Michiel **van Dijk**

Senior researcher

Wageningen Economic Research, Prinses Beatrixlaan 582, 2595 BM the Hague, the Netherlands

+31 70 3358 341 | michiel.vandijk@wur.nl | michielvandijk.org | 0000-0002-5207-7304 | michiel_van_dijk | michielvandijk

Profile

Michiel van Dijk is a development economist, with interest in the topics of macro and micro-level policy evaluation, land use change, food security and nutrition, integrated assessments, scenario development and modelling, technical change and innovation, and farm and household-level analysis. He has been a (lead) researcher in projects funded by CIMMYT, DFID, FCDO, GEF, USAID, World Bank and the EU. His skills include computable general equilibrium modelling, micro-econometrics, GIS and (big) data management. He has extensive working experience in Africa, Asia and Latin America.

Qualifications

Technology Management, Eindhoven University of Technology — *the Netherlands*
Ph.D. — *1999-2004*

Economics, Universidad de Zaragoza — *Spain*
Erasmus exchange programme — *1999*

Economics, Maastricht University — *the Netherlands*
M.Sc. in Quantitative Economics — *1993-1999*

Economics, Maastricht University — *the Netherlands*
Propedeuse in Econometrics — *1995*

Employment history

Wageningen Economic Research — *the Netherlands*
Senior researcher — *2020-*

International Institute for Applied Systems Analysis (IIASA) — *Austria*
Guest research scholar — *2020-*

International Institute for Applied Systems Analysis (IIASA) — *Austria*
Research scholar (0.8 fte) — *2016-2020*

Wageningen Economic Research — *the Netherlands*
Senior researcher (0.2 fte, out of office) — *2016-2020*

Wageningen Economic Research — *the Netherlands*
Senior researcher — *2014-2015*

Wageningen Economic Research — *the Netherlands*
Researcher — *2011-2013*

Oxfam Novib — *the Netherlands*
West Africa Advocacy Officer — *2008-2010*

Centre for Research on Multinational Corporations (SOMO) — *the Netherlands*
Researcher — *2006-2008*

Technology Management, Eindhoven University of Technology — *the Netherlands*
Assistant professor — *2004-2005*

Main research projects

Rapid landscape analysis of existing food security information and analysis work

Wageningen Economic Research

Lead researcher

2021

- Design of research approach
- Analysis of agricultural information systems

Support for Modelling, Planning and Improving Dhaka's Food System

Wageningen Economic Research

Researcher

2020-2022

- Construction of spatial microsimulation model
- Analysis of results
- Building of dashboard

Food Security Metrics

Wageningen Economic Research

Lead researcher

2018-2019

- Developing an approach to assess impact of fertilizer companies on food security
- Estimation of yield response functions using crop simulation results
- Combining company information with agro-economic analysis

Systematic review of global food security scenarios

Wageningen Economic Research

Principal Investigator

2017-2018

- Design of research approach
- Systematic review of global food security studies
- Creation and analysis of global food security projections database

Integrated Solutions for Water, Energy, and Land (IS-WEL)

International Institute for Applied Systems Analysis

Researcher

2016-2019

- Analyzing large household surveys for Zambezi countries
- Creation of high-resolution crop distribution maps
- Improving land use representation in GLOBIOM

African maize yield gap analysis

Wageningen Economic Research

Principal Investigator

2015-2016

- Micro-econometric assessment of plot-level yield gaps
- Analyzing large household surveys for Mali, Nigeria and Tanzania

Validation of CGE models

Wageningen Economic Research

Lead researcher

2013

- Developing an approach to validate multi-sector, multi-region CGE model results

Review of global food scenario studies

Wageningen Economic Research

Principal Investigator

2013

- Literature review of global food security scenario literature

Exploring the Future of Global Food and Nutrition Security

Wageningen Economic Research

Work package leader

2012-2017

- Managing work package on participatory scenario development
- Translation of stakeholder scenarios into model input
- Prepartion of explorative scenario database

Land use optimisation in Viet Nam: from Global to Local

Wageningen Economic Research

Principal Investigator

2011-2012

- Management of international research team
- Developing a participatory scenario and modelling approach
- Linking of CGE model with spatial land use model

Skills

Data Science	R (advanced, e.g. package development)
Reproducible Research	Markdown/Rmarkdown, R shiny, R Flexdashboard, LaTeX, Git
Software	GEMPACK, GAMS, SPSS, STATA, E-views, C++, ArcGIS, QGIS, Microsoft Office
Languages	Dutch (native), English (fluent), German (good), Spanish (good), French (intermediate), Bahasa Indonesia (Working knowledge)

International working experience

Various — *Ethiopia, Ghana, Malaysia, Vietnam, Zambia, Zimbabwe*
Research projects — *2011-*

Various — *Nigeria, Mali, Burkina Faso, Ghana and Senegal*
Cooperation with local NGOs — *2008-2010*

A.C. Portachuelo — *Venezuela*
Assistant loan officer (voluntary) — *2005-2006*

Science Policy Research Unit (SPRU), University of Sussex — *United Kingdom*
EU Marie Curie Ph.D. — *2003-2004*

Statistics Finland — *Finland*
Visiting researcher — *2003*

Centre for Strategic and International Studies (CSIS) — *Indonesia*
Visiting researcher — *2001*

Journal referee

Agricultural Systems, Agronomy, Agronomy for Sustainable Development, Environmental Research Letters, European Journal of Development Research, Global Food Security, Journal of African Economies, Journal of Engineering and Technology Management, Journal of Evolutionary Economics, Land, Scientific Reports.

Grants

I have acquired (often in collaboration with colleagues) about €1.1 million in external research grants since 2011.

2021	Rapid landscape analysis of existing food security information and analysis work. Funding from *FCDO*.	€8,800
2021	Research paper fund for paper on MAPSPAM. Funding from *Wageningen Economic Research*.	€10,000
2020–2021	Technical assistance on the implementation of the provisions on ILUC set out in the recast Renewable Energy Directive (N° ENER/C2/2018-462/LOT l/S12.821933). Funding from *EC DG Energy*.	€20,000
2020	Research paper fund for paper on food metrics. Funding from *Wageningen Economic Research*.	€10,000
2018–2019	Food Security metrics, designing innovative research methodology to assess the impact of agri-food companies on sustainable development. Funding from *UBS*.	€156,000
2018	Spatial Production Allocation Model (SPAM) for country analysis. Funding from *IFPRI*.	€32,800
2017–2018	Climate Smart Investment Plan Zambia. Funding from *World Bank*.	€49,200
2017–2018	Systematic review of global food security scenarios. Funding from *John Hopkins University*.	€41,000
2015–2017	Integrated assessment of the determinants of the maize yield gap in Sub-Saharan Africa (ES/LO12294/1). Funding from *DFID/ESRC*.	€458,780
2015–2016	African maize yield gap analysis. Funding from *CIMMYT*.	€123,000
2013	Review of global food scenario studies. Funding from *Oxfam Novib*.	€4,000
2012	Assessing the impact of climate change strategies on economic development, poverty and food security in Ghana (AID-OAA-A-13-00015). Funding from *USAID*.	€77,900
2011–2012	Land use optimisation in Viet Nam: from Global to Local (CDKN ALIF 2011-13). Funding from *CDKN/DFID*.	€135,600

Peer reviewed publications

Dijk, M. van, Morley, T., Rau, M. L., & Saghai, Y. (2021). A meta-analysis of projected global food demand and population at risk of hunger for the period 2010–2050. *Nature Food*, *2*(7), 494–501. https://doi.org/10.1038/s43016-021-00322-9

Latka, C., Kuiper, M., Frank, S., Heckelei, T., Havlík, P., Witzke, H.-P., Leip, A., Cui, H. D., Kuijsten, A., Geleijnse, J. M., & Dijk, M. van. (2021). Paying the price for environmentally sustainable and healthy EU diets. *Global Food Security*, *28*, 100437. https://doi.org/10.1016/j.gfs.2020.100437

Dijk, M. van, Morley, T., Loon, M. van, Reidsma, P., Tesfaye, K., & Ittersum, M. K. van. (2020). Reducing the maize yield gap in Ethiopia: Decomposition and policy simulation. *Agricultural Systems*, *183*, 102828. https://doi.org/10.1016/j.agsy.2020.102828

Meijl, H. van, Shutes, L., Valin, H., Stehfest, E., Dijk, M. van, Kuiper, M., Tabeau, A., Zeist, W.-J. van, Hasegawa, T., & Havlik, P. (2020). Modelling alternative futures of global food security: Insights from FOODSECURE. *Global Food Security*, *25*, 100358. https://doi.org/10.1016/j.gfs.2020.100358

Dijk, M. van, Gramberger, M., Laborde, D., Mandryk, M., Shutes, L., Stehfest, E., Valin, H., & Faradsch, K. (2020). Stakeholder-designed scenarios for global food security assessments. *Global Food Security*, *24*, 100352. https://doi.org/10.1016/j.gfs.2020.100352

Johnson, N., Burek, P., Byers, E., Falchetta, G., Flörke, M., Fujimori, S., Havlik, P., Hejazi, M., Hunt, J., Krey, V., Langan, S., Nakicenovic, N., Palazzo, A., Popp, A., Riahi, K., Dijk, M. van, Vliet, M. T. H. van, Vuuren, D. P. van, Wada, Y., … Parkinson, S. (2019). Integrated Solutions for the Water-Energy-Land Nexus: Are Global Models Rising to the Challenge? *Water*, *11*(11), 2223. https://doi.org/10.3390/w11112223

Wada, Y., Vinca, A., Parkinson, S., Willaarts, B. A., Magnuszewski, P., Mochizuki, J., Mayor, B., Wang, Y., Burek, P., Byers, E., Riahi, K., Krey, V., Langan, S., Dijk, M. van, Grey, D., Hillers, A., Novak, R., Mukherjee, A., Bhattacharya, A., … Tong, J. (2019). Co-designing Indus Water-Energy-Land Futures. *One Earth*, *1*(2), 185–194. https://doi.org/10.1016/j.oneear.2019.10.006

Loon, M. P. van, Adjei-Nsiah, S., Descheemaeker, K., Akotsen-Mensah, C., Dijk, M. van, Morley, T., Ittersum, M. K. van, & Reidsma, P. (2019). Can yield variability be explained? Integrated assessment of maize yield gaps across smallholders in Ghana. *Field Crops Research*, *236*, 132–144. https://doi.org/10.1016/j.fcr.2019.03.022

Frank, S., Havlik, P., Stehfest, E., Meijl, H. van, Witzke, P., Pérez-Domínguez, I., Dijk, M. van, Doelman, J. C., Fellmann, T., Koopman, J. F. L., Tabeau, A., & Valin, H. (2019). Agricultural non-CO2 emission reduction potential in the context of the 1.5 C target. *Nature Climate Change*, *9*(1), 66–72. https://doi.org/10.1038/s41558-018-0358-8

Meijl, H. van, Havlik, P., Lotze-Campen, H., Stehfest, E., Witzke, P., Domínguez, I. P., Bodirsky, B. L., Dijk, M. van, Doelman, J., Fellmann, T., Humpenöder, F., Koopman, J. F. L., Müller, C., Popp, A., Tabeau, A., Valin, H., & Zeist, W.-J. van. (2018). Comparing impacts of climate change and mitigation on global agriculture by 2050. *Environmental Research Letters*, *13*(6), 064021. https://doi.org/10.1088/1748-9326/aabdc4

Smeets Kristkova, Z., Gardebroek, C., Dijk, M. van, & Meijl, H. van. (2017). The impact of R&D on factor-augmenting technical change – an empirical assessment at the sector level. *Economic Systems Research*, *29*(3), 385–417. https://doi.org/10.1080/09535314.2017.1316707

Dijk, M. van, Morley, T., Jongeneel, R., Ittersum, M. van, Reidsma, P., & Ruben, R. (2017). Disentangling agronomic and economic yield gaps: An integrated framework and application. *Agricultural Systems*, *154*, 90–99. https://doi.org/10.1016/j.agsy.2017.03.004

Smeets Kristkova, Z., Dijk, M. van, & Meijl, H. van. (2017). Impact of agricultural R&D investments on long-term food security– an ex-ante impact assessment. In A. Schmitz (Ed.), *Frontiers of economics and globalization*.

Smeets Kristkova, Z., Dijk, M. van, & Meijl, H. van. (2016). Projections of long-term food security with R&D driven technical change—A CGE analysis. *NJAS - Wageningen Journal of Life Sciences*, *77*(Supplement C), 39–51. https://doi.org/https://doi.org/10.1016/j.njas.2016.03.001

Dijk, M. van, & Meijerink, G. (2014). A review of global food security scenario and assessment studies: Results, gaps and research priorities. *Global Food Security*, *3*(3-4), 227–238. https://doi.org/10.1016/j.gfs.2014.09.004

Rutten, M., Dijk, M. van, Rooij, W. van, & Hilderink, H. (2014). Land use dynamics, climate change, and food security in Vietnam: A global-to-local modeling approach. *World Development*, *59*, 29–46.

Dijk, M. van, & Szirmai, A. (2011). The Micro-Dynamics Of Catch-Up In Indonesian Paper Manufacturing. *Review of Income and Wealth*, *57*(1), 61–83.

Weyzig, F., & Dijk, M. van. (2009). Incoherence between Tax and Development Policies: the case of the Netherlands. *Third World Quarterly*, *30*(7), 1259–1277. http://www.tandfonline.com/doi/abs/10.1080/01436590903134916

Dijk, M. van, & Bell, M. (2007). Rapid growth with limited learning: Industrial policy and indonesia's pulp and paper industry. *Oxford Development Studies*, *35*(2), 149–169. https://doi.org/10.1080/13600810701322017

Dijk, M. van, & Szirmai, A. (2006). Industrial Policy and Technology Diffusion: Evidence from Paper Making Machinery in Indonesia. *World Development*, *34*(12), 2137–2152.

Van Dijk, M., & Szirmai, A. (2006). Technical efficiency and embodied technical change in the Indonesian pulp and paper industry. *Journal of International Development*, *18*(2), 163–178.

Dijk, M. van. (2003). South African manufacturing performance in international perspective 1970-1999. *South African Journal of Economics*, *71*(1), 119–142. https://doi.org/10.1111/j.1813-6982.2003.tb00074.x

Book chapters

Dijk, M. van, Saghai, Y., Morley, T., & Rau, M. L. (2020). Global food demand projections: A review. In A. Goldberg (Ed.), *Choose food: An ethical basis for food production*. John Hopkins University Press.

Dijk, M. van, Kroezen, J., & Slob, B. (2018). From Pilsner Desert to Specialty Beer Oasis: The Rise of Microbrewing in the Netherlands. In J. Swinnen & C. Garavaglia (Eds.), *The craft beer revolution: A global economic perspective*. Palgrave Macmillan. https://www.palgrave.com/gp/book/9783319582344

See, L., Fritz, S., Moorthy, I., Danylo, O., Dijk, M. van, & Ryan, B. (2018). Using Remote Sensing and Geospatial Information for Sustainable Development. In R. M. Desai, H. Kato, H. Kharas, & J. W. McArthur (Eds.), *From summits to solutions: Innovations in implementing the sustainable development goals* (pp. 172–198). Brookings Institution Press.

Dijk, M. van, Moors, E. J., & Singh, T. (2014). Engaging stakeholders in developing food security scenarios. In T. Achterbosch (Ed.), *The food puzzle: Pathways to securing food for all* (pp. 40–42). Wageningen University.

Databases and code

Dijk, M. van, Morley, T., Rau, M. L., & Saghai, Y. (2021). *A meta-analysis of projected global food demand and population at risk of hunger for the period 2010–2050, data and scripts*. https://doi.org/10.5281/zenodo.5076072

Dijk, M. van, Gramberger, M., Laborde, D., Mandryk, M., Shutes, L., Stehfest, E., Valin, H., & Zellmer, K. (2019). *FOODSECURE Scenario Driver Database*. https://doi.org/10.17026/dans-zeh-fd4m

Work in progress

Dijk, M. van, Wood-Sichra, U., Ru, Y., Palazzo, A., Havlik, P., & You, L. (2020). *Generating multi-period crop distribution maps for Southern Africa using a data fusion approach*.

Dijk, M. van, Fuglie, K. O., & Heisey, P. W. (2018). *A new database of public global agricultural R&D*.

Dijk, M. van, Smeets Kristkova, Z., & Gerber, N. (2018). *A global index of Agricultural Innovation: Construction, ranking and application*.