

WORKING PAPER SERIES

Complete Results for Lag Length Selection

Dallas S. Batten and Daniel L. Thornton

Working Paper 1983-009A http://research.stlouisfed.org/wp/1983/1983-009.pdf

1983

FEDERAL RESERVE BANK OF ST. LOUIS Research Division 411 Locust Street St. Louis, MO 63102

The views expressed are those of the individual authors and do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis, the Federal Reserve System, or the Board of Governors.

Federal Reserve Bank of St. Louis Working Papers are preliminary materials circulated to stimulate discussion and critical comment. References in publications to Federal Reserve Bank of St. Louis Working Papers (other than an acknowledgment that the writer has had access to unpublished material) should be cleared with the author or authors.

Photo courtesy of The Gateway Arch, St. Louis, MO. www.gatewayarch.com

COMPLETE RESULTS FOR LAG LENGTH SELECTION

Dallas S. Batten & Daniel L. Thornton

Federal Reserve Bank of St. Louis 83-009

*Economists, Federal Reserve Bank of St. Louis. The views expressed are those of the authors and may not reflect those of the Federal Reserve Bank of St. Louis or the Board of Governors of the Federal Reserve System. The authors would like to thank Sarah Driver for research assistance. This paper presents the detailed results of employing the various lag-length-selection criteria outlined in "Lag Length Selection Criteria: Some Empirical Results for the St. Louis Equation." Tables 1 through 6 are for a maximum lag of 8; tables 7 through 12, a maximum lag of 12; and tables 13 through 18, a maximum lag of 16. Table 19 contains the likelihood ratio test results of all the alternative lag specifications considered.

Table 1 Pagano-Hartley	T-Statistics for Lag Length	Selection
Lag	$\frac{1}{M}$ with $L_{G}^{\bullet} = 8$	$\frac{\dot{G}}{G}$ with $L_{M}^{\bullet} = 8$
0	5.10	2.36*
	4.06	0.95
2	1.84	-1.89
3	-1.16	0.81
4	0.42	-0.14
5	-2.48*	-1.33
6	-0.41	1.44
7	-0.25	-0.18
8	0.81	-1.91

*First significant t-statistic at the 5 percent level.

Minimum value circled.

AND AND A REAL PROPERTY A

.

MALLOW'S C STATISTIC

and the second second

and and any second s

.

M VARS ARE MI WATA IS GROWTH RATES -- 11/62 TO 111/82

 				LE	IM = # OF I $IO-LEB = # OF$	AGS OF M		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
 OBS	LM	LEO	LE1	LE2	LE3	LE4	LE5	LE6	LE7	LE8	gar a na bhfail ann ann ann an t-a ta chaidheal agus garacha ann bha coaracha.
 1	Ŭ 1	29.7803 16.8418	31.0866	29.4874	29.6953	31.6693 18.2647	32.8433 18.4433	31.8100 18.4781	33.0174	31.4439 16.9514	na an a
3	2 3	12.8337 13.2864	14.0971 14.5193	11.4544 11.8879	12.7150 13.1227	14.7060	14.6480	15.3549 15.7538	17.2544	15.5676	
5 6	4 5	15.2097 10.3327	16.4976	13.8573	15.0910 11.1945	17.0819 13.1388	17.2162	17.7289	19.6874 15.3018	18.0429 13.8804	
7 8	6 7	12.3326 13.8368	13.4237 14.8412	11.8370 13.3431	13.1929 14.6381	15.1359 16.6202	15.5688 16.9814	15.3172 17.0122	17.2309	15.7082 17.6480	
 9	8	15.6897	16.7868	15.2082	16.5473	18.5283	18.7523	18.6893	20.6571	19.0001	

- .
- ------
- -----

Table 3

A stranger management of the second second

FINAL PREDICTION ERROR STATISTIC

M VARS ARE MI DATA IS GROWTH RATES -- II/62 TO III/86

					LE	U-LEU = # UF L	DF LAGS OF E			an a fail ann an	**************************************	و میلید از می از این از این
	OBS	LM	LEO	LE1	LE2	LE3	LE4	LE5	LEO	LE7	LE8	akolenin in n, näetu niinaallyntäyseaktiinakkoaksaikusiiki akto
	1	0	16.4621	16.7580	16.5055	16.6967	17.1071	17.3878	17.2749	17.5608	17.3247	nya amang mandalari ang ang mang mang mang pang mang mang mang mang mang mang mang m
	<u> </u>	2	13.8639	14.0844	13.6375	13.8470	14.8233	14.8649	14.87.37	14.6167	14.2521	nan mar kanala da kana kana kana kana kana kana kana
-1	<u> 4 </u>	4	<u>13.9486</u> 14.2820	<u>14.1635</u> 14.5124	<u>13.7015</u> 19.0380	<u>13.9055</u> 14.2477	<u>14.2520</u> 14.6037	<u>14.2582</u> 14.6093	<u>14.3252</u> 14.6825	<u>14.6806</u> 15.0468	<u>14.3376</u> 14.6672	
	<u> </u>	5	13.4279	13.5994	13.2/01	13.4683	13.8173	13.8611	13.7647	14.0932	13.7195	
	8		14.0159	14.1792	13.8570	14.0670	14.4204	14.4450	14.3921	14.7517	14.3844	
	9	8	14•3400	14.5259	14.1805	14.4056	14.7689	14.7656	14.6915	15.0645	14.6086	

.....

GEWERE-MELSE BAYESIAN ESTIMATION CRITERION

M VARS ARE MI DATA IS GROWIN RATES -- 11/62 TO 111/82

**************************************					LE	LM = # OF L $0-LEB = # O$	AGS OF M F LAGS OF E					
								- 				ومرور والمراجع والمراجع المراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع
	085	LM	LE0	LE1	LEZ	LE3	LE4	LE5	LE6	LE7	LE8	
	1	υ	18.3699	19.2976	19.7804	20.5360	21.5689	22.4792	23.0329	23.9482	24.4013	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩
	2	1	17.1310	18.0298	18.2891	19.1339	20.1425	20.8612	21,5532	22.5670	22.6547	
	3	2	17.2151	18.1018	18.3722	19.2531	20.2540	20.9222	21.7137	22.7061	23.0868	
	4	Ē	17.9752	18.8568	19.1205	19.9968	20.9990	21.6975	22.4518	23.4566	23.8613	
	5	4	18.9660	19.8593	20.1161	20.9952	22.0022	22.6996	23.4583	24.4670	24.8433	an and a stand of the
	6	5	18.8712	19.7209	20.1310	21.0187	22.0088	22.7493	23.3719	24.3581	24.7534	
	7	6	19.8684	20.7206	21.1260	22.0179	23.0120	23.7487	24.3608	25.3555	25.7282	
	8	7	20.7886	21.6279	22.0434	22.9270	23.9321	24.6554	25.3162	26.3220	26.7283	
	9	8	21.7690	22.6269	23.0250	23.9193	24.9292	25.6289	26.2721	27.2859	27.6231	anar ainn ann ann ann an Anna Anna Anna Anna

Minimum value circled.

The second s

and the second second

SCHWARZ BAYESIAN INFURMATION CRITERION

The state of the second s

M VARS ARE MI DATA IS GROWTH RAILS -- 11/62 TO 111/82

				LČ	LM = # OF L $0 - LEB = # O$	AGS OF M		ar an ann an , a tha anns anns anns an anns anns anns anns		1.5 ************************************	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩
 085	LM	LEO	LEI	LE2	LE3	LE4	LE5	LE6	LE7	LE8	ĦŔġŎţĬĬſĊĸĸĸĿĸĿĸĊĸġĦŔĸĹĸŊŢĸĿŢĊĬŎĊĿĸĸŊĸĊĬĬĊĸĿĸŎĿĸĸĊ
 1	υ	2.92635	2.98655	3.01804	3.06704	3.13376	3.19260	3.22878	3.28801	3.31740	*************
 2	1	2.04058	2.09920	2.91106	2.96595	- E0550 aE	3.07852	3.12193	3.18948	3.18644	
3	2 3	2.83880	2.94494	2.90709	2.96490 3.01181	3.03213	3.07317 3.12260	3.12388	3.19047	3.20837	
5	4 5	2.95327	3.01184	3.02129	3.07893	3.14654	3.18997	3.23812	3.30590	3.32373	
7 H	6 7	3.00151	3.05707 3.11704	3.07607	3.13499	3.20232	3.24838	3.28404	3.35153	3.36672	
9	b	3.12832	3.18424	3.20334	3.26235	3.33064	3.37391	3.41245	3.48122	3.49428	

Minimum value circled.

.....

-		Interior Disprindent and incompany	an a	matterna seconda second			••••••••••••••••••••••••••••••		Barnandak rake at Barnan ya a wasan wasan da	ana amanan matakan matakan pangan panti kepita kepita kepitan keratan dara di sangan sa sangan sa sangan sa sa
- ⁻ T	able 6	Mit offici the folia sign filling sign and a since with			·	• •••••••	anna annan air an an ann an Anna an an Anna an	- Manade Manager, and the second and all and a second and a	Manufacture and a second second second	
					F-STATI	STICS				any second that the basis of the second at the second second second second second second second second second s
			H VARS	ARE NI DA	TA 15 GROWT	d RATES	11/62 10 11	1/82		-
					LM = # OF L	AGS OF M				
		and the second secon		LŁ	V-LE8 = # 0	IF LAGS OF E				
08	S LM	LEO	LEI	LE2	LE3	LE4	LE5	LE6	LE7	LE8
1	0	2.67377	2.80577	2.74910	2.02272	3.05578	3.25849	3.28100	3.55748	3.55549
3	2	1.55955	1.62286	1.37120	1.42863	1.57060	1.51645	1.54436	1.75062	1.42794
5	4	1.68414	1.77251	1.48573	1.56566	1.76023	1.74517	1.78815	2.13748	1.76072
7	6	1.33326	1.38042	1.10463	1.17042	1.35598	1.31376	1.07929	1.41029	0.35411
	 ö	1.58621	1.68382	1.30004	1.50947	1.88208	1.91744	1.84464	<u>1.98145</u> 3.65707	0.64805
										₩
	· · · · · · · · · · · · · · · · · · ·									n aan ar ambara ambara iyo ahaa yaa ahaan iyo ahaan ahaan ahaan ahaan ahaa ahaa ahaa
			a ta daga da Taba, manandri ta 1987 da babi ta da ya 1990, ji * 1.0 maganta, may a may							
										an a
										and the second secon
						-				
			and and a second se				- and a second to an extension of the second s			1. State of a single statements against a second statement of a statement and a state of a statement of a statem expected of a statement o
		وې د وې چې د د دې ورو د و د وې ورو د وې ورو و وو و و				-				
and a glass and the state of a state of the			and the state of the		-			an security and a security of the first security of the securi		a na katala ku u ta munita na Mana di Makada guna dan sama na sangari na giragana kan Magana na Katalan na Kata
						Marganity ···		e a and	· · · · · · · · · · · · · · · · · · ·	
									1. 15 MM	
		and and i contractionalization and the contract of the	an nanagada, diginak kabagan prasika kabagan, , , .			-	. 10		-	
				langen ander erste Bergerficken die anteren die sy here	ar Baanta dan dan dan serendik dikatan dan dari da dari	nage of gelfinities and the second sector of the second second second second second second second second second		an a	an an an Anna an Anna an Anna Anna Anna	
and the second second second										a an an ann an an Ann an An
and a free of each plate contact of all forms in which proves										
								analisation and a second s		

Lag	M with $L_{G}^{*} = 12$	$\frac{1}{6}$ with L_{M}^{\bullet} = 12
0	5.45	2.67
1	4.33	1.13
2	2.36	-1.89
3	-1.73	0.96
4	0.09	0.17
5	-2.05	-1.21
6	-0.01	1.37
7	-0.61	0.44
8	0.88	-2.38
9	0.10	-2.22*
10	-2.70*	-0.58
11	-0.13	1.18
12	0.17	0.64

Table 7 Pagano-Hartley T-Statistics for Lag Length Selection

*First significant t-statistic at the 5 percent level.

Table	le 8 MALLOW'S C STATISTIC													
				ana ana ana ang ang ang ang ang ang ang	DAT	A IS GROW	TH RATES	1962	2 TO 1982	3			and and a second se	
						L LEO-	.M = # OF LE12 = #	LAGS OF M	F E					
085	L.M	LE0	LEI	LE2	LE3	LE4	LE5	LE6	LET	LE8	1E9	LE10	LEII	LE12
2	0	40.4880 26.0630	41.7371 27.2846 22.5693	39.7145 23.9057 19.3913	39.7264 24.7631 20.5705	41.6963 26.7544 22.5609	42.7893 26.7494 22.3013	41.4456 26.5819 22.8784	42.5851 28.5670 24.7714	40.6664 24.5240 22.7369	41.9840 23.0253 20.0959	43.0891 23.8480 19.3857	42.8691 25.3675 21.0457	43.0225 26.2782 22.7003
4 5	3	21.6428 -23.5689	22.8114 24.7928	19.6414 <u>21.6146</u> (17.0882)	20.7912 22.7632	22.7819 24.7537 20.3045	22.7463 24.7077 20.6097	23.0890 25.0674 20.1956	25.0538 27.0255 22.0833	23.2241 25.0525 20.3673	19.2243 20.8685 18.4788	19.0426 20.9285 18.8372	20.1629 22.1075 20.5287	21.7123 23.7049 21.4865
	5 6 7	20.0833 21.5570	21.0953 22.4771 24.4073	19.0800 20.5564 22.3930	20.3594 21.7683 23.6569	22.3011 23.7510 25.6381	22.5698 23.9394 25.6710	22.0939 23.7700 25.3955	24.0039 25.7189 27.3631	22.1768 24.1155 25.3719	20.2616 22.0793 22.6139	20.7934 22.6082 23.3692	22.4733 24.1340 24.9432	23.4864 25.1179 26.3519
10	9 10	25.3453 21.1222 23.1058	26.4054 21.8236 23.8224	24.2412 20.3277 22.2916	25.5743 21.3474 23.3431	27.5556 23.3116 25.3081	27.6026 23.8766 25.8471	27.3889 23.9485 25.9478	29.3528 25.7576 27.7571	27.1420 22.4681 24.1421	24.5964 <u>19.2810</u> 21.2471	25.3678 20.8770 22.8587	26.9261 21.4893 23.4884	28.3423 23.0471 25.0304
	12-	-25.1033	25-8208	24.2477	25.3325	27.3022	27.8310	27.9458	29.7561	26.0863	23.1547	24.8167	25.4156	27.0000
									27.000 (00.000) (000) (00.000)				ann ga an tha ann an tha an tha an tha an tha an tha ann an tha an th	n a mar ar fa de sa an an Andre San Anna an
Mini	mun	value o	circled.										n dinan a san na dinan na paga ta sa san na na pa	
												······		an - An an a Maria a Maria a Maria Maria Maria Maria Maria Maria Maria Manina Maria Manina Manina Manana Manina Manuna Manana M
												Name and a state of a state of the		
1994 II.a (1995) II.I (1996) II.I (1996)			an a									۲۰ - ۱۹۹۰ ۵۲ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵ - ۱۹۹۵		
**************************************									an a				an a	
													<u></u>	
												99999999999999999999999999999999999999		
		andre en												
								a de la compañía de l	-	annand With Halls All a Without State and a State State and			-	
										99, 109, 99, 99, 99, 99, 99, 99, 99, 99, 99,	2440 - 1487 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 - 1497 -	Nonad dage y un production de la servición d	una, lana anin'ny fisiana, ara-dang 1944 m	an an gana an

.

Table 9 FINAL PREDICTION ERROR STATISTIC DATA IS GROWTH RATES -- 1962 2 TO 1982 3 LM = # OF LAGS OF M LE0-LE12 = # OF LAGS OF ELEB LE9 LE10 LE11 LE12 1 0 16.4469 16.7451 16.5634 16.6721 17.0817 17.3623 17.2488 17.5362 17.3029 17.6186 17.9024 17.9456 18.0524 2 1 14.4773 14.7205 14.2683 14.4449 14.8032 14.8448 14.8529 15.2232 14.5419 14.2775 14.4218 14.6983 14.8625 2 13.8432 14.0652 13.6084 13.8163 14.1596 14.1352 14.2455 14.5855 14.2254 13.7267 13.5618 13.8430 14.1304 3 13.9244 14.1410 13.6680 13.8701 14.2157 14.2228 14.2890 14.6440 14.3063 13.5312 13.4527 13.6232 13.8835 14.2589 14.4901 14.0048 14.2126 14.5678 14.5743 14.6464 15.0105 14.6384 13.8085 13.7763 13.9645 14.2433 5 13.4193 13.5929 13.2610 13.4690 13.7983 13.8410 13.7452 14.0743 13.7108 13.2867 13.2940 13.5752 13.7057 13.8080 14.1466 14.1850 14.0764 14.4194 14.0257 13.5860 13.6308 13.9187 13.7543 13.9329 13.5926 14.0669 7 14.0103 14.1765 13.8427 14.0504 14.4039 14.4270 14.3738 14.7337 14.3762 13.9014 13.9478 14.2104 14.3564 14-3319 14-5213 14-1632 14-3864 14-7497 14-7442 14-6690 15-0421 14-5940 13-9491 14-0409 14-3166 14-5612 9 14.6866 14.8882 14.4947 14.7376 15.1114 15.1102 15.0474 15.4315 14.9266 14.3129 14.4132 14.6953 14.9510 10 13.9336 14.0468 13.7408 13.9018 14.2526 14.3272 14.2946 14.6277 13.8413 13.0288 13.2826 13.3075 13.5598 10 12 11 14.2843 14.4047 14.0858 14.2588 14.6207 14.6940 14.6688 15.0132 14.1344 13.3691 13.6360 13.6685 13.9267 13 12 14.6481 14.7734 14.4396 14.6258 15.0001 15.0754 15.0550 15.4114 14.4992 13.7069 13.9957 14.0242 14.3033 Minimum value circled.

Table 10 -----

GEWERE-MEESE BAYESIAN ESTIMATION CRITERION

DATA IS GROWTH RATES -- 1962 2 TO 1982 3

	UATA 15 GROWIN RATES 1962 2 TO 1982 3													
LM = # OF LAGS OF M														
LEO-LE12 = # OF LAGS OF E														
000	1 6.4	150	151	152	153	154	155	156	157	158	150	1510	1571	1513
	t				\ \					·····				A.C.A.C.
·····1	0	18,4528	19.4148	19.9221	20.7082	21.7732	22.7161	23.3021	24.2515	24.7399	25.7151	26.6604	27.3985	28.1928
2	1	1.2525	18.1851	18.4683	19.3438	20.3845	21.1358	21.8598	22.9062	23.0311	23.5315	24.3886	25.3574	26.2302
3	2	17.3583	18.2791	18.5731	19.4853	20.5185	_21.2201_	22.0440	23.0692	23.4865	23.7949	_24.3967_	25.3771	26.3603
4	3	18.1479	19.0637	19.3502	20.2576	21.2919	22.0240	22.8105	23.8479	24.2899	24.3708	25.0505	25.9403	26.9030
	5	19 1236	20.0078	20.4410	21.3595	22.3825	23.1548	23.8106	24.8300	25.2665	25,6615	26.4196	27.4020	28.2611
7	6	20.1532	21.0399	21.4684	22.3910	23.4186	24.1863	24.8317	25.8594	26.2736	26.6590	27.4473	28.4323	29.3038
8	7	21.1089	21.9832	22.4212	23.3355	24.3732	25.1281	25.8213	26.8600	27.3070	27.6669	28.4557	29.4181	30.2865
9	8	22.1203	23.0132	23.4329	24.3583	25.4009	26.1312	26.8065	27.8530	28.2292	28.4567	29.2831	30.2552	31.2008
10	9	23.1574	24.0586	24.4508	25.3906	26.4385	27.1718	27.8574	28.9092	29.2426	29.4996	30.3313	31.3055	32.2572
12	- <u>10</u>	24.2711	25,1093	25,5803	26.4667	27.5075	28,3104	29,0353	30.0572	30,1115	30.2698	31,2309	32,0284	32.0804
13	12_	25.3150	26.1556	26.6165	27.5116	28.5589	29.3622	30.0904	31.1183	31.1524	31.2948	32.2792	33.0636	34.0381
						an and a construction of the second			****	*****		und the Theory Public Report of Control and Links and an open	an a	a an an di Managana ang Pangana ang Pan
Min	imum	n value d	circled.											
														999 - Frank and a State State Anna Alexandria Marta and Lagogor and a space
														and the day and the fifth and the formula of the second statement of th
														ar an
														an an air an
				an a								99999999999999999999999999999999999999		
								· · · · · · · · · · · · · · · · · · ·						
												NA-Rest MANAGER BURGER DE MAN	n maan maanada ay ka ka Maana ah maanaa daa	
													1910-0-1-1919-0-10-10-10-10-10-10-10-10-10-10-10-10-1	
								1997 - La H ard V. La Hard V. La H						
														a an beine an
				9 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999 (1999) 1999								Te U SANG SAN DE LE UNIVER A CARTAN A CON	Ø8.43.447688.48848.4898.998.998.8484	##\$\$\$\$################################

Table 11				S	CHWARZ BA	YESIAN IN	FORMATION	CRITERIO	N				
	and a second			DAT	A IS GROW	TH RATES	1962	2 TO 1982	3			andre all an ann an Anna an Ann	an de la manuel de la constante
					L	M = # OF	LAGS OF M		1			1999, p. 49 a 1997 p. 1997 p	
				an maga taon na mataka kapat ta mina kita mina kapat kata k	LEO-	LE12 = #	OF LAGS O	F E					
-085-LH-	LE0	LE1	LE2	LE3	LE4	LE5	LE6	LE7	LEB	LE9	LEIO	LEII	LEIZ
	0.005/0	2 00544	2 01671	2 04554	2 12227	2 10114	2 22726	2.28660	3.31614	3. 37726	3.43640	3.48208	3.53130
2 1	2.92543	2.89875	2.90986	2.96461	3.03168	3.07717	3.12053	3.18809	3.18534	3.21015	3.26348	3.32585	3.38044
	2.8373)	2.89553	2.90496	2.96268	3.02992	3.07100	3.12170	3.18834	3.20650	3.21408	3.24538	3.30938	3.37351
4 3	2.88547	2.94334	2.95189	3.00926	3.07668	3.12011	3.16780	3.23550	3.25543	3.24311	3.28078	3.33697	3.39958
<u> </u>	2.93353	2.98907	3.00717	3.06566	3.13286	3.17911	3.21543	3.28247	3.29979	3.31195	3.35619	3.42091	3.47437
6	3.00088	3.05659	3.07479	3.13356	3.20095	3.24692	3.28261	3.35017	3.36608	3.37792	3.42500	3.48979	3.54437
87	3.06213	3.11685	3.13607	3.19412	3.26223	3.30721	3.34701	3.41532	3.43445	3.44465	3.49188	3.55452	3.60881
<u> </u>	3.12775	3.18393	3.20212	3.26102	3.32934	3.37245	3.41093	3.4/9/3	3.49328	3.49197	3.54252	3.67632	3.00715
10 9	3.19525	3.23713	3.25849	3.31362	3.38212	3.43104	3.47255	3.53947	3.52820	3.51178	3.57525	3.62138	3.68451
12 11	3.25390	3.30567	3.32676	3.38256	3.45132	3.50011	3.54228	3.60947	3.59323	3.58173	3.64576	3.69250	3.75565
13 12	3.32242	3.37443	3.39517	3.45166	3.52073	3.56962	3.61225	3.67972	3.66288	3.65095	3.71615	3.76263	3.82686
							****			n daga sa dikin ng manga kapan kaban sa kaban da panangan sa pang			
									1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 -		e (materi pero oraș intera de cela ște catala de companya de companya de companya de companya de companya de c		un martum allan di ancar dan paratikan kanga danga di perangkan (an di sebahan kanga di sebahan kanga dan kanga
Minimum	value c	ircled.											
												a da degran en Provinsi da cara en en en anagon	

												ana parte da cara contra contra contra contra de la contra de la contra contra de la contra de la contra contra	ann a seanaithe an than a than air an Air an air an air an air an
			nang kawan ang kang kang kang kang kang kang kan					*******	ander af statistic statistics at statistical statistics	alandaran es nemenen ne sekeri se	9,000,12000,000,000,000,0000,0000,0000,0	Nille and an and an and an and a state of the second of	a a da ang na
				-						angana dhalan an an ann an an an an an an an an an	a Tanan Manana na Tanan Ana Mana amin' na Gana Ang		

										4944 4444 944 444 444 444 444 444 444 4		annain (1997) ann an Sonain (1997) a stàit an Sonai	a manan tara ta
								The supplement of the set of the set of the supplement of the set	an a	1, 1997 - T. B. C. T. B. C. P. C. M. C. B. C. M. S. B. B. S. B.	an a	W Law Alaysta - November - Novi das Alaysta - Novi das Alaysta - Novi das Alaysta - Novi das Santa - Novi das S	Ran far Ball an Tarfallan Ballan Bannan mar antaran Magdal (Bajda), den den a varan
ana tana kata kata kata kata kata kata k											ny		
										e una françaista de la seconda de la Stancia.		n konstale, středový se děstří Paulijana assaníkate a v teor	
													and an and a state of the

The survey of the second state of the second s

F-STATISTICS

$LM = # OF LAGS OF M$ $LEO \sim LF12 = # OF LAGS OF E$													
								7	1 5 0		1530	1 (** 1 *	a
	LE0		LEC	<u>L</u> LJ		L£.Э		LE/	LEA	1.5.4	<u>1 E 10</u>	1611	
0-	2.56200	2.64074	2.57793	2.60602	2.73482	2.83101	2.80254	2.91677	2.85415	2.99894	3.14922	3.22070	3-33521
1	1.95926	2.01294	1.852 65	1.88815	1.98708	1.98608	1.97540	2.09794	1.83493	1.71610	1.75754	1.86396	1.93438
	1.74400	1.78901	1.61957	-1.66160-	-1.75338-	1.72361	1.74240	1.85143	1.69549	1.46892	1.36547	1.45870	1.57003
3	1.02045	1.88383	1.70081	1.05507	1.45961	1.84718	1.86196	2.00196	1.83771	1.44259	1.30205	1.45439	1.41248
5	1.53070	1.56091	1.41695	1.46008	1.55363	1.54355	1.47659	1.59028	1.39703	1.14788	1.09302	1.19109	1.21236
6	1.61574	1.65267	1.50500	1.55729	1.66437	1.65921	1.59116	1.72763	1.51768	1.25129	1.22418	1.35333	1.41441
3 7	1.67982	1.71732	1.57042	1.62631	1.75008	1.74495	1.70637	1.87189	1.67950	1.38492	1.37259	1.52234	1.62358
8	1.77383	1.82715	1.6/093	1.00110	2 05051	2 06026	2 04321	2 204034	2 02020	1 59940	1.39486	1.00153	1.83797
J 9	1.58016	1.60181	1.44397	1.48613	_1.63116	1.65296	1.61856	1.82251	1.24469	0.45619	0.46925	0.16311	0.02355
2 11	1.70045	1.73520	1.57196	1.63431	1.81201	1.85588	1.84968	2.12618	1.42842	0.56177	0.61958	0.24420	0.03043
12	1.84194	1.89280	1.72477	1.81473	2.03778	2.11872	2.15763	2.55123	1.77158	0.71822	0.90833	0.41564	
										a farmanan di san su afaan sa u	10,154.278.04.0001016.1800.00001010101010101010100	a de la companya de l	a tan Malalanda Bada da Kabulan Ing dan Ang Kabulan di
									······································		********		
													anna an
								ana an an tarang an t					
****										,		an 1990 part of the second	
			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -										
													un a an
					······································								
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				· · · · · · · · · · · · · · · · · · ·									
								· · · · · · · · · · · · · · · · · · ·					
					· · · · · · · · · · · · · · · · · · ·								
					· · · · · · · · · · · · · · · · · · ·								

Lag	$\frac{1}{M}$ with $L_{G}^{\circ} = 16$	\dot{G} with L_{M}^{\bullet} = 16
0	4.85	2.70
1	4.51	1.05
2	2.50	-1.82
3	-2.19	0.96
4	0.30	0.22
5	-1.98	-0.88
6	-0.42	1.33
7	-0.42	0.58
8	0.76	-2.31
9	-0.47	-2.22*
10	-2.60*	-0.31
11	0.09	0.93
12	-0.12	0.99
13	-0.57	1.16
14	0.41	1.01
15	-0.84	-1.23
16	0.19	1.28

Table 13 Pagano-Hartley T-Statistics for Lag Length Selection

*First significant t-statistic at the 5 percent level.

Table 14 -

-

MALLOW'S C STATISTIC

M VARS ARE M1 DATA IS GROWTH RATES -- 11/62 TO 111/82

Martine (Martin Alexand) a surger server for the static and result of the static and states in the static and the server dependences	LM = # OF LAGS OF M													
	LEO-LE16 = # OF LAGS OF E													
OB S	OBS LM LEO LEI LE2 LE3 LE4 LE5 LE6 LE7													
1	0	38.5180	39.7669	37.8704	37.9303	39.9022	41.0080	39.7240	40.8660					
2	1	24.3455	25.5671	22.3430	23.2324	25.2251	25.2532	25.1258	27.1097					
3	2	19.8411	21.0437	18.0175	19.2170	21.2073	20.9793	21.5794	23.4705					
4	3	20.1660	21.3355	18.3215	19.4931	21.4836	21.4747	21.8459	23.8087					
5	4	22.0829	23.3120	20-2885	21.4588	23.4490	23.4292	23.8190	25.7741					
6	5	16.6379	17.6548	15.779h	17.0753	19.0150	19.3539	18.9767	20.8610					
7	6	18.6378	19.6539	17.7709	19.0736	21.0119	21.3153	20.8777	22.7843					
8		20.1010	21.0232	19.2361	20.4729	22.4536	22.6794	22.5475	24-4941					
9	8	21.9418	22.9643	21.0902	22.3747	24.3541	24.4314	24.1979	26.1631					
10	9	23.8922	24.9584	22.9136	24.2726	26.2518	26.3463	26.1958	28.1585					
11	10	19.6876	20.3911	19.0075	20.0610	22.0295	22.6433	22.7751	24.5863					
		21.6703	22.3903	20.9712	22.0563	24.0257	24.6135	24.7746	26.5857					
13	12	23.6661	24.3871	22.9352	24.0491	26.0220	26.6012	26.7736	28.5836					
	13	22.5918	26.2931	24.8718	25.8655	27.8268	28.5111	28.5816	30.3901					
15	14	27.5902	28.2890	26.8543	27.8547	29.8224	30.4923	30.5812	32.3860					
10		21.0031	28.4649	27-1431	28.0825	30.0409	31.2566	31.0923	32.7510					
17	10	28.9190	29.8161	28.5556	29.6262	31.5798	32.8094	33.0302	34.6901					
OBS	LE8	LE9	LE10	LEII	LE12	LE13	LE14	LE 15	LEI	16				
•	38.99	73 40.31	16 41-420	6 41.256	57 41.47	43.31	86 45.050	46.33	51 47.4	-749				
2	23.14	25 21.67	08 22.498	3 24.035	53 24.98	57 26.44	80 28.17	29.26	9 29 2	2223				
3	21.479	72 18.88	26 18,209	9 19.882	28 21.55	28 23.24	13 25.114	1 24.834	4 24.9	758				
4	22.014	45 18.08	17 17.926	3 19.077	20.64	70 21.93	34 23.907	8 23.232	8 22.	647				
5	23.82	85 19.70	96 19.801	4 21.012	29 22.63	52 23.93	27 25.904	7 25.194	5 24.0	730				
6	19.15	70 17.32	58 17.710	8 19.422	24 20.41	94 20.86	69 22.855	51 23.372	22.1	672				
7	20.97	06 19.11	31 19.668	1 21.368	38 22.41	93 22.81	73 24.792	25.357	15 23.9	9931				
8	22.90	55 20.92	60 21.477	8 23.028	81 24.05	02 24.67	56 26.618	30 27.318	3 25.8	3150				
9	24.204	40 21.52	20 22.295	23.890	25.32	02 26.05	03 27.92	58 28.216	9 27.2	2342				
10	26.00	75 23.51	14 24.290	25.865	55 27.30	40 <u>28.03</u>	86 29.903	30.126	4 29.0)136				
11	21.35	74 18.23	62 19.833	6 20.476	59 22.05	11 21.95	73 23.07	4 23.528	3 24.2	2488				
12	23.03	00 20.20	11 21.814	4 22.476	52 24.03	63 <u>23.95</u>	72 25.053	34 25.489	26 .2	2403				
13	24.96	70 22.11	87 23.779	24.413	30 26.01	16 25.95	08 27.053	3 27.456	0 28.2	2257				
14	26.96	13 23.96	16 25.706	6 26.411	16 28.01	12 27.93	70 28.953	6 29.346	2 29.9	023				
15	28.96	25.86	20 27.646	28.410	30.00	19 29.89	14 30.932	31.202	5 31.7	353				
16	29.64	54 26.69	69 28.608	6 29.649	30.84	45 31.25	22 32.354	6 32.826	5 33.0)360				
17	31.37	28 28.43	43 30.339	31.482	28 32.51	19 33.17	47 34.152	22 34.637	6 34.9	9999				

FINAL PREDICTION ERROR STATISTIC

M _ V	ARS ARE	M1	DATA	IS	GROWTH	I RAT	res	I	V	62	TO	ш	18	2_

					1 M =	# OF LACS	DE M						
					LEO-LE1	2 = # OF LA	GS OF E						*****
	OBS	LM	LEO	LE1	LE2	LE3	LE4	LE5	LE6	LE7			
an a	1	0	16.4621	16.7586	16.5855	16.6967	17.1071	17.3878	17.2749	17.5608			
	2	<u> </u>	12 9420	14.7282	14.2824	19.4043	14 1910	14.8049	14 2744	12.2444			
	3	2	13.0486	14.0044	13.03/3	13 9055	14.1910	14.1027	14.2700	14.010/			
	5	4	14.2820	14.5124	14-0380	14.2477	14.6037	14.6093	14-6825	15-0468			
	6	5	13.4279	13.5994	13.2781)	13.4883	13.8173	13.8611	13.7647	14.0932			
	7	6	13.7631	13.9396	13.6101	13.8278	14.1661	14.2057	14.0965	14.4390			
	8	7	14.0159	14.1792	13.8570	14-0670	14.4204	14.4450	14.3921	14.7517			and the ball the ball the second state
	9	8	14.3400	14.5259	14.1805	14.4056	14.7689	14.7658	14.6915	15.0645			
	10	9	14.6923	14.8921	14.5072	14.7531	15.1269	15.1286	15.0713	15.4556			
	11	10	13.9225	14.0314	13.7347	13.8988	14.2502	14.3297	14.3026	14.6356			
	12	<u> </u>	14.2727	14.3890	14.0794	14.2557	14.6183	14.6963	14.6770				
	13	12	14.6358	14.7570	14.4345	14.6232	14.9980	15.0785	15.0637	15.4194			
an na marta nag-ar san antara ta sa	14	16	15 2010	12.11/8	16 1749	15 2540	15 7514	15 9414	15 9210	16 2006			
	15	15	15.3777	15.5213	15.1976	15.3589	15.7569	15.9916	15.8937	16.2395			
an a	17	16	15.6315	15.7985	15.4657	15.6609	16.0684	16.3130	16.3096	16.6683			
	OBS	LE8	LE9	LE10	LE11	LE12	LE13	LE14	LE1	5 LE	E16	1	an and a second s
and and a second se	1	17.324	7 17.638	2 17.920	17.96	70 18.07	96 18.51	27 18.93	48 19.2	55 19	.5930	han na mar na ha charactar an a chuir a tha chuir a tha chuir a	•
	2	14.557	8 14.287	3 14.428	9 14.70	72 14.87	60 15.14	93 15.48	51 15.69	32 15	.6546		
	3	14.252	13.746	9 13.580	4 13.86	34 14.15	32 14.45	45 14.80	36 14.69	02 14	.6581		
	4	14.337	13.555	6 13.475	13.64	95 13.91	30 14.12	23 14.48	65 14.20	549 13	9329		
	5	14.667	12 13.829	1 13.796	8 13.98	93 14.27	26 14.49	20 14.86	77 14.63	346 14.	.2835		
arrent an	6	13.719	<u>13,293</u>	1 13.300	0 13.58	45 13.71	98 13.73	12 14.09	28 14.1	170 13.	.7145	and the second	Carl Marca Mathematica
	7	14.034	7 13.592	7 13.637	1 13.92	84 14.08	14 14.08	41 14.45	46 14.49	935 14.	.0431		
	8	14.384	4 13.906	5 13.952	4 14.21	87 14.36	<u>96 14.42</u>	68 14.80	12 14.8	170 14	.3815	· · · · · · · · · · · · · · · · · · ·	
	9	14.608	13.962	1 14.053	33 14.33	26 14.58			(94 15.00		•0248		
	10	14.940	14.327	1 14.423	5 13 20	$\frac{91}{17}$ 14.90	$\frac{01}{40}$ 12.00	75 12 57		100 14	5004		
	11	13.041	13.023	(2) 13.212	2 12 44	1/ 13.02	00 13.30 22 12.75	71 12.80	20 13.84	174 13	8817		
	12	14.404	13.302	7 13.020 74 13.080	13.00	$\frac{20}{03}$ 14.30	$\frac{52}{11}$ 14.13	14.28	153 14.2	15 14	2759	ala Marina Sonaliya Nya shadada a fala waxa	an a
	14	14.88	51 14.035	14.357	14.40°	70 14.69	94 14.53	26 14.66	25 14.60	177 14	.5918		
	15	15.288	14.393	6 14.73	14.80	81 15.11	04 14.93	24 15.07	72 14.98	379 14	9679		
	16	15.368	35 14.482	6 14.862	1 15.01	17 15.20	66 15.17	19 15.33	15.3	100 15	. 1868		
an a	17	15.720	14.814	6 15.204	7 15.39	03 15.54	48 15.58	86 15.72	57 15.70	039 15.	.6316		

Table 16 -

GEWEKE-MEESE BAYESIAN ESTIMATION CRITERION

M VARS ARE M1 DATA IS GROWTH RATES -- 11/62 TO 111/82

	LM = # OF LAGS OF M													
	LEO-LE16 = # OF LAGS OF E													
	OBS	LM	LEO	LE1	LE2	LE3	LE4	LE5	LE6	LE7				
	1	0	18.9626	20.0879	20.7682	21.7214	22.9520	24.0597	24.8111	25.923	9			
	2	<u> </u>	17.9219	19.0177	19.4745	20.5169	21.7231	22.6394	23.5289	24.740	3	MARKAN MENTAL MARKAN (ARCANDA) SALAMAN DA MARKAN MARKAN ARA ARA BARAN SALAMAN SALAMAN SALAMAN SALAMAN SALAMAN S		
	3	2	18.2030	19.2872	19.7552	20.8336	22.0322	22.8980	23.8870	25.077	0			
	4	3	19.1607	20.2399	20.7011	21.7750	22.9747	23.8708	24.8227	26.025	1			
	5	4	20.3490	21.4399	21.8943	22.9710	24.1755	25.0705	26.0267	27.233	1			
	<u> </u>	<u> </u>	20.4518	21.4991	22.1067	23.1920	_24.3797	25.3178		27.321	1			
		0	21.6466	22.6963	23.2993	24.3888	25.5810	26.5147	21.3244	28.516	6			
	<u>8</u>		22.1644	23.8012	24.4143	22.4955	20.0981	27.6190	28.4/13	29.680	8	and an analysis of the second		
	10	0	23.7427	24.7711	23.37333	20.0034	21.0929	28.7901	29.0309	30.042	2			
	11	10	25 3708	26 3658	27 0196	28 0646	29 24 64	20 2207	21 1285	22 200	[7			
	12	11	26.5719	27.5717	28 2157	20.0040	27.2034	31 4487	32 3420	22 507	(6			
	13	12	27.7804	28.7827	29-4180	30,4804	31,6932	32.6657	33.5634	34 755	7			
	14	13	28.9837	29.9840	30.6212	31.6660	32.8823	33.8754	34 7554	35.953	1			
	15	14	30.2026	31.2062	31-8379	32.8872	34.1109	35,1043	35,9885	37.192	0	MARTING MANY CONTRACTOR AND		
	16	15	31.0991	32.1180	32.7615	33.7985	35.0218	36.1140	36.9477	38.124	9			
	17	16	32.2075	33.2445	33.8834	34.9461	36.1740	37.2720	38.1786	39.362	5			
an an fair ann an an ann an ann an ann an ann ann	OBS	LEE	B LE9	LE10	LE11	LEI	2 LE1	.3 LE	L4 LE	15	LE16			
	1	26.57	746 27.71	27 28.821	4 29.72	75 30.69	216 31.9	252 33.	1455 34.	2953 3	5.4238	na den na varia de la casa de la c		
	2	25.02	256 25.68	57 26.70	53 27.84	07 28.88	322 30.0	101 31.	1872 32.	2576 3	3.1289			
	3	25.65	552 26.12	28 26.888	32 28.03	50 29.10	30.3	421 31.	5353 32.3	3535 3	3.2405			
	4	26.62	26.86	72 27.710	28,76	78 29.89	80 30,9	822 32.	1898 32.	9275 3	3.5837			
	5	27.80	28.00	63 28.889	29.96	06 31.10	32.1	942 33.4	4073 34.	1369 3	4.7801			
CALLY CONTRACTOR AND A CALLY CONTRACTOR	6	27.91	146 28.47	26 29.39	54 <u>30.54</u>	55 31.5	734 32.5	026 33.	7098 34.	<u>6500 3</u>	5,2618	ng Marina Bandan Dalaman Banda Banda Banda Banda da Manaya na Jana Banda Manaya na sana mina ang sana		
	7	29.08	369 29.63	54 30.588	33 31.74	11 32.78	313 33.7	1029 34.9	3137 35.	8644 3	6.4417			
	8	30.28	346 30.80	70 31.760	32.89	33.9	280 34.8	3920 36.	1025 37.	0808 3	7.6262	1. Se al de la deserva en una antigadore par managolitzar en a consequencia que en aporte diferente deservantes por estes		
	9	31.37	70 31.76	82 32.759	33.89	88 35.0	L17 35.9	953 37.	1975 38.	0961 3	8.7362			
	10	32.50	508 32.97	75 33.97	19 35.11	29 36.2	321 37.2	2192 38.	4261 39.	3123 3	9-9224			
	11	32.59	906 32.86	64 33.992	29 34.94	25 36.00	584 36.8	3715 37.	9070 38.	8096 3	9.7619			
	12	33.14	+1/ 34.06	35.19	2 30.15	<u>10 37.2</u>	102 38.0	<u>. 40 600 600 600 600 600 600 600 600 600 </u>	1170 40.	$\frac{1102}{2352}$	0.9190	zan ve dera nije na stega analazije ografije da na zane fanezije a za a za na zakon je kon ken ne se na stek s		
	15	34.94	+OL 32+23	54 37 400	17 51.55 50 29 57	017 30•4 104 30 7	721 37+3 100 40 5	SULU 405.	5413 41. 5607 69	6376 4 6678 6	2 3450			
	15	27 20	062 27 42	54 29 010	20 20 20 20 20	27 37.1	511 41 7	1492 42	7828 42	4731 4 6509 /	2 + 2024			
	16	38.2	703 31+03 756 28 49	97 30.010	15 57.00 15 60	197 4U•7		1703 7460 1898 420	1030 43.0	A130 A	400077 5 6500			
	17	39.50	506 39-80	49 41.020	$\frac{70.07}{42.08}$	35 43.12	231 44-0	1829 45-	1103 46-	0254 4	6.9071			

Minimum value circled.

SCHWARZ BAYESIAN INFORMATION CRITERION

M VARS ARE MI DATA IS GROWTH RATES II/62 TO III/8	12
---	----

	LM = # OF LAGS OF M													
	LEO-LE16 = # OF LAGS OF E													
C	OBS LM LEO LEI LEZ LEJ LEA LES LEG LET													
n ferne fan ferste en de Staar ferste ferste ser oan de staar de staar de staar de staar de staar de staar de s	1	0	2.92635	2.98625	3.01804	3.06704	3.13376	3.19260	3.22878	3.28801	ning and an and a second second second second free field and a particular allocations and set of the tria to a	an ta sa		
	2	1	2.84058	2.89928	2.91106	2.96595	3.03303	3.07852	3.12193	3.18948				
	3	2 (2.83880	2.89689	2.90709	2.96490	3.03213	3.07317	3.12388	3.19047				
		3	2.88720	2.94494	2.95434	3.01181	3.07923	3.12260	3.17033	3.23799				
	5	4	2.95327	3.01184	3.02129	3.07893	3.14654	3.18997	3.23812	3.30590				
	6		2.93417	2.98955	3.00845	3.06709	3.13423	3.18056	3.21684	3.28381				
	7	6	3.00151	3.05707	3.07607	3.13499	3.20232	3.24838	3.28404	3.35153				
	8		3.06253	3.11704	3,13710	3.19530	3_26338	3.30846	3.34828	3.41655				
	9	8	3.12832	3.18424	3.20334	3.26235	3.33064	3.37391	3.41245	3.48122				
	10	9	3.19564	3.25230	3.26938	3.32957	3.39808	3.44178	3.48167	3.55064				
	11	10	3.18498	3.23604	3.25804	3.31340	3.38196	3.43121	3.47311	3.54002				
	12	11	3.25309	3.30458	3.32631	3.38234	3.45115	3.50027	3.54284	3.61001				
	13	12	3.32159	3.37332	3.39481	3.45148	3.52059	3.56983	3.61283	3.68025				
-	14	13	3.38946	3.44106	3.46316	3.51835	3.58754	3.63851	3.68022	3.74788	ne na manifester et setter man an an anna a mhathalas aighde an an an an agus ta saighte anna an ta a bhanna an			
	15	14	3.45837	3.51025	3.53240	3.58793	3.65747	3.70851	3.75076	3.81866				
	16	15	3.50180	3.55488	3.57770	3.63224	3.70190	3.76085	3.79898	3.86485				
	17	16	3.56196	3.61647	3.63916	3.69578	3.76564	3.82501	3.86915	3.93535				
	085	LE8	LE9	LE10	LE11	LE12	LE1	3 LE1	4 LE15	ELE1	.6			
	1	3.3174	0 3.378	37 3.4374	40 3.483	28 3.532	90 3.60	005 3.66	619 3.727	71 3.78	1784	24 mer		
	2	3.1864	4 3.210	84 3.263	3.326	45 3.381	35 3.44	314 3.50	876 3.565	90 3.60	732			
	3	3.2083	37 3.215	55 3.246	75 3.310	85 3.375	13 3.43	968 3.50	754 3.543	73 3.58	1553			
	4	3.2576	52 3.244	92 3.2824	46 3.338	89 3.401	70 3.460	042 3.52	977 3.558	34 3.57	887			
	5	3.3237	73 3.308	37 3.3490	53 3.407	17 3.471	01 3.53	015 3.59	973 3.628	00 3.64	790			
	6	3.3004	41 3.312	43 3.3560	54 3.421	59 3.475	39 3.52	021 3.59	028 3.636	17 3.65	5150			
	7	3.3667	72 3.378	41 3.4254	6 3.490	49 3.545	39 3.58	966 3.65	980 3.706	75 3.71	.953			
	8	3.4350	3.445	02 3.492	21 3.555	10 3.609	73 3.65	788 3.72	776 3.777	22 3.78	1779			
	9	3.4942	28 3.492	90 3.5434	+0 3.607	16 3.668	45 3.71	835 3.78	741 3.829	92 3.84	908			
	10	3.5611	14 3.562	74 3.613	50 3.677	30 3.739	01 3,78	929 3.85	848 3.900)12 3.91	717			
	11	3.5282	23 3.511	35 3.574	71 3.620	95 3.684	23 3.71	616 3.77	073 3.812	14 3.85	840			
	12	3.5931	15 3.581	27 3.645	20 3.692	07 3.755	40 3.78	792 3.84	246 3.883	77 3.93	101			
	13	3.6626	57 3.650	64 3.715	70 3.762	35 3.826	70 3.85	989 3.91	489 3.955	90 4.00	386			
	14	3.7334	41 3.718	97 3.785	34 3.834	08 3.898	78 3.93	206 3.98	573 4.026	83 4.07	068			
	15	3.8045	52 3.766	63 3.856	51 3.906	15 3.971	.04 4.00	397 4.05	847 4.097	46 4.14	113			
	16	3.8541	16 3.839	31 3.909	78 3.964	49 4.022	17 4.06	473 4.12	060 4.163	4.20	0073			
	17	3.9213	34 3.906	59 3.977	4.034	17 4.089	01 4.13	676 4.19	052 4.234	4.27	476			

F-STATISTICS

M VARS ARE M1 DATA IS GROWTH RATES -- 11/62 TO 111/82

	LN = # OF LAGS OF M												
	LEO-LE16 = # OF LAGS OF E												
and alfering of a second capacity of the second alfering and	OBS L	.M	LEO	LE1	LE2	LE3	LE4	LE5	LE6	LE7			
	1	0	2.10994	2.15377	2.09568	2.10104 2	2.17508	2.22252 2	2.18169 2	.23464	ann an		
		1	1.65631	1.68557	1.56355	1.57973	63797	1.62512 1	.60503 1	.67124			
	3	2	1.49470	1.51875	1.39348	1.41544	L•46951	1.43917 1	.44081 1	•49872			
	4	3	1.48848	1.51198	1.38228	1.40358	45935	1.43644	42808 1	.49130			
	5	4	1.53868	1.56711	1.43417	1.45835	1.51871	1.49692 1	1.49177 1	•56067			
	6	5	1.31992	1.33288	1.23116	1.25314	.30500	1.28882	23699 1	.29305			
	7	6	1.37068	1.38615	1.28212	1.30755	1.36418	1.34835 1	1.29388 1	•35707			
an a fan de fan yw far fallen yw far fan yw far fan yw yw far far yw yw far far yw yw yw far far yw yw yw far f	8	1	1.40404	1.41763	1.31461	1.33968	40255	1.38397 1	34460 1	_41634			
	9	8	1.45591	1.47671	1.36773	1.39879	1.46770	1.44376 1	.39989 1	.48018			
	10	9	1.51/05	1.54356	1.42446	1.46363	53957	1.51924 1	48210 1	.57241			
	11 1		1.30398	1.30434	1.20037	1.21374	.27942	1-27314 1	•23594 1	•30575			
	12 1	2	1 43330		1 22072				<u>.31830</u>	<u>.39898</u>			
	15 1	12	1.43330	1.444142	1022713	1 42000	L•43007 . 1 53170 .	1.44008	L+41240 I				
alland might an an init provided in the second statistic for	15 1	4	1.58835	1.60524	1.40000	1 52365	63017	1 45224		76226	anna a' anna an anna an anna anna anna		
	16 1	15	1.56845	1,59155	1.47621	1.50589		1.68805 1	1.66675 1	77510			
	17 1	6	1.62373	1.65845	1.53969	1.58663	71498	1.80086 1	80302 1	96556			
			2002515	2002012		1.50005		1.00000					
	085	LE8	LE9	LE10	LE11	LE12	LE13	LE14	LE15	LEI	6		
	1 2	2.1665	5 2.2309	4 2.2918	5 2.2979	4 2.32350	2.4378	2 2.55837	2.66677	2.77	968		
	2 1	.4844	6 1.3941	3 1.4046	8 1.4517	7 1.47299	7 1.5248	9 1.59871	1.64174	1.61	482		
	3 1	.3854	2 1.2325	1 1.1604	9 1.2043	6 1.25293	3 1.3083	1 1.38213	3 1.32229	1.28	399		
	4 1	.3816	4 1.1540	9 1.1013	8 1.1154	0 1.1557	1.1833	4 1.26052	1.15949	1.01	267		
	5 1	1.4414	3 1.1952	4 1.1556	3 1.1772	3 1.22720	1.2621	8 1.35034	1.24573	1.08	942		
	6 1	1.1661	6 1.0181	0 0.9829	9 1.0264	0 1.02790	<u> </u>	0 1.06578	1,03106	0.83	338		
	7 1	.2205	9 1.0654	7 1.0417	6 1.0912	5 1.1013	B 1.0628	7 1.14938	3 1.12341	0.89	931		
	8 1	.2885	6 1.1203	7 1,0985	2 1.1448	7 1.1577	1 1.1396	3 1,23800) 1,23183	0,97	945		
	9 1	1.3252	5 1.1014	6 1.0925	0 1.1454	3 1.1933	5 1.1863	9 1.29258	3 1.24632	1.02	927		
-	10 1	. 4005	0 1.1793	8 1.1762	1 1.2387	9 1.30030	5 1.3038	6 1.43376	5 1.39080	1.14	480		
	11 1	.0255	3 0.7104	8 0.7361	3 0.6797	2 0.7051	1 0.5508	1 0.50892	2 0.36119	0.20	814		
Manandria and and an and a state of the stat	12 1	.0792	3 0.7667	6 0.8013	1 0.7476	2 0.7818	0.6196	6 0.57906	<u> </u>	0.24	805		
	13 1	1.1639	0.8289	0.8779	0.8236	7 0.8764	0. /072	0 0.67554	+ 0.49120	0.30	642		
	14 1	.2092	<u>1 0.8961</u>	<u>0 U.9674</u>	0 0.9264		y U.8228	<u>4 0.79071</u>	0.78655	0.30	0/6		
	16 1	4050	L Us7840	0 1.080/ 2 1.0840	5 1.0000	2 1.16007	7 Us7(82) 1 0420	r V•70311	ເ ບ₀/ວ418 \ ດ່ວາ≏ວ≌	0.30	100		
	17 1	5466	0 1.0620	<u>L 1.0007</u>	6 1.2065	6 1.3770	R 1.3015	6 1.57610	1 1 63742	0.03	0.01		
	±, 1			- 106631	J 102703	5 Laj/170		5 1 5 7010	, 1.03/02	-			

Table 19									
Likelihood	Ratio	Test	Results	for	Testing	Alternative	Lag	Structure	

NUL <u>STRUC</u>	L CTURE			AL	TERNATIVE	STRUCTURE			ann an the State of the					
Lags	on	Lags on M and G												
M	G	12 12	10 9	6 6	52	4 4	5 0	2 0	1 0					
10	9	3.31												
10	8	10.46	7.15*											
6	6		21.26*											
5	2	29.90*	26.59*	5.34										
4	4		32.36*											
5	0	34.87*	31.56*	10.31	4.97									
2	0	43.53*	40.22*	18.96*	13.63*	7.86	8.66*							
1	0	49.14*	45.83*	24.58*	19.24*	13.47	14.27*	5.61*						
0	0		58.29*		31.72*		26.75*	18.10*	12.48*					

*Statistically significance at the 5 percent level.