

BUREAU OF THE CENSUS  
STATISTICAL RESEARCH DIVISION REPORT SERIES  
SRD Research Report Number: CENSUS/SRD/RR-86/11

A STUDY OF SEASONALITY IN THE  
HOUSING VACANCY SURVEY

by

James E. Bozik and David F. Findley  
Statistical Research Division  
Bureau of the Census  
Washington, D.C. 20233

This series contains research reports, written by or in cooperation with staff members of the Statistical Research Division, whose content may be of interest to the general statistical research community. The views reflected in these reports are not necessarily those of the Census Bureau nor do they necessarily represent Census Bureau statistical policy or practice. Inquiries may be addressed to the author(s) or the SRD Report Series Coordinator, Statistical Research Division, Bureau of the Census, Washington, D.C. 20233.

Recommended by: Nash J. Monsour  
Report completed: April 30, 1986  
Report issued: April 30, 1986

A STUDY OF SEASONALITY IN THE HOUSING VACANCY SURVEY

James Bozik and David Findley

Statistical Research Division

Bureau of the Census

## TABLE OF CONTENTS

I. Introduction	1
II. Summary of Analysis	1
III. Sliding Spans Results	2
IV. Graphical Analysis	8
V. Making Statistical Comparisons	8
VI. Bibliography	11
VII. Appendix	12

## I. INTRODUCTION

At the request of Housing Division, three categories of Housing Vacancy Survey (hereafter referred to as 'HVS') series were studied; rates of Rental Vacancy, Homeowner Vacancy, and Homeownership. A total of fifteen quarterly series were studied - each of the three HVS categories at the national and regional (North East, North Central, South, and West) levels.

In the first part of this report, we will summarize our findings. We will then discuss "Sliding Spans", a technique used to evaluate the reliability of a seasonally adjusted series. Next, we will illustrate some of the differences in the original and seasonally adjusted series with two graphs. Finally, we will address the issue of making statistical comparisons in unadjusted and seasonally adjusted data.

## II. SUMMARY OF ANALYSIS

Data from 1956-1985 were available for the homeowner and rental vacancy series and from 1962-1985 for the homeownership series. There was a permanent change in the sampling and estimation procedures in 1980, and 1979 data were adjusted by Housing Division to allow comparisons between 1979 and 1980 data. The adjusted data were used in this study. There were indications of an emerging or increasingly strong seasonal pattern beginning in the late 1970's in some of the series.

Therefore, the final graphical analyses presented in this report were done using data from 1977-1985.

Using several statistics from the X-11-ARIMA program, six of the fifteen series were judged to have a significant amount of stable seasonality. These series were

Rental Vacancy - U.S.	Homeownership - U.S.
*Rental Vacancy - N.E.	Homeownership - N.E.
	*Homeownership - West
	Homeowner Vacancy - N.C.

A seasonally adjusted series was produced for each of the six series. A procedure by Findley and Monsell (1984) described below indicated the X-11-ARIMA computer program could not provide a reliable seasonally adjusted series in two cases; the Homeownership - West and Rental vacancy - N.E. series. The remaining four series were judged to be acceptable candidates for seasonal adjustment.

### III. SLIDING SPANS

Findley and Monsell (1984) propose the use of "sliding spans" as a tool for determining the reliability of a seasonal adjustment. These are obtained as follows. Starting with a short "span" of data, in our case the years 1975-1982, a seasonally adjusted series is produced for that span. Then the first year (1975) is dropped, and one year (1983) is added, and this series is adjusted, leading to a second set of seasonal adjustments. Finally, 1976 data are dropped, 1984 data are added, and a third seasonally adjusted series is produced.

Adjustments are then compared for quarters that occur in more than one "span". (For example, the first quarter of 1980 is in all three spans). If the X-11-ARIMA computer program is producing a reliable adjustment, the adjustments from different spans for a given quarter should be close to one another, for most of the quarters common to two or more spans.

Immediately following are two examples of the "sliding spans" procedure. In the first example, the Homeownership - U.S. series, only for the fourth quarter of 1982 do the three seasonal adjustments differ by more than 0.1 percent among the three seasonal factors. (In the HVS series, the seasonal factor is the (positive or negative) amount subtracted from the unadjusted series to produce the seasonally adjusted series. That is, additive seasonal adjustment has been used.) In analyzing the variability of seasonally adjusted quarter to quarter change estimates from the different spans, only 4 out of 32 quarters had differences that were 0.1 percent or larger. The seasonal adjustments therefore seem to be quite reliable.

In the second example, the Homeownership - West series, the sliding spans comparisons are not as favorable. In 15 of 32 quarters, the seasonal factors (and adjustments) show differences greater than 0.1 percent. In the quarter to quarter changes, 25 of 32 quarters show differences greater than 0.1 percent. Therefore, we feel the X-11-ARIMA computer program cannot provide a reliable seasonally adjusted series in this case. As part of the Appendix, we have included the sliding spans output for all six series that were analyzed.

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNER - U.S.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	.0000	*****	*****	*****
2-75	-.0022	*****	*****	*****
3-75	.0017	*****	*****	*****
4-75	.0006	*****	*****	*****
1-76	.0000	-.0003	*****	.0003
2-76	-.0023	-.0029	*****	.0006
3-76	.0019	.0024	*****	.0005
4-76	.0005	.0008	*****	.0003
1-77	-.0001	-.0003	-.0003	.0002
2-77	-.0025	-.0028	-.0030	.0005
3-77	.0022	.0025	.0031	.0009
4-77	.0004	.0006	.0001	.0005
1-78	-.0001	-.0003	-.0003	.0002
2-78	-.0025	-.0027	-.0028	.0003
3-78	.0025	.0026	.0030	.0005
4-78	.0002	.0003	.0000	.0003
1-79	-.0003	-.0004	-.0003	.0001
2-79	-.0024	-.0024	-.0025	.0001
3-79	.0027	.0026	.0029	.0003
4-79	.0000	.0000	-.0003	.0003
1-80	-.0005	-.0005	-.0003	.0002
2-80	-.0021	-.0019	-.0020	.0002
3-80	.0028	.0026	.0027	.0002
4-80	-.0002	-.0004	-.0007	.0005
1-81	-.0007	-.0006	-.0003	.0004
2-81	-.0016	-.0013	-.0014	.0003
3-81	.0027	.0024	.0024	.0003
4-81	-.0003	-.0007	-.0011	.0008
1-82	-.0008	-.0007	-.0002	.0006
2-82	-.0014	-.0008	-.0008	.0006
3-82	.0025	.0023	.0021	.0004
4-82	-.0004	-.0009	-.0014	.0010
1-83	*****	-.0007	-.0001	.0006
2-83	*****	-.0006	-.0004	.0002
3-83	*****	.0021	.0020	.0001
4-83	*****	-.0009	-.0016	.0007
1-84	*****	*****	.0000	*****
2-84	*****	*****	-.0003	*****
3-84	*****	*****	.0019	*****
4-84	*****	*****	-.0017	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNER - U.S.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	.0071	*****	*****	*****
3-75	-.0068	*****	*****	*****
4-75	.0001	*****	*****	*****
1-76	.0016	*****	*****	*****
2-76	.0023	.0026	*****	.0003
3-76	-.0012	-.0023	*****	.0011
4-76	.0004	.0006	*****	.0002
1-77	.0006	.0011	*****	.0005
2-77	-.0006	-.0005	-.0003	.0003
3-77	.0003	-.0003	-.0011	.0014
4-77	.0008	.0009	.0020	.0012
1-78	-.0005	-.0001	-.0006	.0005
2-78	-.0016	-.0016	-.0015	.0001
3-78	.0029	.0027	.0022	.0007
4-78	.0043	.0042	.0050	.0008
1-79	-.0055	-.0053	-.0057	.0004
2-79	.0031	.0030	.0032	.0002
3-79	.0039	.0040	.0036	.0004
4-79	-.0013	-.0014	-.0008	.0006
1-80	.0015	.0014	.0010	.0005
2-80	.0016	.0014	.0017	.0003
3-80	-.0018	-.0015	-.0017	.0003
4-80	-.0001	.0000	.0004	.0005
1-81	.0016	.0013	.0006	.0010
2-81	-.0021	-.0024	-.0019	.0005
3-81	-.0013	-.0007	-.0008	.0006
4-81	-.0010	-.0009	-.0005	.0005
1-82	-.0035	-.0040	-.0049	.0014
2-82	.0016	.0012	.0017	.0005
3-82	-.0039	-.0031	-.0030	.0009
4-82	-.0011	-.0009	-.0005	.0006
1-83	*****	.0018	.0007	.0011
2-83	*****	.0000	.0003	.0003
3-83	*****	-.0018	-.0014	.0004
4-83	*****	-.0010	-.0005	.0005
1-84	*****	*****	.0005	*****
2-84	*****	*****	.0003	*****
3-84	*****	*****	-.0022	*****
4-84	*****	*****	-.0014	*****



SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNERSHIP - WEST

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0009	*****	*****	*****
2-75	-.0037	*****	*****	*****
3-75	.0029	*****	*****	*****
4-75	.0018	*****	*****	*****
1-76	-.0011	-.0020	*****	.0009
2-76	-.0036	-.0032	*****	.0004
3-76	.0031	.0037	*****	.0006
4-76	.0017	.0017	*****	.0000
1-77	-.0016	-.0024	-.0024	.0008
2-77	-.0032	-.0029	-.0016	.0016
3-77	.0034	.0038	.0045	.0011
4-77	.0016	.0015	-.0003	.0019
1-78	-.0025	-.0030	-.0027	.0005
2-78	-.0025	-.0022	-.0013	.0012
3-78	.0039	.0041	.0045	.0006
4-78	.0011	.0010	-.0004	.0015
1-79	-.0033	-.0036	-.0033	.0003
2-79	-.0016	-.0013	-.0007	.0009
3-79	.0044	.0044	.0046	.0002
4-79	.0006	.0004	-.0007	.0013
1-80	-.0040	-.0042	-.0039	.0003
2-80	-.0009	-.0004	.0003	.0012
3-80	.0050	.0049	.0048	.0002
4-80	-.0002	-.0006	-.0015	.0013
1-81	-.0045	-.0046	-.0043	.0003
2-81	-.0003	.0005	.0017	.0020
3-81	.0053	.0051	.0048	.0005
4-81	-.0006	-.0013	-.0027	.0021
1-82	-.0047	-.0047	-.0043	.0004
2-82	.0001	.0011	.0028	.0027
3-82	.0054	.0053	.0048	.0006
4-82	-.0010	-.0019	-.0040	.0030
1-83	*****	-.0046	-.0040	.0006
2-83	*****	.0014	.0037	.0023
3-83	*****	.0052	.0048	.0004
4-83	*****	-.0022	-.0049	.0027
1-84	*****	*****	-.0038	*****
2-84	*****	*****	.0041	*****
3-84	*****	*****	.0048	*****
4-84	*****	*****	-.0054	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNERSHIP - WEST

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0012	*****	*****	*****
3-75	-.0015	*****	*****	*****
4-75	.0001	*****	*****	*****
1-76	.0028	*****	*****	*****
2-76	-.0025	-.0038	*****	.0013
3-76	.0003	.0001	*****	.0002
4-76	.0014	.0020	*****	.0006
1-77	-.0067	-.0059	*****	.0008
2-77	-.0024	-.0035	-.0047	.0023
3-77	-.0036	-.0037	-.0031	.0006
4-77	-.0052	-.0047	-.0022	.0030
1-78	.0031	.0035	.0014	.0021
2-78	-.0050	-.0058	-.0064	.0014
3-78	-.0024	-.0019	-.0019	.0005
4-78	.0078	.0081	.0099	.0021
1-79	-.0026	-.0023	-.0041	.0018
2-79	.0034	.0027	.0024	.0010
3-79	.0060	.0063	.0067	.0007
4-79	-.0032	-.0030	-.0017	.0015
1-80	-.0004	-.0004	-.0018	.0014
2-80	.0049	.0041	.0039	.0010
3-80	-.0049	-.0043	-.0035	.0014
4-80	.0031	.0035	.0044	.0013
1-81	.0003	.0000	-.0013	.0016
2-81	-.0002	-.0011	-.0019	.0017
3-81	-.0006	.0005	.0019	.0025
4-81	-.0021	-.0017	-.0005	.0016
1-82	-.0009	-.0016	-.0034	.0025
2-82	.0002	-.0008	-.0021	.0023
3-82	-.0033	-.0021	.0000	.0033
4-82	-.0066	-.0058	-.0043	.0023
1-83	*****	-.0003	-.0029	.0026
2-83	*****	.0000	-.0017	.0017
3-83	*****	-.0109	-.0081	.0028
4-83	*****	-.0036	-.0014	.0022
1-84	*****	*****	.0099	*****
2-84	*****	*****	.0032	*****
3-84	*****	*****	-.0047	*****
4-84	*****	*****	-.0048	*****

#### IV. GRAPHICAL ANALYSIS

Also included in the Appendix are two graphs for each of the four series we feel can be reliably seasonally adjusted. Graphs of the original and seasonally adjusted data and of their quarter to quarter changes are presented. Some of the series show little difference between the original and seasonally adjusted values. Thus, the determination that a series can be reliably seasonally adjusted does not mean that the adjustment itself is useful.

#### V. MAKING STATISTICAL COMPARISONS

Other divisions at the Census Bureau use the standard error estimates obtained for the unadjusted measured data to make statements about the statistical significance of period to period changes in the seasonally adjusted data. While this procedure is not the ideal one from a statistical point of view, some work has shown that it is often justifiable as an approximation, because the adjustment-induced correlation between neighboring periods is small. There has not been an investigation of the analogous issue for comparison of the current quarter with the same quarter a year ago.

The following are the most recent estimates of standard error (4th quarter, 1985) for the four series that we feel can be reliably seasonally adjusted:

Homeownership rate, North East	.0038
Homeownership rate, United States	.0017
Homeowner vacancy rate, North Central	.0011
Rental vacancy rate, United States	.0016

Using these standard error estimates as a rough estimate of the standard error in the respective series in any quarter, the standard error of a difference between two quarters for these four series are:

Homeownership rate, North East	.0054
Homeownership rate, United States	.0035
Homeowner vacancy rate, North Central	.0015
Rental vacancy rate, United States	.0022

Current Housing Division practice identifies a difference at the .05 significance level as "significant", and difference at the 0.1 level as "possible". Using these criteria, and the standard error estimates of difference above, one can obtain an idea of the magnitude of difference necessary to establish significance, or possible significance, for quarter-to-quarter changes each of the four series:

	<u>Significant</u>	<u>Possible</u>
Homeownership rate, North East	.0106	.0089
Homeownership rate, United States	.0068	.0058
Homeowner vacancy rate, North Central	.0030	.0025
Rental vacancy rate, United States	.0044	.0037

It should be noted that these numbers are in decimal form; thus, .0044 is 0.44 percent.

As an inspection of the attached plots of quarter-to-quarter changes shows, seasonal adjustment alters the interpretation of

some of the changes in all four of the above series. That is, "significant" difference between quarters become only "possible," or even "insignificant" in the seasonally adjusted data, and vice versa, with "significant" and "possible" defined according to the Housing Division criteria reviewed above.

## VI. BIBLIOGRAPHY

Box, G.E.P. and Jenkins, G.M. (1970). Time Series Analysis, Forecasting and Control, San Francisco: Holden Day.

Bureau of the Census (1983). "Housing Vacancies: Vacancy Rates and Characteristics of Housing in the United States," Current Housing Reports, Series H-111-83-5, Washington, D.C. : Government Printing Office.

Dagum, E. B. (1983). The X-11-ARIMA Seasonal Adjustment Method. Ottawa: Statistics Canada.

Findley, D. F. and Monsell, B. C. (1984). New Techniques for Determining if a Time Series Can be Seasonally Adjusted Reliably, and Their Application to U.S. Foreign Trade Series. Bureau of the Census, Statistical Research Report Series CENSUS/SRD/RR-84/30.

## VII. APPENDIX

Following, by series, are the sliding spans results, a graph of the original and seasonally adjusted data, and a graph of the quarter to quarter changes in the original and seasonally adjusted data.

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNERSHIP - N.E.

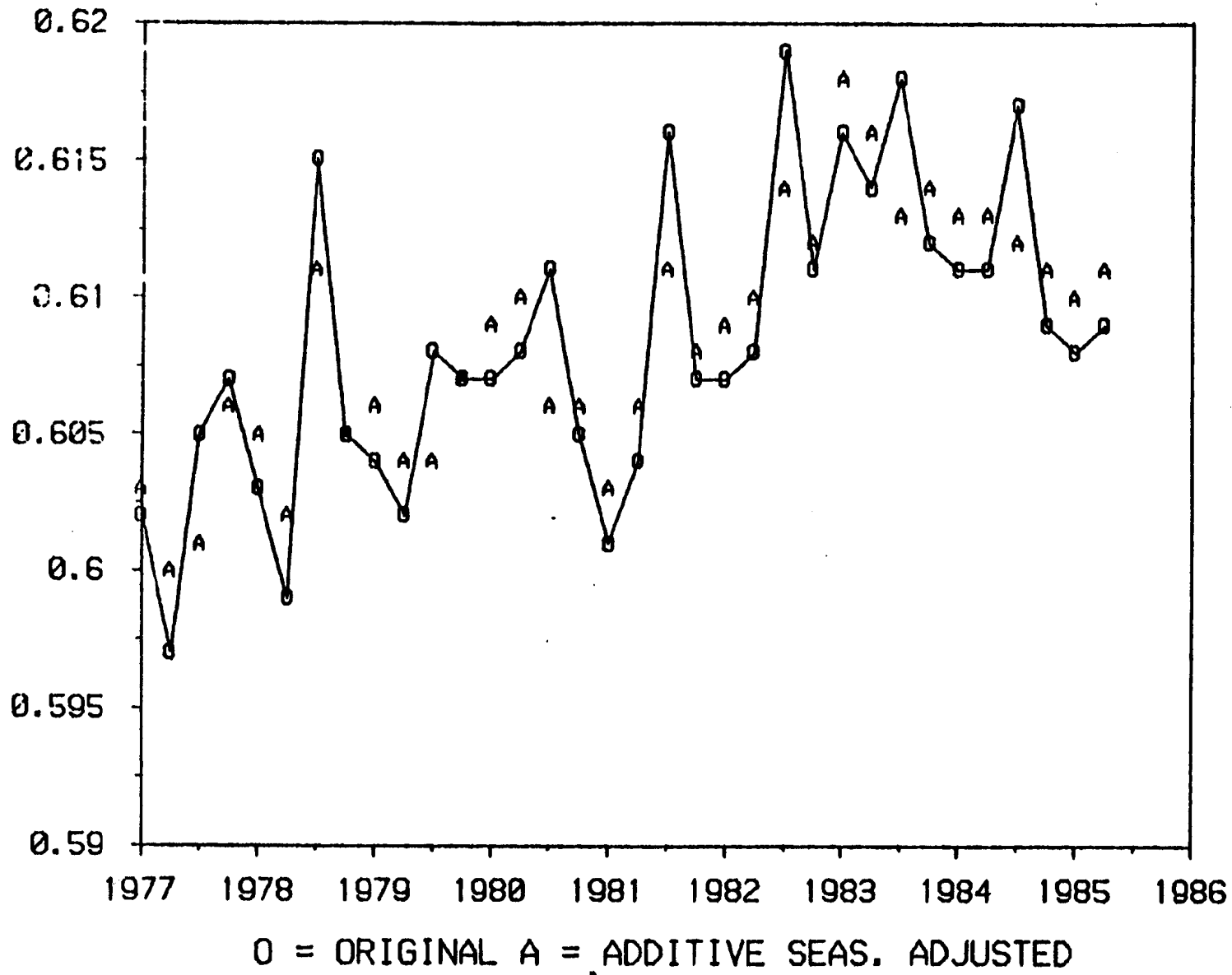
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0002	*****	*****	*****
2-75	-.0017	*****	*****	*****
3-75	.0014	*****	*****	*****
4-75	.0006	*****	*****	*****
1-76	-.0003	-.0012	*****	.0009
2-76	-.0018	-.0029	*****	.0011
3-76	.0017	.0017	*****	.0013
4-76	.0005	.0011	*****	.0006
1-77	-.0005	-.0013	-.0013	.0008
2-77	-.0020	-.0028	-.0028	.0008
3-77	.0022	.0030	.0037	.0015
4-77	.0005	.0010	.0005	.0005
1-78	-.0009	-.0014	-.0015	.0006
2-78	-.0022	-.0027	-.0027	.0005
3-78	.0030	.0034	.0039	.0009
4-78	.0004	.0007	.0004	.0003
1-79	-.0015	-.0017	-.0018	.0003
2-79	-.0024	-.0026	-.0025	.0002
3-79	.0040	.0041	.0044	.0004
4-79	.0000	.0001	-.0001	.0002
1-80	-.0019	-.0019	-.0020	.0001
2-80	-.0024	-.0024	-.0023	.0001
3-80	.0048	.0047	.0048	.0001
4-80	-.0005	-.0004	-.0006	.0002
1-81	-.0022	-.0022	-.0021	.0001
2-81	-.0023	-.0022	-.0021	.0002
3-81	.0054	.0051	.0051	.0003
4-81	-.0008	-.0008	-.0011	.0003
1-82	-.0023	-.0022	-.0020	.0003
2-82	-.0023	-.0021	-.0020	.0003
3-82	.0056	.0053	.0053	.0003
4-82	-.0010	-.0010	-.0014	.0004
1-83	*****	-.0023	-.0020	.0003
2-83	*****	-.0021	-.0019	.0002
3-83	*****	.0055	.0055	.0000
4-83	*****	-.0012	-.0017	.0005
1-84	*****	*****	-.0018	*****
2-84	*****	*****	-.0020	*****
3-84	*****	*****	.0055	*****
4-84	*****	*****	-.0018	*****



SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNERSHIP - N.E.

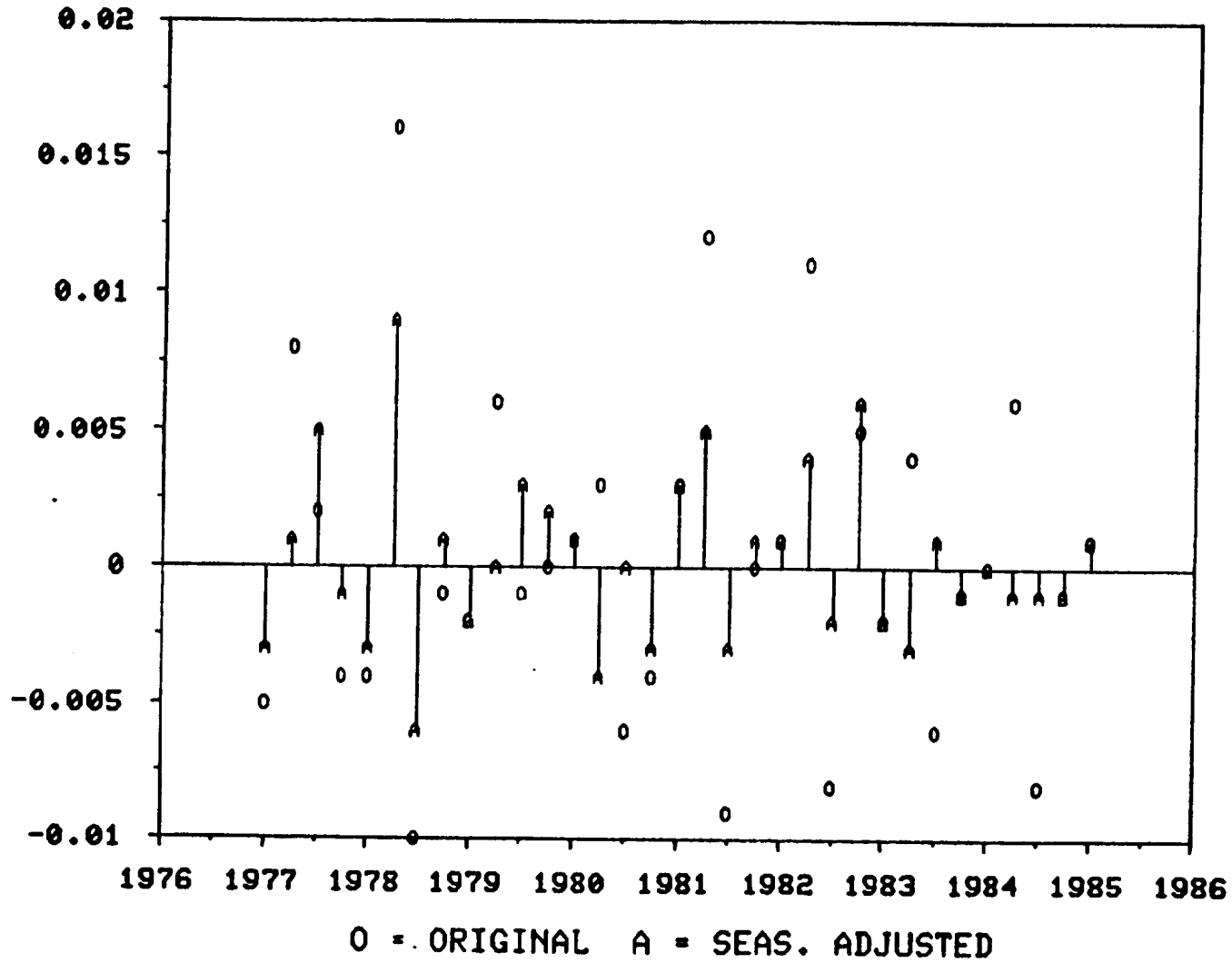
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	.0035	*****	*****	*****
3-75	-.0081	*****	*****	*****
4-75	-.0011	*****	*****	*****
1-76	.0059	*****	*****	*****
2-76	.0044	.0047	*****	.0003
3-76	.0005	-.0018	*****	.0023
4-76	.0011	.0019	*****	.0008
1-77	.0021	.0034	*****	.0013
2-77	-.0036	-.0035	-.0036	.0001
3-77	.0038	.0022	.0016	.0022
4-77	.0037	.0040	.0051	.0014
1-78	-.0026	-.0016	-.0019	.0010
2-78	-.0027	-.0027	-.0028	.0001
3-78	.0107	.0098	.0094	.0013
4-78	-.0074	-.0073	-.0065	.0009
1-79	.0009	.0014	.0012	.0005
2-79	-.0011	-.0011	-.0013	.0002
3-79	-.0004	-.0006	-.0009	.0005
4-79	.0030	.0029	.0035	.0006
1-80	.0019	.0020	.0019	.0001
2-80	.0015	.0015	.0013	.0002
3-80	-.0042	-.0041	-.0041	.0001
4-80	-.0007	-.0009	-.0006	.0003
1-81	-.0022	-.0022	-.0025	.0003
2-81	.0031	.0030	.0030	.0001
3-81	.0043	.0048	.0048	.0005
4-81	-.0028	-.0031	-.0028	.0003
1-82	.0015	.0014	.0009	.0006
2-82	.0010	.0009	.0010	.0001
3-82	.0031	.0036	.0037	.0006
4-82	-.0014	-.0016	-.0012	.0004
1-83	*****	.0063	.0055	.0008
2-83	*****	-.0022	-.0020	.0002
3-83	*****	-.0036	-.0034	.0002
4-83	*****	.0008	.0012	.0004
1-84	*****	*****	-.0009	*****
2-84	*****	*****	.0001	*****
3-84	*****	*****	-.0015	*****
4-84	*****	*****	-.0007	*****

ORIGINAL AND S.A. DATA - HOMOWN-NE



HOMOWN-NE

QTR. TO QTR. CHANGES - ORIGINAL AND S.A. DATA



IOEONZIZU

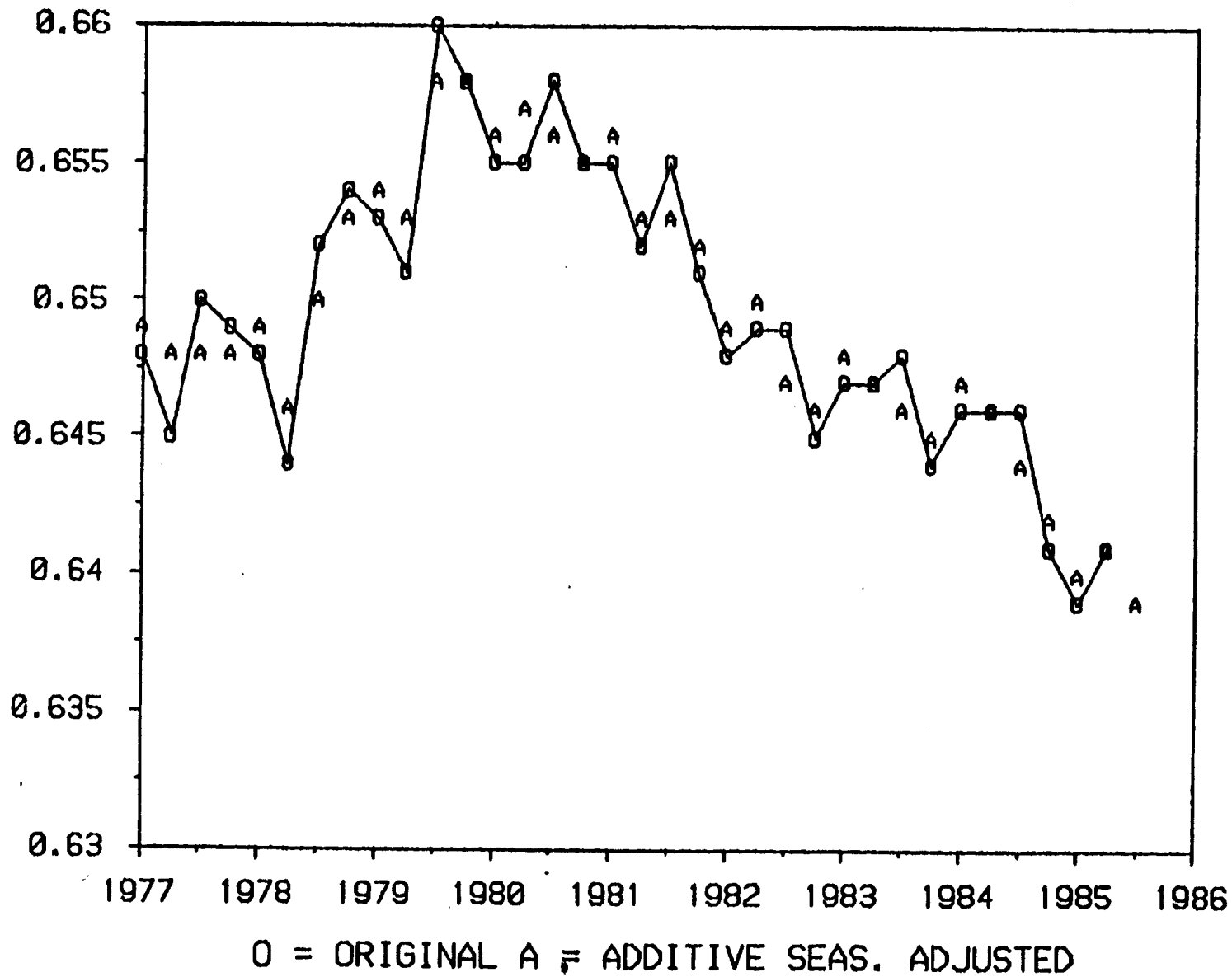
SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNER - U.S.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	.0000	*****	*****	*****
2-75	-.0022	*****	*****	*****
3-75	.0017	*****	*****	*****
4-75	.0006	*****	*****	*****
1-76	.0000	-.0003	*****	.0003
2-76	-.0023	-.0029	*****	.0006
3-76	.0019	.0024	*****	.0005
4-76	.0005	.0008	*****	.0003
1-77	-.0001	-.0003	-.0003	.0002
2-77	-.0025	-.0028	-.0030	.0005
3-77	.0022	.0025	.0031	.0009
4-77	.0004	.0006	.0001	.0005
1-78	-.0001	-.0003	-.0003	.0002
2-78	-.0025	-.0027	-.0028	.0003
3-78	.0025	.0026	.0030	.0005
4-78	.0002	.0003	.0000	.0003
1-79	-.0003	-.0004	-.0003	.0001
2-79	-.0024	-.0024	-.0025	.0001
3-79	.0027	.0026	.0029	.0003
4-79	.0000	.0000	-.0003	.0003
1-80	-.0005	-.0005	-.0003	.0002
2-80	-.0021	-.0019	-.0020	.0002
3-80	.0028	.0026	.0027	.0002
4-80	-.0002	-.0004	-.0007	.0005
1-81	-.0007	-.0006	-.0003	.0004
2-81	-.0016	-.0013	-.0014	.0003
3-81	.0027	.0024	.0024	.0003
4-81	-.0003	-.0007	-.0011	.0008
1-82	-.0008	-.0007	-.0002	.0006
2-82	-.0014	-.0008	-.0008	.0006
3-82	.0025	.0023	.0021	.0004
4-82	-.0004	-.0009	-.0014	.0010
1-83	*****	-.0007	-.0001	.0006
2-83	*****	-.0006	-.0004	.0002
3-83	*****	.0021	.0020	.0001
4-83	*****	-.0009	-.0016	.0007
1-84	*****	*****	.0000	*****
2-84	*****	*****	-.0003	*****
3-84	*****	*****	.0019	*****
4-84	*****	*****	-.0017	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNER - U.S.

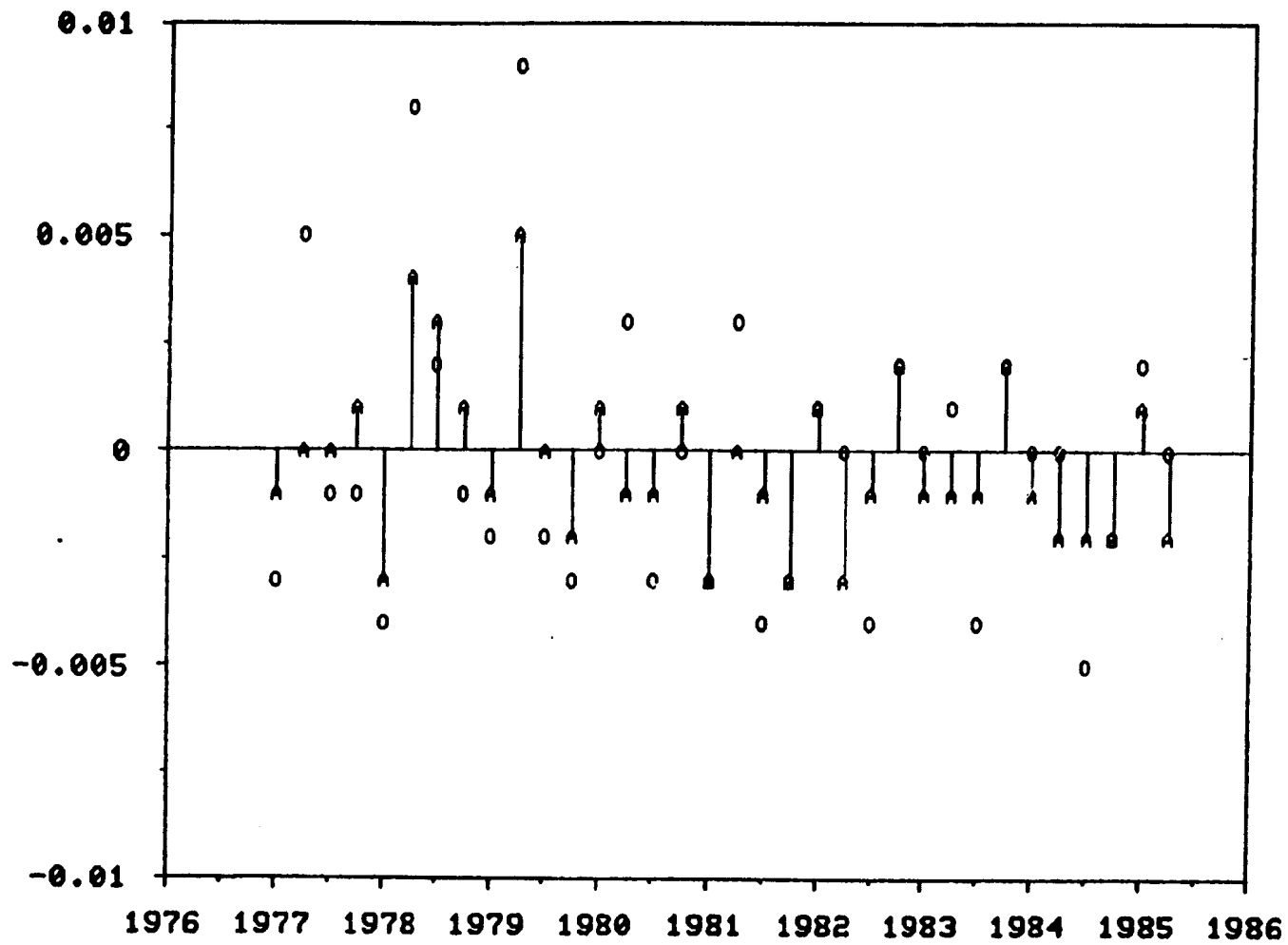
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	.0071	*****	*****	*****
3-75	-.0068	*****	*****	*****
4-75	.0001	*****	*****	*****
1-76	.0016	*****	*****	*****
2-76	.0023	.0026	*****	.0003
3-76	-.0012	-.0023	*****	.0011
4-76	.0004	.0006	*****	.0002
1-77	.0006	.0011	*****	.0005
2-77	-.0006	-.0005	-.0003	.0003
3-77	.0003	-.0003	-.0011	.0014
4-77	.0008	.0009	.0020	.0012
1-78	-.0005	-.0001	-.0006	.0005
2-78	-.0016	-.0016	-.0015	.0001
3-78	.0029	.0027	.0022	.0007
4-78	.0043	.0042	.0050	.0008
1-79	-.0055	-.0053	-.0057	.0004
2-79	.0031	.0030	.0032	.0002
3-79	.0039	.0040	.0036	.0004
4-79	-.0013	-.0014	-.0008	.0006
1-80	.0015	.0014	.0010	.0005
2-80	.0016	.0014	.0017	.0003
3-80	-.0018	-.0015	-.0017	.0003
4-80	-.0001	.0000	.0004	.0005
1-81	.0016	.0013	.0006	.0010
2-81	-.0021	-.0024	-.0019	.0005
3-81	-.0013	-.0007	-.0008	.0006
4-81	-.0010	-.0009	-.0005	.0005
1-82	-.0035	-.0040	-.0049	.0014
2-82	.0016	.0012	.0017	.0005
3-82	-.0039	-.0031	-.0030	.0009
4-82	-.0011	-.0009	-.0005	.0006
1-83	*****	.0018	.0007	.0011
2-83	*****	.0000	.0003	.0003
3-83	*****	-.0018	-.0014	.0004
4-83	*****	-.0010	-.0005	.0005
1-84	*****	*****	.0005	*****
2-84	*****	*****	.0003	*****
3-84	*****	*****	-.0022	*****
4-84	*****	*****	-.0014	*****

# ORIGINAL AND S.A. DATA - HOMOWN-US



HOMOWN-US

QTR. TO QTR. CHANGES - ORIGINAL AND S.A. DATA



O = ORIGINAL A = SEAS. ADJUSTED

10E03N15S

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNER VACANCY - N.C.

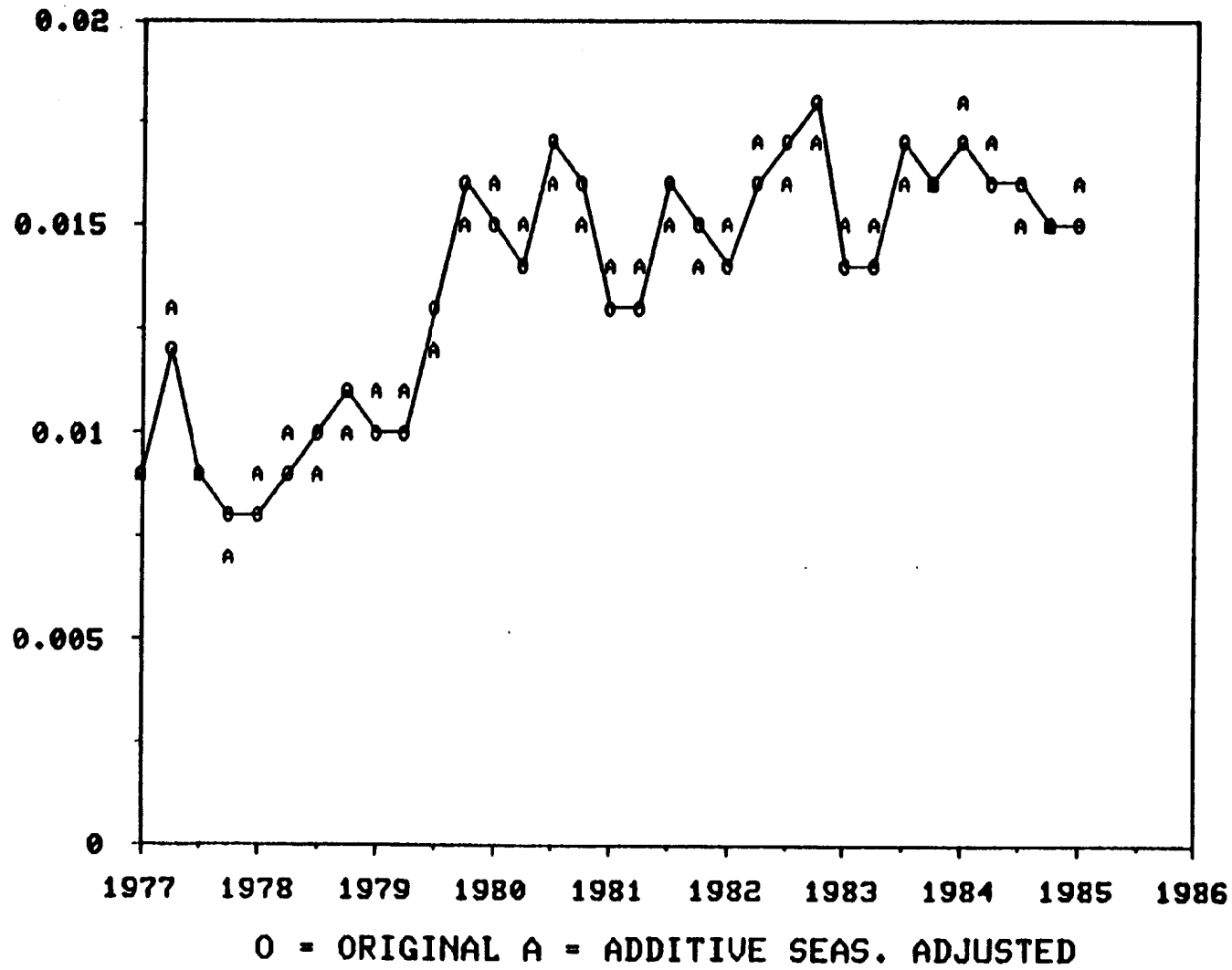
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0009	*****	*****	*****
2-75	.0002	*****	*****	*****
3-75	.0008	*****	*****	*****
4-75	-.0001	*****	*****	*****
1-76	-.0009	-.0009	*****	.0000
2-76	.0001	.0000	*****	.0001
3-76	.0007	.0005	*****	.0002
4-76	.0000	.0004	*****	.0004
1-77	-.0008	-.0008	-.0005	.0003
2-77	.0000	-.0002	-.0008	.0008
3-77	.0007	.0005	.0004	.0003
4-77	.0003	.0005	.0009	.0006
1-78	-.0008	-.0008	-.0005	.0003
2-78	-.0003	-.0004	-.0009	.0006
3-78	.0007	.0007	.0006	.0001
4-78	.0005	.0006	.0009	.0004
1-79	-.0008	-.0008	-.0006	.0002
2-79	-.0005	-.0007	-.0010	.0005
3-79	.0007	.0008	.0007	.0001
4-79	.0007	.0008	.0010	.0003
1-80	-.0008	-.0009	-.0008	.0001
2-80	-.0007	-.0010	-.0010	.0003
3-80	.0008	.0010	.0009	.0002
4-80	.0009	.0010	.0010	.0001
1-81	-.0009	-.0011	-.0009	.0002
2-81	-.0008	-.0011	-.0010	.0003
3-81	.0008	.0012	.0010	.0004
4-81	.0010	.0011	.0010	.0001
1-82	-.0010	-.0013	-.0010	.0003
2-82	-.0009	-.0011	-.0010	.0002
3-82	.0009	.0014	.0011	.0005
4-82	.0010	.0010	.0009	.0001
1-83	*****	-.0013	-.0011	.0002
2-83	*****	-.0011	-.0009	.0002
3-83	*****	.0015	.0011	.0004
4-83	*****	.0010	.0008	.0002
1-84	*****	*****	-.0011	*****
2-84	*****	*****	-.0008	*****
3-84	*****	*****	.0010	*****
4-84	*****	*****	.0008	*****



SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNER VACANCY - N.C.

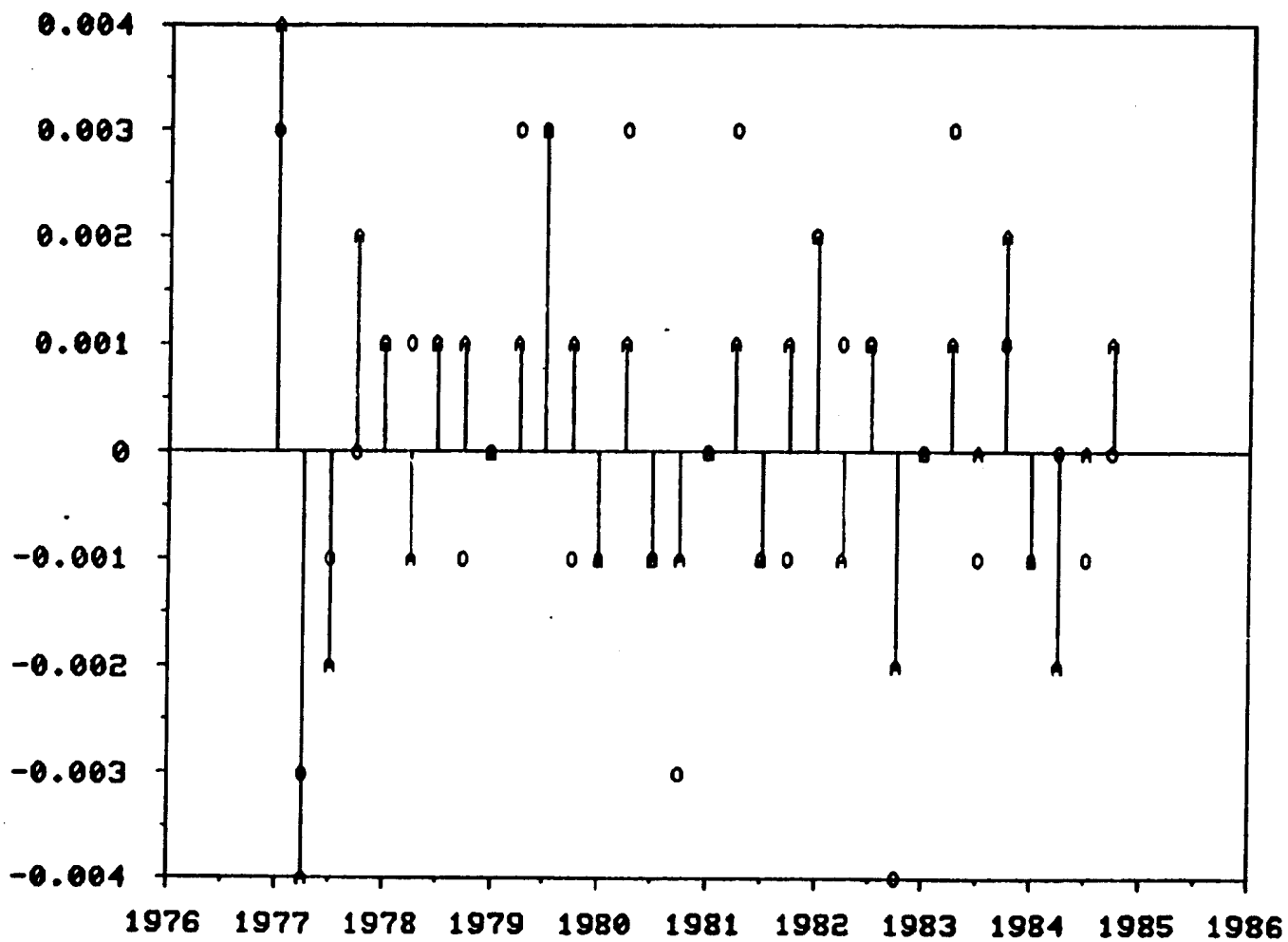
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0022	*****	*****	*****
3-75	.0004	*****	*****	*****
4-75	-.0001	*****	*****	*****
1-76	-.0003	*****	*****	*****
2-76	.0020	.0021	*****	.0001
3-76	.0004	.0005	*****	.0001
4-76	-.0013	-.0019	*****	.0006
1-77	-.0002	.0002	*****	.0004
2-77	.0022	.0023	.0034	.0012
3-77	-.0037	-.0043	-.0043	.0006
4-77	-.0006	-.0010	-.0015	.0009
1-78	.0010	.0013	.0015	.0005
2-78	.0005	.0007	.0014	.0009
3-78	.0000	-.0001	-.0005	.0005
4-78	.0012	.0010	.0006	.0006
1-79	.0003	.0004	.0006	.0003
2-79	-.0003	-.0001	.0003	.0006
3-79	.0018	.0015	.0013	.0005
4-79	.0030	.0030	.0027	.0003
1-80	.0006	.0007	.0008	.0002
2-80	-.0011	-.0009	-.0008	.0003
3-80	.0015	.0010	.0011	.0005
4-80	-.0012	-.0010	-.0011	.0002
1-81	-.0011	-.0009	-.0011	.0002
2-81	-.0001	.0000	.0001	.0002
3-81	.0014	.0007	.0010	.0007
4-81	-.0012	-.0009	-.0010	.0003
1-82	.0010	.0013	.0010	.0003
2-82	.0018	.0019	.0019	.0001
3-82	-.0007	-.0015	-.0011	.0008
4-82	.0009	.0014	.0012	.0005
1-83	*****	-.0016	-.0021	.0005
2-83	*****	-.0002	-.0002	.0000
3-83	*****	.0004	.0010	.0006
4-83	*****	-.0005	-.0007	.0002
1-84	*****	*****	.0029	*****
2-84	*****	*****	-.0013	*****
3-84	*****	*****	-.0018	*****
4-84	*****	*****	-.0008	*****

ORIGINAL AND S.A. DATA - HOMEVAC-NC



HOMEVAC-NC

QTR. TO QTR. CHANGES - ORIGINAL AND S.A. DATA



O = ORIGINAL A = SEAS. ADJUSTED

HOEUDJIZU

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

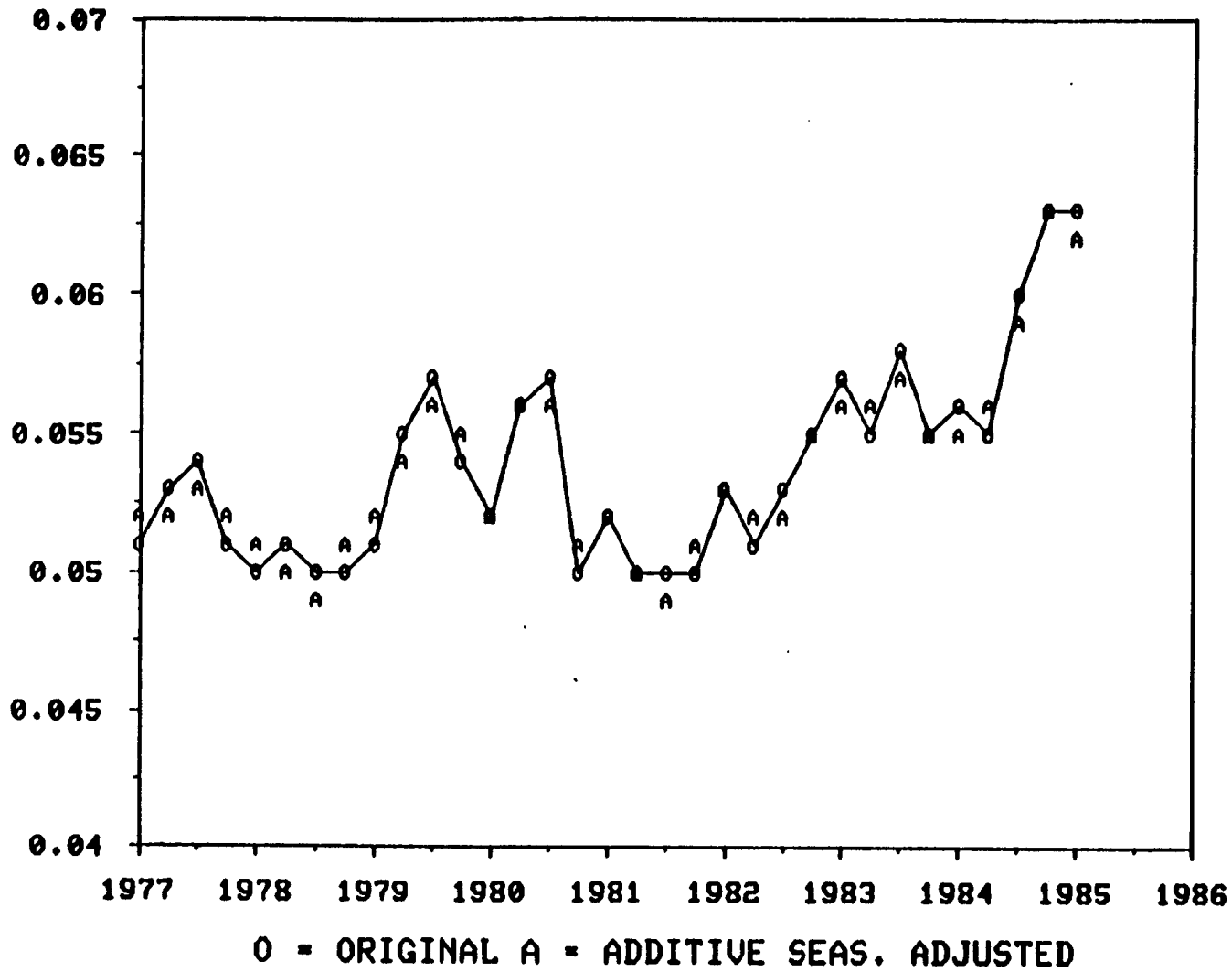
SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR RENTAL VACANCIES - U.S.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0016	*****	*****	*****
2-75	.0013	*****	*****	*****
3-75	.0014	*****	*****	*****
4-75	-.0011	*****	*****	*****
1-76	-.0016	-.0015	*****	.0001
2-76	.0012	.0010	*****	.0002
3-76	.0014	.0013	*****	.0001
4-76	-.0010	-.0008	*****	.0002
1-77	-.0016	-.0015	-.0011	.0005
2-77	.0012	.0010	.0008	.0004
3-77	.0014	.0013	.0013	.0001
4-77	-.0010	-.0009	-.0010	.0001
1-78	-.0015	-.0013	-.0010	.0005
2-78	.0010	.0008	.0007	.0003
3-78	.0014	.0013	.0012	.0002
4-78	-.0009	-.0009	-.0010	.0001
1-79	-.0013	-.0009	-.0008	.0005
2-79	.0008	.0006	.0005	.0003
3-79	.0013	.0011	.0010	.0003
4-79	-.0008	-.0009	-.0009	.0001
1-80	-.0011	-.0004	-.0004	.0007
2-80	.0005	.0002	.0002	.0003
3-80	.0012	.0009	.0009	.0003
4-80	-.0007	-.0009	-.0008	.0002
1-81	-.0009	.0001	.0001	.0010
2-81	.0003	-.0002	-.0003	.0006
3-81	.0011	.0008	.0008	.0003
4-81	-.0005	-.0008	-.0006	.0003
1-82	-.0008	.0005	.0005	.0013
2-82	.0002	-.0005	-.0008	.0010
3-82	.0011	.0007	.0007	.0004
4-82	-.0005	-.0008	-.0004	.0004
1-83	*****	.0007	.0008	.0001
2-83	*****	-.0007	-.0011	.0004
3-83	*****	.0007	.0005	.0002
4-83	*****	-.0007	-.0001	.0006
1-84	*****	*****	.0009	*****
2-84	*****	*****	-.0013	*****
3-84	*****	*****	.0005	*****
4-84	*****	*****	.0000	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR RENTAL VACANCIES - U.S.

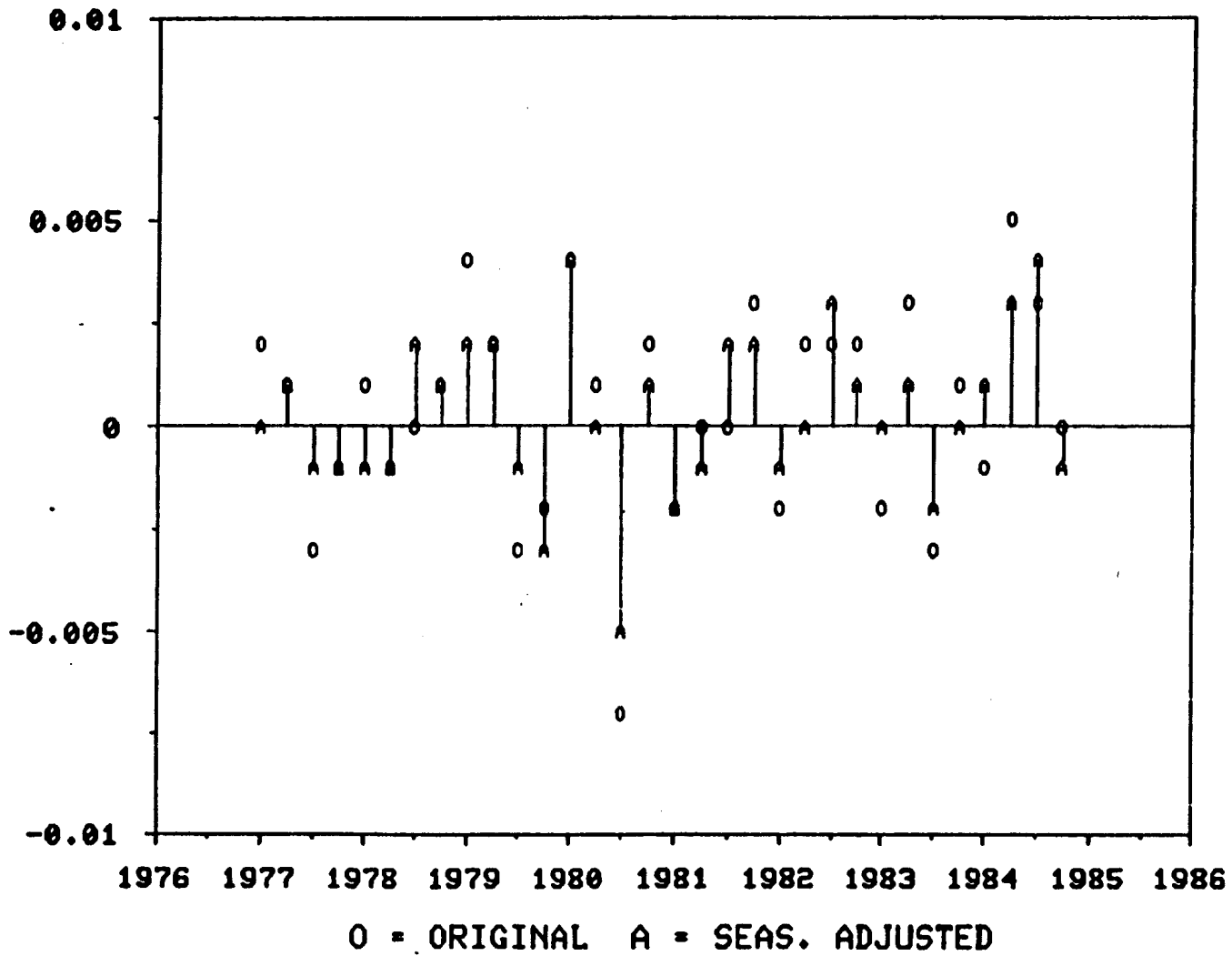
	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0009	*****	*****	*****
3-75	-.0011	*****	*****	*****
4-75	-.0055	*****	*****	*****
1-76	.0015	*****	*****	*****
2-76	.0002	.0005	*****	.0003
3-76	-.0012	-.0013	*****	.0001
4-76	-.0016	-.0019	*****	.0003
1-77	-.0014	-.0013	*****	.0001
2-77	-.0008	-.0004	.0001	.0009
3-77	.0008	.0007	.0005	.0003
4-77	-.0006	-.0008	-.0008	.0002
1-78	-.0004	-.0006	-.0009	.0005
2-78	-.0015	-.0011	-.0008	.0007
3-78	-.0014	-.0014	-.0015	.0001
4-78	.0023	.0022	.0022	.0001
1-79	.0014	.0010	.0008	.0006
2-79	.0019	.0025	.0027	.0008
3-79	.0015	.0015	.0015	.0000
4-79	-.0009	-.0010	-.0011	.0002
1-80	-.0017	-.0025	-.0025	.0008
2-80	.0024	.0034	.0034	.0010
3-80	.0003	.0003	.0002	.0001
4-80	-.0051	-.0052	-.0053	.0002
1-81	.0022	.0011	.0011	.0011
2-81	-.0032	-.0017	-.0016	.0016
3-81	-.0008	-.0010	-.0011	.0003
4-81	.0017	.0016	.0014	.0003
1-82	.0033	.0017	.0019	.0016
2-82	-.0031	-.0010	-.0008	.0023
3-82	.0011	.0007	.0006	.0005
4-82	.0036	.0035	.0030	.0006
1-83	*****	.0005	.0008	.0003
2-83	*****	-.0006	-.0001	.0005
3-83	*****	.0017	.0014	.0003
4-83	*****	-.0016	-.0024	.0008
1-84	*****	*****	.0000	*****
2-84	*****	*****	.0012	*****
3-84	*****	*****	.0033	*****
4-84	*****	*****	.0035	*****

ORIGINAL AND S.A. DATA - RENT-US



RENT-US

QTR. TO QTR. CHANGES - ORIGINAL AND S.A. DATA



RENTAL INDEX

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR RENTAL VACANCY - N.E.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0015	*****	*****	*****
2-75	.0005	*****	*****	*****
3-75	.0027	*****	*****	*****
4-75	-.0017	*****	*****	*****
1-76	-.0014	-.0021	*****	.0007
2-76	.0005	.0006	*****	.0001
3-76	.0026	.0024	*****	.0002
4-76	-.0016	-.0010	*****	.0006
1-77	-.0014	-.0019	-.0014	.0005
2-77	.0003	.0004	-.0010	.0014
3-77	.0025	.0024	.0024	.0001
4-77	-.0014	-.0009	-.0001	.0013
1-78	-.0012	-.0015	-.0012	.0003
2-78	.0000	.0000	-.0011	.0011
3-78	.0023	.0022	.0023	.0001
4-78	-.0011	-.0007	-.0001	.0010
1-79	-.0008	-.0010	-.0009	.0002
2-79	-.0004	-.0006	-.0013	.0009
3-79	.0021	.0020	.0021	.0001
4-79	-.0008	-.0005	.0001	.0009
1-80	-.0005	-.0005	-.0006	.0001
2-80	-.0008	-.0012	-.0016	.0008
3-80	.0018	.0018	.0020	.0002
4-80	-.0004	-.0002	.0003	.0007
1-81	-.0003	-.0001	-.0003	.0002
2-81	-.0012	-.0017	-.0021	.0009
3-81	.0016	.0018	.0020	.0004
4-81	-.0001	.0000	.0004	.0005
1-82	-.0002	.0001	-.0001	.0003
2-82	-.0013	-.0020	-.0024	.0011
3-82	.0016	.0018	.0021	.0005
4-82	.0000	.0001	.0005	.0005
1-83	*****	.0002	-.0001	.0003
2-83	*****	-.0021	-.0026	.0005
3-83	*****	.0018	.0022	.0004
4-83	*****	.0001	.0005	.0004
1-84	*****	*****	-.0001	*****
2-84	*****	*****	-.0027	*****
3-84	*****	*****	.0023	*****
4-84	*****	*****	.0005	*****



SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR RENTAL VACANCY - N.E.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0050	*****	*****	*****
3-75	-.0002	*****	*****	*****
4-75	.0013	*****	*****	*****
1-76	.0018	*****	*****	*****
2-76	.0071	.0063	*****	.0008
3-76	-.0021	-.0019	*****	.0002
4-76	.0012	.0004	*****	.0008
1-77	.0008	.0019	*****	.0011
2-77	.0024	.0018	.0037	.0019
3-77	-.0003	.0000	-.0014	.0014
4-77	-.0010	-.0017	-.0025	.0015
1-78	-.0013	-.0005	.0001	.0014
2-78	-.0012	-.0014	-.0001	.0013
3-78	.0007	.0008	-.0004	.0012
4-78	-.0026	-.0031	-.0037	.0011
1-79	-.0023	-.0018	-.0011	.0012
2-79	.0016	.0017	.0024	.0008
3-79	-.0045	-.0046	-.0055	.0010
4-79	.0089	.0085	.0081	.0008
1-80	-.0022	-.0020	-.0013	.0009
2-80	-.0057	-.0053	-.0050	.0007
3-80	-.0006	-.0010	-.0016	.0010
4-80	-.0038	-.0040	-.0043	.0005
1-81	-.0001	.0000	.0005	.0006
2-81	.0009	.0016	.0018	.0009
3-81	-.0028	-.0035	-.0041	.0013
4-81	.0018	.0018	.0017	.0001
1-82	-.0020	-.0021	-.0015	.0006
2-82	-.0009	.0001	.0002	.0011
3-82	.0041	.0032	.0026	.0015
4-82	.0025	.0027	.0026	.0002
1-83	*****	.0009	.0015	.0006
2-83	*****	-.0017	-.0015	.0002
3-83	*****	.0001	-.0008	.0009
4-83	*****	-.0033	-.0032	.0001
1-84	*****	*****	-.0015	*****
2-84	*****	*****	.0006	*****
3-84	*****	*****	.0030	*****
4-84	*****	*****	-.0002	*****

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR RENTAL VACANCY - N.C.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	.0013	*****	*****	*****
2-75	.0000	*****	*****	*****
3-75	.0001	*****	*****	*****
4-75	-.0015	*****	*****	*****
1-76	.0014	.0020	*****	.0006
2-76	-.0001	-.0007	*****	.0006
3-76	.0001	-.0008	*****	.0009
4-76	-.0014	-.0005	*****	.0009
1-77	.0015	.0019	.0025	.0010
2-77	-.0002	-.0007	-.0011	.0009
3-77	.0001	-.0005	.0003	.0008
4-77	-.0014	-.0007	-.0015	.0008
1-78	.0015	.0019	.0022	.0007
2-78	-.0003	-.0006	-.0008	.0005
3-78	.0001	-.0003	-.0002	.0005
4-78	-.0013	-.0010	-.0015	.0005
1-79	.0012	.0017	.0018	.0006
2-79	.0002	-.0001	-.0002	.0004
3-79	.0000	-.0003	-.0001	.0003
4-79	-.0013	-.0015	-.0017	.0004
1-80	.0009	.0019	.0018	.0010
2-80	.0005	.0003	.0001	.0004
3-80	.0000	-.0005	-.0004	.0005
4-80	-.0014	-.0018	-.0015	.0004
1-81	.0006	.0019	.0018	.0013
2-81	.0011	.0008	.0002	.0009
3-81	-.0002	-.0008	-.0006	.0006
4-81	-.0015	-.0021	-.0014	.0007
1-82	.0004	.0022	.0021	.0018
2-82	.0014	.0010	-.0001	.0015
3-82	-.0002	-.0011	-.0010	.0009
4-82	-.0016	-.0022	-.0010	.0012
1-83	*****	.0022	.0022	.0000
2-83	*****	.0013	-.0004	.0017
3-83	*****	-.0015	-.0011	.0004
4-83	*****	-.0021	-.0008	.0013
1-84	*****	*****	.0025	*****
2-84	*****	*****	-.0006	*****
3-84	*****	*****	-.0012	*****
4-84	*****	*****	-.0006	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR RENTAL VACANCY - N.C.

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	.0132	*****	*****	*****
3-75	-.0021	*****	*****	*****
4-75	-.0064	*****	*****	*****
1-76	.0020	*****	*****	*****
2-76	.0036	.0046	*****	.0010
3-76	-.0053	-.0049	*****	.0004
4-76	-.0004	-.0023	*****	.0019
1-77	-.0029	-.0023	*****	.0006
2-77	-.0043	-.0034	-.0024	.0019
3-77	.0037	.0038	.0026	.0012
4-77	.0025	.0012	.0028	.0016
1-78	-.0018	-.0016	-.0027	.0011
2-78	-.0033	-.0025	-.0019	.0014
3-78	-.0044	-.0043	-.0050	.0007
4-78	.0034	.0028	.0037	.0009
1-79	.0075	.0073	.0067	.0008
2-79	-.0010	-.0002	.0001	.0011
3-79	.0062	.0062	.0059	.0003
4-79	-.0007	-.0008	-.0004	.0004
1-80	-.0063	-.0074	-.0075	.0012
2-80	.0074	.0086	.0087	.0013
3-80	.0066	.0068	.0066	.0002
4-80	-.0076	-.0077	-.0080	.0004
1-81	.0020	.0003	.0008	.0017
2-81	-.0016	.0001	.0006	.0022
3-81	-.0057	-.0054	-.0062	.0008
4-81	.0054	.0054	.0047	.0007
1-82	.0031	.0007	.0015	.0024
2-82	.0020	.0042	.0052	.0032
3-82	-.0024	-.0019	-.0031	.0012
4-82	.0004	.0000	-.0010	.0014
1-83	*****	.0026	.0038	.0012
2-83	*****	-.0070	-.0054	.0016
3-83	*****	.0028	.0008	.0020
4-83	*****	.0016	.0006	.0010
1-84	*****	*****	-.0062	*****
2-84	*****	*****	-.0019	*****
3-84	*****	*****	.0096	*****
4-84	*****	*****	.0003	*****

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.B - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR RENTAL VACANCY - SOUTH

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0008	*****	*****	*****
2-75	.0004	*****	*****	*****
3-75	.0017	*****	*****	*****
4-75	-.0012	*****	*****	*****
1-76	-.0010	-.0013	*****	.0003
2-76	.0005	.0005	*****	.0000
3-76	.0019	.0022	*****	.0003
4-76	-.0013	-.0013	*****	.0000
1-77	-.0014	-.0015	-.0020	.0006
2-77	.0008	.0007	.0013	.0006
3-77	.0022	.0024	.0021	.0003
4-77	-.0016	-.0016	-.0015	.0001
1-78	-.0015	-.0015	-.0018	.0003
2-78	.0009	.0008	.0012	.0004
3-78	.0024	.0024	.0020	.0004
4-78	-.0019	-.0018	-.0016	.0003
1-79	-.0014	-.0014	-.0015	.0001
2-79	.0010	.0009	.0011	.0002
3-79	.0022	.0021	.0018	.0004
4-79	-.0020	-.0018	-.0016	.0004
1-80	-.0010	-.0009	-.0010	.0001
2-80	.0008	.0007	.0007	.0001
3-80	.0021	.0018	.0016	.0005
4-80	-.0020	-.0016	-.0014	.0006
1-81	-.0007	-.0005	-.0005	.0002
2-81	.0007	.0004	.0004	.0003
3-81	.0019	.0014	.0012	.0007
4-81	-.0020	-.0014	-.0010	.0010
1-82	-.0004	.0000	.0000	.0004
2-82	.0005	.0001	-.0002	.0007
3-82	.0019	.0009	.0006	.0013
4-82	-.0021	-.0011	-.0004	.0017
1-83	*****	.0004	.0004	.0000
2-83	*****	-.0002	-.0006	.0004
3-83	*****	.0005	.0000	.0005
4-83	*****	-.0006	.0003	.0009
1-84	*****	*****	.0005	*****
2-84	*****	*****	-.0008	*****
3-84	*****	*****	-.0002	*****
4-84	*****	*****	.0007	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR RENTAL VACANCY - SOUTH

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0042	*****	*****	*****
3-75	-.0073	*****	*****	*****
4-75	-.0040	*****	*****	*****
1-76	-.0032	*****	*****	*****
2-76	-.0006	-.0009	*****	.0003
3-76	-.0004	-.0007	*****	.0003
4-76	-.0058	-.0054	*****	.0004
1-77	.0001	.0002	*****	.0001
2-77	-.0053	-.0052	-.0062	.0010
3-77	.0007	.0003	.0012	.0009
4-77	.0028	.0031	.0026	.0005
1-78	-.0022	-.0021	-.0017	.0005
2-78	-.0004	-.0004	-.0010	.0006
3-78	-.0044	-.0046	-.0038	.0008
4-78	.0093	.0093	.0086	.0007
1-79	-.0026	-.0025	-.0021	.0005
2-79	.0046	.0047	.0044	.0003
3-79	.0048	.0048	.0053	.0005
4-79	-.0088	-.0091	-.0096	.0008
1-80	-.0011	-.0009	-.0006	.0005
2-80	.0072	.0074	.0073	.0002
3-80	-.0012	-.0011	-.0009	.0003
4-80	-.0059	-.0065	-.0069	.0010
1-81	.0016	.0019	.0021	.0005
2-81	-.0084	-.0079	-.0079	.0005
3-81	-.0003	.0001	.0002	.0005
4-81	.0070	.0058	.0052	.0018
1-82	.0024	.0025	.0029	.0005
2-82	-.0049	-.0040	-.0038	.0011
3-82	.0006	.0011	.0012	.0006
4-82	.0060	.0040	.0031	.0029
1-83	*****	.0005	.0012	.0007
2-83	*****	.0056	.0059	.0003
3-83	*****	.0043	.0044	.0001
4-83	*****	.0032	.0017	.0015
1-84	*****	*****	.0008	*****
2-84	*****	*****	.0023	*****
3-84	*****	*****	.0023	*****
4-84	*****	*****	.0081	*****

SLIDING SPANS ANALYSIS PROGRAM  
 VERSION 6.8 - RELEASED JANUARY 11, 1985  
 REFER ANY QUESTIONS ON THIS PROGRAM TO BRIAN C. MONSELL,  
 STATISTICAL RESEARCH DIVISION, 763 - 7359

SLIDING SPANS ANALYSIS OF SEASONAL FACTORS FOR HOMEOWNERSHIP - WEST

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	-.0009	*****	*****	*****
2-75	-.0037	*****	*****	*****
3-75	.0029	*****	*****	*****
4-75	.0018	*****	*****	*****
1-76	-.0011	-.0020	*****	.0009
2-76	-.0036	-.0032	*****	.0004
3-76	.0031	.0037	*****	.0006
4-76	.0017	.0017	*****	.0000
1-77	-.0016	-.0024	-.0024	.0008
2-77	-.0032	-.0029	-.0016	.0016
3-77	.0034	.0038	.0045	.0011
4-77	.0016	.0015	-.0003	.0019
1-78	-.0025	-.0030	-.0027	.0005
2-78	-.0025	-.0022	-.0013	.0012
3-78	.0039	.0041	.0045	.0006
4-78	.0011	.0010	-.0004	.0015
1-79	-.0033	-.0036	-.0033	.0003
2-79	-.0016	-.0013	-.0007	.0009
3-79	.0044	.0044	.0046	.0002
4-79	.0006	.0004	-.0007	.0013
1-80	-.0040	-.0042	-.0039	.0003
2-80	-.0009	-.0004	.0003	.0012
3-80	.0050	.0049	.0048	.0002
4-80	-.0002	-.0006	-.0015	.0013
1-81	-.0045	-.0046	-.0043	.0003
2-81	-.0003	.0005	.0017	.0020
3-81	.0053	.0051	.0048	.0005
4-81	-.0006	-.0013	-.0027	.0021
1-82	-.0047	-.0047	-.0043	.0004
2-82	.0001	.0011	.0028	.0027
3-82	.0054	.0053	.0048	.0006
4-82	-.0010	-.0019	-.0040	.0030
1-83	*****	-.0046	-.0040	.0006
2-83	*****	.0014	.0037	.0023
3-83	*****	.0052	.0048	.0004
4-83	*****	-.0022	-.0049	.0027
1-84	*****	*****	-.0038	*****
2-84	*****	*****	.0041	*****
3-84	*****	*****	.0048	*****
4-84	*****	*****	-.0054	*****

SLIDING SPANS ANALYSIS OF MONTH-TO-MONTH CHANGES FOR HOMEOWNERSHIP - WEST

	1/75 - 4/82	1/76 - 4/83	1/77 - 4/84	MAXIMUM DIFF.
1-75	*****	*****	*****	*****
2-75	-.0012	*****	*****	*****
3-75	-.0015	*****	*****	*****
4-75	.0001	*****	*****	*****
1-76	.0028	*****	*****	*****
2-76	-.0025	-.0038	*****	.0013
3-76	.0003	.0001	*****	.0002
4-76	.0014	.0020	*****	.0006
1-77	-.0067	-.0059	*****	.0008
2-77	-.0024	-.0035	-.0047	.0023
3-77	-.0036	-.0037	-.0031	.0006
4-77	-.0052	-.0047	-.0022	.0030
1-78	.0031	.0035	.0014	.0021
2-78	-.0050	-.0058	-.0064	.0014
3-78	-.0024	-.0024	-.0019	.0005
4-78	.0078	.0081	.0099	.0021
1-79	-.0026	-.0023	-.0041	.0018
2-79	.0034	.0027	.0024	.0010
3-79	.0060	.0063	.0067	.0007
4-79	-.0032	-.0030	-.0017	.0015
1-80	-.0004	-.0004	-.0018	.0014
2-80	.0049	.0041	.0039	.0010
3-80	-.0049	-.0043	-.0035	.0014
4-80	.0031	.0035	.0044	.0013
1-81	.0003	.0000	-.0013	.0016
2-81	-.0002	-.0011	-.0019	.0017
3-81	-.0006	.0005	.0019	.0025
4-81	-.0021	-.0017	-.0005	.0016
1-82	-.0009	-.0016	-.0034	.0025
2-82	.0002	-.0008	-.0021	.0023
3-82	-.0033	-.0021	.0000	.0033
4-82	-.0066	-.0058	-.0043	.0023
1-83	*****	-.0003	-.0029	.0026
2-83	*****	.0000	-.0017	.0017
3-83	*****	-.0109	-.0081	.0028
4-83	*****	-.0036	-.0014	.0022
1-84	*****	*****	.0099	*****
2-84	*****	*****	.0032	*****
3-84	*****	*****	-.0047	*****
4-84	*****	*****	-.0048	*****