Saeed Moghayer

Mathematical Modeler | Economics of Sustainable Agri-Food Systems

@ saeed.moghayer@wur.nl
@ www.wur.nl/en/Persons/Saeed-S-Saeed-Mohammadian-Moghayer-PhD.htm
+31618344821 Prinses Beatrixlaan 582, 2595BM, The Hague, Netherlands
Date of birth : 5 April 1975 | Sex : Male | Nationality : Dutch

Experienced economic modeler with proven skills in project management, organization and research in the field of environmental and resource economics. Skilled in in the development and application of CGE models and *Optimal Control* models and *Dynamical systems* in socio-economic and natural systems, bringing a thoughtful perspective in sustainability and (critical) transition in ecological-economic systems.

Professional Experiences

Current – Feb 2018
Senior Researcher | Economics of sustainable agri-food systems,
Wageningen University & Research,
Wagening Economic Research Institute

- Carrying out impact modeling, scenario development and simulations using CGE model MAGNET in major international projects in the fields of climate and food security nexus (e.g. application of CGE model MAGNET for for food-and nutrition-secure futures under climate change in Bangladesh within CGIAR funded project CCAFS)
- Application of integrated modelling approaches to analyze the dynamics of the transition towards a circular bio-economy.

Jan 2018 – Sep 2010
Senior Researcher | Sustainability Modeling and Scenario Analysis,
TNO - Netherlands Organization for Applied Scientific Research,
Dept. Strategic Business Analysis

- Carrying out impact modeling, scenario development and simulations in major EU and national projects in the fields of Resource Efficiency, Climate and Energy policies
- Lead researcher in the development of EM-PLUS (Economic Modeling Platform for Sustainability) featuring a modular version of TNO CGE model, EXIOMOD 2.0.
- Managing acquisition and knowledge investments in the field of economic impact assessment and sustainability.
- Contribution in TNO Early Research Program (ERP) Complexity in the field of Circular Economy resulted in the development of ACACIES market transition model.
- Contribution in research outreach by publications of about 20 reports, conference papers, articles, and book chapters in the field of environmental and resource economics.

Aug 2010 – Sep 2006
Research Assistant | Complex Ecological-Economic Systems,
University of Amsterdam, CeNDEF research center

- Development of new methods in discrete-time optimal control for problems featuring tipping-points and non-linear responses.
- Application in the pollution management problems in complex ecological-economic systems.
- Teaching assistant in General Equilibrium Theory, Mathematics, and Dynamic Optimization.

Sep 2005 – Aug 2001
Adjunct Lecturer | Mathematics and Statistics,
Qazvin Azad University, Iran

- Developed syllabus and overall course structure, lectures including
- Courses : Mathematical and Statistical Softwares, Mathematics and Its

Education

2006 – 2010 PhD in Quantitative Economics
University of Amsterdam & Tinbergen Institute
- Theme of PhD thesis : 'Indifference-Attractor Bifurcations in Discrete-Time Optimal Control Problems'.
- Have taken PhD courses in Microeconomics, Macroeconomics, Game Theory, General Equilibrium Theory, Environmental and Resource Economics, Advanced Dynamic Programming, and Solving and Estimating DSGE models with Dynare.

2005 – 2006 Master of Dynamical Systems
Mathematical Research Institute, Utrecht University
- Theme of Master thesis : 'Tsunami Generation'. Solutions of a model of the water motion from bottom excitation based on 2 horizontal dimension Linearized Shallow Water Equations.
- Major focus of the program : The interactions between the theory and applications of Dynamical Systems, and numerical methods for the simulation of long-time dynamics.

1998 – 2001 Masters of Science in Mathematics
Kerman University
- Theme of Master thesis : 'Periodic Orbits of a Strange Non-Chaotic Attractor'.
- Major focuses of the program : Geometric Theory of Dynamical Systems

1994 – 1998 Bachelor of Science in Mathematics
Iran University of Science and Technology

Additional training courses

2019 *Simple-G short course, Purdue University*
2018 *GTAP Dynamic short course, Purdue University*
2017 *Master class for Senior Scientists, TNO*
- The targeted competences : impact, coaching, persuasiveness, cooperation and flexible behavior.

2015 *IPMA project management course, TNO*
- Expanded my project management competencies according to IPMA (International Project management Association).
- Received IMPA-D certificate and IMPA-C theory certificate

2010 *Practical General Equilibrium Modeling with GAMS (EcoMod course), TNO*

Skills and competencies

Computer Skills
- Competent programmer in *MATLAB*,
- Good command of programming in *GAMS*,*GEMPACK*, & *STATA*.
- Experience with *C*, *FORTRAN*, & *MATHEMATICA*.
- Competent with most *Microsoft Office* programs & LaTeX

Project management skills
- IPMA certified project manger : IPMA-D certificate
- 7+ years of experience in project management of large EU projects.

Miscellaneous

Hobbies
- Enjoy all sports particularly Basketball & Tennis.
- Enjoy dancing Tango and going to Dance Theater performances.
- Enjoy reading Books especially on philosophy.

- Belete, G. F., Voinov, A., Arto, I., Dhavala, K., Bulavskaya, T., Niamir, L., ... & Filatova, T. (2019). Exploring Low-Carbon Futures : A Web Service Approach to Linking Diverse Climate-Energy-Economy Models. Energies, 12(15), 1-24.
- Moghayer, S. M., Husby T., Boonman, H. (2017). Dynamic Interaction Of Market and Behavioral Barriers In The Transition Towards A Circular Economy : A Heterogeneous-Agent Approach. In Ludwic C. & Matasci C.*Boosting Resource Productivity by Adopting the Circular Economy* (pp. 210-216). St. Gallen, World Resources Forum.
- Moghayer, S. & Wagener, F. (2017). Numerics of Critical Transitions in Ecological-Economic Systems. *Environmental Modeling and Software* (submitted).
- Moghayer, S., Wagener, F. (2017). *Indifference-attractor bifurcation in complex ecological-economic optimal control problems*. Paper accepted for presentation at 2017 Conference on Complex Systems, Cancun, Mexico.
- Bulavskaya, T., Boonman, H., Hu, J., Moghayer, S., Nimair, L., Filatova, F., Dhalva, K., Arto, I, (2017). What would EU socio-economic and energy technology system be like if the Paris agreement enters into force? A hybrid modeling system approach. TNO Working Paper Series 2017-01.
- Feleke, G., Voinov, A., Bulavskaya, T., Niamir, L., Moghayer, S., Inaki, A., Filatova, T. (2017). Web service based approach to linking heterogeneous climate-energy-economy models for climate change mitigation analysis. *Journal of Energy* (under review).
- Bulavskaya, T., Boonman, H., Hu, J., Moghayer, S., F., Dhalva, K., Arto, I, (2017). *Environmental and economic implications of Paris agreement mitigation pathways and targets : an application of EXIOMOD using a hybrid modeling approach.*. Paper accepted for presentation at the 25^{th} International Input-Output Association (IIOA), Atlantic City, NJ, USA.
- Arto, I., Filatova, T., Hasselman, K., Kovalevsky, D., Markandya, A., Moghayer, S. M., and Tariku, M. B. (2016). *Modeling System-Flips*. In Winder, N., & Liljenstrom, H. Non-linearities and System-Flips (pp. 36-102). Sigtunastifteslen, Sigtuna, Sweden.
- Bulavskaya, T., Hu, J., Moghayer S.M., and Reynes, F.G.D., (2016). EXIOMOD 2.0 : EXtended Input-Output MODel : A full description and applications (2016). TNO working paper series 2016-02.
- Hu, J., Moghayer, S. M., and Poliakov, E., 2016. *Drivers of Changing Patterns of Energy Use in UK and Netherlands*. In Winder, N., & Liljenstrom, H. Establishing Policy-Relevance - Human / Environment Interaction. (pp. 54-70). Sigtunastifteslen, Sigtuna, Sweden.
- Moghayer, S., Husby, T., Hettie, B. (2016). *A Heterogeneous Agent Model of Transition Towards Circular Economy*. Paper accepted for presentation at 2016 Conference on Complex Systems, Amsterdam, Netherlands.
- Moghayer, S., Zeppini, P., Wagener, F. (2016). *Stock-dependent dynamic pollution games*. Paper accepted for presentation at 2016 Conference on Complex Systems, Amsterdam, Netherlands.
- Ipektsidis, B., Remotti, L., Rumpf, R.,Spanos Y., Soderquist, E., Vonortas, N., Montalvo, C., Bulavskaya, T., Moghayer, S.,Dröes, M., Jinxue, H., ... (2016). *R&D investments and structural changes in sectors : Quantitative and qualitative analysis policy recommendations* (EU Law and Publications No. KI-02-16-558-EN-N). Retrieved from : https ://publications.europa.eu/en/home.
- Hu, J., Moghayer, S., Poliakov, E. (2016). Drivers of Changes in The Energy Use and CO2 Emissions in The UK and The Netherlands : A structural decomposition analysis with heterogeneous final consumers. TNO Working Paper Series 2016-01.
- Bulavskaya, T., Boonman, H., Hu, J., Moghayer, S., Niamir, L., Filatova, F., Dhalva, K., Arto, I (2016). *COMPLEX Climate-Energy-Economic system of models : policy simulation results* (Report No. D5.7).Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
- Distelkamp, M., Meyer, B., Moghayer, S. (2015). *comparison of GINFORCE and EXIOMOD results on POLFREE scenarios* (Report No. 3.7.c). Retrieved from : https ://www.ucl.ac.uk/polfree/publications.
- Hu, J., Moghayer, S., Reynes, F., 2015. *POLFREE integrated scenario interpretation : EXIOMOD / LPJmL results* (Report No. 3.7.b). Retrieved from : https ://www.ucl.ac.uk/polfree/publications.
- Montalvo corral, C. · Moghayer, S.M. and Boonman, H.J. Innovatieprestatie in Nederlandse Topsectoren (2015). TNO working paper series 2015-02.
- Moghayer, S., Wissink, P., Arto, I., Filatova, T., Kovalevsky, D. V., Tol, R., & Niamir, L. (2015). *Development of the database of COMPLEX Climate-Energy-Economic system of models* (Report No. D5.5). Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
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- Moghayer, S.M., Husby, T., and Boonman, H., (2015). Dynamic Behavioral Market Interactions in Transition Towards a Circular Economy : a heterogeneous agent modeling approach. 2015 Conference on Complex Systems, Tempe, Arizona, USA. ("Especially Worthwhile Paper" awarded).

- Kovalovsky, D. V., Arto, I., Dhavala, K., Filatova, T., Hasselman, K., Moghayer, S., Niamir, L., Voinov, A. (2014). *Integration of climate scenarios COMPLEX Climate-Energy-Economic system of models* (Report No. D5.4). Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
- Filatova, T., Moghayer, S., Arto, I., Belete, G.F., Dhavala, K., Hasselmann, K., Ivanova, O., Kovalevsky, D.V., Niamir, L. and Voinov, A., (2014). *Dynamics of COMPLEX Climate-Energy-Economy systems : development of a methodological framework for an integrated system of models* (Report No. D5.3). Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
- Moghayer, S. Wagener, F.O.O., Zeppini, P., (2013). Stock-dependent discrete-time dynamic pollution games. The 25th International Conference on Game Theory, Long Island, NY, USA.
- Moghayer, S., Hu, J. , (2013). *SDAMAT : a MATLAB tool for structural Input-Output decomposition analysis*. FP7-EMInInn
- Filatova, T., Moghayer, S., Arto, I., Belete, G.F., Dhavala, K., Hasselmann, K., Kovalevsky, D.V., Niamir, L. and Voinov, A., (2013). *State of the art review of climate-energy-economy modelling approaches* (Report No. D5.2). Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
- Moghayer, S. Wagener, F.O.O., (2012). *Bifurcations of Indifference Points in Discrete Time Lake Pollution Management Problem*. Accepted for presentation at the EAERE 19th Annual Conference, Prague, Czech.
- Filatova, T., Moghayer, S., Arto, I., Belete, G.F., Dhavala, K., Hasselmann, K., Ivanova, O., Kovalevsky, D.V., Niamir, L. and Voinov, A. (2012). *Review of methodologies to model non-linearity, thresholds and reversibility in high-impact climate change events in the presence of environmental tipping points* (Report No. D5.1). Retrieved from : http ://owsgip.itc.utwente.nl/projects/complex.
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- Moghayer, S. Wagener, F.O.O., (2011). *Genesis of Indifference Threshold in Optimal Control : application to shallow lake pollution problem*. Accepted for presentation at the EAERE 18th Annual Conference, Rome, Italy.
- Montalvo, C. and M Moghayer, S., 2011. State of an Innovation System. TNO working paper series, 2011-02.
- Moghayer, S. Wagener, F., (2011). *The numerics of non-convex single-state discrete-time dynamic economic optimization problems*. Accepted for presentation at 8th International Conference on Computational Management Science, Neuchatel, Switzerland.
- Ivanova, O., Poliakov, E., Manshanden, W., Parguas, F., Koops, O., Rietveld, E., Moghayer, S., Bulavskaya, T., Dros, M., Linden, G.J., Baker, A., Chewpreecha, A.,U, Heyndrix, C. (2011). *Study on the Identifying and Aggregating Elasticities for Spill-over Effects due to Linkages and Externalities in the Main Sectors of Investment Co-financed by the EU Cohesion Policy*(EU law and publications NO. KN-31-13-776-EN-N). Retrieved from : https ://publications.europa.eu/en/home.
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- Moghayer, S. Wagener, F., (2008). *Numerical methods in discrete-time complex optimal control problems*. 14th International Conference on Computing in Economics and Finance, Paris, France.