

## Publications for

### Søren Johansen

- 1966 "On the Semimartingale Convergence Theorem" (with J. Karush). *Ann. Math. Statist.* 37, 690-694.
- ..... "An Application of Extreme Point Methods to the Representation of Infinitely Divisible Distributions". *Z. Wahrsch. Verw. Gebiete* 5, 304-316.
- 1967 Anvendelse af ekstremalpunktmetoder i sandsynlighedsregningen. University of Copenhagen, 79 pp. (Guldmedalje afhandling, in Danish).
- ..... "The Descriptive Approach to the Derivative of a Set Function with Respect to a (sigma)-lattice". *Pacific J. Math.* 21, 49-58.
- 1970 "Asymptotic Properties of the Restricted Bayesian Double Sampling Plan". *Technometrics* 12, 647-667.
- ..... "A Generalized Radon-Nikodym Derivative" (with H.D. Brunk). *Pacific J. Math.* 34, 585-617.
- 1972 "A Representation Theorem for a Convex Cone of Quasi Convex Functions". *Math. Scand.* 30, 297-312.
- 1973 "Kolmogorov's Differential Equations for Non-Stationary, Countable State Markov Processes with Uniformly Continuous Transition Probabilities" (with G.S. Goodman). *Proc. Camb. Phil. Soc.* 73, 119-138.
- ..... "A Central Limit Theorem for Finite Semi Groups and its Application to the Imbedding Problem for Finite State Markov Chains". *Z. Wahrsch. Verw. Gebiete* 26, 171-190.
- ..... "The Bang-Bang Problem for Stochastic Matrices". *Z. Wahrsch. Verw. Gebiete* 26, 191-195.
- ..... "The Imbedding Problem for Markov Branching Processes". Preprint No. 9, University of Copenhagen, 41 pp.
- ..... "The Imbedding Problem for Markov Chains". Preprint No. 10, University of Copenhagen, 18 pp. (Disputats).
- ..... "The Imbedding Problem for Finite Markov Chains". *Proc. NATO Adv. Study Inst.*, 10 pp.
- 1974 "The Extremal Convex Functions". *Math. Scand.* 34, 61-68.
- ..... "Some Results on the Embedding Problem for Finite Markov Chains". *J. London Math. Soc.* 8, 191-195.
- 1976 "Discussion of: Torgersen, E.N. Comparison of Statistical Experiments". *Scand. J. Statist.* 3, 186-208 (200-202).
- ..... *Forelæsningsnoter i Matematisk Statistik* (2.ed. 1976). Lecture Notes, University of Copenhagen, 86 pp. (in Danish).
- ..... "Michaelis-Menten Kinetics of Galactose Elimination by the Isolated Perfused Pig Liver" (with S. Keiding, K. Winkler, K. Tønnesen & N. Tygstrup). *Amer. J. Physiol.* 230, 1302-1313.
- 1977 "Some Remarks on M-Ancillarity". *Scand. J. Statist.* 4, 181-182.
- ..... "Kinetics of Ethanol Inhibition of Galactose Elimination in Perfused Pig Liver" (with

- S. Keiding and K. Tønnesen). *Scand. J. Clin. Lab. Invest.* 37, 487-494.
- ..... *Homomorphisms and General Exponential Families. Recent Developments in Statistics.* J.R. Barra et al. (eds.), North-Holland Publ. Comp. 489-499.
- 1978 "The Product Limit Estimator as Maximum Likelihood Estimator". *Scand. J. Statist.* 5, 195-199.
- ..... "An Empirical Transition Matrix for Non-homogeneous Markov Chains Based on Censored Observations" (with O.O. Aalen). *Scand. J. Statist.* 5, 141-150.
- 1979 "A Bang-Bang Representation for 3 x 3 Embeddable Stochastic Matrices" (with F.L. Ramsey). *Z. Wahrsch. Verw. Gebiete* 47, 107-118.
- ..... "Ethanol Elimination Kinetics in Human Liver and Pig Liver in Vivo" (with S. Keiding, I. Midtbøll, A. Rabøl and L. Christiansen). *Amer. J. Physiol.* 237, E316-E324.
- ..... *Introduction to the Theory of Regular Exponential Families.* Inst. Math. Statist., University of Copenhagen, Lecture Notes 3 (94 pp).
- ..... "Some Comments on Robustness". Preprint No. 5, University of Copenhagen (11 pp).
- 1980 "The Welch-James Approximation to the Distribution of the Residual Sum of Squares in a Weighted Linear Regression". *Biometrika* 67, 85-92.
- ..... "The Kinetics of Sodium Dependent Phenylalanine Influx in the Intestine of the Dog: A Comparison between Ileum and Colon" (with J.W.L. Robinson and J.-A. Antonioli). *J. Physiol. Paris* 76, 637-645.
- 1981 "A Family of Models for the Elimination of Substrate in the Liver" (with S. Keiding). *J. Theoret. Biol.* 89, 549-556.
- ..... "The Statistical Analysis of a Markov Branching Process". Preprint No. 5, University of Copenhagen (50 pp).
- ..... "Discussion of: Oakes, D. Survival Times: Aspects of Partial Likelihood". *Internat. Statist. Rev.* 49, 235-264 (pp. 258-262).
- 1982 "Asymptotic Inference in Random Coefficient Regression Models". *Scand. J. Statist.* 9, 201-207 (1982).
- ..... "Hepatic Galactose Elimination Kinetics in the Intact Pig" (with S. Keiding and K. Winkler). *Scand. J. Clin. Lab. Invest.* 42, 253-259.
- 1983 "An Extension of Cox's Regression Model". *Internat. Rev.* 51, 165-174.
- ..... "Ethanol Metabolism in Heavy Drinkers after Massive and Moderate Alcohol Intake" (with S. Keiding, N.J. Christensen, S.E. Damgaard, A. Dejgård, H.L. Iversen, A. Jacobsen, F. Lundquist, E. Rubinstein and K. Winkler). *Biochem. Pharma.* 32, 3097--3102.
- ..... "On de Moivre's Recursion Formulae for the Duration of Play" (with A. Hald). *Internat. Statist. Rev.* 51, 239-253.
- ..... *Statistical Analysis of Solute Influx Kinetics. Intestinal Transport* (with J.W.L. Robinson and G. Van Melle), ed. by M. Gilles-Baillien and R. Gilles, Springer Verlag 64-75.
- ..... "Some Topics in Regression". *Scand. J. Statist.* 10, 161-194.
- ..... *Opgaver i sandsynlighedsregning* (red). University of Copenhagen (114 pp) (in Danish).
- ..... "Discussion of: Kurtz, T.G. Gaussian Approximations for Markov Chains and Counting Processes". *Bull. Internat. Statist. Inst.* 1, 361-376 (pp. 244-246, Vol 3).

- 1984 *Functional Relations, Random Coefficients and Non-Linear Regression – with Applications to Kinetic Data*. Springer Verlag (125 pp).
- ..... "Discussion of: Lauritzen, S.L. Extreme Point Models in Statistics". *Scand J. Statist.* 11, 65-91 (pp. 87-88).
- 1986 "Product Integrals and Markov Processes". *CWI-Newsletter* 12, 3-13.
- 1987 "The Asymptotic Properties of the Cornish-Bowden Eisenthal Median Estimator". *J. Statist. Plann. Inference* 15, 279-299.
- ..... "Estimation of Proportional Covariances" (with S.T. Jensen). *Statist. Probab. Letters* 6, 83-85.
- 1988 "The Mathematical Structure of Error Correction Models". *Contemporary Mathematics* 80, 359-386.
- ..... "Statistical Analysis of Cointegration Vectors". *Journal of Economic Dynamics and Control* 12, 231-254. Reprinted in R.F. Engle and C.W.J. Granger (eds.), *Long-run Economic Relationships, Readings in Cointegration*, Oxford University Press (1991)
- 1989 *Likelihood Based Inference on Cointegration. Theory and Applications*. Lecture notes from Bagni di Lucca, Italy (121 pp.).
- 1990 "Maximum Likelihood Estimation and Inference on Cointegration – with Applications to the Demand for Money" (with K. Juselius). *Oxford Bulletin of Economics and Statistics* 52, 169-210. Reprinted in J. Campos, N.R. Ericsson and D.F. Hendry (eds.) *General-to-Specific Modelling*, Vol I, 512-553, Edward Elgar 2005.
- ..... "Hotelling's Theorem on the Volume of Tubes: Some Illustrations in Simultaneous Inference and Data Analysis" (with I. Johnstone). *Ann. Statist.* 2, 652-684.
- ..... "A Survey of Product-Integration with a View Towards Applications in Survival Analysis" (with R.D. Gill). *Ann. Statist.* 18, 1501-1555.
- 1991 "Globally Convergent Algorithms for Maximizing a Likelihood Function" (with S.L. Lauritzen and S.T. Jensen). *Biometrika* 78, 867-877.
- ..... "The Power Function of the Likelihood Ratio Test for Cointegration. In J. Gruber (ed.), *Econometric Decision Models: New Methods of Modeling and Applications*, 323-335. Springer Verlag.
- ..... "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models". *Econometrica* 59, 1551-1580.
- ..... "Discussion of: Leamer, E. E. A Bayesian Perspective on Inference from Macro Economic Data". *Scan. J. Economics* 93, 249-251.
- 1992 "Cointegration in Partial Systems and the Efficiency of Single Equation Analysis". *J. Econometrics* 52, 389-402.
- ..... "A Representation of Vector Autoregressive Processes Integrated of Order 2". *Econometric Theory* 8, 188-202.
- ..... "Determination of Cointegration Rank in the Presence of a Linear Trend". *Oxford Bulletin of Economics and Statistics* 54, 383-397.
- ..... "An I(2) Cointegration Analysis of the Purchasing Power Parity between Australia and the United States". In Colin Hargreaves (ed.), *Macroeconomic Modelling of the Long Run*, 229-248. Edward Elgar.
- ..... "Testing Structural Hypotheses in a Multivariate Cointegration Analysis of the PPP and UIP for UK" (with K. Juselius). *Journal of Econometrics* 53, 211-244.
- ..... "Testing Weak Exogeneity and the Order of Cointegration in the UK Money Demand

- Data". *Journal of Policy Modeling* 14, 313-334 (1992). Reprinted in N. R. Ericsson and J. S. Irons (eds.), *Testing Weak Exogeneity*, 121-143. Oxford University Press. Reprinted in J. Campos, N. R. Ericsson and D.F. Hendry, (eds.) *General-to-Specific Modelling*, Vol II, 589--610, Edward Elgar (2005).
- 1993 "Asymptotics for Cointegration Rank Tests in the Presence of Intervention Dummies" (with B.G. Nielsen). Manual for the Simulation Program DisCo. Working Paper, University of Copenhagen, <http://www.math.ku.dk/~sjo> .
- 1994 "The Role of the Constant and Linear Terms in Cointegration Analysis of Non-Stationary Variables". *Econometric Reviews* 13, 205-230.
- ..... "Identification of the Long-Run and the Short-Run Structure. An Application to the ISLM model" (with K. Juselius). *Journal of Econometrics* 63, 7-36.
- ..... "Estimating Systems of Trending Variables". *Econometric Reviews* 13, 351-428.
- 1995 "The Role of Ancillarity in Inference for Non-Stationary Variables". *Economic Journal* 13, 302-320.
- ..... "Identifying Restrictions of Linear Equations – with applications to simultaneous equations and cointegration". *Journal of Econometrics* 69, 111-132.
- ..... "A Statistical Analysis of Cointegration for I(2) Variables". *Econometric Theory* 11, 25-59.
- ..... " Discussion of: Tong, H., A personal overview of non-linear time series analysis from chaos perspective" *Scandinavian Journal of Statistics* 22, 428-430.
- ..... *Likelihood Based Inference on Cointegration in the Vector Autoregressive Model*. Oxford University Press, Oxford, 2nd ed. (1996)
- 1996 "Likelihood Based Inference for Cointegration of Non-Stationary Time Series". In: D.R. Cox., D. Hinkley, and O.E. Barndorff-Nielsen (eds.), *Likelihood, Time Series with Econometric and other Applications*. Chapman and Hall. Reprinted in Russian 1996.
- 1997 "Likelihood Analysis of the I(2) Model". *Scandinavian Journal of Statistics* , 433-462. Reprinted in P. Newbold and S. J. Leyborne (eds.), *Recent Developments in Time Series*, Edward Elgar (2003)
- ..... "Mathematical and Statistical Modelling of Cointegration". University of Copenhagen: Centre of Excellence, University-City, 148-164, University of Copenhagen.
- 1998 "Asymptotic Inference on Cointegrating Rank in Partial Systems " (with I. Harbo, B.G. Nielsen & A.C. Rahbek). *Journal of Business and Economic Statistics* 16/4, 388-399.
- ..... "Statistical Analysis of Some Non-Stationary Time Series". In: S. Strøm (ed.), *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium* . Cambridge University Press, Cambridge.
- ..... "Likelihood Analysis of Seasonal Cointegration " (with E. Schaumburg). *Journal of Econometrics* 88/2, 301-339.
- ..... *Workbook on Cointegration* (with P.R. Hansen). Oxford University Press , Oxford.
- 1999 "Granger's Representation Theorem and Multicointegration" (with T. Engsted). In: R.F. Engle and H.White (eds.) *Cointegration, Causality and Forecasting: Festschrift in Honour of Clive Granger* . Oxford University Press , Oxford, 200-212.
- ..... "Testing Exact Rational Expectations in Cointegrated Vector Autoregressive Models" (with A.R. Swensen). *Journal of Econometrics* 93/1, 73-91.

- ..... "Some Tests for Parameter Constancy in Cointegrated VAR-Models" (with H. Hansen). *Econometrics Journal* 2/2, 306-333.
- 2000 "A Bartlett Correction Factor for Tests on the Cointegrating Relations" *Econometric Theory* 740-778.
- ..... "Modelling Cointegration in the Vector Autoregressive Model". *Economic Modelling* , 17, 359-373.
- ..... "Cointegration analysis in the presence of structural breaks in the deterministic trend" (With R. Mosconi and B. Nielsen). *Econometrics Journal* , 1-34.
- 2001 "Cointegration in the VAR Model". In: D. Peña, G. Tiao, and R. Tsay (eds.), *A Course in Time Series Analysis* John Wiley and Sons , New York .
- 2002 "A Small Sample Correction of the Test for Cointegrating Rank in the Vector Autoregressive Model". *Econometrica*, 70, 1929-1961.
- ..... "A simulation study of some functionals of random walk" (With H. Hansen and S. Fachin.) [University of Copenhagen, discussion paper with programs.](#)
- ..... "A Small Sample Correction for Tests of Hypotheses on the Cointegrating Vectors". *Journal of Econometrics*. 111/2, 195-221.
- ..... Discussion of: Jansen, E.S., "Statistical issues in macroeconomic modelling." *Scandinavian Journal of Statistics* 29, 213-216.
- 2003 "The Asymptotic Variance of the Estimated Roots in a Cointegrated Vector Autoregressive Model." *Journal of Times Series Analysis* 24/6, 663-678.
- 2004 "Kointegration og fælles stokastiske trende". *Matilde* 19, 11-13.
- ..... "Erik Sparre Andersen". *Det Kongelige Danske Videnskabernes Selskab, Oversigt over Selskabets Virksomhed, 2003-2004* , 231-239.
- ..... "Discussion of: Pesaran, M. H., Schuermann T., and Weiner S. M., Modeling regional interdependencies using a global error-correcting macroeconomic model". *Journal of Business and Economic Statistics* 22, 169-172.
- ..... "More on testing exact rational expectations in vector autoregressive models: Restricted drift term" (with A.R. Swensen). *The Econometric Journal* 7, 389-397.
- ..... "A small sample correction of the Dickey-Fuller test". In: A. Welfe (ed): *New Directions in Macromodelling; Chapter 3*, 49-68, Elsevier.
- 2005 "[The interpretation of cointegrating coefficients in the cointegrated vector autoregressive model](#)". *Oxford Bulletin of Economics and Statistics* 67, 93-104.
- ..... "[A note on testing restrictions for the cointegration parameters of a VAR with I\(2\) variables](#)". (with Helmut Lütkepohl). *Econometric Theory* 21, 653-658.
- ..... "Moderne Økonometri" (with K. Juselius). *Samfundsøkonomen* 3, 4-7.
- 2006 "[Cointegration: a survey](#)". In: T.C. Mills and K. Patterson (eds.) *Palgrave Handbook of Econometrics: Volume 1, Econometric Theory* , Palgrave MacMillan, Basingstoke, UK and New York, USA, 540-577.
- ..... "[Statistical analysis of hypotheses on the cointegrating relations in the I\(2\) model](#)". *Journal of Econometrics* 132, 81-115.
- ..... "[The equivalence of two parametrizations for the I\(2\) model and an example of the conditions for asymptotic  \$\chi^2\$  inference](#)". Supplementary material
- ..... "[Confronting the economic model with the data](#)". In: D. Colander (ed): *Post Walrasian Macroeconomics*, Cambridge University Press, Cambridge pp. 287-300.
- ..... "[Extracting Information from the Data: A European View on Empirical](#)

- [Macro](#)" (with K. Juselius). In: D. Colander (ed): *Post Walrasian Macroeconomics*, Cambridge University Press, Cambridge pp. 301-334.
- 2007 "[A Semi-Empirical Approach to Projecting Future Sea-Level Rise](#)". *Science* 28 September 2007:Vol. 317. no. 5846, p. 1866 (with T. Schmith and P. Thejll)
- 2008 "[A representation theory for a class of vector autoregressive models for fractional processes](#)". *Econometric Theory* 24, 651-676.
- ..... "[Reduced Rank Regression](#)" . *New Palgrave Dictionary of Economics*, Basingstoke, Palgrave Macmillan, 7 pp.
- ..... "Allowing the data to speak freely: The macroeconometrics of the cointegrated vector autoregression." *American Economic Review* Vol 98, 251-255 (with K.Hoover, K. Juselius)
- ..... "[Automatic selection of indicators in a fully saturated regression](#)". *Computational Statistics* 23, 317-335 and Erratum 337-339 (with D. F. Hendry and C. Santos)
- ..... "[Exact rational expectations, cointegration, and reduced rank regression](#)". *Journal of Statistical Planning and Inference* 138, 2738--2748. (With A. R. Swensen)
- 2009 "[Correlation, regression, and cointegration of nonstationary economic time series](#)". *Bulletin of the ISI LXII 2007* 19--26, (2008). Publisher: Instituto Nacional de Estadística
- ..... "[Representation of cointegrated autoregressive processes with application to fractional processes](#)". *Econometric Reviews* 28, 121-145.
- ..... "[Cointegration. Overview and Development](#)". In: T.G. Andersen, R. Davis, J-P. Kreiss, and T. Mikosch (eds.) *Handbook of Financial Time Series* pp. 671-693.
- ..... "[An analysis of the indicator saturation estimator as a robust regression estimator](#)". In: N. Shepard and J. L. Castle (eds.) *The Methodology and Practice of Econometrics: A Festschrift in Honour of David F. Hendry*, Oxford University Press, pp. 1-36. (With Bent Nielsen)
- 2010 "[Discussion of "The Forward Search: Theory and Data Analysis", by Atkinson, A.C., Riani, M., and Ceroli, A.](#)". *Journal of the Korean Statistical Society* 39, 137-145. (With B. Nielsen)
- ..... "[Søren Johansen and Katarina Juselius: Interview](#)". In: J. B. Rosser, Jr. ; R.P.F. Holt ; D. Colander (eds.) *European Economics at a Crossroads.*, Cheltenham, UK : Edward Elgar Publishing, Incorporated, pp. 115-131 (2010) (with K. Juselius )
- ..... "[Testing hypotheses in an I\(2\) model with applications to the persistent long swings in the Dmk/\\$ rate](#)". *Journal of Econometrics* 158, 117-129 (With K. Juselius, R. Frydman, M. Goldberg.)
- ..... "[Likelihood inference for a nonstationary fractional autoregressive model](#)". *Journal of Econometrics* 158, 51-66. (With M. Ø. Nielsen)
- ..... "[Some identification problems in the cointegrated vector autoregressive model](#)". *Journal of Econometrics* 158, 262-273.
- ..... "[An extension of cointegration to fractional autoregressive processes.](#)" The yearbook of the Finnish Statistical Society 2010, 20-34)
- 2011 "[On a numerical and graphical technique for evaluating some models involving rational expectations](#)". *Journal of Time Series Econometrics*, Vol. 3, Iss. 1, Article 9. (With A.R. Swensen)
- 2012 "[Statistical analysis of global surface temperature and sea level using cointegration methods.](#)". *Journal of Climate* 25, 7822-7833. (With T. Schmith and P. Thejll)

- ..... " [A Necessary Moment Condition for the Fractional Functional Central Limit Theorem.](#) " *Econometric Theory* 6, 671-679. (With M. Ø. Nielsen)
- ..... " [The analysis of nonstationary time series using regression, correlation and cointegration.](#)" *Contemporary Economics* 6, 40-57.
- ..... " [Likelihood inference for a fractionally cointegrated vector autoregressive model.](#)" *Econometrica* 80, 2667-2732.(With M. Ø. Nielsen)
- ..... " [The Selection of ARIMA Models with or without Regressors I.](#)" (With M. Riani and A.C. Atkinson) University of Copenhagen, Department of Economics. Discussion paper Nr. 17 Vol 12. Submitted
- ..... " [The role of initial values in nonstationary fractional time series models.](#) " University of Copenhagen, Department of Economics. Discussion Papers (Online) Nr. 18 Vol 12. (With M. Ø. Nielsen) Submitted
- 2013 " [An asymptotic invariance property of the common trends under linear transformations of the data](#) ". Forthcoming *Journal of Econometrics* (With K. Juselius)
- ..... " [Model discovery and Trygve Haavelmo's legacy.](#)" Forthcoming *Econometric Theory* (With D.F Hendry)
- ..... " [Least squares estimation in a simple random coefficient autoregressive model.](#)" Forthcoming *Journal of Econometrics* (With T. Lange)
- ..... " [Outlier detection in regression using an iterated one-step approximation to the Huber-skip estimator .](#)" *Econometrics* 1, 53-70 (With B. Nielsen)

---

## Work in Progress

- ..... "Controlling inflation in a cointegrated vector autoregressive model with an application to US data", EUI Working Paper ECO No. 2001/2. (with K. Juselius)
  - ..... " [A Resolution of the Purchasing Power Parity Puzzle: Imperfect Knowledge and Long Swings](#)". (With Frydman, R. Goldberg. M. and Juselius, K.) Discussion paper 08-31, Department of Economics, University of Copenhagen Submitted.
-