

Results are obtained with  $h_0^P$  estimated

$h_0^Q = h_t^P$ , THEN FROZEN									
$\theta$	2010	2011	2012	2013	2014	2015	2016	2017	2018
$\omega$	$2.9372e-07$	$8.3428e-06$	$1.9798e-09$	$1.4603e-06$	$1.9936e-06$	$4.7130e-07$	$6.9594e-07$	$3.5609e-07$	$2.8352e-07$
std	$(1.5899e-06)$	$(2.7177e-05)$	$(4.0482e-09)$	$(4.9823e-06)$	$(6.7868e-06)$	$(2.5577e-06)$	$(3.0411e-06)$	$(2.0030e-06)$	$(1.8911e-06)$
median	$4.2959e-10$	$2.1679e-09$	$1.1009e-09$	$1.4234e-09$	$1.3127e-09$	$1.3856e-09$	$7.3148e-10$	$2.9299e-10$	$4.7562e-10$
$\alpha$	$2.6179e-05$	$2.2651e-05$	$2.0039e-05$	$1.5773e-05$	$1.4467e-05$	$1.3916e-05$	$1.4253e-05$	$9.1931e-06$	$1.5873e-05$
std	$(2.1706e-05)$	$(2.2461e-05)$	$(1.7805e-05)$	$(1.2289e-05)$	$(8.8350e-06)$	$(7.4013e-06)$	$(8.6749e-06)$	$(5.0026e-06)$	$(1.1427e-05)$
median	$2.1958e-05$	$1.9805e-05$	$1.4954e-05$	$1.5487e-05$	$1.4270e-05$	$1.2722e-05$	$1.3097e-05$	$9.1517e-06$	$1.5918e-05$
$\beta$	0.4597	0.3159	0.4507	0.3427	0.1760	0.1908	0.2213	0.1635	0.2507
std	(0.3333)	(0.3216)	(0.3648)	(0.3819)	(0.2810)	(0.2349)	(0.3006)	(0.3075)	(0.3307)
median	0.5280	0.3131	0.6081	0.0023	0.0002	0.0090	0.0006	0.0001	0.0003
$\gamma^*$	152.9585	257.3214	173.7617	247.3587	226.0042	223.2081	256.9357	271.4808	189.0697
std	(151.4998)	(289.2871)	(124.0874)	(267.6364)	(201.9174)	(50.0536)	(247.3525)	(186.4748)	(118.2861)
median	112.7097	148.3374	137.7486	166.2098	189.4759	226.1581	201.7685	233.7905	156.7186
$h_0^Q$	$1.2801e-04$	$1.5636e-04$	$8.7217e-05$	$6.0637e-05$	$6.5304e-05$	0.0001	$1.0037e-04$	$4.1069e-05$	$1.0044e-04$
std	$(8.8249e-05)$	$(1.0402e-04)$	$(4.4206e-05)$	$(3.1147e-05)$	$(3.7862e-05)$	$(6.6153e-05)$	$(7.2105e-05)$	$(2.3358e-05)$	$(8.2938e-05)$
median	$1.1288e-04$	$1.2644e-04$	$8.4289e-05$	$4.8973e-05$	$5.5260e-05$	$9.0858e-05$	$8.2538e-05$	$3.3382e-05$	$6.5660e-05$
persistence	0.8128	0.8243	0.7739	0.7081	0.6691	0.7931	0.7524	0.6538	0.6532
std	(0.1873)	(0.1406)	(0.2400)	(0.2390)	(0.2103)	(0.1014)	(0.1541)	(0.2214)	(0.2535)
median	0.8790	0.8230	0.8744	0.7076	0.6817	0.7949	0.7223	0.6810	0.6687
MSE	13.2947	28.6564	11.4011	10.2438	21.5305	21.3190	25.4105	28.6432	50.4499
median MSE	4.3699	6.8225	5.3297	6.1938	10.1128	11.3385	17.2733	25.5157	24.8218
IVRMSE	0.1870	0.2316	0.1562	0.1421	0.1683	0.1853	0.2046	0.1556	0.1987
MAPE	0.2234	0.2721	0.2458	0.2476	0.3223	0.3771	0.3977	0.3412	0.3301
OptLL Norm	-1.9372	-2.2137	-1.9321	-1.9273	-2.1823	-2.1135	-2.3879	-2.2150	-2.6858
OptLL	-106.5921	-133.3105	-131.6808	-180.8957	-219.2291	-258.7072	-363.7374	-370.1816	-506.0755
AIC	116.6821	141.3105	142.3144	188.8957	227.2291	266.7072	371.7374	378.1816	535.1620
AICc	117.4862	142.0792	142.9490	189.3697	227.6792	267.0705	372.0245	378.4424	535.3807
BIC	233.4714	282.9099	285.5740	379.8430	456.7516	536.5035	747.4371	760.7219	1075.3381

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$h_0^Q$ IS UNC UNDER P, UPDATED UNDER Q 1 YEAR, THEN FROZEN									
$\theta$	2010	2011	2012	2013	2014	2015	2016	2017	2018
$\omega$	$8.5020e-08$	$9.2713e-06$	$1.9239e-07$	$2.2129e-06$	$1.9389e-06$	$4.1610e-07$	$5.9988e-07$	$3.5296e-07$	$5.5798e-07$
std	$(4.4877e-07)$	$(2.7968e-05)$	$(1.0856e-06)$	$(6.4184e-06)$	$(6.6239e-06)$	$(2.4952e-06)$	$(2.9189e-06)$	$(2.0142e-06)$	$(2.7147e-06)$
median	$4.8556e-10$	$1.1201e-09$	$8.3045e-10$	$1.6349e-09$	$1.4218e-09$	$1.6699e-09$	$8.8906e-10$	$3.3972e-10$	$5.5461e-10$
$\alpha$	$2.5053e-05$	$2.0773e-05$	$1.8857e-05$	$1.3866e-05$	$1.3628e-05$	$1.3613e-05$	$1.3838e-05$	$8.6221e-06$	$1.5568e-05$
std	$(2.2286e-05)$	$(2.0915e-05)$	$(1.6575e-05)$	$(1.1518e-05)$	$(8.5509e-06)$	$(5.8573e-06)$	$(8.0132e-06)$	$(5.2512e-06)$	$(9.8830e-06)$
median	$1.6946e-05$	$1.8770e-05$	$1.2068e-05$	$1.2723e-05$	$1.3239e-05$	$1.2849e-05$	$1.3228e-05$	$8.5732e-06$	$1.4242e-05$
$\beta$	0.4924	0.3370	0.4751	0.3745	0.1857	0.1755	0.2466	0.1768	0.2081
std	(0.3262)	(0.3216)	(0.3449)	(0.3822)	(0.2931)	(0.2334)	(0.3159)	(0.3270)	(0.3076)
median	0.5759	0.3823	0.5676	0.3025	0.0003	0.0008	0.0018	0.0001	0.0008
$\gamma^*$	150.2212	214.4353	173.9764	268.9184	254.1627	222.3940	210.4781	296.4724	200.0720
std	(138.1818)	(168.3789)	(143.1116)	(295.6025)	(239.9854)	(41.1800)	(73.6564)	(189.9753)	(141.3388)
median	110.8449	155.9251	143.9621	170.7408	196.1680	228.8470	208.6253	252.7287	161.0031
$h_0^Q$	$1.2468e-04$	$1.5814e-04$	$8.6791e-05$	$6.4327e-05$	$6.4325e-05$	0.0001	$9.5618e-05$	$4.2789e-05$	$1.0871e-04$
std	$(8.4854e-05)$	$(1.0317e-04)$	$(4.2726e-05)$	$(3.0386e-05)$	$(3.7746e-05)$	$(5.4010e-05)$	$(6.6049e-05)$	$(2.5624e-05)$	$(9.0224e-05)$
median	$1.0398e-04$	$1.3624e-04$	$7.8012e-05$	$5.3266e-05$	$5.2214e-05$	$8.5698e-05$	$7.4335e-05$	$3.6616e-05$	$6.9818e-05$
persistence	0.8233	0.8361	0.7863	0.7230	0.6842	0.7936	0.7599	0.6817	0.6598
std	(0.1875)	(0.1268)	(0.2318)	(0.2418)	(0.2203)	(0.0951)	(0.1551)	(0.2158)	(0.2299)
median	0.8873	0.8444	0.8856	0.7596	0.7232	0.7919	0.7344	0.6894	0.6789
MSE	13.1341	29.7013	11.0076	10.4282	20.4248	21.2395	26.0305	26.8897	50.6471
median MSE	4.0691	6.5356	5.3875	6.5788	9.0235	11.1964	17.4622	23.3996	25.9681
IVRMSE	0.1878	0.2385	0.1550	0.1445	0.1694	0.1849	0.2030	0.1592	0.2025
MAPE	0.2247	0.2822	0.2447	0.2502	0.3205	0.3755	0.3917	0.3454	0.3334
OptLL Norm	-1.9442	-2.2278	-1.9144	-1.9134	-2.1584	-2.0968	-2.3777	-2.2153	-2.6961
OptLL	-106.9859	-133.9125	-130.3126	-179.9202	-217.0199	-256.8779	-361.9741	-370.2197	-508.0336
AIC	117.0836	141.9125	140.9188	187.9202	225.0199	264.8779	369.9741	378.2197	537.2017
AICc	117.8877	142.6812	141.5534	188.3942	225.4700	265.2412	370.2611	378.4804	537.4204
BIC	234.2744	284.1139	282.7829	377.8920	452.3332	532.8449	743.9104	760.7980	1079.4174

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$\theta$	2010	2011	2012	2013	2014	2015	2016	2017	2018
$\omega$	4.2678e-09	3.2988e-07	3.3650e-08	3.8487e-07	1.2743e-07	4.4942e-08	2.5305e-08	3.9319e-08	3.5818e-08
std	(1.6793e-08)	(1.5604e-06)	(1.6574e-07)	(1.3052e-06)	(4.5655e-07)	(2.0855e-07)	(1.4769e-07)	(1.7009e-07)	(2.2433e-07)
median	5.6987e-10	1.0301e-09	8.8539e-10	1.3676e-09	7.7997e-10	1.4987e-09	1.0172e-09	4.0373e-10	6.8337e-10
$\alpha$	1.8159e-05	1.5399e-05	9.8980e-06	6.3241e-06	7.4196e-06	7.5611e-06	5.1463e-06	2.3495e-06	1.1995e-05
std	(1.9473e-05)	(2.0907e-05)	(1.4306e-05)	(8.1191e-06)	(9.4527e-06)	(7.5089e-06)	(5.8282e-06)	(3.0574e-06)	(1.5546e-05)
median	1.0250e-05	7.6580e-06	4.5292e-06	3.1281e-06	3.2390e-06	4.5726e-06	2.9817e-06	1.4483e-06	2.9910e-06
$\beta$	0.6274	0.5663	0.7006	0.7210	0.6492	0.5382	0.6249	0.7420	0.5157
std	(0.2834)	(0.2866)	(0.2549)	(0.2507)	(0.2841)	(0.2570)	(0.2245)	(0.2376)	(0.3895)
median	0.7368	0.6567	0.8002	0.8149	0.7673	0.6542	0.6945	0.8117	0.7356
$\gamma^*$	132.4933	192.2414	181.4591	253.9687	275.9645	279.7662	299.2539	328.2238	239.1084
std	(51.3976)	(92.7353)	(81.0421)	(194.9650)	(232.5682)	(176.0622)	(156.8154)	(113.5621)	(131.0210)
median	127.9434	175.8916	174.2587	184.1932	222.8042	257.4585	297.1472	325.0299	208.0581
$h_0^Q$	1.3031e-04	2.2023e-04	8.4651e-05	5.0816e-05	4.6760e-05	0.0001	7.5865e-05	1.9451e-05	1.1803e-04
std	(1.3981e-04)	(2.3304e-04)	(6.2196e-05)	(4.8220e-05)	(5.6141e-05)	(1.1327e-04)	(1.0277e-04)	(1.9077e-05)	(1.6638e-04)
median	9.1311e-05	1.1029e-04	5.8419e-05	3.3426e-05	2.7470e-05	5.5238e-05	4.0532e-05	1.3988e-05	3.3291e-05
persistence	0.8700	0.9176	0.8950	0.9092	0.8936	0.9149	0.9375	0.9539	0.7992
std	(0.1807)	(0.0833)	(0.1822)	(0.1130)	(0.1265)	(0.0784)	(0.0690)	(0.0698)	(0.2553)
median	0.9423	0.9529	0.9625	0.9574	0.9469	0.9449	0.9650	0.9764	0.9392
MSE	12.7466	27.2788	9.6810	7.4448	13.5402	16.4519	17.5702	7.9150	39.0847
median MSE	3.6431	5.3185	4.3783	2.6149	2.7338	5.3808	7.9102	4.1066	15.0308
IVRMSE	0.1855	0.2364	0.1539	0.1415	0.1578	0.1877	0.2016	0.1375	0.1974
MAPE	0.2236	0.2808	0.2448	0.2426	0.3006	0.3798	0.3724	0.2900	0.3300
OptLL Norm	-1.8990	-2.1658	-1.8489	-1.7894	-1.9020	-1.9932	-2.1963	-1.8507	-2.5929
OptLL	-104.5406	-129.6401	-125.8304	-169.0302	-193.4868	-245.2058	-337.7765	-312.4968	-489.4748
AIC	116.5904	139.6401	138.3470	179.0302	203.4868	255.2058	347.7765	322.4968	519.8696
AICc	117.8227	140.8171	139.3148	179.7501	204.1702	255.7560	348.2103	322.8906	520.1995
BIC	233.3149	279.6412	277.8755	360.6249	409.8403	514.2730	700.5059	650.4419	1046.0068