



ANARRES_t Model Checks



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Introduction

- Why model checks?
 - Meaningful analyses
 - Avoid confusion
 - Save time
- Model Checks
 1. Slack variables
 2. Check the Left-hand sides
 3. Check data calibration and replication
 4. Check the numéraire



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Slack Variables

- Check that **VAR WALRAS** is **0**
- Check that **VAR GLOBESLACK** is **0**
- Check that **VAR KAPWORSYS** is **0**

Why 3 slack variables?

1. WALRAS – within regions rgn(r)
2. GLOBESLACK – within region globe
3. KAPWORSYS – between regions rgn(r)



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Check LHS

- Check that all the **LHS** (left hand sides) are correct
 - search for LHS and then search (from cursor) for ******* (which indicates a problem).
 - For additional certainty search for **infes**

Model will abort when certain checks fail

**GAMS collects terms on the LHS:
these sum to ZERO or a known exogenous value**



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Calibration and Replication Checks

```

*----- Macro and Micro SAMG1 -----
$SETGLOBAL ASAMG ASAMG1
$SETGLOBAL SAMG SAMG1

numerchk_samchk = 1.0 ;

$INCLUDE 2_include/anar_t_samgchk.inc

$DROPGLOBAL ASAMG
$DROPGLOBAL SAMG

*----- Macro and Micro SAMG2 -----
$SETGLOBAL ASAMG ASAMG2
$SETGLOBAL SAMG SAMG2

numerchk_samchk = numerchk ;

$INCLUDE 2_include/anar_t_samgchk.inc

$DROPGLOBAL ASAMG
$DROPGLOBAL SAMG
  
```

Replication

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← Calibration

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Check Calibration – ASAMG1

- Check the **Aggregated ASAMG1** calibration
 - Model will abort when **ASAMG1** checks fail
 - Reports will/should help user find the cause
- Searches
 - **CHECK_ASAMG1(r)** - **all** values must equal **0**
 - **ASAMG1_CHK(ss,ss,r)** - **all** values must equal **1.00**
 - **DIFFASAMG1(ss,ss,r)** - **all** values should equal **0**
 - **CNTASAMG1(r)** - **all** values must equal **0**
- Use ref file to understand these checks

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Check Calibration – SAMG1

- Check the **Disaggregated** SAMG calibration
 - Model will abort when **SAMG1** checks fail
 - Reports will/should help user find the cause
- Searches
 - **CHECK_SAMG1(r)** - all values must equal **0**
 - **SAMG1_CHK(sac,sac,r)** - all values must equal **1.00**
 - **DIFFSAMG1(sac,sac,r)** - all values should equal **0**
 - **perDIFFSAMG1(sac,sacp,r)** - all values should equal **0**
 - **CNTSAMG1(r)** - all values must equal **0**
- Use ref file to understand these checks



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Replication – ASAMG2

- Check the **Aggregated** ASAMG2 replicates
 - Model will abort when **ASAMG2** checks fail
 - Reports will/should help user find the cause
- Searches
 - **CHECK_ASAMG2(r)** - all values must equal **0**
 - **ASAMG2_CHK(ss,ss,r)** - all values must equal **1.00**
 - **DIFFASAMG2(ss,ss,r)** - all values should equal **0**
 - **CNTASAMG2(r)** - all values must equal **0**
- Use ref file to understand these checks



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Replication – SAMG2

- Check the **Disaggregated SAMG2** replicates
 - Model will abort when **SAMG2** checks fail
 - Reports will/should help user find the cause
- Searches
 - **CHECK_SAMG2(r)** - all values must equal **0**
 - **SAMG2_CHK(sac,sac,r)** - all values must equal **1.00**
 - **DIFFSAMG2(sac,sac,r)** - all values should equal **0**
 - **perDIFFSAMG2(sac,sacp,r)** - all values should equal **0**
 - **CNTSAMG2(r)** - all values must equal **0**
- Use ref file to understand these checks



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Numéraire Check

Data entry file

```
*---- 6a. Assigning value to numeraire check parameter
numerchk          = mod_cont("numerchk") ;
```

Closure file

```
* To use CPI as the numeraire fix CPI
CPI.FX(r)          = CPI0(r)*numerchk ;

* To fix the real exchange rate fix ER and PPI
PPI.FX(r)          = PPI0(r)*numerchk ;
```



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Numéraire Check

- Check the model is homogenous degree zero
 - in the ‘controls’ worksheet - change cell **B8** to **2**.
 - doubling the numéraire; what should this do?
- Rerun the program
 - find **ASAMG2CHK** and **SAMG2CHK**;
 - What should the values be?
 - What are its values?
 - Also look at
 - DIFFASAMG2, CNTASAMG2, DIFFSAMG2, CNTSAMG2
- Use ref file to understand these checks



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Numéraire Check Implementation

*----- Macro and Micro SAMG1 -----

\$SETGLOBAL ASAMG ASAMG1

\$SETGLOBAL SAMG SAMG1

numerchk_samchk = 1.0 ;

← Calibration

\$INCLUDE 2_include/anar_t_samgchk.inc

\$DROPGLOBAL ASAMG

\$DROPGLOBAL SAMG

*----- Macro and Micro SAMG2 -----

\$SETGLOBAL ASAMG ASAMG2

\$SETGLOBAL SAMG SAMG2

Replication →

numerchk_samchk = numerchk ;

\$INCLUDE 2_include/anar_t_samgchk.inc

\$DROPGLOBAL ASAMG

\$DROPGLOBAL SAMG



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The End

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