شبكة المعلومات الجامعية

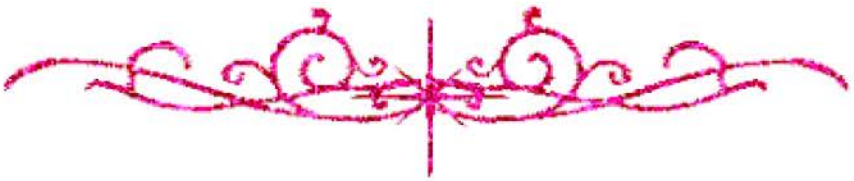
بسم الله الرحمن الرحيم

HOSSAM MAGHRABY

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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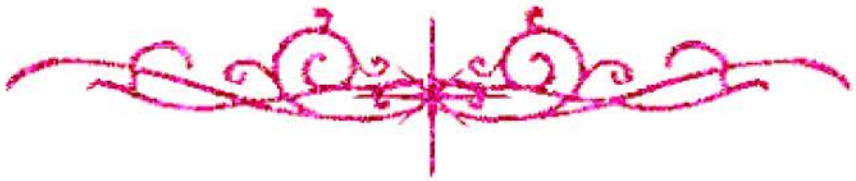
بعض الوثائق الأصلية تالفة



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بالرسالة صفحات

لم ترد بالأصل

HOSSAM MAGHRABY

الله

بسم الله الرحمن الرحيم

CAIRO UNIVERSITY
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DEPARTMENT OF STATISTICS

Pooling Time Series and Cross Section Data-Some large Sample Properties

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ABSTRACT

This thesis deals with the problem of statistical inference in combining cross section and time series data. It discusses this problem in different models that have coefficients varying according to two factors. These two factors are individuals and time periods.There is also an assumption about the coefficients. These coefficients might be fixed which leads to the dummy variable model or seemingly unrelated regression model or they might be random which leads to the error components models or the Swamy random coefficient model. A statistical inference is made about the last case. The thesis also presents the definition of the K-class estimator as given by Theil, and an important theorem about its bias to order T^{-1} using Nagar (1959)'s analysis is introduced.

There is also an extension to Mikhail's result(1975) about derivation of the generalized Pooled estimator where the bias to order T^{-1} is presented by using Nagar's analysis denoted by large T-asymptote.

CONTENTS

Page

INTRODUCTION

This thesis deals with the problem of estimating regression models that combine time series and cross section data which frequently applied in econometrics. It starts by a classification of some alternative models according to whether the parameters vary over cross sectional unit (i.e. individual) only or time period only or both or none. The thesis discusses the two alternative cases when the variable coefficients in the specified model are assumed to be random or fixed. The fixed assumption leads to dummy variable models and seemingly unrelated regression models while the random assumption leads to error components models and the Swamy random coefficient model. The situation when there is common parameters in a cross section data model and one of simulataneous equation model (Mikhail's Paper (1975)) is of special interest. It needs a special treatment that is introduced in the second chapter and generalized in the third one.

In order to study one of the main properties of this estimator, Nagar's analysis (1959) denoted by large T-asymptote is presented in the second chapter to determine the bias to order T^{-1}. It is also applied to determine the bias to order T^{-1} of the generalized pooled estimator in the third chapter.

Thus, this thesis is composed of the following three chapters:

(1) First chapter:

Inference in models that combine time series and cross sectional data

This chapter presents the different models that vary over time or individuals or both or none. In these alternative models, the variable coefficients are assumed to be random or fixed. If they are random, the generalized least squares estimation of the coefficients, the prediction of random components, the variance estimators and hypotheses tests are given.

(2) Second Chapter:

The K-class estimator and its bias

This chapter studies the K-class estimator and its bias to order T^{-1}. It presents the estimation in one special case of the K-class(when K= 1). Some assumptions that are needed to prove a theorem about the bias of the K-class to order T^{-1} are summarized. The proofs of some helpful lemmas are given. Nagar's analysis (1959) is presented about the bias of the K-class estimator.

(3) Third Chapter:

The generalized pooled estimator and its bias

This chapter considers as extension of the problem of pooling cross section and time series data models. It starts by deriving the generalized pooled estimator by applying Aitken-generalized least squares. Then, it introduces some notations and lemmas which will be useful for deriving the bias of the pooled estimator to order T^{-1}. In this derivation, Nagar's analysis (1959) denoted by large T-asymptote is used.