Curriculum vitae

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Personal Data

Born:	February 18, 1979 in Mistelbach, Austria
Nationality:	Austria

Education

1989–1997	High School, BG & BRG Gänserndorf
1997–2002	University studies in Applied Mathematics, TU Wien
2001	ERASMUS exchange program at DTU, Denmark (5 months)
2003–2006	Ph.D. studies in Applied Mathematics, TU Wien
10/2012	Habilitation in Statistics, JKU Linz

Career History & Work Experience

03/2003–09/2003	Research fellow, FFF project "E-Direct Marketing Solution", TU Wien in cooperation with UPPER Network GmbH
10/2003–02/2004	Research fellow, SFB 010 "Adaptive Information Systems and Modelling in Economics and Management Science"
05/2004–08/2004	Research fellow, Project "Statistical Computing with R", WU Wien
09/2004–12/2004	Visiting fellow, Faculty of Commerce, University of Wollongong, Australia
01/2005–10/2006	DOC-FFORTE scholarship from the Austrian Academy of Sciences (ÖAW)
11/2006–10/2007	Research fellow, FWF project "Identification and Estimation of Finite Mixture Models", TU Wien
11/2007–10/2010	Hertha-Firnberg scholarship from the Austrian Science Fund (FWF), WU Wien
11/2010–07/2014	University assistant, Department of Applied Statistics, JKU Linz
04/2011–09/2011	Visiting professor ("Vertretungsprofessur") for Computational Statistics, Department of Statistics, LMU München
02/2011–07/2014	Elise-Richter scholarship from the Austrian Science Fund (FWF), JKU Linz
08/2014–06-2020	Associate professor, Department of Applied Statistics, JKU Linz
03/2016–02/2017	Quantitative analyst, Google Switzerland
06/2020–06/2021	University assistant, Institute for Statistics and Mathematics, WU Wien
07/2021–11/2023	Assistant professor, Institute for Statistics and Mathematics, WU Wien
12/2023–now	Associate professor, Institute for Statistics and Mathematics, WU Wien

Career-Related Activities

Editorial Board Member

- Journal of Statistical Software: Editor, 2010–2013; Co-Editor-in-Chief, since 2013.
- Biometrical Journal: Associate Editor, since 2018.
- Annals of Tourism Research Empirical Insights: Editorial Board Member, since 2020.
- Scandinavian Journal of Statistics: Associate Editor, since 2021.
- Computational Statistics: Associate Editor, 2009–2016.
- The R Journal: Associate Editor, 2013–2016; Editor, 2015.

Membership in Scientific Organizations

- Ordinary Member of the R Foundation, since 2015.

Research Grants

- 2023 BEL Connect Grant: *Innovative Guest-Friendly Solutions to Help Hotels Save Costs and Improve Their Environmental Performance* (2023)
- ARC Linkage Grant LP200301583: *Reducing Plate Waste in Hotels – Which Interventions are Most Effective?* (2021–2024)
- OeNB Jubiläumsfonds Grant 18718: *Analysis of Central Bank Communication Using Advanced Text Modeling Methods* (2022–2025)
- FWF International Project I4367-G: *Pro-Environmental Behavior in Tourism* (2019–2022)
- ARC Linkage Grant LP130100548: *Better Destination Image Data Through Lower Cognitive Load Measures* (2013–2016)
- OeNB Jubiläumsfonds Grant 14663: *Advanced Regression Methods for Macro-Economic Indicators as Explanatory Variables* (2012–2016)
- ARC Discovery Grant DP110101347: *Market Segmentation Methodology: Attacking the 'Too Hard' Basket* (2011–2015)
- FWF Elise-Richter Grant V170-N18: *Flexible Detection of Groups in Data* (2011-2014)
- FWF Hertha-Firnberg Grant T351-N18: *Modelling Unobserved Heterogeneity Using Mixtures* (2007–2010)

Publications

Books

[1] Sara Dolnicar, Bettina Grün, and Friedrich Leisch. *Market Segmentation Analysis: Understanding It, Doing It, and Making It Useful*. Management for Professionals. Springer, Singapore, 2018.

Peer Review Journal Publications

[1] David Rügamer, Florian Pfisterer, Bernd Bischl, and Bettina Grün. Mixture of experts distributional regression: Implementation using robust estimation with adaptive first-order methods. *AStA Advances in Statistical Analysis*, in press. Accepted for publication on 2023-10-24.

[2] David Fechner, Marion Karl, Bettina Grün, and Sara Dolnicar. How can restaurants entice patrons to order environmentally sustainable dishes? Testing new approaches based on hedonic psychology and affective forecasting theory. *Journal of Sustainable Tourism*, pages 1–20, in press.

[3] Theresa Scharl and Bettina Grün. A clustering procedure for three-way RNA sequencing data using data transformations and matrix-variate Gaussian mixture models. *BMC Bioinformatics*, 25:1–21, 2024. Article number 90.

[4] Ljubica Knezevic Cvelbar, Bettina Grün, and Sara Dolnicar. Do employees hold the key to environmental sustainability in tourism businesses? Empirical evidence from a field study. *Journal of Sustainable Tourism*, 32(2):245–258, 2024.

[5] Sabina Albrecht, Anna Kristina Zinn, Bettina Grün, and Sara Dolnicar. Does enjoyment focus prevent proenvironmental behaviour? *Annals of Tourism Research*, 104:1–11, 2024. Article number 103714.

[6] Oscar Yuheng Zhu, Hongwei Li, Bettina Grün, and Sara Dolnicar. The power of respect for authority and empathy – Leveraging non-cognitive theoretical constructs to trigger environmentally sustainable tourist behaviour. *Annals of Tourism Research*, 105:1–12, March 2024. Article number 103681.

[7] Jan Vávra, Arnošt Komárek, Bettina Grün, and Gertraud Malsiner-Walli. Clusterwise multivariate regression of mixed-type panel data. *Statistics and Computing*, 34(1):1–20, 2024. Article number 46.

[8] Bettina Grün and Tatjana Miljkovic. The automated bias-corrected and accelerated bootstrap confidence intervals for risk measures. *North American Actuarial Journal*, 27(4):731–750, 2023.

[9] Sara Dolnicar, Angus Gray, Bettina Grün, Hongwei Li, and Marius Portmann. Automatically monitoring environmental performance in tourism – The example of plate waste at all-you-can-eat buffets. *Annals of Tourism Research Empirical Insights*, 4(2):1–3, 2023. Research Note, Article number 100100.

[10] Emil Juvan, Bettina Grün, and Sara Dolnicar. Waste production patterns in hotels and restaurants: An intra-sectoral segmentation approach. *Annals of Tourism Research Empirical Insights*, 4(1), 2023. Article number 100090.

[11] Franz Greimel, Bettina Grün, Daniel S. Hayes, Norbert Höller, Julia Haider, Bernhard Zeiringer, Patrick Holzapfel, Christoph Hauer, and Stefan Schmutz. PeakTrace: Routing of hydropeaking waves using multiple hydrographs – a novel approach. *River Research and Applications*, 39(3):326–339, 2023.

[12] Melanie Randle, Bettina Grün, and Sara Dolnicar. On the heterogeneity of preferences for disability services. *Journal of Nonprofit & Public Sector Marketing*, 35(1):47–64, 2023.

[13] Sara Dolnicar, Bettina Grün, and Sarah MacInnes. Assessing survey response stability: A complementary quality assurance protocol for survey studies in the social sciences. *Social Sciences & Humanities Open*, 6(1):1–11, 2022. Article number 100339.

[14] Jan Greve, Bettina Grün, Gertraud Malsiner-Walli, and Sylvia Frühwirth-Schnatter. Spying on the prior of the number of data clusters and the partition distribution in Bayesian cluster analysis. *Australian & New Zealand Journal of Statistics*, 64(2):205–229, 2022. Special Issue: Geoff McLachlan Festschrift.

[15] Bettina Grün, Gertraud Malsiner-Walli, and Sylvia Frühwirth-Schnatter. How many data clusters are in the Galaxy data set? Bayesian cluster analysis in action. *Advances in Data Analysis and Classification*, 16(2):325–349, 2022.

[16] Sanela Omerovic, Herwig Friedl, and Bettina Grün. Modelling multiple regimes in economic growth by mixtures of generalised nonlinear models. *Econometrics and Statistics*, 22:124–135, April 2022.

[17] Oscar Yuheng Zhu, Bettina Grün, and Sara Dolnicar. Tourism and vaccine hesitancy. *Annals of Tourism Research*, 92(103320):1–5, 2022. Research Note.

[18] Sarah MacInnes, Bettina Grün, and Sara Dolnicar. Habit drives sustainable tourist behaviour. *Annals of Tourism Research*, 92:1–10, January 2022. Article number 103329.

[19] Daniela Ehrlich, Andreas Dunzinger, Gertraud Malsiner-Walli, Bettina Grün, Raffi Topakian, Marina Hodolic, Elmar Kainz, and Robert Pichler. Lack of association between cortical amyloid deposition and glucose metabolism in early stage Alzheimer's disease patients. *Radiology and Oncology*, 56(1):23–31, 2022.

[20] Sylvia Frühwirth-Schnatter, Gertraud Malsiner-Walli, and Bettina Grün. Generalized mixtures of finite mixtures and telescoping sampling. *Bayesian Analysis*, 16(4):1279–1307, 2021.

[21] Tatjana Miljkovic and Bettina Grün. Using model averaging to determine suitable risk measure estimates. *North American Actuarial Journal*, 25(4):562–579, 2021.

[22] Florian Schwendinger, Bettina Grün, and Kurt Hornik. A comparison of optimization solvers for log binomial regression including conic programming. *Computational Statistics*, 36(3):1721–1754, 2021.

[23] Bettina Grün and Paul Hofmarcher. Identifying groups of determinants in Bayesian model averaging using Dirichlet process clustering. *Scandinavian Journal of Statistics*, 48(3):1018–1045, 2021.

[24] Kylie Brosnan, Bettina Grün, and Sara Dolnicar. Cognitive load reduction strategies in questionnaire design. *International Journal of Market Research*, 63(2):125–133, 2021. Research Note.

[25] Emil Juvan, Bettina Grün, Petra Zabukovec Baruca, and Sara Dolnicar. Drivers of plate waste at buffets: A comprehensive conceptual model based on observational data and staff insights. *Annals of Tourism Research Empirical Insights*, 2(1):1–10, 2021. Article 100010.

[26] Ljubica Knezevic Cvelbar, Bettina Grün, and Sara Dolnicar. "To clean or not to clean?" Reducing daily routine hotel room cleaning by letting tourists answer this question for themselves. *Journal of Travel Research*, 60(1):220–229, 2021.

[27] Sara Dolnicar, Emil Juvan, and Bettina Grün. Reducing the plate waste of families at hotel buffets – a quasi-experimental field study. *Tourism Management*, 80:104103, 2020.

[28] Homa Hajibaba, Bettina Grün, and Sara Dolnicar. Improving the stability of market segmentation analysis. *International Journal of Contemporary Hospitality Management*, 32(4):1393–1411, 2020.

[29] Gertraud Malsiner-Walli, Paul Hofmarcher, and Bettina Grün. Semi-parametric regression under model uncertainty: Economic applications. *Oxford Bulletin of Economics and Statistics*, 81(5):1117–1143, 2019.

[30] Bettina Grün and Tatjana Miljkovic. Extending composite loss models using a general framework of advanced computational tools. *Scandinavian Actuarial Journal*, 2019(8):642–660, 2019.

[31] Sara Dolnicar, Ljubica Knezevic Cvelbar, and Bettina Grün. Changing service settings for the environment: How to reduce negative environmental impacts without sacrificing tourist satisfaction. *Annals of Tourism Research*, 76:301–304, May 2019. Research Note.

[32] Sara Dolnicar, Ljubica Knezevic Cvelbar, and Bettina Grün. A sharing-based approach to enticing tourists to behave more environmentally friendly. *Journal of Travel Research*, 58(2):241–252, 2019.

[33] Paul Hofmarcher, Jesus Crespo Cuaresma, Bettina Grün, Stefan Humer, and Mathias Moser. Bivariate jointness measures in Bayesian model averaging: Solving the conundrum. *Journal of Macroeconomics*, 57:150–165, September 2018.

[34] Kylie Brosnan, Bettina Grün, and Sara Dolnicar. Identifying superfluous survey items. *Journal of Retailing and Consumer Services*, 43:39–45, 2018.

[35] Emil Juvan, Bettina Grün, and Sara Dolnicar. Biting off more than they can chew: Food waste at hotel breakfast buffets. *Journal of Travel Research*, 57(2):232–242, 2018.

[36] Sara Dolnicar, Ljubica Knezevic Cvelbar, and Bettina Grün. Do pro-environmental appeals trigger pro-environmental behavior in hotel guests? *Journal of Travel Research*, 56(8):988–997, 2017.

[37] Ljubica Knezevic Cvelbar, Sara Dolnicar, and Bettina Grün. Which hotel guest segments reuse towels? Selling sustainable tourism services through target marketing. *Journal of Sustainable Tourism*, 25(7):921–934, 2017. Special Issue: Marketing for Sustainable Tourism.

[38] Gertraud Malsiner-Walli, Sylvia Frühwirth-Schnatter, and Bettina Grün. Identifying mixtures of mixtures using Bayesian estimation. *Journal of Computational and Graphical Statistics*, 26(2):285–295, 2017.

[39] Kylie Brosnan, Bettina Grün, and Sara Dolnicar. PC, phone or tablet? Use, preference and completion rates for web surveys. *International Journal of Market Research*, 59(1):35–56, 2017.

[40] Sara Dolnicar and Bettina Grün. In a galaxy far, far away ... market yourself differently. *Journal of Travel Research*, 56(5):593–598, 2017.

[41] Gabriele Piccoli, Tsz-Wai Lui, and Bettina Grün. The impact of IT-enabled customer service systems on service personalization, customer service perceptions, and hotel performance. *Tourism Management*, 59:349–362, 2017.

[42] Bettina Grün and Sara Dolnicar. Response-style corrected market segmentation for ordinal data. *Marketing Letters*, 27(4):729–741, 2016.

[43] Tatjana Miljkovic and Bettina Grün. Modeling loss data using mixtures of distributions. *Insurance: Mathematics and Economics*, 70:387–396, 2016.

[44] Franz Greimel, Bernhard Zeiringer, Norbert Höller, Bettina Grün, Reinhold Godina, and Stefan Schmutz. A method to detect and characterize sub-daily flow fluctuations. *Hydrological Processes*, 30(13):2063–2078, 2016.

[45] Sara Dolnicar, Bettina Grün, and Friedrich Leisch. Increasing sample size compensates for data problems in segmentation studies. *Journal of Business Research*, 69(2):992–999, 2016.

[46] Jesús Crespo Cuaresma, Bettina Grün, Paul Hofmarcher, Stefan Humer, and Mathias Moser. Unveiling covariate inclusion structures in economic growth regressions using latent class analysis. *European Economic Review*, 81:189–202, 2016.

[47] Gertraud Malsiner-Walli, Sylvia Frühwirth-Schnatter, and Bettina Grün. Model-based clustering based on sparse finite Gaussian mixtures. *Statistics and Computing*, 26(1):303–324, 2016.

[48] Katie Cliff, Bettina Grün, Simon Ville, and Sara Dolnicar. A conceptual framework of skilled female migrant retention. *Economic Papers*, 34(3):118–127, 2015.

[49] Frank Schaarschmidt, Matthias Hofmann, Thomas Jaki, Bettina Grün, and Ludwig A. Hothorn. Statistical approaches for the determination of cut points in anti-drug antibody bioassays. *Journal of Immunological Methods*, 418:84–100, March 2015.

[50] John R. Rossiter, Sara Dolnicar, and Bettina Grün. Why level-free forced-choice binary measures of brand benefit beliefs work well. *International Journal of Market Research*, 57(2):239–256, 2015.

[51] Paul Hofmarcher, Jesús Crespo Cuaresma, Bettina Grün, and Kurt Hornik. Last night a shrinkage saved my life: Economic growth, model uncertainty and correlated regressors. *Journal of Forecasting*, 34(2):133–144, 2015.

[52] Kurt Hornik and Bettina Grün. On maximum likelihood estimation of the concentration parameter of von Mises-Fisher distributions. *Computational Statistics*, 29(5):945–957, 2014.

[53] Kurt Hornik and Bettina Grün. movMF: An R package for fitting mixtures of von Mises-Fisher distributions. *Journal of Statistical Software*, 58(10):1–31, 2014.

[54] Moritz Kebschull, Ryan T. Demmer, Bettina Grün, Paolo Guarnieri, Paul Pavlidis, and Panos N. Papapanou. Gingival tissue transcriptomes identify distinct periodontitis phenotypes. *Journal of Dental Research*, 93(5):459–468, May 2014.

[55] Sara Dolnicar, Anna Hurlimann, and Bettina Grün. Branding water. *Water Research*, 57:325–338, June 2014.

[56] Sara Dolnicar, Bettina Grün, Friedrich Leisch, and Kathrin Schmidt. Required sample sizes for data-driven market segmentation analyses in tourism. *Journal of Travel Research*, 53(3):296–306, May 2014.

[57] Kurt Hornik and Bettina Grün. On standard conjugate families for natural exponential families with bounded natural parameter space. *Journal of Multivariate Analysis*, 126:14–24, April 2014.

[58] Paul Hofmarcher, Stefan Kerbl, Bettina Grün, Michael Sigmund, and Kurt Hornik. Model uncertainty and aggregated default probabilities: New evidence from Austria. *Applied Economics*, 46(8):871–879, 2014.

[59] Sara Dolnicar and Bettina Grün. Including "Don't know" answer options in brand image surveys improves data quality. *International Journal of Market Research*, 56(1):33–50, 2014.

[60] Kurt Hornik and Bettina Grün. Amos-type bounds for modified Bessel function ratios. *Journal of Mathematical Analysis and Applications*, 408(1):91–101, December 2013.

[61] Sara Dolnicar, Bettina Grün, and Venkata Yanamandram. Dynamic, interactive survey questions can increase survey data quality. *Journal of Travel & Tourism Marketing*, 30(7):690–699, October 2013.

[62] Sara Dolnicar and Bettina Grün. "Translating" between survey answer formats. *Journal of Business Research*, 66(9):1298–1306, September 2013.

[63] Bettina Grün, Paul Hofmarcher, Kurt Hornik, Christoph Leitner, and Stefan Pichler. Deriving consensus ratings of the big three rating agencies. *Journal of Credit Risk*, 9(1):75–98, 2013.

[64] Kurt Hornik and Bettina Grün. On conjugate families and Jeffreys priors for von Mises-Fisher distributions. *Journal of Statistical Planning and Inference*, 143(5):992–999, May 2013.

[65] Sara Dolnicar and Bettina Grün. Validly measuring destination image in survey studies. *Journal of Travel Research*, 52(1):3–13, January 2013.

[66] Sara Dolnicar, John R. Rossiter, and Bettina Grün. "Pick-any" measures contaminate brand image studies. *International Journal of Market Research*, 54(6):821–834, 2012.

[67] Sara Dolnicar, Anna Hurlimann, and Bettina Grün. Water conservation behavior in Australia. *Journal of Environmental Management*, 105:44–52, August 2012.

[68] Bettina Grün, Ioannis Kosmidis, and Achim Zeileis. Extended beta regression in R: Shaken, stirred, mixed, and partitioned. *Journal of Statistical Software*, 48(11):1–25, 2012.

[69] Bettina Grün and Kurt Hornik. Modelling human immunodeficiency virus ribonucleic acid levels with finite mixtures for censored longitudinal data. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, 61(2):201–218, March 2012.

[70] Bettina Grün, Theresa Scharl, and Friedrich Leisch. Modelling time course gene expression data with finite mixtures of linear additive models. *Bioinformatics*, 28(2):222–228, January 2012.

[71] Sara Dolnicar, Klaus Grabler, Bettina Grün, and Anna Kulnig. Key drivers of behavioural loyalty in airline choice. *Tourism Management*, 32(5):1020–1026, October 2011.

[72] Jochen Kindler, Ursula Bailer, Martina De Zwaan, Karoline Fuchs, Friedrich Leisch, Bettina Grün, Alexandra Strnad, Mirjana Stojanovic, Julia Windisch, Claudia Lennkh-Wolfsberg, Nadja El-Giamal, Werner Sieghart, Siegfried Kasper, and Harald Aschauer. No association of the neuropeptide Y (Leu7Pro) and ghrelin gene (Arg51Gln, Leu72Met, Gln90Leu) single nucleotide polymorphisms with eating disorders. *Nordic Journal of Psychiatry*, 65(3):203–207, June 2011.

[73] Bettina Grün and Kurt Hornik. topicmodels: An R package for fitting topic models. *Journal of Statistical Software*, 40(13):1–30, 2011.

[74] Sara Dolnicar, Bettina Grün, and Friedrich Leisch. Quick, simple and reliable: Forced binary survey questions. *International Journal of Market Research*, 53(2):231–252, 2011.

[75] Sara Dolnicar, Anna Hurlimann, and Bettina Grün. What affects public acceptance of recycled and desalinated water? *Water Research*, 45(2):933–943, January 2011.

[76] Theresa Scharl, Bettina Grün, and Friedrich Leisch. Mixtures of regression models for time-course gene expression data: Evaluation of initialization and random effects. *Bioinformatics*, 26(3):370–377, February 2010.

[77] Sara Dolnicar and Bettina Grün. Environmentally friendly behavior—Can heterogeneity among individuals and contexts/environments be harvested for improved sustainable management? *Environment and Behavior*, 41(5):693–714, September 2009.

[78] Sara Dolnicar and Bettina Grün. Response style contamination of student evaluation data. *Journal of Marketing Education*, 31(2):160–172, August 2009.

[79] Bettina Grün and Friedrich Leisch. Dealing with label switching in mixture models under genuine multimodality. *Journal of Multivariate Analysis*, 100(5):851–861, May 2009.

[80] Sara Dolnicar and Bettina Grün. Does one size fit all?—The suitability of answer formats for different constructs measured. *Australasian Marketing Journal*, 17(1):58–64, 2009.

[81] Bettina Grün and Achim Zeileis. Automatic generation of exams in R. *Journal of Statistical Software*, 29(10):1–14, 2009.

[82] Bettina Grün and Friedrich Leisch. Identifiability of finite mixtures of multinomial logit models with varying and fixed effects. *Journal of Classification*, 25(2):225–247, November 2008.

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[84] Sara Dolnicar and Bettina Grün. Challenging "factor-cluster segmentation". *Journal of Travel Research*, 47(1):63–71, 2008.

[85] Sara Dolnicar and Bettina Grün. Question stability in brand image measurement—Comparing alternative answer formats and accounting for heterogeneity in descriptive models. *Australasian Marketing Journal*, 15(2):26–41, 2007.

[86] Sara Dolnicar and Bettina Grün. User-friendliness of answer formats—An empirical comparison. *Australasian Journal of Market & Social Research*, 15(1):19–28, June 2007.

[87] Sara Dolnicar and Bettina Grün. Assessing analytical robustness in cross-cultural comparisons. *International Journal of Culture, Tourism and Hospitality Research*, 1(2):140–160, 2007.

[88] Bettina Grün and Friedrich Leisch. Fitting finite mixtures of generalized linear regressions in R. *Computational Statistics & Data Analysis*, 51(11):5247–5252, July 2007.

[89] Bettina Grün and Friedrich Leisch. Flexmix: An R package for finite mixture modelling. *R News*, 7(1):8–13, April 2007.

[90] Sara Dolnicar and Bettina Grün. Cross-cultural differences in survey response patterns. *International Marketing Review*, 24(2):127–143, 2007.

[91] Sara Dolnicar and Bettina Grün. How constrained a response: A comparison of binary, ordinal and metric answer formats. *Journal of Retailing and Consumer Services*, 14(2):108–122, March 2007.

[92] Michael Hahsler, Bettina Grün, and Kurt Hornik. arules – A computational environment for mining association rules and frequent item sets. *Journal of Statistical Software*, 14(15):1–25, October 2005.