

الآية

قال تعالى:

"وَنَزَّلْنَا مِنَ السَّمَاءِ مَاءً مُبَارَكًا فَأَنْبَتْنَا بِهِ جَنَّاتٍ

وَحَبَّ الْحَصِيدِ)"

صَدَقُ اللهُ الْعَظِيمُ

سورة ق(9)

DEDICATION

To My:

Parents

Brothers

Sisters, and

Friends

ACKNOWLEDGEMENT

My gratitude goes to my supervisor Dr. Bassam Ibrahim for his unique rigorous and immeasurable and valuable style of the supervising that enabled me to particularly spell statistics.

A lot of thanks are due to my sincere friends; Ustaz Hafiz Ibrahim and Ustaz Abdu Elazzize Gibreel who have been so generous with help and encouragement.

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ملخص الدراسة

تهدف هذه الدراسة الى بناء نماذج احصائية لانتاجية القطن فى السودان للفترة (1953- 2007) باستخدام نموذج التمهيد الأسى و نموذج المتوسطات المتحركة التقليديه ونماذج بوكس جنكز لتحليل السلاسل الزمنية وذلك لاختيار افضل نموذج من بين هذه النماذج، بناءا على بعض المعايير الاحصائية (متوسط مربع الخطأ ومتوسط الخطأ المعيارى، متوسط الخطأ المطلق).

وأوضح نتائج الدراسة إن نموذج التمهيد الأسى هو الافضل للتنبؤ بانتاج القطن وذلك لان له اقل متوسط لمربع الخطأ و اقل متوسط للخطأ المعيارى. كذلك تم استخدام اختبار Kolmogorov-Smirnov لاختبار تبعية البواقي للتوزيع الطبيعى. و اوصت الدراسة بالاتي:-

- يجب الاهتمام بدراسة التنبؤ لانه يمكن من وضع خطط مستقبلية من شأنها مواجهه التغيرات التى تحدث فى المستقبل.
- محاولة تطبيق نموذج التحليل الطيفى قد تكون افضل للتنبؤ.
- الاهتمام بجودة البيانات لانها مصدر النمذجه.

ABSTRACT

This research aims to build statistical models for cotton productivity in Sudan (1953- 2007) using exponential smoothing model, classical moving average model and Box-Jenkins models of time series analysis to select the best model among them according to some statistical criteria (mean error square, standard error of mean, mean absolute error).

The application for this study showed that the exponential smoothing model is the best model to forecast cotton yield in the Sudan according to the lowest value of mean square error and lowest standard error of mean. Also we used Kolmogorov-Smirnov test to test whether the noise residuals are normally distributed.

The study recommended the following:-

- To give importance to the forecasting study it can be useful in future planning to face change that may happen in the future.
- Trying to apply other models may be better in forecasting.
- To give importance to data quality because it is the sours of the modeling

LIST of ABBREVIATIONS

ACF: Autocorrelation Coefficient Function

AIC: Akaike Information Criteria.

AR: Autoregressive.

ARRSES: Adaptive Response Rate Single Exponential Smoothing.

ARIMA: Autoregressive Integrated Moving Average.

ARMA: Autoregressive Moving Average.

BIC: Basian Information Criteria.

MA: Moving Average.

MAD: Mean Absolute Deviation.

MAE: Mean Absolute Error.

MAPE: Mean Absolute Percentage Error.

ME: Mean Error.

MSD: Mean Standard Deviation.

MSE: Mean Standard Error.

PACF: Partial Autocorrelation Coefficient Function.

SES: Single Exponential Smoothing.

SPSS: Statistical Product and Services Solutions.

CONTENTS

TITLE	Page
الأية	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT (Arabic)	iv
ABSTRACT (English)	v
LIST of ABBREVIATIONS	vi
CONTENTS	vii
LIST of TABLES	viii
LIST of FIGUERS	ix
CHAPTER ONE	1
INTERDUCTION	1
1-1 Research Problem	1
1-2 Research Aims	1
1-3 Research Hypotheses	1
1-4 Research Data	1
1-5 Research Methodology	1
1-6 Research Organization	2
CHAPTER TWO	3
TIME SERIES ANALYSIS	3
2-1Time Series Introduction	3
2-1-1 Aims of Time Series Analysis	3
2-1-2 Time Series Models	3
2-1-2-1 Univariate Time Series Model	3
2-1-2-2 Multivariate Time Series Model	3
2-1-3 Time Series Components	3
2-1-3-1 General Trend	4
2-1-3-2 Seasonal Variations	4
2-1-3-3 Cyclical Variations	4
2-1-3-4 Irregular Variations	4
2-2 Exponential Smoothing Method	4

2-2-1 Single Exponential Smoothing	4
2-2-2 Single Exponential Smoothing: Adaptive Approach	5
2-2-3 Double Exponential Smoothing: Brown's One-Parameter Linear Method	5
2-2-4 Holt's Two-Parameters	6
2-2-5 Triple Exponential Smoothing: Winter's Method	6
2-3 Classical Averaging Methods	7
2-3-1 Simple Averaging "The Mean"	7
2-3-2 Single Moving Averages	8
2-3-3 Double Moving Averages	9
2-4 Box-Jenkins Methods	10
2-4-1 Basic Concepts	10
2-4-1-1 The Shift and Difference Operators	10
2-4-1-2 The Autocorrelation Function (ACF)	10
2-4-1-3 The Partial Autocorrelation Function (PACF)	11
2-4-1-4 Line Spectrum	11
2-4-1-5 Stationary Series	12
2-4-1-6 Seasonality	12
2-4-1-7 Checking for Randomness of The Series	13
2-4-2 Box-Jenkins Models	13
2-4-2-1 Autoregressive Models	14
2-4-2-2 Moving Average Models	14
2-4-2-3 Autoregressive Moving Average Models	15
2-4-2-4 Autoregressive Integrated Moving Average Models	15
2-4-2-5 Seasonal Model	16
2-4-3 Methodology of Box-Jenkins Models	16
2-4-3-1 Identification	17
2-4-3-2 Estimation of The Parameters	17
2-4-3-3 Diagnostic Checking	17
2-4-3-4 Forecasting from ARIMA Models	18
CHAPTER THREE	19
APPLICATION of THE MODELS	19

3-1 Introduction	..... 19
3-2 Application of simple Exponential Smoothing	..... 22
3-2 Application of Classical Moving Averages	..... 24
3-3 Application of the Box-Jenkins Models	..... 29
3-4 Comparison among the three Forecasting Models	..... 37
CHAPTER FOUR	..... 39
RESULTS and RECOMMENDATIONS	..... 39
4-1 Results	..... 39
4-2 Recommendations	..... 39
4-3 References	..... 40

LIST of TABLES

No.	Title	Page
2-1	Simple average input and output procedure	8
2-2	A moving average of order T	9
3-1	Cotton yield series data in Sudan (1953- 2007)	21
3-2	Exponential smoothing model estimators	22
3-3	Tests of normality for the noise residual of the cotton (model-1)	23
3-4	Summary statistics of the selected order of the moving averages models	25
3-5	Summary of moving averages model of order (5) for cotton (model-2)	26
3-6	Tests of normality for noise residual of the cotton (model-2)	28
3-7	Summary of selecting the model for ARIMA (p, d, g)	34
3-8	ARIMA model estimators for cotton (model-3)	34
3-9	Tests of normality for noise residual of The cotton (model-3)	36
3-10	Comparison among the three cotton models	38

LIST of FIGURES

No.	Title	Page
3-1	Yearly cotton yield in the Sudan (1953 - 2007)	22
3-2	Noise residual from cotton (model-1).	23
3-3	The coincide plot of the observed and fitted for cotton (model-1)	24
3-4	Noise residual from cotton (model-2)	28
3-5	The coincide plot of the observed and fitted for cotton (model-2)	29
3-6	The autocorrelations function of the cotton yield time series	30
3-7	Yearly cotton yield in the Sudan with difference (1)	31
3-8	The autocorrelations function of first difference for cotton yield	32
3-9	The partial autocorrelations function of first difference for cotton yield	33
3-10	Noise residual for cotton (model-3)	36
3-11	The coincide plot of the observed and fitted for cotton (model-3)	37