

Contents

PREFACE	vii
1 INTRODUCTION	1
2 MODELS, DATA GENERATING PROCESSES, AND ESTIMATORS	9
3 BASIC STRUCTURE OF THE CLASSICAL CONSISTENCY PROOF	15
4 FURTHER COMMENTS ON CONSISTENCY PROOFS	23
4.1 Transforming the Objective Function	23
4.2 Weakening the Uniform Convergence Assumption	24
4.3 Uniform Convergence and Compactness	26
4.4 Approximate M-Estimators	29
4.5 Limitations: An Illustrative Example	29
4.6 Identifiable Uniqueness	31
5 UNIFORM LAWS OF LARGE NUMBERS	37
5.1 ULLNs for Dependent and Heterogeneous Processes	38
5.2 Further Remarks on ULLNs	43
6 APPROXIMATION CONCEPTS AND LIMIT THEOREMS	45
6.1 Dynamic Models and Mixing Processes	46
6.2 Approximation Concepts	48
6.3 Laws of Large Numbers for L_p -Approximable and Near Epoch Dependent Processes	52
6.4 Preservation of Approximation Concepts under Transformation	56
6.5 Illustrations of Local Laws of Large Numbers	72
6.6 Comparison of ULLNs for L_p -Approximable and Near Epoch Dependent Processes	76
7 CONSISTENCY: CATALOGUES OF ASSUMPTIONS	79

8	BASIC STRUCTURE OF THE ASYMPTOTIC NORMALITY PROOF	83
9	ASYMPTOTIC NORMALITY UNDER NONSTANDARD CONDITIONS	95
10	CENTRAL LIMIT THEOREMS	99
10.1	A Central Limit Theorem for Martingale Differences	100
10.2	A Central Limit Theorem for Functions of Mixing Processes	101
11	ASYMPTOTIC NORMALITY: CATALOGUES OF ASSUMPTIONS	105
11.1	Asymptotic Normality of Least Mean Distance Estimators	107
11.2	Asymptotic Normality of Generalized Method of Moments Estimators	110
11.3	Further Discussion and Comparison of Assumptions	116
12	HETEROSKEDASTICITY AND AUTOCORRELATION ROBUST ESTIMATION OF VARIANCE COVARIANCE MATRICES	121
12.1	An Outline of the Variance Covariance Matrix Estimation Problem	121
12.2	Sufficient Conditions for Consistency	124
12.3	Further Remarks	134
13	CONSISTENT VARIANCE COVARIANCE MATRIX ESTIMATION: CATALOGUES OF ASSUMPTIONS	137
13.1	Estimation of the Variance Covariance Matrix of Least Mean Distance Estimators	137
13.2	Estimation of the Variance Covariance Matrix of Generalized Method of Moments Estimators	141
14	QUASI MAXIMUM LIKELIHOOD ESTIMATION OF DYNAMIC NONLINEAR SIMULTANEOUS SYSTEMS	145
14.1	A General Consistency Result for Quasi-NFIML Estimators	147
14.2	Asymptotic Results for the Quasi-NFIML Estimator in Case of a Correctly Specified System	150
14.2.1	Sufficient Conditions for L_p -Approximability of the Data Generating Process	150
14.2.2	Consistency	154
14.2.3	Asymptotic Normality and Variance Covariance Matrix Estimation	159
15	CONCLUDING REMARKS	171

A PROOFS FOR CHAPTER 3	175
B PROOFS FOR CHAPTER 4	183
C PROOFS FOR CHAPTER 5	187
D PROOFS FOR CHAPTER 6	193
E PROOFS FOR CHAPTER 7	225
F PROOFS FOR CHAPTER 8	227
G PROOFS FOR CHAPTER 10	235
H PROOFS FOR CHAPTER 11	239
I PROOFS FOR CHAPTER 12	249
J PROOFS FOR CHAPTER 13	259
K PROOFS FOR CHAPTER 14	263
REFERENCES	287
INDEX	305