FF_DS_AZ_LOOP Dynamic Savings Loop Discrete Distribution

back to Fan's Intro Math for Econ, Matlab Examples, or Dynamic Asset Repositories

This is the example vignette for function: **ff_ds_az_loop** from the **MEconTools Package.** F(a,z) discrete probability mass function given policy function solution with discretized savings choices.

- Distribution for Common Choice and States Grid ***Loop***: ff_ds_az_cts_loop
- Distribution for States Grid + Continuous Exact Savings as Share of Cash-on-Hand ***Loop***: **ff_ds_az_cts_loop**
- Distribution for States Grid + Continuous Exact Savings as Share of Cash-on-Hand ***Vectorized***: **ff_ds_az_cts_vec**

Test FF_DS_AZ_LOOP Defaults

Call the function with defaults. By default, shows the asset policy function summary. Model parameters can be changed by the mp_params.

```
%mp_params
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('fl_crra') = 1.5;
mp_params('fl_beta') = 0.94;
% call function
ff_ds_az_loop(mp_params);
```

```
Elapsed time is 0.191238 seconds.
----------------------------------------
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
CONTAINER NAME: mp_ffcmd ND Array (Matrix etc)
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
          i    idx    ndim    numel    rowN    colN     sum      mean      std      coefvari    min    max
          _    ___    ____    _____    ____    ____    ______    ______    ______    ________    ___    ___

    ap    1     1      2       700     100      7      9855.1    14.079    14.408     1.0234      0     50

xxx TABLE:ap xxxxxxxxxxxxxxxxx
              c1        c2        c3         c4         c5         c6         c7
            ______    ______    ______    ________    _______    _______    ______

    r1           0         0         0    0.045213    0.25576    0.61095    1.0362
    r2           0         0         0    0.045213    0.25576    0.61095    1.0362
    r3           0         0         0    0.045213    0.25576    0.61095    1.0362
    r4           0         0         0     0.06647    0.25576    0.61095    1.0362
    r5           0         0         0     0.06647    0.25576    0.61095     1.164
    r96     43.924    43.924    43.924      43.924     43.924     45.102    45.102
    r97     45.102    45.102    45.102      45.102     45.102     46.298    46.298
    r98     46.298    46.298    46.298      46.298     46.298     47.513    47.513
    r99     47.513    47.513    47.513      47.513     47.513     48.747    48.747
    r100    48.747    48.747    48.747      48.747     48.747         50        50

FF_DS_AZ_LOOP finished. Distribution took = 0.14487
----------------------------------------
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
CONTAINER NAME: mp_ddcmd ND Array (Matrix etc)
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
          i    idx    ndim    numel    rowN    colN    sum      mean          std       coefvari      min          m
          _    ___    ____    _____    ____    ____    ___    _________    _________    ________    ________    ___
```

fa	1	1	2	100	100	1	1	0.01	0.016114	1.6114	0	
faz	2	2	2	700	100	7	1	0.0014286	0.0035847	2.5093	0	0.0
fz	3	3	2	7	7	1	1	0.14286	0.11742	0.82196	0.015625	0

xxx TABLE:fa xxxxxxxxxxxxxxxxx

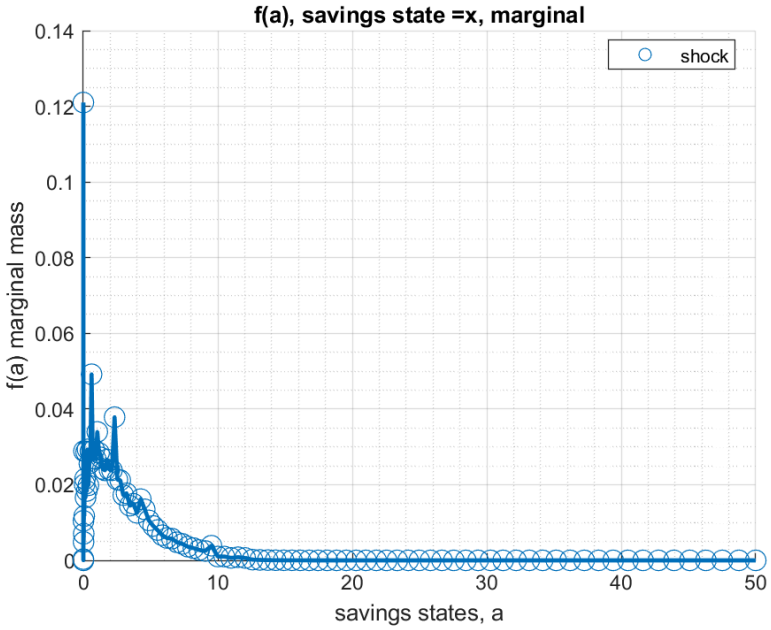
	c1
r1	0.121
r2	0.00034068
r3	0
r4	0.010458
r5	0.0048751
r96	1.1148e-21
r97	3.227e-22
r98	7.9165e-23
r99	1.4982e-23
r100	1.7037e-24

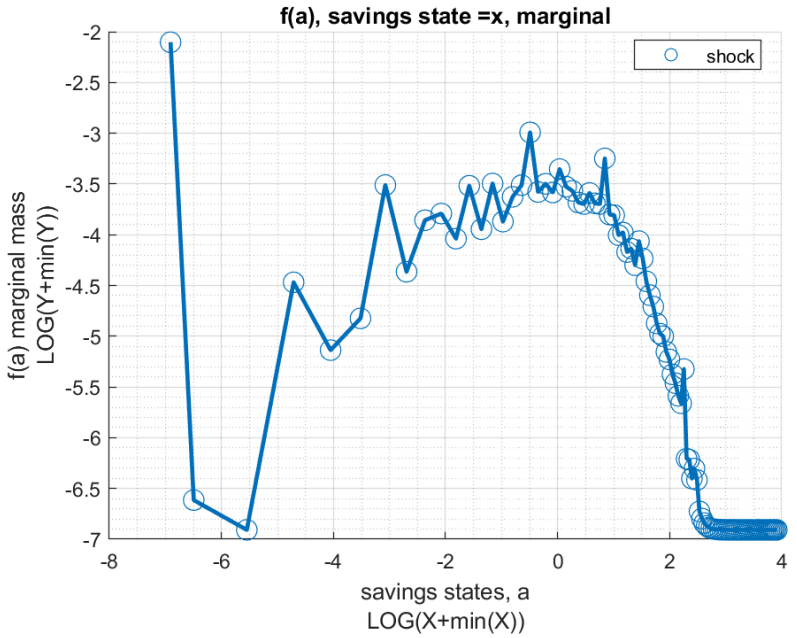
xxx TABLE:faz xxxxxxxxxxxxxxxxx

	c1	**c2**	**c3**	**c4**	**c5**	**c6**	**c7**
r1	0.0084023	0.03778	0.052693	0.018985	0.0029243	0.00020787	5.6301e-06
r2	0.00018105	0.0001207	3.3528e-05	4.9671e-06	4.1392e-07	1.8397e-08	3.4068e-10
r3	0	0	0	0	0	0	0
r4	0.00016518	0.002081	0.005593	0.0022334	0.00035834	2.6032e-05	7.146e-07
r5	0.00021881	0.00067299	0.0026761	0.0011123	0.00018127	1.3278e-05	3.6641e-07
r96	1.7183e-25	2.8942e-24	2.2565e-23	1.0675e-22	3.1764e-22	4.9586e-22	1.6895e-22
r97	3.2228e-26	6.111e-25	5.3384e-24	2.7969e-23	9.0055e-23	1.4769e-22	5.1004e-23
r98	4.5065e-27	1.0023e-25	1.0174e-24	6.0677e-24	2.15e-23	3.7371e-23	1.3103e-23
r99	3.8775e-28	1.0954e-26	1.38e-25	9.8022e-25	3.9213e-24	7.3193e-24	2.6118e-24
r100	1.1692e-29	5.3148e-28	9.7109e-27	8.9563e-26	4.2252e-25	8.6574e-25	3.1562e-25

xxx TABLE:fz xxxxxxxxxxxxxxxxx

	c1
r1	0.015625
r2	0.09375
r3	0.23438
r4	0.3125
r5	0.23438
r6	0.09375
r7	0.015625





Test FF_DS_AZ_LOOP Speed Tests

Call the function with different a and z grid size, print out speed:

```
mp_support = containers.Map('KeyType','char', 'ValueType','any');
mp_support('bl_timer') = true;
mp_support('ls_ffcmd') = {};
mp_support('ls_ddcmd') = {};
mp_support('ls_ddgrh') = {};
mp_support('bl_show_stats_table') = false;
% A grid 50, shock grid 5:
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 50;
mp_params('it_z_n') = 5;
```

```
ff_ds_az_loop(mp_params, mp_support);
```

```
Elapsed time is 0.021787 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 0.046636
```

```
% A grid 100, shock grid 7:
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 100;
mp_params('it_z_n') = 7;
ff_ds_az_loop(mp_params, mp_support);
```

```
Elapsed time is 0.218465 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 0.13608
```

```
% A grid 200, shock grid 9:
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 200;
mp_params('it_z_n') = 9;
ff_ds_az_loop(mp_params, mp_support);
```

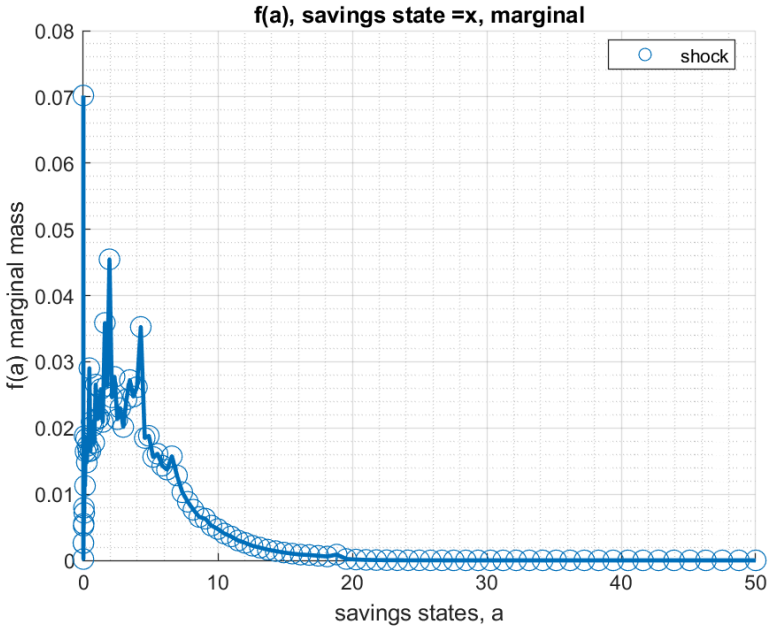
```
Elapsed time is 0.489370 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 0.35393
```

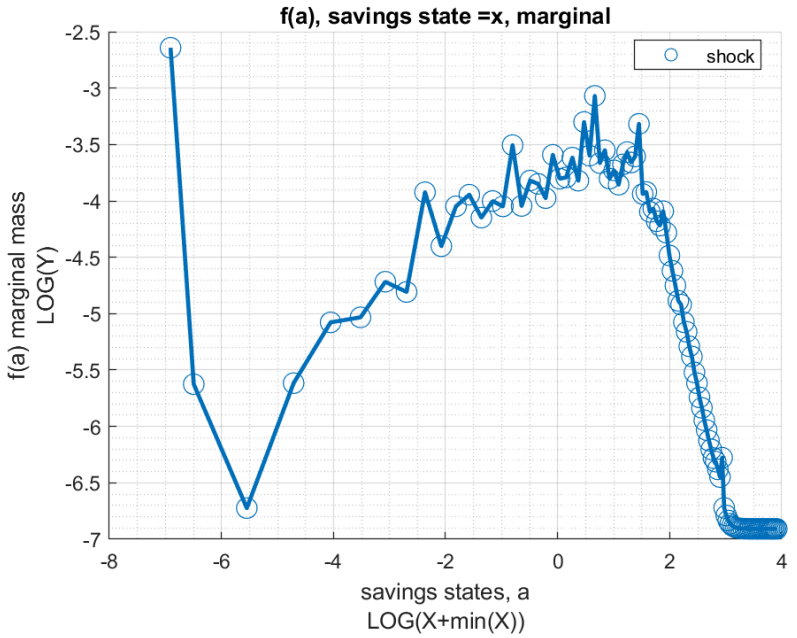
Test FF_DS_AZ_LOOP A grid 100 Shock grid 7

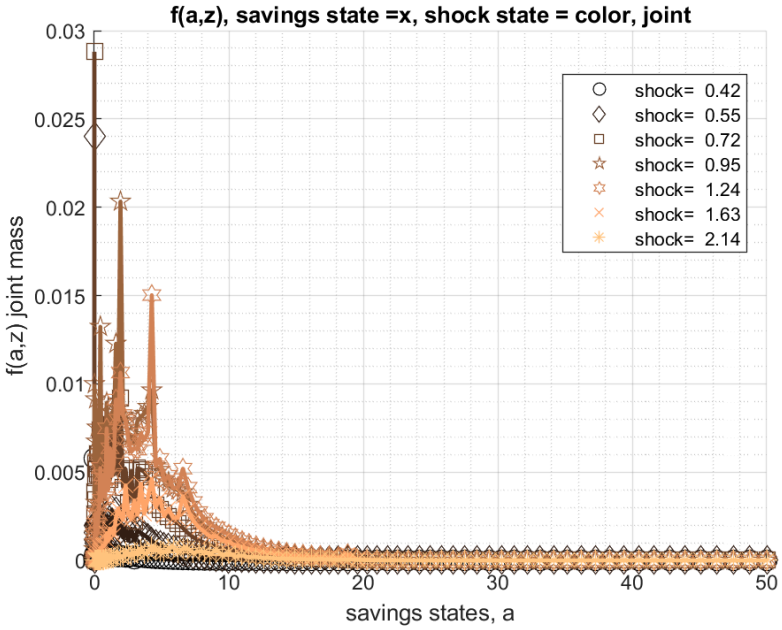
Call the function with different a and z grid size, print out speed:

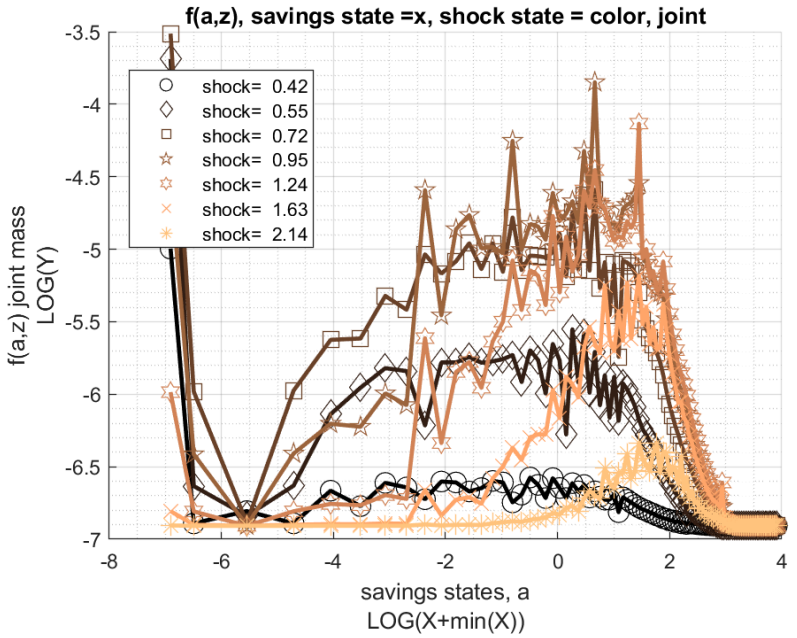
```
mp_support = containers.Map('KeyType','char', 'ValueType','any');
mp_support('bl_timer') = true;
mp_support('ls_ffcmd') = {};
mp_support('ls_ddcmd') = {};
mp_support('ls_ddgrh') = {'faz','fa'};
mp_support('bl_show_stats_table') = true;
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 100;
mp_params('it_z_n') = 7;
ff_ds_az_loop(mp_params, mp_support);
```

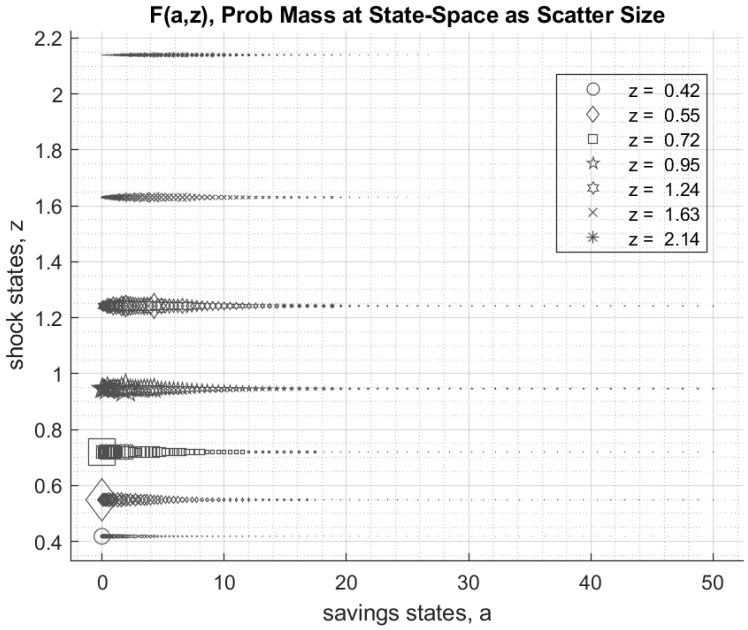
```
Elapsed time is 0.217312 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 0.1105
```


f(a), savings state =x, marginal
shock
f(a) marginal mass
savings states, a
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
10
20
30
40
50


f(a), savings state =x, marginal
shock
f(a) marginal mass
LOG(Y)
savings states, a
LOG(X+min(X))
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
-6
-6.5
-7
-8
-6
-4
-2
0
2
4


f(a,z), savings state =x, shock state = color, joint
f(a,z) joint mass
savings states, a
shock= 0.42
shock= 0.55
shock= 0.72
shock= 0.95
shock= 1.24
shock= 1.63
shock= 2.14


f(a,z), savings state =x, shock state = color, joint
f(a,z) joint mass
LOG(Y)
savings states, a
LOG(X+min(X))
shock= 0.42
shock= 0.55
shock= 0.72
shock= 0.95
shock= 1.24
shock= 1.63
shock= 2.14



xxx tb_outcomes: all stats xxx

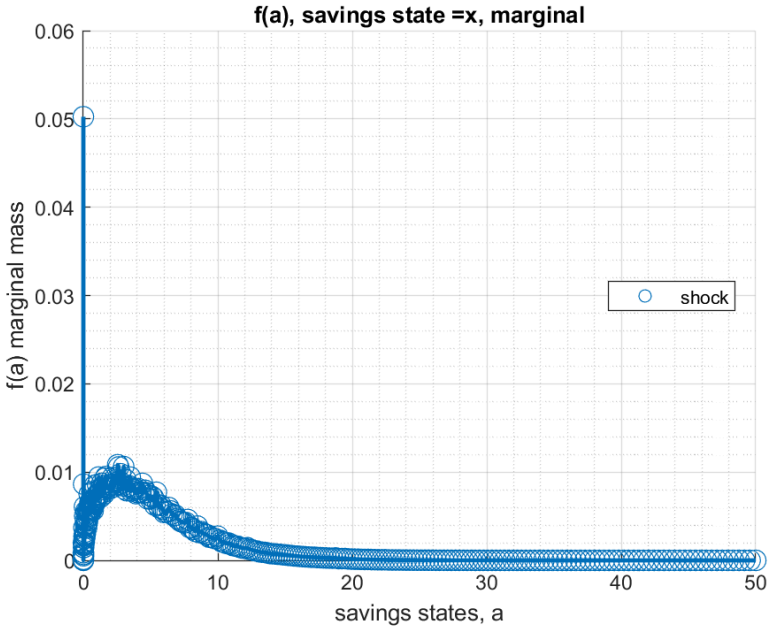
OriginalVariableNames	ap	v	c	y	coh	savefraccoh
{'mean' }	2.7094	6.6576	1.5089	1.5084	4.2183	0.48487
{'unweighted_sum' }	1439.4	7299.4	1545.9	1473.6	11549	479.94
{'sd' }	2.8976	2.0599	0.35843	0.52611	3.2096	0.25477
{'coefofvar' }	1.0694	0.3094	0.23755	0.34879	0.76088	0.52544
{'gini' }	0.53346	0.17414	0.13326	0.19097	0.39103	0.29771
{'min' }	0	1.6927	0.58543	0.58543	0.58543	0
{'max' }	50	19.139	4.9969	4.9969	54.997	0.93121
{'pYis0' }	0.070216	0	0	0	0	0.070216
{'pYls0' }	0	0	0	0	0	0
{'pYgr0' }	0.92978	1	1	1	1	0.92978
{'pYisMINY' }	0.070216	0.0057675	0.0057675	0.0057675	0.0057675	0.070216
{'pYisMAXY' }	2.1143e-10	3.7149e-11	3.7149e-11	3.7149e-11	3.7149e-11	2.065e-11
{'p0_01' }	0	1.6927	0.58543	0.58543	0.58543	0
{'p0_1' }	0	1.6927	0.58543	0.58543	0.58543	0
{'p1' }	0	2.7674	0.76855	0.61362	0.76855	0
{'p5' }	0	3.273	0.91608	0.77504	1.009	0
{'p10' }	0.06647	4.0961	1.0308	0.92803	1.1055	0.067651
{'p20' }	0.37601	4.8781	1.2371	1.0319	1.555	0.22796
{'p25' }	0.52503	5.2636	1.2781	1.0731	1.8354	0.28067
{'p30' }	0.7048	5.4822	1.3424	1.1472	2.0866	0.35907
{'p40' }	1.3008	6.0574	1.3953	1.3424	2.6774	0.48584
{'p50' }	1.9422	6.542	1.4931	1.4023	3.3444	0.54915
{'p60' }	2.5275	7.1265	1.6174	1.4954	4.1208	0.60499
{'p70' }	3.456	7.657	1.6502	1.7803	5.1554	0.67918
{'p75' }	3.9869	8.0469	1.733	1.824	5.7555	0.69673
{'p80' }	4.564	8.4125	1.8179	1.8875	6.1793	0.72076
{'p90' }	6.5844	9.3821	1.9734	2.3349	8.568	0.76882
{'p95' }	8.1844	10.225	2.1388	2.4776	10.358	0.80411
{'p99' }	13.136	11.834	2.3359	3.1677	15.511	0.85404
{'p99_9' }	18.839	13.486	2.7733	3.4782	21.332	0.88316
{'p99_99' }	21.778	14.354	3.0939	3.7505	24.78	0.89063
{'fl_cov_ap' }	8.396	5.2587	0.88866	0.93721	9.2847	0.58458
{'fl_cor_ap' }	1	0.88106	0.85565	0.61478	0.99833	0.7919
{'fl_cov_v' }	5.2587	4.243	0.71989	0.93806	5.9786	0.453
{'fl_cor_v' }	0.88106	1	0.97505	0.86559	0.90428	0.86321
{'fl_cov_c' }	0.88866	0.71989	0.12847	0.15253	1.0171	0.079518
{'fl_cor_c' }	0.85565	0.97505	1	0.80886	0.88413	0.8708
{'fl_cov_y' }	0.93721	0.93806	0.15253	0.2768	1.0897	0.080824

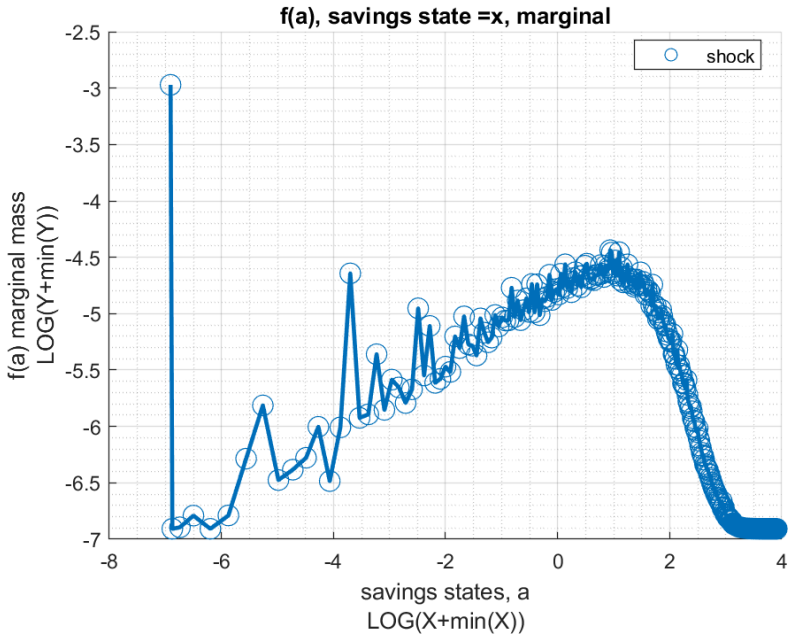
{'fl_cor_y'}	0.61478	0.86559	0.80886	1	0.64534	0.603
{'fl_cov_coh'}	9.2847	5.9786	1.0171	1.0897	10.302	0.6641
{'fl_cor_coh'}	0.99833	0.90428	0.88413	0.64534	1	0.81215
{'fl_cov_savefraccoh'}	0.58458	0.453	0.079518	0.080824	0.6641	0.064906
{'fl_cor_savefraccoh'}	0.7919	0.86321	0.8708	0.603	0.81215	1
{'fracByP0_01'}	0	0.0014664	0.0022377	0.0022385	0.00080043	0
{'fracByP0_1'}	0	0.0014664	0.0022377	0.0022385	0.00080043	0
{'fracByP1'}	0	0.0029302	0.01567	0.00403	0.0055106	0
{'fracByP5'}	0	0.021763	0.026172	0.02466	0.015702	0
{'fracByP10'}	0.0004071	0.050764	0.058937	0.05144	0.022123	0.0021411
{'fracByP20'}	0.0096198	0.1171	0.13549	0.11855	0.05416	0.033082
{'fracByP25'}	0.017608	0.15851	0.17677	0.15694	0.074837	0.057303
{'fracByP30'}	0.02761	0.19906	0.21973	0.19018	0.09783	0.092029
{'fracByP40'}	0.071719	0.28454	0.3135	0.28477	0.15542	0.18016
{'fracByP50'}	0.15388	0.38017	0.40577	0.38385	0.23227	0.28549
{'fracByP60'}	0.21684	0.48325	0.51534	0.46249	0.31381	0.4039
{'fracByP70'}	0.32573	0.59393	0.62048	0.57438	0.42716	0.54543
{'fracByP75'}	0.39815	0.65416	0.68002	0.63899	0.4882	0.60905
{'fracByP80'}	0.48482	0.72413	0.732	0.69931	0.55881	0.6822
{'fracByP90'}	0.6819	0.84902	0.85906	0.8281	0.73338	0.83355
{'fracByP95'}	0.79123	0.91664	0.92592	0.90812	0.83969	0.91574
{'fracByP99'}	0.9433	0.98136	0.98418	0.97889	0.95655	0.98225
{'fracByP99_9'}	0.99595	0.99805	0.99819	0.99776	0.99501	0.99858
{'fracByP99_99'}	0.99934	0.99982	0.99985	0.9998	0.99938	0.99984

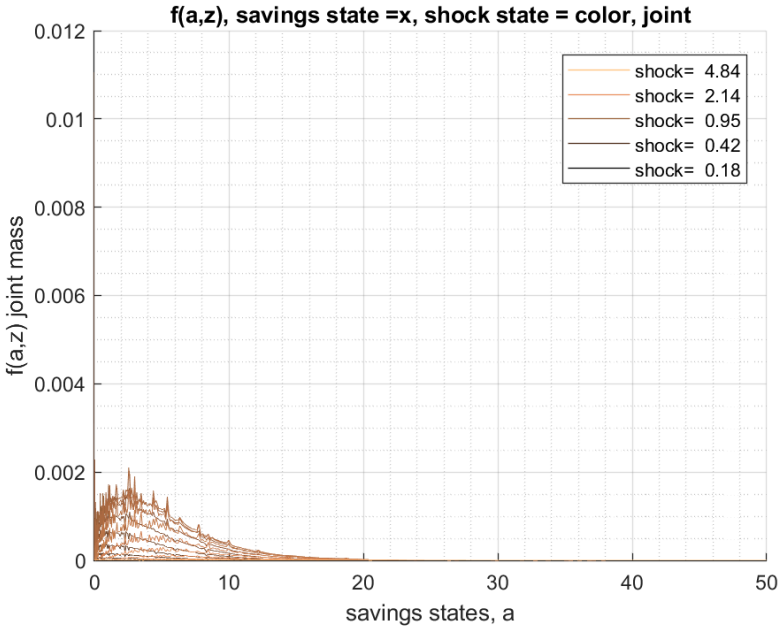
Test FF_DS_AZ_LOOP A grid 300 Shock Grid 25

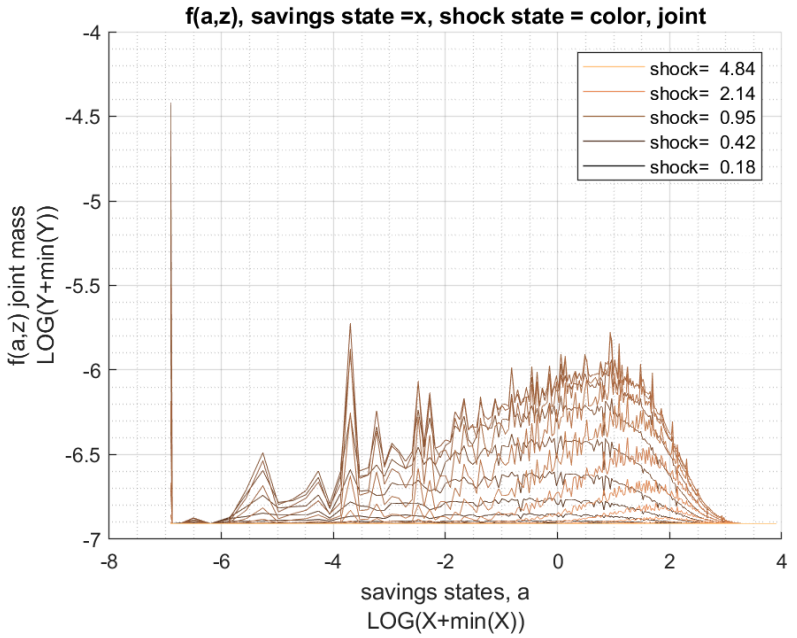
```
mp_support = containers.Map('KeyType','char', 'ValueType','any');
mp_support('bl_timer') = true;
mp_support('ls_ffcmd') = {};
mp_support('ls_ddcmd') = {};
mp_support('ls_ddgrh') = {'faz','fa'};
mp_support('bl_show_stats_table') = true;
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 300;
mp_params('it_z_n') = 25;
ff_ds_az_loop(mp_params, mp_support);
```

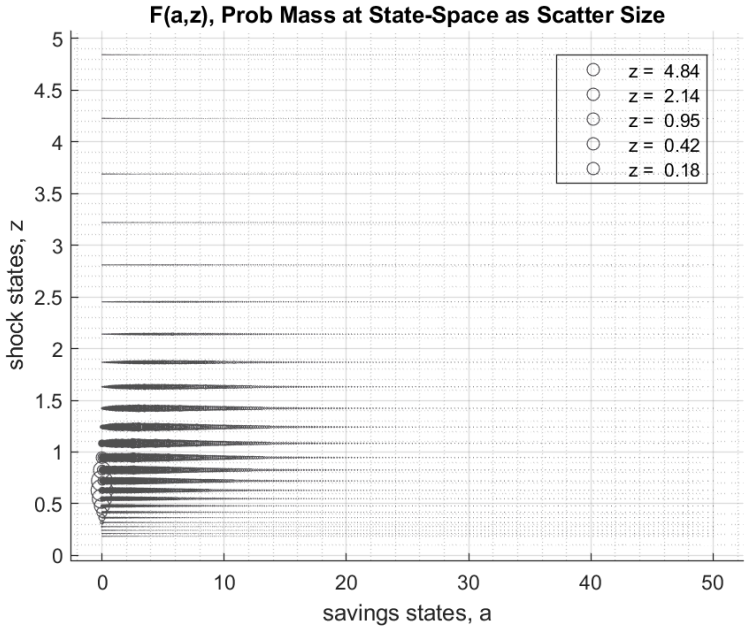
```
Elapsed time is 1.356902 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 1.3706
```


f(a), savings state =x, marginal
f(a) marginal mass
savings states, a
shock
0.06
0.05
0.04
0.03
0.02
0.01
0
0
10
20
30
40
50


f(a), savings state =x, marginal
f(a) marginal mass
LOG(Y+min(Y))
savings states, a
LOG(X+min(X))
shock
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
-6
-6.5
-7
-8
-6
-4
-2
0
2
4


f(a,z), savings state =x, shock state = color, joint
shock= 4.84
shock= 2.14
shock= 0.95
shock= 0.42
shock= 0.18
f(a,z) joint mass
0.012
0.01
0.008
0.006
0.004
0.002
0
0
10
20
30
40
50
savings states, a


f(a,z), savings state =x, shock state = color, joint
shock= 4.84
shock= 2.14
shock= 0.95
shock= 0.42
shock= 0.18
f(a,z) joint mass
LOG(Y+min(Y))
-4
-4.5
-5
-5.5
-6
-6.5
-7
-8
-6
-4
-2
0
2
4
savings states, a
LOG(X+min(X))



xxx tb_outcomes: all stats xxx

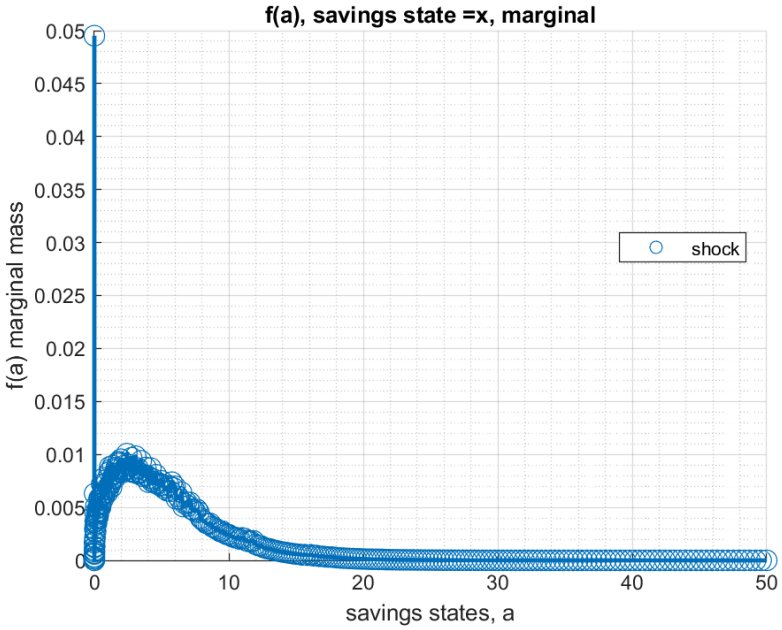
OriginalVariableNames	ap	v	c	y	coh	savefraccoh
{'mean' }	3.1835	6.9106	1.5286	1.5274	4.7121	0.52236
{'unweighted_sum' }	4296.5	79518	16864	19751	1.2716e+05	5295.3
{'sd' }	3.2831	2.152	0.35175	0.53521	3.5973	0.25161
{'coefofvar' }	1.0313	0.31141	0.2301	0.35041	0.76341	0.48168
{'gini' }	0.52466	0.17565	0.12887	0.19155	0.39536	0.26998
{'min' }	0	-2.7621	0.25871	0.25871	0.25871	0
{'max' }	50	20.027	8.7798	8.7798	58.78	0.93152
{'pYis0' }	0.050267	0	0	0	0	0.050267
{'pYls0' }	0	7.4299e-05	0	0	0	0
{'pYgr0' }	0.94973	0.99993	1	1	1	0.94973
{'pYisMINY' }	0.050267	3.1587e-08	3.1587e-08	3.1587e-08	3.1587e-08	0.050267
{'pYisMAXY' }	2.3964e-09	9.6288e-14	9.6288e-14	9.6288e-14	9.6288e-14	2.6173e-22
{'p0_01' }	0	0.33524	0.44588	0.42089	0.44588	0
{'p0_1' }	0	1.0281	0.51088	0.51088	0.51088	0
{'p1' }	0	2.3294	0.67069	0.67069	0.67069	0
{'p5' }	0	3.531	0.9348	0.80006	1.0088	0
{'p10' }	0.10107	4.1808	1.0877	0.90775	1.2209	0.086874
{'p20' }	0.48982	5.0629	1.248	1.0638	1.7564	0.28154
{'p25' }	0.7256	5.3749	1.3048	1.157	2.0452	0.35473
{'p30' }	0.97897	5.7085	1.3561	1.192	2.3425	0.4186
{'p40' }	1.5756	6.2702	1.4389	1.3331	2.9951	0.51678
{'p50' }	2.2184	6.8025	1.5235	1.4352	3.7422	0.59639
{'p60' }	2.9972	7.3608	1.6237	1.5724	4.6044	0.65168
{'p70' }	4.012	7.977	1.7017	1.7487	5.6899	0.7051
{'p75' }	4.5871	8.3254	1.7349	1.8191	6.3522	0.72563
{'p80' }	5.3173	8.7116	1.8227	1.9222	7.1504	0.74857
{'p90' }	7.5009	9.7584	1.9829	2.2334	9.526	0.79537
{'p95' }	9.6743	10.633	2.1133	2.5088	11.809	0.82382
{'p99' }	14.854	12.286	2.3901	3.1545	17.176	0.86207
{'p99_9' }	21.166	14.023	2.7913	3.9726	23.779	0.88709
{'p99_99' }	26.803	15.357	3.0931	4.7968	29.914	0.89989
{'fl_cov_ap' }	10.779	6.2944	1.019	1.0643	11.798	0.64446
{'fl_cor_ap' }	1	0.89089	0.88234	0.60566	0.99894	0.78015
{'fl_cov_v' }	6.2944	4.6311	0.7528	0.97564	7.0472	0.46366
{'fl_cor_v' }	0.89089	1	0.9945	0.84708	0.91033	0.85631
{'fl_cov_c' }	1.019	0.7528	0.12373	0.15568	1.1427	0.077608
{'fl_cor_c' }	0.88234	0.9945	1	0.82696	0.90306	0.8769
{'fl_cov_y' }	1.0643	0.97564	0.15568	0.28645	1.2199	0.077311

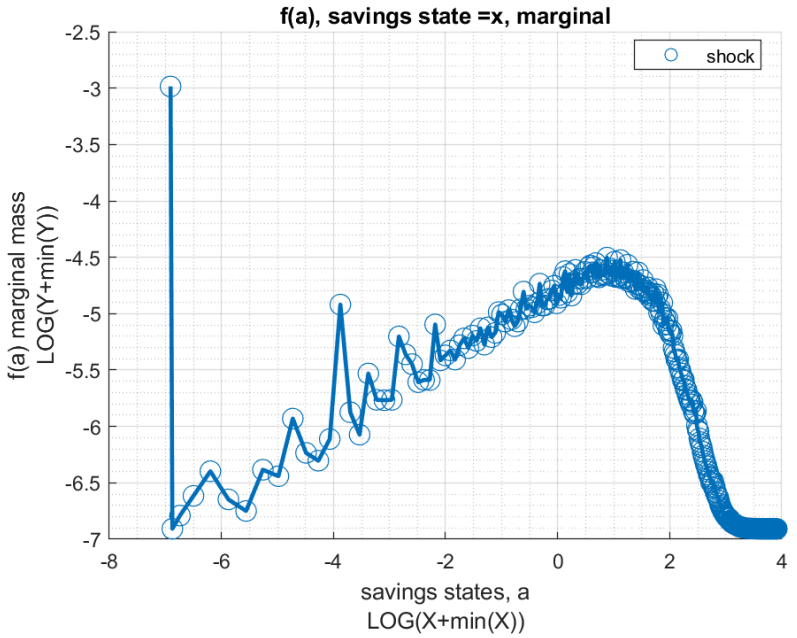
{'fl_cor_y'}	0.60566	0.84708	0.82696	1	0.63363	0.57411
{'fl_cov_coh'}	11.798	7.0472	1.1427	1.2199	12.941	0.72207
{'fl_cor_coh'}	0.99894	0.91033	0.90306	0.63363	1	0.79776
{'fl_cov_savefraccoh'}	0.64446	0.46366	0.077608	0.077311	0.72207	0.063308
{'fl_cor_savefraccoh'}	0.78015	0.85631	0.8769	0.57411	0.79776	1
{'fracByP0_01'}	0	7.366e-06	9.1288e-05	2.5324e-05	2.9613e-05	0
{'fracByP0_1'}	0	0.00015226	0.00040756	0.00048297	0.00013202	0
{'fracByP1'}	0	0.0031657	0.0040997	0.0058265	0.0013172	0
{'fracByP5'}	0	0.020854	0.026015	0.023308	0.010613	0
{'fracByP10'}	0.0007829	0.049187	0.059665	0.051833	0.020313	0.0040897
{'fracByP20'}	0.010458	0.1169	0.13673	0.11782	0.052147	0.04121
{'fracByP25'}	0.020375	0.15489	0.17838	0.15407	0.072616	0.071271
{'fracByP30'}	0.033945	0.19501	0.22212	0.1924	0.09561	0.10878
{'fracByP40'}	0.076084	0.28102	0.3131	0.2752	0.15182	0.19951
{'fracByP50'}	0.13323	0.3766	0.41016	0.36618	0.22332	0.30599
{'fracByP60'}	0.21876	0.4783	0.51311	0.46472	0.31143	0.42495
{'fracByP70'}	0.32789	0.58936	0.62182	0.57246	0.4201	0.55532
{'fracByP75'}	0.39329	0.64823	0.67676	0.63063	0.48449	0.62358
{'fracByP80'}	0.47094	0.70976	0.73532	0.69204	0.55555	0.694
{'fracByP90'}	0.66575	0.84269	0.85851	0.82742	0.72907	0.84261
{'fracByP95'}	0.8001	0.91584	0.92543	0.90488	0.84038	0.91895
{'fracByP99'}	0.94734	0.98115	0.98337	0.97713	0.95746	0.98325
{'fracByP99_9'}	0.99324	0.99789	0.99809	0.99717	0.99445	0.9983
{'fracByP99_99'}	0.99909	0.99977	0.99979	0.99967	0.99931	0.99983

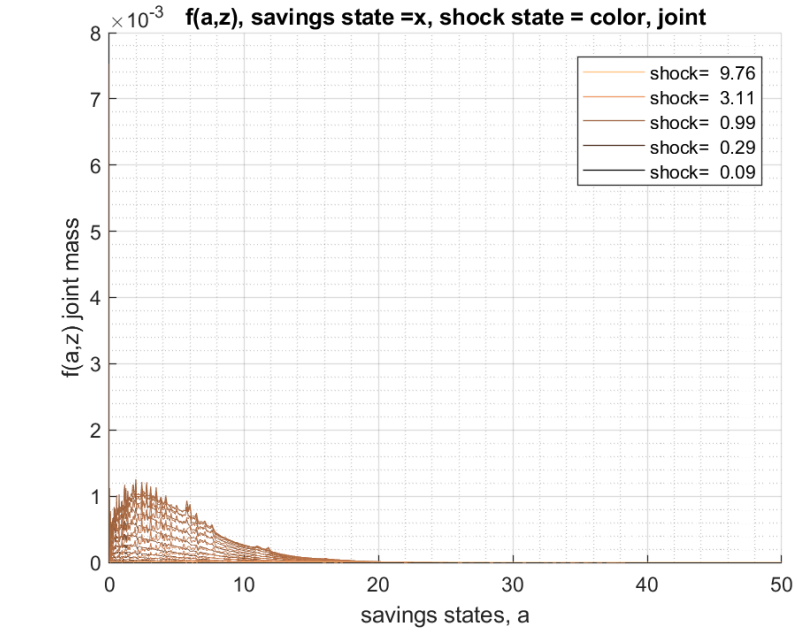
Test FF_DS_AZ_LOOP A grid 300 Shock Grid 50

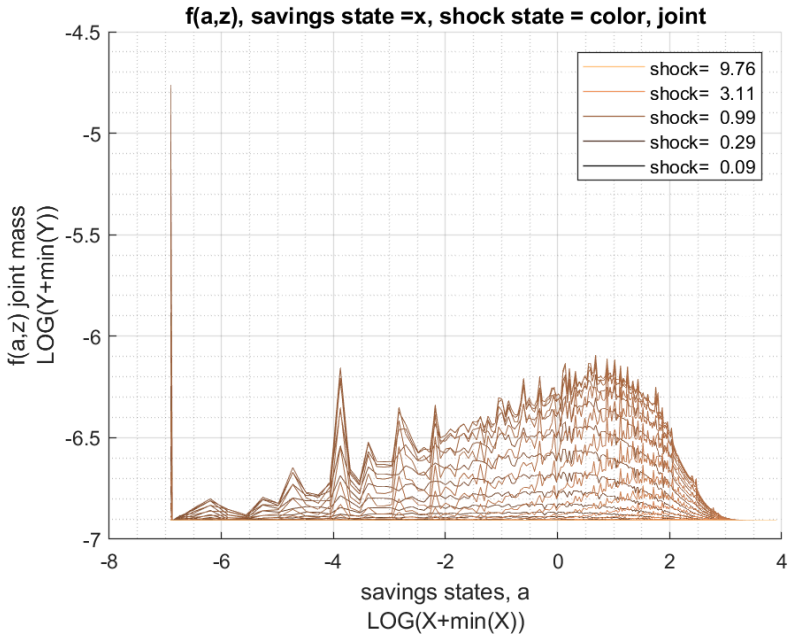
```
mp_support = containers.Map('KeyType','char', 'ValueType','any');
mp_support('bl_timer') = true;
mp_support('ls_ffcmd') = {};
mp_support('ls_ddcmd') = {};
mp_support('ls_ddgrh') = {'faz','fa'};
mp_support('bl_show_stats_table') = true;
mp_params = containers.Map('KeyType','char', 'ValueType','any');
mp_params('it_a_n') = 300;
mp_params('it_z_n') = 50;
ff_ds_az_loop(mp_params, mp_support);
```

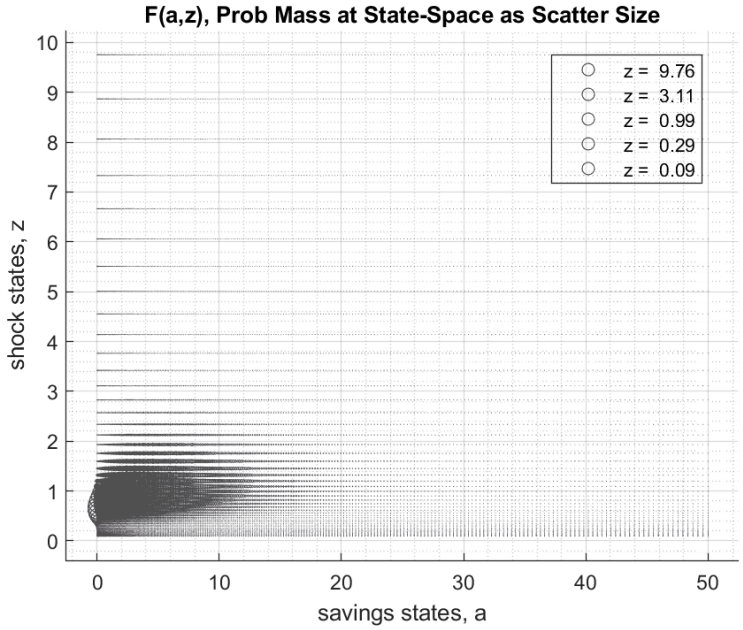
```
Elapsed time is 3.256673 seconds.
FF_DS_AZ_LOOP finished. Distribution took = 3.3311
```


f(a), savings state =x, marginal
f(a) marginal mass
savings states, a
shock
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
10
20
30
40
50


f(a), savings state =x, marginal
f(a) marginal mass
LOG(Y+min(Y))
savings states, a
LOG(X+min(X))
shock
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
-6
-6.5
-7
-8
-6
-4
-2
0
2
4


f(a,z), savings state =x, shock state = color, joint
×10^-3
f(a,z) joint mass
savings states, a
shock= 9.76
shock= 3.11
shock= 0.99
shock= 0.29
shock= 0.09


f(a,z), savings state =x, shock state = color, joint
f(a,z) joint mass
LOG(Y+min(Y))
savings states, a
LOG(X+min(X))
shock= 9.76
shock= 3.11
shock= 0.99
shock= 0.29
shock= 0.09



xxx tb_outcomes: all stats xxx

OriginalVariableNames	ap	v	c	y	coh	savefraccoh
{'mean' }	3.26	6.9484	1.5319	1.5305	4.7919	0.52772
{'unweighted_sum' }	4296.5	1.6217e+05	35821	53309	2.6813e+05	10814
{'sd' }	3.3166	2.1606	0.35167	0.5364	3.6315	0.25217
{'coefofvar' }	1.0174	0.31094	0.22956	0.35048	0.75783	0.47785
{'gini' }	0.52112	0.17551	0.12829	0.19134	0.39468	0.26727
{'min' }	0	-7.6871	0.12843	0.12843	0.12843	0
{'max' }	50	20.751	15.657	15.657	65.657	0.93164
{'pYis0' }	0.049546	0	0	0	0	0.049546
{'pYls0' }	0	0.00011924	0	0	0	0
{'pYgr0' }	0.95045	0.99988	1	1	1	0.95045
{'pYisMINY' }	0.049546	1.1021e-15	1.1021e-15	1.1021e-15	1.1021e-15	0.049546
{'pYisMAXY' }	5.1436e-09	3.0978e-19	3.0978e-19	3.0978e-19	3.0978e-19	7.4151e-23
{'p0_01' }	0	-0.20486	0.40271	0.40271	0.40271	0
{'p0_1' }	0	1.2135	0.53589	0.488	0.53589	0
{'p1' }	0	2.3687	0.71312	0.64833	0.71312	0
{'p5' }	0.00050419	3.5428	0.94895	0.8071	0.96945	0.00055062
{'p10' }	0.11149	4.2401	1.0944	0.93681	1.2484	0.095151
{'p20' }	0.51629	5.0791	1.255	1.072	1.7729	0.28687
{'p25' }	0.75904	5.4237	1.3033	1.1504	2.067	0.36257
{'p30' }	1.0189	5.7339	1.3518	1.2006	2.3841	0.42942
{'p40' }	1.6286	6.2919	1.446	1.3198	3.0593	0.53021
{'p50' }	2.2834	6.8389	1.5355	1.4423	3.8053	0.59978
{'p60' }	3.0751	7.4137	1.613	1.5765	4.7113	0.65858
{'p70' }	4.1046	8.0318	1.7011	1.7318	5.8286	0.70939
{'p75' }	4.7891	8.3723	1.7435	1.8266	6.5055	0.73443
{'p80' }	5.5379	8.765	1.8035	1.9295	7.3201	0.75699
{'p90' }	7.6355	9.7879	1.9921	2.2457	9.6214	0.79808
{'p95' }	9.8311	10.68	2.1096	2.5308	11.976	0.82663
{'p99' }	14.653	12.305	2.407	3.1554	17.087	0.86199
{'p99_9' }	21.166	14.067	2.7771	4.0255	23.953	0.88705
{'p99_99' }	27.382	15.467	3.1325	4.887	30.554	0.90105
{'fl_cov_ap' }	11	6.3988	1.032	1.0771	12.032	0.65387
{'fl_cor_ap' }	1	0.89298	0.88481	0.60546	0.99898	0.78182
{'fl_cov_v' }	6.3988	4.668	0.75538	0.97839	7.1542	0.46619
{'fl_cor_v' }	0.89298	1	0.99418	0.84423	0.91183	0.85567
{'fl_cov_c' }	1.032	0.75538	0.12367	0.15613	1.1557	0.077331
{'fl_cor_c' }	0.88481	0.99418	1	0.82768	0.90493	0.87203
{'fl_cov_y' }	1.0771	0.97839	0.15613	0.28772	1.2333	0.076912

{'fl_cor_y' }	0.60546	0.84423	0.82768	1	0.63312	0.56861
{'fl_cov_coh' }	12.032	7.1542	1.1557	1.2333	13.188	0.7312
{'fl_cor_coh' }	0.99898	0.91183	0.90493	0.63312	1	0.79848
{'fl_cov_savefraccoh'}	0.65387	0.46619	0.077331	0.076912	0.7312	0.063589
{'fl_cor_savefraccoh'}	0.78182	0.85567	0.87203	0.56861	0.79848	1
{'fracByP0_01' }	0	-7.082e-06	2.6291e-05	3.0744e-05	8.4044e-06	0
{'fracByP0_1' }	0	8.1705e-05	0.00058298	0.00029929	0.00018591	0
{'fracByP1' }	0	0.0025872	0.0055744	0.0043199	0.0017463	0
{'fracByP5' }	5.9482e-08	0.02063	0.028475	0.023256	0.0085179	3.9707e-07
{'fracByP10' }	0.00083251	0.049013	0.059787	0.051875	0.020182	0.004399
{'fracByP20' }	0.01069	0.11692	0.13707	0.11785	0.051473	0.041367
{'fracByP25' }	0.021006	0.15459	0.17869	0.15432	0.071586	0.072106
{'fracByP30' }	0.034297	0.19493	0.22235	0.19226	0.095063	0.10998
{'fracByP40' }	0.076942	0.2811	0.31433	0.27537	0.15173	0.20135
{'fracByP50' }	0.13547	0.37553	0.41049	0.36597	0.22294	0.30799
{'fracByP60' }	0.21688	0.47822	0.51321	0.46464	0.31179	0.42743
{'fracByP70' }	0.32617	0.58918	0.6213	0.57279	0.42106	0.55684
{'fracByP75' }	0.40001	0.64825	0.67795	0.6311	0.48455	0.62544
{'fracByP80' }	0.47816	0.71036	0.73507	0.69272	0.55654	0.69664
{'fracByP90' }	0.67319	0.84299	0.85862	0.82739	0.73089	0.84294
{'fracByP95' }	0.80347	0.91616	0.92515	0.90483	0.84244	0.91987
{'fracByP99' }	0.94675	0.98117	0.98325	0.97691	0.95831	0.98345
{'fracByP99_9' }	0.99284	0.99789	0.9981	0.99713	0.99445	0.99831
{'fracByP99_99' }	0.99909	0.99977	0.99979	0.99966	0.9993	0.99983