

Figure 1a: Ideal Filter Weights

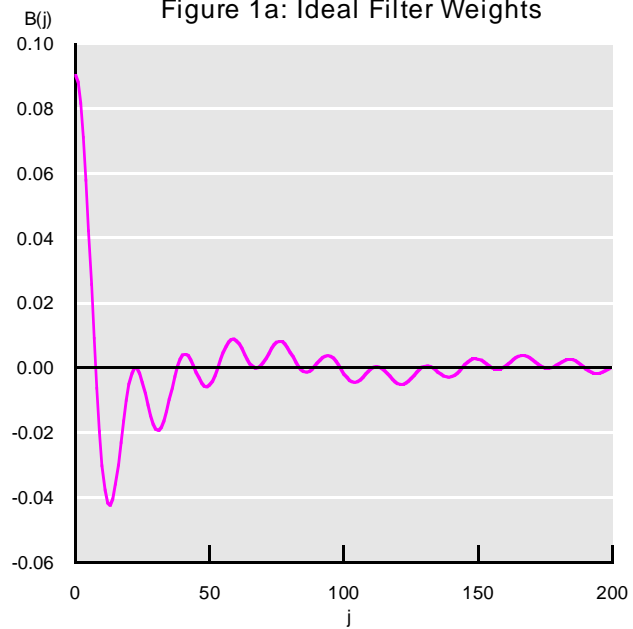


Figure 1b: $p=12$

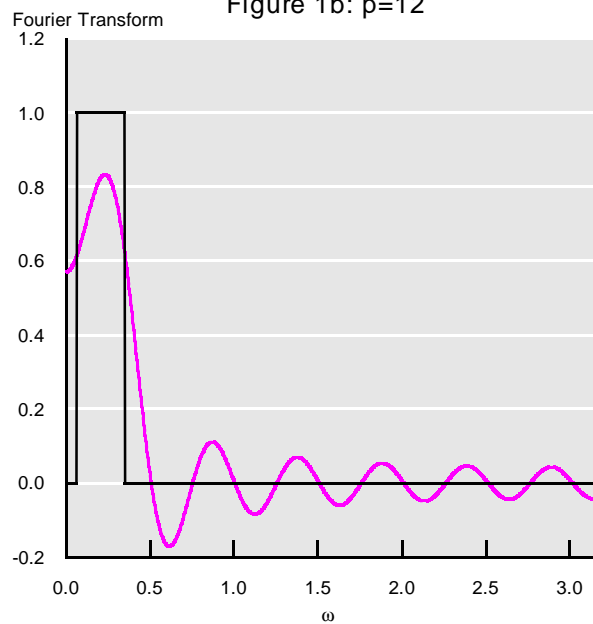


Figure 1c: $p=24$

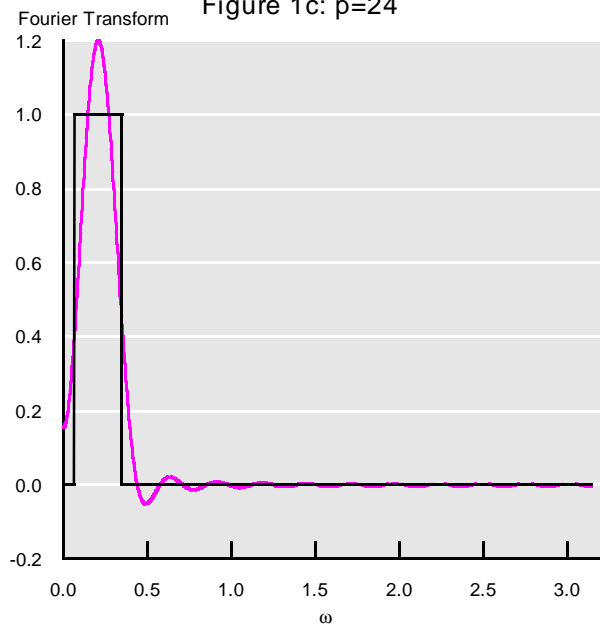


Figure 1d: $p=36$

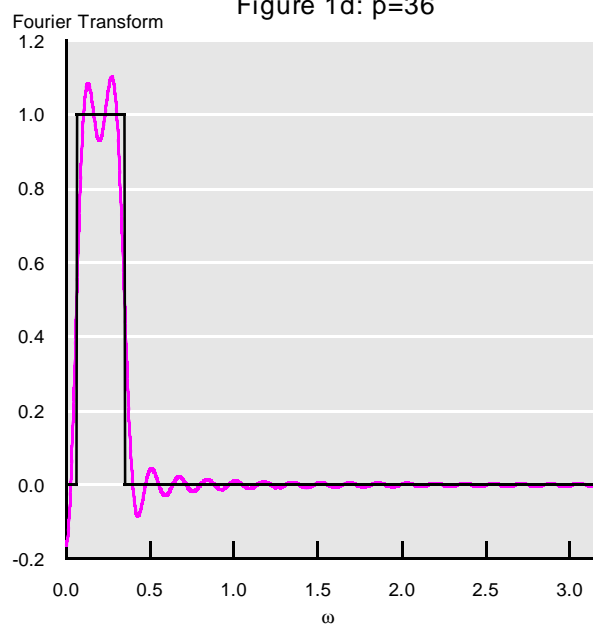


Figure 2a: IID Case

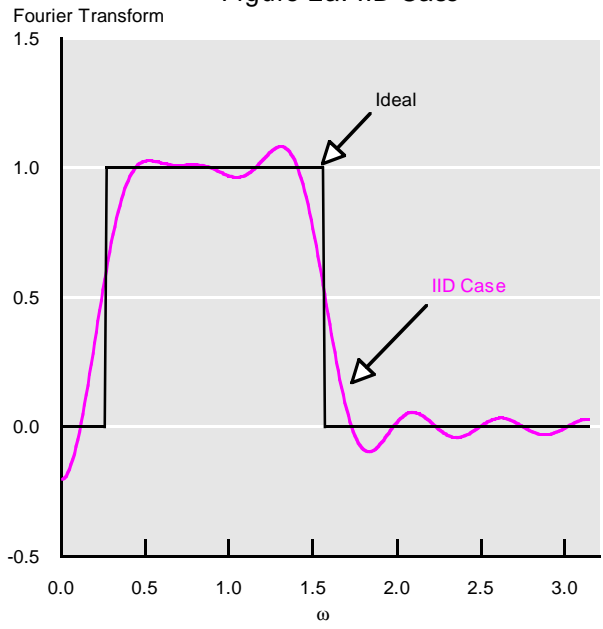


Figure 2b: Random Walk & Near IID Cases

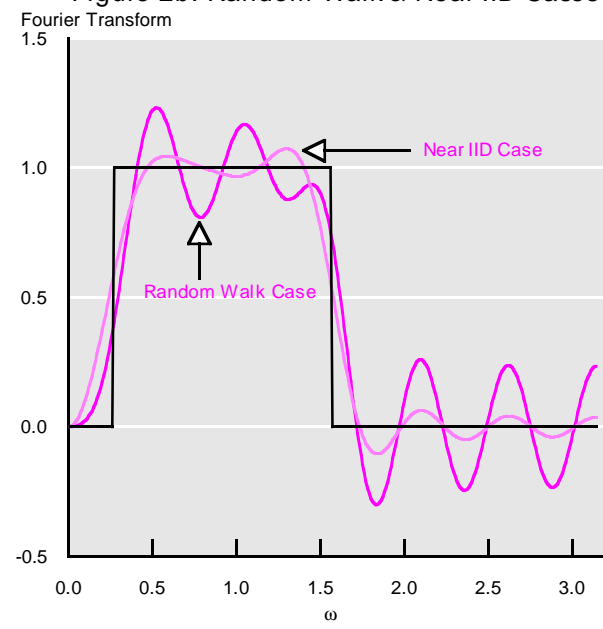


Figure 2c: Random Walk & Persistent Cases

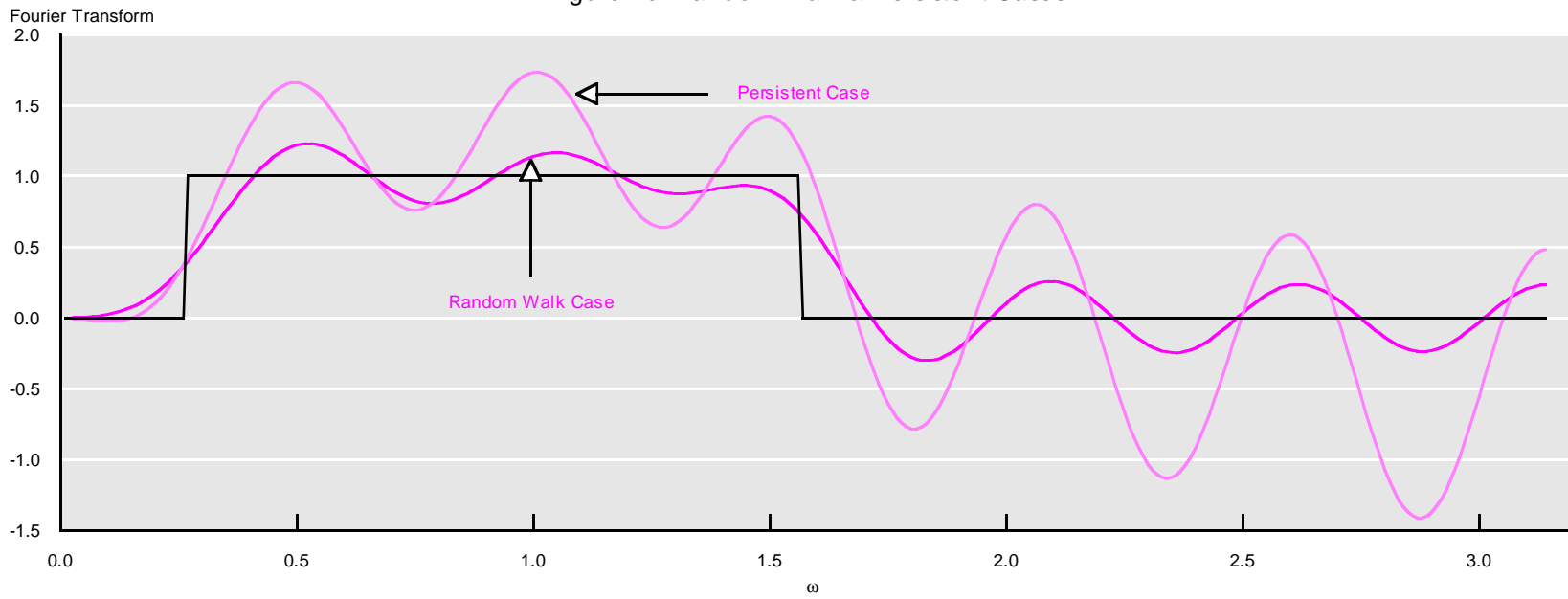


Figure 3: Spectral Densities for Time Series Models

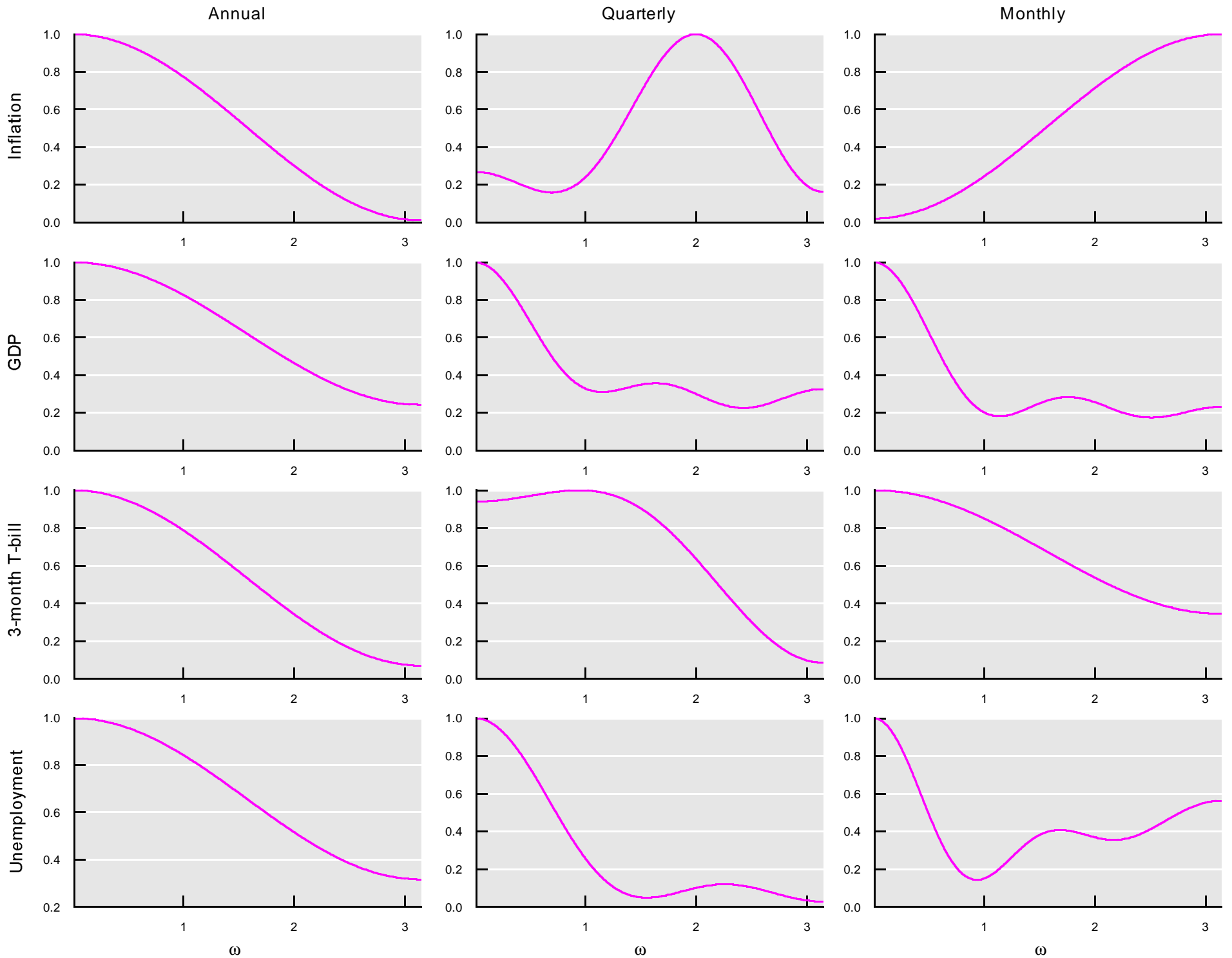
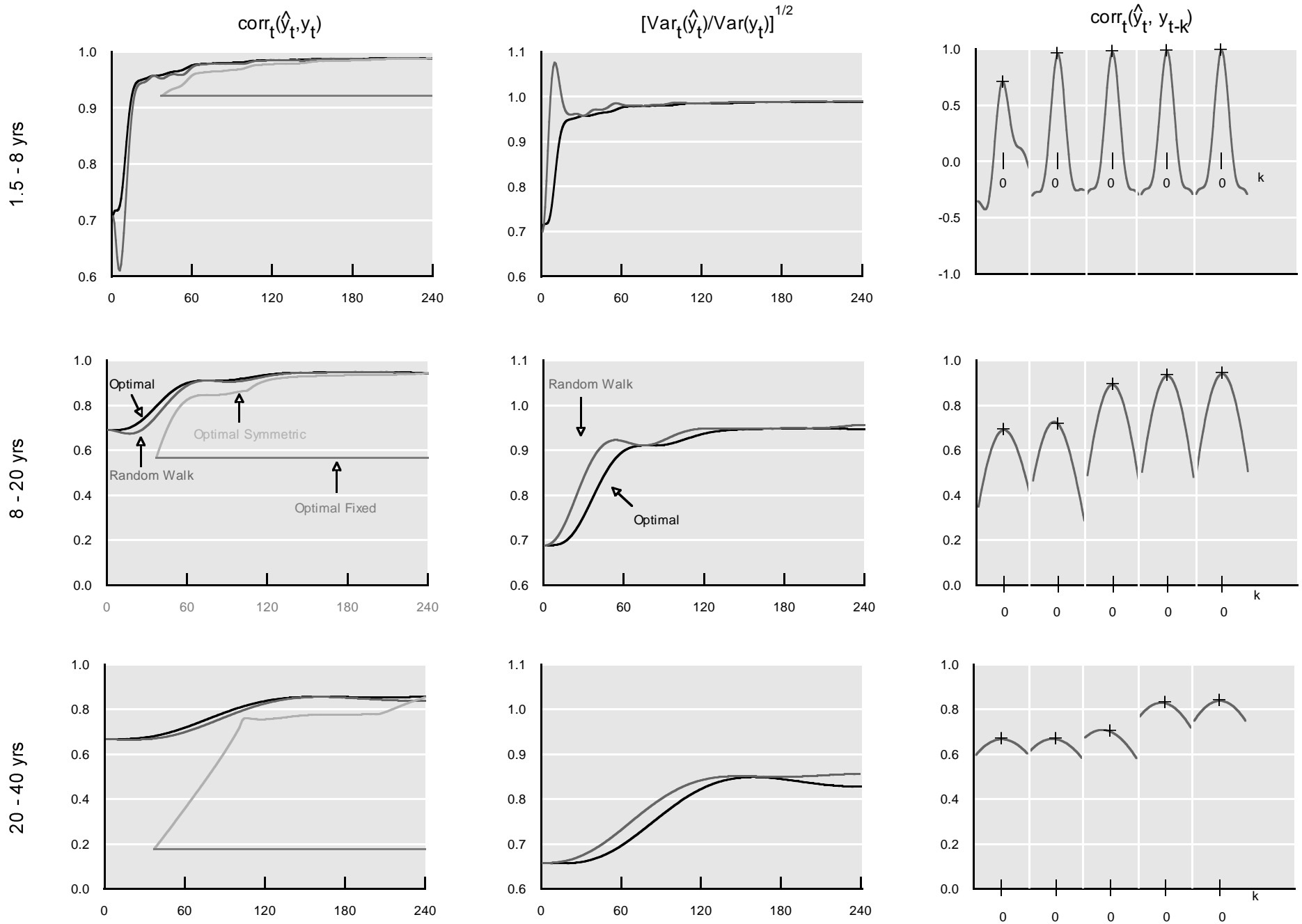
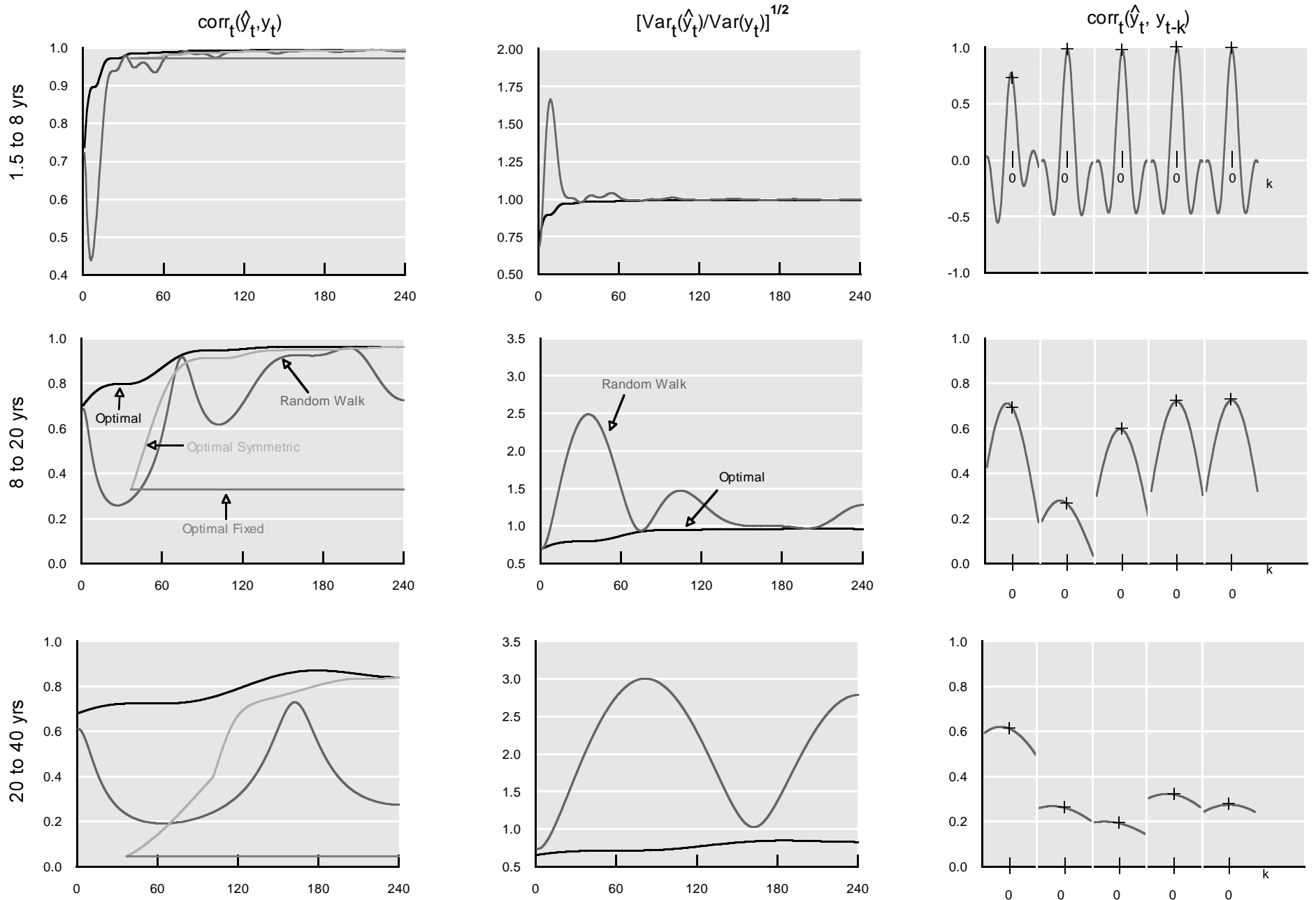


Figure 4: Comparing Filter Approximations - Monthly U.S. Inflation Case



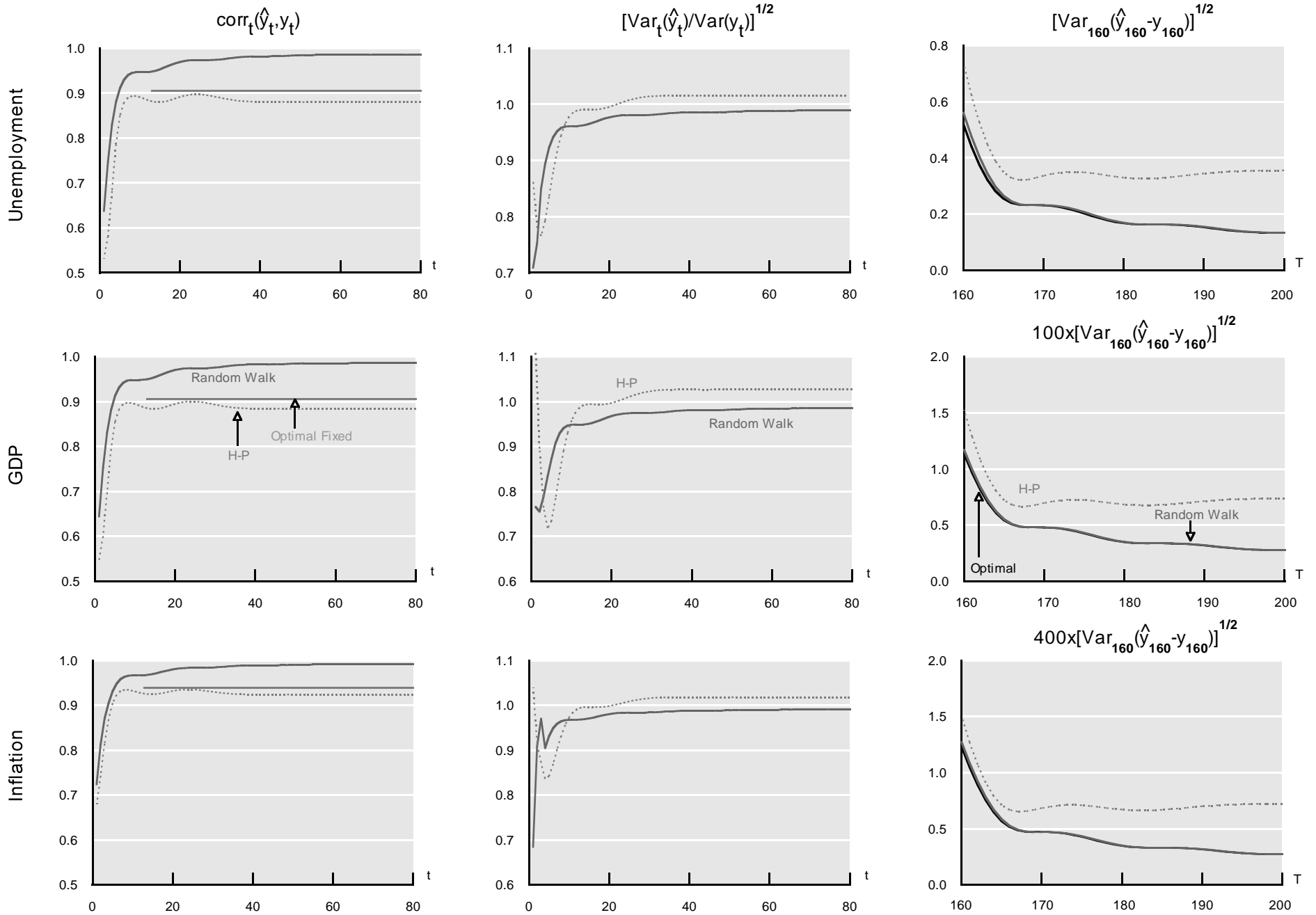
The panels in the first two columns contain curves differentiated according to the underlying procedure used to compute \hat{y}_t . See Table 2 for definitions of these procedures. While the sample size is $T = 480$, the statistics are shown only for $t = 1, 2, \dots, 240$ since the statistics are symmetric across the first and second halves of the sample. The third column displays five correlation functions, $\text{corr}_t(\hat{y}_t, y_{t-k})$, associated with the Random Walk filter for $t = 1, 31, 61, 121, 240$ (1/12, 2 1/2, 5, 10, 20 years). Each correlation function is displayed for $k = -24, -23, \dots, 0, \dots, 23, 24$. The plus on the correlation function indicates the location of $k = 0$.

Figure 5: Comparing Filter Approximations - Monthly Near IID Case



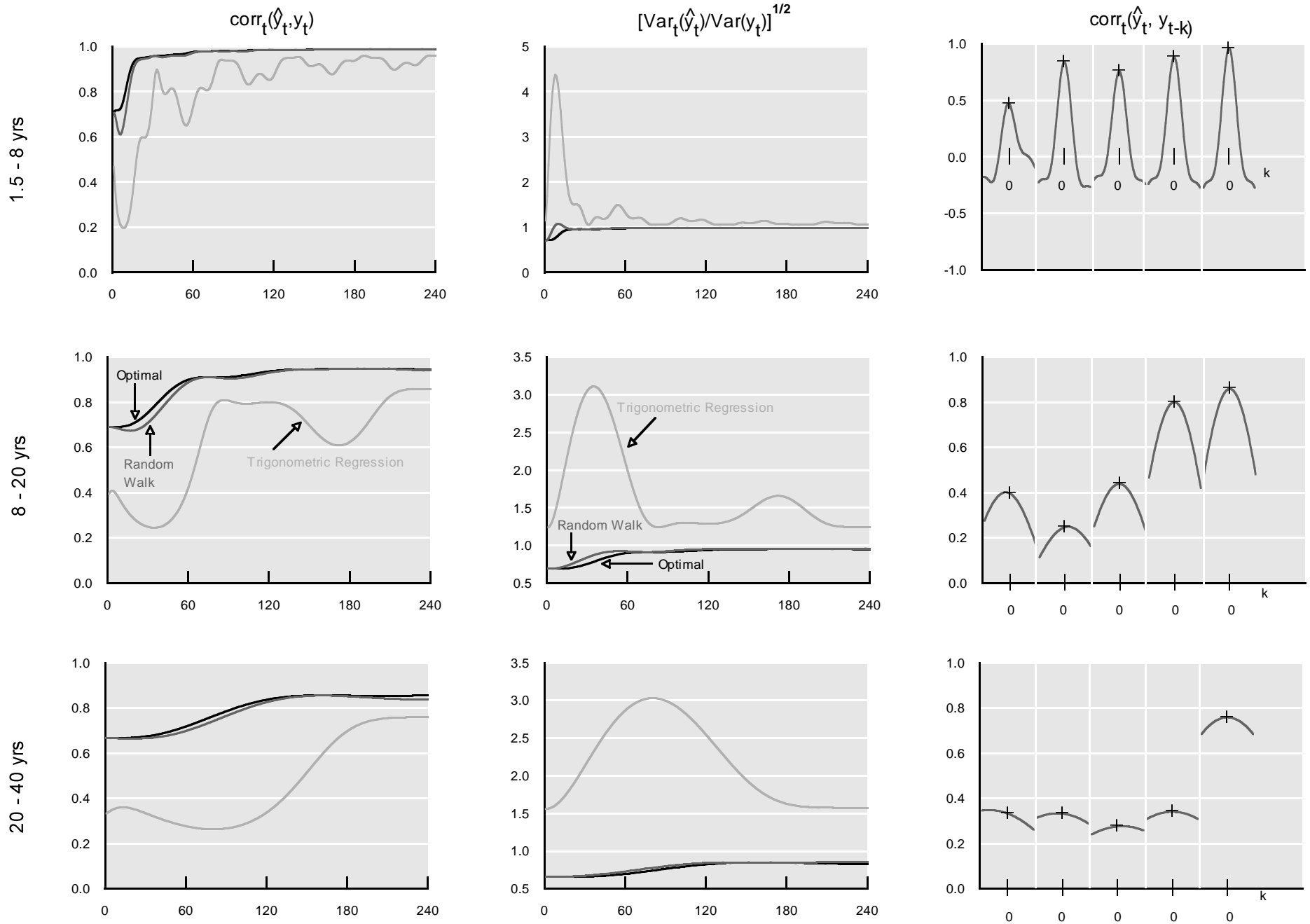
The panels in the first two columns contain curves differentiated according to the underlying procedure used to compute \hat{y}_t . While the sample size is $T = 480$, the statistics are shown only for $t = 1, 2, \dots, 240$ since the statistics are symmetric across the first and second halves of the sample. The third column displays five correlation functions, $\text{corr}_t(\hat{y}_t, y_{t-k})$, associated with the Random Walk filter for $t = 1, 31, 61, 121, 240$ (1/12, 2 1/2, 5, 10, 20 years). Each correlation function is displayed for $k = -24, -23, \dots, 0, \dots, 23, 24$. The plus on the correlation function indicates the location of $k = 0$.

Figure 6: Comparing Filter Approximations with the Hodrick-Prescott Filter



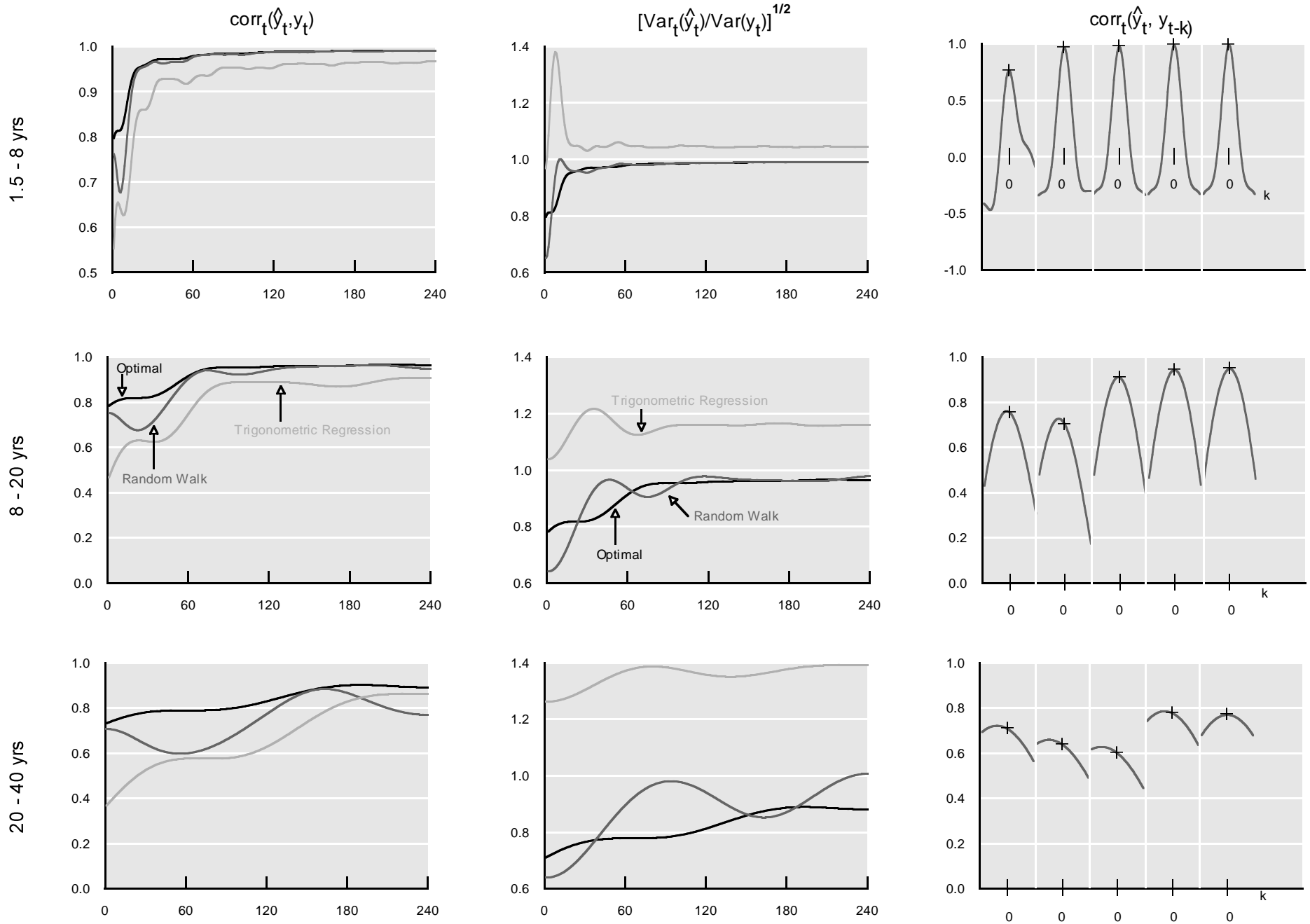
The panels in each column contain curves differentiated according to the underlying procedure used to compute \hat{y}_t . The band pass filter approximations extract the frequency band between 2 quarters and 8 years. The Hodrick-Prescott filter has the parameter lambda set to 1600. The time series representations are the quarterly models described in Table 1. While the sample size is $T = 160$, the statistics are shown only for $t = 1, 2, \dots, 80$ since the statistics are symmetric across the first and second halves of the sample. The third column contains the standard deviation of $\hat{y}_t - y_t$ for $t = 160$ and T equals 160, 161, ..., 200.

Figure 7: Comparing the Random Walk Filter with Trigonometric Regressions - Monthly U.S. Inflation Case

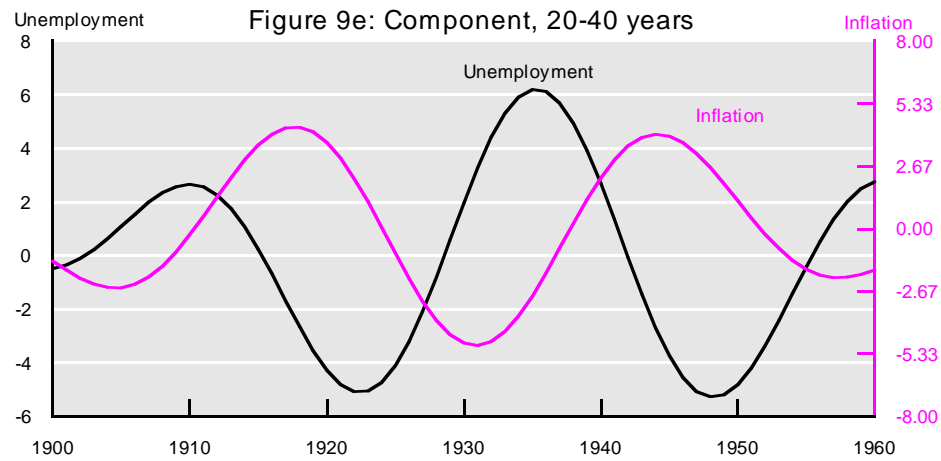
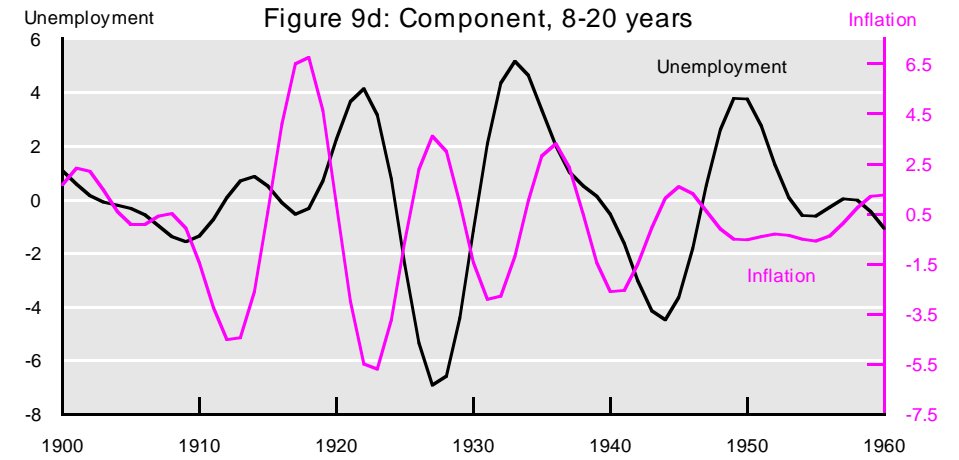
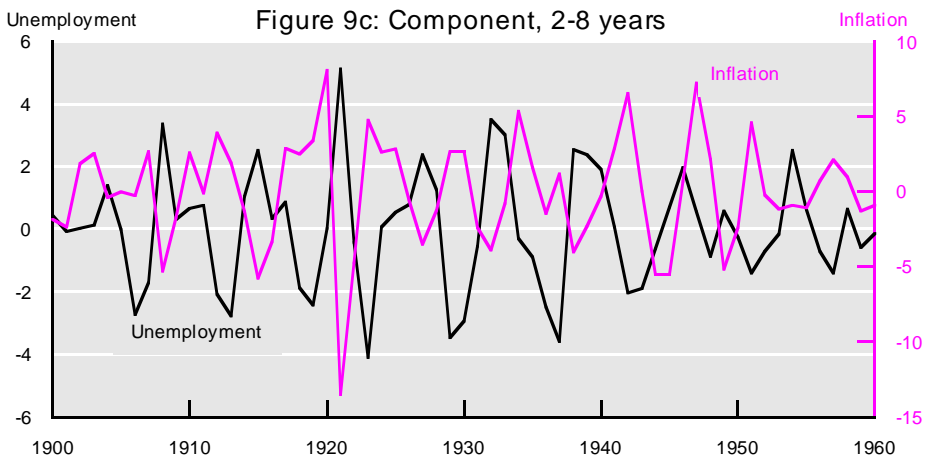
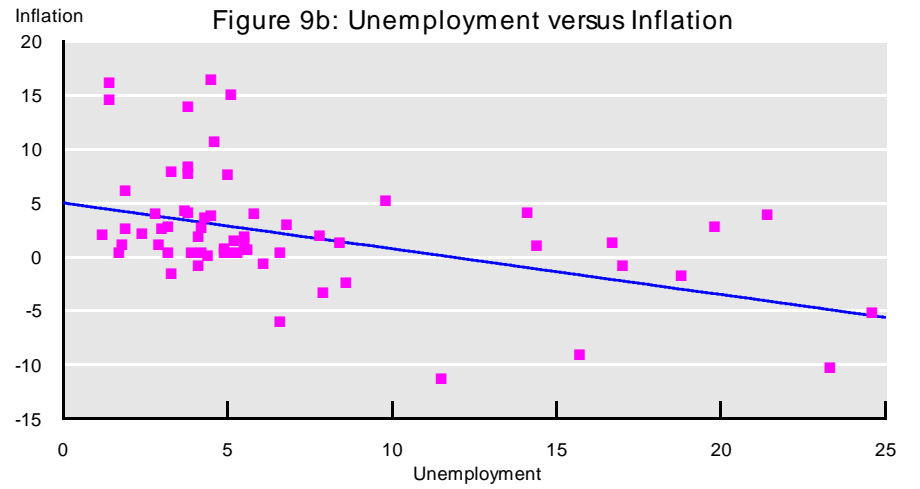
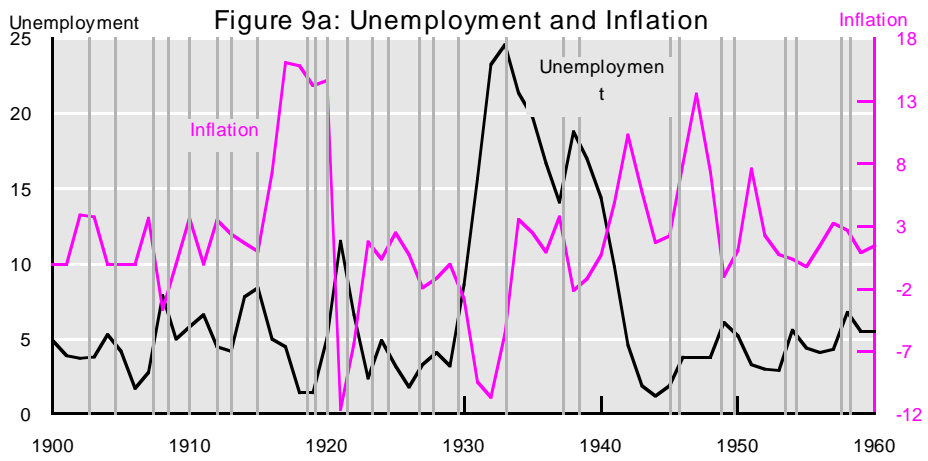


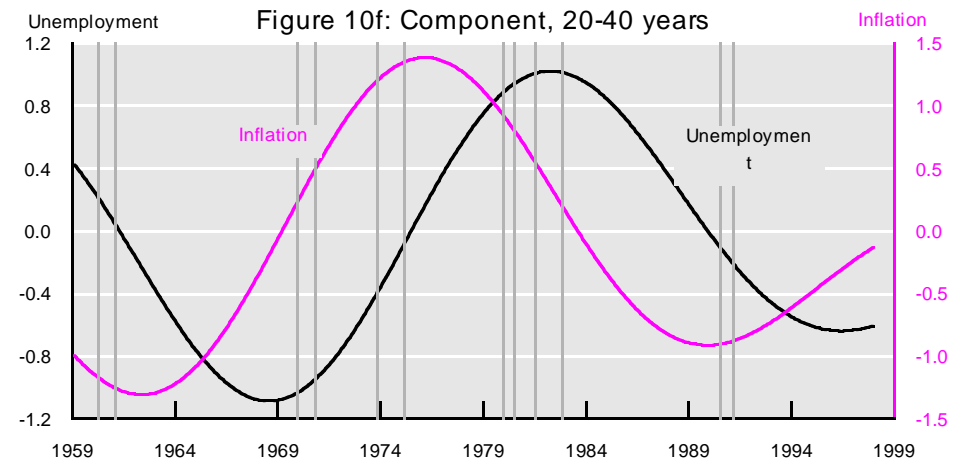
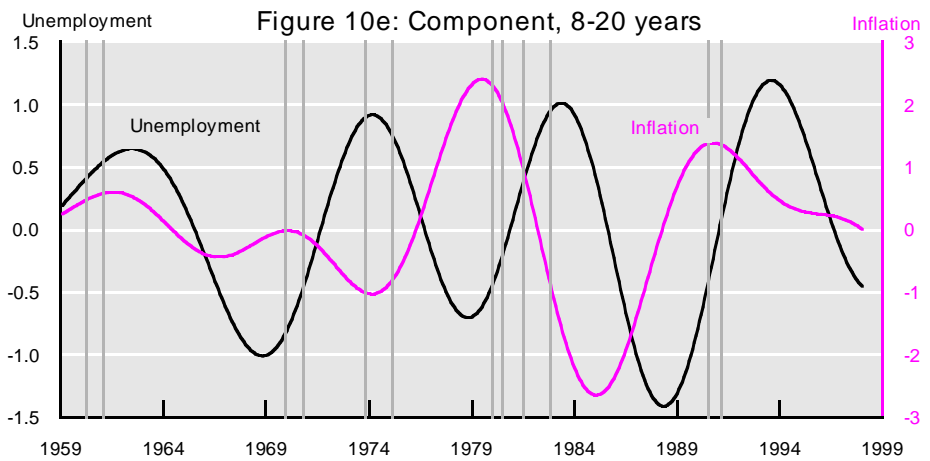
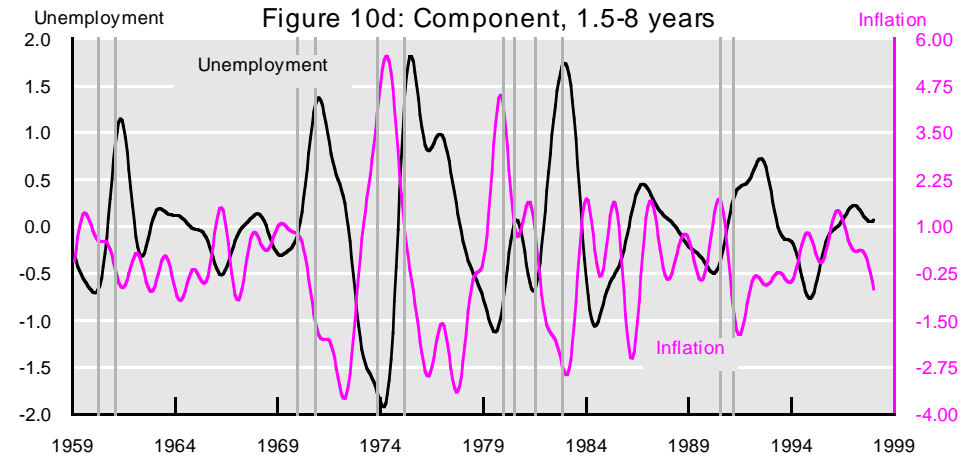
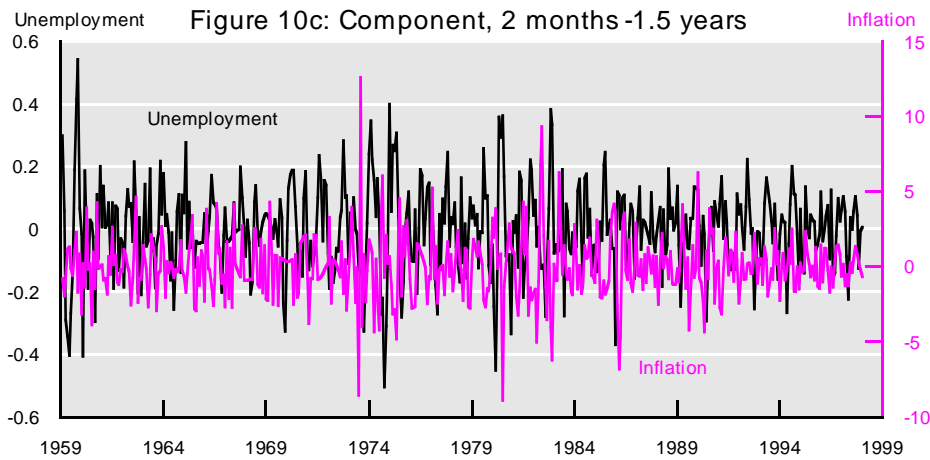
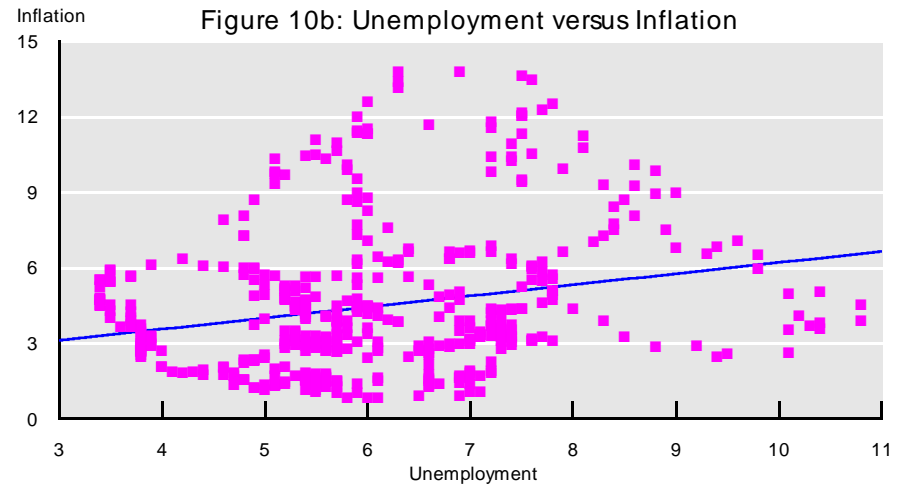
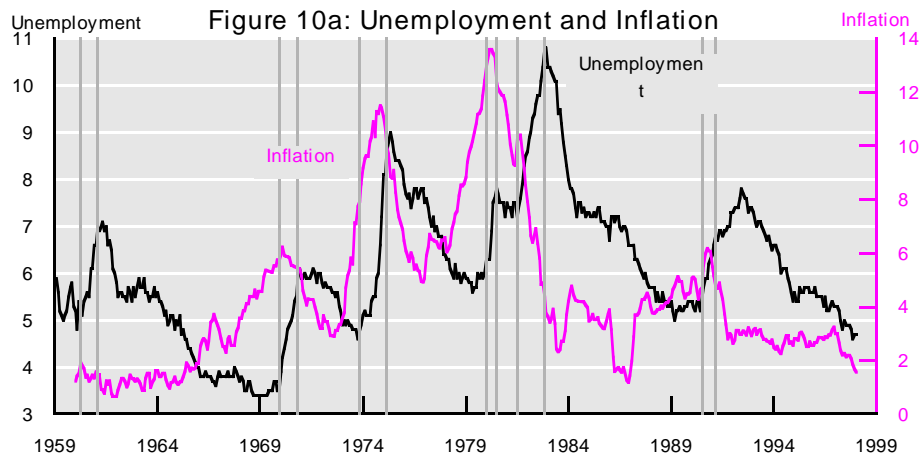
The panels in the first two columns contain curves differentiated according to the underlying procedure used to compute \hat{y}_t . While the sample size is $T = 480$, the statistics are shown only for $t = 1, 2, \dots, 240$ since the statistics are symmetric across the first and second halves of the sample. The third column displays five correlation functions, $\text{corr}_t(\hat{y}_t, y_{t-k})$, associated with the Trigonometric Regressions for $t = 1, 31, 61, 121, 240$ (1/12, 2 1/2, 5, 10, 20 years). Each correlation function is displayed for $k = -24, -23, \dots, 0, \dots, 23, 24$. The plus on the correlation function indicates the location of $k = 0$

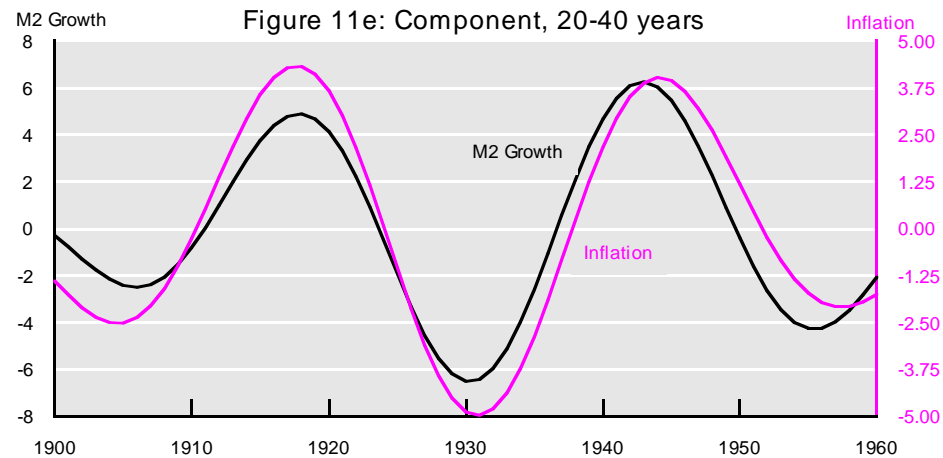
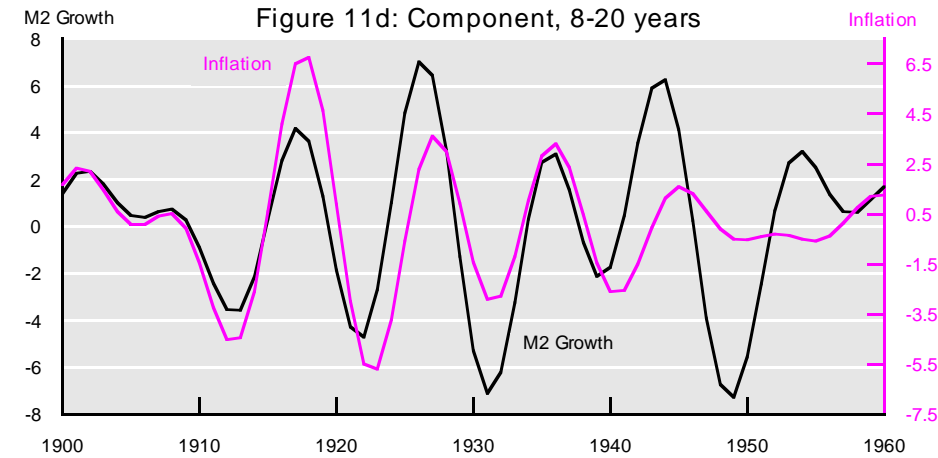
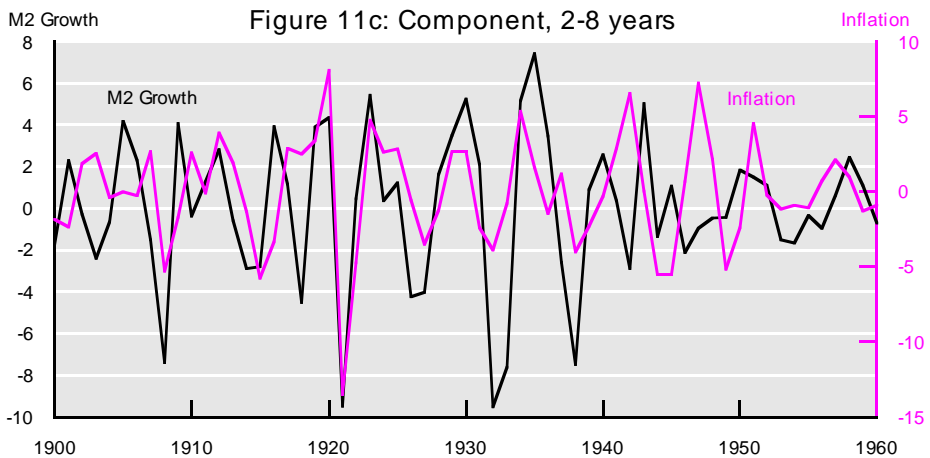
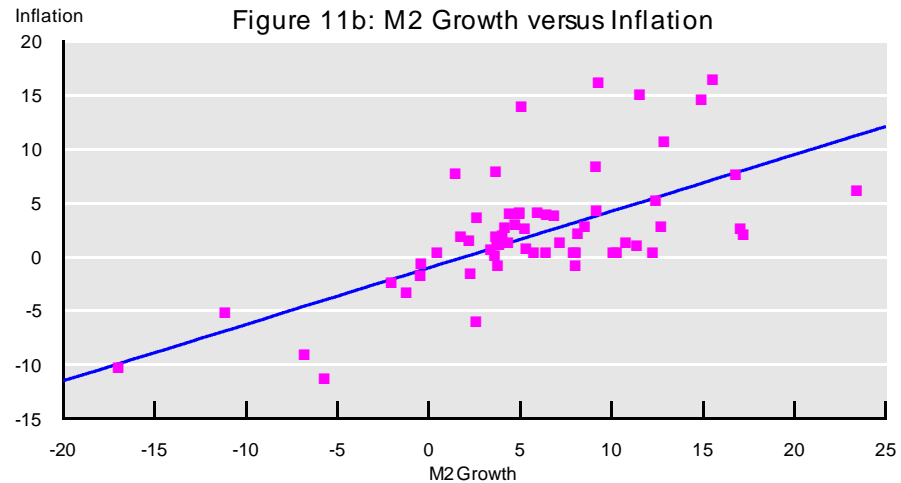
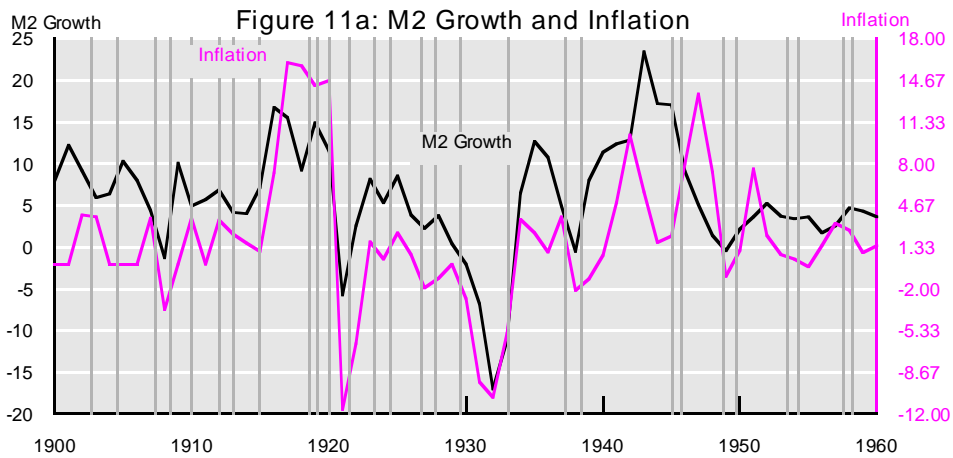
Figure 8: Comparing Filter Approximations for a Trend Stationary Model - Monthly U.S. Inflation Case



The panels in the first two columns contain curves differentiated according to the underlying procedure used to compute \hat{y}_t . While the sample size is $T = 480$, the statistics are shown only for $t = 1, 2, \dots, 240$ since the statistics are symmetric across the first and second halves of the sample. The third column displays five correlation functions, $\text{corr}_t(\hat{y}_t, y_{t-k})$, associated with the Random Walk filter for $t = 1, 31, 61, 121, 240$ (1/12, 2 1/2, 5, 10, 20 years). Each correlation function is displayed for $k = -24, -23, \dots, 0, \dots, 23, 24$. The plus on the correlation function indicates the location of $k = 0$







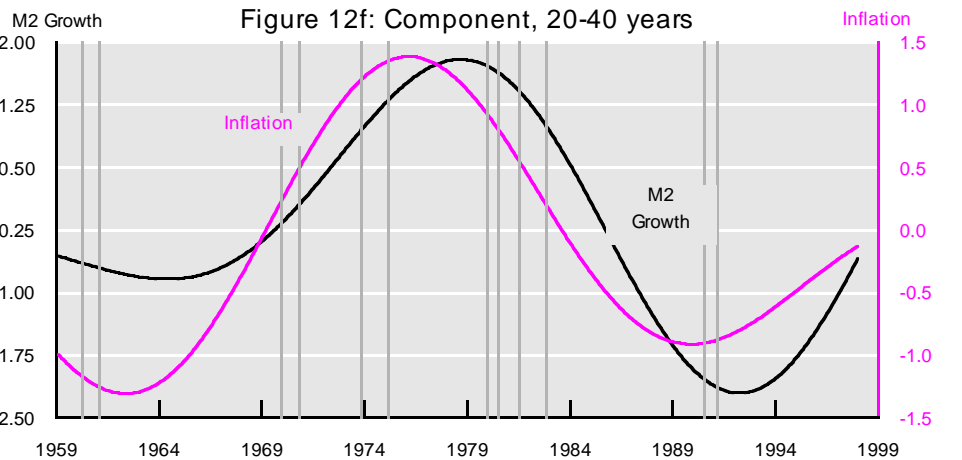
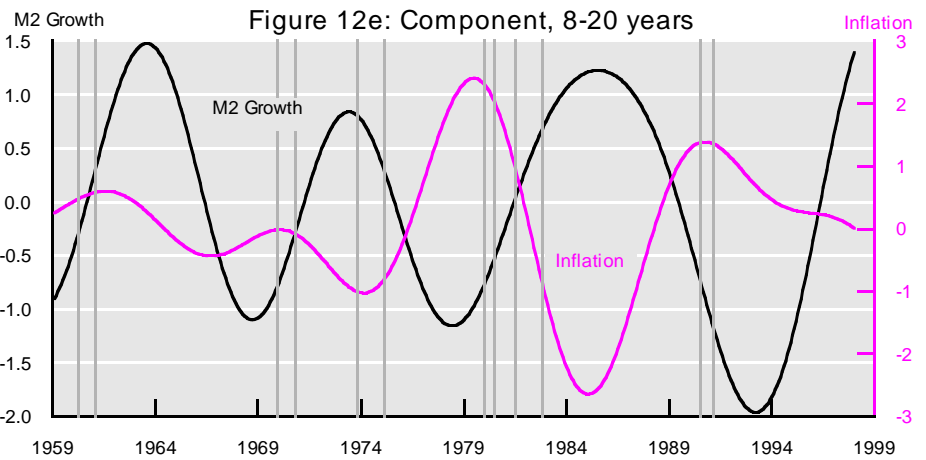
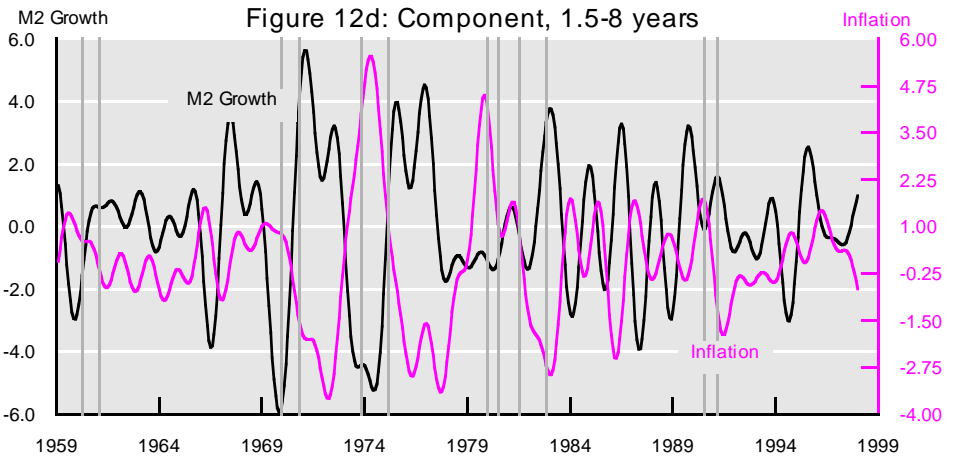
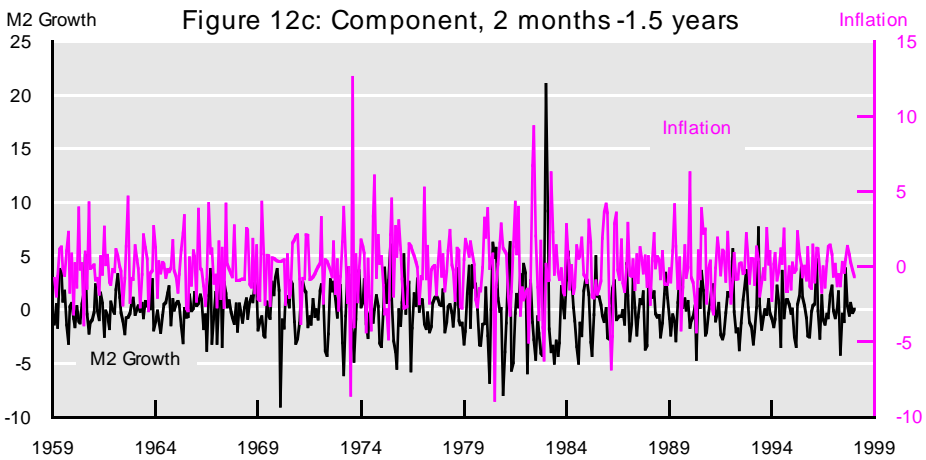
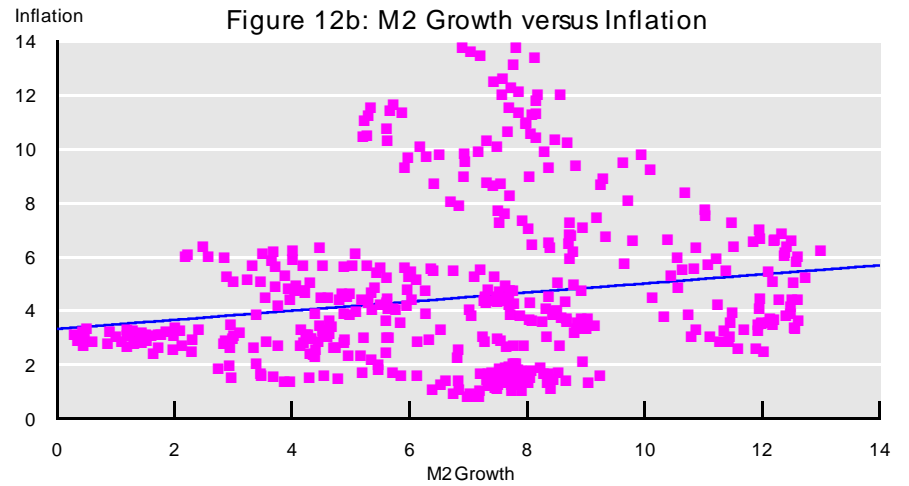
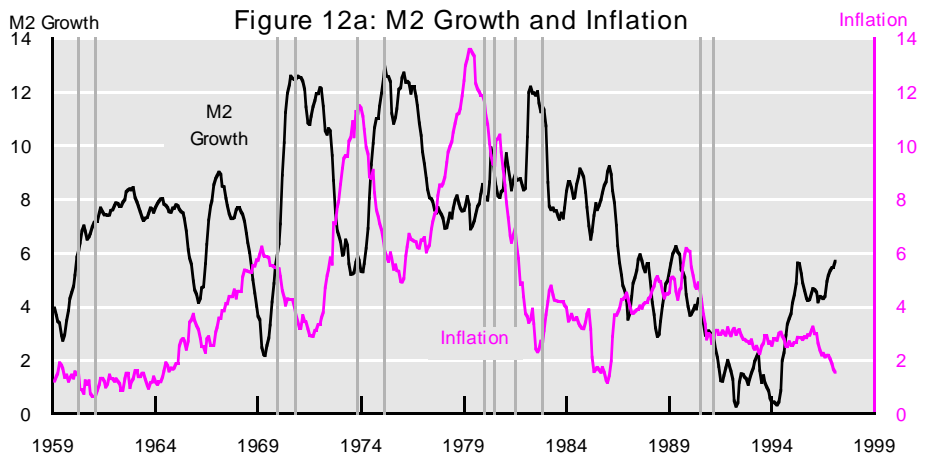


Table B.1: Second Moment Properties of U.S. Data
 Band Pass Filter Approximations(2 quarters to 1.5 years) and the HP Filter

=====
 Part 1: Standard Deviations: std(Variable x) / std(GDP)
 =====

Variable x	Filtering Procedure					
	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	0.46	0.46	0.44	0.45	1.76	0.47
Consumption	0.76	0.76	0.75	0.76	0.77	0.74
Nondur & Serv	0.49	0.48	0.47	0.48	0.48	0.48
Nondur	0.80	0.80	0.78	0.78	0.68	0.79
Services	0.47	0.47	0.48	0.48	0.39	0.46
Durables	4.19	4.23	4.31	4.25	3.04	4.12
Investment	5.38	5.39	5.52	5.47	4.48	5.42
Fixed Invest	2.45	2.44	2.46	2.49	2.99	2.47
Nonresident	2.42	2.42	2.41	2.44	2.80	2.46
Structures	2.50	2.51	2.54	2.56	2.73	2.52
Equipment	3.52	3.51	3.47	3.47	3.25	3.52
Residential	4.24	4.23	4.35	4.42	6.07	4.18
Government	1.18	1.18	1.21	1.28	1.87	1.18
Federal	1.99	2.00	2.04	2.15	3.03	1.98
State & Local	1.09	1.10	1.12	1.11	0.79	1.07
Exports	4.83	4.87	4.92	4.87	3.16	4.77
Imports	4.54	4.56	4.68	4.63	2.92	4.44
(Ex-Im)/GDP	0.67	0.67	0.66	0.66	0.63	0.68
Employment	0.48	0.48	0.49	0.49	0.61	0.48
Hours	0.77	0.77	0.79	0.79	0.96	0.77
GDP/Hrs	0.74	0.75	0.74	0.73	0.49	0.72
Inventory Stk	0.63	0.63	0.65	0.67	1.09	0.65
GDP deflator	0.29	0.29	0.30	0.33	0.52	0.29
CPI	0.41	0.41	0.40	0.45	0.80	0.40
Inflation (GDP)	1.81	1.83	1.88	1.85	0.72	1.79
Inflation (CPI)	2.42	2.43	2.46	2.41	1.04	2.37
Final Sales	0.82	0.83	0.83	0.83	0.82	0.82
3-Mo TBill	0.99	0.99	1.03	1.02	0.69	0.97
TBill-Inf(GDP)	2.07	2.08	2.17	2.13	0.76	2.04
Chg Invntry/GDP	0.56	0.57	0.58	0.57	0.27	0.56

Notes: (i) data cover the period 1948-1998 (source: DRI/McGraw Hill). (ii) Most data were logged prior to filtering (exceptions include (Ex-Im)/GDP, Inflation, Tbill-Inflation, Chg Invntry/GDP). (iii) Fixed lag filters (Random Walk Fixed and BK) use 12 lags (three years). (iv) See Table 2 and section 3.4 for definitions of Band Pass filter approximation procedures.

Table B.1, continued

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=====
Part 2: Correlations: corr(Variable x, Variable y)
=====
                                Filtering Procedure
                                =====
Var x          Var y  Random  Random  Random  BK      HP      Trigonometric
                   Walk   Walk   Walk   Fixed  Regression
                   Walk   Symmetric
=====
GDP              GDP    1.00   1.00   1.00   1.00   1.00   1.00
Consumption      GDP    0.59   0.58   0.56   0.57   0.83   0.57
  Nondur & Serv  GDP    0.33   0.33   0.27   0.29   0.81   0.33
    Nondur       GDP    0.34   0.33   0.27   0.29   0.78   0.35
    Services     GDP    0.17   0.16   0.14   0.16   0.72   0.14
  Durables       GDP    0.54   0.53   0.53   0.54   0.73   0.51
Invesmtent      GDP    0.79   0.79   0.79   0.79   0.88   0.80
  Fixed Invest   GDP    0.60   0.59   0.59   0.60   0.84   0.61
    Nonresident  GDP    0.50   0.49   0.51   0.51   0.76   0.52
      Structures GDP    0.29   0.29   0.33   0.33   0.46   0.33
      Equipment  GDP    0.45   0.44   0.43   0.44   0.82   0.47
      Residential GDP    0.49   0.48   0.48   0.48   0.59   0.50
Government      GDP    0.21   0.22   0.23   0.22   0.19   0.23
  Federal       GDP    0.09   0.10   0.12   0.12   0.14   0.11
  State & Local  GDP    0.28   0.28   0.29   0.28   0.12   0.29
Exports         GDP    0.26   0.26   0.24   0.23   0.28   0.26
Imports         GDP    0.21   0.20   0.20   0.21   0.68   0.21
(Ex-Im)/GDP     GDP    0.89   0.89   0.89   0.89   0.89   0.89

Employment      GDP    0.49   0.47   0.47   0.48   0.81   0.51
Hours           GDP    0.68   0.67   0.68   0.69   0.88   0.69
GDP/Hrs        GDP    0.64   0.65   0.63   0.62   0.33   0.64
Inventory Stk   GDP    0.40   0.39   0.41   0.42   0.58   0.43

GDP deflator    GDP    -0.20  -0.19  -0.16  -0.18  -0.51  -0.20
CPI             GDP    -0.09  -0.08  -0.05  -0.09  -0.47  -0.07
Inflation (GDP) GDP    -0.26  -0.26  -0.23  -0.23   0.06  -0.28
Inflation (CPI) GDP     0.03   0.02   0.04   0.04   0.28   0.01
Final Sales     GDP     0.69   0.68   0.67   0.68   0.95   0.69
3-Mo TBill     GDP     0.33   0.32   0.34   0.32   0.38   0.33
TBill-Inf(GDP) GDP     0.39   0.38   0.36   0.35   0.28   0.40
Chg Invntry/GDP GDP     0.58   0.57   0.57   0.57   0.64   0.57

GDP/Hours       Hours  -0.13  -0.13  -0.14  -0.14  -0.17  -0.11
Inventory Stk    Sales  -0.13  -0.15  -0.17  -0.11   0.59  -0.07
Chg Invtry/GDP  Sales  -0.19  -0.20  -0.22  -0.21   0.37  -0.20
=====

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Table B.2: Second Moment Properties of U.S. Data
 Band Pass Filter Approximations(1.5 to 8 years) and the HP Filter

=====
 Part 1: Standard Deviations: std(Variable x) / std(GDP)
 =====

Filtering Procedure
 =====

Variable x	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	1.70	1.73	1.55	1.69	1.76	1.72
Consumption	0.74	0.73	0.75	0.76	0.77	0.71
Nondur & Serv	0.45	0.45	0.46	0.47	0.48	0.44
Nondur	0.65	0.65	0.68	0.66	0.68	0.64
Services	0.35	0.35	0.35	0.38	0.39	0.34
Durables	2.86	2.78	2.86	2.89	3.04	2.73
Investment	4.53	4.46	4.47	4.37	4.48	4.41
Fixed Invest	3.09	3.02	2.86	2.95	2.99	2.91
Nonresident	2.82	2.80	2.84	2.83	2.80	2.73
Structures	2.64	2.65	2.81	2.76	2.73	2.56
Equipment	3.23	3.19	3.20	3.22	3.25	3.13
Residential	6.37	6.08	5.79	5.98	6.07	5.91
Government	1.79	1.78	1.72	1.94	1.87	1.70
Federal	2.95	2.93	2.83	3.16	3.03	2.76
State & Local	0.73	0.73	0.74	0.77	0.79	0.75
Exports	2.87	2.78	3.07	2.98	3.16	2.71
Imports	2.65	2.63	2.65	2.67	2.92	2.59
(Ex-Im)/GDP	0.64	0.63	0.65	0.64	0.63	0.65
Employment	0.60	0.60	0.61	0.61	0.61	0.58
Hours	0.96	0.96	0.98	0.97	0.96	0.96
GDP/Hrs	0.47	0.47	0.49	0.47	0.49	0.46
Inventory Stk	1.10	1.11	1.13	1.14	1.09	1.11
GDP deflator	0.50	0.49	0.49	0.56	0.52	0.48
CPI	0.80	0.77	0.73	0.83	0.80	0.76
Inflation (GDP)	0.58	0.57	0.59	0.57	0.72	0.58
Inflation (CPI)	0.91	0.88	0.86	0.86	1.04	0.88
Final Sales	0.80	0.80	0.79	0.81	0.82	0.80
3-Mo TBill	0.65	0.62	0.63	0.64	0.69	0.61
TBill-Inf(GDP)	0.53	0.51	0.61	0.57	0.76	0.52
Chg Invntry/GDP	0.23	0.23	0.25	0.23	0.27	0.23

Notes: See Table B.1

Table B.2, continued

Part 2: Correlations: corr(Variable x, Variable y)							
Filtering Procedure							
Var x	Var y	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	GDP	1.00	1.00	1.00	1.00	1.00	1.00
Consumption	GDP	0.84	0.84	0.85	0.84	0.83	0.84
Nondur & Serv	GDP	0.86	0.86	0.84	0.84	0.81	0.86
Nondur	GDP	0.82	0.82	0.80	0.81	0.78	0.82
Services	GDP	0.78	0.79	0.74	0.76	0.72	0.80
Durables	GDP	0.72	0.73	0.76	0.75	0.73	0.71
Investment	GDP	0.90	0.91	0.90	0.89	0.88	0.91
Fixed Invest	GDP	0.86	0.87	0.87	0.85	0.84	0.88
Nonresident	GDP	0.82	0.81	0.76	0.77	0.76	0.81
Structures	GDP	0.56	0.56	0.46	0.47	0.46	0.54
Equipment	GDP	0.87	0.87	0.83	0.84	0.82	0.86
Residential	GDP	0.58	0.60	0.59	0.59	0.59	0.61
Government	GDP	0.17	0.21	0.18	0.22	0.19	0.28
Federal	GDP	0.13	0.17	0.17	0.19	0.14	0.23
State & Local	GDP	0.04	0.04	-0.11	0.03	0.12	0.03
Exports	GDP	0.30	0.29	0.29	0.29	0.28	0.28
Imports	GDP	0.77	0.78	0.75	0.74	0.68	0.78
(Ex-Im)/GDP	GDP	0.89	0.90	0.90	0.89	0.89	0.90
Employment	GDP	0.84	0.84	0.80	0.81	0.81	0.85
Hours	GDP	0.89	0.89	0.88	0.89	0.88	0.89
GDP/Hrs	GDP	0.32	0.32	0.29	0.30	0.33	0.32
Inventory Stk	GDP	0.57	0.58	0.53	0.58	0.58	0.59
GDP deflator	GDP	-0.46	-0.48	-0.42	-0.45	-0.51	-0.43
CPI	GDP	-0.43	-0.45	-0.42	-0.44	-0.47	-0.41
Inflation (GDP)	GDP	0.19	0.19	0.09	0.13	0.06	0.18
Inflation (CPI)	GDP	0.40	0.40	0.30	0.34	0.28	0.41
Final Sales	GDP	0.97	0.97	0.96	0.97	0.95	0.97
3-Mo TBill	GDP	0.42	0.41	0.50	0.42	0.38	0.44
TBill-Inf(GDP)	GDP	0.31	0.29	0.44	0.34	0.28	0.32
Chg Invntry/GDP	GDP	0.75	0.75	0.74	0.71	0.64	0.74
GDP/Hours	Hours	-0.15	-0.15	-0.20	-0.18	-0.17	-0.15
Inventory Stk	Sales	0.60	0.61	0.56	0.62	0.59	0.62
Chg Invntry/GDP	Sales	0.57	0.57	0.53	0.51	0.37	0.55

Table B.3: Second Moment Properties of U.S. Data
 Band Pass Filter Approximations(8 to 20 years) and the HP Filter

=====
 Part 1: Standard Deviations: std(Variable x) / std(GDP)
 =====

Filtering Procedure
 =====

Variable x	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	2.10	1.88	1.30	0.37	1.76	2.23
Consumption	0.81	0.81	0.82	0.80	0.77	0.82
Nondur & Serv	0.55	0.55	0.53	0.50	0.48	0.56
Nondur	0.65	0.66	0.69	0.65	0.68	0.66
Services	0.51	0.52	0.45	0.43	0.39	0.52
Durables	2.73	2.81	3.05	3.01	3.04	2.80
Investment	2.36	2.44	3.93	4.11	4.48	2.38
Fixed Invest	2.03	2.07	3.05	3.17	2.99	2.20
Nonresident	2.60	2.65	2.77	2.85	2.80	2.69
Structures	2.90	2.95	2.75	2.78	2.73	2.93
Equipment	2.66	2.79	3.16	3.22	3.25	2.78
Residential	3.32	3.74	6.14	6.39	6.07	3.66
Government	2.62	2.62	2.45	2.45	1.87	2.80
Federal	4.17	4.12	3.95	3.98	3.03	4.51
State & Local	0.94	1.00	0.90	0.86	0.79	0.99
Exports	2.25	2.33	2.83	2.87	3.16	2.47
Imports	2.63	2.58	2.95	2.80	2.92	2.54
(Ex-Im)/GDP	0.71	0.71	0.60	0.60	0.63	0.73
Employment	0.44	0.50	0.60	0.63	0.61	0.43
Hours	0.82	0.88	0.95	0.97	0.96	0.79
GDP/Hrs	0.39	0.41	0.40	0.40	0.49	0.42
Inventory Stk	1.17	1.18	1.15	1.19	1.09	1.15
GDP deflator	0.65	0.67	0.82	0.77	0.52	0.64
CPI	0.93	1.01	1.15	1.11	0.80	0.92
Inflation (GDP)	0.42	0.42	0.68	0.62	0.72	0.47
Inflation (CPI)	0.51	0.55	0.98	0.96	1.04	0.54
Final Sales	0.98	0.97	0.89	0.87	0.82	1.00
3-Mo TBill	0.47	0.54	0.67	0.67	0.69	0.48
TBill-Inf(GDP)	0.54	0.57	0.65	0.51	0.76	0.60
Chg Invntry/GDP	0.08	0.08	0.18	0.17	0.27	0.08

Notes: See Table B.1

Table B.3, continued

Part 2: Correlations: corr(Variable x, Variable y)							
Filtering Procedure							
Var x	Var y	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	GDP	1.00	1.00	1.00	1.00	1.00	1.00
Consumption	GDP	0.84	0.82	0.82	0.82	0.83	0.86
Nondur & Serv	GDP	0.79	0.77	0.83	0.86	0.81	0.81
Nondur	GDP	0.82	0.80	0.80	0.83	0.78	0.83
Services	GDP	0.70	0.66	0.79	0.83	0.72	0.73
Durables	GDP	0.80	0.78	0.70	0.70	0.73	0.82
Invesmtent	GDP	0.69	0.66	0.82	0.84	0.88	0.67
Fixed Invest	GDP	0.73	0.68	0.80	0.82	0.84	0.70
Nonresident	GDP	0.66	0.65	0.78	0.80	0.76	0.64
Structures	GDP	0.51	0.39	0.48	0.52	0.46	0.55
Equipment	GDP	0.73	0.75	0.85	0.87	0.82	0.66
Residential	GDP	0.33	0.26	0.54	0.56	0.59	0.37
Government	GDP	0.86	0.78	0.38	0.30	0.19	0.83
Federal	GDP	0.82	0.72	0.29	0.22	0.14	0.79
State & Local	GDP	0.54	0.56	0.41	0.36	0.12	0.54
Exports	GDP	-0.18	0.02	0.15	0.25	0.28	-0.27
Imports	GDP	0.55	0.48	0.70	0.75	0.68	0.58
(Ex-Im)/GDP	GDP	0.90	0.89	0.87	0.86	0.89	0.90
Employment	GDP	0.68	0.70	0.81	0.85	0.81	0.66
Hours	GDP	0.92	0.91	0.92	0.92	0.88	0.92
GDP/Hrs	GDP	0.61	0.49	0.33	0.26	0.33	0.66
Inventory Stk	GDP	0.92	0.89	0.76	0.74	0.58	0.93
GDP deflator	GDP	-0.77	-0.67	-0.54	-0.53	-0.51	-0.75
CPI	GDP	-0.54	-0.47	-0.48	-0.49	-0.47	-0.55
Inflation (GDP)	GDP	-0.10	0.03	0.19	0.32	0.06	-0.25
Inflation (CPI)	GDP	-0.05	0.12	0.38	0.45	0.28	-0.18
Final Sales	GDP	1.00	1.00	0.97	0.98	0.95	1.00
3-Mo TBill	GDP	0.03	0.03	0.15	0.19	0.38	0.03
TBill-Inf(GDP)	GDP	0.11	0.00	-0.05	-0.13	0.28	0.22
Chg Invntry/GDP	GDP	0.23	0.29	0.53	0.62	0.64	0.08
GDP/Hours	Hours	0.26	0.09	-0.07	-0.14	-0.17	0.30
Inventory Stk	Sales	0.94	0.92	0.78	0.78	0.59	0.94
Chg Invtry/GDP	Sales	0.14	0.19	0.32	0.45	0.37	-0.01

Table B.4: Second Moment Properties of U.S. Data
 Band Pass Filter Approximations(20 to 40 years) and the HP Filter

=====
 Part 1: Standard Deviations: std(Variable x) / std(GDP)
 =====

Filtering Procedure
 =====

Variable x	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	0.91	0.90	0.54	0.03	1.76	0.39
Consumption	1.23	1.16	0.82	0.80	0.77	1.54
Nondur & Serv	0.88	0.84	0.53	0.51	0.48	0.90
Nondur	0.94	0.83	0.70	0.65	0.68	0.89
Services	0.84	0.87	0.45	0.43	0.39	1.45
Durables	3.35	3.44	3.04	3.01	3.04	7.05
Investment	5.40	4.92	3.93	4.10	4.48	5.11
Fixed Invest	4.47	3.94	2.98	3.16	2.99	5.75
Nonresident	5.39	4.85	2.75	2.84	2.80	6.89
Structures	3.73	4.52	2.73	2.78	2.73	11.63
Equipment	8.37	7.02	3.14	3.21	3.25	14.36
Residential	2.82	3.20	5.99	6.38	6.07	3.21
Government	4.14	4.22	2.38	2.46	1.87	5.50
Federal	9.68	8.42	3.85	3.99	3.03	15.67
State & Local	2.77	2.36	0.90	0.87	0.79	3.29
Exports	6.71	5.62	2.83	2.87	3.16	13.84
Imports	4.88	4.18	2.97	2.82	2.92	8.64
(Ex-Im)/GDP	0.50	0.79	0.61	0.60	0.63	1.81
Employment	1.10	1.16	0.59	0.63	0.61	0.97
Hours	1.26	1.18	0.94	0.97	0.96	2.37
GDP/Hrs	0.48	0.53	0.40	0.40	0.49	1.43
Inventory Stk	3.57	2.97	1.13	1.19	1.09	5.67
GDP deflator	6.31	5.35	0.81	0.78	0.52	8.40
CPI	6.95	5.90	1.13	1.12	0.80	8.91
Inflation (GDP)	1.24	1.14	0.72	0.62	0.72	1.40
Inflation (CPI)	1.33	1.19	0.99	0.96	1.04	1.50
Final Sales	0.80	0.87	0.89	0.88	0.82	0.89
3-Mo TBill	0.95	0.90	0.66	0.67	0.69	2.07
TBill-Inf(GDP)	1.43	1.25	0.72	0.52	0.76	3.34
Chg Invntry/GDP	0.23	0.22	0.20	0.17	0.27	0.40

Notes: See Table B.1

Table B.4, continued

Part 2: Correlations: corr(Variable x, Variable y)							
Filtering Procedure							
Var x	Var y	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	GDP	1.00	1.00	1.00	1.00	1.00	1.00
Consumption	GDP	0.98	0.91	0.81	0.82	0.83	0.97
Nondur & Serv	GDP	0.97	0.84	0.82	0.86	0.81	0.45
Nondur	GDP	0.99	0.93	0.79	0.83	0.78	1.00
Services	GDP	0.87	0.69	0.77	0.83	0.72	-0.21
Durables	GDP	0.93	0.89	0.71	0.70	0.73	0.97
Invesmtent	GDP	0.94	0.78	0.82	0.84	0.88	0.97
Fixed Invest	GDP	0.86	0.75	0.79	0.82	0.84	0.63
Nonresident	GDP	0.83	0.72	0.77	0.80	0.76	0.60
Structures	GDP	-0.43	-0.03	0.47	0.51	0.46	-1.00
Equipment	GDP	0.91	0.79	0.84	0.87	0.82	0.88
Residential	GDP	0.95	0.60	0.53	0.56	0.59	0.91
Government	GDP	-0.85	-0.35	0.40	0.31	0.19	-1.00
Federal	GDP	-0.91	-0.46	0.31	0.23	0.14	-0.95
State & Local	GDP	0.63	0.39	0.38	0.37	0.12	0.78
Exports	GDP	0.96	0.62	0.13	0.24	0.28	0.98
Imports	GDP	0.93	0.77	0.69	0.74	0.68	1.00
(Ex-Im)/GDP	GDP	0.12	0.06	0.87	0.86	0.89	-0.84
Employment	GDP	0.35	0.44	0.80	0.85	0.81	0.75
Hours	GDP	0.94	0.89	0.92	0.92	0.88	0.96
GDP/Hrs	GDP	-0.37	-0.11	0.35	0.27	0.33	-0.89
Inventory Stk	GDP	0.84	0.76	0.75	0.75	0.58	0.78
GDP deflator	GDP	-0.60	-0.35	-0.52	-0.54	-0.51	-0.83
CPI	GDP	-0.59	-0.33	-0.46	-0.49	-0.47	-0.80
Inflation (GDP)	GDP	0.93	0.55	0.15	0.31	0.06	0.97
Inflation (CPI)	GDP	0.85	0.52	0.34	0.45	0.28	0.91
Final Sales	GDP	0.97	0.96	0.97	0.98	0.95	0.82
3-Mo TBill	GDP	-0.16	-0.07	0.16	0.18	0.38	-0.70
TBill-Inf(GDP)	GDP	-0.92	-0.56	0.00	-0.14	0.28	-0.84
Chg Invntry/GDP	GDP	0.76	0.56	0.52	0.61	0.64	0.51
GDP/Hours	Hours	-0.67	-0.54	-0.06	-0.14	-0.17	-0.98
Inventory Stk	Sales	0.93	0.79	0.77	0.78	0.59	1.00
Chg Invtry/GDP	Sales	0.58	0.32	0.29	0.44	0.37	-0.08

Table B.5: Second Moment Properties of U.S. Data
 Band Pass Filter Approximations(2 quarters to 8 years) and the HP Filter

=====
 Part 1: Standard Deviations: std(Variable x) / std(GDP)
 =====

Filtering Procedure
 =====

Variable x	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	1.77	1.80	1.62	1.71	1.76	1.79
Consumption	0.74	0.73	0.74	0.75	0.77	0.71
Nondur & Serv	0.45	0.45	0.46	0.46	0.48	0.44
Nondur	0.65	0.65	0.69	0.67	0.68	0.65
Services	0.36	0.36	0.36	0.38	0.39	0.35
Durables	2.94	2.87	2.95	2.97	3.04	2.83
Investment	4.58	4.52	4.56	4.48	4.48	4.46
Fixed Invest	3.04	2.97	2.82	2.89	2.99	2.87
Nonresident	2.79	2.77	2.80	2.80	2.80	2.70
Structures	2.63	2.63	2.79	2.76	2.73	2.54
Equipment	3.24	3.20	3.22	3.23	3.25	3.14
Residential	6.22	5.96	5.65	5.80	6.07	5.79
Government	1.74	1.73	1.67	1.83	1.87	1.66
Federal	2.87	2.87	2.75	2.99	3.03	2.70
State & Local	0.76	0.76	0.77	0.79	0.79	0.77
Exports	3.03	2.95	3.25	3.17	3.16	2.89
Imports	2.79	2.78	2.84	2.83	2.92	2.74
(Ex-Im)/GDP	0.65	0.64	0.66	0.65	0.63	0.66
Employment	0.59	0.59	0.60	0.60	0.61	0.58
Hours	0.94	0.94	0.96	0.96	0.96	0.94
GDP/Hrs	0.49	0.49	0.51	0.50	0.49	0.49
Inventory Stk	1.08	1.08	1.10	1.11	1.09	1.09
GDP deflator	0.48	0.47	0.47	0.52	0.52	0.46
CPI	0.77	0.74	0.70	0.78	0.80	0.74
Inflation (GDP)	0.72	0.71	0.75	0.73	0.72	0.71
Inflation (CPI)	1.05	1.03	1.04	1.03	1.04	1.03
Final Sales	0.80	0.80	0.79	0.81	0.82	0.80
3-Mo TBill	0.67	0.65	0.67	0.67	0.69	0.64
TBill-Inf(GDP)	0.73	0.72	0.81	0.78	0.76	0.72
Chg Invntry/GDP	0.27	0.26	0.29	0.27	0.27	0.26

Notes: See Table B.1

Table B.5, continued

Part 2: Correlations: corr(Variable x, Variable y)							
Filtering Procedure							
Var x	Var y	Random Walk	Random Walk Symmetric	Random Walk Fixed	BK	HP	Trigonometric Regression
GDP	GDP	1.00	1.00	1.00	1.00	1.00	1.00
Consumption	GDP	0.82	0.83	0.83	0.83	0.83	0.83
Nondur & Serv	GDP	0.82	0.82	0.79	0.80	0.81	0.83
Nondur	GDP	0.78	0.79	0.76	0.77	0.78	0.79
Services	GDP	0.72	0.73	0.67	0.69	0.72	0.74
Durables	GDP	0.70	0.71	0.73	0.73	0.73	0.69
Investment	GDP	0.89	0.90	0.89	0.88	0.88	0.90
Fixed Invest	GDP	0.85	0.85	0.85	0.84	0.84	0.86
Nonresident	GDP	0.80	0.80	0.74	0.75	0.76	0.79
Structures	GDP	0.54	0.54	0.45	0.46	0.46	0.53
Equipment	GDP	0.84	0.84	0.80	0.81	0.82	0.83
Residential	GDP	0.57	0.59	0.58	0.58	0.59	0.60
Government	GDP	0.18	0.21	0.19	0.21	0.19	0.28
Federal	GDP	0.13	0.17	0.17	0.18	0.14	0.23
State & Local	GDP	0.07	0.06	-0.07	0.02	0.12	0.05
Exports	GDP	0.30	0.28	0.29	0.29	0.28	0.28
Imports	GDP	0.69	0.71	0.67	0.67	0.68	0.70
(Ex-Im)/GDP	GDP	0.89	0.90	0.90	0.89	0.89	0.90
Employment	GDP	0.82	0.82	0.78	0.79	0.81	0.83
Hours	GDP	0.88	0.88	0.86	0.87	0.88	0.88
GDP/Hrs	GDP	0.35	0.36	0.33	0.33	0.33	0.35
Inventory Stk	GDP	0.56	0.57	0.53	0.56	0.58	0.58
GDP deflator	GDP	-0.45	-0.46	-0.40	-0.43	-0.51	-0.42
CPI	GDP	-0.41	-0.43	-0.40	-0.42	-0.47	-0.39
Inflation (GDP)	GDP	0.09	0.09	0.01	0.04	0.06	0.09
Inflation (CPI)	GDP	0.32	0.31	0.22	0.25	0.28	0.32
Final Sales	GDP	0.95	0.95	0.94	0.94	0.95	0.95
3-Mo TBill	GDP	0.41	0.40	0.47	0.42	0.38	0.43
TBill-Inf(GDP)	GDP	0.29	0.27	0.38	0.33	0.28	0.29
Chg Invntry/GDP	GDP	0.68	0.69	0.68	0.66	0.64	0.69
GDP/Hours	Hours	-0.14	-0.14	-0.19	-0.17	-0.17	-0.14
Inventory Stk	Sales	0.57	0.58	0.53	0.57	0.59	0.59
Chg Invntry/GDP	Sales	0.43	0.43	0.38	0.38	0.37	0.43