

Root Search Equilibrium Wage Equations By Skill Group

This is the example vignette for function: `bfw_solveequi_kwfw` from the [PrjLabEquiBFW Package](#).

Default

```
[mp_fl_labor_occprbty,mp_fl_labor_supplied] = bfw_solveequi_kwfw();
```

```
Completed BFW_SOLVEEQUI_KFWF;fl_potwrker_1=9.9687;fl_potwrker_2=12.5164;ar_fl_max_ratio_1=0.36095      0.25032      0.
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C001;sexrhs=;Female;occ=;Manual;wxox=3.5484;laborsupplied=2.2735
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C002;sexrhs=;Female;occ=;Routine;wxox=4.9268;laborsupplied=1.6222
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C003;sexrhs=;Female;occ=;Analytical;wxox=3.523;laborsupplied=1.341
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C101;sexrhs=;Male;occ=;Manual;wxox=1.7656;laborsupplied=4.2925
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C102;sexrhs=;Male;occ=;Routine;wxox=5.9065;laborsupplied=3.7644
BFW_SOLVEEQUI_KFWF-initial-Q;category_key=;C103;sexrhs=;Male;occ=;Analytical;wxox=2.222;laborsupplied=1.5416
Completed BFW_SOLVEEQUI_KFWF;fl_mse_excess=4.4821e-13;ar_w1_iter_endo=1.5779      1.819      3.7951;ar_w2_iter_hat=
```

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```

```
CONTAINER NAME: mp_wages Scalars
```

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

	i	idx	value
	—	—	—
C001	1	1	1.2165
C002	2	2	1.8629
C003	3	3	3.227
C101	4	4	1.5779
C102	5	5	1.819
C103	6	6	3.7951

```
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
CONTAINER NAME: mp_fl_labor_demanded Scalars
```

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

	i	idx	value
	—	—	—
C001	1	1	1.6514
C002	2	2	1.0896
C003	3	3	1.4662
C101	4	4	4.3057
C102	5	5	3.1524
C103	6	6	1.9726

```
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
CONTAINER NAME: mp_fl_labor_supplied Scalars
```

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

	i	idx	value
	—	—	—
C001	1	1	1.6514
C002	2	2	1.0896
C003	3	3	1.4662
C101	4	4	4.3057
C102	5	5	3.1524
C103	6	6	1.9726

```
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
CONTAINER NAME: mp_fl_labor_occprbty Scalars
```

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

	i	idx	value
	—	—	—
C001	1	1	0.13194
C002	2	2	0.087055
C003	3	3	0.11714
C101	4	4	0.43193
C102	5	5	0.31623
C103	6	6	0.19788

```

-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_excess_demand Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	-3.4607e-08
C002	2	2	-2.3265e-07
C003	3	3	6.268e-07
C101	4	4	-2.6645e-15
C102	5	5	-2.2204e-15
C103	6	6	-2.2204e-16

Vary Parameters, Solve Equilibrium Quantities/Wages, Root Search

```

% 2. Get Parameters and data
bl_log_wage = true;
bl_verbose_nest = false;

% Get Parameters
mp_params = bfw_mp_param_esti(bl_log_wage);
mp_param_aux = bfw_mp_param_aux(bl_verbose_nest);
mp_params = [mp_params ; mp_param_aux];

% Get Data
mp_data = bfw_mp_data(bl_verbose_nest);

% Get Functions
mp_func_demand = bfw_mp_func_demand(bl_verbose_nest);
mp_func_supply = bfw_mp_func_supply(bl_log_wage, bl_verbose_nest);
mp_func_equi = bfw_mp_func_equi(bl_verbose_nest);
mp_func = [mp_func_equi; mp_func_supply; mp_func_demand];

% Get Controls
mp_controls = bfw_mp_control();
mp_controls('bl_bfw_solveequi_kwfw_display') = false;
mp_controls('bl_bfw_solveequi_kwfw_display_verbose') = false;

st_exa_common_str = 'bfw_solveequi_kwfw()';
for it_example_inputs = [1,2,3,4]

    % Different testing scenarios
    if (it_example_inputs == 1)
        fl_rho_manual = 0.18;
        fl_rho_routine = 0.18;
        fl_rho_analytical = 0.18;
    end
end

```

```

fl_beta_1_manual = 1 - 0.26;
fl_beta_1_routine = 1 - 0.30;
fl_beta_1_analytical = 1 - 0.40;

fl_Y_manual = 3.4084;
fl_Y_routine = 2.3402;
fl_Y_analytical = 1.7552;

fl_w1o1_init = 2.315707;
fl_w1o2_init = 3.217799;
fl_w1o3_init = 4.329016;

fl_w2o1_init = 1.942;
fl_w2o2_init = 3.2247;
fl_w2o3_init = 3.3738;

it_data_year = 1989;
fl_potwrker_1 = 9.9687;
fl_potwrker_2 = 12.5164;
bl_skilled = false;

st_exa_string = "homogeneous rho at 0.18, unskilled";

elseif (it_example_inputs == 2)
    fl_rho_manual = 0.64678;
    fl_rho_routine = 0.64678;
    fl_rho_analytical = 0.64678;

    fl_beta_1_manual = 0.63427;
    fl_beta_1_routine = 0.58738;
    fl_beta_1_analytical = 0.5784;

    fl_Y_manual = 3.2291;
    fl_Y_routine = 2.2223;
    fl_Y_analytical = 1.7487;

    fl_w1o1_init = 2.3157;
    fl_w1o2_init = 3.2178;
    fl_w1o3_init = 4.329;

    fl_w2o1_init = 1.942;
    fl_w2o2_init = 3.2247;
    fl_w2o3_init = 3.3738;

    it_data_year = 1989;
    fl_potwrker_1 = 9.9687;
    fl_potwrker_2 = 12.5164;

    bl_skilled = false;

    st_exa_string = "homogeneous rho at 0.64, unskilled";

elseif (it_example_inputs == 3)

```

```

fl_rho_manual = 0.34186;
fl_rho_routine = 0.34186;
fl_rho_analytical = 0.34186;

fl_beta_1_manual = 0.63075;
fl_beta_1_routine = 0.6326;
fl_beta_1_analytical = 0.53894;

fl_Y_manual = 5.5703;
fl_Y_routine = 4.6673;
fl_Y_analytical = 2.5644;

fl_w1o1_init = 2.263;
fl_w1o2_init = 2.5991;
fl_w1o3_init = 3.6533;

fl_w2o1_init = 1.7636;
fl_w2o2_init = 2.4062;
fl_w2o3_init = 2.8429;

it_data_year = 2010;
fl_potwrker_1 = 16.4952;
fl_potwrker_2 = 19.4271;

bl_skilled = false;

st_exa_string = "homogeneous rho at 0.34, unskilled";

elseif (it_example_inputs == 4)
    fl_rho_manual = 0.75002424;
    fl_rho_routine = 0.244249613;
    fl_rho_analytical = 0.244249613;

    fl_beta_1_manual = 0.703785173;
    fl_beta_1_routine = 0.687107264;
    fl_beta_1_analytical = 0.706254232;

    fl_Y_manual = 0.124479951;
    fl_Y_routine = 0.39857586;
    fl_Y_analytical = 1.388880655;

    fl_w1o1_init = 5.758649;
    fl_w1o2_init = 6.221019;
    fl_w1o3_init = 7.977073;

    fl_w2o1_init = 2.376239;
    fl_w2o2_init = 4.863073;
    fl_w2o3_init = 5.881686;

    it_data_year = 1996;
    fl_potwrker_1 = 16.4952;
    fl_potwrker_2 = 19.4271;

    bl_skilled = true;

```

```

    st_exa_string = "heter rho (0.75, 0.24, 0.24), skilled";

end

mp_params('fl_rho_manual') = fl_rho_manual;
mp_params('fl_rho_routine') = fl_rho_routine;
mp_params('fl_rho_analytical') = fl_rho_analytical;

mp_params('fl_beta_1_manual') = fl_beta_1_manual;
mp_params('fl_beta_1_routine') = fl_beta_1_routine;
mp_params('fl_beta_1_analytical') = fl_beta_1_analytical;

mp_params('fl_Y_manual') = fl_Y_manual;
mp_params('fl_Y_routine') = fl_Y_routine;
mp_params('fl_Y_analytical') = fl_Y_analytical;

mp_data('fl_w1o1_init') = fl_w1o1_init;
mp_data('fl_w1o2_init') = fl_w1o2_init;
mp_data('fl_w1o3_init') = fl_w1o3_init;

mp_data('fl_w2o1_init') = fl_w2o1_init;
mp_data('fl_w2o2_init') = fl_w2o2_init;
mp_data('fl_w2o3_init') = fl_w2o3_init;

mp_data('fl_potwrker_1') = fl_potwrker_1;
mp_data('fl_potwrker_2') = fl_potwrker_2;

it_data_year = it_data_year - 1989;
bl_checkminmax = true;
it_solve_n1n2n3 = 3;
[ar_w1_iter_endo, ar_w2_iter_hat, ar_w2_iter_gap, ...
    mp_wages, mp_fl_labor_demanded, mp_fl_labor_supplied, ...
    mp_fl_labor_occprbty, fl_mse_excess_demand, mp_fl_labor_excess_demand] = ...
    bwf_solveequi_kwfw(mp_params, mp_data, mp_func, mp_controls, ...
        it_solve_n1n2n3, it_data_year, bl_skilled, bl_checkminmax);

disp('');
disp('');
disp('XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX');
disp(['EXAMPLE ' num2str(it_example_inputs) ', ' st_exa_common_str ', ' char(st_exa_string)']);
disp('XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX');
ff_container_map_display(mp_wages);
ff_container_map_display(mp_fl_labor_demanded);
ff_container_map_display(mp_fl_labor_supplied);
ff_container_map_display(mp_fl_labor_occprbty);
ff_container_map_display(mp_fl_labor_excess_demand);

end

```

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EXAMPLE 1, bwf_solveequi_kwfw(), homogeneous rho at 0.18, unskilled
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-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_wages Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      i      idx      value
      -      -      -
C001    1      1      1.2165
C002    2      2      1.8629
C003    3      3      3.227
C101    4      4      1.5779
C102    5      5      1.819
C103    6      6      3.7951

```

```

-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_demanded Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      i      idx      value
      -      -      -
C001    1      1      1.6514
C002    2      2      1.0896
C003    3      3      1.4662
C101    4      4      4.3057
C102    5      5      3.1524
C103    6      6      1.9726

```

```

-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_supplied Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      i      idx      value
      -      -      -
C001    1      1      1.6514
C002    2      2      1.0896
C003    3      3      1.4662
C101    4      4      4.3057
C102    5      5      3.1524
C103    6      6      1.9726

```

```

-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_ocprbty Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      i      idx      value
      -      -      -
C001    1      1      0.13194
C002    2      2      0.087055
C003    3      3      0.11714
C101    4      4      0.43193
C102    5      5      0.31623
C103    6      6      0.19788

```

```

-----
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_excess_demand Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      i      idx      value
      -      -      -
C001    1      1      -3.4607e-08
C002    2      2      -2.3265e-07
C003    3      3      6.268e-07
C101    4      4      -2.6645e-15

```

```

C102      5      5      -2.2204e-15
C103      6      6      -2.2204e-16
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
EXAMPLE 2, bfw_solveequi_kwfw(), homogeneous rho at 0.64, unskilled
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_wages Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	1.2481
C002	2	2	1.8712
C003	3	3	3.1468
C101	4	4	1.5614
C102	5	5	1.8288
C103	6	6	3.8377

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_demanded Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	1.6914
C002	2	2	1.0934
C003	3	3	1.4297
C101	4	4	4.2646
C102	5	5	3.1707
C103	6	6	1.9952

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_supplied Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	1.6914
C002	2	2	1.0934
C003	3	3	1.4297
C101	4	4	4.2646
C102	5	5	3.1707
C103	6	6	1.9952

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_occpbty Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	0.13513
C002	2	2	0.087358
C003	3	3	0.11423
C101	4	4	0.42779
C102	5	5	0.31807
C103	6	6	0.20015

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER NAME: mp_fl_labor_excess_demand Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—

```

C001    1    1    -9.373e-09
C002    2    2    -1.9675e-07
C003    3    3     3.6084e-07
C101    4    4    -8.8818e-16
C102    5    5     1.3323e-15
C103    6    6    -2.2204e-16
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
EXAMPLE 3, bfw_solveequi_kwfw(), homogeneous rho at 0.34, unskilled
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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```

CONTAINER NAME: mp_wages Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	1.5675
C002	2	2	2.5998
C003	3	3	3.0763
C101	4	4	1.9027
C102	5	5	2.7234
C103	6	6	3.72

```

CONTAINER NAME: mp_fl_labor_demanded Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	3.9729
C002	2	2	2.8316
C003	3	3	2.6363
C101	4	4	6.6763
C102	5	5	6.0249
C103	6	6	2.5039

```

CONTAINER NAME: mp_fl_labor_supplied Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	3.9729
C002	2	2	2.8316
C003	3	3	2.6363
C101	4	4	6.6763
C102	5	5	6.0249
C103	6	6	2.5039

```

CONTAINER NAME: mp_fl_labor_ocprbty Scalars
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

	i	idx	value
	—	—	—
C001	1	1	0.2045
C002	2	2	0.14575
C003	3	3	0.1357
C101	4	4	0.40474
C102	5	5	0.36525
C103	6	6	0.1518

```

CONTAINER NAME: mp_fl_labor_excess_demand Scalars

```


XX

	i	idx	value
	—	—	—
C001	1	1	8.8193e-08
C002	2	2	6.1579e-07
C003	3	3	-1.2231e-06
C101	4	4	-3.5527e-15
C102	5	5	1.7764e-15
C103	6	6	0

XX

EXAMPLE 4, bfw_solveequi_kwfw(), heter rho (0.75, 0.24, 0.24), skilled

XX

XX

CONTAINER NAME: mp_wages Scalars

XX

	i	idx	value
	—	—	—
C011	1	1	2.2661
C012	2	2	5.3853
C013	3	3	6.7077
C111	4	4	3.5562
C112	5	5	6.838
C113	6	6	9.4355

XX

CONTAINER NAME: mp_fl_labor_demanded Scalars

XX

	i	idx	value
	—	—	—
C011	1	1	0.032483
C012	2	2	0.23898
C013	3	3	0.83121
C111	4	4	0.1707
C112	5	5	0.49335
C113	6	6	1.6895

XX

CONTAINER NAME: mp_fl_labor_supplied Scalars

XX

	i	idx	value
	—	—	—
C011	1	1	0.032483
C012	2	2	0.23898
C013	3	3	0.83121
C111	4	4	0.1707
C112	5	5	0.49335
C113	6	6	1.6895

XX

CONTAINER NAME: mp_fl_labor_occpbty Scalars

XX

	i	idx	value
	—	—	—
C011	1	1	0.018322
C012	2	2	0.1348
C013	3	3	0.46886
C111	4	4	0.068174

