to two new Fellows of the IIOA may be elected, and any newly elected Fellows will be installed as such during a plenary event at the conference. Fellows may call themselves Fellows of the IIOA and have the right to free membership in the IIOA. Fellows have the obligation to further promote the development and to advocate suitable application of input-output analysis, broadly defined.

Thank you for your active participation.

Geoffrey Hewings (hewings@illinois.edu)

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Published papers and books in IOA and related methods

Latest ESR articles

Economic Systems Research
Journal of the IIOA
Volume 30, Issue 4, 2018

Cadarso, M., Monsalve, F., and Arce G. Emissions burden shifting in global value chains – winners and losers under multi-regional versus bilateral accounting. *Economic Systems Research, 30(4): 439-461.*

International trade leads to emissions burden shifting and threatens mitigation targets. Multiregional input–output (MRIO) and bilateral trade input–output (BTIO) models are widely used to analyse emissions embodied in trade and global value chains. Especially, the last one is used in analysing border tax adjustment (BTA) on the carbon content of imports. The model choice is not trivial. The analysis shows BTIO's inability to capture the consumer-principle throughout the production chain and its inadequacy as an option for consumption-based accounting, because it allocates emissions to the first importing country and to the sector of production, instead to the consumer (both country and region). Regarding the BTA assessment, BTIO tax domestic carbon content of direct imports, but not indirect imported carbon content. MRIO does provide incentives for mitigation in third countries. The differences in allocation of emissions and taxes' burden of both models have different consequences for developed and undeveloped regions.

Reich, U-P. Accounting for international trade in value added: a comment on the OECD–WTO project. *Economic Systems Research, 30(4): 462-477.*

In the global economy of today, global value-added chains allow firms and countries to take apart the production process and do the part they are best at. In response to this new reality, OECD and WTO have launched a common statistics project of the 'OECD–WTO Trade in Value-Added (TiVA) Database'. The database links national input–output tables with bilateral trade data to develop inter-country input–output tables that allow compiling, and revealing such chains. Its data are actual nominal values compiled at current exchange rates. The paper takes issue with that choice. Recalling that elsewhere in the United Nations national accounting figures are transformed to purchasing power parity before being compared internationally the paper suggests to follow suit and compile international value-added chains at real exchange rates, as well, and it sketches an introductory outline of how to do so.

Walmsley, T., Narayanan, B., Aguiar, A., and McDougall, R. Building a global database: consequences for the national I–O data. Economic Systems Research. *Economic Systems Research, 30(4): 478-496.*

Global economic analysis requires consistent and balanced data, which necessitates the reconciliation of datasets from both national and international sources. In the case of the Global Trade Analysis Project Data Base, datasets supplied by international sources are considered preferable to national input–output (I–O) tables. As a result, the national I–O data can experience significant adjustments during the reconciliation process due to differences between the national and international datasets. The purpose of this paper is to examine the extent to which national I–O data change during reconciliation. The results demonstrate that the I–O data are altered by the construction process, particularly from the reconciliation of the national I–O data to the international trade and energy datasets. Closer examination reveals potential issues with both the trade and energy datasets, as well as the national I–O data – illustrating the challenges associated with reconciling data from multiple sources.

Bardazzi, R., and Ghezzi, L. Trade, competitiveness and investment: an empirical assessment. *Economic Systems Research, 30(4): 497-520.*

The Eurozone crisis has exposed several weaknesses of the European Monetary Union economies. This paper aims to assess the impact on external competitiveness of an expansionary capital stock policy that could contribute to reduce the trade balance asymmetries within the EU and help European exporters to recover their competitive role in international markets. A policy action to increase capital stock accumulation through investment in selected European countries could generate a double dividend: increasing both price and nonprice competitiveness, so stimulating their competitive position as exporters, and consolidating the growth path of EU economy. The analysis employs a bilateral trade model built at INFORUM with several distinguishing characteristics: a comprehensive bilateral data set, econometric estimation of key parameters, and emphasis on sectoral details. Our findings show that a capital stock increase is effective in narrowing trade imbalances within EU. Heterogeneous effects are estimated for commodities in China and the US.

Álvarez-Martínez, M. T., and López-Cobo, M. WIOD SAMs adjusted with Eurostat data for the EU-27. *Economic Systems Research, 30(4): 521-544.*

This paper provides a new set of Social Accounting Matrices (SAMs) for the EU-27 and describes their construction process. The World Input–Output Database (WIOD) has been used as the main data source, and it has been completed with information from National Accounts in Eurostat. The SAMs include a disaggregation of labour by skills and the disaggregation of the foreign sector into the EU and Rest of the world. It is described how to elaborate a symmetric Input–Output table product by product at purchasers' prices using supply and use tables and applying the industry technology. It is also described the reallocation of social contributions needed to properly assign tax revenues to government and avoid the usually overlooked problems generated by the second redistribution of income. The description of the SAMs and their availability for the EU-27 can be very useful to researchers in applied economics using CGE and SAM models.

See all volumes and issues

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Duarte, R., Pinilla, V., and Serrano, A. Factors driving embodied carbon in international trade: a multiregional input–output gravity model. *Economic Systems Research, 30(4): 545-566.*

Concerns about the effects and consequences of climate change have notably increased in recent decades. Despite large advances in the understanding of this phenomenon, further research into the determinants of gas emissions is necessary, to shed light on the responsibilities of producers and consumers, and their potential contribution to mitigation strategies. This paper studies the trajectories and determinants of carbon embodied in world trade during a period of 15 years. Our methodology relies on a multiregional input–output model, environmentally extended. Drawing on data from the World Input–Output Database, we estimate embodied emissions in bilateral flows. Then, we assess the determinants of CO_2 emissions embodied in trade, combining input–output modelling with trade gravity panel data analysis. This paper offers a methodological approach that explains and quantifies the underlying factors of carbon trade, integrating the production and consumption perspectives and considering the geographical, structural and institutional context of countries.

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Economic Systems Research
Journal of the IIOA
Latest articles (up to 25-Nov.)

Cai M. and Rueda-Cantuche, J. M. Bridging macroeconomic data between statistical classifications: the count-seed RAS approach. *Economic Systems Research.*

In applications, it is often necessary to link heavily aggregated macroeconomic datasets adhering to different statistical classifications. We propose a simple data reclassification procedure for those cases in which a bridge matrix grounded in microdata is not available. The essential requirement of our approach, which we refer to as count-seed RAS, is that there exists a time period or a geographical entity similar to the one of interest for which the relevant economic variable is observed according to both classifications. From this information, a bridge matrix is constructed using bi-proportional methods to rescale a seed matrix based on a qualitative correspondence table from official sources. We test the procedure in two case studies and by Monte Carlo methods. We find that, in terms of reclassification accuracy, it performs noticeably better than other expeditious methods. The analytical framework underlying our approach may prove a useful way of conceptualizing data reclassification problems.

Mary, S., Phimister, E., Robert, D. and Santini, F. A Monte Carlo filtering application for systematic sensitivity analysis of computable general equilibrium results. *Economic Systems Research.*

Parameter uncertainty has fuelled criticisms on the robustness of results from computable general equilibrium models. This has led to the development of alternative sensitivity analysis approaches. Researchers have used Monte Carlo analysis for systematic sensitivity analysis because of its flexibility. But Monte Carlo analysis may yield biased simulation results. Gaussian quadratures have also been widely applied, although they can be difficult to apply in practice. This paper applies an alternative approach to systematic sensitivity analysis, Monte Carlo filtering and examines how its results compare to both Monte Carlo and Gaussian quadrature approaches. It does so via an application to rural development policies in Aberdeenshire, Scotland. We find that Monte Carlo filtering outperforms the conventional Monte Carlo approach and is a viable alternative when a Gaussian quadrature approach cannot be applied or is too complex to implement.

Okuyama, Y. and Yu, K. D. Return of the inoperability. *Economic Systems Research.*

There has been unrest in the research community investigating the inoperability of an economic system under disaster situations. The inoperability input–output model (IIM), which is very popular in the risk management field, has become a center of argument, particularly from the input–output researchers, that IIM is a straightforward application of the standard Leontief input–output model. This paper revisits the concept of inoperability, rather than IIM, and proposes its new role in disaster impact analysis using a conventional tool, i.e. the RAS method, for illustrating how the inoperability of an economic system in the aftermath of disaster can be evaluated. The proposed framework is employed to examine the inoperability of industries resulting from the 1995 Kobe earthquake. The findings of the analysis reveal the usefulness of inoperability concept that can even incorporate resilience (gained operability) using the proposed framework of this paper.

Piñero, P., Bruckner, M., Wieland, H., Pongrácz, E. and Giljum, S. The raw material basis of global value chains: allocating environmental responsibility based on value generation. *Economic Systems Research.*

A new approach to allocate environmental responsibility, the 'value added-based responsibility' allocation, is presented in this article. This metric allocates total environmental pressures occurring along an international supply chain to the participating sectors and countries according to the share of value added they generate within that specific supply chain.

We show that – due to their position in global value chains – certain sectors (e.g. services) and countries (e.g. Germany) receive significantly greater responsibility compared to other allocation approaches. This adds a new perspective to the discussions concerning a fair distribution of mitigation costs among nations, companies and consumers.

Chen, Q., Zhu, K., Liu, P., Chen, X., Tian, K., Yang, L. and Yang, C. Distinguishing China's processing trade in the world input-output table and quantifying its effects. *Economic Systems Research.*

Distinguishing processing trade is crucial to national input-output table-based research on China's international trade. This paper further investigates the importance of distinguishing China's processing trade in multicountry input-output table-based studies. We focus on the bias in China's bilateral trade in value added caused by China's undistinguished processing trade. We construct a product-by-product world input-output table capturing China's processing trade based on the World Input-Output Database. Empirical studies show that, if China's processing trade is undistinguished, the profile of China's bilateral trade in value added would be seriously distorted; China's bilateral net trade in value added with some economies, such as Japan, Korea and Taiwan, would be significantly underestimated, while it would be significantly overestimated for some other economies, such as the United States. Distinguishing processing trade in multicountry input-output tables is also crucial when China's bilateral trade in value added is considered.

Schumacher, D. The integration of international financial markets: an attempt to quantify contagion in an input–output-type analysis. *Economic Systems Research.*

The increasing integration of international financial markets means that credit defaults in one country have to be covered by creditors in other countries. If the principle of creditor liability were applied systematically, the financial losses incurred by the financial institution that provided the credit and is thus directly affected by the default would be 'passed on' through its domestic and foreign shareholders and debt holders, as well as their creditors, to the original savers. In this paper, this contagion effect will be estimated by taking international capital linkages into account. Analogously to an input–output analysis of inter-industry linkages, savings used for investments in one country are traced back to the countries from which the funds originated. This also reveals the important role of international financial centers, which essentially serve as distributors of investment risks, while the financial losses are ultimately borne by larger countries with higher levels of savings.

Guevara, Z., Molina-Pérez, E., García, E. X. M. and Pérez-Cirera, V. Energy and CO2 emission relationships in the NAFTA trading bloc: a multi-regional multi-factor energy input–output approach. *Economic Systems Research.*

The North-America Free Trade Agreement (NAFTA) has brought together the economies of Canada, Mexico, and the US into forming one of the largest trading blocs worldwide (within the top CO_2 emitters). However, the current global protectionist discourse threatens the agreement. This paper analyzes the energy and energy-related CO_2 emission relationships between NAFTA countries in 2014 to gain insights into the climate change implications of current integration and the possible cancelation of the agreement. The analysis is performed with a multi-regional version of the multi-factor energy input–output model. The results show that NAFTA has not built a single integrated energy system, though it has helped reduce energy-related CO_2 emissions. Moreover, if NAFTA is not revoked, further integration would depend on the capacity of the Mexican energy sector to converge to the performance of its trade partners' energy sectors. Conversely, a broken deal would induce negative environmental externalities.

Gurgul, H. and Lach,L. Tracing VARDI coefficients: a proposal. *Economic Systems Research.*

We propose a new approach for tracing the so-called 'value-added-(re)distribution-important coefficients' (in short the VARDI coefficients) in a world input–output model. From the perspective of a selected group of economies, VARDI coefficients may be defined as those elements in world input–output matrix in the case of which a small change in their levels leads to the maximization of a share of this group of economies in value added in global value chains. Due to the rapid development of the World Input Output Database, this approach may be easily applied in empirical research to different groups of countries and sectors in world IO models. In an illustrative empirical case study, we use the new approach in order to answer a question regarding what the main directions of the future macroeconomic policy of the U.S. could be in order to ensure the maximization of the country's share in global value added.

Wei, D., Chen, Z., and Rose, A. Estimating economic impacts of the US-South Korea free trade agreement. *Economic Systems Research.*

We analyze the economic impacts of the United States-South Korea Free Trade Agreement by applying the Global Trade Analysis Project (GTAP) computable general equilibrium model to highly disaggregated commodity flow data. The analysis calculates the impacts in terms of welfare effects, national economic indicators (such as GDP), and business performance metrics (such as sales revenue), which can be used by a variety of decision-makers. Our results suggest several trade-offs among these measures. Positive welfare gains between the US and South Korea are about the same in absolute terms, but favor the latter in relative terms, and very heavily so for GDP gains. Moreover, the US is projected to incur a loss of gross output (sales revenue) in several major manufacturing sectors that are heavily concentrated in geographic areas that have been promised a return of jobs by the Trump Administration.

Kiuila, O., Markandya, A. and Ščasný, M. Taxing air pollutants and carbon individually or jointly: results from a CGE model enriched by an emission abatement sector. *Economic Systems Research.*

We analyse the separate and collective impacts of emissions taxation to understand the internalisation effects of externalities. The analysis is carried out using a static computable general equilibrium model, with unemployment, bottom-up abatement technologies represented by a step function, and detailed emission coefficients. Environmental and health external costs are quantified using the ExternE's Impact Pathway Approach. Emissions, as a result of environmental taxation, fall through reduced output, production factor substitution, and increased end of pipe abatement activity. The analysis shows that a full internalisation of environmental externalities can result in modest overall economic and environmental welfare gains. There are, however, differences in terms of employment and output, depending on what combination of taxes are applied, which sectors are covered, and how fiscal revenues are redistributed. Air quality benefits range from €35–75 per ton of CO_2 abated. Total environmental benefits always exceed GDP loss and the associated welfare loss.

Kim, K., and Hewings, G. Bayesian estimation of labor demand by age: theoretical consistency and an application to an input–output model. *Economic Systems Research.*

Extended input–output models require careful estimation of disaggregated consumption by households and comparable sources of labor income by sector. The latter components most often have to be estimated. The primary focus of this paper is to produce labor demand disaggregated by workers' age. The results are evaluated through considerations of its consistency with a static labor demand model restricted with theoretical requirements. A Bayesian approach is used for more straightforward imposition of regularity conditions.

The Bayesian model confirms elastic labor demand for youth workers, which is consistent with what past studies find. Additionally, to explore the effects of changes in age structure on a regional economy, the estimated age-group-specific labor demand model is integrated into a regional input–output model. The integrated model suggests that ceteris paribus ageing population contributes to lowering aggregate economic multipliers due to the rapidly growing number of elderly workers who earn less than younger workers.

Kanemoto, K., Hanaka, T., Kagawa, S. and Nansai K. Industrial clusters with substantial carbon-reduction potential. *Economic Systems Research.*

To successfully reduce environmental emissions, companies need to expand the scope of their emissions accounting to include entire supply chains. A clustering approach has been used to find emission-intensive industry clusters. However, this approach did not include entire direct and indirect supply chains when forming high emission industry clusters. We propose a new method based on a modified normalized cut function with Leontief's input–output model and basic clustering algorithms to find industry clusters with high levels of embodied within-cluster emissions that are well separated in the supply chain network. We use this method to identify 58 carbon-intensive clusters of Japanese industries and visualize the within-cluster supply chains in terms of embodied carbon flows. We recommend that companies collaborate within clusters to reduce environmental emissions. Our results provide new insights on where to target emissions reduction actions and technology development within industrial supply chains.

Lin, C. and Nakamura, S. Approaches to solving China's marine plastic pollution and CO_2 emission problems. *Economic Systems Research.*

Global contamination of the oceans by waste plastics is of increasing concern. Besides being the largest emitter of CO_2 in the world, China is suspected of being the largest contributor to marine plastic waste pollution. Responsible for the latter is the still inadequate management of waste in China, a significant improvement of which is necessary for addressing the issue of marine plastic pollution. Since plastics are hydrocarbons, submitting them to appropriate waste treatment/recycling technologies could contribute to mitigating the emission of CO_2, indicating the possibility of addressing the two environmental issues simultaneously. Based on the combined use of waste input–output and linear programming, we investigated options for mitigating CO_2 emissions under consideration of alternative waste treatment/recycling processes applied to waste plastics of China. It was found that of the nine processes considered, four could result in a net reduction in the emission: a win-win situation.

Monsalve, F., Zafrilla, J., Cadarso, M. and García-Alaminos, A. Is the emperor wearing new clothes? A social assessment of the European Union 2007–2013 financial framework. *Economic Systems Research.*

Over the years, European leaders have proudly waved a social flag as one of the European Union's (EU) constituent and differentiating elements. This commitment is assessed here through the social footprint of the European 2007–2013 multiannual financial framework among the EU countries and, worldwide, using an extended multiregional input–output model. The focus is on the quantity and the quality of income and jobs generated. We find that well-known differences among its northern, southern and eastern regions threaten the EU's intentions for high social standards, enabling first- and second-class winners. Core EU countries account for the most of the Funds and, thus, most of the positive economic and social impacts, mainly through spillovers from peripheral regions. Beyond the EU borders, Funds expenditures induce capital compensation boosts in emerging countries not balanced by a similar labor compensation impulse. Indeed, China captures the bulk of low-skilled and temporary employment.

Hawkins, J. and Hunt, J.D. Development of environmentally extended social accounting matrices for policy analysis in Alberta. *Economic Systems Research.*

This paper outlines the development of inputs to an integrated land use and transportation model based on a series of environmentally extended social accounting matrices (SAMs) for the Canadian province of Alberta. A novel form of industry disaggregation is employed, based on aggregate iterative proportion and a unique formulation of location quotients. Social accounts are extended via the inclusion of detailed household consumption broken down by income quintiles. The SAMs are developed from *supply-use matrices*. Physical flow accounts are framed as derived demands, acting as necessary inputs to the production of downstream goods and services. Applications to regional economic modeling are considered, as planning authorities increasingly seek to model the environmental impacts of policy. The SAMs are then applied to the assessment of two technology change scenarios: a shift in the provincial electricity generation mix and a transition to a fully electric private automobile fleet.

Hongsakhone, S., and Ichihashi, M. Measurement of reciprocity in a village through social networks. *Economic Systems Research.*

This paper examines measuring of interdependency among households through their transactions by using information of individual villagers in a disadvantaged area in a developing country. To obtain the information, we created a village input–output table (VIOT) from household survey data conducted in a rural village in Lao PDR in 2015 and 2016. Because each household in the village is not only a producer but also a consumer who is trading products and consuming them, the VIOT is a simple but useful tool to know the economic transactions among villagers. The main findings are that four higher-income families, which mainly trade rice very frequently, are playing key roles in the village economy, and the interdependency among higher-income households is stronger than among lower/middle-income households. Additionally, this method can be used to form an economic policy such as poverty reduction because of informing households playing a key role in the village.

Pereda, P., Lucchesi, A., Garcia, C., and Palialol, B. Neutral carbon tax and environmental targets in Brazil. *Economic Systems Research.*

We evaluate the effects of a carbon tax in the Brazilian economy using an input–output framework. First, we consider the impacts of a carbon tax of US$ 10 and US$ 50/metric ton of CO_2 equivalent. As usual, the adoption of the carbon tax generates adverse effects on GDP, wages and jobs in the short term, but reduces emissions and generates new government revenues, especially in the case of the greater tax. Second, we consider a broader tax system reform. In this reform, we replace distortionary taxes by a tax on value added. To compensate for the loss of government revenue, we assume a carbon tax with equivalent revenue. We find that the net effect is a GDP increase of 0.47%, the creation of 533 thousand jobs and reduction of 1.6 million tons of CO_2 emissions. Both scenarios exempt exports and levy imports to correct adverse effects on the country's competitiveness.

Severini, F., Felici, F., Ferracuti, N., Pretaroli, R., and Socci, C. Gender policy and female employment: a CGE model for Italy. *Economic Systems Research.*

The gender integration in all areas of policy choices and at all stages of the decision-making process is strongly recommended by the European Union and represents an achievement that the Member States should accomplish when implementing policy measures. In a country like Italy, where the level of female labour participation is among the lowest in Europe, policy maker decisions should encourage and stimulate the demand for female labour without neglecting the global employment rate and income growth. The multisectoral analysis offers the possibility to bridge gender disaggregation within income formation and distribution from the production phase to the demand formation. In this perspective, this paper develops a gender-aware CGE model based on the gender-aware SAM for the Italian economy to evaluate the impact of different fiscal policies aimed to reduce female labour cost and trigger woman hiring in those sectors with high gender disparity.

ten Raa, T. The use–make framework and the derivation of functional forms in production theory. *Economic Systems Research.*

The use–make framework is employed to explain functional forms in production theory, including Cobb–Douglas and Leontief. Productivity and efficiency are interrelated by augmenting the framework with a linear program that determines the frontier output.

Highlights in journals

Theule, J. I., Crema, S., Marchi, L., Cavalli, M. and Comiti, F. (2018) Exploiting LSPIV to assess debris-flow velocities in the field. *Natural Hazards and Earth System Sciences*

The assessment of flow velocity has a central role in quantitative analysis of debris flows, both for the characterization of the phenomenology of these processes and for the assessment of related hazards. Large-scale particle image velocimetry (LSPIV) can contribute to the assessment of surface velocity of debris flows, provided that the specific features of these processes (e.g. fast stage variations and particles up to boulder size on the flow surface) are taken into account. Three debris-flow events, each of them consisting of several surges featuring different sediment concentrations, flow stages, and velocities, have been analysed at the inlet of a sediment trap in a stream in the eastern Italian Alps (Gadria Creek). Free software has been employed for preliminary treatment (orthorectification and format conversion) of video-recorded images as well as for LSPIV application. Results show that LSPIV velocities are consistent with manual measurements of the orthorectified imagery and with front velocity measured from the

hydrographs in a channel recorded approximately 70m upstream of the sediment trap. Horizontal turbulence, computed as the standard deviation of the flow directions at a given cross section for a given surge, proved to be correlated with surface velocity and with visually estimated sediment concentration. The study demonstrates the effectiveness of LSPIV in the assessment of surface velocity of debris flows and permit the most crucial aspects to be identified in order to improve the accuracy of debris-flow velocity measurements.

Guerra, A. and Sancho, F. (2018) Positive and normative analysis of the output opportunity costs of GHG emissions reductions: A comparison of the six largest EU economies. *Energy Policy.*

Any policy that aims at reducing GHG emissions by way of modulating the structure of an economy will entail resource reallocation and therefore an implicit economic cost. In this paper, we present a novel answer to this question using positive and normative analyses in such a way that they complement one another. From a positive perspective, we first propose a new look at the analysis of sectors' distributed GHG forward emissions on the basis of absolute rather than marginal effects. Using this information, we then move to a normative viewpoint using an environmental extended input-output linear programming system and compute lower bounds for the potential gross and net output losses for each production unit when facing emissions reduction targets, such as those proposed by the European Union in their 20-20-20 Directive. The originality of our approach relies on two aspects, namely, the introduction of an Armington assumption to link domestic and imported output and that, differently to previous works, total final demand drives the optimal adjustments to reach emissions cuts while minimizing output losses. Our empirical exercise compares the results of these normative and positive analyses for the six largest economies in the European Union.

Akizu-Gardokiab, O., Bueno, G., Wiedmann, T., Lopez-Guede, J. M., Arto, I., Hernandez, P. and Moran, D. (2018) Decoupling between human development and energy consumption within footprint accounts. *Journal of Cleaner Production.*

Historically, the growth of energy consumption has fuelled human development, but this approach is no longer socially and environmentally sustainable. Recent analyses suggest that some individual countries have responded to this issue successfully by decoupling Total Primary Energy Supply from human development increase. However, globalisation and international trade have allowed high-income countries to outsource industrial production to lower income countries, thereby increasingly relying on foreign energy use to satisfy their own consumption of goods and services. Accounting for the import of embodied energy in goods and services, this study proposes an alternative estimation of the Decoupling Index based on the Total Primary Energy Footprint rather than Total Primary Energy Supply. An analysis of 126 countries over the years 2000–2014 demonstrates that previous studies based on energy supply highly overestimated decoupling. Footprint-based results, on the other hand, show an overall decrease of the Decoupling Index for most countries (93 out of 126). There is a reduction of the number of both absolutely decoupled countries (from 40 to 27) and relatively decoupled countries (from 29 to 17), and an increase of coupled countries (from 55 to 80). Furthermore, the study shows that decoupling is not a phenomenon characterising only high-income countries due to improvements in energy efficiency, but is also occurring in countries with low Human Development Index and low energy consumption. Finally, six exemplary countries have been identified, which were able to maintain a continuous decoupling trend. From these exemplary countries, lessons have been identified in order to boost the necessary global decoupling of energy consumption and achieved welfare.

Baynes, T. M., Crawford, R. H., Schinabeck, J., Bontinck, P.-A., Stephan, A., Wiedmann, T., Lenzen, M., Kenway, S., Yu, M., Teh, S. H., Lane, J., Geschke, A., Fry, J. and Chen, G. (2018) The Australian industrial ecology virtual laboratory and multi-scale assessment of buildings and construction. Energy and Buildings. *Energy and Buildings.*

As global population and urbanization increase, so do the direct and indirect environmental impacts of construction around the world. Low-impact products, buildings, precincts and cities are needed to mitigate the effects of building construction and use. Analysis of embodied energy and greenhouse gas (GHG) emissions across these scales is becoming more important to support this direction. The calculation of embodied impacts requires rigorous, flexible and comprehensive assessment tools. Firstly, we present the Australian Industrial Ecology Virtual Laboratory (IELab) as one such tool discussing its structure, function and wide scope of application. Secondly, we demonstrate its potential high level of resolution in a case study: assessing embodied GHG emissions in an aluminium-framed window by combining product-specific life-cycle inventory data. The input-output analysis at the core of the IELab is mathematically comprehensive in the assessment of direct and indirect impacts and the tool can be applied at a range of scales from building component, to precincts and cities, or to the entire construction industry. IELab uses a flexible formalism that enables consistent harmonisation of diverse datasets and tractable updating of input data. The emissions and energy database supporting IELab has detailed data, aligning with economic accounts and data on labour, water, materials and waste that enrich assessment across other dimensions of sustainability. IELab is a comprehensive, flexible and robust assessment tool well positioned to respond to the challenge of assessing and aiding the design of a low-impact built environment.

Fry, J., Lenzen, M., Jin, Y., Wakiyama, T., Baynes, T., Wiedmann, T., Malik, A., Chen, G., Wang, Y., Geschke, A. and Schandl, H. (2018) Assessing carbon footprints of cities under limited information. *Journal of Cleaner Production.*

City carbon footprints have become an important tool for monitoring the progress of cities towards lowering their greenhouse gas emissions and contribution to climate change. Cities usually source a major part of their natural resource demand from their local, national and global hinterland, and cause emissions across the whole global supply chain of a city's final demand. It is important that the data underlying carbon footprint assessments of cities capture these supply chains adequately and comprehensively. In this research, we determine the carbon footprints of four Chinese cities, Beijing, Shanghai, Chongqing and Tianjin based on different levels of data availability. Using these case studies, we show conclusively that city carbon footprint analyses must include input-output databases and associated calculus in order to avoid severe errors that arise from unacceptable scope limitations caused by the truncation of the footprint assessment boundary. We also show that city input-output databases must fulfil a number of requirements for city comparisons and for informed decision-making to be feasible. Our findings suggest that investment into multi-layered national input-output tables and datasets will be necessary to monitor progress of cities reducing their greenhouse emissions across the whole supply chain and to inform evidence based policy making that guides greenhouse abatement.

Fry, J., Lenzen, M., Giurco, D. and Pauliuk, S. (2018) Australian Regional Waste Footprints. *in Robert Crocker , Christopher Saint , Guanyi Chen , Yindong Tong (ed.) Unmaking Waste in Production and Consumption: Towards the Circular Economy*

The production of waste creates both direct and indirect environmental impacts. A range of strategies are available to reduce the generation of waste by industry and households, and to select waste treatment approaches that minimise environmental harm. However, evaluating these strategies requires reliable and detailed data on waste production and treatment. Unfortunately, published Australian waste data are

typically highly aggregated, published by a variety of entities in different formats and do not form a complete time-series. We demonstrate a technique for constructing a multi-regional waste supply-use (MRWSU) framework for Australia using information from numerous waste data sources. This is the first subnational waste input–output framework to be constructed for Australia. We construct the framework using the Industrial Ecology Virtual Laboratory (IELab), a cloud-hosted computational platform for building Australian multiregional input–output tables. The structure of the framework complies with the System of Environmental-Economic Accounting (SEEA). We demonstrate the use of the MRWSU framework by calculating waste 'footprints' that enumerate the full domestic supply chain waste production for Australian consumers.

Malik, A., Lenzen, M., McAlister, S. and McGain, F. (2018) The carbon footprint of Australian health care. *The Lancet Planetary Health.*

Background: Carbon footprints stemming from health care have been found to be variable, from 3% of the total national CO2 equivalent (CO2e) emissions in England to 10% of the national CO2e emissions in the USA. We aimed to measure the carbon footprint of Australia's health-care system..

Methods: We did an observational economic input–output lifecycle assessment of Australia's health-care system. All expenditure data were obtained from the 15 sectors of the Australian Institute of Health and Welfare for the financial year 2014–15. The Australian Industrial Ecology Virtual Laboratory (IELab) data were used to obtain CO2e emissions per AUS$ spent on health care.

Findings: In 2014–15 Australia spent $161·6 billion on health care that led to CO2e emissions of about 35 772 (68% CI 25 398–46 146) kilotonnes. Australia's total CO2e emissions in 2014–15 were 494 930 kilotonnes, thus health care represented 35 772 (7%) of 494 930 kilotonnes total CO2e emissions in Australia. The five most important sectors within health care in decreasing order of total CO2e emissions were: public hospitals (12 295 [34%] of 35 772 kilotonnes CO2e), private hospitals (3635 kilotonnes [10%]), other medications (3347 kilotonnes [9%]), benefit-paid drugs (3257 kilotonnes [9%]), and capital expenditure for buildings (2776 kilotonnes [8%]).

Interpretation: The carbon footprint attributed to health care was 7% of Australia's total; with hospitals and pharmaceuticals the major contributors. We quantified Australian carbon footprint attributed to health care and identified health-care sectors that could be ameliorated. Our results suggest the need for carbon-efficient procedures, including greater public health measures, to lower the impact of health-care services on the environment.

Reynolds, C., Agrawal, M., Lee, I., Zhan, C., Li, J., Taylor, P., Mares, T., Morison, J., Angelakis, N. and Roos, G. (2018) A sub-national economic complexity analysis of Australia's states and territories. *Regional Studies.*

A sub-national economic complexity analysis of Australia's states and territories. Regional Studies. This paper applies economic complexity analysis to the Australian sub-national economy (nine regions with 506 exported goods and services). Using a 2009 Australian multi-regional input–output table for base data, we determine the number of export goods or services in which each state and territory has a revealed comparative advantage, and visualize the complexity of Australia's interstate and international exports. We find that small differences in industrial capability and knowledge are crucial to relative complexity. The majority of states (especially Western Australia) export primarily resource-intensive goods, yet interstate trade has many complex products that are not currently internationally exported.

Ridoutt, B. G., Hadjikakou, M., Nolan, M. and Bryan, B. A. (2018) From Water-Use to Water-Scarcity Footprinting in Environmentally Extended Input–Output Analysis. *Environmental Science & Technology.*

Environmentally extended input–output analysis (EEIOA) supports environmental policy by quantifying how demand for goods and services leads to resource use and emissions across the economy. However, some types of resource use and emissions require spatially explicit impact assessment for meaningful interpretation, which is not possible in conventional EEIOA. For example, water use in locations of scarcity and of abundance are not environmentally equivalent. Opportunities for spatially explicit impact assessment in conventional EEIOA are limited because official input–output tables tend to be produced at the scale of political units, which are not usually well-aligned with environmentally relevant spatial units. In this study, spatially explicit water-scarcity factors and a spatially disaggregated Australian water-use account were used to develop water-scarcity extensions that were coupled with a multiregional input–output model (MRIO). The results link demand for agricultural commodities to the problem of water scarcity in Australia and globally. Important differences were observed between the water-use and water-scarcity footprint results as well as the relative importance of direct and indirect water use, with significant implications for sustainable production and consumption-related policies. The approach presented here is suggested as a feasible general approach for incorporating spatially explicit impact assessments in EEIOA.

Stephan, A., Crawford, R. H. and Bontinck, P.-A. (2018) A model for streamlining and automating path exchange hybrid life cycle assessment. *The International Journal of Life Cycle Assessment.*

Purpose: Life cycle assessment (LCA) is inherently complex and time consuming. The compilation of life cycle inventories (LCI) using a traditional process analysis typically involves the collection of data for dozens to hundreds of individual processes. More comprehensive LCI methods, such as input-output analysis and hybrid analysis can include data for billions of individual transactions or transactions/processes, respectively. While these two methods are known to provide a much more comprehensive overview of a product's supply chain and related environmental flows, they further compound the complex and time-consuming nature of an LCA. This has limited the uptake of more comprehensive LCI methods, potentially leading to ill-informed environmental decision-making. A more accessible approach for compiling a hybrid LCI is needed to facilitate its wider use.

Methods: This study develops a model for streamlining a hybrid LCI by automating various components of the approach. The model is based on the path exchange hybrid analysis method and includes a series of inter-related modules developed using object-oriented programming in Python. Individual modules have been developed for each task involved in compiling a hybrid LCI, including data processing, structural path analysis and path exchange or hybridisation.

Results and discussion: The production of plasterboard is used as a case study to demonstrate the application of the automated hybrid model. Australian process and input-output data are used to determine a hybrid embodied greenhouse gas emissions value. Full automation of the node correspondence process, where nodes relating to identical processes across process and input-output data are identified, remains a challenge. This is due to varied dataset coverage, different levels of disaggregation between data sources and lack of detail of activities and coverage for specific processes. However, by automating other aspects of the compilation of a hybrid LCI, the comprehensive supply chain coverage afforded by hybrid analysis is able to be made more accessible to the broader LCA community.

Conclusions: This study shows that it is possible to automate various aspects of a hybrid LCI in order to address traditional barriers to its uptake. The object-oriented approach used enables the data or other aspects of the model to be easily updated to contextualise an analysis in order to calculate hybrid values for any environmental flow for any variety of products in any region of the world. This will improve environmental decision-making, critical for addressing the pressing global environmental issues of our time.

Teh, S. H., Wiedmann, T. and Moore, S. (2018) Mixed-unit hybrid life cycle assessment applied to the recycling of construction materials. Journal of Economic Structures.

The construction industry contributes around 18% of greenhouse gas emissions, 40% of depletion of natural resources, and 25% of wastes globally. To reduce these impacts, construction industries can adopt low-carbon alternatives for construction materials and waste minimisation strategies, including the recycling of construction and demolition waste. However, a comprehensive understanding of the full life cycle carbon profile of low-carbon and recyclable construction materials is required to accurately assess the efficacy of decarbonisation strategies in the built environment. Despite recent progress in hybrid life cycle assessment (hybrid LCA) methods, some weaknesses remain with respect to the inherent uncertainty relating to price variations and aggregated sectors that are unable to provide detailed waste-specific information in hybrid LCA. Furthermore, attributional, hybrid LCA for a functional unit does not reflect the actual, economy-wide physical flows of materials in a real economy. In this study, a mixed-unit hybrid LCA approach based on a combination of process life cycle inventory, input–output, and material flow data is used to model the economy-wide potential use of recycled construction materials in Australia. A comparison between methods of life cycle emissions of geopolymer concrete revealed that the mixed-unit hybrid LCA approach produced a more accurate and Australian-specific result. The usefulness of the proposed mixed-unit IO model is demonstrated through quantifying the cradle-to-gate embodied emissions of recycled construction materials and by-products utilised in concrete and steel sectors in Australia. The results yield a 1% reduction when recycled concrete aggregate completely replaces natural aggregate in both ordinary Portland cement and geopolymer concrete. Greenhouse gas emissions reduction of 30% is quantified for geopolymer concrete using recycled concrete aggregate compared with ordinary Portland cement concrete utilising natural aggregate and 43% is estimated for electric arc furnace route using iron and steel scrap compared with basic oxygen furnace route. The method merges physical and monetary units of industrial systems related to low-carbon alternatives and recycled construction materials to enable the calculations of embodied carbon with improved accuracy. The results of this study can help inform decarbonisation strategies in the built environment sector.

Zhang, H. and Lahr, M.L. (2018) Households' Energy Consumption Change in China: A Multi-Regional Perspective. *Sustainability.*

As China's economy enters the "new normal" phase, its growth model has gradually changed to focus more on domestic consumption. In this paper, we examine regional disparities in households' total (direct and indirect) energy use in China from 2002 to 2012. Using a structural decomposition approach, we examine how changes in China's technology, economic structure, urbanization, lifestyle, and interregional trade affect household energy use across different regions. We find that rising income levels contributed most to energy usage. Improved energy efficiency offset the rising effects of heightened household consumption in most regions. Rural-to-urban migration played an important role in enhancing energy use in all regions from 2002 to 2012. Moreover, households started to rely more heavily on interregional trade of final goods and services to meet their consumption demands. Based on this multi-regional and multi-angle study, we provide some regional-specific policies that would help curb household energy demand and promote sustainable consumption in China.

Itsuoa, S., Masakob, T. and Kazusuked, T. The value added and operating surplus deflators for industries: The right price indicators that should be used to calculate the real interest rates. *Statistical Journal of the IAOS.*

After the global financial crisis of 2008–2009, many advanced economies are suffering from a dearth of domestic investment opportunities. It has been said that lowering real interest rate is the best policy to boost the capital investment. The problem is what inflation rate they have in their mind when the entrepreneurs make investment decisions. Not only the output prices, but also the composition of inputs differ from one industry to another. Therefore, the value added deflator or even the operating surplus deflator for each industry are better alternative to calculate the real interest rate. In the first half of the paper, we examine the theoretical meaning of the value added deflators using a highly simplified symmetric input output table. In the latter half, we will use so-called SNA-IO, the input-output table published as a part of Japanese SNA, to experimentally estimate both value added and operating surplus deflators. The study reveals that if lowering interest rate depreciate the local currency, it will depress value added deflators, and in turn, will discourage capital investments. In this sense, lowering interest rate is a double-edged sword; the governments and central banks should think twice before taking such a policy.

Flegg, A.T., and Tohmo, T. (2018) The regionalization of national input-output tables: A study of South Korean regions. *Papers in Regional Science.*

This paper uses survey-based data for 16 South Korean regions to refine the application of Flegg's location quotient (FLQ) and its variant, the sector-specific FLQ (SFLQ). These regions vary markedly in terms of size. Especial attention is paid to the problem of choosing appropriate values for the unknown parameter δ in these formulae. Alternative approaches to this problem are evaluated and tested. Our paper adds to earlier research that aims to find a cost-effective way of adapting national coefficients, so as to produce a satisfactory initial set of regional input coefficients for regions where survey-based data are unavailable.

Jackson, R.W., Ferreira Neto, A.B., and Erfanian, E. (2018) Woody biomass processing: Potential economic impacts on rural regions. *Energy Policy.*

This paper estimates the economic and environmental impacts of introducing woody biomass processing (WBP) into a rural area in central Appalachia. WBP is among the most promising additions to energy generation portfolios for reducing import dependency while at the same time providing economic opportunity to stimulate regional economies, especially in rural regions where economic development options are often limited. We use an input-output framework to assess WBP under three different pathways, fast pyrolysis, ethanol and coal-biomass to liquids. We find that the proposed WBP will increase regional output by 0.5–1.3% of gross regional product; it will increase income by $17.32 to $51.31 million dollars each year, and regional employment by 218.1–1127.8 jobs, depending on the chosen pathway. Of these impacts, the direct portions are 63–77% of the total impact, depending on the chosen pathway. The economic analysis and the results from the accompanying environmental assessment show that only the ethanol pathway has both economic and environmental benefits. We conclude that because long-run economic development strategies in rural regions are limited and negative impacts do not alter dramatically the regional environmental profile, regional policymakers should include WBP among their development portfolio options.

Alvarez, S., Tobarra, M.A., and Zafrilla, J.E. (2018) Corporate and Product Carbon Footprint under Compound Hybrid Analysis: Application to a Spanish Timber Company. *Journal of Industrial Ecology.*

The European Union (EU) is advancing steadily toward the stabilization of atmospheric greenhouse gas concentrations. Various sectors are now obliged to make reductions, and new policies based on the carbon footprint are being encouraged. However, voluntary reporting of so-called scope 3 emissions is hindering successful implementation of these policies. In this

study, we present a tiered hybrid analysis to report emissions according to the ISO/TR 14069 standards and to obtain complete measures of scope 3 emissions. A process analysis for scope 1 and scope 2 emissions is complemented with a multiregional input-output analysis for upstream scope 3 emissions. This novel approach is applied to the case study of a Spanish timber company. Its total carbon footprint in 2011 was 783,660 kilograms of carbon-dioxide equivalent, of which 88% correspond to scope 3 emissions. These emissions are globally distributed; 71% are from European countries, followed by 8% from emerging economies (Brazil, Russia, India, Indonesia, Australia, and Turkey), 5% from China, and, finally, 16% from the rest of the world. We identify and discuss the advantages and disadvantages of this novel approach, the European implementation of which could be highly effective in reducing global carbon emissions.

Lenzen, M., Sun, Y., Faturay, F., Ting, Y., Geschke, A., and Malik, A. (2018) The carbon footprint of global tourism. *Nature Climate Change.*

Tourism contributes significantly to global gross domestic product, and is forecast to grow at an annual 4%, thus outpacing many other economic sectors. However, global carbon emissions related to tourism are currently not well quantified. Here, we quantify tourism-related global carbon flows between 160 countries, and their carbon footprints under origin and destination accounting perspectives. We find that, between 2009 and 2013, tourism's global carbon footprint has increased from 3.9 to 4.5 GtCO2e, four times more than previously estimated, accounting for about 8% of global greenhouse gas emissions. Transport, shopping and food are significant contributors. The majority of this footprint is exerted by and in high-income countries. The rapid increase in tourism demand is effectively outstripping the decarbonization of tourism-related technology. We project that, due to its high carbon intensity and continuing growth, tourism will constitute a growing part of the world's greenhouse gas emissions.

Kaplan, L.C., Kohl, T., and Martínez-Zarzoso, I. (2017). Supply-chain trade and labor market outcomes: The case of the 2004 European Union enlargement. *Review of International Economics.*

The structure of international trade is increasingly characterized by fragmentation of production processes and trade policy. Yet, how trade policy affects supply-chain trade is largely unexplored territory. This paper shows how the accession of 10 Central and Eastern European Countries (CEECs) to the European Union affected European supply-chain trade. We find that accession primarily fostered CEECs' integration in global value chains of other entrants. Smaller integration benefits stem for East–West trade in services for lower-skill activities. These increases in value-added exports translate into sizeable job creation.

Wiedmann, T., and Lenzen, M. (2018) Environmental and social footprints of international trade. *Nature Geoscience.*

Globalization has led to an increasing geospatial separation of production and consumption, and, as a consequence, to an unprecedented displacement of environmental and social impacts through international trade. A large proportion of total global impacts can be associated with trade, and the trend is rising. Advances in global multi-region input-output models have allowed researchers to draw detailed, international supply-chain connections between harmful production in social and environmental hotspots and affluent consumption in global centres of wealth. The general direction of impact displacement is from developed to developing countries—an increase of health impacts in China from air pollution linked to export production for the United States being one prominent example. The relocation of production across countries counteracts national mitigation policies and may negate ostensible achievements in decoupling impacts from economic growth. A comprehensive implementation of the United Nations Sustainable Development Goals therefore requires the inclusion of footprint indicators to avoid loopholes in national sustainability assessments.

Pomfret, R., and Sourdin, P. (2018). Value chains in Europe and Asia: Which countries participate?. *International Economics.*

The paper starts by reviewing the evolution and current status of value chains, and by assessing alternative measures of their significance. The value chains centred on North America, the European Union and East Asia are contrasted. North American value chains tend to be limited to the three NAFTA members under negotiated rules. In the European Union and East Asia value-chain formation has been largely a bottom-up process with free entry supported by low trade costs. To identify which countries have joined value chains, we calculate two measures of value-chain participation by European and Asian emerging market economies. The measures highlight (1) the rapid growth of value-chain activity in the twenty-first century, (2) the greater value-chain participation by East Asian emerging market economies than by EU emerging market economies, and (3) the cross-country variation in participation, with value-chain participation dominated by a handful of countries in both continents. The final section draws conclusions about the nature of international value chains and the policy implications.

Picek, O., and Schröder, E. (2018). Spillover effects of Germany's final demand on Southern Europe. *The World Economy.*

We use data from the World Input-Output Database to fit a closed multiregional input–output model in order to estimate the size of spillover effects of Germany's final demand on GDP, employment and the trade balance in Southern European countries. We find that spillover effects are rather small. Germany alone will hardly make a significant contribution to the external adjustment process in the European South.

Backer, K., Lombaerde, P., and Iapadre, L. (2018). Analyzing Global and Regional Value Chains. *International Economics.*

This paper introduces a Special Issue on Analyzing Global and Regional Value Chains. It presents a state-of-the-art of the literature and explores the frontiers of our knowledge on GVCs with a double focus: on the one hand, we will further investigate to what extent the phenomenon of GVCs is also a regional phenomenon (i.e. RVCs) and how it interacts with regional policies and processes of regional economic integration. On the other hand, we will deepen our understanding of the measurement aspects of GVCs and their scope, including at the regional level.

Del Prete, D., Giovannetti, G., and Marvasi, E. (2018). Global value chains: New evidence for North Africa. *International Economics .*

This paper analyzes the participation and the position of North African countries in global value chains (GVCs). Exploiting the recently released Eora multiregional Input-Output tables, we describe regional and country GVC involvement. North African countries have not so far been able to fully integrate into international production networks. However, a large part of their (low) trade is due to value added related activities, mainly in the upstream phases, and the importance of foreign linkages has been increasing over time. We complement the Input-Output analysis with sectoral evidence from selected case studies and policy experiences. Overall, our results suggest that enhancing the GVC participation of North African countries has potential to substantially benefit local industries, countries and indeed the whole area. However, the ability to retain such benefits relies on specific local conditions, such as a favorable environment for foreign investments, and lower trade barriers, thus leaving room for policy intervention.

Newsletter
International Input-Output Association (IIOA)
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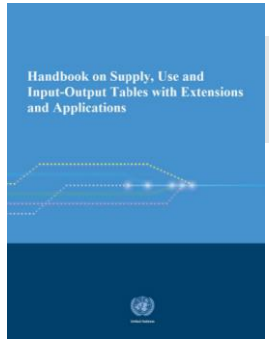
Stäglin, R. and Fremdling, R. (2018). An Input-Output Table for 1936. *Statistisches Bundesamt | WISTA .*

It is largely unknown that in the 1930s the Reich Statistical Office (Statistisches Reichsamt) prepared a table of turnover linkages of the national economy – "Tabelle der volkswirtschaftlichen Umsatzverflechtung" – nowadays called input-output table. The table had been planned to improve business cycle management, based on the results of the industrial census of 1933, but it was not completed. The authors of this article carried out a multi-annual research project and used archival records on the industrial census of 1936 to estimate a symmetrical input-output table with monetary values for the German Reich. At the same time, they reconstructed new national accounts figures for 1936, thus reviving the original plan of the Reich Statistical Office. The authors have sole responsibility for the assumptions made and information given in this paper.

Highlights in Books



Handbook on Supply, Use and Input-Output Tables with Extensions and Applications

The following handbook has been published by the UN:

Handbook on Supply, Use and Input-Output Tables with Extensions and Applications, Mahajan S., Beutel J., Guerrero S., Inomata S., Larsen S., Moyer B., Remond-Tiedrez I., Rueda-Cantuche J.M., Hobbelstad Simpson L. Thage B., Van Rompaey, C. Verbiest P., DiMatteo I., Kolleritsch E., Alsammak I., Brown G., Cadogan A., Elliot D., Amores A.F., Ghanem Z., Lenzen M., Meng B., de Mesnard L., Moylan C., Howells T., Oosterhaven J., Gravgard Pedersen O., Pereira X., Rodrigues J.F.D., Sixta J., Stapel-Weber S., Temurshoev U., Yamano N., Ahmad N., Smith H., Chow J., Singh G., Sim B., Alfieri A., Havinga I. UNITED NATIONS PUBLICATION, Department of Economic and Social Affairs, Statistics Division, ISBN: 978-92-1-1, 2018.

Abstract

The Handbook on Supply, Use and Input-Output Tables with Extensions and Applications is an update of the *Handbook of National Accounting*: *Handbook of Input-Output Table Compilation and Analysis* (United Nations, 1999) (available here) to incorporate the changes in the international standards like the 2008 SNA and the BPM 6. The *Handbook* is part of a series of handbooks on national accounting to support of the implementation of the System of National Accounts 2008 (2008 SNA). The objective of this *Handbook* is to provide a step-by-step guidance for the compilation of Supply and Use Tables (SUTs) and Input-Output Tables (IOTs) and an overview of the possible extensions of SUTs and IOTs which increase their analytical usefulness.

UNITED NATIONS

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Reports

Economic, environmental and social effects of globalisation

EU Exports to the world: effects on employment and income. Edition 2018

The JRC provides scientific evidence-based policy support to DG Trade by analysing the number of jobs supported by extra-EU exports (by industry, skills, gender and age) and their corresponding embodied value added. To fully understand how trade flows affect employment and income, gathering comprehensive, reliable and comparable information is crucial to support evidence-based policymaking. Guided by this objective, the JRC and DG TRADE have continued their longstanding collaboration to produce a third study in two volumes:

EU exports to the world: Effects on employment. Edition 2018

EU exports to the world: Effects on income. Edition 2018

both aiming to be a valuable tool for trade policymakers.

This report features a series of indicators to illustrate in detail the relationship between trade and employment for the EU as a whole and for each EU Member State using the new World Input-Output Database (WIOD), 2016 release, as the main data source. This information has been complemented with data on employment by age, skill and gender from other sources such as EUKLEMS. All the indicators relate to the EU exports to the rest of the world so as to reflect the scope of EU trade policymaking.

Most indicators are available as off 2000 but, due to data constraints, the indicators on employment split by skill, gender and age are only available from 2008 to 2014. The geographical breakdown of the data includes the 28 EU Member States, Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Norway, Russia, South Korea, Switzerland, Turkey, Taiwan, the United States of America, and an aggregate "Rest of the World" region. On the basis of the number of jobs embodied in every million EUR worth of exports in 2014 and more recent data on international trade in goods and services, this report also provides projections elaborated by the JRC for 2017 using a different methodology, so they should be taken with caution.

The information presented in this pocketbook is complemented with an electronic version with extra downloadable data and visualisations together with country fiches for the EU and its member states.

The JRC and DG TRADE have also produced a new DG TRADE Chief Economist Note (2018) based on the new figures contained in this report.

European Commission

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Others

A new Virtual MRIO Laboratory for Taiwan – the TaiwanLab

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The University of Sydney in Australia and the National Cheng Kung University in Taiwan develop a new Virtual Laboratory – the TaiwanLab – capable of constructing detailed sub-national MRIO tables for the period 1990-2016. The TaiwanLab is a virtual laboratory built in a cloud-computing environment similar to the ones hosting the Australian Industrial Ecology Virtual Laboratory (IELab; Lenzen et al. 2017a), the Indonesian IELab (Faturay et al. 2017), the Chinese IELab (Wang 2017) and the Japanese IELab (Wakiyama et al. 2017). As with other virtual laboratories, the TaiwanLab supports remote access, harmonized data storage, automatic data processing, and flexible regional and sectoral classifications. Lab users are able to access, update or integrate a number of data sources, and choose their preferred regional and sectoral classifications, to suit their specific case studies.

The TaiwanLab is built at high regional and sectoral detail, generating a time-series of MRIO tables consisting of 22 city-counties and 267 economic sectors. Because of this unsurpassed detail, the TaiwanLab is able to provide a comprehensive picture of Taiwan's regional economic structure, including regional economic distribution, sectoral contribution, and inter-regional supply-chain flow. At the time of writing, no such MRIO database existed for Taiwan.

The first step in constructing a sub-national MRIO database in the TaiwanLab is to obtain national input-output tables at the highest possible detail. Second, these national input-output tables are then disaggregated into sub-national MRIO tables using non-survey regionalisation methods (Sargento et al. 2012), which are widely-used techniques for generating sub-regional MRIO tables using national input-output tables as a starting point. The TaiwanLab is currently equipped with 10 different non-survey methods that can be flexibly selected by users. The regionalization of the national input-output tables into sub-national MRIO tables is accomplished using a proxy quantity describing the economic structure of a region in comparison to the nation. Labor data are the preferred candidate for this proxy quantity since they are available at a satisfactory level of disaggregation for all cities and counties, and for all sectors. Third, the outcome of this regionalisation process is used as an initial estimate of the sub-national MRIO base table. This initial estimate then undergoes further balancing and reconciliation, carried out using an automatic reconciliation system, known as AISHA (Automated Integration System for Harmonised Accounts, Geschke et al. 2014).

Events

Past Events

Third meeting for the construction of a Latin American regional input-output matrix
November 22, 2018

Guatemala City

On November 22, 2018, the third meeting for the construction of a Latin American Regional Input-Product Matrix was held in Guatemala City, following the established program of the project. This meeting was organized by the Economic Development Unit of the Sub-regional Headquarters of ECLAC in Mexico and the Secretary of Central American Economic Integration – SIECA, with headquarters in Guatemala City.

The meeting was attended by the teams of the central banks and statistical institutes of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Mexico and the Dominican Republic, which participate in the construction of the Latin American matrix, as well as executives of ECLAC -Sub-regional Mexico Headquarters- and SIECA.

The meeting presented the progress made in the process of structuring national matrices and a first sketch of the sub-regional matrix for the eight countries listed in the previous paragraph. A study on Central American and Dominican exports was also presented, based on national input-output matrices. The project will conclude in 2019 with the validation and publication of the regional matrix, as well as the making of studies that will allow the design and evaluation of public policies based on the indicators derived from the matrix.

Photo: Courtesy of SIECA.

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Next courses

2019 Short Course in Dynamic Global Trade Analysis
April 10-14, 2019

West Lafayette, IN, USA

"Applied General Equilibrium Analysis using a Dynamic Multi-Region Model"

Background and Objectives

The objective of this course is to introduce participants to dynamic economic analysis in an applied general equilibrium setting. This course is designed to provide participants with ample hands-on training with software that has been tailored for undertaking analysis using a dynamic recursive model. Participants will interact with economists working on global trade and environmental issues using a dynamic model. The end goal of the course is for participants to leave with the capability of conducting and analyzing their own dynamic simulations.

Features of the newly developed multi-region, multi-sector general equilibrium model include:

Recursive dynamics based on the GTAP Model (v7), including parameters by region and the flexibility of a make matrix that allows activities to produce one or more commodities

Twist" preference parameters to capture domestic-imported bundle shifts and capital-labor changes over time

Course participants will learn to aggregate their economic database and develop a business as usual scenario using information from the Shared Socioeconomic Pathways, which has been annualized for ease of use.

Structure

The course consist of a mix of daily lectures, lab assignments, and informal discussions designed to introduce participants to the basic features of the model and database. Participants will undertake formal lecture and lab assignments in the mornings and spend the afternoons working in groups to build their own economic applications, which includes working with data to develop a baseline and policy experiments. The groups will present the results of their applications on the final day.

Dates/Deadlines (Eastern Time Zone)

Course Application	August 6 - December 9
Acceptance Notifications	mid-January
Lodging Reservations	March 24
Course	April 10-14, 2019

Application

Individuals interested in taking this course must apply on the GTAP website. All applications will be reviewed following the deadline. Those individuals accepted into the course will receive an email detailing how to register and arrange for payment. Please note that application does not guarantee acceptance.

Prerequisites

It is expected that applicants have undertaken courses on multi-region general equilibrium (GE) analysis or have completed a significant piece of analysis using a dynamic multi-region GE model or another, comparable, general equilibrium model. Please contact the Center for Global Trade Analysis for further information.

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ERSA Summer School 2019

June 16-22, 2019

Katowice, Poland

The European Regional Science Association is pleased to announce in collaboration with ERSA Polish Section and the University of Economics in Katowice that the 32nd ERSA Summer School will be held from 16th June to 22nd June at the University of Economics in Katowice, Poland.

The summer school programme will feature the theme "Cities and regions in the process of transformation"? In pursuit of prevailing research concepts: geography of innovation, economic resilience, smartness, specialisation … What else?

Key Dates

- Call for Application Start: 17th December 2018
- Application deadline: 9th March 2019
- Notification of acceptance and registration start: 12th April 2019
- Deadline for registration and payment registration: 30th April 2019v

ersa European Regional Science Association

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University of Economics in Katowice

7th Annual Short Course in Global Trade Analysis

August 3-8, 2019

West Lafayette, IN, USA

"Introduction to Applied General Equilibrium Analysis in a Multi-Region Framework"

Background

The short course consists of two parts. The online phase is an eight-week sequence where students get in-depth training about the microeconomic underpinnings of applied general equilibrium (AGE) models. The online course allows for self-paced learning on a modular basis. Each weekly module requires an end of week submission that triggers feedback from the instruction team. The onsite course is a mix of lecture and lab sessions designed to develop the economic intuition required to perform high-level policy analysis using the GTAP Model and Data Base. These activities culminate in a major application undertaken by small groups and presented on the final day of the course.

Objectives

introduce participants to a standardized framework (GTAP Model, v7) for conducting global policy analysis in an applied general equilibrium setting

provide participants with hands-on training with software that has been tailored to instruction in economic analysis with minimal software manipulation overhead

deliver participants an opportunity to interact with economists working on global trade and resource use issues and provide the perfect entry point to the international network of AGE modelers and policy analysts using GTAP data and models

Structure

The GTAP Short Course is comprised of an eight-week online instruction program followed by an intensive onsite course delivered by a team of GTAP specialists in data, model construction, and policy analysts.

Part I: Online - The first portion of the GTAP Short Course is an eight-week online program to refresh and reinforce economic foundations of applied general equilibrium analysis. These modules build student capacity in implementing microeconomics and national accounting concepts into a quantitative modeling environment.

Each weekly module adds core components to the traditional 'circular flow' economy structure of general equilibrium, while emphasizing data and software solutions that are specific to the GTAP architecture. Student progress is measured in each weekly module by a set of short summary quizzes and a brief assignment to encourage synthesis of module material and facilitate feedback from the instruction team. Working through online material in advance of the onsite portion of the course provides students with a functional background on theory, data, and software.

Dates/Deadlines (Eastern Time Zone)

Course Application	October 29 - March 3
Acceptance Notifications	April
Lodging Reservations	July 10
Online Course	May 20 - July 21
Onsite Course	August 3-8

Part II: Onsite - This second portion of the GTAP Short Course focuses on applied policy analysis, aimed at helping students master the techniques for developing policy scenarios and understanding the economic interactions 'drive' CGE model impacts. A core learning objective of the onsite course is preparing students to contribute to policy debates using quantitative analyses developed from the standard GTAP framework and the suite of model 'extensions' that have been developed for more specialized analysis. The capstone experience of the course is for students to develop and present a short analysis using one of these 'extensions' to their classmates and the instruction team. The extensions taught in the course typically focus on the two primary areas of Center for Global Trade Analysis research efforts on energy/environment (e.g. renewable energy or land use) and trade/protection (e.g. "trade wars" or regional FTA proposals).

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Next conferences

5th National Input-Output Conference

February 8- 9, 2019

Tehran, Iran

This conference will be hosted by Economic Department, Faculty of Social Sciences and Economics, at Alzahra University, as one of the leading comprehensive universities of Iran was founded exclusively for women's education. The purpose of the gathering is to bring together academic researchers and experts in Economic and statistical institutions to become familiar with the latest advances on an input-output literature.

Topics:

1. Theoretical Development of Regional Input-output Tables Models.
2. Evaluation of Methods of Updating IOTs.
3. Application of I-O, SAM and CGE in: Resilience, Energy, Subsidies, Heath, Services, Environments, waste, Tax policy Impact, Productivity, Structural Analysis, Tourism.
4. Methods of Estimation of Regional Input-Output Tables and Their Applications.
5. Integrated Agent Based Modelling and general equilibrium models.

Input-output Workshop Special

14 –15 March, 2019

Bochum University of Applied Sciences

Input-output Analysis for Sustainable Development

The concept of Sustainable Development, which was introduced in the well-known "Brundtland Report" (1987), now influences decisions by companies, households, and public institutions. Sustainable Development requires the simultaneous fulfilment of goals in at least three dimensions (including the environmental, economic, and social dimensions) at the global, national, and regional level. In the context of Sustainable Development, input-output analysis can for example be used for applications like:

- Estimation of "environmental footprints"
- Analysis of emissions embodied in trade
- Analysis of economic impacts of climate change
- Investigation in employment effects of investment projects in the fields of renewable energy and energy efficiency
- Studies related to the effects of environmental policy on the distribution of income

At this workshop we wish to discuss these and other applications of input-output analysis to questions related to Sustainable Development..

Participation

Please hand in your extended abstract (1-2 pages in pdf format) until December 31st, 2018 to tobias.kronenberg@hs-bochum.de. All contributions should relate to the special topic Sustainable Development.

Important dates

- Submission of extended abstract until December 31st, 2018
- Confirmation of participation until February 1st, 2019
- Workshop programme February 10th, 2019

The workshop is bilingual (German and English are spoken).

Workshop contribution: 65 € p.p.

For questions please refer to Prof. Dr. Tobias Kronenberg:

tobias.kronenberg@hs-bochum.de

Phone: +49 (0)234 32 10816

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2019 Southern Regional Science Association Meeting

April 4 –6, 2019

Arlington, VA
(Washington, DC Metro)

Call for Papers

Join us for the 58th Annual Southern Regional Science Association Meetings at the Key Bridge Marriott Hotel

For more information on submitting organized sessions, individual abstracts, undergraduate poster abstracts, and Moriarty and Miernyk award applications can be found by clicking on the conference link at www.srsa.org.

Deadlines

Organized Sessions/Individual Abstracts: January 18th
Moriarty Graduate Student Paper Award: February 15th
William H. Miernyk Research Excellence Medal: February 15th
Undergraduate Poster Abstracts: February 15th

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The 3rd International Conference on Economic Structures (ICES 2019)

March 18- 19, 2019

Osaka, Japan

Organizers: Pan-Pacific Association of Input Output Studies(PAPAIOS)

The 3rd International Conference on Economic Structures 2019 (ICES 2019) will be held on 18 & 19 March 2019 at Ritsumeikan University (Osaka Ibaraki Campus(OIC)), Japan (Address: Ritsumeikan University, 2-150 Iwakura-cho, Ibaraki, Osaka, Japan). The Pan Pacific Association of Input-Output Studies invites your participation and contribution to the ICES 2019. ICES 2019 of this year focuses on the following sub-themes. All contributions that address the following sub-themes are especially welcomed. We also welcome your proposals for organized special sessions.

(1) Environment, Resource and Energy
(2) International Economy and International Development
(3) Telecommunication and Information Technology
(4) Productivity
(5) Computable General Equilibrium Model
(6) Regional Input-Output Analysis
(7) Theory of Input-Output Techniques
(8) Compilation of Input-Output Table, SNA, or SAM
(9) Disaster and the Economy/Society
(10) Others

Abstract Submission Deadline:

31 December 2018

Chair of the Local Organizing Committee: Nobuki SUGITA, Ritsumeikan University, Japan

Chair of the Scientific Program Committee: Kazuo INABA (Former President of PAPAIOS), Ritsumeikan University, Japan Contact: ICES_PAPAIOS@yahoo.co.jp

Further information will be announced in the following website:

http://www.gakkai.ne.jp/papaios/en/index.html

PAPAIOS

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XXXVII International Congress of the Latin American Studies Association

May 24-27, 2019

LASA2019
BOSTON, USA / MAY 24 - 27, 2019

Nuestra América: Justice and Inclusion

The call for papers is now open.

You are invited to submit a paper or panel proposal addressing either the congress theme or any topic related to the program tracks. LASA also invites requests for travel grants from paper presenters who qualify. Visit the LASA website for eligibility criteria. All proposals for papers, panels, and travel grants must be submitted to the LASA Secretariat via the online proposal system by September 6, 2018, 5 p.m. EDT (deadline).

Special panel discussions on Implementing the Paris Agreement and Carbon footprint and Environmental humanities.

Track chairs on Biodiversity, Climate Change, Environment and Natural Resources: Pablo Ruiz Nápoles (UNAM, Mexico) and María Ángeles Cadarso (UCLM, Spain).

LATIN AMERICAN STUDIES ASSOCIATION

22nd Annual Conference on Global Economic Analysis

June 19-21, 2019

Warsaw, Poland

"Challenges to Global, Social, and Economic Growth"

The goal of the conference is to promote the exchange of ideas among economists conducting quantitative analysis of global economic issues. Particular emphasis will be placed on applied general equilibrium methods, data, and application. Related theoretical and applied work is also welcome.

A global network of individuals and institutions conducting economy-wide analysis of trade, resource, and environmental policy issues has emerged. Thousands of these researchers now use a common data base, supplied by the Global Trade Analysis Project (GTAP). The project is coordinated by the Center for Global Trade Analysis at Purdue University with the support of a consortium of national and international agencies. The GTAP Data Base is a key input into most of the contemporary applied general equilibrium (AGE) analysis of global economic issues. Participants are given the opportunity to present their work, interact with other professionals in the field, and learn about the most recent developments in global economic analysis.

The overall theme of the conference is "Challenges to Global, Social, and Economic Growth" with subthemes on:

International trade and trade policy and slowing down globalization

Migrations, demographic change and the labor market

Environmental challenges and energy policy

Dates/Deadlines (Eastern Time Zone)

Abstracts	Nov 5 - Jan 15
Organized Session Proposals	Nov 5 - Jan 15
Scholars Program	Nov 5 - Jan 15
Travel Funding Opportunities	Nov 5 - Jan 15
Abstract Review	Jan 18 - Feb 10
Acceptance Notifications	late Feb
Final Papers	Apr 15
Early Registration	Feb - Apr 15
Late Registration (Late fee incurred)	Apr 16-30
Registration Payment	May 7

University of Warsaw
Faculty of Economic Sciences

GTAP

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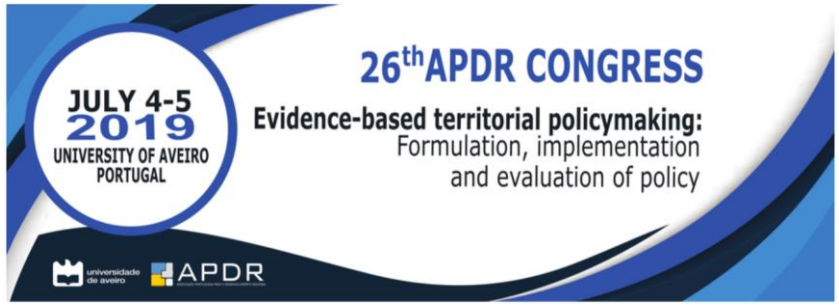
26th APDR Congress

July 4-5, 2019



The 26th APDR Congress will be held at the University of Aveiro, which hosted its first edition in 1990. This congress will allow a debate on the needs and challenges of territorialising public policies and on the role of (big) data, information and technologies in planning and regional development.

Thus, the 26th APDR Congress emphasizes the interactions between three dimensions: i) data and information; ii) tools and models; iii) policies and instruments.

59th ERSA Congress

August 27-30, 2019

Key Dates

October 22nd 2018: Call for Special Sessions
December 7th 2018: Deadline Special Sessions Proposals
December 10th 2018: Open submission for abstracts (and papers)
February 28th 2019: Deadline abstract (and paper) submission
March 29th 2019: Notification of acceptance and registration opens
May 13th 2019: Deadline registration at early bird fees
June 10th 2019: Deadline registration
Early July: Final programme

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27th IIOA Conference

June 30 - July 5, 2019

The Office for National Statistics in collaboration with the University of Strathclyde, Fraser of Allander Institute, Glasgow Convention Bureau and the Scottish Government will ensure that we make the 2019 IIOA Conference a truly memorable occasion.

We will deliver an inclusive, innovative, accessible, affordable and enjoyable conference for all delegates in a state of the art conference centre in Glasgow, which is one the UK's most vibrant, cultural and friendly cities located at the gateway to the magnificent Scottish Highlands.

The 2019 Conference will build on the successes of previous IIOA Conferences as well as provide a programme to inspire the next generation and encourage partnerships and collaborations in the field of Input-Output and the much wider field of economic statistics.

Mr Sanjiv Mahajan
Chair of Local Organisation Committee
Office for National Statistics

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