[] Dendrochronology Program Library Run LITU Program COF 10:42 Fri 04 Sep 2020 Page 1

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[] P R O G R A M C O F E C H A Version 6.06P 31295

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QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

File of DATED series: SCBI\_litu.rwl

CONTENTS:

Part 1: Title page, options selected, summary, absent rings by series

Part 2: Histogram of time spans

Part 3: Master series with sample depth and absent rings by year

Part 4: Bar plot of Master Dating Series

Part 5: Correlation by segment of each series with Master

Part 6: Potential problems: low correlation, divergent year-to-year changes, absent rings, outliers

Part 7: Descriptive statistics

RUN CONTROL OPTIONS SELECTED VALUE

1 Cubic smoothing spline 50% wavelength cutoff for filtering

32 years

2 Segments examined are 50 years lagged successively by 25 years

3 Autoregressive model applied A Residuals are used in master dating series and testing

4 Series transformed to logarithms Y Each series log-transformed for master dating series and testing

5 CORRELATION is Pearson (parametric, quantitative)

Critical correlation, 99% confidence level .3281

6 Master dating series saved N

7 Ring measurements listed N

8 Parts printed 1234567

9 Absent rings are omitted from master series and segment correlations (Y)

Time span of Master dating series is 1870 to 2017 148 years

Continuous time span is 1870 to 2017 148 years

Portion with two or more series is 1880 to 2017 138 years

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*C\* Number of dated series 109 \*C\*

\*O\* Master series 1870 2017 148 yrs \*O\*

\*F\* Total rings in all series 7974 \*F\*

\*E\* Total dated rings checked 7964 \*E\*

\*C\* Series intercorrelation .412 \*C\*

\*H\* Average mean sensitivity .298 \*H\*

\*A\* Segments, possible problems 90 \*A\*

\*\*\* Mean length of series 73.2 \*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ABSENT RINGS listed by SERIES: (See Master Dating Series for absent rings listed by year)

No ring measurements of zero value

PART 2: TIME PLOT OF TREE-RING SERIES: 10:42 Fri 04 Sep 2020 Page 2

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1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000 2050 Ident Seq Time-span Yrs

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. . . . . . . . . . . . . . . . . <============> . 82368 1 1870 2009 140

. . . . . . . . . . . . . . . . . <===========> . 172229 2 1880 2009 130

. . . . . . . . . . . . . . . . . <=========> . 80711 3 1906 2009 104

. . . . . . . . . . . . . . . . . <=========> . 121212 4 1908 2009 102

. . . . . . . . . . . . . . . . . .<========> . 20804A 5 1913 2005 93

. . . . . . . . . . . . . . . . . .<========> . 70433 6 1914 2009 96

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. . . . . . . . . . . . . . . . . .<========> . 111134 10 1918 2005 88

. . . . . . . . . . . . . . . . . .<=========> . 111166 11 1918 2014 97

. . . . . . . . . . . . . . . . . .<========> . 50555 12 1919 2009 91

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PART 2: TIME PLOT OF TREE-RING SERIES: 10:42 Fri 04 Sep 2020 Page 3

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1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000 2050 Ident Seq Time-span Yrs

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PART 2: TIME PLOT OF TREE-RING SERIES: 10:42 Fri 04 Sep 2020 Page 4

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. . . . . . . . . . . . . . . . . . . <=> . 200188 109 1990 2017 28

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1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000 2050

PART 3: Master Dating Series: 10:42 Fri 04 Sep 2020 Page 5

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Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab

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1900 -1.336 2 1950 .392 81 2000 -1.110 108

1901 1.214 2 1951 .318 81 2001 -.187 107

1902 .349 2 1952 -.053 83 2002 .379 106

1903 2.077 2 1953 -.358 88 2003 .284 106

1904 1.160 2 1954 -.393 93 2004 .183 106

1905 .248 2 1955 .022 96 2005 .276 106

1906 -1.592 3 1956 .224 97 2006 -.328 104

1907 -.442 3 1957 -.022 98 2007 -.003 104

1908 .513 4 1958 .715 98 2008 1.103 102

1909 -.337 4 1959 -.645 99 2009 .395 99

1910 .067 4 1960 .480 101 2010 -.054 29

1911 -3.357 4 1961 .350 101 2011 .344 23

1912 -1.138 4 1962 .292 102 2012 -.062 22

1913 .415 5 1963 -.154 102 2013 .564 20

1914 -.333 6 1964 -.987 103 2014 .542 14

1915 .454 8 1965 -1.541 104 2015 .182 10

1916 1.231 8 1966 -2.750 104 2016 .383 7

1917 .548 9 1967 -1.559 104 2017 2.246 3

1918 -1.301 11 1968 -.630 104

1919 -.328 14 1969 -.500 104

1870 .496 1 1920 -.269 16 1970 .263 105

1871 -1.193 1 1921 .935 17 1971 .155 106

1872 -.808 1 1922 1.470 22 1972 .696 106

1873 -.489 1 1923 -.633 26 1973 .854 106

1874 -1.643 1 1924 .277 30 1974 .841 106

1875 -2.135 1 1925 -.673 33 1975 .422 106

1876 -.260 1 1926 -.837 35 1976 .349 106

1877 1.681 1 1927 .786 36 1977 -.594 106

1878 3.057 1 1928 .641 38 1978 .369 106

1879 2.281 1 1929 1.185 40 1979 -.150 106

1880 1.957 2 1930 -1.184 43 1980 .072 107

1881 1.202 2 1931 -.013 45 1981 .344 108

1882 .678 2 1932 -.821 46 1982 .492 108

1883 .115 2 1933 -.924 50 1983 .079 108

1884 -.237 2 1934 -.753 50 1984 -.733 108

1885 -1.380 2 1935 .155 52 1985 -.706 108

1886 -1.290 2 1936 .003 54 1986 -.271 108

1887 -2.397 2 1937 .306 56 1987 -.499 108

1888 -2.325 2 1938 .553 58 1988 -.552 108

1889 -.970 2 1939 -1.462 60 1989 -.323 108

1890 .585 2 1940 .024 63 1990 .257 109

1891 1.333 2 1941 .129 63 1991 -.911 109

1892 -.510 2 1942 .277 64 1992 -.044 109

1893 -.377 2 1943 -1.037 66 1993 1.240 109

1894 1.650 2 1944 -.978 67 1994 .023 109

1895 1.885 2 1945 .556 68 1995 .364 109

1896 1.612 2 1946 -.097 69 1996 .576 109

1897 1.393 2 1947 .395 70 1997 .227 108

1898 .038 2 1948 .736 71 1998 .255 108

1899 -1.149 2 1949 1.149 73 1999 -2.248 108

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PART 4: Master Bar Plot: 10:42 Fri 04 Sep 2020 Page 6

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Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value

1900e 1950-------B 2000-d

1901---------E 1951------A 2001----a

1902-------A 1952----@ 2002-------B

1903----------H 1953---a 2003------A

1904---------E 1954---b 2004-----A

1905------A 1955----@ 2005------A

1906f 1956------A 2006---a

1907---b 1957----@ 2007----@

1908--------B 1958--------C 2008---------D

1909---a 1959--c 2009-------B

1910-----@ 1960--------B 2010----@

1911m 1961-------A 2011-------A

1912-e 1962------A 2012----@

1913-------B 1963----a 2013--------B

1914---a 1964-d 2014--------B

1915-------B 1965f 2015-----A

1916---------E 1966k 2016-------B

1917--------B 1967f 2017----------I

1918-e 1968--c

1919---a 1969--b

1870--------B 1920---a 1970------A

1871-e 1921---------D 1971-----A

1872--c 1922----------F 1972--------C

1873--b 1923--c 1973---------C

1874g 1924------A 1974---------C

1875i 1925--c 1975-------B

1876---a 1926-c 1976-------A

1877----------G 1927--------C 1977--b

1878----------L 1928--------C 1978-------A

1879----------I 1929---------E 1979----a

1880----------H 1930-e 1980-----@

1881---------E 1931----@ 1981-------A

1882--------C 1932--c 1982--------B

1883-----@ 1933-d 1983-----@

1884---a 1934--c 1984--c

1885f 1935-----A 1985--c

1886-e 1936----@ 1986---a

1887j 1937------A 1987--b

1888i 1938--------B 1988--b

1889-d 1939f 1989---a

1890--------B 1940----@ 1990------A

1891---------E 1941-----A 1991-d

1892--b 1942------A 1992----@

1893---b 1943-d 1993---------E

1894----------G 1944-d 1994----@

1895----------H 1945--------B 1995-------A

1896----------F 1946----@ 1996--------B

1897----------F 1947-------B 1997------A

1898-----@ 1948--------C 1998------A

1899-e 1949---------E 1999i

PART 5: CORRELATION OF SERIES BY SEGMENTS: 10:42 Fri 04 Sep 2020 Page 5

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Correlations of 50-year dated segments, lagged 25 years

Flags: A = correlation under .3281 but highest as dated; B = correlation higher at other than dated position

Seq Series Time\_span 1875 1900 1925 1950 1975

1924 1949 1974 1999 2024

--- -------- --------- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----

1 82368 1870 2009 .30A .34 .27A .56 .51

2 172229 1880 2009 .43 .53 .68 .50 .49

3 80711 1906 2009 .47 .60 .29A .33A

4 121212 1908 2009 .63 .50 .71 .71

5 20804A 1913 2005 .27A .36 .42 .42

6 70433 1914 2009 .57 .53 .48 .41

7 80719 1915 2009 .31A .31A .28A .25A

8 111033 1915 1996 .26B .34 .25B

9 92493 1917 2009 .56 .57 .37B .40

10 111134 1918 2005 .58 .51 .24B .23B

11 111166 1918 2014 .47 .61 .48 .46

12 50555 1919 2009 .44 .48 .42 .37

13 82218 1919 2009 .60 .64 .46 .49

14 90607A 1919 2008 .34 .37 .32B .31A

15 90287 1920 2009 .52 .59 .70 .64

16 160962 1920 2007 .51 .45 .37 .36

17 92486A 1921 2009 .32A .30A .60 .58

18 22545 1922 2009 .48 .49 .55 .61

19 82317 1922 2009 .30A .17B .39 .42

20 82403A 1922 2013 .63 .62 .48 .44

21 92360A 1922 2015 .28A .26A .39 .28B

22 121284 1922 2009 .72 .72 .49 .49

23 50474 1923 2009 .25B .21B .17B .20B

24 111030 1923 2009 .52 .52 .60 .59

25 111051 1923 2009 .57 .56 .35 .34

26 151051 1923 2016 .38 .40 .26A .06B

27 42250A 1924 2014 .45 .47 .27B .21B

28 110902 1924 2011 .25B .28A .31A .40

29 130579 1924 2009 .42 .42 .53 .55

30 140820 1924 2016 .30A .34 .27A .25A

31 110791 1925 2009 .63 .57 .55

32 110914 1925 2009 .62 .55 .53

33 160930 1925 2009 .47 .62 .63

34 90285A 1926 2012 .20B .38 .26A

35 111014 1926 2008 .53 .59 .58

36 91377 1927 2009 .51 .46 .42

37 91491 1928 2009 .17B .22B .26A

38 92389 1928 2009 .42 .42 .44

39 60125 1929 2009 .37 .23B .28A

40 102412 1929 2009 .60 .59 .55

41 82239A 1930 2010 .36 .33A .31A

42 131080 1930 2009 .47 .42 .43

43 131304 1930 2009 .49 .65 .65

44 102470 1931 2013 .33B .32A .30A

45 110952 1931 2009 .25B .51 .50

46 092501 1932 2015 .27A .42 .44

47 042565 1933 2013 .36 .34 .38

48 72345A 1933 2012 .63 .39 .36

49 110798 1933 2009 .43 .58 .57

50 110899 1933 2017 .47 .23B .32A

51 121423 1935 2008 .42 .21A .23A

52 122554 1935 2009 .38B .59 .56

53 32189 1936 2009 .50 .59 .57

54 190438 1936 2009 .43 .42 .47

55 52237A 1937 2014 .27B .28B .31A

56 80641A 1937 2016 .21B .37 .28A

57 110950 1938 2009 .37 .46 .43

58 120924 1938 2009 .38B .40 .37

59 50406 1939 2009 .53 .47 .43

60 140735 1939 2009 .21A .55 .53

61 12490 1940 2009 .40 .40 .54

62 80248 1940 2009 .39 .55 .58

63 92442A 1940 2010 .34 .44 .57

64 82381A 1942 2013 .27A .26A .25A

65 42232A 1943 2010 .36 .38 .36

66 180751 1943 2009 .50 .62 .66

67 42544 1944 2009 .52 .49 .46

68 052246 1945 2010 .25A .25A .27A

69 72212A 1946 2013 .48 .47 .45

70 60287 1947 2009 .51 .71 .73

71 180794 1948 2009 .30A .26A .22B

72 131192 1949 2001 .33A .26A .26A

73 160777 1949 2009 .41 .46 .46

74 52388 1950 2009 .31B .22B

75 112421 1950 2010 .27B .49

76 131017 1950 2009 .69 .69

77 131047 1950 2009 .44 .46

78 171403 1950 2014 .43 .41

79 190497 1950 2010 .34 .29A

80 200168 1950 2009 .53 .42

81 200389 1950 2009 .43 .40

82 62248 1952 2009 .50 .52

83 121442 1952 2009 .48 .51

84 12369A 1953 2013 .40 .38

85 70469A 1953 2007 .52 .50

86 80746 1953 2000 .37

87 110128 1953 2009 .42 .40

88 190018 1953 2009 .61 .56

89 90369 1954 2009 .31A .33A

90 90645 1954 2009 .57 .55

91 100997 1954 2009 .34 .28A

92 160665 1954 2009 .35 .46

93 200988 1954 2009 .23B .21B

94 50281 1955 2009 .26A .34

95 80282 1955 2009 .41 .40

96 200038 1955 2009 .64 .64

97 121017 1956 2017 .36 .31B

98 190075 1957 2015 .29B .27B

99 172220 1959 2016 .43 .40

100 60083 1960 2009 .52

101 170994 1960 2009 .31A

102 22603 1962 2009 .48

103 22604 1964 2009 .49

104 192128 1965 2009 .32A

105 110379 1970 2009 .44

106 192129 1971 2009 .40

107 202162 1980 2009 .60

108 12366 1981 2009 .54

109 200188 1990 2017 .35

Av segment correlation .37 .44 .42 .43 .42

PART 6: POTENTIAL PROBLEMS: 10:42 Fri 04 Sep 2020 Page 7

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For each series with potential problems the following diagnostics may appear:

[A] Correlations with master dating series of flagged 50-year segments of series filtered with 32-year spline,

at every point from ten years earlier (-10) to ten years later (+10) than dated

[B] Effect of those data values which most lower or raise correlation with master series

Symbol following year indicates value in series is greater (>) or lesser (<) than master series value

[C] Year-to-year changes very different from the mean change in other series

[D] Absent rings (zero values)

[E] Values which are statistical outliers from mean for the year

====================================================================================================================================

82368 1870 to 2009 140 years Series 1

[\*] Early part of series cannot be checked from 1870 to 1879 -- not matched by another series

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1880 1929 0 -.32 -.02 .10 .06 .06 -.16 -.26 -.14 .03 .25 .30\* .09 -.04 -.16 .06 .05 .07 .10 -.29 -.29 -.08

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

1925 1974 0 .11 -.02 -.05 -.02 -.07 -.14 .08 .22 -.19 -.12 .27\*-.07 .03 .19 .15 -.02 -.06 .24 -.07 -.07 .18

[B] Entire series, effect on correlation ( .349) is:

Lower 1899> -.038 1902> -.030 1911> -.016 1972< -.016 1898< -.010 1908< -.009 Higher 1999 .072 1918 .015

1880 to 1929 segment:

Lower 1902> -.064 1899> -.064 1898< -.029 1908< -.022 1907< -.018 1929< -.017 Higher 1918 .043 1903 .031

1925 to 1974 segment:

Lower 1972< -.050 1932> -.026 1929< -.023 1966> -.022 1939> -.020 1962< -.019 Higher 1959 .053 1945 .043

[C] Year-to-year changes diverging by over 4.0 std deviations:

1898 1899 4.1 SD

====================================================================================================================================

172229 1880 to 2009 130 years Series 2

[B] Entire series, effect on correlation ( .462) is:

Lower 1906> -.046 1902< -.034 1899< -.031 1898> -.018 1992< -.012 1983< -.008 Higher 1911 .058 1930 .023

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1906 +3.2 SD

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80711 1906 to 2009 104 years Series 3

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 0 -.14 -.18 -.01 .14 -.06 .05 .14 .19 -.07 .18 .29\*-.04 .10 .06 -.17 .14 -.16 .19 -.07 -.43 -.15

1960 2009 0 .01 -.26 -.18 .03 .05 .06 .11 .09 -.12 .10 .33\* .03 -.02 .02 -.21 .13 -.14 .23 -.10 - -

[B] Entire series, effect on correlation ( .420) is:

Lower 1906< -.044 1999> -.041 1992< -.031 1929< -.012 1911> -.011 1977> -.007 Higher 1939 .040 1930 .014

1950 to 1999 segment:

Lower 1999> -.121 1992< -.090 1977> -.019 1954> -.015 1970< -.011 1962< -.008 Higher 1993 .046 1966 .033

1960 to 2009 segment:

Lower 1999> -.139 1992< -.078 1977> -.021 2005< -.016 2009< -.013 1970< -.009 Higher 1993 .041 2008 .030

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121212 1908 to 2009 102 years Series 4

[B] Entire series, effect on correlation ( .649) is:

Lower 1991> -.016 1936< -.013 1945< -.012 1934< -.012 1909> -.011 1959> -.011 Higher 1911 .060 1999 .041

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20804A 1913 to 2005 93 years Series 5

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1913 1962 0 -.10 .20 -.12 .06 .04 -.05 -.13 -.25 .01 -.15 .27\* .12 -.02 -.02 -.11 .13 -.14 -.08 .09 .05 -.02

[B] Entire series, effect on correlation ( .370) is:

Lower 1960< -.019 1991> -.018 1923> -.018 1922< -.017 1988> -.015 1977> -.013 Higher 1999 .197 1927 .020

1913 to 1962 segment:

Lower 1960< -.037 1923> -.031 1922< -.029 1948< -.023 1945< -.020 1914> -.018 Higher 1939 .052 1927 .048

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1988 +3.0 SD

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70433 1914 to 2009 96 years Series 6

[B] Entire series, effect on correlation ( .498) is:

Lower 1999> -.026 2001< -.020 1982< -.015 1914< -.013 2008< -.012 1919> -.012 Higher 1918 .035 1923 .030

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80719 1915 to 2009 95 years Series 7

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1915 1964 0 -.11 -.02 -.07 -.08 .01 .16 -.10 .02 -.13 -.20 .31\* .02 -.03 -.08 -.16 -.20 -.02 .08 .05 .06 -.05

1925 1974 0 .04 -.02 .04 -.05 -.17 .04 -.14 .07 .13 .09 .31\*-.06 .00 -.23 -.05 -.20 -.13 -.10 .02 -.09 .12

1950 1999 0 -.04 -.02 .06 -.11 -.07 -.18 -.06 .14 .05 .12 .28\* .05 .08 -.19 -.02 -.36 -.03 -.09 .07 .00 -.04

1960 2009 0 .15 -.14 .07 -.22 -.18 -.09 -.08 .21 .00 .16 .25\* .12 .10 -.16 -.10 -.37 -.09 -.14 .14 - -

[B] Entire series, effect on correlation ( .266) is:

Lower 1918> -.047 1966> -.030 1930> -.025 1994> -.020 1978< -.012 1949< -.010 Higher 1923 .042 1999 .037

1915 to 1964 segment:

Lower 1918> -.094 1930> -.049 1949< -.022 1920> -.016 1939> -.016 1917< -.016 Higher 1923 .082 1959 .036

1925 to 1974 segment:

Lower 1966> -.067 1930> -.060 1949< -.024 1939> -.022 1967< -.021 1931< -.012 Higher 1959 .040 1943 .037

1950 to 1999 segment:

Lower 1966> -.067 1994> -.039 1978< -.024 1984> -.018 1998< -.015 1997< -.012 Higher 1999 .057 1959 .037

1960 to 2009 segment:

Lower 1966> -.064 1994> -.040 1978< -.025 1984> -.018 1998< -.015 1980< -.011 Higher 1999 .079 1991 .035

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111033 1915 to 1996 82 years Series 8

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1915 1964 7 -.13 -.02 -.27 -.04 -.15 .35 .01 .06 -.16 -.33 .26|-.04 .26 -.04 .05 -.10 -.17 .45\*-.09 .19 .07

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1947 1996 -2 -.14 -.14 -.28 -.15 -.02 -.10 .03 -.05 .26\*-.03 .25| .11 .03 -.10 -.07 -.09 .15 .21 -.05 .20 .13

[B] Entire series, effect on correlation ( .206) is:

Lower 1916< -.043 1993< -.039 1981< -.030 1929< -.030 1990< -.020 1918> -.020 Higher 1923 .075 1959 .033

1915 to 1964 segment:

Lower 1916< -.066 1929< -.046 1918> -.037 1920> -.028 1930> -.024 1935< -.017 Higher 1923 .106 1959 .043

1947 to 1996 segment:

Lower 1993< -.092 1981< -.064 1990< -.043 1965> -.040 1991> -.025 1987> -.015 Higher 1959 .079 1966 .042

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92493 1917 to 2009 93 years Series 9

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 5 .14 -.09 .03 .04 -.13 -.10 -.03 -.10 .24 -.25 .37| .23 -.10 .09 -.11 .38\*-.03 -.12 -.02 -.18 -.03

[B] Entire series, effect on correlation ( .501) is:

Lower 1993< -.032 1953> -.024 1923> -.022 1944> -.021 1961< -.018 1978< -.009 Higher 1930 .038 1999 .032

1950 to 1999 segment:

Lower 1993< -.067 1953> -.048 1961< -.039 1978< -.019 1991> -.016 1956< -.013 Higher 1999 .131 1965 .019

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1953 +3.0 SD

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111134 1918 to 2005 88 years Series 10

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 -1 .13 -.29 -.07 -.14 -.35 -.09 .15 .03 .12 .27\* .24| .25 .01 .18 .05 -.27 -.31 .00 -.15 -.16 -.01

1956 2005 -4 .01 -.18 -.03 -.04 -.19 -.15 .32\*-.08 .02 .03 .23| .29 .02 .24 .06 -.33 -.30 .08 -.18 -.16 -.14

[B] Entire series, effect on correlation ( .373) is:

Lower 1996< -.031 1999> -.029 1998< -.024 2003< -.019 1991> -.016 1987< -.015 Higher 1918 .038 1939 .031

1950 to 1999 segment:

Lower 1999> -.050 1996< -.048 1998< -.035 1991> -.028 1959> -.025 1994> -.016 Higher 1993 .048 1966 .029

1956 to 2005 segment:

Lower 1999> -.047 1996< -.044 1998< -.032 1991> -.028 1959> -.024 2003< -.022 Higher 1993 .045 1966 .029

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111166 1918 to 2014 97 years Series 11

[B] Entire series, effect on correlation ( .430) is:

Lower 1918> -.060 1923> -.016 1990< -.014 1959> -.013 1984> -.013 2010< -.012 Higher 1930 .049 1999 .048

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50555 1919 to 2009 91 years Series 12

[B] Entire series, effect on correlation ( .398) is:

Lower 1919< -.073 1939> -.049 1973< -.029 2003< -.014 1958< -.013 1965> -.011 Higher 1966 .048 1930 .044

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82218 1919 to 2009 91 years Series 13

[B] Entire series, effect on correlation ( .547) is:

Lower 1999> -.030 1962< -.024 1989< -.018 1957< -.014 1920> -.013 2004> -.010 Higher 1939 .047 1943 .016

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90607A 1919 to 2008 90 years Series 14

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 -3 .15 -.01 -.13 -.06 -.19 -.01 -.07 .36\*-.06 .04 .32| .04 -.21 .11 -.08 .25 -.19 -.11 -.03 -.19 -.12

1959 2008 0 .10 -.12 -.15 -.10 -.23 .02 -.05 .28 -.02 .03 .31\* .01 -.18 .10 -.08 .28 -.21 -.08 .06 -.04 -

[B] Entire series, effect on correlation ( .282) is:

Lower 1980< -.090 1930> -.036 1945< -.021 1939> -.014 1922< -.009 1942< -.008 Higher 1966 .031 1993 .023

1950 to 1999 segment:

Lower 1980< -.150 1959> -.015 1977> -.013 1996< -.009 1998< -.009 1974< -.008 Higher 1966 .042 1993 .038

1959 to 2008 segment:

Lower 1980< -.148 1959> -.015 1977> -.013 2006> -.009 2001< -.009 1984> -.008 Higher 1966 .043 1993 .038

[C] Year-to-year changes diverging by over 4.0 std deviations:

1979 1980 -5.2 SD 1980 1981 4.6 SD

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1980 -7.4 SD

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90287 1920 to 2009 90 years Series 15

[B] Entire series, effect on correlation ( .566) is:

Lower 2008< -.049 1943> -.027 1921< -.025 1920> -.020 1979> -.015 1955< -.013 Higher 1999 .092 1930 .043

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160962 1920 to 2007 88 years Series 16

[B] Entire series, effect on correlation ( .435) is:

Lower 1930> -.071 1999> -.048 1982< -.015 1929< -.014 1945< -.013 1973< -.012 Higher 1939 .066 1923 .025

[C] Year-to-year changes diverging by over 4.0 std deviations:

1929 1930 4.2 SD

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1999 +3.0 SD

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92486A 1921 to 2009 89 years Series 17

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1921 1970 0 -.25 .15 -.15 .07 .05 -.11 .00 .01 .16 -.16 .32\* .06 -.02 .10 .10 .24 -.09 .17 -.24 -.11 .01

1925 1974 0 -.19 .11 -.22 .01 .03 -.16 .03 .09 .16 -.13 .30\* .08 .05 .09 .12 .26 -.17 .17 -.26 -.02 .02

[B] Entire series, effect on correlation ( .455) is:

Lower 1929< -.038 1961< -.029 1937< -.018 1923> -.017 1967> -.012 1968< -.012 Higher 1999 .122 1966 .052

1921 to 1970 segment:

Lower 1929< -.058 1961< -.042 1937< -.027 1923> -.022 1967> -.018 1968< -.017 Higher 1966 .113 1921 .024

1925 to 1974 segment:

Lower 1929< -.060 1961< -.041 1937< -.026 1967> -.021 1968< -.016 1933> -.015 Higher 1966 .130 1959 .023

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22545 1922 to 2009 88 years Series 18

[B] Entire series, effect on correlation ( .528) is:

Lower 1954< -.033 1939> -.020 1997< -.014 1926> -.013 1942< -.012 1962< -.012 Higher 1999 .083 1930 .023

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82317 1922 to 2009 88 years Series 19

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1922 1971 0 -.27 .06 .05 -.11 .19 .09 -.12 -.12 .03 .05 .30\* .00 -.03 -.03 -.20 .10 -.18 .10 -.01 -.05 -.02

1925 1974 -6 -.23 -.01 .10 -.05 .23\*-.01 -.06 -.17 .09 .13 .17| .10 -.11 -.07 -.12 .07 -.12 -.10 .15 -.13 -.03

[B] Entire series, effect on correlation ( .332) is:

Lower 1948< -.061 1930> -.036 1931< -.031 1964> -.031 1949< -.022 1995< -.017 Higher 1999 .082 1923 .042

1922 to 1971 segment:

Lower 1948< -.092 1930> -.056 1931< -.047 1964> -.045 1949< -.033 1946> -.015 Higher 1923 .066 1965 .043

1925 to 1974 segment:

Lower 1948< -.087 1930> -.052 1964> -.048 1931< -.043 1949< -.032 1946> -.016 Higher 1965 .074 1966 .038

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1964 +3.0 SD

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82403A 1922 to 2013 92 years Series 20

[B] Entire series, effect on correlation ( .554) is:

Lower 2006> -.019 1966> -.016 1946> -.015 2002< -.011 1943> -.011 1957< -.009 Higher 1930 .056 1939 .027

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92360A 1922 to 2015 94 years Series 21

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1922 1971 0 -.06 .14 .02 .03 .08 -.17 .14 -.01 -.03 .08 .28\*-.02 .11 .00 -.05 -.21 .03 .09 -.27 -.08 -.15

1925 1974 0 -.07 .09 .02 .01 .06 -.21 .19 .02 .02 .10 .26\* .02 .07 .02 -.02 -.19 -.01 .04 -.23 -.11 -.17

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1966 2015 -5 -.03 .06 -.08 -.15 -.16 .28\*-.01 -.12 .06 -.07 .28|-.12 -.19 - - - - - - - -

[B] Entire series, effect on correlation ( .281) is:

Lower 1930> -.050 1996< -.032 1925> -.019 2012< -.013 1978< -.013 1927< -.012 Higher 1999 .080 1965 .026

1922 to 1971 segment:

Lower 1930> -.088 1925> -.032 1927< -.023 1941< -.020 1940< -.015 1937< -.014 Higher 1965 .044 1943 .035

1925 to 1974 segment:

Lower 1930> -.093 1925> -.034 1927< -.025 1941< -.019 1972< -.016 1940< -.015 Higher 1965 .053 1943 .041

1966 to 2015 segment:

Lower 1996< -.062 1978< -.025 2012< -.023 1977> -.021 1967> -.018 2006> -.017 Higher 1999 .185 1993 .023

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121284 1922 to 2009 88 years Series 22

[B] Entire series, effect on correlation ( .625) is:

Lower 1982< -.018 1939> -.015 2003< -.012 1999> -.011 1950> -.010 1962< -.009 Higher 1930 .045 1943 .014

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50474 1923 to 2009 87 years Series 23

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1923 1972 -5 .04 .10 -.08 .01 -.01 .30\*-.12 -.07 .11 -.01 .25|-.09 -.08 -.09 .03 .08 .02 -.03 .16 -.02 -.12

1925 1974 -5 .06 .09 -.06 .07 -.01 .27\*-.11 -.08 .16 .02 .21|-.09 -.11 -.11 .08 .08 .07 -.10 .17 -.05 -.14

1950 1999 8 .10 .18 .05 .17 .13 .00 -.23 -.06 .08 -.20 .17|-.08 .24 -.03 -.08 -.02 .02 -.05 .24\*-.05 -.12

1960 2009 -10 .26\*-.04 .11 .11 .14 -.08 -.29 -.04 -.02 -.12 .20|-.11 .22 .05 -.14 -.07 -.06 -.19 .20 - -

[B] Entire series, effect on correlation ( .230) is:

Lower 1997< -.034 1999> -.027 1958< -.017 1971< -.016 1965> -.014 1935< -.013 Higher 1939 .032 2008 .031

1923 to 1972 segment:

Lower 1971< -.041 1958< -.037 1935< -.029 1965> -.023 1926> -.022 1961< -.021 Higher 1939 .064 1966 .042

1925 to 1974 segment:

Lower 1958< -.036 1971< -.035 1935< -.028 1965> -.024 1926> -.024 1961< -.018 Higher 1939 .073 1966 .049

1950 to 1999 segment:

Lower 1997< -.046 1999> -.044 1958< -.029 1971< -.024 1965> -.020 1994> -.017 Higher 1991 .038 1966 .038

1960 to 2009 segment:

Lower 1999> -.059 1997< -.045 1965> -.024 1971< -.022 1994> -.020 1975< -.014 Higher 2008 .057 1991 .038

[C] Year-to-year changes diverging by over 4.0 std deviations:

1998 1999 4.0 SD

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1997 -5.2 SD

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111030 1923 to 2009 87 years Series 24

[B] Entire series, effect on correlation ( .529) is:

Lower 1945< -.050 1979< -.026 1987< -.019 2007< -.010 1939> -.010 1924< -.009 Higher 1999 .058 1923 .013

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111051 1923 to 2009 87 years Series 25

[B] Entire series, effect on correlation ( .452) is:

Lower 2008< -.032 1999> -.026 1955< -.016 1981< -.009 2006< -.009 1982< -.009 Higher 1930 .024 1929 .015

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151051 1923 to 2016 94 years Series 26

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 0 .17 -.04 .19 .09 -.03 .04 -.01 -.01 .10 .19 .26\* .15 .00 .11 .02 .05 -.22 .01 -.08 -.18 -.04

1967 2016 -7 .15 .00 .07 .29\* .07 -.17 -.05 -.13 .03 .15 .06| .14 - - - - - - - - -

[B] Entire series, effect on correlation ( .249) is:

Lower 2013< -.037 2012> -.020 1999> -.016 1947< -.015 1996< -.011 1990< -.009 Higher 1927 .022 1993 .017

1950 to 1999 segment:

Lower 1999> -.035 1996< -.030 1990< -.026 1992< -.020 1979> -.019 1950> -.017 Higher 1993 .044 1959 .039

1967 to 2016 segment:

Lower 2013< -.066 2012> -.042 1996< -.018 1979> -.018 1990< -.016 1992< -.012 Higher 1993 .049 1977 .024

[C] Year-to-year changes diverging by over 4.0 std deviations:

1943 1944 -4.4 SD

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1944 -5.8 SD

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42250A 1924 to 2014 91 years Series 27

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 -2 .06 .14 -.03 -.12 .05 .09 -.08 .07 .29\* .02 .27| .18 .09 -.27 -.18 -.07 -.41 -.10 -.13 .10 .18

1965 2014 -7 -.05 .02 -.05 .24\* .07 .08 -.20 -.03 .22 .15 .21| .20 -.01 -.26 - - - - - - -

[B] Entire series, effect on correlation ( .332) is:

Lower 1924< -.024 1999> -.022 1977> -.017 1944> -.016 1959> -.011 2009> -.010 Higher 1943 .040 1930 .037

1950 to 1999 segment:

Lower 1977> -.033 1999> -.027 1959> -.022 1978< -.020 1963> -.019 1952< -.018 Higher 1993 .051 1965 .036

1965 to 2014 segment:

Lower 1977> -.037 2009> -.024 2011< -.022 1978< -.020 2010> -.020 2008< -.020 Higher 1993 .060 1965 .049

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110902 1924 to 2011 88 years Series 28

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1924 1973 9 -.05 -.13 -.11 .10 .15 -.20 -.06 .09 -.19 .14 .25| .00 -.02 -.03 .14 -.02 .13 -.01 -.18 .26\*-.08

1925 1974 0 -.07 -.12 -.10 .10 .10 -.21 -.06 .13 -.14 .11 .28\*-.02 -.03 -.01 .16 .01 .07 .01 -.21 .24 -.11

1950 1999 0 -.11 -.07 -.20 .01 -.06 -.27 -.04 .18 .06 -.01 .31\*-.06 .07 .00 .00 .04 -.17 -.01 -.08 .02 -.13

[B] Entire series, effect on correlation ( .297) is:

Lower 1950< -.040 1960< -.028 1980< -.020 1949< -.019 1924< -.015 1925> -.014 Higher 1999 .031 1966 .027

1924 to 1973 segment:

Lower 1950< -.065 1960< -.046 1949< -.031 1924< -.024 1925> -.023 1946> -.022 Higher 1966 .051 1939 .047

1925 to 1974 segment:

Lower 1950< -.076 1960< -.049 1949< -.033 1925> -.023 1946> -.022 1943> -.020 Higher 1966 .050 1939 .047

1950 to 1999 segment:

Lower 1950< -.066 1960< -.045 1980< -.033 1994> -.020 1964> -.020 1986< -.011 Higher 1966 .038 1999 .031

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1950 -5.2 SD

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130579 1924 to 2009 86 years Series 29

[B] Entire series, effect on correlation ( .451) is:

Lower 1939> -.061 1937< -.017 1933> -.017 1932> -.016 1997< -.015 1959> -.013 Higher 1930 .081 1966 .031

[C] Year-to-year changes diverging by over 4.0 std deviations:

1938 1939 4.3 SD

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140820 1924 to 2016 93 years Series 30

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1924 1973 0 .10 -.03 -.05 -.06 .07 .23 .00 .17 -.19 -.02 .30\* .07 .11 -.07 .09 -.27 -.07 -.12 -.01 -.15 -.20

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1950 1999 0 .14 .11 -.02 .10 .10 .03 .04 .19 .10 -.13 .27\* .25 -.02 .01 -.07 .19 -.21 -.27 -.17 .02 -.11

1967 2016 0 .21 .03 -.21 .21 .04 -.05 -.07 .15 .09 -.18 .25\* .06 - - - - - - - - -

[B] Entire series, effect on correlation ( .273) is:

Lower 1928< -.028 1930> -.025 1932> -.025 2016< -.022 1999> -.019 1924< -.018 Higher 1939 .084 1943 .037

1924 to 1973 segment:

Lower 1930> -.052 1928< -.050 1932> -.045 1924< -.031 1934> -.027 1958< -.018 Higher 1939 .145 1943 .060

1950 to 1999 segment:

Lower 1999> -.032 1958< -.028 1990< -.017 1953> -.015 1998< -.015 1954> -.014 Higher 1993 .034 1966 .021

1967 to 2016 segment:

Lower 1999> -.050 2016< -.048 1977> -.017 1991> -.016 2015< -.015 2012> -.014 Higher 1994 .049 1993 .033

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1934 +3.2 SD

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110791 1925 to 2009 85 years Series 31

[B] Entire series, effect on correlation ( .586) is:

Lower 1992< -.044 1947< -.017 1939> -.017 2000< -.013 1984> -.010 1983< -.010 Higher 1999 .074 1930 .050

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110914 1925 to 2009 85 years Series 32

[B] Entire series, effect on correlation ( .527) is:

Lower 2000< -.056 1939> -.025 1999> -.020 1950> -.011 2002< -.007 1957< -.006 Higher 1965 .014 2008 .013

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160930 1925 to 2009 85 years Series 33

[B] Entire series, effect on correlation ( .516) is:

Lower 1928< -.038 1993< -.024 1938< -.022 1991> -.020 2004< -.019 1925> -.018 Higher 1999 .113 1930 .027

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90285A 1926 to 2012 87 years Series 34

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1926 1975 2 -.13 .17 .09 .06 -.16 -.35 -.11 -.22 -.11 -.13 .20| .14 .22\*-.04 .14 .22 -.06 .03 -.17 .00 -.07

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1963 2012 0 -.08 .02 .13 -.07 -.14 -.04 -.20 .02 -.38 -.21 .26\* .04 .09 .24 .01 -.09 - - - - -

[B] Entire series, effect on correlation ( .233) is:

Lower 2012< -.034 1939> -.030 1933> -.018 1973< -.016 1944> -.013 1960< -.010 Higher 1930 .028 1993 .028

1926 to 1975 segment:

Lower 1939> -.055 1933> -.035 1973< -.032 1944> -.025 1960< -.020 1929< -.019 Higher 1930 .068 1959 .040

1963 to 2012 segment:

Lower 2012< -.063 1973< -.029 1996< -.017 1966> -.015 2006> -.015 2002< -.012 Higher 1993 .046 1994 .023

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2001 +3.6 SD

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111014 1926 to 2008 83 years Series 35

[B] Entire series, effect on correlation ( .531) is:

Lower 1943> -.036 1942< -.032 1927< -.015 1982< -.011 1959> -.008 1946> -.007 Higher 1939 .052 1993 .014

[C] Year-to-year changes diverging by over 4.0 std deviations:

1942 1943 4.2 SD

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91377 1927 to 2009 83 years Series 36

[B] Entire series, effect on correlation ( .449) is:

Lower 1999> -.031 1928< -.018 1980> -.018 2002< -.014 1933> -.013 1959> -.010 Higher 1930 .094 1991 .016

[C] Year-to-year changes diverging by over 4.0 std deviations:

1929 1930 -4.5 SD 1930 1931 4.9 SD

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1930 -6.3 SD; 1980 +3.3 SD

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91491 1928 to 2009 82 years Series 37

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1928 1977 -7 -.14 .01 -.25 .28\* .06 .20 .08 .14 .03 -.09 .17|-.03 .00 -.04 .09 -.04 .15 .04 .11 .12 -.32

1950 1999 5 .13 -.01 -.11 .03 -.06 .16 .08 .06 .23 -.23 .22| .03 .13 -.05 -.10 .28\*-.09 -.13 -.03 -.20 .15

1960 2009 0 .08 .07 -.15 .08 -.11 .07 .10 -.10 .14 -.25 .26\* .09 .06 -.04 -.10 .25 -.08 -.17 -.05 - -

[B] Entire series, effect on correlation ( .220) is:

Lower 1989< -.030 1977> -.026 1991> -.022 1949< -.020 1954> -.013 2008< -.013 Higher 1999 .055 1966 .027

1928 to 1977 segment:

Lower 1977> -.062 1949< -.049 1954> -.033 1962< -.021 1948< -.015 1931< -.014 Higher 1966 .081 1929 .040

1950 to 1999 segment:

Lower 1989< -.045 1977> -.040 1991> -.034 1954> -.018 1962< -.012 1985> -.010 Higher 1999 .076 1966 .037

1960 to 2009 segment:

Lower 1989< -.043 1977> -.043 1991> -.037 2008< -.018 1985> -.012 1962< -.011 Higher 1999 .062 1966 .032

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92389 1928 to 2009 82 years Series 38

[B] Entire series, effect on correlation ( .435) is:

Lower 1930> -.039 1994> -.016 1944> -.014 1951< -.014 2007< -.013 1938< -.012 Higher 1999 .070 1966 .019

====================================================================================================================================

60125 1929 to 2009 81 years Series 39

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 8 .05 -.07 .13 .07 .18 .04 .16 .09 -.13 -.10 .23|-.03 -.24 -.25 .13 .14 .11 -.02 .23\* .12 -.03

1960 2009 0 .10 -.04 -.04 .13 .12 -.11 .22 -.08 .01 -.16 .28\* .09 -.25 -.22 .18 .12 .06 -.17 .10 - -

[B] Entire series, effect on correlation ( .397) is:

Lower 1943> -.029 1995< -.024 1960< -.022 1972< -.018 2001< -.014 1977> -.014 Higher 1939 .074 1999 .056

1950 to 1999 segment:

Lower 1995< -.040 1960< -.036 1972< -.028 1977> -.022 1958< -.017 1975< -.017 Higher 1999 .170 1959 .020

1960 to 2009 segment:

Lower 1995< -.041 1960< -.038 1972< -.030 2001< -.023 1977> -.022 1975< -.017 Higher 1999 .158 2008 .033

====================================================================================================================================

102412 1929 to 2009 81 years Series 40

[B] Entire series, effect on correlation ( .589) is:

Lower 1939> -.030 2003< -.027 1996< -.020 1965> -.017 1997< -.015 1994> -.013 Higher 1999 .109 1930 .020

====================================================================================================================================

82239A 1930 to 2010 81 years Series 41

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1950 1999 0 -.11 .04 .10 .20 .12 .10 .12 .10 .22 -.27 .33\* .03 -.35 -.03 -.28 .09 -.04 .09 .15 .05 -.02

1961 2010 0 -.15 .12 .12 .22 .13 .04 -.05 .03 .13 -.09 .31\* .15 -.39 -.07 -.20 .01 .07 .14 - - -

[B] Entire series, effect on correlation ( .392) is:

Lower 1973< -.039 1953> -.021 2010> -.019 1970< -.012 1968< -.012 1993< -.011 Higher 1939 .092 1999 .050

1950 to 1999 segment:

Lower 1973< -.066 1953> -.034 1970< -.020 1968< -.019 1993< -.016 1956< -.014 Higher 1999 .113 1991 .040

1961 to 2010 segment:

Lower 1973< -.069 2010> -.033 1970< -.021 1968< -.020 1993< -.016 1996< -.014 Higher 1999 .128 1991 .044

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1953 +3.1 SD

====================================================================================================================================

131080 1930 to 2009 80 years Series 42

[B] Entire series, effect on correlation ( .453) is:

Lower 1985< -.033 1945< -.020 1982< -.015 1971< -.013 1991> -.012 1933> -.012 Higher 1999 .047 1930 .026

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1985 -4.6 SD

====================================================================================================================================

131304 1930 to 2009 80 years Series 43

[B] Entire series, effect on correlation ( .533) is:

Lower 1930> -.045 1994> -.023 1943> -.021 1931< -.019 1937< -.017 1934> -.009 Higher 1999 .042 1966 .027

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102470 1931 to 2013 83 years Series 44

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1931 1980 -4 -.28 .01 -.27 -.15 -.16 -.37 .38\*-.20 .23 .07 .33|-.04 .20 .15 -.20 .02 -.07 .20 -.08 .13 .11

1950 1999 0 -.18 -.11 -.28 .02 -.38 -.17 .24 -.09 .04 .23 .32\* .24 -.18 -.01 -.07 -.09 -.11 -.07 .13 -.13 .09

1964 2013 0 -.05 -.16 -.28 -.07 -.27 -.02 .18 -.06 .18 .15 .30\* .22 -.17 .03 -.01 - - - - - -

[B] Entire series, effect on correlation ( .292) is:

Lower 2006> -.023 1999> -.021 2001< -.019 1998< -.014 1997> -.013 1944> -.012 Higher 1949 .019 1984 .019

1931 to 1980 segment:

Lower 1944> -.026 1948< -.023 1937< -.021 1946> -.020 1936< -.019 1958< -.017 Higher 1949 .037 1945 .022

1950 to 1999 segment:

Lower 1999> -.050 1998< -.024 1997> -.021 1958< -.012 1955< -.010 1970< -.010 Higher 1974 .020 1960 .017

1964 to 2013 segment:

Lower 1999> -.035 2006> -.033 2001< -.031 1998< -.024 1997> -.019 1970< -.011 Higher 2008 .027 1984 .024

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1997 +3.1 SD

====================================================================================================================================

110952 1931 to 2009 79 years Series 45

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1931 1980 2 .04 .23 -.29 .00 -.14 .00 -.18 -.03 .27 -.16 .25| .04 .29\* .04 -.05 .01 -.10 .09 -.29 -.13 -.12

[B] Entire series, effect on correlation ( .381) is:

Lower 1949< -.041 1939> -.036 1948< -.025 1978< -.024 2001< -.013 1991> -.011 Higher 1999 .056 2008 .017

1931 to 1980 segment:

Lower 1949< -.067 1939> -.050 1948< -.041 1978< -.039 1941< -.014 1967> -.013 Higher 1964 .058 1966 .023

====================================================================================================================================

092501 1932 to 2015 84 years Series 46

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1932 1981 0 .07 .11 .00 .09 -.01 -.06 .22 .03 -.06 -.02 .27\* .13 -.01 -.08 .09 .01 -.32 -.10 -.19 -.06 -.12

[B] Entire series, effect on correlation ( .336) is:

Lower 1942< -.045 1939> -.025 1940< -.024 1933> -.021 1961< -.014 1992< -.011 Higher 1999 .073 1943 .045

1932 to 1981 segment:

Lower 1942< -.072 1939> -.045 1933> -.038 1940< -.038 1961< -.021 1953> -.017 Higher 1943 .099 1966 .063

====================================================================================================================================

042565 1933 to 2013 81 years Series 47

[B] Entire series, effect on correlation ( .356) is:

Lower 1999> -.022 1991> -.017 1939> -.015 1982< -.014 1958< -.014 1953> -.012 Higher 1993 .040 1984 .015

====================================================================================================================================

72345A 1933 to 2012 80 years Series 48

[B] Entire series, effect on correlation ( .510) is:

Lower 2006> -.016 1998< -.015 1999> -.014 1997> -.013 1972< -.011 2011< -.010 Higher 1939 .075 1966 .024

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1939 -5.8 SD

====================================================================================================================================

110798 1933 to 2009 77 years Series 49

[B] Entire series, effect on correlation ( .469) is:

Lower 1941< -.068 1982< -.024 1943> -.019 1938< -.018 1996< -.013 1984> -.013 Higher 1999 .070 1959 .019

====================================================================================================================================

110899 1933 to 2017 85 years Series 50

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 8 .01 -.02 -.07 .15 .10 .03 .06 .01 -.11 .05 .23|-.04 -.06 -.10 -.14 .16 -.02 .04 .24\*-.17 -.08

1968 2017 0 .10 .05 -.18 -.16 .02 -.10 .03 .11 -.08 .24 .32\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .388) is:

Lower 1999> -.056 1964> -.025 1987> -.015 1965> -.013 1937< -.012 1943> -.010 Higher 1939 .112 2017 .026

1950 to 1999 segment:

Lower 1999> -.057 1964> -.046 1987> -.026 1965> -.021 1970< -.013 1951< -.013 Higher 1991 .041 1973 .038

1968 to 2017 segment:

Lower 1999> -.099 1987> -.041 2006> -.018 2004> -.017 2008< -.016 1970< -.012 Higher 2017 .074 1991 .048

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1939 -5.4 SD

====================================================================================================================================

121423 1935 to 2008 74 years Series 51

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 0 -.14 -.08 -.06 -.10 -.31 -.11 -.19 -.08 .00 .15 .21\* .14 .05 -.11 -.10 -.04 .05 -.01 .08 -.10 .08

1959 2008 0 .00 .04 -.24 -.27 -.17 -.04 -.14 -.14 .10 .17 .23\* .15 .08 -.08 -.21 .05 .00 .02 -.08 -.10 -

[B] Entire series, effect on correlation ( .292) is:

Lower 1991> -.035 1974< -.024 2008< -.022 1994> -.019 1958< -.018 1964> -.018 Higher 1939 .063 1943 .053

1950 to 1999 segment:

Lower 1991> -.049 1974< -.042 1978< -.031 1958< -.030 1951< -.026 1994> -.026 Higher 1966 .078 1959 .062

1959 to 2008 segment:

Lower 1991> -.051 1974< -.043 2008< -.037 1978< -.031 1994> -.027 1964> -.025 Higher 1966 .078 1959 .060

====================================================================================================================================

122554 1935 to 2009 75 years Series 52

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1935 1984 3 -.12 -.21 -.08 -.04 -.02 -.11 .16 -.10 -.17 -.19 .38|-.06 .15 .39\* .05 .13 .04 .23 .01 -.15 -.08

[B] Entire series, effect on correlation ( .520) is:

Lower 2001< -.026 1991> -.016 1951< -.016 1936< -.015 2009> -.015 1966> -.013 Higher 1999 .204 1959 .016

1935 to 1984 segment:

Lower 1951< -.030 1936< -.028 1965> -.020 1953> -.018 1960< -.016 1974< -.015 Higher 1959 .045 1972 .028

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2001 -5.1 SD

====================================================================================================================================

32189 1936 to 2009 74 years Series 53

[B] Entire series, effect on correlation ( .536) is:

Lower 1984> -.023 2008< -.016 1977< -.015 2005< -.013 1992< -.013 1994> -.012 Higher 1999 .056 1966 .025

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190438 1936 to 2009 74 years Series 54

[B] Entire series, effect on correlation ( .406) is:

Lower 1999> -.066 1937< -.026 1958< -.020 1982< -.012 1998< -.011 2005< -.011 Higher 2008 .027 1993 .025

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52237A 1937 to 2014 78 years Series 55

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1937 1986 10 .07 -.30 -.21 -.12 -.28 -.10 .33 -.07 .05 .05 .27| .08 .06 .21 -.21 -.07 -.27 .00 -.09 -.02 .37\*

1950 1999 10 -.01 -.40 -.11 -.23 -.33 -.06 .20 -.01 .17 .11 .28| .02 -.04 .19 -.20 .04 -.17 -.18 -.09 -.08 .31\*

1965 2014 0 -.09 -.03 -.17 .03 -.27 .06 .20 -.11 .09 .06 .31\*-.03 -.13 .31 - - - - - - -

[B] Entire series, effect on correlation ( .284) is:

Lower 1981< -.055 1939> -.028 2008< -.021 1959> -.019 1949< -.019 1954< -.013 Higher 1943 .056 1966 .023

1937 to 1986 segment:

Lower 1981< -.082 1939> -.051 1959> -.032 1949< -.029 1954< -.015 1937< -.013 Higher 1943 .098 1966 .034

1950 to 1999 segment:

Lower 1981< -.099 1954< -.032 1959> -.027 1953> -.010 1977> -.009 1951< -.008 Higher 1966 .037 1993 .027

1965 to 2014 segment:

Lower 1981< -.123 2008< -.039 1977> -.011 1999> -.009 1991> -.008 1982< -.008 Higher 1966 .041 1993 .028

====================================================================================================================================

80641A 1937 to 2016 80 years Series 56

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1937 1986 -8 .06 .20 .22\*-.17 .11 -.06 -.17 -.40 .07 .07 .21| .19 .13 .01 -.10 -.12 -.26 -.09 -.20 -.16 -.08

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

1967 2016 0 .12 -.10 .11 .08 .05 -.11 .19 -.29 -.06 -.04 .28\* .16 - - - - - - - - -

[B] Entire series, effect on correlation ( .256) is:

Lower 2016< -.040 1952< -.038 2006> -.014 1939> -.013 1970< -.012 1998< -.010 Higher 1999 .092 1993 .021

1937 to 1986 segment:

Lower 1952< -.053 1939> -.022 1970< -.019 1945< -.015 1943> -.012 1940< -.010 Higher 1960 .020 1965 .019

1967 to 2016 segment:

Lower 2016< -.079 2006> -.028 1970< -.023 1997> -.022 1998< -.020 1990< -.018 Higher 1999 .217 1993 .035

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1952 -6.3 SD

====================================================================================================================================

110950 1938 to 2009 72 years Series 57

[B] Entire series, effect on correlation ( .446) is:

Lower 1990< -.030 2002< -.023 1980< -.022 1966> -.015 1996< -.014 1987> -.013 Higher 1999 .062 1991 .023

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1991 -5.5 SD

====================================================================================================================================

120924 1938 to 2009 72 years Series 58

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1938 1987 -7 -.05 .06 -.05 .54\*-.02 .10 -.04 .05 -.05 -.08 .38|-.03 -.10 -.04 .13 -.05 -.12 .12 -.11 -.48 -.05

[B] Entire series, effect on correlation ( .376) is:

Lower 1972< -.033 1949< -.017 1994> -.016 1992< -.014 1943> -.012 1938< -.012 Higher 1999 .045 1939 .043

1938 to 1987 segment:

Lower 1972< -.048 1949< -.027 1943> -.022 1938< -.018 1954> -.017 1973< -.016 Higher 1939 .061 1945 .023

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50406 1939 to 2009 71 years Series 59

[B] Entire series, effect on correlation ( .482) is:

Lower 2006< -.026 1970< -.022 1989< -.021 1945< -.020 1974< -.017 2009> -.011 Higher 1939 .048 1993 .017

====================================================================================================================================

140735 1939 to 2009 71 years Series 60

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1939 1988 0 .09 -.06 -.04 .18 -.09 -.20 .17 -.20 .15 -.01 .21\* .09 -.17 -.10 -.23 -.17 -.11 -.20 -.07 .05 .10

[B] Entire series, effect on correlation ( .365) is:

Lower 1939> -.117 1964> -.026 1977> -.018 1995< -.016 1948< -.014 1994> -.013 Higher 1999 .169 1966 .050

1939 to 1988 segment:

Lower 1939> -.177 1964> -.037 1977> -.025 1948< -.023 1951< -.018 1944> -.017 Higher 1966 .112 1965 .056

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1939 +4.0 SD; 1982 +3.3 SD

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12490 1940 to 2009 70 years Series 61

[B] Entire series, effect on correlation ( .426) is:

Lower 1950< -.095 1948< -.026 2005< -.020 1994> -.013 1978< -.012 2009> -.007 Higher 1999 .025 1945 .020

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80248 1940 to 2009 70 years Series 62

[B] Entire series, effect on correlation ( .568) is:

Lower 1970< -.090 1988> -.018 1965> -.017 1941< -.012 1993< -.011 1995< -.010 Higher 1999 .148 1966 .046

====================================================================================================================================

92442A 1940 to 2010 71 years Series 63

[B] Entire series, effect on correlation ( .439) is:

Lower 1955< -.078 1996< -.020 1977> -.019 1946> -.016 2010< -.011 1974< -.011 Higher 1999 .069 1966 .050

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82381A 1942 to 2013 72 years Series 64

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1942 1991 0 -.12 .00 -.24 .16 -.28 .09 -.14 .02 .10 .24 .27\*-.03 .07 .06 .00 .07 -.07 -.10 -.12 -.13 -.13

1950 1999 0 -.11 .01 -.22 .18 -.34 -.01 -.08 .16 .02 .14 .26\* .04 -.02 -.06 .01 .13 -.06 -.20 -.13 -.13 -.16

1964 2013 0 -.14 .04 -.36 .11 -.20 -.02 -.13 .08 .14 .18 .25\* .06 -.05 -.07 -.04 - - - - - -

[B] Entire series, effect on correlation ( .237) is:

Lower 1965> -.066 1977> -.028 1999> -.020 1960< -.019 1991> -.018 1945< -.017 Higher 1966 .185 1972 .013

1942 to 1991 segment:

Lower 1965> -.108 1977> -.047 1991> -.032 1960< -.029 1945< -.025 1980< -.020 Higher 1966 .307 1972 .022

1950 to 1999 segment:

Lower 1965> -.085 1999> -.042 1977> -.036 1960< -.025 1991> -.024 1980< -.022 Higher 1966 .233 1972 .019

1964 to 2013 segment:

Lower 1965> -.080 1977> -.033 1999> -.032 2008< -.022 1991> -.021 1980< -.020 Higher 1966 .239 1972 .017

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1965 +4.1 SD

====================================================================================================================================

42232A 1943 to 2010 68 years Series 65

[B] Entire series, effect on correlation ( .362) is:

Lower 1995< -.074 1945< -.028 2004< -.024 1994> -.024 1991> -.021 1992< -.016 Higher 1999 .139 1949 .021

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180751 1943 to 2009 67 years Series 66

[B] Entire series, effect on correlation ( .619) is:

Lower 1951< -.034 2009< -.031 1980> -.018 1964> -.014 1996< -.013 1959> -.012 Higher 1999 .136 1991 .014

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42544 1944 to 2009 66 years Series 67

[B] Entire series, effect on correlation ( .453) is:

Lower 1959> -.035 2008< -.020 1974< -.017 1962< -.017 1998< -.010 1972< -.010 Higher 1991 .027 1966 .019

====================================================================================================================================

052246 1945 to 2010 66 years Series 68

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1945 1994 0 .12 .10 -.06 .06 -.08 -.11 -.11 .06 -.14 -.02 .25\* .09 .25 -.02 .00 .20 -.31 -.10 -.09 .05 -.12

1950 1999 0 .09 .07 -.07 .01 .01 -.16 -.10 .11 -.09 .05 .25\* .05 .15 -.19 -.06 .22 -.29 -.07 -.08 .06 -.12

1961 2010 0 .17 -.06 -.12 -.12 -.03 -.11 -.18 .16 -.19 .05 .27\* .06 .14 -.23 -.01 .21 -.38 -.21 - - -

[B] Entire series, effect on correlation ( .260) is:

Lower 1975< -.042 1972< -.031 1977> -.022 1999> -.016 1986< -.013 1958< -.013 Higher 1966 .033 1993 .032

1945 to 1994 segment:

Lower 1975< -.054 1972< -.042 1977> -.036 1965> -.017 1958< -.017 1949< -.016 Higher 1993 .049 1966 .043

1950 to 1999 segment:

Lower 1975< -.060 1972< -.041 1977> -.024 1986< -.020 1999> -.018 1958< -.017 Higher 1993 .043 1966 .040

1961 to 2010 segment:

Lower 1975< -.057 1972< -.039 1999> -.027 1977> -.025 1986< -.018 2006> -.012 Higher 1993 .041 1966 .037

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72212A 1946 to 2013 68 years Series 69

[B] Entire series, effect on correlation ( .452) is:

Lower 1996< -.024 2010> -.020 2011< -.016 2004< -.012 1994> -.011 1983> -.010 Higher 1999 .038 1966 .030

====================================================================================================================================

60287 1947 to 2009 63 years Series 70

[B] Entire series, effect on correlation ( .650) is:

Lower 1991> -.045 1949< -.029 1950< -.019 2002< -.015 1982< -.013 1995< -.012 Higher 1999 .151 1966 .055

====================================================================================================================================

180794 1948 to 2009 62 years Series 71

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1948 1997 0 -.37 .03 -.26 -.12 -.20 -.10 -.14 .03 .04 .03 .30\*-.09 .03 .06 .11 -.06 -.01 .11 .07 .09 -.02

1950 1999 0 -.35 .02 -.24 -.17 -.16 -.01 -.21 .04 .04 .00 .26\*-.18 .02 .06 .13 -.05 -.01 .12 .05 .05 .03

1960 2009 -5 .00 -.04 -.29 -.10 -.10 .28\*-.13 -.07 -.11 -.06 .22|-.07 .07 .11 -.08 -.07 .03 .00 .03 - -

[B] Entire series, effect on correlation ( .261) is:

Lower 1980< -.056 1955< -.035 2004< -.025 1999> -.023 1994> -.020 1967> -.009 Higher 1959 .040 1991 .020

1948 to 1997 segment:

Lower 1980< -.090 1955< -.052 1994> -.032 1967> -.014 1969> -.014 1979> -.010 Higher 1959 .061 1991 .030

1950 to 1999 segment:

Lower 1980< -.089 1955< -.051 1994> -.022 1999> -.020 1961< -.011 1967> -.009 Higher 1959 .045 1991 .024

1960 to 2009 segment:

Lower 1980< -.078 2004< -.033 1994> -.024 1967> -.010 1969> -.009 1961< -.009 Higher 1991 .027 1993 .025

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131192 1949 to 2001 53 years Series 72

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1949 1998 0 -.33 .09 -.28 -.01 -.12 -.11 .02 .03 .06 -.08 .33\*-.12 .03 -.15 -.04 .18 .11 .19 .04 .15 -.08

1950 1999 0 -.26 .06 -.28 -.03 -.07 -.07 -.04 .05 .03 -.12 .26\*-.13 .01 -.16 -.02 .19 .10 .19 .03 .10 -.04

1952 2001 0 -.23 .02 -.21 -.02 -.14 .00 -.05 .07 .00 -.19 .26\*-.09 .04 -.16 -.03 .20 .09 .21 .13 .05 -.02

[B] Entire series, effect on correlation ( .291) is:

Lower 1986< -.035 1999> -.024 1965> -.022 1970< -.020 1984> -.013 1960< -.010 Higher 1959 .054 1949 .032

1949 to 1998 segment:

Lower 1986< -.036 1965> -.035 1970< -.023 1984> -.021 1967> -.014 1954> -.014 Higher 1959 .085 1949 .039

1950 to 1999 segment:

Lower 1986< -.037 1965> -.025 1999> -.024 1970< -.020 1984> -.015 1967> -.010 Higher 1959 .061 1978 .018

1952 to 2001 segment:

Lower 1986< -.038 1965> -.023 1970< -.021 1999> -.017 1984> -.013 1960< -.010 Higher 1959 .060 1978 .017

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1959 -5.2 SD

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160777 1949 to 2009 61 years Series 73

[B] Entire series, effect on correlation ( .438) is:

Lower 2009< -.035 1991> -.022 1980< -.015 1984> -.012 1949< -.010 1953> -.009 Higher 1965 .024 2008 .019

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52388 1950 to 2009 60 years Series 74

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1999 8 .12 .05 -.06 .17 -.04 .05 -.25 -.01 .12 -.28 .31|-.09 -.28 -.06 -.13 .04 .12 -.16 .36\* .08 .13

1960 2009 8 -.13 -.04 .01 .05 -.01 -.01 -.05 .18 .05 -.09 .22|-.09 -.24 -.01 -.08 -.02 -.06 -.19 .34\* - -

[B] Entire series, effect on correlation ( .241) is:

Lower 2002< -.053 1999> -.052 1971< -.020 1965> -.019 1964> -.016 1978< -.012 Higher 1991 .053 1959 .038

1950 to 1999 segment:

Lower 1999> -.071 1971< -.032 1965> -.022 1964> -.018 1978< -.017 1958< -.016 Higher 1991 .049 1959 .039

1960 to 2009 segment:

Lower 2002< -.065 1999> -.047 1971< -.025 1965> -.020 1964> -.017 1978< -.015 Higher 1991 .066 1966 .047

====================================================================================================================================

112421 1950 to 2010 61 years Series 75

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1950 1999 -5 -.18 -.30 .02 -.20 .02 .28\* .00 .27 .06 .05 .27|-.07 -.16 -.04 -.10 -.03 -.18 .07 .19 -.02 .25

[B] Entire series, effect on correlation ( .253) is:

Lower 1956< -.113 1958< -.024 1951< -.016 2010> -.016 1972< -.014 2001< -.013 Higher 1999 .137 1993 .039

1950 to 1999 segment:

Lower 1956< -.151 1958< -.028 1951< -.020 1972< -.017 1953> -.013 1966> -.012 Higher 1999 .152 1993 .046

[C] Year-to-year changes diverging by over 4.0 std deviations:

1955 1956 -4.0 SD

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131017 1950 to 2009 60 years Series 76

[B] Entire series, effect on correlation ( .665) is:

Lower 1980> -.030 1995< -.026 1978< -.022 1988> -.012 2009> -.008 1954> -.008 Higher 1999 .184 1991 .013

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131047 1950 to 2009 60 years Series 77

[B] Entire series, effect on correlation ( .433) is:

Lower 1982< -.106 1995< -.026 2005< -.025 1959> -.024 1977> -.017 1951< -.014 Higher 1999 .187 2008 .027

====================================================================================================================================

171403 1950 to 2014 65 years Series 78

[B] Entire series, effect on correlation ( .365) is:

Lower 2014< -.036 1984> -.027 1995< -.025 1973< -.025 1959> -.025 1978< -.019 Higher 1999 .300 2008 .011

====================================================================================================================================

190497 1950 to 2010 61 years Series 79

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1961 2010 0 .00 -.24 .21 -.08 .23 .12 -.16 .02 -.18 .16 .29\*-.15 .23 -.22 -.27 -.12 -.19 .09 - - -

[B] Entire series, effect on correlation ( .302) is:

Lower 1997< -.035 1970< -.022 1992< -.020 2006> -.018 1984> -.018 2005< -.017 Higher 1999 .127 1966 .038

1961 to 2010 segment:

Lower 1997< -.041 1970< -.024 1992< -.022 2006> -.021 1984> -.020 2005< -.020 Higher 1999 .146 1966 .042

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200168 1950 to 2009 60 years Series 80

[B] Entire series, effect on correlation ( .416) is:

Lower 2002< -.050 1994> -.031 2008< -.030 1979> -.021 1977> -.021 1975< -.018 Higher 1999 .174 1966 .040

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200389 1950 to 2009 60 years Series 81

[B] Entire series, effect on correlation ( .404) is:

Lower 1983< -.041 1977> -.021 1992< -.020 2000> -.015 2004< -.010 1979> -.009 Higher 1966 .030 1984 .019

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2000 +3.0 SD

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62248 1952 to 2009 58 years Series 82

[B] Entire series, effect on correlation ( .484) is:

Lower 1959> -.032 1977< -.032 2005< -.019 2007< -.014 1978< -.013 1963> -.011 Higher 1999 .046 2008 .020

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121442 1952 to 2009 58 years Series 83

[B] Entire series, effect on correlation ( .472) is:

Lower 1996< -.067 1988< -.030 1954> -.026 1955< -.021 1994> -.015 1993< -.013 Higher 1999 .087 1977 .020

====================================================================================================================================

12369A 1953 to 2013 61 years Series 84

[B] Entire series, effect on correlation ( .330) is:

Lower 1960< -.060 1970< -.037 1981< -.023 2006> -.016 2010> -.015 1966> -.012 Higher 1999 .287 1993 .027

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70469A 1953 to 2007 55 years Series 85

[B] Entire series, effect on correlation ( .457) is:

Lower 2007< -.051 1953> -.030 1981< -.027 1993< -.023 1977> -.020 2001< -.016 Higher 1999 .256 1972 .016

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80746 1953 to 2000 48 years Series 86

[B] Entire series, effect on correlation ( .374) is:

Lower 1986< -.073 1966> -.057 1960< -.036 1974< -.029 1988> -.025 1990< -.020 Higher 1999 .266 1977 .024

[C] Year-to-year changes diverging by over 4.0 std deviations:

1987 1988 4.0 SD

====================================================================================================================================

110128 1953 to 2009 57 years Series 87

[B] Entire series, effect on correlation ( .402) is:

Lower 1999> -.085 2003< -.027 1981< -.021 1982< -.019 1992< -.015 1994> -.010 Higher 1966 .093 1993 .024

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190018 1953 to 2009 57 years Series 88

[B] Entire series, effect on correlation ( .573) is:

Lower 1997< -.047 1979> -.019 1994> -.016 1980< -.012 2007< -.012 1999> -.011 Higher 1966 .083 1977 .014

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90369 1954 to 2009 56 years Series 89

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1954 2003 0 -.08 -.06 -.16 -.05 .03 -.05 .04 .13 -.09 .10 .31\* .07 -.06 -.01 -.06 .05 -.03 -.02 .07 -.06 -.31

1960 2009 0 -.14 -.07 -.28 -.06 -.12 -.01 .06 .17 -.07 .12 .33\* .06 -.03 .00 .00 -.03 .00 -.03 .18 - -

[B] Entire series, effect on correlation ( .328) is:

Lower 1980< -.126 1979> -.025 1984> -.017 1987> -.012 1970< -.010 1998< -.010 Higher 1999 .033 1991 .027

1954 to 2003 segment:

Lower 1980< -.135 1979> -.028 1984> -.019 1987> -.013 1970< -.010 1998< -.010 Higher 1999 .034 1991 .027

1960 to 2009 segment:

Lower 1980< -.141 1979> -.028 1984> -.018 1987> -.013 1970< -.011 1998< -.010 Higher 1999 .035 1991 .028

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90645 1954 to 2009 56 years Series 90

[B] Entire series, effect on correlation ( .526) is:

Lower 1979> -.041 1978< -.030 1988> -.021 1989> -.020 2008< -.017 2005< -.015 Higher 1999 .210 1972 .014

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1989 +3.0 SD

====================================================================================================================================

100997 1954 to 2009 56 years Series 91

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1960 2009 0 .17 -.10 -.04 -.15 -.28 .01 .09 .09 .18 -.12 .28\* .07 -.10 -.03 -.12 -.04 -.15 -.11 -.20 - -

[B] Entire series, effect on correlation ( .264) is:

Lower 1959> -.028 2009< -.028 2008< -.021 1970< -.020 1977> -.017 1994> -.015 Higher 1999 .073 1966 .043

1960 to 2009 segment:

Lower 2009< -.034 2008< -.023 1970< -.022 1977> -.020 1994> -.017 2006> -.016 Higher 1999 .074 1966 .045

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2009 -4.7 SD

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160665 1954 to 2009 56 years Series 92

[B] Entire series, effect on correlation ( .375) is:

Lower 1956< -.074 1980< -.031 1982< -.022 1994> -.015 1954> -.014 1974< -.013 Higher 2008 .033 1966 .029

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200988 1954 to 2009 56 years Series 93

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1954 2003 2 -.13 -.09 -.08 -.25 -.25 -.03 -.08 .00 -.09 .14 .23| .07 .26\* .17 .20 -.21 -.20 -.06 -.13 -.15 .11

1960 2009 -8 .00 -.18 .30\*-.18 -.20 -.17 -.09 .00 -.13 .10 .21|-.08 .19 .19 .06 -.09 -.20 .02 -.14 - -

[B] Entire series, effect on correlation ( .165) is:

Lower 2007< -.064 1981< -.053 1959> -.036 1962< -.018 1994> -.016 1954> -.013 Higher 1999 .108 1993 .046

1954 to 2003 segment:

Lower 1981< -.096 1959> -.045 1962< -.032 1994> -.019 1978< -.018 1955< -.018 Higher 1999 .141 1993 .053

1960 to 2009 segment:

Lower 2007< -.083 1981< -.063 1962< -.021 1994> -.020 1966> -.015 1979> -.014 Higher 1999 .102 1993 .050

====================================================================================================================================

50281 1955 to 2009 55 years Series 94

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1955 2004 0 -.05 .10 .12 .10 -.16 -.01 -.09 -.15 -.07 -.22 .26\* .10 -.04 -.21 -.03 -.04 -.03 -.15 .01 .05 .16

[B] Entire series, effect on correlation ( .260) is:

Lower 1955< -.060 1974< -.042 1982< -.030 1965> -.024 1959> -.016 2005< -.011 Higher 1999 .075 1966 .032

1955 to 2004 segment:

Lower 1955< -.071 1974< -.049 1982< -.035 1965> -.024 1959> -.016 1973< -.014 Higher 1999 .090 1966 .038

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80282 1955 to 2009 55 years Series 95

[B] Entire series, effect on correlation ( .386) is:

Lower 1993< -.079 2007< -.047 1980< -.034 1977> -.023 1979> -.016 1981< -.016 Higher 1999 .080 1991 .032

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200038 1955 to 2009 55 years Series 96

[B] Entire series, effect on correlation ( .642) is:

Lower 2002< -.040 1976< -.038 1984> -.030 1972< -.026 1964> -.018 1994> -.011 Higher 1999 .184 1966 .025

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121017 1956 to 2017 62 years Series 97

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1968 2017 -10 .33\*-.09 .26 -.05 -.17 .08 -.06 .11 .00 -.11 .31| - - - - - - - - - -

[B] Entire series, effect on correlation ( .321) is:

Lower 1964> -.037 2007< -.035 1977> -.024 1991> -.018 1956< -.017 1963> -.015 Higher 1999 .037 1965 .036

1968 to 2017 segment:

Lower 2007< -.043 1977> -.035 1991> -.026 1988> -.012 1982< -.011 1979> -.009 Higher 1999 .060 2017 .017

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1964 +3.2 SD

====================================================================================================================================

190075 1957 to 2015 59 years Series 98

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1957 2006 -5 .13 -.09 -.23 .08 -.09 .29\*-.15 .10 .15 -.03 .29| .14 .26 -.15 -.30 .00 -.19 -.12 -.02 -.21 -.02

1966 2015 -5 .13 -.19 -.16 .16 -.01 .28\*-.11 .22 .10 -.04 .27| .03 .24 - - - - - - - -

[B] Entire series, effect on correlation ( .311) is:

Lower 1985> -.056 2004< -.042 1959> -.029 1993< -.017 1978< -.012 2015> -.012 Higher 1999 .025 1964 .023

1957 to 2006 segment:

Lower 1985> -.064 2004< -.048 1959> -.033 1993< -.015 1978< -.012 1997< -.009 Higher 1999 .028 1964 .025

1966 to 2015 segment:

Lower 1985> -.064 2004< -.043 1993< -.019 1978< -.013 2015> -.013 1997< -.008 Higher 1999 .042 1966 .029

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1985 +3.7 SD

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172220 1959 to 2016 58 years Series 99

[B] Entire series, effect on correlation ( .415) is:

Lower 2003< -.127 1960< -.034 2016> -.012 1980> -.011 1978< -.011 1990< -.010 Higher 1999 .058 1964 .021

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60083 1960 to 2009 50 years Series 100

[B] Entire series, effect on correlation ( .516) is:

Lower 1975< -.067 1999> -.039 1981< -.037 1991> -.014 1980> -.012 1998< -.012 Higher 1966 .046 1993 .034

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170994 1960 to 2009 50 years Series 101

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1960 2009 0 .13 -.07 -.15 .08 -.09 -.05 -.16 -.18 -.09 -.01 .31\*-.04 -.02 .15 -.04 .08 -.18 -.05 .17 - -

[B] Entire series, effect on correlation ( .310) is:

Lower 1976< -.078 1981< -.061 1965> -.017 1972< -.016 1985> -.013 1984> -.009 Higher 1966 .039 2008 .025

1960 to 2009 segment:

Lower 1976< -.078 1981< -.061 1965> -.017 1972< -.016 1985> -.013 1984> -.009 Higher 1966 .039 2008 .025

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1976 -4.8 SD

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22603 1962 to 2009 48 years Series 102

[B] Entire series, effect on correlation ( .482) is:

Lower 1966> -.059 1972< -.031 1991> -.023 1984> -.019 1982< -.018 1992< -.017 Higher 1999 .379 1993 .030

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22604 1964 to 2009 46 years Series 103

[B] Entire series, effect on correlation ( .486) is:

Lower 1980< -.039 1993< -.030 1973< -.021 1965> -.021 1990< -.011 1994> -.011 Higher 1966 .131 2008 .023

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192128 1965 to 2009 45 years Series 104

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1965 2009 0 .15 .00 -.06 .25 -.23 -.19 -.03 -.08 .18 -.08 .32\* .15 -.19 .09 -.08 .14 -.18 -.17 .13 - -

[B] Entire series, effect on correlation ( .318) is:

Lower 1973< -.123 1965> -.066 1998< -.045 1996< -.022 2006> -.014 2001< -.014 Higher 1966 .060 1993 .041

1965 to 2009 segment:

Lower 1973< -.123 1965> -.066 1998< -.045 1996< -.022 2006> -.014 2001< -.014 Higher 1966 .060 1993 .041

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1965 +3.1 SD

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110379 1970 to 2009 40 years Series 105

[B] Entire series, effect on correlation ( .441) is:

Lower 1977< -.025 1999> -.018 1983< -.017 1985> -.016 2002< -.008 2000> -.007 Higher 1993 .018 2008 .012

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1977 -5.9 SD

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192129 1971 to 2009 39 years Series 106

[B] Entire series, effect on correlation ( .404) is:

Lower 1999> -.048 2007< -.031 2005< -.028 2009> -.011 2001< -.011 1997> -.010 Higher 1977 .029 1984 .026

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202162 1980 to 2009 30 years Series 107

[B] Entire series, effect on correlation ( .596) is:

Lower 1985< -.040 1997< -.030 1980> -.020 2000< -.020 2002< -.014 1989> -.011 Higher 1999 .146 2008 .031

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12366 1981 to 2009 29 years Series 108

[B] Entire series, effect on correlation ( .535) is:

Lower 1987> -.072 2002< -.069 1995< -.045 1994> -.042 1983< -.013 2009> -.011 Higher 1999 .329 2008 .027

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200188 1990 to 2017 28 years Series 109

[B] Entire series, effect on correlation ( .347) is:

Lower 1990< -.058 2009< -.046 1994> -.031 2010> -.013 2003< -.011 2012> -.009 Higher 2017 .082 2008 .044

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Corr //-------- Unfiltered --------\\ //---- Filtered -----\\

No. No. No. with Mean Max Std Auto Mean Max Std Auto AR

Seq Series Interval Years Segmt Flags Master msmt msmt dev corr sens value dev corr ()

--- -------- --------- ----- ----- ----- ------ ----- ----- ----- ----- ----- ----- ----- ----- --

1 82368 1870 2009 140 5 2 .349 .95 3.75 .721 .827 .291 2.77 .373 -.019 1

2 172229 1880 2009 130 5 0 .462 2.45 5.71 1.362 .769 .293 2.72 .443 .012 1

3 80711 1906 2009 104 4 2 .420 2.14 5.55 1.012 .651 .321 2.73 .488 -.092 2

4 121212 1908 2009 102 4 0 .649 3.24 6.65 .991 .503 .231 2.96 .470 .007 1

5 20804A 1913 2005 93 4 1 .370 1.22 4.67 1.140 .892 .271 2.65 .320 -.009 2

6 70433 1914 2009 96 4 0 .498 3.18 9.58 1.519 .740 .279 2.82 .611 -.107 1

7 80719 1915 2009 95 4 4 .266 .86 2.89 .484 .819 .252 2.67 .511 -.008 1

8 111033 1915 1996 82 3 2 .206 .51 2.97 .662 .936 .253 2.72 .478 -.092 1

9 92493 1917 2009 93 4 1 .501 .90 2.57 .564 .804 .299 2.72 .396 -.073 1

10 111134 1918 2005 88 4 2 .373 2.53 7.26 1.489 .868 .254 2.90 .554 .046 1

11 111166 1918 2014 97 4 0 .430 .97 2.59 .685 .904 .239 2.95 .627 -.025 1

12 50555 1919 2009 91 4 0 .398 1.34 4.95 .903 .806 .282 2.94 .456 -.065 2

13 82218 1919 2009 91 4 0 .547 2.82 7.44 1.704 .814 .266 2.67 .468 -.028 1

14 90607A 1919 2008 90 4 2 .282 .65 2.44 .419 .815 .311 2.45 .333 -.064 1

15 90287 1920 2009 90 4 0 .566 2.26 8.07 1.428 .828 .292 2.59 .479 .005 1

16 160962 1920 2007 88 4 0 .435 .50 2.08 .431 .739 .356 2.87 .442 -.086 1

17 92486A 1921 2009 89 4 2 .455 .45 1.25 .268 .826 .274 2.61 .462 -.048 1

18 22545 1922 2009 88 4 0 .528 3.02 6.53 1.079 .619 .235 2.62 .519 -.036 1

19 82317 1922 2009 88 4 2 .332 .85 3.20 .785 .810 .353 2.74 .510 -.009 1

20 82403A 1922 2013 92 4 0 .554 .89 4.68 1.029 .950 .277 2.61 .420 -.038 1

21 92360A 1922 2015 94 4 3 .281 .43 2.97 .538 .727 .408 3.03 .643 -.118 2

22 121284 1922 2009 88 4 0 .625 2.66 7.11 1.383 .800 .265 2.80 .461 -.074 1

23 50474 1923 2009 87 4 4 .230 1.46 4.74 .955 .792 .319 2.85 .435 .011 1

24 111030 1923 2009 87 4 0 .529 3.44 9.70 1.808 .849 .236 2.65 .523 -.045 2

25 111051 1923 2009 87 4 0 .452 2.46 7.24 1.509 .830 .221 2.63 .491 -.031 2

26 151051 1923 2016 94 4 2 .249 1.05 4.75 1.068 .878 .276 2.80 .393 -.028 1

27 42250A 1924 2014 91 4 2 .332 .94 3.14 .704 .799 .312 2.71 .408 -.064 2

28 110902 1924 2011 88 4 3 .297 .67 1.66 .394 .803 .269 2.77 .444 .082 1

29 130579 1924 2009 86 4 0 .451 3.69 7.33 1.295 .584 .256 2.52 .431 -.021 1

30 140820 1924 2016 93 4 3 .273 .72 3.65 .792 .906 .271 2.78 .496 -.040 1

31 110791 1925 2009 85 3 0 .586 2.85 9.76 2.385 .908 .279 2.83 .552 .061 1

32 110914 1925 2009 85 3 0 .527 3.09 7.40 1.487 .806 .223 2.67 .470 -.029 1

33 160930 1925 2009 85 3 0 .516 2.24 4.07 .880 .789 .211 2.62 .482 -.053 1

34 90285A 1926 2012 87 3 2 .233 1.01 5.37 1.262 .904 .280 3.04 .474 .026 1

35 111014 1926 2008 83 3 0 .531 3.55 8.31 1.829 .898 .197 2.37 .348 -.032 2

36 91377 1927 2009 83 3 0 .449 1.21 4.37 .864 .781 .306 2.74 .336 -.119 1

37 91491 1928 2009 82 3 3 .220 .44 1.70 .408 .840 .280 2.74 .463 -.193 1

38 92389 1928 2009 82 3 0 .435 .62 3.09 .638 .819 .395 2.87 .528 -.058 1

39 60125 1929 2009 81 3 2 .397 .38 1.06 .251 .723 .344 2.67 .516 -.081 1

40 102412 1929 2009 81 3 0 .589 2.53 8.02 1.943 .840 .336 2.79 .459 .015 2

41 82239A 1930 2010 81 3 2 .392 1.22 3.57 .933 .859 .234 2.65 .394 .026 1

42 131080 1930 2009 80 3 0 .453 1.62 4.02 .909 .704 .358 2.69 .492 -.042 1

43 131304 1930 2009 80 3 0 .533 3.28 5.81 1.083 .667 .222 2.77 .474 -.033 1

44 102470 1931 2013 83 3 3 .292 1.07 4.33 1.141 .884 .292 2.87 .433 -.018 1

45 110952 1931 2009 79 3 1 .381 .45 1.37 .271 .670 .370 2.75 .508 -.019 1

46 092501 1932 2015 84 3 1 .336 .90 5.21 1.062 .904 .288 2.95 .507 .069 2

47 042565 1933 2013 81 3 0 .356 2.18 6.05 1.280 .690 .354 3.08 .508 -.081 1

48 72345A 1933 2012 80 3 0 .510 .81 2.95 .810 .890 .345 2.65 .335 -.093 3

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Corr //-------- Unfiltered --------\\ //---- Filtered -----\\

No. No. No. with Mean Max Std Auto Mean Max Std Auto AR

Seq Series Interval Years Segmt Flags Master msmt msmt dev corr sens value dev corr ()

--- -------- --------- ----- ----- ----- ------ ----- ----- ----- ----- ----- ----- ----- ----- --

49 110798 1933 2009 77 3 0 .469 4.05 6.35 1.138 .640 .207 2.67 .527 -.045 1

50 110899 1933 2017 85 3 2 .388 .56 2.83 .590 .813 .372 2.49 .319 -.077 1

51 121423 1935 2008 74 3 2 .292 .98 2.75 .692 .917 .223 2.75 .543 -.018 1

52 122554 1935 2009 75 3 1 .520 .67 2.30 .601 .846 .364 2.67 .371 .016 1

53 32189 1936 2009 74 3 0 .536 2.83 6.34 1.386 .648 .296 2.50 .432 -.039 1

54 190438 1936 2009 74 3 0 .406 3.46 8.38 1.996 .886 .223 2.76 .441 -.028 1

55 52237A 1937 2014 78 3 3 .284 1.91 4.64 1.014 .709 .350 2.45 .496 -.040 1

56 80641A 1937 2016 80 3 2 .256 .55 2.03 .461 .734 .372 2.65 .408 .045 1

57 110950 1938 2009 72 3 0 .446 2.18 5.72 1.429 .838 .282 2.71 .503 .055 1

58 120924 1938 2009 72 3 1 .376 .66 2.41 .574 .873 .287 2.57 .437 -.061 3

59 50406 1939 2009 71 3 0 .482 1.65 3.16 .653 .768 .216 2.68 .487 -.062 1

60 140735 1939 2009 71 3 1 .365 .86 5.72 1.117 .973 .265 3.04 .526 -.065 1

61 12490 1940 2009 70 3 0 .426 2.06 5.01 1.078 .841 .241 2.64 .404 -.063 1

62 80248 1940 2009 70 3 0 .568 .81 1.96 .423 .635 .380 2.66 .474 -.080 2

63 92442A 1940 2010 71 3 0 .439 1.14 4.24 .945 .879 .319 2.83 .490 .096 1

64 82381A 1942 2013 72 3 3 .237 .83 2.82 .748 .830 .296 2.69 .359 -.049 1

65 42232A 1943 2010 68 3 0 .362 .71 3.02 .748 .911 .336 3.00 .534 .058 1

66 180751 1943 2009 67 3 0 .619 3.21 11.71 2.187 .888 .237 2.77 .473 -.056 1

67 42544 1944 2009 66 3 0 .453 1.73 4.71 1.286 .879 .283 3.07 .556 -.142 1

68 052246 1945 2010 66 3 3 .260 .39 2.75 .419 .578 .340 3.11 .552 .048 1

69 72212A 1946 2013 68 3 0 .452 1.00 3.57 .873 .881 .335 2.74 .543 .009 1

70 60287 1947 2009 63 3 0 .650 2.79 4.75 .979 .722 .249 2.57 .452 .023 1

71 180794 1948 2009 62 3 3 .261 2.68 5.88 1.310 .778 .266 2.52 .465 .002 1

72 131192 1949 2001 53 3 3 .291 .93 3.71 .708 .784 .319 2.70 .450 .011 1

73 160777 1949 2009 61 3 0 .438 3.10 6.42 1.308 .783 .233 2.61 .520 -.011 3

74 52388 1950 2009 60 2 2 .241 .97 2.39 .673 .800 .313 2.77 .581 -.045 2

75 112421 1950 2010 61 2 1 .253 .64 2.66 .547 .841 .332 2.55 .394 -.059 1

76 131017 1950 2009 60 2 0 .665 1.31 4.07 .911 .694 .349 2.80 .405 -.047 1

77 131047 1950 2009 60 2 0 .433 .50 2.26 .545 .875 .359 3.05 .521 .003 1

78 171403 1950 2014 65 2 0 .365 .35 1.25 .270 .820 .273 2.67 .422 -.081 1

79 190497 1950 2010 61 2 1 .302 .87 3.12 .694 .842 .396 2.71 .551 -.024 1

80 200168 1950 2009 60 2 0 .416 3.09 12.48 3.185 .931 .307 2.65 .585 -.060 1

81 200389 1950 2009 60 2 0 .404 2.50 6.49 1.699 .851 .290 2.87 .605 .057 1

82 62248 1952 2009 58 2 0 .484 1.96 4.10 1.147 .904 .249 2.45 .393 .024 1

83 121442 1952 2009 58 2 0 .472 1.82 3.57 .741 .661 .275 2.81 .567 -.051 2

84 12369A 1953 2013 61 2 0 .330 .88 3.90 .847 .606 .381 2.70 .464 .004 1

85 70469A 1953 2007 55 2 0 .457 .86 4.91 .915 .825 .304 2.68 .472 -.224 1

86 80746 1953 2000 48 1 0 .374 1.52 6.12 1.330 .756 .418 2.73 .542 -.070 2

87 110128 1953 2009 57 2 0 .402 4.60 11.60 2.223 .664 .316 2.61 .483 .060 1

88 190018 1953 2009 57 2 0 .573 5.61 13.14 2.690 .825 .222 2.75 .472 .077 1

89 90369 1954 2009 56 2 2 .328 .96 4.94 .966 .778 .426 2.53 .395 -.021 1

90 90645 1954 2009 56 2 0 .526 1.23 2.77 .596 .809 .258 2.75 .478 .138 1

91 100997 1954 2009 56 2 1 .264 .37 1.38 .271 .715 .297 2.80 .507 -.056 1

92 160665 1954 2009 56 2 0 .375 4.38 17.63 3.592 .908 .251 2.80 .535 -.058 2

93 200988 1954 2009 56 2 2 .165 2.74 4.83 1.250 .822 .244 2.55 .456 .012 2

94 50281 1955 2009 55 2 1 .260 .94 2.64 .628 .709 .453 2.97 .546 .091 1

95 80282 1955 2009 55 2 0 .386 1.32 5.47 1.258 .904 .359 2.82 .648 .034 1

96 200038 1955 2009 55 2 0 .642 5.88 13.41 2.393 .736 .194 2.48 .445 -.038 2

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Corr //-------- Unfiltered --------\\ //---- Filtered -----\\

No. No. No. with Mean Max Std Auto Mean Max Std Auto AR

Seq Series Interval Years Segmt Flags Master msmt msmt dev corr sens value dev corr ()

--- -------- --------- ----- ----- ----- ------ ----- ----- ----- ----- ----- ----- ----- ----- --

97 121017 1956 2017 62 2 1 .321 1.14 2.60 .657 .746 .332 2.66 .624 -.028 1

98 190075 1957 2015 59 2 2 .311 .78 6.17 1.538 .862 .498 3.44 .542 .151 1

99 172220 1959 2016 58 2 0 .415 .87 3.14 .802 .746 .390 2.79 .421 .006 1

100 60083 1960 2009 50 1 0 .516 1.37 3.56 .966 .793 .403 2.87 .643 .004 1

101 170994 1960 2009 50 1 1 .310 3.94 8.95 1.627 .590 .318 2.72 .541 .015 2

102 22603 1962 2009 48 1 0 .482 .88 3.31 .761 .763 .385 2.50 .399 -.039 3

103 22604 1964 2009 46 1 0 .486 1.91 4.22 1.033 .779 .294 2.39 .421 -.038 1

104 192128 1965 2009 45 1 1 .318 1.31 3.95 .955 .685 .456 2.71 .610 -.128 1

105 110379 1970 2009 40 1 0 .441 7.02 17.75 3.162 .756 .252 2.41 .402 -.007 1

106 192129 1971 2009 39 1 0 .404 1.37 2.68 .581 .567 .310 2.67 .525 -.033 1

107 202162 1980 2009 30 1 0 .596 3.60 7.43 1.464 .852 .185 2.79 .738 .098 1

108 12366 1981 2009 29 1 0 .535 1.54 4.74 1.122 .616 .304 2.96 .618 .128 1

109 200188 1990 2017 28 1 0 .347 3.32 9.22 3.211 .953 .332 2.71 .633 -.036 1

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Total or mean: 7974 311 90 .412 1.73 17.75 1.066 .796 .298 3.44 .477 -.025

- = [ COFECHA LITU COF ] = -