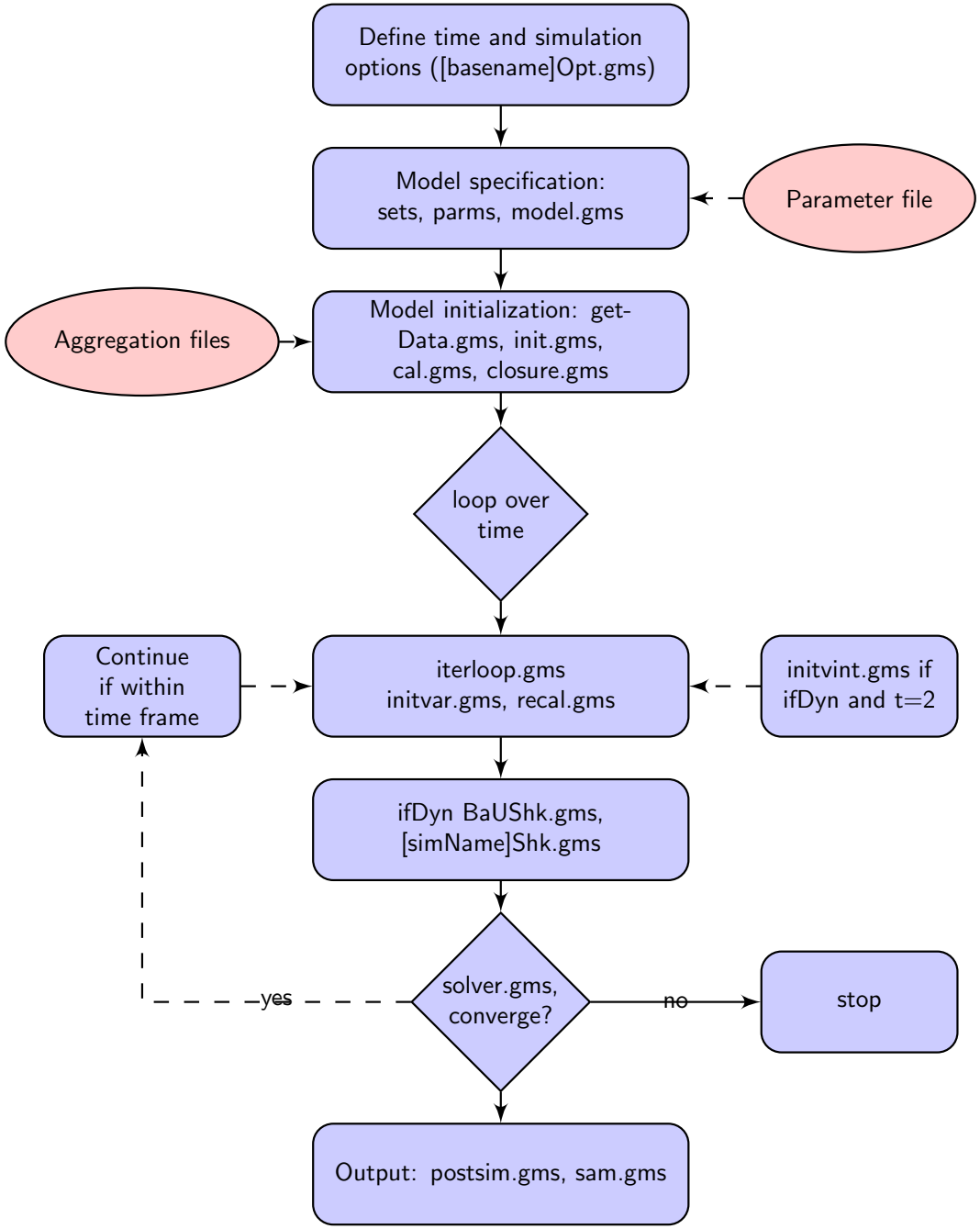
Table: Distributed model files

File name	Description
cal.gms	Calibration of model parameters
closure.gms	Default closure assumptions
compScen.gms	'Scenario' file for comparative static simulatons
getData.gms	File that reads the GDX-based input files.
init.gms	Initialization of model variables
initScen.gms	Scenario file for dynamic simulations
InitVar.gms	Inter-period initialization of model variables
initVint.gms	Second period initialization of vintage volume variables
iterloop.gms	Inter-period code
miscDat.gms	Currently this file contains only an energy conversion tab simulation.
model.gms	Core model specification
postsim.gms	Post-simulation statements—mostly creation of output CSV

Table: Distributed model files

File name	Description
recal.gms	Inter-period core code to update vintage technology paran other dynamically calibrated parameters such as the Arming eters
recalnnn.gms	Code that updates technology parameters such as `and1`
recalnnt.gms	Code that updates technology parameters such as `aland`
recalnrg.gms	Code that updates technology parameters such as `aNRG`
recalvat.gms	Code that updates technology parameters such as `axp`
recalvnn.gms	Code that updates technology parameters such as `ava`
recalvnt.gms	Code that updates technology parameters such as `ak`
recalxanrg.gms	Code that updates technology parameters such as `aeio` wit
recalxanrgn.gms	Code that updates technology parameters such as `aeio` wit
sam.gms	Code that writes out the simulation SAMs in CSV format
SaveParm.gms	Code that writes out key parameters
scale.gms	Code that scales model variables/equations. Currently not u
solve.gms	Code that invokes the solver.


Define time and simulation options ([basename]Opt.gms)
Model specification: sets, parms, model.gms
Parameter file
Aggregation files
Model initialization: get-Data.gms, init.gms, cal.gms, closure.gms
loop over time
Continue if within time frame
iterloop.gms initvar.gms, recal.gms
initvint.gms if ifDyn and t=2
ifDyn BaUShk.gms, [simName]Shk.gms
solver.gms, converge?
yes
no
stop
Output: postsim.gms, sam.gms

$$PSave_{r,t} = \chi^s \frac{PSave_{r,0}}{PI_{r,0}} PI_{r,t}$$

$$\chi^s = \sum_r \varsigma_r^I \frac{PI_{r,t}}{PI_{r,0}} \Big/ \sum_r \varsigma_r^S \frac{PSave_{r,t}}{PSave_{r,0}}$$

$$\varsigma_r^I = PI_{r,0} \left(XI_{r,0} - \delta_r K_{r,0}^0\right) \Big/ \sum_s PI_{s,0} \left(XI_{s,0} - \delta_r K_{s,0}^0\right)$$

$$\varsigma_r^S = Save_{r,0} \Big/ \sum_s Save_{s,0}$$

Model.gms

- Modify or add an equation—new parameters, variables, flags, equations should be introduced near the code
- Remember to normalize
- Run the comparative statics till it compliles
- Change the model definition (if needed)
- Move the new parameters, variables, flags, equation declarations to where they belong

Init.gms

- Initialize the variables
- May require reading in of new parameters
- Do not normalize (yet)

Cal.gms

- Calibrate any new parameter(s)
- Normalize the variables

closure.gms

- Exogenize zero activity levels
- Set other default closures—if needed

initvar.gms

- Initialize all variables for period **tsim**
- Default—set price variables equal to *tsim* − 1, set volume/value variables to previous period time `rwork`. The latter scales for GDP growth.
- Some variables need more massaging, for example some dynamic variables.

postim.gms

- Add new output variables to save to the CSV cube
- Need to take into account normalization and initial model scale

Comparative static diagnostics

- Run the comparative static diagnostics: (1) residual check; (2) homogeneity test. Uses the shock file `CompShk.gms`.
- In the list file, look for `INITIAL POINT STATISTICS`. The maximum of F should be zero (or very small—precision of the input SAM).
- Look for the first `LHS`. Then look for `****`. It should find the line `SOLVER STATUS`. This can depend on the tolerance level—see the parameter `tolinfrep`. If the residual is significant for an equation—re-assess variable initialization and parameter calibration.
- For the homogeneity test, the maximum of F should be 0.5 for the numéraire equation. And the only significant residual should be the numéraire equation.
- Check the balances from resulting model SAMs. Load the worksheet `CompSAM.xlsx`. Refresh pivot tables. Check the SAM residuals—should be near 0. Check homogeneity. Check macro balances. Can also check the value of *Walras*

Recursive dynamic diagnostics

- Run the BaU (see file `runAll.cmd`). Check *Walras*.
- Run the noShk scenario. (1) It should re-produce the BaU. If using the BaU as a starting point, it should have zero residuals for all years.
- Can iterate using `runAll.cmd` using the BaU as a starting point.

Thank you!