

Estimation Of Panel Vector Autoregression In Stata A

This book is concerned with recent developments in time series and panel data techniques for the analysis of macroeconomic and financial data. It provides a rigorous, nevertheless user-friendly, account of the time series techniques dealing with univariate and multivariate time series models, as well as panel data models. It is distinct from other time series texts in the sense that it also covers panel data models and attempts at a more coherent integration of time series, multivariate analysis, and panel data models. It builds on the author's extensive research in the areas of time series and panel data analysis and covers a wide variety of topics in one volume. Different parts of the book can be used as teaching material for a variety of courses in econometrics. It can also be used as reference manual. It begins with an overview of basic econometric and statistical techniques, and provides an account of stochastic processes, univariate and multivariate time series, tests for unit roots, cointegration, impulse response analysis, autoregressive conditional heteroskedasticity models, simultaneous equation models, vector autoregressions, causality, forecasting, multivariate volatility models, panel data models, aggregation and global vector autoregressive models (GVAR). The techniques are illustrated using Microfit 5 (Pesaran and Pesaran, 2009, OUP) with applications to real output, inflation, interest rates, exchange rates, and

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stock prices.

This is a beginner's guide to applied econometrics using the free statistics software R. It provides and explains R solutions to most of the examples in 'Principles of Econometrics' by Hill, Griffiths, and Lim, fourth edition. 'Using R for Principles of Econometrics' requires no previous knowledge in econometrics or R programming, but elementary notions of statistics are helpful.

The main objective of this book is to identify the key sources of growth which have played a significant role in Africa's recent robust growth as well as its efforts towards economic transformation. The book assesses to what extent the existing macroeconomic frameworks among African countries have been streamlined to the countries' development priorities in order to achieve long-term growth and economic transformation. Taking into account the diversity of African countries, the authors establish the economic linkages between relevant macroeconomic policy variables and the key sources of growth and development among the selected African economies, based on both theoretical and empirical underpinnings. Following this, an outline of a macroeconomic framework for Africa's long-term growth and economic transformation is suggested.

Panel Data Econometrics: Theory introduces econometric modelling. Written by experts from diverse disciplines, the volume uses longitudinal datasets to illuminate applications for a variety of fields, such as banking, financial markets, tourism and transportation, auctions, and experimental economics. Contributors emphasize techniques and applications, and they

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accompany their explanations with case studies, empirical exercises and supplementary code in R. They also address panel data analysis in the context of productivity and efficiency analysis, where some of the most interesting applications and advancements have recently been made. Provides a vast array of empirical applications useful to practitioners from different application environments Accompanied by extensive case studies and empirical exercises Includes empirical chapters accompanied by supplementary code in R, helping researchers replicate findings Represents an accessible resource for diverse industries, including health, transportation, tourism, economic growth, and banking, where researchers are not always econometrics experts

In emerging Asia, banks constitute the dominant source of financing consumption and investment, and bank balance sheets comprise large gross FX assets and liabilities. This paper extends the DSGE model of Gertler and Karadi (2011) to incorporate these key features and estimates a panel vector autoregression on ten Asian economies to understand the role of the banking sector in transmitting spillovers from the global financial cycle to small open economies. It also evaluates the effectiveness of foreign exchange intervention (FXI) and other macroeconomic policies in responding to external financing shocks. External financial shocks affect net external liabilities of banks and the exchange rate, leading to changes in credit supply by banks and investment. For example, a capital outflow shock leads to a depreciation that reduces the net worth and

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intermediation capacity of banks exposed to foreign currency liabilities. In such cases, the exchange rate acts as shock amplifier and sterilized FXI, often deployed by Asian economies, can help cushion the economy. By contrast, with real shocks, the exchange rate serves as a shock absorber, and any FXI that weakens that function can be costly. We also explore the effectiveness of the monetary policy interest rate, macroprudential policies (MPMs) and capital flow management measures (CFMs).

As the world is currently in the midst of financial and economic crises, this collection of expert contributions focuses on strategy formation and implementation at various organizational levels to address the challenges ahead. The latest economic turmoil and its ongoing impact on business performance are compelling top managers to develop effective business strategies and redefine the boundaries of their operational and strategic activities. On one hand, tremendous challenges in the competitive business environment have become a source of global threats for many small entrepreneurs. On the other, investors faced with today's volatile economic conditions demand more gains on their capital investments to counter-balance the growing risk of global threats. This book explores the question as to whether it is possible to efficiently and effectively address these threats and obstacles. Are managers capable of planning and implementing strategic actions? What should the major managerial strategy be in order to overcome fluctuations in a market-oriented society? The strategies and practices recommended here are aimed to design

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continuous development competencies and contribute to the stability, recovery and sustainability of global business operations under volatile economic conditions. This refreshingly novel book seeks to establish managerial strategies and practices for effectively responding to challenges in the competitive business environment, as global volatility and fluctuations continue to worsen.

Mathematical Modelling of Contemporary Electricity Markets reviews major methodologies and tools to accurately analyze and forecast contemporary electricity markets in a ways that is ideal for practitioner and academic audiences. Approaches include optimization, neural networks, genetic algorithms, co-optimization, econometrics, E3 models and energy system models. The work examines how new challenges affect power market modeling, including discussions of stochastic renewables, price volatility, dynamic participation of demand, integration of storage and electric vehicles, interdependence with other commodity markets and the evolution of policy developments (market coupling processes, security of supply). Coverage addresses all major forms of electricity markets: day-ahead, forward, intraday, balancing, and capacity. Provides a diverse body of established techniques suitable for modeling any major aspect of electricity markets Familiarizes energy experts with the quantitative skills needed in competitive electricity markets Reviews market risk for energy investment decisions by stressing the multi-dimensionality of electricity markets

Current Issues in Asian Tourism: Volume II draws

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together a collection of papers from Current Issues in Asian Tourism (CIAT). CIAT was launched by the editors of Current Issues in Tourism in response to the growing number of papers about tourism in Asia received by the journal and the increasing number of authors from Asian countries. This volume focuses on three aspects of Asian tourism. Firstly, the section on marketing, consumption and demand for Asian tourism includes papers on mega events, creative experiences, World Heritage Sites and pollution. Secondly, a group of papers focus on sustainable Asian tourism destinations including papers on investment, climate change, energy and local food. Finally, there are two chapters on Asian tourism research methods including the use of photography and qualitative methods. The papers in this book were originally published in Current Issues in Asian Tourism.

This paper focuses on the selected issues of the Indonesian economy: (1) banking sector condition in India, (2) corporate vulnerabilities, (3) analysis of macrofinancial linkages in Indonesia, and (4) infrastructure development in Indonesia. Overall, the banking sector appears well capitalized and profitable. However, rising vulnerabilities from corporate foreign currency leverage and challenging financial market conditions have raised concerns. The risk from the corporate sector remains manageable, and the authorities have strengthened

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the monitoring framework. Macrofinancial linkages are analyzed using two complementary approaches: sector-level balance sheet analysis and a panel vector autoregressive approach. This paper addresses macrofiscal issues surrounding infrastructure development in Indonesia.

Written by one of the world's leading experts on dynamic panel data reviews, this volume reviews most of the important topics in the subject. It deals with static models, dynamic models, discrete choice and related models.

The global upswing in economic activity is strengthening. Global growth, which in 2016 was the weakest since the global financial crisis at 3.2 percent, is projected to rise to 3.6 percent in 2017 and to 3.7 percent in 2018. The growth forecasts for both 2017 and 2018 are 0.1 percentage point stronger compared with projections earlier this year. Broad-based upward revisions in the euro area, Japan, emerging Asia, emerging Europe, and Russia—where growth outcomes in the first half of 2017 were better than expected—more than offset downward revisions for the United States and the United Kingdom. But the recovery is not complete: while the baseline outlook is strengthening, growth remains weak in many countries, and inflation is below target in most advanced economies. Commodity exporters, especially of fuel, are particularly hard hit as their adjustment to a sharp

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step down in foreign earnings continues. And while short-term risks are broadly balanced, medium-term risks are still tilted to the downside. The welcome cyclical pickup in global activity thus provides an ideal window of opportunity to tackle the key policy challenges—namely to boost potential output while ensuring its benefits are broadly shared, and to build resilience against downside risks. A renewed multilateral effort is also needed to tackle the common challenges of an integrated global economy.

Panel Data Econometrics with R provides a tutorial for using R in the field of panel data econometrics. Illustrated throughout with examples in econometrics, political science, agriculture and epidemiology, this book presents classic methodology and applications as well as more advanced topics and recent developments in this field including error component models, spatial panels and dynamic models. They have developed the software programming in R and host replicable material on the book's accompanying website. This four-volume handbook covers important concepts and tools used in the fields of financial econometrics, mathematics, statistics, and machine learning. Econometric methods have been applied in asset pricing, corporate finance, international finance, options and futures, risk management, and in stress testing for financial institutions. This

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handbook discusses a variety of econometric methods, including single equation multiple regression, simultaneous equation regression, and panel data analysis, among others. It also covers statistical distributions, such as the binomial and log normal distributions, in light of their applications to portfolio theory and asset management in addition to their use in research regarding options and futures contracts. In both theory and methodology, we need to rely upon mathematics, which includes linear algebra, geometry, differential equations, Stochastic differential equation (Ito calculus), optimization, constrained optimization, and others. These forms of mathematics have been used to derive capital market line, security market line (capital asset pricing model), option pricing model, portfolio analysis, and others. In recent times, an increased importance has been given to computer technology in financial research. Different computer languages and programming techniques are important tools for empirical research in finance. Hence, simulation, machine learning, big data, and financial payments are explored in this handbook. Led by Distinguished Professor Cheng Few Lee from Rutgers University, this multi-volume work integrates theoretical, methodological, and practical issues based on his years of academic and industry experience. Love and Zicchino apply vector autoregression to firm-level panel data from 36 countries to study the

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dynamic relationship between firms' financial conditions and investment. They argue that by using orthogonalized impulse-response functions they are able to separate the "fundamental factors" (such as marginal profitability of investment) from the "financial factors" (such as availability of internal finance) that influence the level of investment. The authors find that the impact of the financial factors on investment, which they interpret as evidence of financing constraints, is significantly larger in countries with less developed financial systems. The finding emphasizes the role of financial development in improving capital allocation and growth. This paper--a product of Finance, Development Research Group--is part of a larger effort in the group to study access to finance.

Fiscal multipliers are important tools for macroeconomic projections and policy design. In many countries, little is known about the size of multipliers, as data availability limits the scope for empirical research. This note provides general guidance on the definition, measurement, and use of fiscal multipliers. It reviews the literature related to their size, persistence and determinants. For countries where no reliable estimate is available, the note proposes a simple method to come up with reasonable values. Finally, the note presents options to incorporate multipliers in macroeconomic forecasts.

Both sides of the institutions and growth debate have resorted largely to microeconomic techniques in

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testing hypotheses. In this paper, I build a panel structural vector autoregression (SVAR) model for a short panel of 119 countries over 10 years and find support for the institutions hypothesis. Controlling for individual fixed effects, I find that exogenous shocks to a proxy for institutional quality have a positive and statistically significant effect on GDP per capita. On average, a 1 percent shock in institutional quality leads to a peak 1.7 percent increase in GDP per capita after six years. Results are robust to using a different proxy for institutional quality. There are different dynamics for advanced economies and developing countries. This suggests diminishing returns to institutional quality improvements.

This paper analyses the causes and consequences of fiscal consolidation promise gaps, defined as the distance between planned fiscal adjustments and actual consolidations. Using 74 consolidation episodes derived from the narrative approach in 17 advanced economies during 1978 – 2015, the paper shows that promise gaps were sizeable (about 0.3 percent of GDP per year, or 1.1 percent of GDP during an average fiscal adjustment episode). Both economic and political factors explain the gaps: for example, greater electoral proximity, stronger political cohesion and higher accountability were all associated with smaller promise gaps. Finally, governments which delivered on their fiscal consolidation plans were rewarded by financial markets and not penalized by voters.

The editors of the new SAGE Handbook of Regression Analysis and Causal Inference have assembled a wide-

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ranging, high-quality, and timely collection of articles on topics of central importance to quantitative social research, many written by leaders in the field. Everyone engaged in statistical analysis of social-science data will find something of interest in this book.' - John Fox, Professor, Department of Sociology, McMaster University 'The authors do a great job in explaining the various statistical methods in a clear and simple way - focussing on fundamental understanding, interpretation of results, and practical application - yet being precise in their exposition.' - Ben Jann, Executive Director, Institute of Sociology, University of Bern 'Best and Wolf have put together a powerful collection, especially valuable in its separate discussions of uses for both cross-sectional and panel data analysis.' -Tom Smith, Senior Fellow, NORC, University of Chicago Edited and written by a team of leading international social scientists, this Handbook provides a comprehensive introduction to multivariate methods. The Handbook focuses on regression analysis of cross-sectional and longitudinal data with an emphasis on causal analysis, thereby covering a large number of different techniques including selection models, complex samples, and regression discontinuities. Each Part starts with a non-mathematical introduction to the method covered in that section, giving readers a basic knowledge of the method's logic, scope and unique features. Next, the mathematical and statistical basis of each method is presented along with advanced aspects. Using real-world data from the European Social Survey (ESS) and the Socio-Economic Panel (GSOEP), the book provides a comprehensive

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discussion of each method's application, making this an ideal text for PhD students and researchers embarking on their own data analysis.

Bayesian Multivariate Time Series Methods for Empirical Macroeconomics provides a survey of the Bayesian methods used in modern empirical macroeconomics.

This paper reviews recent advances in the specification and estimation of Bayesian Vector Autoregressive models (BVARs). After describing the Bayesian principle of estimation, we first present the methodology originally developed by Litterman (1986) and Doan et al. (1984) and review alternative priors. We then discuss extensions of the basic model and address issues in forecasting and structural analysis. An application to the estimation of a system of time-varying reaction functions for four European central banks under the European Monetary System (EMS) illustrates how some of the results previously presented may be applied in practice. We present a path algorithm for the generalized lasso problem. This problem penalizes the l_1 norm of a matrix D times the coefficient vector, and has a wide range of applications, dictated by the choice of D . Our algorithm is based on solving the dual of the generalized lasso, which facilitates computation and conceptual understanding of the path. For $D=I$ (the usual lasso), we draw a connection between our approach and the well-known LARS algorithm. For an arbitrary D , we derive an unbiased estimate of the degrees of freedom of the generalized lasso fit. This estimate turns out to be quite intuitive in many applications.

Forecasting is required in many situations. Stocking an

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inventory may require forecasts of demand months in advance. Telecommunication routing requires traffic forecasts a few minutes ahead. Whatever the circumstances or time horizons involved, forecasting is an important aid in effective and efficient planning. This textbook provides a comprehensive introduction to forecasting methods and presents enough information about each method for readers to use them sensibly.

Panel data econometrics has evolved rapidly over the past three decades. The field is of both theoretical and practical importance, and methods to deal with micro- and macroeconomic panel data are in high demand from practitioners. Applications in finance, development, trade, marketing, health, labor, and consumer economics attest to the usefulness of these methods in applied economics. This book is a comprehensive source on panel data. It contains 20 chapters edited by Professor Badi Baltagi--one of the leading econometricians in the area of panel data econometrics--and authored by renowned experts in the field. The chapters are divided into two sections. Part I examines new developments in theory. It includes panel cointegration, dynamic panel data models, incidental parameters and dynamic panel modeling, and panel data models for discrete choice. The chapters in Part II target applications of panel data, including health, labor, marketing, trade, productivity and macro applications in panels.

Structural vector autoregressive (VAR) models are important tools for empirical work in macroeconomics, finance, and related fields. This book not only reviews the many alternative structural VAR approaches discussed in the literature, but also highlights their pros and cons in practice. It provides guidance to empirical researchers as to the most appropriate modeling choices, methods of estimating, and evaluating structural VAR models. The book traces the evolution of the

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structural VAR methodology and contrasts it with other common methodologies, including dynamic stochastic general equilibrium (DSGE) models. It is intended as a bridge between the often quite technical econometric literature on structural VAR modeling and the needs of empirical researchers. The focus is not on providing the most rigorous theoretical arguments, but on enhancing the reader's understanding of the methods in question and their assumptions. Empirical examples are provided for illustration. This monograph deals with spatially dependent nonstationary time series in a way accessible to both time series econometricians wanting to understand spatial econometrics, and spatial econometricians lacking a grounding in time series analysis. After charting key concepts in both time series and spatial econometrics, the book discusses how the spatial connectivity matrix can be estimated using spatial panel data instead of assuming it to be exogenously fixed. This is followed by a discussion of spatial nonstationarity in spatial cross-section data, and a full exposition of nonstationarity in both single and multi-equation contexts, including the estimation and simulation of spatial vector autoregression (VAR) models and spatial error correction (ECM) models. The book reviews the literature on panel unit root tests and panel cointegration tests for spatially independent data, and for data that are strongly spatially dependent. It provides for the first time critical values for panel unit root tests and panel cointegration tests when the spatial panel data are weakly or spatially dependent. The volume concludes with a discussion of incorporating strong and weak spatial dependence in non-stationary panel data models. All discussions are accompanied by empirical testing based on a spatial panel data of house prices in Israel. This volume is dedicated to two recent intensive areas of research in the econometrics of panel data, namely

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nonstationary panels and dynamic panels. It includes a comprehensive survey of the nonstationary panel literature including panel unit root tests, spurious panel regressions and panel cointegration tests. In addition, it provides recent developments in the estimation of dynamic panel data models using generalized method of moments. The volume includes eleven chapters written by twenty authors. These chapters (i) investigate better methods of estimating dynamic panels; (ii) develop methods for estimating and testing hypotheses for cointegrating vectors in dynamic panels; (iii) extend the concept of serial correlation common features analysis to nonstationary panel data models; (iv) study the local power of panel unit root test statistics; (v) derive the asymptotic distributions of various estimators for the panel cointegrated regression model; (vi) propose a unit root test in the presence of structural change; (vii) develop a new limit theory for panel data that may be cross-sectionally heterogeneous; (viii) propose stationarity tests for a heterogeneous panel data model; (ix) derive instrumental variable estimators for a semiparametric partially linear dynamic panel data model; and (x) conduct Monte Carlo experiments to study the small sample properties of a growth convergence equation. This collection of papers should prove useful for practitioners and researchers working with panel data.

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Vector autoregressive (VAR) models are among the most widely used econometric tools in the fields of macroeconomics and financial economics. Much of what we know about the response of the economy to macroeconomic shocks and about how various shocks have contributed to the evolution of macroeconomic and financial aggregates is based on VAR models. VAR models also have been used successfully for economic and business forecasting, for modeling risk and volatility, and for the construction of forecast scenarios. Since the introduction of VAR models by C.A. Sims in 1980, the VAR methodology has continuously evolved. Even today important extensions and reinterpretations of the VAR framework are being developed. Examples include VAR models for mixed-frequency data, VAR models as approximations to DSGE models, factor-augmented VAR models, new tools for the identification of structural shocks in VAR models, panel VAR approaches, and time-varying parameter VAR models. This volume collects contributions from some of the leading VAR experts

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in the world on VAR methods and applications. Each paper highlights and synthesizes a new development in this literature in a way that is accessible to practitioners, to graduate students, and to readers in other fields.

Applied Econometrics: A Practical Guide is an extremely user-friendly and application-focused book on econometrics. Unlike many econometrics textbooks which are heavily theoretical on abstractions, this book is perfect for beginners and promises simplicity and practicality to the understanding of econometric models. Written in an easy-to-read manner, the book begins with hypothesis testing and moves forth to simple and multiple regression models. It also includes advanced topics: Endogeneity and Two-stage Least Squares Simultaneous Equations Models Panel Data Models Qualitative and Limited Dependent Variable Models Vector Autoregressive (VAR) Models Autocorrelation and ARCH/GARCH Models Unit Root and Cointegration The book also illustrates the use of computer software (EViews, SAS and R) for economic estimating and modeling. Its practical applications make the book an instrumental, go-to guide for solid foundation in the fundamentals of econometrics. In addition, this book includes excerpts from relevant articles published in top-tier academic journals. This integration of published articles helps the readers to understand how econometric models are applied to real-world use cases. Two main themes of the book are that (1) politics can distort optimal fiscal policy through elections and through political fragmentation, and (2) rules and institutions can attenuate the negative effects of this dynamic. The book

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has three parts: part 1 (9 chapters) outlines the problems; part 2 (6 chapters) outlines how institutions and fiscal rules can offer solutions; and part 3 (4 chapters) discusses how multilevel governance frameworks can help.

The last twenty years have witnessed tremendous advances in the mathematical, statistical, and computational tools available to applied macroeconomists. This rapidly evolving field has redefined how researchers test models and validate theories. Yet until now there has been no textbook that unites the latest methods and bridges the divide between theoretical and applied work. Fabio Canova brings together dynamic equilibrium theory, data analysis, and advanced econometric and computational methods to provide the first comprehensive set of techniques for use by academic economists as well as professional macroeconomists in banking and finance, industry, and government. This graduate-level textbook is for readers knowledgeable in modern macroeconomic theory, econometrics, and computational programming using RATS, MATLAB, or Gauss. Inevitably a modern treatment of such a complex topic requires a quantitative perspective, a solid dynamic theory background, and the development of empirical and numerical methods--which is where Canova's book differs from typical graduate textbooks in macroeconomics and econometrics. Rather than list a series of estimators and their properties, Canova starts from a class of DSGE models, finds an approximate linear representation for the decision rules, and describes methods needed to estimate their

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parameters, examining their fit to the data. The book is complete with numerous examples and exercises.

Today's economic analysts need a strong foundation in both theory and application. *Methods for Applied Macroeconomic Research* offers the essential tools for the next generation of macroeconomists.

R is a language and environment for data analysis and graphics. It may be considered an implementation of S, an award-winning language initially developed at Bell Laboratories since the late 1970s. The R project was initiated by Robert Gentleman and Ross Ihaka at the University of Auckland, New Zealand, in the early 1990s, and has been developed by an international team since mid-1997. Historically, econometricians have favored other computing environments, some of which have fallen by the wayside, and also a variety of packages with canned routines. We believe that R has great potential in econometrics, both for research and for teaching. There are at least three reasons for this: (1) R is mostly platform independent and runs on Microsoft Windows, the Mac family of operating systems, and various flavors of Unix/Linux, and also on some more exotic platforms. (2) R is free software that can be downloaded and installed at no cost from a family of mirror sites around the globe, the Comprehensive R Archive Network (CRAN); hence students can easily install it on their own machines. (3) R is open-source software, so that the full source code is available and can be inspected to understand what it really does, learn from it, and modify and extend it. We also like to think that platform independence and the open-source

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philosophy make R an ideal environment for reproducible econometric research.

Missing data are inevitable in longitudinal studies. Some missingness occurs by design, but most others are unplanned and may have profound consequences on inferential results. Numerous previous studies have evaluated different missing data handling techniques in cross-sectional and longitudinal panel data. However the impact of different kinds of missingness and strategies to handle missingness in multivariate, multilevel time-series data is less studied. It has been shown that ignoring the clustered structure in handling missing data when performing multiple imputation (MI) for cross-sectional data will lead to different variance and covariance properties of the imputed data, and thus the model estimation results are very likely to be biased (Grund, Lüdtke, & Robitzsch, 2018; van Buuren, 2018). In this dissertation project, I conducted a series of simulation studies to evaluate the performances of different multilevel MI methods in the context of Bayesian multilevel vector autoregressive models (MVARs) under different sample size, intraclass correlation, and missing data conditions. The missing data handling methods considered included a Bayesian equivalent of full-information maximum likelihood approach (BFIML), single-level MI, multilevel MI with joint modeling approach or full conditional specification approach, and a hybrid approach that integrated multilevel MI and BFIML method. Simulation results suggested that in fitting MVAR model under the parameter settings considered, researchers can effectively treat both MAR and, to a

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certain extent, MNAR missingness, with appropriate multilevel MI approach alone, or in combination with BFIML method. Specifically, for random-intercept only MVAR models with MAR missing data, the multilevel MI approaches performed as well as BFIML. For MNAR missingness, the multilevel MI and BFIML hybrid approach performed better. I also identified groups of parameters (i.e., random-intercept parameters) in the MVAR model that were more prone to biased estimates with MNAR missingness using the approaches considered. Finally, I discussed possible ways of resolving these limitations.

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