# SNW_VFI_PARAM Small Solution Analysis

This is the example vignette for function: **snw_vfi_main_bisec_vec** from the **PrjOptiSNW Package.** This function solves for policy function with vectorized bisection. Small Solution Analysis. Small Solution Analysis, husband 5 shocks, wife 1 shocks.

## Test SNW_VFI_MAIN Defaults Small

Call the function with defaults.

```
mp_param = snw_mp_param('default_small');
[V_VFI,ap_VFI,cons_VFI,mp_valpol_more] = snw_vfi_main_bisec_vec(mp_param);
```

```
SNW_VFI_MAIN: Finished Age Group:18 of 18
SNW_VFI_MAIN: Finished Age Group:17 of 18
SNW_VFI_MAIN: Finished Age Group:16 of 18
SNW_VFI_MAIN: Finished Age Group:15 of 18
SNW_VFI_MAIN: Finished Age Group:14 of 18
SNW_VFI_MAIN: Finished Age Group:13 of 18
SNW_VFI_MAIN: Finished Age Group:12 of 18
SNW_VFI_MAIN: Finished Age Group:11 of 18
SNW_VFI_MAIN: Finished Age Group:10 of 18
SNW_VFI_MAIN: Finished Age Group:9 of 18
SNW_VFI_MAIN: Finished Age Group:8 of 18
SNW_VFI_MAIN: Finished Age Group:7 of 18
SNW_VFI_MAIN: Finished Age Group:6 of 18
SNW_VFI_MAIN: Finished Age Group:5 of 18
SNW_VFI_MAIN: Finished Age Group:4 of 18
SNW_VFI_MAIN: Finished Age Group:3 of 18
SNW_VFI_MAIN: Finished Age Group:2 of 18
SNW_VFI_MAIN: Finished Age Group:1 of 18
Elapsed time is 0.300958 seconds.
Completed SNW_VFI_MAIN;SNW_MP_PARAM=default_small;SNW_MP_CONTROL=default_base
```

## Small Param Results Define Frames

Define the matrix dimensions names and dimension vector values. Policy and Value Functions share the same ND dimensional structure.

```
% Grids:
age_grid = [19, 22:5:97, 100];
agrid = mp_param('agrid')';
eta_H_grid = mp_param('eta_H_grid')';
eta_S_grid = mp_param('eta_S_grid')';
ar_st_eta_HS_grid = string(cellstr([num2str(eta_H_grid', 'hz=%3.2f;'), num2str(eta_S_grid', 'wz
edu_grid = [0,1];
marry_grid = [0,1];
kids_grid = (1:1:mp_param('n_kidsgrid'))';
% NaN(n_jgrid,n_agrid,n_etagrid,n_educgrid,n_marriedgrid,n_kidsgrid);
cl_mp_datasetdesc = {};
cl_mp_datasetdesc{1} = containers.Map({'name', 'labval'}, {'age', age_grid});
cl_mp_datasetdesc{2} = containers.Map({'name', 'labval'}, {'savings', agrid});
cl_mp_datasetdesc{3} = containers.Map({'name', 'labval'}, {'Hshock', eta_H_grid});
cl_mp_datasetdesc{4} = containers.Map({'name', 'labval'}, {'edu', edu_grid});
cl_mp_datasetdesc{5} = containers.Map({'name', 'labval'}, {'marry', marry_grid});
```

```
cl_mp_datasetdesc{6} = containers.Map({'name', 'labval'}, {'kids', kids_grid});
```

## Analyze Savings and Shocks

First, analyze Savings Levels and Shocks, Aggregate Over All Others, and do various other calculations.

```
% Generate some Data
mp_support_graph = containers.Map('KeyType', 'char', 'ValueType', 'any');
mp_support_graph('cl_st_xtitle') = {'Savings States, a'};
mp_support_graph('st_legend_loc') = 'best';
mp_support_graph('bl_graph_logy') = true; % do not log
```

MEAN(VAL(A,Z)), MEAN(AP(A,Z)), MEAN(C(A,Z))

Tabulate value and policies along savings and shocks:

```
% Set
% NaN(n_jgrid,n_agrid,n_etagrid,n_educgrid,n_marriedgrid,n_kidsgrid);
ar_permute = [1,4,5,6,3,2];
% Value Function
tb_az_v = ff_summ_nd_array("MEAN(VAL(A,Z))", V_VFI, true, ["mean"], 4, 1, cl_mp_datasetdesc, ar
```

```
xxx  MEAN(VAL(A,Z))  xxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

| group | savings | mean_Hshock__0_91976 | mean_Hshock__0_45988 | mean_Hshock_0 | mean_Hshock_0_45988 | me |
|-------|---------|----------------------|----------------------|---------------|---------------------|----|
| 1 | 0 | -7.2503 | -5.2835 | -3.7134 | -2.4567 | |
| 2 | 0.0097656 | -7.1324 | -5.1969 | -3.6417 | -2.3926 | |
| 3 | 0.078125 | -6.4761 | -4.7107 | -3.2467 | -2.0451 | |
| 4 | 0.26367 | -5.3284 | -3.8496 | -2.5707 | -1.4781 | |
| 5 | 0.625 | -3.966 | -2.8108 | -1.7735 | -0.84485 | |
| 6 | 1.2207 | -2.597 | -1.7598 | -0.95324 | -0.21705 | |
| 7 | 2.1094 | -1.3566 | -0.78465 | -0.19312 | 0.37681 | |
| 8 | 3.3496 | -0.30963 | 0.066182 | 0.47754 | 0.90413 | |
| 9 | 5 | 0.53291 | 0.7744 | 1.0517 | 1.3565 | |
| 10 | 7.1191 | 1.1909 | 1.3448 | 1.5289 | 1.7407 | |
| 11 | 9.7656 | 1.6974 | 1.7957 | 1.9172 | 2.0626 | |
| 12 | 12.998 | 2.0855 | 2.1488 | 2.2293 | 2.3287 | |
| 13 | 16.875 | 2.3829 | 2.4244 | 2.4781 | 2.5462 | |
| 14 | 21.455 | 2.6121 | 2.6396 | 2.6759 | 2.7229 | |
| 15 | 26.797 | 2.79 | 2.8086 | 2.8335 | 2.8663 | |
| 16 | 32.959 | 2.9295 | 2.9423 | 2.9596 | 2.9828 | |
| 17 | 40 | 3.0397 | 3.0487 | 3.061 | 3.0775 | |
| 18 | 47.979 | 3.1277 | 3.1342 | 3.1429 | 3.1549 | |
| 19 | 56.953 | 3.1987 | 3.2033 | 3.2097 | 3.2185 | |
| 20 | 66.982 | 3.2563 | 3.2597 | 3.2645 | 3.271 | |
| 21 | 78.125 | 3.3036 | 3.3062 | 3.3097 | 3.3146 | |
| 22 | 90.439 | 3.3427 | 3.3446 | 3.3473 | 3.3511 | |
| 23 | 103.98 | 3.3753 | 3.3768 | 3.3788 | 3.3817 | |
| 24 | 118.82 | 3.4026 | 3.4038 | 3.4054 | 3.4076 | |
| 25 | 135 | 3.4257 | 3.4266 | 3.4279 | 3.4296 | |

```
% Aprime Choice
tb_az_ap = ff_summ_nd_array("MEAN(AP(A,Z))", ap_VFI, true, ["mean"], 4, 1, cl_mp_datasetdesc, a
```

```
xxx  MEAN(AP(A,Z))  xxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

| group | savings | mean_Hshock__0_91976 | mean_Hshock__0_45988 | mean_Hshock_0 | mean_Hshock_0_45988 | me |
|-------|---------|----------------------|----------------------|---------------|---------------------|----|
| 1 | 0 | 0.0031715 | 0.018272 | 0.06218 | 0.16375 | |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 0.0097656 | 0.0041856 | 0.02014 | 0.065449 | 0.1682 |
| 3 | 0.078125 | 0.0195 | 0.043246 | 0.094774 | 0.20231 |
| 4 | 0.26367 | 0.11997 | 0.14608 | 0.20791 | 0.31671 |
| 5 | 0.625 | 0.37091 | 0.40356 | 0.4536 | 0.57742 |
| 6 | 1.2207 | 0.81324 | 0.85499 | 0.90105 | 1.0031 |
| 7 | 2.1094 | 1.495 | 1.5366 | 1.6037 | 1.6661 |
| 8 | 3.3496 | 2.4456 | 2.4842 | 2.56 | 2.6441 |
| 9 | 5 | 3.7173 | 3.7541 | 3.8276 | 3.9479 |
| 10 | 7.1191 | 5.3706 | 5.4067 | 5.4784 | 5.6081 |
| 11 | 9.7656 | 7.409 | 7.445 | 7.5165 | 7.6487 |
| 12 | 12.998 | 9.829 | 9.8609 | 9.9322 | 10.066 |
| 13 | 16.875 | 12.836 | 12.867 | 12.93 | 13.062 |
| 14 | 21.455 | 16.418 | 16.447 | 16.51 | 16.632 |
| 15 | 26.797 | 20.467 | 20.493 | 20.551 | 20.67 |
| 16 | 32.959 | 25.147 | 25.172 | 25.226 | 25.335 |
| 17 | 40 | 30.496 | 30.527 | 30.586 | 30.695 |
| 18 | 47.979 | 36.57 | 36.598 | 36.66 | 36.779 |
| 19 | 56.953 | 43.556 | 43.586 | 43.646 | 43.757 |
| 20 | 66.982 | 51.34 | 51.37 | 51.434 | 51.553 |
| 21 | 78.125 | 59.622 | 59.655 | 59.719 | 59.839 |
| 22 | 90.439 | 68.907 | 68.939 | 69.003 | 69.124 |
| 23 | 103.98 | 79.38 | 79.41 | 79.47 | 79.586 |
| 24 | 118.82 | 90.679 | 90.711 | 90.776 | 90.898 |
| 25 | 135 | 102.99 | 103.02 | 103.08 | 103.19 |

```
% Consumption Choices
tb_az_c = ff_summ_nd_array("MEAN(C(A,Z))", cons_VFI, true, ["mean"], 4, 1, cl_mp_datasetdesc, a
```
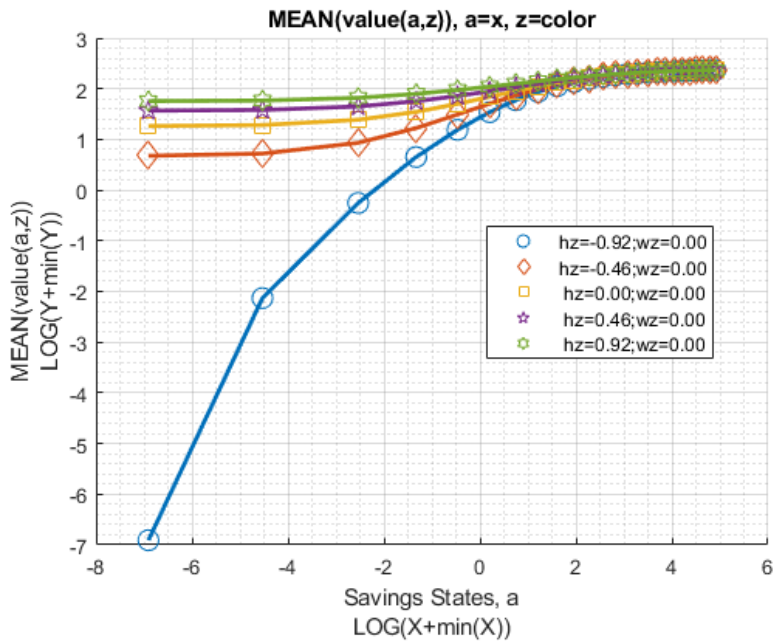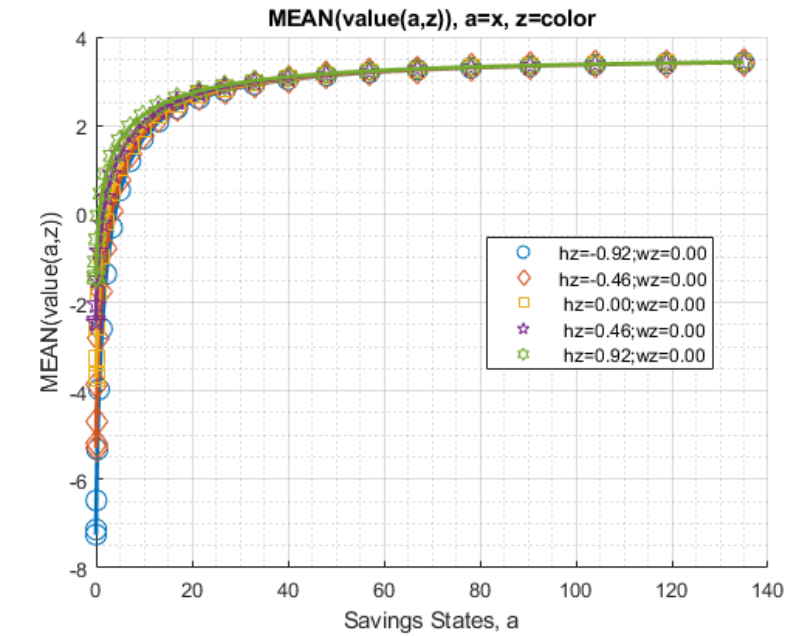
xxx  MEAN(C(A,Z))   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

| group | savings | mean_Hshock__0_91976 | mean_Hshock__0_45988 | mean_Hshock_0 | mean_Hshock_0_45988 | me |
|---|---|---|---|---|---|---|
| 1 | 0 | 0.47551 | 0.59993 | 0.77031 | 1.0006 | |
| 2 | 0.0097656 | 0.48595 | 0.60949 | 0.77845 | 1.0076 | |
| 3 | 0.078125 | 0.5508 | 0.6664 | 0.82902 | 1.0533 | |
| 4 | 0.26367 | 0.66781 | 0.78066 | 0.93266 | 1.1554 | |
| 5 | 0.625 | 0.84 | 0.94566 | 1.1089 | 1.3162 | |
| 6 | 1.2207 | 1.0944 | 1.1901 | 1.3565 | 1.585 | |
| 7 | 2.1094 | 1.4504 | 1.5453 | 1.6898 | 1.9573 | |
| 8 | 3.3496 | 1.9462 | 2.0432 | 2.1782 | 2.4231 | |
| 9 | 5 | 2.597 | 2.695 | 2.8314 | 3.0393 | |
| 10 | 7.1191 | 3.4097 | 3.5079 | 3.6454 | 3.8432 | |
| 11 | 9.7656 | 4.449 | 4.5467 | 4.6839 | 4.8786 | |
| 12 | 12.998 | 5.7861 | 5.8876 | 6.0245 | 6.2175 | |
| 13 | 16.875 | 7.2831 | 7.3861 | 7.5301 | 7.7248 | |
| 14 | 21.455 | 9.0219 | 9.1255 | 9.2698 | 9.4736 | |
| 15 | 26.797 | 11.176 | 11.283 | 11.433 | 11.639 | |
| 16 | 32.959 | 13.652 | 13.76 | 13.913 | 14.129 | |
| 17 | 40 | 16.478 | 16.58 | 16.728 | 16.944 | |
| 18 | 47.979 | 19.667 | 19.772 | 19.917 | 20.123 | |
| 19 | 56.953 | 23.101 | 23.202 | 23.35 | 23.564 | |
| 20 | 66.982 | 26.96 | 27.062 | 27.205 | 27.41 | |
| 21 | 78.125 | 31.613 | 31.712 | 31.855 | 32.06 | |
| 22 | 90.439 | 36.623 | 36.724 | 36.866 | 37.069 | |
| 23 | 103.98 | 41.873 | 41.975 | 42.122 | 42.331 | |
| 24 | 118.82 | 47.794 | 47.894 | 48.036 | 48.239 | |
| 25 | 135 | 54.264 | 54.368 | 54.515 | 54.725 | |

Graph Mean Values:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(value(a,z)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(value(a,z))'};
ff_graph_grid((tb_az_v{1:end, 3:end})', ar_st_eta_HS_grid, agrid, mp_support_graph);
```



MEAN(value(a,z)), a=x, z=color

Legend:
- hz=-0.92;wz=0.00
- hz=-0.46;wz=0.00
- hz=0.00;wz=0.00
- hz=0.46;wz=0.00
- hz=0.92;wz=0.00



MEAN(value(a,z)), a=x, z=color

Legend:
- hz=-0.92;wz=0.00
- hz=-0.46;wz=0.00
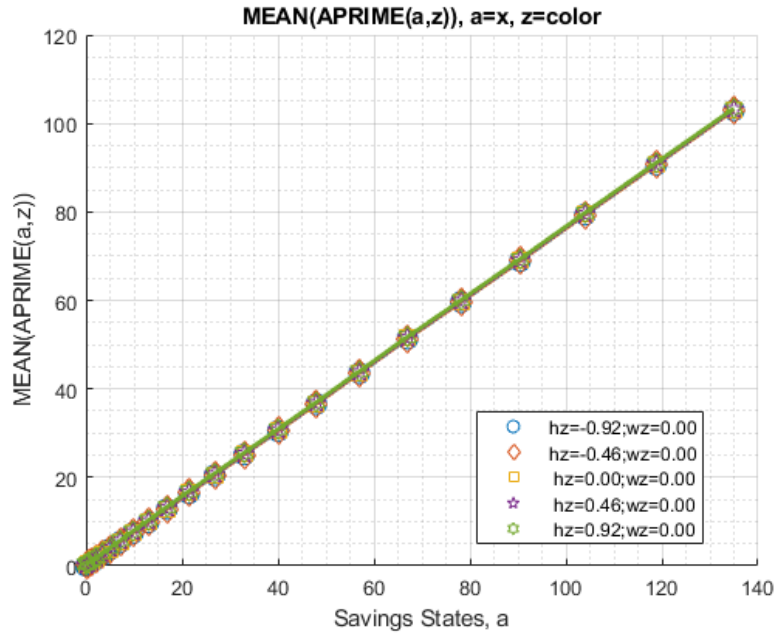- hz=0.00;wz=0.00
- hz=0.46;wz=0.00
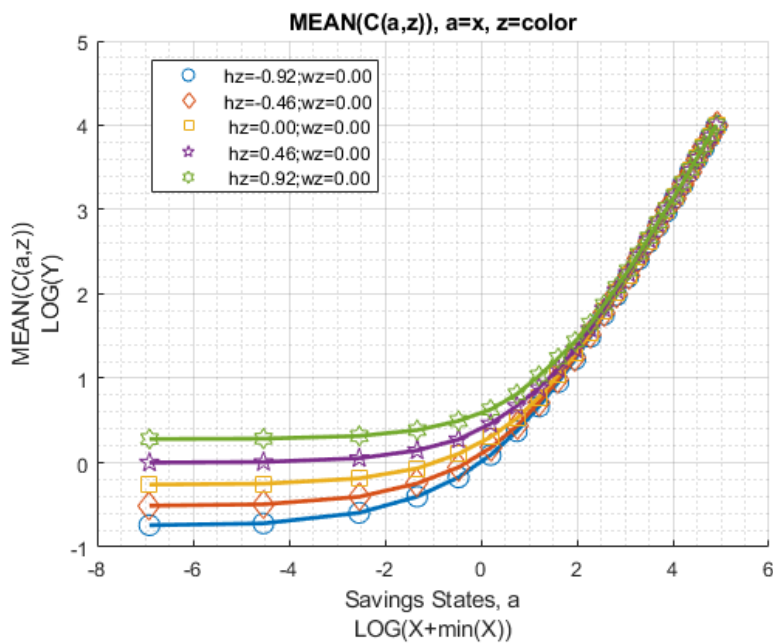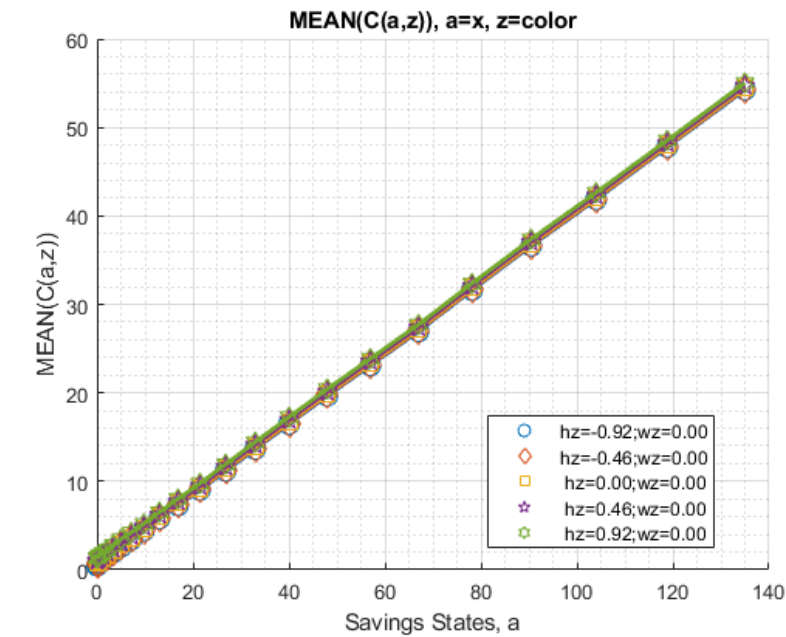- hz=0.92;wz=0.00

Graph Mean Savings Choices:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(APRIME(a,z)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(APRIME(a,z))'};
ff_graph_grid((tb_az_ap{1:end, 3:end})', ar_st_eta_HS_grid, agrid, mp_support_graph);
```

**MEAN(APRIME(a,z)), a=x, z=color**



**MEAN(APRIME(a,z)), a=x, z=color**
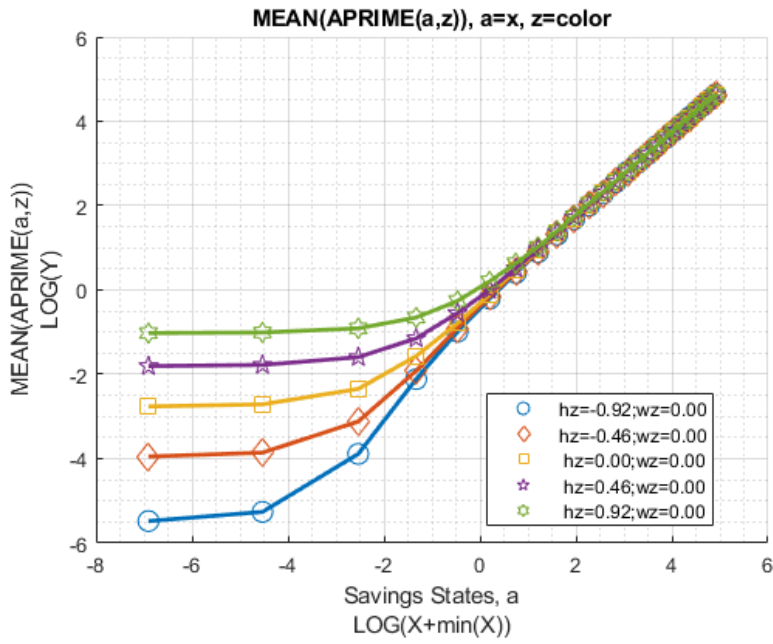
Graph Mean Consumption:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(C(a,z)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(C(a,z))'};
ff_graph_grid((tb_az_c{1:end, 3:end})', ar_st_eta_HS_grid, agrid, mp_support_graph);
```

**MEAN(C(a,z)), a=x, z=color**

| | |
|---|---|
| ○ | hz=-0.92;wz=0.00 |
| ◇ | hz=-0.46;wz=0.00 |
| □ | hz=0.00;wz=0.00 |
| ☆ | hz=0.46;wz=0.00 |
| ✿ | hz=0.92;wz=0.00 |

Savings States, a



**MEAN(C(a,z)), a=x, z=color**

| | |
|---|---|
| ○ | hz=-0.92;wz=0.00 |
| ◇ | hz=-0.46;wz=0.00 |
| □ | hz=0.00;wz=0.00 |
| ☆ | hz=0.46;wz=0.00 |
| ✿ | hz=0.92;wz=0.00 |

Savings States, a
LOG(X+min(X))

## Analyze Kids and Marriage and Age

Aggregating over education, savings, and shocks, what are the differential effects of Marriage and Age.

```
% Generate some Data
mp_support_graph = containers.Map('KeyType', 'char', 'ValueType', 'any');
ar_row_grid = ["k0M0", "K1M0", "K2M0", "k0M1", "K1M1", "K2M1"];
mp_support_graph('cl_st_xtitle') = {'Age'};
mp_support_graph('st_legend_loc') = 'best';
mp_support_graph('bl_graph_logy') = true; % do not log
mp_support_graph('st_rounding') = '6.2f'; % format shock legend
mp_support_graph('cl_scatter_shapes') = { 'o', 'd' ,'s', 'o', 'd', 's'};
mp_support_graph('cl_colors') = {'red', 'red', 'red', 'blue', 'blue', 'blue'};
```

MEAN(VAL(KM,J)), MEAN(AP(KM,J)), MEAN(C(KM,J))

Tabulate value and policies:

```
% Set
% NaN(n_jgrid,n_agrid,n_etagrid,n_educgrid,n_marriedgrid,n_kidsgrid);
ar_permute = [2,3,4,1,6,5];
% Value Function
tb_az_v = ff_summ_nd_array("MEAN(VAL(KM,J))", V_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc, a
```

```
xxx  MEAN(VAL(KM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    group    kids    marry    mean_age_19    mean_age_22    mean_age_27    mean_age_32    mean_age_37    mean_age_42

    _____    ____    _____    _____    _____    _____    _____    _____    _____

      1       1        0        2.6201         2.7665         2.8454         2.8242         2.7343         2.5925
      2       2        0        1.5887         1.8727         2.0791         2.1577         2.1527         2.0791
      3       3        0        1.0708         1.3439         1.5546         1.6415         1.6452         1.5844
      4       1        1         2.395         2.5572         2.6553         2.6638          2.609         2.5055
      5       2        1        1.6234         1.8656         2.0481         2.1297         2.1416         2.0949
      6       3        1        1.2806         1.5046         1.6784         1.7562          1.766         1.7235
```

```
% Aprime Choice
tb_az_ap = ff_summ_nd_array("MEAN(AP(KM,J))", ap_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc,
```
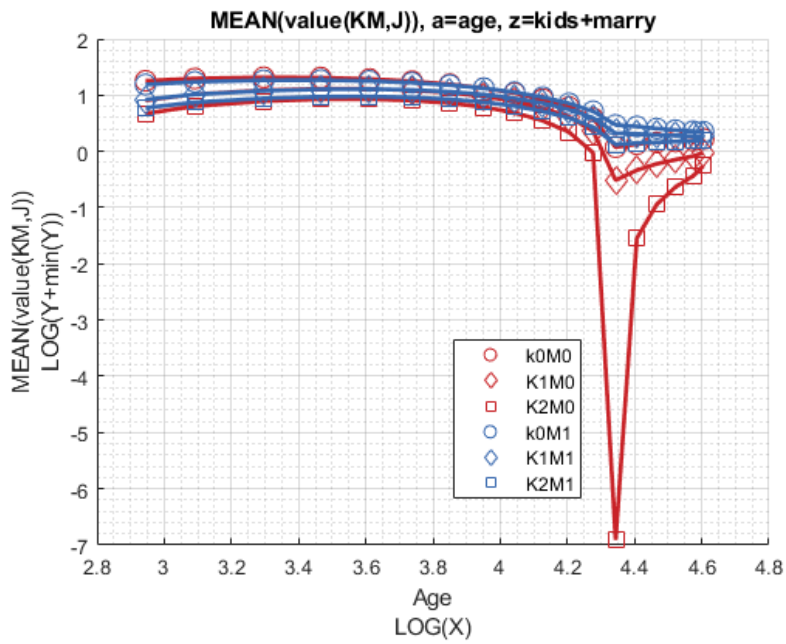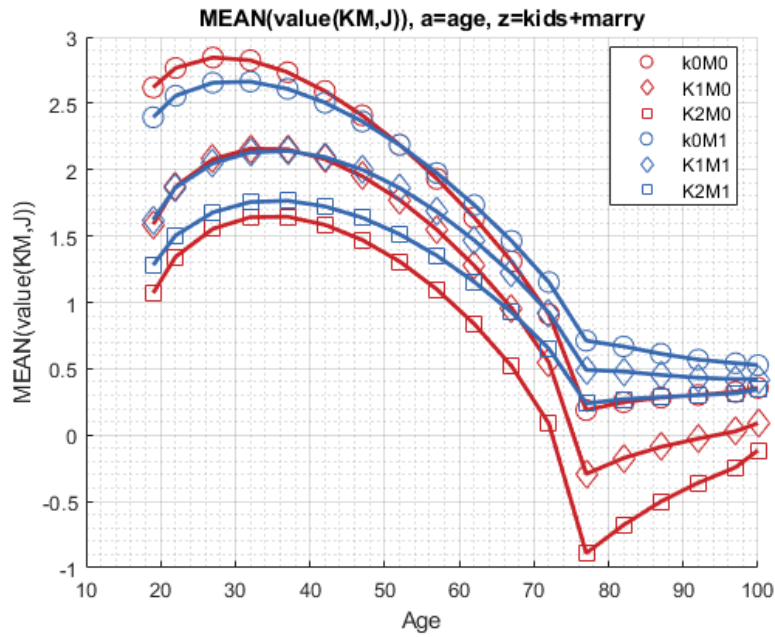
```
xxx  MEAN(AP(KM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    group    kids    marry    mean_age_19    mean_age_22    mean_age_27    mean_age_32    mean_age_37    mean_age_42

    _____    ____    _____    _____    _____    _____    _____    _____    _____

      1       1        0        34.74          34.523         34.415         34.265         34.042         33.736
      2       2        0        34.413         34.138         33.952         33.709         33.376         32.947
      3       3        0        34.001         33.777         33.635         33.423         33.115         32.697
      4       1        1        34.621         34.408         34.308          34.16         33.941         33.635
      5       2        1        34.473         34.246         34.109         33.911         33.625         33.244
      6       3        1        34.106         33.916         33.813         33.643         33.381         33.017
```

```
% Consumption Choices
tb_az_c = ff_summ_nd_array("MEAN(C(KM,J))", cons_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc,
```

```
xxx  MEAN(C(KM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    group    kids    marry    mean_age_19    mean_age_22    mean_age_27    mean_age_32    mean_age_37    mean_age_42

    _____    ____    _____    _____    _____    _____    _____    _____    _____

      1       1        0        6.778          7.0757         7.3697         7.6652         7.9826         8.3391
      2       2        0        7.1055         7.4611         7.8334         8.2212         8.6487         9.1272
      3       3        0        7.5174         7.8216         8.1497         8.5069          8.91          9.3774
      4       1        1        7.1206         7.4352         7.7476         8.0644         8.4009         8.7779
      5       2        1        7.2345         7.5595         7.9048         8.2677         8.6677         9.1164
      6       3        1        7.5771         7.8633         8.1717         8.5043         8.8779         9.3081
```

Graph Mean Values:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(value(KM,J)), a=age, z=kids+marry'};
mp_support_graph('cl_st_ytitle') = {'MEAN(value(KM,J))'};
ff_graph_grid((tb_az_v{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

MEAN(value(KM,J)), a=age, z=kids+marry

Legend: k0M0, K1M0, K2M0, k0M1, K1M1, K2M1



MEAN(value(KM,J)), a=age, z=kids+marry

Legend: k0M0, K1M0, K2M0, k0M1, K1M1, K2M1

Graph Mean Savings Choices:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(APRIME(KM,J)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(APRIME(KM,J))'};
ff_graph_grid((tb_az_ap{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

**MEAN(APRIME(KM,J)), a=x, z=color**



**MEAN(APRIME(KM,J)), a=x, z=color**
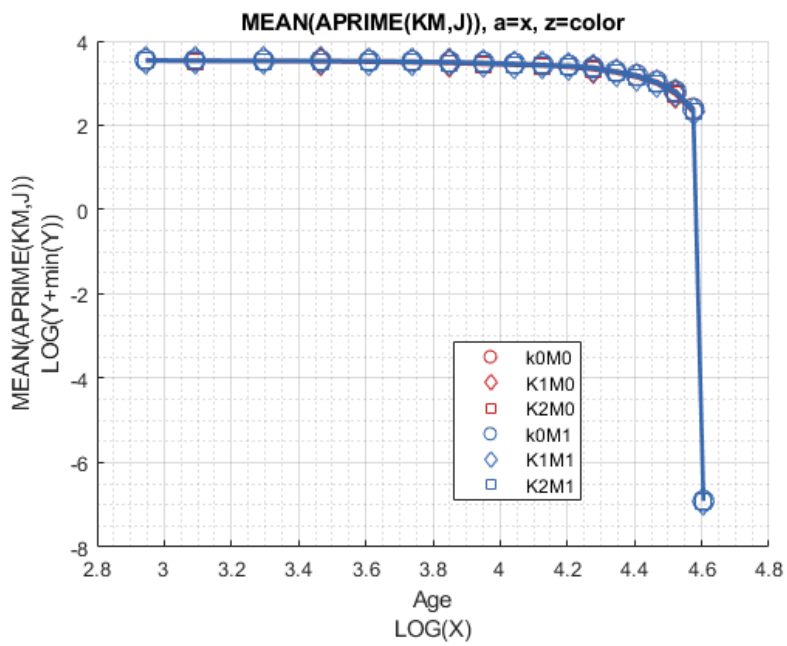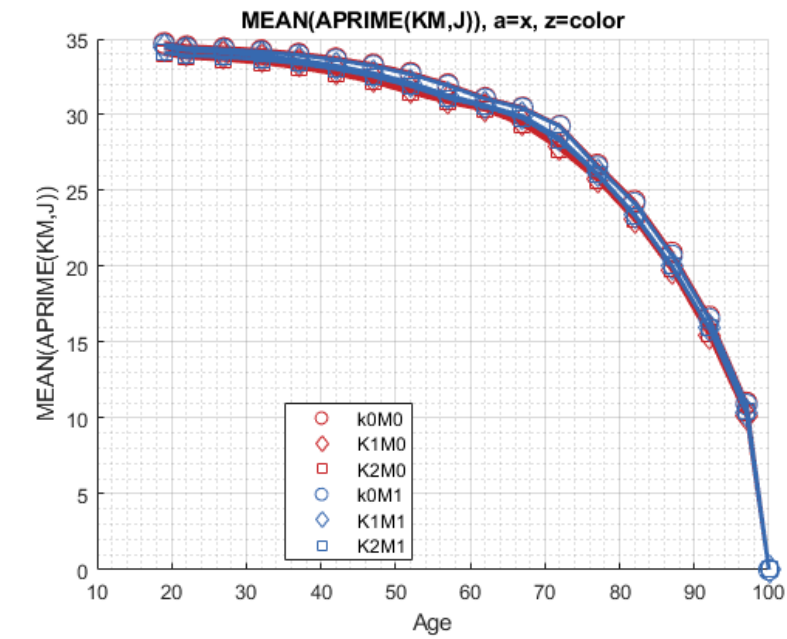
Graph Mean Consumption:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(C(KM,J)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(C(KM,J))'};
ff_graph_grid((tb_az_c{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

**MEAN(C(KM,J)), a=x, z=color**



**MEAN(C(KM,J)), a=x, z=color**
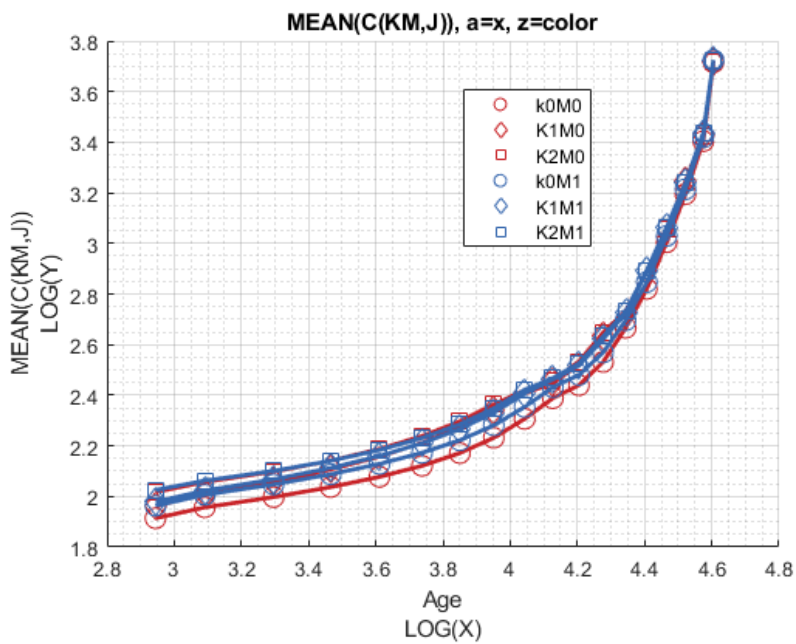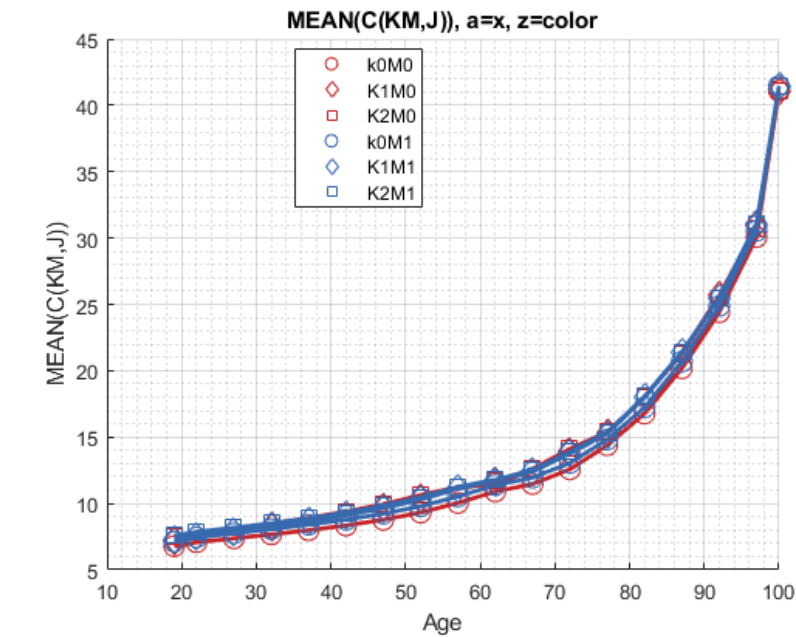
## Analyze Education and Marriage and Age

Aggregating over education, savings, and shocks, what are the differential effects of Marriage and Age.

```
% Generate some Data
mp_support_graph = containers.Map('KeyType', 'char', 'ValueType', 'any');
ar_row_grid = ["E0M0", "E1M0", "E0M1", "E1M1"];
mp_support_graph('cl_st_xtitle') = {'Age'};
mp_support_graph('st_legend_loc') = 'best';
mp_support_graph('bl_graph_logy') = true; % do not log
mp_support_graph('st_rounding') = '6.2f'; % format shock legend
mp_support_graph('cl_scatter_shapes') = {'*', 'p', '*','p' };
mp_support_graph('cl_colors') = {'red', 'red', 'blue', 'blue'};
```

MEAN(VAL(EKM,J)), MEAN(AP(EKM,J)), MEAN(C(EKM,J))

Tabulate value and policies:

```
% Set
% NaN(n_jgrid,n_agrid,n_etagrid,n_educgrid,n_marriedgrid,n_kidsgrid);
ar_permute = [2,3,6,1,4,5];
% Value Function
tb_az_v = ff_summ_nd_array("MEAN(VAL(EKM,J))", V_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc,
```

```
xxx  MEAN(VAL(EKM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

| group | edu | marry | mean_age_19 | mean_age_22 | mean_age_27 | mean_age_32 | mean_age_37 | mean_age_42 |
|-------|-----|-------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 0 | 0 | 1.4646 | 1.6636 | 1.8129 | 1.8698 | 1.8591 | 1.7896 |
| 2 | 1 | 0 | 2.0551 | 2.3251 | 2.5065 | 2.5458 | 2.4958 | 2.3811 |
| 3 | 0 | 1 | 1.4539 | 1.6452 | 1.7914 | 1.8602 | 1.8706 | 1.8301 |
| 4 | 1 | 1 | 2.0788 | 2.3064 | 2.4632 | 2.5062 | 2.4738 | 2.3859 |

```
% Aprime Choice
tb_az_ap = ff_summ_nd_array("MEAN(AP(EKM,J))", ap_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc,
```

```
xxx  MEAN(AP(EKM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

| group | edu | marry | mean_age_19 | mean_age_22 | mean_age_27 | mean_age_32 | mean_age_37 | mean_age_42 |
|-------|-----|-------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 0 | 0 | 34.471 | 34.227 | 34.028 | 33.781 | 33.465 | 33.068 |
| 2 | 1 | 0 | 34.298 | 34.065 | 33.974 | 33.817 | 33.557 | 33.186 |
| 3 | 0 | 1 | 34.505 | 34.289 | 34.12 | 33.903 | 33.618 | 33.255 |
| 4 | 1 | 1 | 34.294 | 34.091 | 34.033 | 33.907 | 33.681 | 33.343 |

```
% Consumption Choices
tb_az_c = ff_summ_nd_array("MEAN(C(EKM,J))", cons_VFI, true, ["mean"], 3, 1, cl_mp_datasetdesc,
```

```
xxx  MEAN(C(EKM,J))  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

| group | edu | marry | mean_age_19 | mean_age_22 | mean_age_27 | mean_age_32 | mean_age_37 | mean_age_42 |
|-------|-----|-------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 0 | 0 | 7.047 | 7.3391 | 7.647 | 7.982 | 8.3628 | 8.8022 |
| 2 | 1 | 0 | 7.2203 | 7.5665 | 7.9215 | 8.2802 | 8.6647 | 9.0936 |
| 3 | 0 | 1 | 7.1855 | 7.465 | 7.7602 | 8.0826 | 8.4489 | 8.8704 |
| 4 | 1 | 1 | 7.436 | 7.7737 | 8.1225 | 8.475 | 8.8488 | 9.2645 |

Graph Mean Values:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(value(EM,J)), a=age, z=kids+marry'};
mp_support_graph('cl_st_ytitle') = {'MEAN(value(EM,J))'};
ff_graph_grid((tb_az_v{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

MEAN(value(EM,J)), a=age, z=kids+marry



MEAN(value(EM,J)), a=age, z=kids+marry
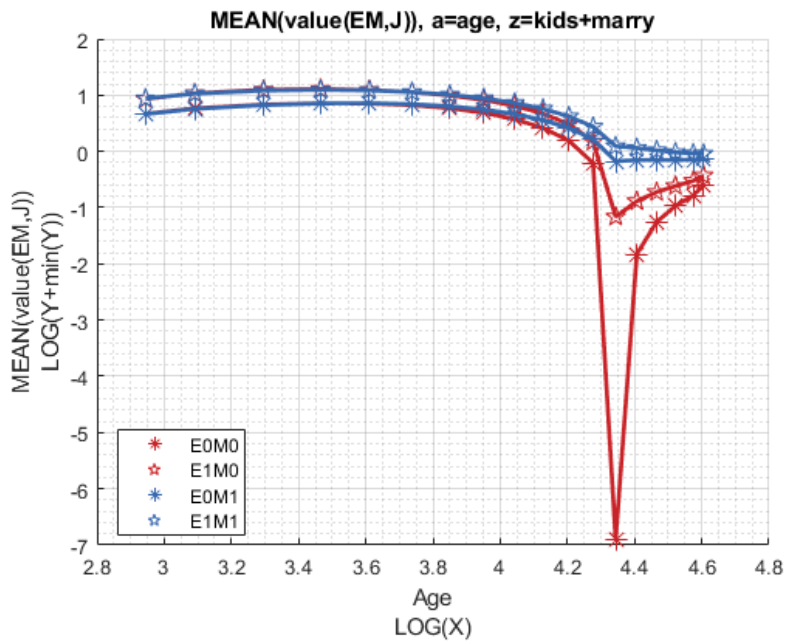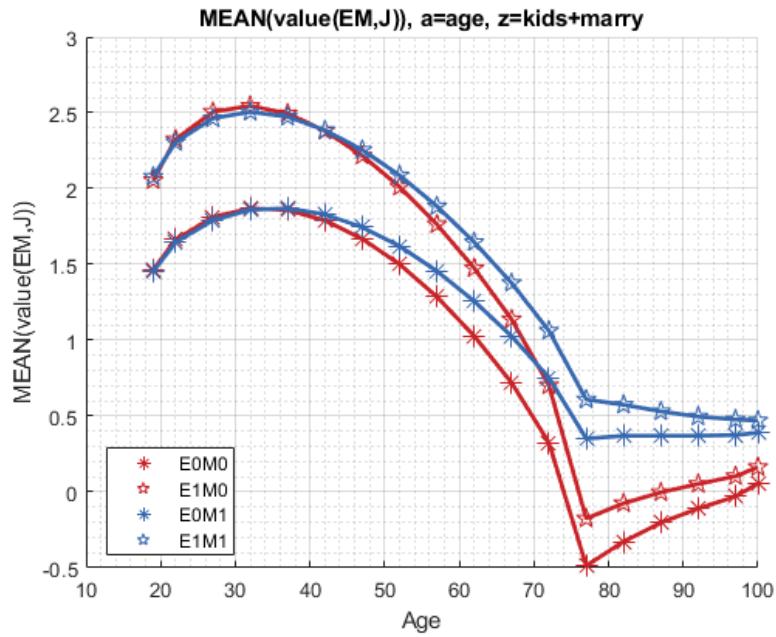
Graph Mean Savings Choices:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(APRIME(EK,J)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(APRIME(EK,J))'};
ff_graph_grid((tb_az_ap{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

MEAN(APRIME(EK,J)), a=x, z=color



MEAN(APRIME(EK,J)), a=x, z=color
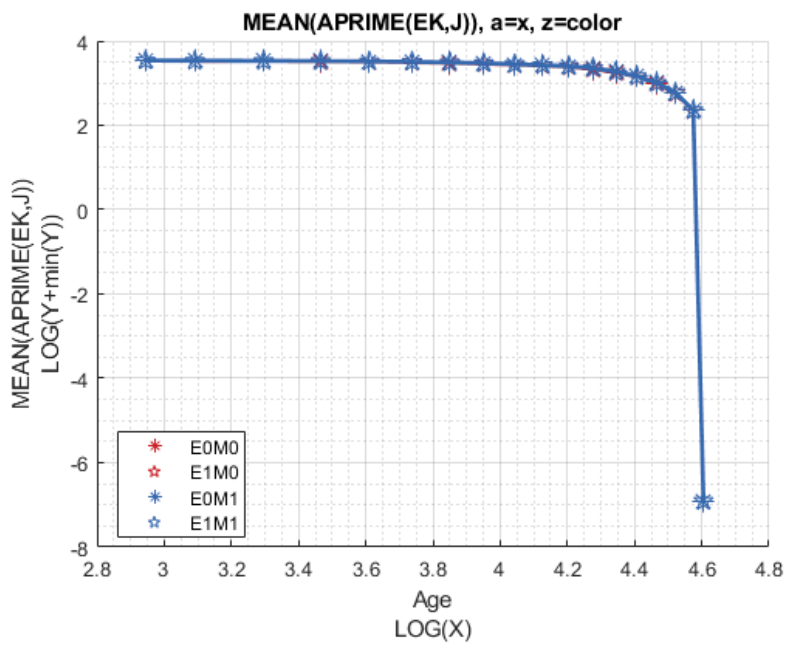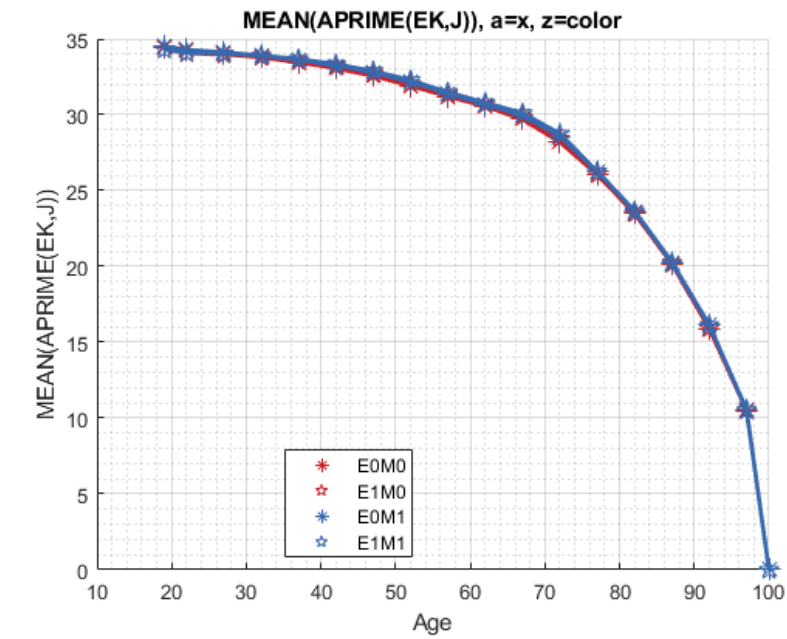
Graph Mean Consumption:

```
mp_support_graph('cl_st_graph_title') = {'MEAN(C(EK,J)), a=x, z=color'};
mp_support_graph('cl_st_ytitle') = {'MEAN(C(EK,J))'};
ff_graph_grid((tb_az_c{1:end, 4:end}), ar_row_grid, age_grid, mp_support_graph);
```

**MEAN(C(EK,J)), a=x, z=color**



**MEAN(C(EK,J)), a=x, z=color**