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Correlation curve estimation for multiplicative distortion measurement errors data. (English)

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The authors study the estimation of the correlation curve function which measures the strength of the association between two variables locally at different values of covariate. The estimation is performed under the multiplicative distortion measurement errors setting where the unobservable variables are both distorted in a multiplicative fashion by an observed variable. The authors obtain asymptotic normality results for the estimated correlation curve and conduct Monte Carlo simulation experiments to examine the performance of the proposed estimator.

Reviewer: Pavel Stoynov (Sofia)

MSC:

62H20 Measures of association (correlation, canonical correlation, etc.)

62G05 Nonparametric estimation

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References:

- [1] Bjerve, S.; Doksum, K. A., Correlation Curves: Measures of Association As Functions of Covariate Values, The Annals of Statistics, 21, 2, 890-902, (1993) · Zbl 0817.62025
- [2] Carroll, R. J.; Ruppert, D.; Stefanski, L. A.; Crainiceanu, C. M., Nonlinear Measurement Error Models, A Modern Perspective, (2006), New York: Chapman and Hall, New York · Zbl 1119.62063
- [3] Cheng, C.-L.; Shalabh; Garg, G., Goodness of Fit in Restricted Measurement Error Models, Journal of Multivariate Analysis, 145, 101-116, (2016) · Zbl 1331.62332
- [4] Cui, X.; Guo, W.; Lin, L.; Zhu, L., Covariate-adjusted Nonlinear Regression, The Annals of Statistics, 37, 1839-1870, (2009) · Zbl 1168.62035
- [5] Delaigle, A.; Hall, P.; Zhou, W.-X., Nonparametric Covariate-adjusted Regression, The Annals of Statistics, 44, 5, 2190-2220, (2016) · Zbl 1349.62097
- [6] Doksum, K.; Blyth, S.; Bradlow, E.; Meng, X.; Zhao, H., Correlation Curves As Local Measures of Variance Explained by Regression, Journal of the American Statistical Association, 89, 571-582, (1994) · Zbl 0803.62035
- [7] Fan, J.; Gijbels, I., Local Polynomial Modelling and Its Applications, (1996), London: Chapman & Hall, London · Zbl 0873.62037
- [8] 1987\textit{Measurement Error Models}, Wiley Series in Probability and Mathematical Statistics: Probability and Mathematical Statistics, New York: John Wiley & Sons Inc. · Zbl 0654.46058
- [9] Hellton, K. H.; Thoresen, M., The Impact of Measurement Error on Principal Component Analysis, Scandinavian Journal of Statistics. Theory and Applications, 41, 4, 1051-1063, (2014) · Zbl 1305.62222
- [10] Kaysen, G. A.; Dubin, J. A.; Müller, H.-G.; Mitch, W. E.; Rosales, L. M.; Nathan, W., Relationships Among Inflammation Nutrition and Physiologic Mechanisms Establishing Albumin Levels in Hemodialysis Patients, Kidney International, 61, 2240-2249, (2002)
- [11] Latif, S. A.; Morettin, P. A., Curve of Correlation for Time Series, Communications in Statistics – Simulation and Computation, 45, 8, 2792-2809, (2016) · Zbl 1347.62195
- [12] Li, F.; Lin, L.; Cui, X., Covariate-adjusted Partially Linear Regression Models, Communications in Statistics – Theory and Methods, 39, 6, 1054-1074, (2010) · Zbl 1284.62422
- [13] Li, F.; Lu, Y., Lasso-type Estimation for Covariate-adjusted Linear Model, Journal of Applied Statistics, 45, 1, 26-42, (2018)
- [14] Li, G.; Zhang, J.; Feng, S., Modern Measurement Error Models, (2016), Beijing: Science Press, Beijing
- [15] Liang, H., Generalized Partially Linear Mixed-effects Models Incorporating Mismeasured Covariates, Annals of the Institute of Statistical Mathematics, 61, 1, 27-46, (2009) · Zbl 1294.62147

- [16] Liang, H.; Härdle, W.; Carroll, R. J., Estimation in a Semiparametric Partially Linear Errors-in-variables Model, *The Annals of Statistics*, 27, 5, 1519-1535, (1999) · [Zbl 0977.62036](#)
- [17] Liang, H.; Ren, H., Generalized Partially Linear Measurement Error Models, *Journal of Computational and Graphical Statistics*, 14, 1, 237-250, (2005)
- [18] Nguyen, D. V.; Şentürk, D., Multicovariate-adjusted Regression Models, *Journal of Statistical Computation and Simulation*, 78, 813-827, (2008) · [Zbl 1431.62167](#)
- [19] Nilsson, W.; Castro, T. D.B., Bootstrap Confidence Interval for a Correlation Curve, *Statistics & Probability Letters*, 82, 1, 1-6, (2012) · [Zbl 1229.62080](#)
- [20] Rosman, J. B.; ter Wee, P. M.; Meijer, S.; Piers-Becht, T. P.M.; Sluiter, W. J.; Donker, A. J.M., Prospective Randomized Trial of Early Protein Restriction in Chronic Renal Failure, *Lancet*, 2, 1291-1296, (1984)
- [21] Şentürk, D.; Müller, H.-G., Covariate Adjusted Correlation Analysis Via Varying Coefficient Models, *Scandinavian Journal of Statistics. Theory and Applications*, 32, 3, 365-383, (2005) · [Zbl 1089.62068](#)
- [22] Şentürk, D.; Müller, H.-G., Inference for Covariate Adjusted Regression Via Varying Coefficient Models, *The Annals of Statistics*, 34, 654-679, (2006) · [Zbl 1095.62045](#)
- [23] Şentürk, D.; Nguyen, D. V., Asymptotic Properties of Covariate-adjusted Regression with Correlated Errors, *Statistics & Probability Letters*, 79, 1175-1180, (2009) · [Zbl 1160.62079](#)
- [24] 1986\textit{Density Estimation for Statistics and Data Analysis}, Monographs on Statistics and Applied Probability, London: Chapman & Hall
- [25] Song, Q.; Yang, L., Spline Confidence Bands for Variance Functions, *Journal of Nonparametric Statistics*, 21, 5, 589-609, (2009) · [Zbl 1165.62317](#)
- [26] 1995\textit{Kernel Smoothing}, Vol. 60 of Monographs on Statistics and Applied Probability, London: Chapman and Hall, Ltd · [Zbl 0854.62043](#)
- [27] Wang, H. Y.; Chen, X.; Flournoy, N., The Focused Information Criterion for Varying-coefficient Partially Linear Measurement Error Models, *Statistical Papers*, 57, 1, 99-113, (2016) · [Zbl 1371.62038](#)
- [28] 2018'Structure Identification for Varying Coefficient Models with Measurement Errors Based on Kernel Smoothing', \textit{Statistical Papers}
- [29] 2018'SIMEX Estimation for Single-index Model with Covariate Measurement Error', \textit{ASTA Advances in Statistical Analysis}
- [30] Zhang, Y.; Yang, L., A Smooth Simultaneous Confidence Band for Correlation Curve, *Test*, 27, 2, 247-269, (2018) · [Zbl 1404.62048](#)
- [31] Zhao, J.; Xie, C., A Nonparametric Test for Covariate-adjusted Models, *Statistics & Probability Letters*, 133, Supplement C, 65-70, (2018) · [Zbl 1439.62113](#)
- [32] Zhou, Y.; Liang, H., Statistical Inference for Semiparametric Varying-coefficient Partially Linear Models with Error-prone Linear Covariates, *The Annals of Statistics*, 37, 427-458, (2009) · [Zbl 1156.62036](#)

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