

# FLORIAN SCHUBERTH

(born January 4th 1987, German citizen)

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## CURRENT POSITION

Assistant Professor at the Chair of Product–Market Relations (Prof. Jörg Henseler), University of Twente, Faculty of Engineering Technology, Department of Design Production & Management, De Horst 2, 7522LW Enschede, The Netherlands, 2017 - present.

Focus: Enhancement of composite-based structural equation modeling.

## EDUCATION

- PhD in Econometrics (Dr. rer. pol., summa cum laude), University of Würzburg, Germany, 2017, Title: Composite-based Methods in Structural Equation Modeling.
- M.Sc. in Economics (Grade 1.5), University of Würzburg, Germany, 2012, Major subjects: Econometrics, Banking, and Public Finance.
- B.Sc. in Economic Science (Grade 2.1), University of Würzburg, Germany, 2010.

## RESEARCH VISITS

- NEOMA Business School, France, invited by Prof. Laura Trinchera, 17.06. - 20.06.2019.
- University of Twente, The Netherlands, invited by Prof. Jörg Henseler, 08. - 10.2016.
- University of Twente, The Netherlands, invited by Prof. Jörg Henseler, 08. - 09.2015.

## PREVIOUS EMPLOYMENT

- Research/Teaching Assistant at the Chair of Econometrics (Prof. Martin Kukuk), University of Würzburg, Faculty of Business Administration & Economics, 2012 – 2017.
- Lecturer at the Applied University of Würzburg-Schweinfurt, Germany, 2012 - 2016.
- Intern at the Statistical Department of the City of Würzburg, Germany, 08.2011 - 10.2011.
- Lecturing Tutor and student Research Assistant to Prof. Kukuk, University of Würzburg, Germany, 2009 - 2011.
- Lecturing Tutor and Student Research Assistant to Prof. Fehr, University of Würzburg, Germany, 2009 - 2011.

## ANCILLARY ACTIVITIES

- Instructor for PLS Workshops as freelancer, PLS School:
- Partial Least Squares Path Modeling, Budapest, Hungary, 18.04/19.04.2023.
  - Partial Least Squares Path Modeling, Pecs, Hungary, 17.04.2023.
  - PLS-SEM using ADANCO and cSEM, Macao, China (online), 6-days workshop 14.02-07.03.2022.
  - New Developments in PLS Path Modeling: Advanced Course, Enschede, The Netherlands, 06/07.02.2020.
  - Partial Least Squares Path Modeling: Introduction and Application, Enschede, The Netherlands, 12/13.12.2019.

## PUBLICATIONS

- Schubert, Florian; Schamberger, Tamara; Henseler, Jörg (accepted). More powerful parameter tests? No, rather biased parameter estimates. Some reflections on path analysis with weighted composites. *Behavior Research Methods*.
- Castillo, Ana; Ruiz, Laura; Benitez, José; Schubert, Florian; Reina, Rafael (accepted). IT impact on open innovation performance: Insights from a large-scale empirical investigation. *Decision Support Systems*.
- Schubert, Florian; Schamberger, Tamara; Rönkkö, Mikko; Yide Liu; Henseler, Jörg (accepted). Premature Conclusions about the Signal-to-Noise Ratio in Structural Equation Modeling Research: A Commentary on Yuan and Fang (2023). *British Journal of Mathematical and Statistical Psychology*.
- Schubert, Florian (2023). The Henseler-Ogasawara specification of composites in structural equation modeling: A tutorial. *Psychological Methods*, 28(4), 843–859.
- Yu, Xi; Schubert, Florian; Henseler, Jörg (2023). Specifying composites in structural equation modeling: A refinement of the Henseler-Ogasawara specification. *Statistical Analysis and Data Mining*, 16(4), 348–357.
- Schubert, Florian; Zaza, Sam; Henseler, Jörg (2023) Partial least squares is an estimator for structural equation models: A comment on Evermann and Rönkkö (2021). *Communications of the Association for Information Systems*, 52, 711–714.
- Schubert, Florian; Hubona, Geoffrey; Roemer, Ellen; Zaza, Sam; Schamberger, Tamara; Chuah, Francis; Cepeda-Carrión, Gabriel; Henseler, Jörg (2023). The choice of structural equation modeling technique matters: A commentary on Dash and Paul (2021). *Technological Forecasting & Social Change*, 194, 122665.
- Henseler, Jörg; Schubert, Florian (2023). Partial least squares as a tool for scientific inquiry: Comments on Cadogan and Lee. *European Journal of Marketing*, 57(6), 1737-1757.
- Schubert, Florian; Rademaker, Manuel; Henseler, Jörg (2023). Assessing the overall fit of composite models estimated by partial least squares path modeling. *European Journal of Marketing*, 57(6), 1678-1702.
- Schubert, Florian; Rosseel, Yves; Rönkkö, Mikko; Trinchera, Laura; Kline, Rex B.; Henseler, Jörg (2023). Structural parameters under partial least squares and covariance-based structural equation modeling: A comment on Yuan and Deng (2021). *Structural Equation Modeling: A Multidisciplinary Journal*, 30(3), 339-345.
- Schamberger, Tamara; Schubert, Florian; Henseler, Jörg (2023). Confirmatory composite analysis in human development research. *International Journal of Behavioral Development*, 47(1), 89-100.
- Müller, Tobias; Schubert, Florian; Bergsiek, Micha; Henseler, Jörg (2022). How can the transition from office to telework be managed? The impact of tasks and workplace suitability on collaboration and work performance. *Frontiers in Psychology*, 13:987530.
- Abbas, Yawar; Martinetti, Alberto; Rajabalinejad, Mohammad; Schubert, Florian; van Dongen, Leonardus Adriana Maria (2022). Facilitating digital collaboration through knowledge management: A case study. *Knowledge Management Research & Practice*, 20(6), 797-813.
- Liu, Yuqing; Schubert, Florian; Yide, Liu; Henseler, Jörg (2022). Modeling and assessing forged concepts in tourism and hospitality using confirmatory composite analysis. *Journal of Business Research*, 152, 221-230.
- Klesel, Michael; Schubert, Florian; Niehaves, Bjoern; Henseler, Jörg (2022). Multigroup analysis in information systems research using PLS-PM: A systematic investigation of approaches. *The DATA BASE for Advances in Information Systems*, 53(3), 26-48.
- Yu, Xi; Zaza, Sam; Schubert, Florian; Henseler, Jörg (2021). Counterpoint: Representing forged concepts as emergent variables using composite-based structural equation modeling. *The DATA BASE for Advances in Information Systems*, 52(SI),

- 114-130 (First Runner-Up for Best Paper Award).
- Roemer, Ellen; Schubert, Florian; Henseler, Jörg (2021). HTMT2 - An improved criterion for assessing discriminant validity in structural equation modeling. *Industrial Management & Data Systems*, 121(12), 2637-2650.
  - Hubona, Geoffrey; Schubert, Florian; Henseler, Jörg (2021). A clarification of Confirmatory Composite Analysis (CCA). *International Journal of Information Management*, 61, 102399. (among the top 10 articles receiving social media attention in 2021 out of all papers published in the history of IJIM)
  - Schubert, Florian (2021). Confirmatory composite analysis using partial least squares: Setting the record straight. *Review of Managerial Science*, 15(5), 1311-1345.
  - Okazaki, Shintaro; Schubert, Florian; Tagashira, Takumi; Guimaraes Andrade, Victoria (2021). Sneaking the dark side of brand engagement into Instagram: The dual theory of passion. *Journal of Business Research*, 130, 493-505.
  - Henseler, Jörg; Schubert, Florian (2020). Using Confirmatory Composite Analysis to Assess Emergent Variables in Business Research. *Journal of Business Research*, 120, 147-156.
  - Schubert, Florian; Rademaker, Manuel E.; Henseler Jörg (2020). Estimating and assessing second-order constructs using PLS-PM: the case of composites of composites. *Industrial Management & Data Systems*, 120(12), 2211-2241.
  - Schamberger, Tamara; Schubert, Florian; Henseler, Jörg; Dijkstra, Theo K. (2020). Robust partial least squares path modeling. *Behaviormetrika*, 47, 307-334.
  - Benitez, José; Castillo, Ana; Henseler, Jörg; Schubert, Florian (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, 57(2), 103168. (Award for Research Works of Excellence by the University of Granada, 2022)
  - Noor, Shuhaida Md; Rasoolimanesh, S. Mostafa; Schubert, Florian; Jaafar, Mastura (2019). Effect of tourist engagement modeled as second-order composite on satisfaction and loyalty. *The Service Industries Journal*, 39(7-8), 559-574.
  - Rademaker, Manuel E.; Schubert, Florian; Dijkstra, Theo K. (2019). Measurement error correlation within blocks of indicators in consistent partial least squares: Issues and remedies. *Internet Research*, 29(3), 448-463.
  - Klesel, Michael; Schubert, Florian; Henseler, Jörg; Niehaves, Björn (2019). A test for multigroup comparison in partial least squares path modeling. *Internet Research*, 29(3), 464-477.
  - Schubert, Florian; Henseler, Jörg; Dijkstra, Theo K. (2018). Confirmatory composite analysis. *Frontiers in Psychology*, 9(2541).
  - Salazar-Ordóñez, Melania; Schubert, Florian; Cabrera, Elena R.; Arriaza, Manuel; Rodriguez-Entrena; Macarío (2018). The effects of person-related and environmental factors on consumers' decision-making in agri-food markets: the case of olive oils. *Food Research International*, 112, 412-424.
  - Müller, Tobias; Schubert, Florian; Henseler, Jörg. (2018). PLS path modeling – a confirmatory approach to study tourism technology and tourist behavior. *Journal of Hospitality and Tourism Technology*, 9(3), 249-266.
  - Rodriguez-Entrena, Macarío; Schubert, Florian; Gelhard, Carsten (2018). Assessing statistical differences between parameter estimates in Partial Least Squares path modeling. *Quality & Quantity*, 52(1), 57-69.
  - Schubert, Florian; Henseler, Jörg; Dijkstra, Theo K. (2018). Partial least squares path modeling using ordinal categorical variables. *Quality & Quantity*, 52(1), 9-35.
  - Schamberger, Tamara; Cantaluppi, Gabriele; Schubert, Florian (2023). Revisiting and Extending PLS for Ordinal Measurement and Prediction. In Latan, Hengky; Hair, Joseph F.; Noonan, Richard (Eds.), *Partial Least Squares Path Modeling -*

**BOOK  
CHAPTERS**

- Basic Concepts, Methodological Issues and Applications (2nd edition), Springer Nature
- Schubert, Florian; Müller, Tobias; Henseler, Jörg (2021). Which equations? An inquiry into the equations in partial least squares structural equation modeling. In: Kemény, Ildikó; Kun, Zsuzsanna (Eds.), *New Perspectives in Serving Customers, Patients, and Organizations: A Festschrift for Judit Simon*. Corvinus University of Budapest, 96-115.
  - Henseler, Jörg; Schubert, Florian (2021). Confirmatory composite analysis. In: Henseler, Jörg (Ed.), *Composite-based structural equation modeling: Analyzing Latent and Emergent Variables*. Guilford Press, 179-201.
  - Henseler, Jörg; Schubert, Florian (2021). Auxiliary Theories. In: Henseler, Jörg (Ed.), *Composite-based structural equation modeling: Analyzing Latent and Emergent Variables*. Guilford Press, 25-37.
  - Cantaluppi, Gabriele; Schubert, Florian (2019). A prediction method for ordinal consistent partial least squares. In: Arbia, Giuseppe; Peluso, Stefano; Pini, Alessia; Rivellini, Giulia (Eds.), *Smart Statistics for Smart Applications - Book of Short Papers SIS2019*. Pearson, 725-730.
  - Henseler, Jörg; Müller, Tobias; Schubert, Florian (2018). New guidelines for the use of PLS path modeling in hospitality, travel and tourism research. In: Ali, Faizan; Rasoolimanesh, S. Mostafa; Cobanoglu, Cihan (Eds.), *Applying Partial Least Squares in Tourism and Hospitality Research*. Emerald, 17-33.
  - Schubert, Florian; Cantaluppi, Gabriele (2017). Ordinal consistent partial least squares. In: Latan, Hengky; Noonan, Richard (Eds.), *Partial Least Squares Path Modeling - Basic Concepts, Methodological Issues and Applications*. Berlin, Heidelberg: Springer, 109-150.

#### **AWARDS & SCHOLARSHIPS**

- Award for Research Works of Excellence in the area of Social and Legal Sciences by the University of Granada: Benitez, José; Castillo, Ana; Henseler, Jörg; Schubert, Florian (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, 57(2), 103168.
- First Runner-Up for Best Paper Award: Yu, Xi; Zaza, Sam; Schubert, Florian; Henseler, Jörg (2021). Counterpoint: Representing forged concepts as emergent variables using composite-based structural equation modeling. *The DATA BASE for Advances in Information Systems*, 52(SI), 114-130.
- PhD thesis award by 'Unterfränkische Gedenkjahrstiftung für Wissenschaft und Universität Würzburg, 2018.
- Award of Georg-von-Schanz-Association: Fourth best Master's Degree of the Year, University of Würzburg, 2012.

#### **INVITED TALKS**

- Open science & our community in Twente, University of Twente, Enschede, The Netherlands: invited by: Prof Jörg Henseler, 31.03.2023.
- Partial least squares path modeling - Developments & Experiences, University of Ghent, Ghent, Belgium: invited by: Prof. Yves Rosseel, 03.06.2022.
- Partial least squares path modeling, University of Tübingen, Tübingen, Germany: invited by: Prof. Steffen Zitzmann, 22.04.2022.
- Confirmatory composite analysis. Webinar YoungStatS, online (<https://www.youtube.com/watch?v=Nzn1VMwuRQc>); invited by YoungStatS (Prof. Andrej Srakar), 19.05.2021.
- Confirmatory composite analysis: What is it & how is it applied?, online (<https://www.youtube.com/watch?v=htl9Ike1U-I>); invited by Faizan Ali, 08.10.2020.

- Confirmatory Composite Analysis, Conservatoire National des Arts et Métiers, Paris, France; invited by: Prof. Giorgio Russolillo, 18.06.2019.
- Polynomial factor models: non-iterative estimation via method-of-moments, University of Ghent, Ghent, Belgium; invited by Prof. Yves Rosseel, 07.02.2019.
- Confirmatory Composite Analysis, University of Magdeburg, Magdeburg, Germany; invited by Prof. Marko Sarstedt, 01.11.2018.
- Vergleich des PLS und ML Schätzverfahrens für Strukturgleichungsmodelle mit latenten Variablen, Fakultätsinternes Forschungsseminars University of Würzburg, Würzburg, Germany, 14.05.2013.

## CONFERENCE PRESENTA- TIONS

- Schuberth, Florian. A new approach for specifying composites in structural equation models: The Henseler–Ogasawara specification. EAM2023, 10th Congress of Methodology. Ghent, Belgium, July 10-13, 2023.
- Yu, Xi; Schuberth, Florian; Henseler, Jörg. Specifying composites in growth curve analysis. Advanced Techniques for Longitudinal Data Analysis in Social Science (ATLASS) 2023. Bielefeld, Germany, March 15-17, 2023.
- Castillo López, Ana; Benitez, José; Ruiz, Laura; Schuberth, Florian; Reina, Rafael. Exploring IT-enabled open innovation performance: A large-scale empirical investigation on the Spanish market. 31st Asociación Científica de Economía y Dirección de la Empresa (ACEDE) International Conference. Barcelona, Spain, June 19-21, 2022.
- Yu, Xi; Fassott, Georg; Schuberth, Florian; Henseler, Jörg. A new approach for modeling aggregate constructs. Structural Equation Modeling: New Developments and Applications, Tilburg, Netherlands, March 9-11, 2022.
- Schuberth, Florian. Specifying composites in structural equation modeling: the Henseler-Ogasawara specification. 13-th Scientific Meeting Classification and Data Analysis Group (CLADAG 2021), Firenze, Italy (online), September 9-11, 2021.
- Yu, Xi; Kristal, Samuel; Schuberth, Florian; Henseler, Jörg. Customers as advocates in times of brand crises: Why, when and how? EMAC 2021 - The 50th Annual Conference of The European Marketing Academy, Madrid, Spain (online), May 25-28, 2021.
- Schamberger, Tamara; Schuberth, Florian; Henseler, Jörg. Maximum likelihood estimator For composite models. Meeting of the Working Group Structural Equation Modeling, Vienna, Austria (online), March 18-19, 2021.
- Cantaluppi, Gabriele; Schuberth, Florian. A Prediction Method for Ordinal Consistent Partial Least Squares. SIS 2019 - Smart Statistics for Smart Applications, Milan, Italy, June 19, 2019.
- Schuberth, Florian. Auxiliary theory for concepts of design research using emergent variables. Meeting of the Working Group Structural Equation Modeling, Tübingen, Germany, February/March 27-1, 2019.
- Rademaker, Manuel; Schuberth, Florian. cSEM: A package composite-based SEM. Meeting of the Working Group Structural Equation Modeling, Tübingen, Germany. February/March 27 - 1, 2019.
- Schuberth, Florian; Henseler, Jörg. Testing design-oriented auxiliary theories using PLS path modeling. 23rd International Conference on Computational Statistics (COMPSTAT 2018), Iasi, Romania, August 28-31, 2018.
- Schuberth, Florian; Henseler, Jörg; Dijkstra Theo K.. Confirmatory Composite Analysis. Meeting of the Working Group Structural Equation Modeling, Amsterdam, The Netherlands, March 15-16, 2018.
- Benitez, José; Castillo, Ana; Schuberth, Florian. A theory on the role of information technology in value creation from open innovation. 8th Annual Conference of the European Decision Sciences Institute, Granada, Spain, May/June 29 - 1, 2017.

- Schubert, Florian; Büchner, Rebecca; Schermelleh-Engel, Karin; Dijkstra, Theo K.. Polynomial factor models: non-iterative estimation via method of moments. Meeting of the Working Group Structural Equation Modeling, Ghent, Belgium, March 16-17, 2017.
- Schubert, Florian; Henseler, Jörg; Dijkstra, Theo K.. Partial least squares path modeling using ordinal categorical indicators. Meeting of the Working Group Structural Equation Modeling, Zurich, Suisse, April 7-8, 2016.

**CONFERENCE  
& SEMINAR  
ATTENDANCES**

- Pre-conference Workshop: “Machine Learning and Interpretable Machine Learning in R”, Ghent, Belgium; given by Carolin Strobl, Yannick Rothacher & Mirka Henninger, 10.07.2023.
- Pre-conference Workshop: “Latent State-Trait Modeling with Mplus”, Bielefeld, Germany; given by Dr. Christian Geiser, 14.03.2023.
- Advanced Techniques for Longitudinal Data Analysis in Social Science (ATLASS) 2023. Bielefeld, Germany, 15.03. - 17.03.2023.
- Structural Equation Modeling: New Developments and Applications, Tilburg, the Netherlands, 09.03. - 11.03.2022.
- Through-Life Engineering Services Conference (TESconf) 2021, Enschede, the Netherlands, 16.11. - 18.11.2021.
- Seminar: “Philosophy of Science”, University of Seville, Seville, Spain (online); given by Prof. Ed Rigdon, 02.11.2021.
- 13-th Scientific Meeting Classification and Data Analysis Group (CLADAG 2021), Firenze, Italy (online), 09.09. - 11.09.2021.
- Webinar YoungStatS, online, 19.05.2021.
- Meeting of the Working Group Structural Equation Modeling, Vienna, Austria (online), 18.03. - 19.03.2021.
- Meeting of the Working Group Structural Equation Modeling, Tübingen, Germany, 28.02. - 01.03.2019.
- 23rd Conference on Computational Statistics (COMPSTAT 2018), Iași, Romania, 28.08. - 31.08.2018.
- Meeting of the Working Group Structural Equation Modeling, Amsterdam, The Netherlands, 15.03. - 16.03.2018.
- 13. Tagung der Fachgruppe Methoden & Evaluation der Deutschen Gesellschaft für Psychologie, Tübingen, 17.09. - 20.09.2017.
- Seminar: “PLS path modeling using ADANCO”, University of Würzburg, Würzburg, Germany; given by Prof. Jörg Henseler, 2017.
- Meeting of the Working Group Structural Equation Modeling, Ghent, Belgium, 16.03. - 17.03.2017.
- Meeting of the Working Group Structural Equation Modeling, Zurich, Switzerland, 07.04. - 08.04.2016.
- Meeting of the Working Group Structural Equation Modeling, Berlin, Germany, 26.02. - 27.02.2015.
- Meeting of the Working Group Structural Equation Modeling, Frankfurt (Main), Germany, 20.03. - 21.03.2014.
- Seminar: “Panel Data Linear Analysis”, Barcelona GSE Summer School, Barcelona, Spain; given by Prof. Badi Baltagi, 2014.
- Meeting of the Working Group Structural Equation Modeling, Bielefeld, Germany, 14.02. - 15.02.2013.
- Seminar: “Advances in PLS path modeling”, 75. Tagung des Verbandes der Hochschullehrer für Betriebswirtschaft e. V., Pre-Conference Workshop, Würzburg, Germany, 22.05.2013.
- Meeting of the Graduate School Economics, Law and Social Studies (Würzburg), Oberjoch, Germany, 2013.
- Seminar: “Advanced Econometrics”, Bavarian Graduate Program in Economics, Muggendorf, Germany; given by Prof. Jeffrey Wooldridge, 19.08. - 24.08.2012.

**TEACHING EXPERIENCE** Certified lecturer (by ProfiLehre: basic level) and qualified for university teaching (UTQ).

Research Methods in Creative Technology, Academic Skills & Methods in Public Management (lecture), Academic Skills & Methods in Risk Management (lecture), Modelling Consumer Behaviour (lecture); Empirical Methods for Designer (lecture); Principles of Statistics (Exercise), Principles of Quantitative Methods (Exercise), Computational Economics (Exercise), Computer Lab in Regression Analysis (Lecture/Exercise), Econometrics 1 (Exercise), Econometrics 2 (Exercise), Microeconomics (Exercise), Principles of Statistics for Business Administration (Lecture), Statistics II for Business Administration (Lecture), Quantitative and Design Methods for Business Research (Lecture/Exercise).

**SOFTWARE DEVELOPMENT** Rademaker, Manuel E.; Schubert, Florian (2020). cSEM: Composite-Based Structural Equation Modeling. R package  
<https://CRAN.R-project.org/package=cSEM>

**REFEREE ACTIVITY** Advances in Statistical Analysis, Behaviormetrika, British Journal of Mathematical and Statistical Psychology, Business and Professional Ethics Journal, Creativity and Innovation Management Journal, Data in Brief, European Business Review, Evidence-based HRM, Frontiers in Psychology, Industrial Management & Data Systems, Information & Management, International Conference On Information Systems (ICIS), International Journal of Sports Marketing and Sponsorship, Journal of Business Research, Journal of Ecological Economics, Psychometrika, Quality & Quantity, Psycho-Oncology, Sustainability, The DATA BASE for Advances in Information Systems, The R Journal

**DOCTORAL ADVISEMENT**

- Xi Yu, “Incorporating composites in structural equation modeling: Exploiting the Henseler–Ogasawara specification”, University of Twente, 2023 (Daily supervisor).
- Tobias Müller, “Studying theoretical concepts in management research: Categorization, operationalization, and validation using partial least squares path modeling”, University of Twente, 2023 (Daily supervisor).
- Tamara Schamberger, “Methodological advances in composite-based structural equation modeling” (cum laude), University of Würzburg, University of Twente, 2022 (Daily supervisor).
- Tobias Scholz, “Shopping companions in retail environments: A view from different perspectives”, University of Twente, 2022 (Daily supervisor).
- Ines Devlieger, “Factor score regression”. University of Ghent, 2020 (Member of the Examination Committee).

**AFFILIATIONS & MEMBERSHIPS**

- Member of the scientific advisory board of ADANCO (05/2023 - present).
- Coordinator of the Open Science Community Twente (07/2022 - present).
- Member of the Scientific Committee of the PLS2020 conference.
- Twente R User Group
- Member of the Working Group Structural Equation Modeling.

**SOFTWARE** R, EViews, Stata, SPSS, Mathematica, L<sup>A</sup>T<sub>E</sub>X, Fortran, Gretl, MS Office.

**LANGUAGES** German (mother tongue), English (fluently spoken and written), Dutch (basic knowledge), French (basic knowledge).

Enschede, September 2023