



Universiteit
Leiden
The Netherlands

The potential of multi-scale EE-MRIO to support sustainable development policies in Indonesia

Rum, I.A.

Citation

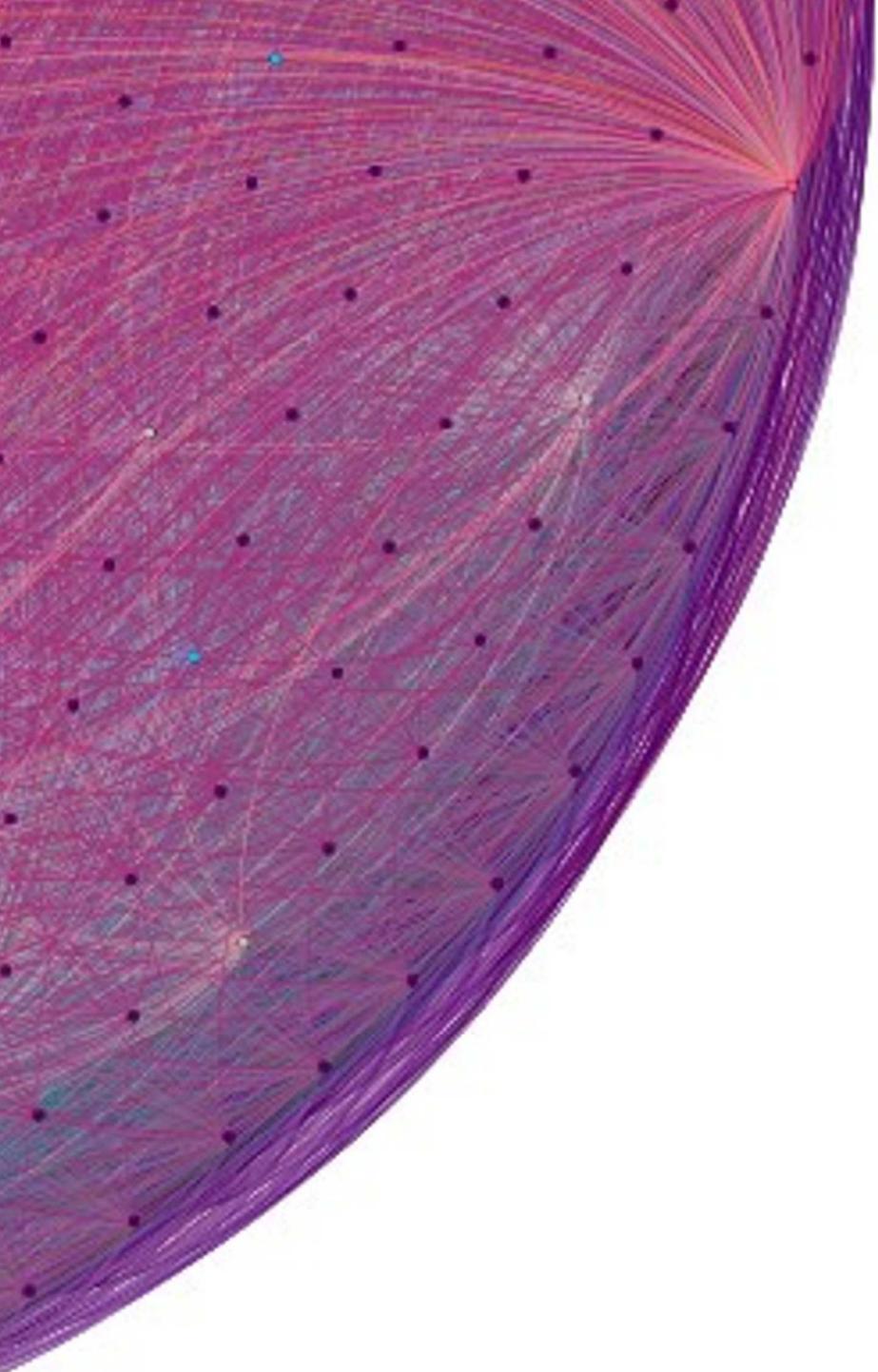
Rum, I. A. (2025, January 29). *The potential of multi-scale EE-MRIO to support sustainable development policies in Indonesia*. Retrieved from <https://hdl.handle.net/1887/4178024>

Version: Publisher's Version

[Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

License: <https://hdl.handle.net/1887/4178024>

Note: To cite this publication please use the final published version (if applicable).



References

- Afriyanti, D., Kroeze, C., & Saad, A. (2016). Indonesia palm oil production without deforestation and peat conversion by 2050. *Science of The Total Environment*, 557–558, 562–570.
<https://doi.org/10.1016/j.scitotenv.2016.03.032>
- Aguiar, A., Chepeliev, M., Corong, E. L., McDougall, R., & Mensbrugghe, D. van der. (2019). The GTAP Data Base: Version 10. *Journal of Global Economic Analysis*, 4(1), Article 1.
<https://doi.org/10.21642/JGEA.040101AF>
- Arifanti, V. B., Kauffman, J. B., Hadriyanto, D., Murdiyarso, D., & Diana, R. (2019). Carbon dynamics and land use carbon footprints in mangrove-converted aquaculture: The case of the Mahakam Delta, Indonesia. *Forest Ecology and Management*, 432, 17–29.
<https://doi.org/10.1016/j.foreco.2018.08.047>
- Austin, K. G., Mosnier, A., Pirker, J., McCallum, I., Fritz, S., & Kasibhatla, P. S. (2017). Shifting patterns of oil palm driven deforestation in Indonesia and implications for zero-deforestation commitments. *Land Use Policy*, 69, 41–48. <https://doi.org/10.1016/j.landusepol.2017.08.036>
- Bachmann, C., Roorda, M. J., & Kennedy, C. (2015). Developing a Multi-Scale Multi-Region Input–Output Model. *Economic Systems Research*, 27(2), 172–193. <https://doi.org/10.1080/09535314.2014.987730>
- Baldos, U. L. C., Haqiqi, I., Hertel, T. W., Horridge, M., & Liu, J. (2020). SIMPLE-G: A multiscale framework for integration of economic and biophysical determinants of sustainability. *Environmental Modelling & Software*, 133, 104805. <https://doi.org/10.1016/j.envsoft.2020.104805>
- Baldwin, R. E. (2004). Openness and Growth: What's the Empirical Relationship? *NBER Chapters*, 499–521.
- Beaussier, T., Caurla, S., Bellon-Maurel, V., & Loiseau, E. (2019). Coupling economic models and environmental assessment methods to support regional policies: A critical review. *Journal of Cleaner Production*, 216, 408–421. <https://doi.org/10.1016/j.jclepro.2019.01.020>

- Benoit, C., Norris, G. A., Valdivia, S., Ciroth, A., Moberg, A., Bos, U., Prakash, S., Ugaya, C., & Beck, T. (2010). The guidelines for social life cycle assessment of products. *Int J Life Cycle Assess*, 15, 156–163.
- Biermann, F., Kanie, N., & Kim, R. E. (2017). Global governance by goal-setting: The novel approach of the UN Sustainable Development Goals. *Current Opinion in Environmental Sustainability*, 26–27, 26–31.
<https://doi.org/10.1016/j.cosust.2017.01.010>
- Bjelle, E. L., Wiebe, K. S., Többen, J., Tisserant, A., Ivanova, D., Vita, G., & Wood, R. (2021). Future changes in consumption: The income effect on greenhouse gas emissions. *Energy Economics*, 95, 105114
<https://doi.org/10.1016/j.eneco.2021.105114>
- Blanc, D. (2015). Towards integration at last? The sustainable development goals as a network of targets. *Sustainable Development*, 23(3), 176–187.
- Bohringer, C., & Löschel, A. (2006). Computable general equilibrium models for sustainability impact assessment: Status quo and prospects. *Ecological Economics*, 60(1), 49–64.
- Boly, M., & Sanou, A. (2022). Biofuels and food security: Evidence from Indonesia and Mexico. *Energy Policy*, 163, 112834.
<https://doi.org/10.1016/j.enpol.2022.112834>
- BPS. (2010a). *Statistical Yearbook of Indonesia 2010*. BPS Jakarta.
- BPS. (2011). *Environment Statistics of Indonesia: 2011*. BPS.
- BPS. (2012a). *Human Development Indexes 2010-2011*. BPS Jakarta.
- BPS. (2012b). *Indonesian Oil Palm Statistics 2011*. BPS.
- BPS. (2014). *Gross Regional Domestic Product of Provinces in Indonesia by Industry*.
- BPS. (2019). *Statistik Perkebunan Indonesia 2018-2020: Kelapa Sawit*.
<https://drive.google.com/open?id=1FVxpBNihnuB3ayAALBi-FtsBShIUxMTD>
- BPS. (2020). *Gross Regional Domestic Product of Provinces in Indonesia by Industry*.
- BPS. (2021a). *Environment Statistics of Indonesia: 2021*. BPS.
- BPS. (2021b). *Tabel Interregional Input-Output Tahun 2016*.
- BPS. (2021c). *Tabel Interregional Input-Output Tahun 2016* (07100.2113; p. 322). BPS.
- BPS. (2022a). *Gross Regional Domestic Product of Provinces in Indonesia by Industry*.
- BPS. (2022b). *Indonesia Palm Oil Statistics 2021*. BPS.

- BPS. (2022c). *Indonesian Oil Palm Statistics 2021*. BPS.
- BPS. (2023). *Human Development Index: 2022* (07300.2306). BPS.
- BPS. (2010b). *Survei Angkatan Kerja Nasional 2010 Semester 2*.
<https://mikrodata.bps.go.id/mikrodata/index.php/catalog/92>
- BPS. (2016). *Survei Angkatan Kerja Nasional 2016 Semester 2*.
<https://mikrodata.bps.go.id/mikrodata/index.php/catalog/SAKERNAS>
- Breuer, L. E., Guajardo, J., & Kinda, T. (2018). Realizing Indonesia's Economic Potential. In *Realizing Indonesia's Economic Potential*. International Monetary Fund.
<https://www.elibrary.imf.org/display/book/9781484337141/9781484337141.xml>
- Brinkerink, M., Zakeri, B., Huppmann, D., Glynn, J., Ó Gallachóir, B., & Deane, P. (2022). Assessing global climate change mitigation scenarios from a power system perspective using a novel multi-model framework. *Environmental Modelling & Software*, 150, 105336.
<https://doi.org/10.1016/j.envsoft.2022.105336>
- Carlson, K. M., Curran, L. M., Asner, G. P., & Pittman, A. M. (2012). Carbon emissions from forest conversion by Kalimantan oil palm plantations. *Nature Climate Change*, 3. <https://doi.org/10.1038/NCLIMATE1702>
- Carlson, K. M., Curran, L. M., Asner, G. P., Pittman, A. M., Trigg, S. N., & Marion Adeney, J. (2013). Carbon emissions from forest conversion by Kalimantan oil palm plantations. *Nature Climate Change*, 3(3), 283–287. <https://doi.org/10.1038/nclimate1702>
- Carlson, K. M., Curran, L. M., Ratnasari, D., Pittman, A. M., Soares-Filho, B. S., Asner, G. P., Trigg, S. N., Gaveau, D. A., Lawrence, D., & Rodrigues, H. O. (2012). Committed carbon emissions, deforestation, and community land conversion from oil palm plantation expansion in West Kalimantan, Indonesia. *Proceedings of the National Academy of Sciences*, 109(19), 7559–7564.
<https://doi.org/10.1073/pnas.1200452109>
- CE Delft. (2020). *Used Cooking Oil (UCO) as biofuel feedstock in the EU*.
- Comunale, M., & Manera, A. (2024). *The Economic Impacts and the Regulation of AI: A Review of the Academic Literature and Policy Actions* (SSRN Scholarly Paper 4774326).
<https://doi.org/10.5089/9798400271663.001>
- de Souza, J. B., dos Santos, C. V., & do Prado, S. M. (2010). Tax Reform, Income Distribution and Poverty in Brazil: An Applied General

- Equilibrium Analysis. *International Journal of Microsimulation*, 3(1), 114–117.
- Dharmawan, G., & Suryadarma, D. (2021). Education Quality across Indonesia's Districts: Estimations from a Policy Experiment. *Journal of Southeast Asian Economies*, 38(3), 401–425.
- Dietzenbacher, E., Los, B., Stehrer, R., Timmer, M., & de Vries, G. (2013). The Construction of World Input–Output Tables in the Wiod Project. *Economic Systems Research*, 25(1), 71–98.
<https://doi.org/10.1080/09535314.2012.761180>
- Directive (EU) 2018/2001, 32018L2001, EP, CONSIL, OJ L 328 (2018).
<http://data.europa.eu/eli/dir/2018/2001/oj/eng>
- Donati, F., Dente, S. M. R., Li, C., Vilaysouk, X., Froemelt, A., Nishant, R., Liu, G., Tukker, A., & Hashimoto, S. (2022). The future of artificial intelligence in the context of industrial ecology. *Journal of Industrial Ecology*, 26(4), 1175–1181. <https://doi.org/10.1111/jiec.13313>
- Duchin, F., & Lange, G.-M. (1993). *Environment and Development in Indonesia: An Input-Output Analysis of Natural Resources Issues* (2). Institute for Economic Analysis, New York University.
- Edens, B., Hoekstra, R., Zult, D., Lemmers, O., Wilting, H., & Wu, R. (2015a). A Method to Create Carbon Footprint Estimates Consistent with National Accounts. *Economic Systems Research*, 27(4), 440–457.
<https://doi.org/10.1080/09535314.2015.1048428>
- Edens, B., Hoekstra, R., Zult, D., Lemmers, O., Wilting, H., & Wu, R. (2015b). A Method to Create Carbon Footprint Estimates Consistent with National Accounts. *Economic Systems Research*, 27(4), 440–457.
<https://doi.org/10.1080/09535314.2015.1048428>
- Edwards, R. (2015). *Is plantation agriculture good for the poor? Evidence from Indonesia's palm oil expansion*. 61.
- EIA. (2019). *Biomass-based diesel production by country*. International Data EIA. <https://www.eia.gov/international/data/world>
- Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Duke University Press.
- European Commission. (2019). *The European Green Deal*, COM/2019/640.
<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0640&from=EN>
- Fang, K., Wang, S., He, J., Song, J., Fang, C., & Jia, X. (2021). Mapping the environmental footprints of nations partnering the Belt and Road

- Initiative. *Resources, Conservation and Recycling*, 164, 105068.
<https://doi.org/10.1016/j.resconrec.2020.105068>
- FAOSTAT. (2022a). *Statistical database: Food balance*. Food and Agriculture Organization of the United Nations, Rome.
- FAOSTAT. (2022b). *Statistical database: Production, Crops and livestock products*. Food and Agriculture Organization of the United Nations, Rome.
- Farizal, F., Amanda, T., Dachyar, M., & Noor, Z. Z. (2024). 2030 oil palm plantation carbon footprint estimation using O-LCA and forecasting. *Journal of Cleaner Production*, 463, 142646.
<https://doi.org/10.1016/j.jclepro.2024.142646>
- Faturay, F., Lenzen, M., & Nugraha, K. (2017). A new sub-national multi-region input–output database for Indonesia. *Economic Systems Research*, 29(2), 234–251.
<https://doi.org/10.1080/09535314.2017.1304361>
- Faturay, F., Vunnava, V. S. G., Lenzen, M., & Singh, S. (2020). Using a new USA multi-region input output (MRIO) model for assessing economic and energy impacts of wind energy expansion in USA. *Applied Energy*, 261, 114141. <https://doi.org/10.1016/j.apenergy.2019.114141>
- Fry, J., Geschke, A., Langdon, S., Lenzen, M., Li, M., Malik, A., Sun, Y.-Y., & Wiedmann, T. (2021). Creating multi-scale nested MRIO tables for linking localized impacts to global consumption drivers. *Journal of Industrial Ecology*. <https://doi.org/10.1111/jiec.13165>
- Gaborit, P. (2022). Climate adaptation to Multi-Hazard climate related risks in ten Indonesian Cities: Ambitions and challenges. *Climate Risk Management*, 37, 100453. <https://doi.org/10.1016/j.crm.2022.100453>
- Gatto, M., Wollni, M., Asnawi, R., & Qaim, M. (2017). Oil Palm Boom, Contract Farming, and Rural Economic Development: Village-Level Evidence from Indonesia. *World Development*, 95, 127–140.
<https://doi.org/10.1016/j.worlddev.2017.02.013>
- Gaveau, D. L. A., Sheil, D., Husnayaen, Salim, M. A., Arjasakusuma, S., Ancrenaz, M., Pacheco, P., & Meijaard, E. (2016). Rapid conversions and avoided deforestation: Examining four decades of industrial plantation expansion in Borneo. *Scientific Reports*, 6(1), Article 1.
<https://doi.org/10.1038/srep32017>
- Giljum, S., Bruckner, M., & Martinez, A. (2015). Material Footprint Assessment in a Global Input-Output Framework. *Journal of Industrial Ecology*, 19(5), 792–804. <https://doi.org/10.1111/jiec.12214>

- Girod, B., Peter van Vuren, D., & Hertwich, E. G. (2014). *Climate policy through changing consumption choices: Options and obstacles for reducing greenhouse gas emissions* | Elsevier Enhanced Reader. <https://doi.org/10.1016/j.gloenvcha.2014.01.004>
- Global Carbon Project. (2023). *Global Carbon Atlas*. <https://globalcarbonatlas.org/emissions/carbon-emissions/>
- Goldstein, B., Gounaris, D., & Newell, J. P. (2020). The carbon footprint of household energy use in the United States. *Proceedings of the National Academy of Sciences*, 117(32), 19122–19130. <https://doi.org/10.1073/pnas.1922205117>
- González Gordón, I., & Resosudarmo, B. P. (2019). A sectoral growth-income inequality nexus in Indonesia. *Regional Science Policy & Practice*, 11(1), 123–140. <https://doi.org/10.1111/rsp3.12125>
- Guinee, J. B. (2002). Handbook on life cycle assessment operational guide to the ISO standards. *The International Journal of Life Cycle Assessment*, 7(5), 311–313. <https://doi.org/10.1007/BF02978897>
- Harris, P. G., Chow, A. S. Y., & Symons, J. (2012). Greenhouse gas emissions from cities and regions: International implications revealed by Hong Kong. *Energy Policy*, 44(C), 416–424.
- Harris, S., Weinzettel, J., Bigano, A., & Källmén, A. (2020). Low carbon cities in 2050? GHG emissions of European cities using production-based and consumption-based emission accounting methods. *Journal of Cleaner Production*, 248, 119206. <https://doi.org/10.1016/j.jclepro.2019.119206>
- Hausman, C., Auffhammer, M., & Berck, P. (2012). Farm Acreage Shocks and Crop Prices: An SVAR Approach to Understanding the Impacts of Biofuels. *Environmental and Resource Economics*, 53(1), 117–136. <https://doi.org/10.1007/s10640-012-9550-x>
- Havlík, P., Schneider, U. A., Schmid, E., Böttcher, H., Fritz, S., Skalský, R., Aoki, K., Cara, S. D., Kindermann, G., Kraxner, F., Leduc, S., McCallum, I., Mosnier, A., Sauer, T., & Obersteiner, M. (2011). Global land-use implications of first and second generation biofuel targets. *Energy Policy*, 39(10), 5690–5702. <https://doi.org/10.1016/j.enpol.2010.03.030>
- Havlík, P., Valin, H., Herrero, M., Obersteiner, M., Schmid, E., Rufino, M. C., Mosnier, A., Thornton, P. K., Böttcher, H., Conant, R. T., Frank, S., Fritz, S., Fuss, S., Kraxner, F., & Notenbaert, A. (2014). Climate change mitigation through livestock system transitions. *Proceedings of*

- the National Academy of Sciences*, 111(10), 3709–3714.
<https://doi.org/10.1073/pnas.1308044111>
- He, K., & Hertwich, E. G. (2019). The flow of embodied carbon through the economies of China, the European Union, and the United States. *Resources, Conservation and Recycling*, 145, 190–198.
<https://doi.org/10.1016/j.resconrec.2019.02.016>
- Hertwich, E. G., & Peters, G. P. (2009). Carbon Footprint of Nations: A Global, Trade-Linked Analysis. *Environmental Science & Technology*, 43(16), 6414–6420. <https://doi.org/10.1021/es803496a>
- Hickel, J. (2019). Is it possible to achieve a good life for all within planetary boundaries? *Third World Quarterly*, 40(1), 18–35.
<https://doi.org/10.1080/01436597.2018.1535895>
- Horridge, M. (2012). *The TERM Model and Its Database*.
https://link.springer.com/chapter/10.1007/978-94-007-2876-9_2
- Horridge, M., & Wittwer, G. (2006). *The Impacts of Higher Energy Prices on Indonesia's and West Java's Economies using INDOTERM, a Multiregional Model of Indonesia* (Working Papers in Economics and Development Studies (WoPEDS) 200607). Department of Economics, Padjadjaran University.
<https://econpapers.repec.org/paper/unwpaper/200607.htm>
- Horridge, M., & Wittwer, G. (2008). SinoTERM, a multi-regional CGE model of China. *China Economic Review*, 19(4), 628–634.
<https://doi.org/10.1016/j.chieco.2008.05.002>
- IFPRI. (2019). *Global Spatially-Disaggregated Crop Production Statistics Data for 2010 Version 2.0* [dataset]. Harvard Dataverse.
<https://doi.org/10.7910/DVN/PRFF8V>
- IMF. (2022). *Central Government Debt*.
https://www.imf.org/external/datamapper/CG_DEBT_GDP@GDD/CHN/FRA/DEU/ITA/JPN/GBR/USA
- Imori, D., & Guilhoto, J. (2016). Tracing Brazilian regions' CO₂ emissions in domestic and global trade. *TD NEREUS 2-2016*.
http://www.usp.br/nereus/wp-content/uploads/TD_Nereus_02_2016.pdf
- IPCC. (2007). *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (p. 104).
https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_full_report.pdf
- Ivanova, D., Vita, G., Steen-Olsen, K., Stadler, K., Melo, P. C., Wood, R., & Hertwich, E. G. (2017). Mapping the carbon footprint of EU regions.

&

- Environmental Research Letters*, 12(5), 054013.
<https://doi.org/10.1088/1748-9326/aa6da9>
- Jaroenkietkajorn, U., Gheewala, S. H., & Scherer, L. (2021). Species loss from land use of oil palm plantations in Thailand. *Ecological Indicators*, 133, 108444. <https://doi.org/10.1016/j.ecolind.2021.108444>
- Jiang, M., Behrens, P., Wang, T., Tang, Z., Yu, Y., Chen, D., Liu, L., Ren, Z., Zhou, W., Zhu, S., He, C., Tukker, A., & Zhu, B. (2019a). Provincial and sector-level material footprints in China. *Proceedings of the National Academy of Sciences*, 116(52), 26484–26490.
<https://doi.org/10.1073/pnas.1903028116>
- Jiang, M., Behrens, P., Wang, T., Tang, Z., Yu, Y., Chen, D., Liu, L., Ren, Z., Zhou, W., Zhu, S., He, C., Tukker, A., & Zhu, B. (2019b). Provincial and sector-level material footprints in China. *Proceedings of the National Academy of Sciences*, 116(52), 26484–26490.
<https://doi.org/10.1073/pnas.1903028116>
- Jiang, M., Liu, L., Behrens, P., Wang, T., Tang, Z., Chen, D., Yu, Y., Ren, Z., Zhu, S., Tukker, A., & Zhu, B. (2020). Improving Subnational Input–Output Analyses Using Regional Trade Data: A Case-Study and Comparison. *Environmental Science & Technology*, 54(19), 12732–12741. <https://doi.org/10.1021/acs.est.0c04728>
- Kharina, A., Malins, C., & Searle, S. (2016). *Biofuels policy in Indonesia: Overview and status report*.
https://theicct.org/sites/default/files/publications/Indonesia%20Biofuels%20Policy_ICCT_08082016.pdf
- Khatiwada, D., Palmén, C., & Silveira, S. (2018). Evaluating the palm oil demand in Indonesia: Production trends, yields, and emerging issues. *Biofuels*, 0(0), 1–13. <https://doi.org/10.1080/17597269.2018.1461520>
- Kobayakawa, T. (2021). The carbon footprint of capital formation: An empirical analysis on its relationship with a country's income growth. *Journal of Industrial Ecology*, n/a(n/a).
<https://doi.org/10.1111/jiec.13199>
- Koh, L. P., & Wilcove, D. S. (2008). Is oil palm agriculture really destroying tropical biodiversity? *Conservation Letters*, 1(2), 60–64.
<https://doi.org/10.1111/j.1755-263X.2008.00011.x>
- Lam, W. Y., Kulak, M., Sim, S., King, H., Huijbregts, M. A. J., & Chaplin-Kramer, R. (2019). Greenhouse gas footprints of palm oil production in Indonesia over space and time. *Science of The Total Environment*, 688, 827–837. <https://doi.org/10.1016/j.scitotenv.2019.06.377>

- Lee, J., Taherzadeh, O., & Kanemoto, K. (2020). The scale and drivers of carbon footprints in households, cities and regions across India. *Global Environmental Change*.
<https://doi.org/10.1016/j.gloenvcha.2020.102205>
- Lenzen, M., Geschke, A., Malik, A., Fry, J., Lane, J., Wiedmann, T., Kenway, S., Hoang, K., & Cadogan-Cowper, A. (2017). New multi-regional input–output databases for Australia – enabling timely and flexible regional analysis. *Economic Systems Research*, 29, 275–295.
<https://doi.org/10.1080/09535314.2017.1315331>
- Lenzen, M., Moran, D., Kanemoto, K., Foran, B., Lobefaro, L., & Geschke, A. (2012). International trade drives biodiversity threats in developing nations. *Nature*, 486(7401), Article 7401.
<https://doi.org/10.1038/nature11145>
- Lenzen, M., Moran, D., Kanemoto, K., & Geschke, A. (2013). Building Eora: A Global Multi-Region Input–Output Database at High Country and Sector Resolution. *Economic Systems Research*, 25(1), 20–49.
<https://doi.org/10.1080/09535314.2013.769938>
- Leontief, W. (1970). Environmental Repercussions and the Economic Structure: An Input-Output Approach. *The Review of Economics and Statistics*, 52(3), 262–271.
- Li, Y. L., Chen, B., & Chen, G. Q. (2020). Carbon network embodied in international trade: Global structural evolution and its policy implications. *Energy Policy*, 139, 111316.
<https://doi.org/10.1016/j.enpol.2020.111316>
- Liao, X., Gerichhausen, M. J. W., Bengoa, X., Rigarlsford, G., Beverloo, R. H., Bruggeman, Y., & Rossi, V. (2020). Large-scale regionalised LCA shows that plant-based fat spreads have a lower climate, land occupation and water scarcity impact than dairy butter. *The International Journal of Life Cycle Assessment*, 25(6), 1043–1058.
<https://doi.org/10.1007/s11367-019-01703-w>
- Lochhead, K., Ghafghazi, S., Havlik, P., Forsell, N., Obersteiner, M., Bull, G., & Mabee, W. (2016). Price trends and volatility scenarios for designing forest sector transformation. *Energy Economics*, 57, 184–191.
<https://doi.org/10.1016/j.eneco.2016.05.001>
- Malins, C. (2011). *IFPRI-MIRAGE 2011 modelling of indirect land use change*.
- Mao, Y. (2018). Does democratic transition reduce carbon intensity? Evidence from Indonesia using the synthetic control method. *Environmental*

&

- Science and Pollution Research*, 25(20), 19908–19917.
<https://doi.org/10.1007/s11356-018-2165-1>
- Margono, B. A., Turubanova, S., Zhuravleva, I., Potapov, P., Tyukavina, A., Baccini, A., Goetz, S., & Hansen, M. C. (2012). Mapping and monitoring deforestation and forest degradation in Sumatra (Indonesia) using Landsat time series data sets from 1990 to 2010. *Environmental Research Letters*, 7(3), 034010. <https://doi.org/10.1088/1748-9326/7/3/034010>
- McKinsey. (2012). *The archipelago economy: Unleashing Indonesia's potential*. McKinsey Global Institute.
https://www.mckinsey.com/~/media/mckinsey/featured%20insights/asia%20pacific/the%20archipelago%20economy/mgi_unleashing_indonesia_potential_executive_summary.ashx
- Meijaard, E., Brooks, T. M., Carlson, K. M., Slade, E. M., Garcia-Ulloa, J., Gaveau, D. L. A., Lee, J. S. H., Santika, T., Juffe-Bignoli, D., Struebig, M. J., Wich, S. A., Ancrenaz, M., Koh, L. P., Zamira, N., Abrams, J. F., Prins, H. H. T., Sendashonga, C. N., Murdiyarso, D., Furumo, P. R., ... Sheil, D. (2020a). The environmental impacts of palm oil in context. *Nature Plants*, 6(12), 1418–1426. <https://doi.org/10.1038/s41477-020-00813-w>
- Meijaard, E., Brooks, T. M., Carlson, K. M., Slade, E. M., Garcia-Ulloa, J., Gaveau, D. L. A., Lee, J. S. H., Santika, T., Juffe-Bignoli, D., Struebig, M. J., Wich, S. A., Ancrenaz, M., Koh, L. P., Zamira, N., Abrams, J. F., Prins, H. H. T., Sendashonga, C. N., Murdiyarso, D., Furumo, P. R., ... Sheil, D. (2020b). The environmental impacts of palm oil in context. *Nature Plants*, 6(12), 1418–1426. <https://doi.org/10.1038/s41477-020-00813-w>
- Meng, B., Xue, J., Feng, K., Guan, D., & Fu, X. (2013). China's inter-regional spillover of carbon emissions and domestic supply chains. *Energy Policy*, 61, 1305–1321. <https://doi.org/10.1016/j.enpol.2013.05.108>
- Meng, F., Liu, G., Hu, Y., Su, M., & Yang, Z. (2018). Urban carbon flow and structure analysis in a multi-scales economy. *Energy Policy*, 121, 553–564. <https://doi.org/10.1016/j.enpol.2018.06.044>
- Meng, F., Wang, D., Meng, X., Li, H., Liu, G., Yuan, Q., Hu, Y., & Zhang, Y. (2022). Mapping urban energy–water–land nexus within a multiscale economy: A case study of four megacities in China. *Energy*, 239, 122038. <https://doi.org/10.1016/j.energy.2021.122038>

- Mi, Z., Meng, J., Zheng, H., Shan, Y., Wei, Y.-M., & Guan, D. (2018). A multi-regional input-output table mapping China's economic outputs and interdependencies in 2012. *Scientific Data*, 5(1), 180155. <https://doi.org/10.1038/sdata.2018.155>
- Miller, R., & Blair, P. (2009a). *Input-Output Analysis: Foundations and Extensions* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511626982>
- Miller, R., & Blair, P. (2009b). *Input-Output Analysis: Foundations and Extensions* (2nd ed.). <https://www.cambridge.org/nl/academic/subjects/economics/econometrics-statistics-and-mathematical-economics/input-output-analysis-foundations-and-extensions-2nd-edition>, <https://www.cambridge.org/nl/academic/subjects/economics/econometrics-statistics-and-mathematical-economics>
- Miller, R., & Blair, P. (2022). *Input-Output Analysis: Foundation and Extensions* (3rd Edition). Cambridge University Press.
- MoEF. (2020). *Sistem Monitoring Hutan Nasional (SIMONTANA)*. <https://nfms.menlhk.go.id>
- MoEF. (2021a). *Indonesia Long-Term Strategy for Low Carbon and Climate Resilience*. https://unfccc.int/sites/default/files/resource/Indonesia_LTS-LCCR_2021.pdf
- MoEF. (2021b). *Updated Nationally Determined Contribution Republic of Indonesia*. <https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20NDC%20Indonesia%202021%20-%20corrected%20version.pdf>
- MoEF. (2015a). *Indonesia National Carbon Accounting System (INCAS)*. <http://incas.menlhk.go.id/id/>
- MoEF. (2015b). *SIGN SMART – Direktorat Inventarisasi Gas Rumah Kaca dan Monitoring, Pelaporan, dan Verifikasi*. <http://signsmart.menlhk.go.id/v2.1/>
- Monzon, J. P., Slingerland, M. A., Rahutomo, S., Agus, F., Oberthür, T., Andrade, J. F., Couëdel, A., Rattalino Edreira, J. I., Hekman, W., van den Beuken, R., Hidayat, F., Pradiko, I., Purwantomo, D. K. G., Donough, C. R., Sugianto, H., Lim, Y. L., Farrell, T., & Grassini, P. (2021). Fostering a climate-smart intensification for oil palm. *Nature Sustainability*, 4(7), Article 7. <https://doi.org/10.1038/s41893-021-00700-y>

&

- Munasinghe, M. (1993). *Environmental Economics and Sustainable Development*. The World Bank. <https://doi.org/10.1596/0-8213-2352-0>
- Nathaniel, S., & Khan, S. A. R. (2020). The nexus between urbanization, renewable energy, trade, and ecological footprint in ASEAN countries. *Journal of Cleaner Production*, 272, 122709. <https://doi.org/10.1016/j.jclepro.2020.122709>
- OECD. (2016). *Estimating CO₂ Emissions Embodied in Final Demand and Trade Using the OECD ICIO 2015: Methodology and Results*. <https://doi.org/10.1787/5jlrcm216xkl-en>
- OECD. (2018). *Inter-Country Input-Output Database*. <http://oe.cd/icio/>
- OECD. (2010). *Conversion rates—Exchange rates—OECD Data*. OECD. <http://data.oecd.org/conversion/exchange-rates.htm>
- OECD. (2021a). *Exchange rates (indicator)*. doi: 10.1787/037ed317-en
- OECD. (2021b). *Trade in Value Added (TiVA) 2021 ed: Principal Indicators*. https://stats.oecd.org/Index.aspx?DataSetCode=TIVA_2021_C1
- O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature Sustainability*, 1(2), Article 2. <https://doi.org/10.1038/s41893-018-0021-4>
- Oosterhaven, J., & Többen, J. (2017). Wider economic impacts of heavy flooding in Germany: A non-linear programming approach. *Spatial Economic Analysis*, 12(4), 404–428. <https://doi.org/10.1080/17421772.2017.1300680>
- Paniccia, R., & Rosignoli, S. (2018). *A Methodology for building multiregional supply and use tables for Italy*. IPRET. http://www.ipret.it/wp-content/uploads/2018/09/sa-a-methodology-for-building-27-09-2018-paniccia_rosignoli.pdf
- Parsons, S., Raikova, S., & Chuck, C. J. (2020). The viability and desirability of replacing palm oil. *Nature Sustainability*, 3(6), 412–418. <https://doi.org/10.1038/s41893-020-0487-8>
- Peters, G. P. (2008). From production-based to consumption-based national emission inventories. *Ecological Economics*, 65(1), 13–23. <https://doi.org/10.1016/j.ecolecon.2007.10.014>
- Purnomo, H., Okarda, B., Dermawan, A., Ilham, Q. P., Pacheco, P., Nurfatriani, F., & Suhendang, E. (2020). Reconciling oil palm economic development and environmental conservation in Indonesia: A value chain dynamic approach. *Forest Policy and Economics*, 111. <https://doi.org/10.1016/j.forepol.2020.102089>

- Putrasari, Y., Praptijanto, A., Santoso, W. B., & Lim, O. (2016). Resources, policy, and research activities of biofuel in Indonesia: A review. *Energy Reports*, 2, 237–245. <https://doi.org/10.1016/j.egyr.2016.08.005>
- Raven, P. H., Gereau, R. E., Phillipson, P. B., Chatelain, C., Jenkins, C. N., & Ulloa Ulloa, C. (2020). The distribution of biodiversity richness in the tropics. *Science Advances*, 6(37), eabc6228. <https://doi.org/10.1126/sciadv.abc6228>
- Resosudarmo, B. P., & Thorbecke, E. (1996). The impact of environmental policies on household incomes for different socio-economic classes: The case of air pollutants in Indonesia. *Ecological Economics*, 17(2), 83–94. [https://doi.org/10.1016/0921-8009\(95\)00113-1](https://doi.org/10.1016/0921-8009(95)00113-1)
- Resosudarmo, B. P., Yusuf, A. A., & Hartono, D. (2011). Regional Economic Modelling for Indonesia: Implementation of IRSIA-INDONESIA5. *Journal of Indonesian Economy and Business*, 26(3), 287–309.
- Riahi, K., van Vuuren, D. P., Kriegler, E., Edmonds, J., O'Neill, B. C., Fujimori, S., Bauer, N., Calvin, K., Dellink, R., Fricko, O., Lutz, W., Popp, A., Cuaresma, J. C., Kc, S., Leimbach, M., Jiang, L., Kram, T., Rao, S., Emmerling, J., ... Tavoni, M. (2017). The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change*, 42, 153–168. <https://doi.org/10.1016/j.gloenvcha.2016.05.009>
- Rifin, A., Feryanto, Herawati, & Harianto. (2020). Assessing the impact of limiting Indonesian palm oil exports to the European Union. *Journal of Economic Structures*, 9(1), 26. <https://doi.org/10.1186/s40008-020-00202-8>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., ... Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), Article 7263. <https://doi.org/10.1038/461472a>
- Rodrik, D. (1996). *Why Do More Open Economies Have Bigger Governments?* (SSRN Scholarly Paper 4182). <https://papers.ssrn.com/abstract=4182>
- Rueda-Cantuche, J. M., Amores, A. F., Beutel, J., & Remond-Tiedrez, I. (2018). Assessment of European Use tables at basic prices and valuation matrices in the absence of official data. *Economic Systems Research*, 30(2), 252–270. <https://doi.org/10.1080/09535314.2017.1372370>

&

- Rum, I., De Koning, A., Tukker, A., & Yusuf, A. A. (2023). The construction of an environmentally extended multi-scale MRSUT: the case of Indonesia. *Economic Systems Research*.
<https://doi.org/10.1080/09535314.2023.2280888>
- Sach, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., & Fuller, G. (2019). *Sustainable Development Report 2019*.
<https://sdgtransformationcenter.org/reports/sustainable-development-report-2019>
- Scherer, L., de Koning, A., & Tukker, A. (2019). BRIC and MINT countries' environmental impacts rising despite alleviative consumption patterns. *Science of The Total Environment*, 665, 52–60.
<https://doi.org/10.1016/j.scitotenv.2019.02.103>
- Scherer, L., Rosa, F., Sun, Z., Michelsen, O., De Laurentiis, V., Marques, A., Pfister, S., Verones, F., & Kuipers, K. J. J. (2023). Biodiversity Impact Assessment Considering Land Use Intensities and Fragmentation. *Environmental Science & Technology*, 57(48), 19612–19623.
<https://doi.org/10.1021/acs.est.3c04191>
- Spaiser, V., Ranganathan, S., Swain, R. B., & Sumpter, D. J. T. (2017). The sustainable development oxymoron: Quantifying and modelling the incompatibility of sustainable development goals. *International Journal of Sustainable Development & World Ecology*, 24(6), 457–470.
<https://doi.org/10.1080/13504509.2016.1235624>
- Stadler, K., Steen-Olsen, K., & Wood, R. (2014). The ‘Rest of the World’ – Estimating the Economic Structure of Missing Regions in Global Multi-Regional Input–Output Tables. *Economic Systems Research*, 26(3), 303–326. <https://doi.org/10.1080/09535314.2014.936831>
- Stadler, K., Wood, R., Bulavskaya, T., Södersten, C.-J., Simas, M., Schmidt, S., Usubiaga, A., Acosta-Fernández, J., Kuenen, J., Bruckner, M., Giljum, S., Lutter, S., Merciai, S., Schmidt, J. H., Theurl, M. C., Plutzar, C., Kastner, T., Eisenmenger, N., Erb, K.-H., ... Tukker, A. (2018a). EXIOBASE 3: Developing a Time Series of Detailed Environmentally Extended Multi-Regional Input-Output Tables: EXIOBASE 3. *Journal of Industrial Ecology*, 22(3), 502–515.
<https://doi.org/10.1111/jiec.12715>
- Stadler, K., Wood, R., Bulavskaya, T., Södersten, C.-J., Simas, M., Schmidt, S., Usubiaga, A., Acosta-Fernández, J., Kuenen, J., Bruckner, M., Giljum, S., Lutter, S., Merciai, S., Schmidt, J. H., Theurl, M. C., Plutzar, C., Kastner, T., Eisenmenger, N., Erb, K.-H., ... Tukker, A. (2018b).

- EXIOBASE 3: Developing a Time Series of Detailed Environmentally Extended Multi-Regional Input-Output Tables: EXIOBASE 3. *Journal of Industrial Ecology*, 22(3), 502–515.
<https://doi.org/10.1111/jiec.12715>
- Steen-Olsen, K., Owen, A., Hertwich, E. G., & Lenzen, M. (2014). Effects of Sector Aggregation on Co2 Multipliers in Multiregional Input–Output Analyses. *Economic Systems Research*, 26(3), 284–302.
<https://doi.org/10.1080/09535314.2014.934325>
- Stofberg, F. J. (2016). The Short Term Economic Impact of Levying E-Tolls on Industries. *South African Journal of Economics*, 84(4), 574–593.
<https://doi.org/10.1111/saje.12106>
- Temurshoev, U., Miller, R. E., & Bouwmeester, M. C. (2013). A Note on the Gras Method. *Economic Systems Research*, 25(3), 361–367.
<https://doi.org/10.1080/09535314.2012.746645>
- Többen, J., Wiebe, K. S., Verones, F., Wood, R., & Moran, D. D. (2018). *A novel maximum entropy approach to hybrid monetary-physical supply-chain modelling and its application to biodiversity impacts of palm oil embodied in consumption*. 13(11), 115002.
<https://doi.org/10.1088/1748-9326/aae491>
- Towa, E., Zeller, V., & Achten, W. M. J. (2021). Assessing the circularity of regions: Stakes of trade of waste for treatment. *Journal of Industrial Ecology*, 25(4), 834–847. <https://doi.org/10.1111/jiec.13106>
- Transport and Environment. (2019). *The trend worsens: More palm oil for energy, less for food*. <https://www.transportenvironment.org/wp-content/uploads/2021/07/final%20palm%20briefing%202019.pdf>
- Tukker, A., Bulavskaya, T., Giljum, S., de Koning, A., Lutter, S., Simas, M., Stadler, K., & Wood, R. (2016). Environmental and resource footprints in a global context: Europe’s structural deficit in resource endowments. *Global Environmental Change*, 40, 171–181.
<https://doi.org/10.1016/j.gloenvcha.2016.07.002>
- Tukker, A., de Koning, A., Wood, R., Hawkins, T., Lutter, S., Acosta, J., Rueda Cantuche, J. M., Bouwmeester, M., Oosterhaven, J., Drosdowski, T., & Kuenen, J. (2013). EXIOPOL – DEVELOPMENT AND ILLUSTRATIVE ANALYSES OF A DETAILED GLOBAL MR EE SUT/IOT. *Economic Systems Research*, 25(1), 50–70.
<https://doi.org/10.1080/09535314.2012.761952>

&

- Tukker, A., & Dietzenbacher, E. (2013a). Global Multiregional Input–Output Frameworks: An Introduction and Outlook. *Economic Systems Research*, 25(1), 1–19. <https://doi.org/10.1080/09535314.2012.761179>
- Tukker, A., & Dietzenbacher, E. (2013b). Global Multiregional Input–Output Frameworks: An Introduction and Outlook. *Economic Systems Research*, 25(1), 1–19. <https://doi.org/10.1080/09535314.2012.761179>
- Tukker, A., Giljum, S., & Wood, R. (2018). Recent Progress in Assessment of Resource Efficiency and Environmental Impacts Embodied in Trade: An Introduction to this Special Issue: Recent Progress in Assessment of Embodied Impacts. *Journal of Industrial Ecology*, 22(3), 489–501. <https://doi.org/10.1111/jiec.12736>
- Tukker, A., Poliakov, E., Heijungs, R., Hawkins, T., Neuwahl, F., Rueda-Cantuche, J. M., Giljum, S., Moll, S., Oosterhaven, J., & Bouwmeester, M. (2009). Towards a global multi-regional environmentally extended input–output database. *Ecological Economics*, 68(7), 1928–1937. <https://doi.org/10.1016/j.ecolecon.2008.11.010>
- Turner, K., Munday, M., McIntyre, S., & Jensen, C. D. (2011). Incorporating Jurisdiction Issues into Regional Carbon Accounts under Production and Consumption Accounting Principles. *Environment and Planning A*, 43(3), 722–741.
- UN. (2014). *The road to dignity in 2030: Ending poverty, transforming all lives and protecting the planet. Synthesis Report of the Secretary-General on the Post-2015 Sustainable Development Agenda*. UN General Assembly A/69/700.
- UN. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development* (A/RES/70/1). sustainabledevelopment.un.org
- UN Comtrade. (2019). *UN Comtrade: International Trade Statistics*. <https://comtrade.un.org/data/>
- UN WCED. (1987). *Our Common Future (Brundtland Report)*. Oxford University Press.
- UNDP. (2021). *Technical notes: Calculating the HDI*. United Nations. https://hdr.undp.org/sites/default/files/2021-22_HDR/hdr2021-22_technical_notes.pdf
- UNDP. (2022). Human Development Report 2021-22. In *Human Development Reports*. United Nations. <https://hdr.undp.org/content/human-development-report-2021-22>
- UNDP. (2023). *Human Development Index: Indonesia*. <https://hdr.undp.org/data-center/specify-country-data#/countries>IDN>

- United Nation. (2018). *Handbook on Supply and Use Tables and Input-Output Tables with Extensions and Applications*. United Nation.
- Vijay, V., Pimm, S. L., Jenkins, C. N., & Smith, S. J. (2016). The Impacts of Oil Palm on Recent Deforestation and Biodiversity Loss. *PLOS ONE*, 11(7), e0159668. <https://doi.org/10.1371/journal.pone.0159668>
- Walmsley, T., Aguiar, A., & Narayanan, B. (2012). *Introduction to the Global Trade Analysis Project and the GTAP Data Base*. GTAP Working Paper No. 67; GTAP Working Paper No. 67. http://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=3965
- Wang, S., Wang, H., Zhang, L., & Dang, J. (2019). Provincial Carbon Emissions Efficiency and Its Influencing Factors in China. *Sustainability*, 11(8), Article 8. <https://doi.org/10.3390/su11082355>
- Wang, Y., Geschke, A., & Lenzen, M. (2015). Constructing a Time Series of Nested Multiregion Input–Output Tables. *International Regional Science Review*, 40(5), 476–499. <https://doi.org/10.1177/0160017615603596>
- Wang, Y., Xiong, S., & Ma, X. (2022). Carbon inequality in global trade: Evidence from the mismatch between embodied carbon emissions and value added. *Ecological Economics*, 195, 107398. <https://doi.org/10.1016/j.ecolecon.2022.107398>
- Wenang, S., Schaefers, J., Afdal, A., Gufron, A., Geyer, S., Dewanto, I., & Haier, J. (2021). Availability and Accessibility of Primary Care for the Remote, Rural, and Poor Population of Indonesia. *Frontiers in Public Health*, 9, 721886. <https://doi.org/10.3389/fpubh.2021.721886>
- Wiebe, K. S., Bjelle, E. L., Többen, J., & Wood, R. (2018). Implementing exogenous scenarios in a global MRIO model for the estimation of future environmental footprints. *Journal of Economic Structures*, 7(1), 20. <https://doi.org/10.1186/s40008-018-0118-y>
- Wiedmann, T. (2009). A review of recent multi-region input–output models used for consumption-based emission and resource accounting. *Ecological Economics*, 69(2), 211–222. <https://doi.org/10.1016/j.ecolecon.2009.08.026>
- Wittwer, G. (Ed.). (2012). *Economic Modeling of Water: The Australian CGE Experience*. Springer Netherlands. <https://doi.org/10.1007/978-94-007-2876-9>
- Wittwer, G. (2021). Modelling the economy-wide marginal impacts due to climate change in Australian agriculture. In *Centre of Policy*

&

- Studies/IMPACT Centre Working Papers* (g-312; Centre of Policy Studies/IMPACT Centre Working Papers). Victoria University, Centre of Policy Studies/IMPACT Centre.
<https://ideas.repec.org/p/cop/wpaper/g-312.html>
- Wittwer, G., & Horridge, M. (2010). Bringing Regional Detail to a CGE Model using Census Data. *Spatial Economic Analysis*, 5(2), 229–255.
<https://doi.org/10.1080/17421771003730695>
- Wood, R., Stadler, K., Bulavskaya, T., Lutter, S., Giljum, S., De Koning, A., Kuenen, J., Schütz, H., Acosta-Fernández, J., Usabiaga, A., Simas, M., Ivanova, O., Weinzettel, J., Schmidt, J. H., Merciai, S., & Tukker, A. (2015). Global Sustainability Accounting—Developing EXIOBASE for Multi-Regional Footprint Analysis. *Sustainability*, 7(1), Article 1.
<https://doi.org/10.3390/su7010138>
- Wood, R., Stadler, K., Simas, M., Bulavskaya, T., Giljum, S., Lutter, S., & Tukker, A. (2018). Growth in Environmental Footprints and Environmental Impacts Embodied in Trade: Resource Efficiency Indicators from EXIOBASE3: Growth in Environmental Impacts Embodied in Trade. *Journal of Industrial Ecology*, 22(3), 553–564.
<https://doi.org/10.1111/jiec.12735>
- World Bank. (2023a). *Climate Action for Development*. The World Bank.
<https://openknowledge.worldbank.org/server/api/core/bitstreams/bd24d9be-9c17-4665-add2-e38fd9e5b8fe/content>
- World Bank. (2020a, June). *GDP growth (annual %)—Indonesia*.
<https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=ID>
- World Bank. (2020b, July). *CO2 emissions (metric tons per capita)—Indonesia*.
<https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=ID>
- World Bank. (2022). *Total GHG emissions (kt of CO2 equivalent)*.
<https://data.worldbank.org/indicator/EN.ATM.GHGT.KT.CE?end=2020&locations=ID-JN-CN-RU-EU-GB-US-JP-KR-BR-MX&start=2020>
- World Bank. (2023b). *GDP (constant USD) by country*.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD>
- World Bank. (2023c). *GDP (current USD) by country*.
<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>
- World Bank. (2023d). *Poverty headcount ratio at \$2.15 a day (2017 PPP) (% population): Indonesia*.
<https://data.worldbank.org/indicator/SI.POV.DDAY?locations=ID>

- World Bank. (2023e). *Unemployment, total (% of total labor force): Indonesia*.
<https://data.worldbank.org/indicator/SL.UEM.TOTL.NE.ZS>
- WTO. (2019). *DS593: European Union—Certain measures concerning palm oil and oil palm crop-based biofuels*.
https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds593_e.htm
- Wu, D., & Liu, J. (2016). Multi-Regional Input-Output (MRIO) Study of the Provincial Ecological Footprints and Domestic Embodied Footprints Traded among China's 30 Provinces. *Sustainability*, 8(12), Article 12.
<https://doi.org/10.3390/su8121345>
- Wu, Y., Deppermann, A., Havlík, P., Frank, S., Ren, M., Zhao, H., Ma, L., Fang, C., Chen, Q., & Dai, H. (2023). Global land-use and sustainability implications of enhanced bioenergy import of China. *Applied Energy*, 336, 120769.
<https://doi.org/10.1016/j.apenergy.2023.120769>
- Yilancı, V., & Korkut Pata, U. (2020). Convergence of per capita ecological footprint among the ASEAN-5 countries: Evidence from a non-linear panel unit root test. *Ecological Indicators*, 113, 106178.
<https://doi.org/10.1016/j.ecolind.2020.106178>
- Yuan, R., Rodrigues, J. F. D., & Behrens, P. (2018). Impact of non-fossil electricity on the carbon emissions embodied in China's exports. *Journal of Cleaner Production*, 192, 582–596.
<https://doi.org/10.1016/j.jclepro.2018.04.255>
- Yusuf, A. A., Roos, E. L., & Horridge, J. (2018a). *Indonesia's Moratorium on Palm Oil Expansion from Natural Forests: Economy-Wide Impacts and the Role of International Transfers* (SSRN Scholarly Paper ID 3249140). Social Science Research Network.
<https://papers.ssrn.com/abstract=3249140>
- Yusuf, A. A., Roos, E. L., & Horridge, J. M. (2018b). Indonesia's Moratorium on Palm Oil Expansion from Natural Forests: Economy-Wide Impacts and the Role of International Transfers. *Asian Development Review*, 35(2), 85–112. https://doi.org/10.1162/adev_a_00115
- Zilli, M., Scarabello, M., Soterroni, A. C., Valin, H., Mosnier, A., Leclère, D., Havlík, P., Kraxner, F., Lopes, M. A., & Ramos, F. M. (2020). The impact of climate change on Brazil's agriculture. *Science of The Total Environment*, 740, 139384.
<https://doi.org/10.1016/j.scitotenv.2020.139384>

&