modBuilder

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Introduction

- `modBuilder` is a MATLAB class aimed at simplifying the interactive and programmatic creation of Dynare `.mod` files.
- Build incrementally a model directly from the MATLAB.
- Facilitates consistency checks, error detection, and modular model development.
- Also provides tools for computing the steady state.
- Export the model to a `.mod` file ready to run.
- Code available in a public Git repository (not part of Dynare).

Instantiate an empty model

```
>> model = modBuilder()

model =

  modBuilder with properties:

       params: {0x4 cell}
       varexo: {0x4 cell}
          var: {0x4 cell}
      symbols: {1x0 cell}
    equations: {0x2 cell}
            T: [1x1 struct]
         date: 15-Sep-2025 15:36:06

```

Instantiate a model from a .mod file – I –

```
1  var a b y c h k;
2
3  varexo e (long_name='Productivity shock innovation')
4    u (long_name='Preference shock innovation')
5    ;
6
7  parameters alpha $\alpha$
8    rho $\rho$
9    tau $\tau$
10   beta $\beta$
11   delta $\delta$
12   psi $\psi$
13   theta $\theta$
14   phi $\phi$
15   ;
16
17 alpha = 0.360000; rho = 0.950000; tau = 0.025000;
18 beta = 0.990000; delta = 0.025000; psi = 0.000000;
19 theta = 2.950000; phi = 0.100000;
```

Instantiate a model from a .mod file – II –

```
model;

[name = 'a']
a = rho*a(-1)+tau*b(-1)+e;

[name = 'b']
b = tau*a(-1)+rho*b(-1)+u;

[name = 'y']
y = exp(a)*k(-1)^alpha*h^(1-alpha);

[name = 'c']
k = exp(b)*(y-c)+k(-1)*(1-delta);

[name = 'h']
c*theta*h^(1+psi) = y*(1-alpha);

[name = 'k']
1/beta = exp(b)*c/(exp(b(1))*c(1))*(1-delta+alpha*exp(b(1))*
    y(1)/k);

end;
```

Instantiate a model from a .mod file – III –

```
>> dynare rbc12 json=compute
...
>> model = modBuilder(M_, oo_, 'rbc12/model/json/modfile-original.json')

model =

  modBuilder with properties:

       params: {8x4 cell}
       varexo: {2x4 cell}
          var: {6x4 cell}
      symbols: {1x0 cell}
    equations: {6x2 cell}
            T: [1x1 struct]
         date: 15-Sep-2025 16:38:38
```

Instantiate a model

- It is also possible to create a new model from a previously defined modBuilder object that has been saved to disk.
- Once a `modBuilder` object is instantiated, the model can be expanded or transformed by utilizing the methods provided by the class.
- In the end the model can be saved on disk for later usage (`save` method) or exported to a `.mod` file (`write` method).