Lampiran 1. Data Penelitian untuk Model Ekonometrika

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Lampiran 2. Persamaan Model Ekonometrika

Options nodate nonumber;
data disertasi;
GET sasuser.disertasi;

* Menciptakan nama variabel *
label SHIND = 'Pangsa output sektor industri terhadap total GDP'
    SHCREDIT = 'Pangsa kredit yang disalurkan untuk sektor industri'
    SHEXPORT = 'Pangsa ekspor produk-produk industri'
    SHIMPNMIGAS = 'Pangsa impor komoditas non migas'
    INCOME = 'Pendapatan per kapita'
    KREDIT = 'Jumlah kredit yang disalurkan untuk sektor industri'
    EKSPOR = 'Jumlah ekspor produk-produk industri'
    IMPORNMIGAS = 'Jumlah impor komoditas non migas'
    HITECHN = 'Nilai ekspor dari industri berteknologi tinggi'
    LISTRIK = 'Harga energi listrik'
    BBM = 'Harga bahan bakar minyak'
    UPAH = 'Upah sektor industri';

RUN;

* Menciptakan model dengan basis data SHARE *
proc autoreg data=disertasi;
    model SHIND = SHCREDIT SHEXPORT SHIMPNMIGAS;
run;

proc syslin ols data=disertasi out=m_park;
    model SHIND = SHCREDIT SHEXPORT SHIMPNMIGAS /noprint;
run;

* Menentukan Variation Inflation Factors (VIF) untuk menguji adanya multikolinieritas *
proc reg data=disertasi;
    model SHIND = SHCREDIT SHEXPORT SHIMPNMIGAS / vif;
run;

* Menentukan Korelasi untuk melihat adanya multikolinieritas *
proc corr data=disertasi;
    var SHCREDIT ;
    with SHEXPORT ;
    run;
proc corr data=disertasi;
    var SHCREDIT ;
    with SHIMPNMIGAS ;
    run;
proc corr data=disertasi;
    var SHEXPORT ;
    with SHIMPNMIGAS ;
    run;
proc autoreg data=disertasi;
    model SHIND = LISTRIK BBM UPAH HITECHN;
run;
1. **Proc Reg**
   ```
   proc reg data=disertasi;
   model SHIND = LISTRIK BBM UPAH HITECHN / vif;
   run;
   ```

2. **Proc Corr**
   ```
   proc corr data=disertasi;
   var LISTRIK;
   with BBM;
   run;
   ```

3. **Proc Corr**
   ```
   proc corr data=disertasi;
   var LISTRIK;
   with UPAH;
   run;
   ```

4. **Proc Corr**
   ```
   proc corr data=disertasi;
   var LISTRIK;
   with HITECHN;
   run;
   ```

5. **Proc Corr**
   ```
   proc corr data=disertasi;
   var BBM;
   with UPAH;
   run;
   ```

6. **Proc Corr**
   ```
   proc corr data=disertasi;
   var BBM;
   with HITECHN;
   run;
   ```

7. **Proc Corr**
   ```
   proc corr data=disertasi;
   var UPAH;
   with HITECHN;
   run;
   ```

/* Menguji heterokedastisitas dg Metode Park */

8. **Proc Syslin OLS**
   ```
   proc syslin ols data=disertasi out=m_park;
   model SHIND = SHCREDIT SHEXPORT SHIMPNMIGAS /noprint;
   output residual = e
                predicted = p;
   run;
   ```

9. **Data**
    ```
    data spent1;
    set m_park;
    e2=e**2;
    ln_e2=log(e2);
    ln_shcredit=log(shcredit);
    ln_shexport=log(shexport);
    ln_shimpnmigas=log(shimpnmigas);
    run;
    ```

10. **Proc Syslin OLS**
    ```
    proc syslin ols data=spent1;
    model ln_e2= ln_shcredit ln_shexport ln_shimpnmigas;
    run;
    ```

11. **Proc Syslin OLS**
    ```
    proc syslin ols data=disertasi out=m_park2;
    model SHIND = LISTRIK BBM UPAH HITECHN /noprint;
    output residual = e
                predicted = p;
    run;
    ```

12. **Data**
    ```
    data spent2;
    set m_park2;
    e2=e**2;
    ln_listrik=log(listrik);
    ln_bbm=log(bbm);
    ln_upah=log(upah);
    ```
Proc syslin ols data=spent2;
model ln_e2= ln_listrik ln_bbm ln_upah ln_hitechn;
run;
Hak Cipta Dilindungi Undang-Undang. Duplikat, pembuatan, penyebaran, pendistribusian, penyebaran, penyanyian, penulisan, pemutaran, penayangan, penampilan, atau penggunaan dalam bentuk apa pun dan/atau dalam bentuk elektronik atau digital tanpa persetujuan tertulis dari pihak IPB dianggap sebagai pelanggaran hak cipta. Hak cipta ini bersifat eksklusif. Penyebaran, penayangan, pemutaran, pemutaran, penayangan, penampilan, penulisan, penggunaan, atau upayakan apa pun dan/atau di atas kecuali untuk tujuan non komersial dihukum pidana dan/atau dikenakan denda.
### Lampiran 3. Keluaran Model Regresi dari Sisi Permintaan

The SAS System

The REG Procedure

Model: MODEL1

Dependent Variable: SHIND Pangsa output sektor industri terhadap total GDP

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#### Analysis of Variance

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Root MSE: 0.68533
R-Square: 0.8634
Dependent Mean: 26.55787
Adj R-Sq: 0.8224

#### Parameter Estimates

| Parameter          | Label                          | DF | Estimate | Error  | t Value | Pr > |t| |
|--------------------|-------------------------------|----|----------|--------|---------|------|---|
| Intercept          | Intercept                     | 1  | 24.15190 | 7.12531| 3.39    | 0.0069|
| SHCREDIT           | Pangsa kredit yang disalurkan untuk sektor industri | 1  | 0.06402  | 0.04136| 1.55   | 0.1527|
| SHEXPORT           | Pangsa ekspor produk-produk industri | 1  | 0.18874  | 0.08471| 2.23   | 0.0500|
| SHIMPNMIGAS        | Pangsa impor komoditas non migas | 1  | -0.17137 | 0.02537| -6.75  | <.0001|

### Keluaran Nilai VIF untuk Menguji Adanya Multikolinieritas

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<td>0</td>
</tr>
<tr>
<td>SHCREDIT</td>
<td>Pangsa kredit yang disalurkan untuk sektor industri</td>
<td>1</td>
<td>1.27951</td>
</tr>
<tr>
<td>SHEXPORT</td>
<td>Pangsa ekspor produk-produk industri</td>
<td>1</td>
<td>1.06366</td>
</tr>
<tr>
<td>SHIMPNMIGAS</td>
<td>Pangsa impor komoditas non migas</td>
<td>1</td>
<td>1.31359</td>
</tr>
</tbody>
</table>
Keluaran Nilai Korelasi untuk Menguji Adanya Multikolinieritas

The SAS System

The CORR Procedure

1 With Variables: SHEXPORT
1 Variables: SHCREDIT

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEXPORT</td>
<td>16</td>
<td>76.3448</td>
<td>4.8397</td>
<td>1222</td>
<td>62.6150</td>
<td>83.8844</td>
</tr>
<tr>
<td>SHCREDIT</td>
<td>16</td>
<td>31.2146</td>
<td>4.8718</td>
<td>499.4340</td>
<td>23.1767</td>
<td>39.6959</td>
</tr>
</tbody>
</table>

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEXPORT</td>
<td>Pangsa ekspor produk-produk industri</td>
</tr>
<tr>
<td>SHCREDIT</td>
<td>Pangsa kredit yang disalurkan untuk sektor industri</td>
</tr>
</tbody>
</table>

Pearson Correlation Coefficients, N = 16

Prob > |r| under HO: Rho=0

| Variable | |r|    |
|----------|---------|
| SHEXPORT | 0.13553 |

The SAS System

The CORR Procedure

1 With Variables: SHIMPNMIGAS
1 Variables: SHCREDIT

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIMPNMIGAS</td>
<td>16</td>
<td>84.4910</td>
<td>8.4721</td>
<td>1352</td>
<td>68.9466</td>
<td>92.8356</td>
</tr>
<tr>
<td>SHCREDIT</td>
<td>16</td>
<td>31.2146</td>
<td>4.8717</td>
<td>499.4340</td>
<td>23.1768</td>
<td>39.6959</td>
</tr>
</tbody>
</table>

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIMPNMIGAS</td>
<td>Pangsa impor komoditas non migas</td>
</tr>
<tr>
<td>SHCREDIT</td>
<td>Pangsa kredit yang disalurkan untuk sektor industri</td>
</tr>
</tbody>
</table>

Pearson Correlation Coefficients, N = 16

Prob > |r| under HO: Rho=0
The SAS System

The CORR Procedure

1 With Variables: SHIMPNMIGAS
1 Variables: SHEXPORT

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIMPNMIGAS</td>
<td>16</td>
<td>84.49103</td>
<td>8.47216</td>
<td>1352</td>
<td>68.94662</td>
<td>92.83561</td>
</tr>
<tr>
<td>SHEXPORT</td>
<td>16</td>
<td>76.34477</td>
<td>4.83969</td>
<td>1222</td>
<td>62.61495</td>
<td>83.88437</td>
</tr>
</tbody>
</table>

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIMPNMIGAS</td>
<td>Pangsa impor komoditas non migas</td>
</tr>
<tr>
<td>SHEXPORT</td>
<td>Pangsa ekspor produk-produk industri</td>
</tr>
</tbody>
</table>

Pearson Correlation Coefficients, N = 16

| SHEXPORT | SHIMPNMIGAS | Pangsa impor komoditas non migas | 0.1776 |

Keluaran untuk Menguji Adanya Heterokedastisitas dengan Metode Park

The SAS System

The SYSLIN Procedure
Ordinary Least Squares Estimation

<table>
<thead>
<tr>
<th>Model</th>
<th>ln_e2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>ln_e2</td>
</tr>
</tbody>
</table>

Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3</td>
<td>11.21361</td>
<td>3.737871</td>
<td>0.99</td>
<td>0.4371</td>
</tr>
<tr>
<td>Error</td>
<td>10</td>
<td>37.81744</td>
<td>3.781744</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>13</td>
<td>49.03105</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Root MSE | 1.94467 | R-Square | 0.22870
### Parameter Estimates

| Variable   | DF | Parameter Estimate | Standard Error | t Value | Pr > |t| |
|------------|----|--------------------|----------------|---------|------|---|
| Intercept  | 1  | 60.32264           | 89.78418       | 0.67    | 0.5169 |
| ln_shcred  | 1  | -5.41261           | 3.797712       | -1.43   | 0.1845 |
| ln_sexport| 1  | -12.5804           | 18.95221       | -0.66   | 0.5218 |
| ln_shimpmgas| 1  | 2.479466           | 6.144147       | 0.40    | 0.6950 |
Lampiran 4. Keluaran Model Regresi dari Sisi Penawaran

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: SHIND Pangsa output sektor industri terhadap total GDP

Number of Observations Read 20
Number of Observations Used 15
Number of Observations with Missing Values 5

Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>4</td>
<td>33.08624</td>
<td>8.27156</td>
<td>42.52</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Error</td>
<td>10</td>
<td>1.94547</td>
<td>0.19455</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>14</td>
<td>35.03172</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Root MSE 0.44108    R-Square 0.9445
Dependent Mean 26.61353    Adj R-Sq 0.9223
Coeff Var 1.65733

Parameter Estimates

| Parameter      | Standard Error | t Value | Pr > |t| |
|----------------|----------------|---------|------|--|
| Intercept      | 1.13876        | 24.96   | <.0001|
| LISTRIK        | 0.00012852     | -0.00   | 0.9999|
| BBM            | 0.00007615     | -2.01   | 0.0722|
| UPAH           | 0.04430        | -3.73   | 0.0039|
| HITECHN        | 1.57308E-10    | 2.34    | 0.0414|

Keluaran Nilai VIF untuk Menguji Adanya Multikolinieritas

Parameter Estimates

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>DF</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>Intercept</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>LISTRIK</td>
<td>Harga energi listrik</td>
<td>1</td>
<td>2.27521</td>
</tr>
<tr>
<td>BBM</td>
<td>Harga bahan bakar minyak</td>
<td>1</td>
<td>2.47141</td>
</tr>
<tr>
<td>UPAH</td>
<td>Upah sektor industri</td>
<td>1</td>
<td>9.35259</td>
</tr>
<tr>
<td>HITECHN</td>
<td>Nilai ekspor dari industri</td>
<td>1</td>
<td>5.20540</td>
</tr>
<tr>
<td></td>
<td>berteknologi tinggi</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Keluaran Nilai Korelasi untuk Menguji Adanya Multikolinieritas

The CORR Procedure

1 With Variables: BBM
1 Variables: LISTRIK

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBM</td>
<td>18</td>
<td>4454</td>
<td>2972</td>
<td>80171</td>
<td>1589</td>
<td>11560</td>
</tr>
<tr>
<td>LISTRIK</td>
<td>18</td>
<td>8414</td>
<td>1185</td>
<td>151455</td>
<td>5506</td>
<td>10152</td>
</tr>
</tbody>
</table>

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBM</td>
<td>Harga bahan bakar minyak</td>
<td>4454</td>
</tr>
<tr>
<td>LISTRIK</td>
<td>Harga energi listrik</td>
<td>8414</td>
</tr>
</tbody>
</table>

Pearson Correlation Coefficients, N = 18
Prob > |r| under HO: Rho=0

LISTRIK
BBM 0.29003
Harga bahan bakar minyak 0.2430

The SAS System

The CORR Procedure

1 With Variables: UPAH
1 Variables: LISTRIK

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPAH</td>
<td>20</td>
<td>114.27375</td>
<td>27.09833</td>
<td>2285</td>
<td>76.00000</td>
<td>152.72500</td>
</tr>
<tr>
<td>LISTRIK</td>
<td>18</td>
<td>8414</td>
<td>1185</td>
<td>151455</td>
<td>5506</td>
<td>10152</td>
</tr>
</tbody>
</table>

Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPAH</td>
<td>Upah sektor industri</td>
<td>114.27375</td>
</tr>
<tr>
<td>LISTRIK</td>
<td>Harga energi listrik</td>
<td>8414</td>
</tr>
</tbody>
</table>

Pearson Correlation Coefficients
Prob > |r| under HO: Rho=0
Number of Observations
### Simple Statistics

**Variable** | **Label**
--- | ---
HITECHN | Nilai ekspor dari industri berteknologi tinggi
LISTRIK | Harga energi listrik

### Pearson Correlation Coefficients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LISTRIK</td>
<td></td>
<td>0.32667</td>
</tr>
</tbody>
</table>

**Number of Observations**

- LISTRIK: 18
- HITECHN: 17

### Simple Statistics

**Variable** | **Label**
--- | ---
UPAH | Upah sektor industri

---

**The SAS System**

**The CORR Procedure**

1 With Variables: HITECHN
1 Variables: LISTRIK

### Simple Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPAH</td>
<td></td>
<td>0.2169</td>
</tr>
</tbody>
</table>

**Number of Observations**

- UPAH: 20
- BBM: 18

### Simple Statistics

**Variable** | **Label**
--- | ---
UPAH | Upah sektor industri

---
**BBM**
Harga bahan bakar minyak

**Pearson Correlation Coefficients**

<table>
<thead>
<tr>
<th></th>
<th>BBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPAH</td>
<td>0.76031</td>
</tr>
<tr>
<td>Upah sektor industri</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

**The SAS System**

**The CORR Procedure**

1 With Variables: HITECHN
1 Variables: BBM

**Simple Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sum</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>HITECHN</td>
<td>17</td>
<td>4019992873</td>
<td>1913366014</td>
<td>6.83399E10</td>
<td>850549235</td>
<td>6571125440</td>
</tr>
<tr>
<td>BBM</td>
<td>18</td>
<td>4454</td>
<td>2972</td>
<td>80171</td>
<td>1589</td>
<td>11560</td>
</tr>
</tbody>
</table>

**Simple Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>HITECHN</td>
<td>Nilai ekspor dari industri berteknologi tinggi</td>
</tr>
<tr>
<td>BBM</td>
<td>Harga bahan bakar minyak</td>
</tr>
</tbody>
</table>

**Pearson Correlation Coefficients**

<table>
<thead>
<tr>
<th></th>
<th>BBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>HITECHN</td>
<td>0.69266</td>
</tr>
<tr>
<td>Nilai ekspor dari industri berteknologi tinggi</td>
<td>0.0029</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Keluaran untuk Menguji Adanya Heterokedastisitas dengan Metode Park**

**The SAS System**

**The SYSLIN Procedure**

**Ordinary Least Squares Estimation**

<table>
<thead>
<tr>
<th>Model</th>
<th>ln_e2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>ln_e2</td>
</tr>
</tbody>
</table>

**Analysis of Variance**
## Source Table

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>4</td>
<td>12.40898</td>
<td>3.102245</td>
<td>0.67</td>
<td>0.6279</td>
</tr>
<tr>
<td>Error</td>
<td>11</td>
<td>51.14092</td>
<td>4.649175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>15</td>
<td>63.54990</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Root MSE: 2.15619
- R-Square: 0.19526
- Dependent Mean: -2.85701
- Adj R-Sq: -0.09737
- Coeff Var: -75.47032

## Parameter Estimates Table

| Variable      | DF | Parameter Estimate | Error       | t Value | Pr > |t| |
|---------------|----|--------------------|-------------|---------|------|-----|
| Intercept     | 1  | 36.12160           | 64.57299    | 0.56    | 0.5871 |
| ln_listrik    | 1  | -5.93856           | 6.124644    | -0.97   | 0.3531 |
| ln_bbm        | 1  | -1.16275           | 1.649667    | -0.70   | 0.4956 |
| ln_upah       | 1  | 4.653973           | 8.620693    | 0.54    | 0.6001 |
| ln_hitechn    | 1  | 0.099864           | 2.237193    | 0.04    | 0.9652 |
Lampiran 5. Input File Tablo dalam Model CGE INDUSTRINDO

!-------------------------------------------------------------------!
!TABLO Input file for Model : CGE INDUSTRINDO   !
!-------------------------------------------------------------------!

! Excerpt 1 of TABLO input file: !
! Definitions of sets !

File MDATA # Data file #;
Set COM # Commodities #
(Pertanian,Pertambangan, IndOlahMkn, IndGilPadi,IndTepung,IndGula, IndMinLain,IndMinuman,IndRokok,IndPintal,IndTekstil,IndKayuRotan,IndKertas, IndPupPest,IndKimia,KilangMinyak,IndKrtPlstk,IndMinNonLgm,IndSemen,IndBesiBaja, IndLgmNBesi,IndBrngLogam,IndMesinAlat,IndAltAngkut,IndLain,JasaJasa);
Set SRC # Source of commodities # (dom,imp); ! s !
Set IND # Industries #
(Pertanian,Pertambangan, IndOlahMkn, IndGilPadi,IndTepung,IndGula, IndMinLain,IndMinuman,IndRokok,IndPintal,IndTekstil,IndKayuRotan,IndKertas, IndPupPest,IndKimia,KilangMinyak,IndKrtPlstk,IndMinNonLgm,IndSemen,IndBesiBaja, IndLgmNBesi,IndBrngLogam,IndMesinAlat,IndAltAngkut,IndLain,JasaJasa);
Set OCC # Occupation types # (unskil,skil); ! o !
Set MAR # Margin commodities # (JasaJasa);
Subset MAR is subset of COM;
Set NONMAR # Non-margin commodities # = COM - MAR; ! n !
Set AGRI # Agriculture sectors # (Pertanian) ;
Set AGRI_C # Agriculture sectors # (Pertanian) ;
Set MINO #Mining dan oil industry Sectros# (Pertambangan,KilangMinyak);
Set MINO_C #Commodity from Mining dan oil industry Sectros# (Pertambangan,KilangMinyak);
Set MANF #Manufacturing sectors exclude oil industry#
(IndOlahMkn, IndMinyLemak,IndGilPadi,IndTepung,IndGula, IndMknLain,IndMinuman, IndRokok, IndPintal,IndTekstil,IndKayuRotan,IndKertas, IndPupPest,IndKimia,IndKrtPlstk, IndMinNonLgm,IndSemen,IndBesiBaja, IndLgmNBesi,IndBrngLogam,IndMesinAlat, IndAltAngkut,IndLain);
Set MANF_C #Manufacturing commodity exclude oil industry#
(IndOlahMkn, IndMinyLemak,IndGilPadi,IndTepung,IndGula, IndMknLain,IndMinuman, IndRokok, IndPintal,IndTekstil,IndKayuRotan,IndKertas, IndPupPest,IndKimia,IndKrtPlstk, IndMinNonLgm,IndSemen,IndBesiBaja, IndLgmNBesi,IndBrngLogam,IndMesinAlat, IndAltAngkut,IndLain);
Set AGRIN #Manufacturing sectors from agro-based industry#
(IndOlahMkn, IndMinyLemak,IndGilPadi,IndTepung,IndGula, IndMknLain,IndMinuman,IndRokok,IndPintal,IndTekstil,IndKayuRotan,IndKertas);
Set AGRIN_C #Manufacturing commodity from agro-based industry# (IndOlahMkn, IndMinyLemak, IndGilPadi, IndTepung, IndGuja, IndMknLain, IndMinuman, IndRokok, IndPintal, IndTekstil, IndKayaRotan, IndKertas);

Set SERV #Services sectors# (JasaJasa);

Set EXOGINV # Govt. investments = exogenous # (KilangMinyak, JasaJasa);

Subset EXOGINV is Subset of IND;

Set ENDOGINV # 'endogenous' investment industries # = IND - EXOGINV;

SET HH #household types# (rural1-rural7, urban1-urban3);

Set N_AGRIFAC # Non-agricultural factors #(labcomp, fixcap, varcap);

Set FACNF # All factors except fertiliser # (skil, unskil, fixcap, varcap, land);

Set KAP # Types of capital #(fixcap, varcap);

Set AGFACNF # Agr. factors excluding fertiliser# (unskil, varcap, land);

Set AGIND # agriculture # (Pertanian);

Set FERTIL #fertilizer# (IndPupPest);

Subset AGFACNF is Subset of AGRIFAC;

AGFACNF is Subset of FACNF;

AGFACNF is Subset of COM;

KAP is Subset of N_AGRIFAC;

AGRI is Subset of IND;

MINO is Subset of IND;

MANF is Subset of IND;

SERV is Subset of IND;

AGRIN is Subset of IND;

AGRI_C is Subset of COM;

MINO_C is Subset of COM;

MANF_C is Subset of COM;

SERV_C is Subset of COM;

AGRIN_C is Subset of COM;

SET NAGR = IND - AGIND;

SET NONFERT = COM - FERTIL;

SET NAGRIN = IND - AGRIN;

SET NAGRIN_C = COM - AGRIN_C;

Excerpt 2 of TABLO input file: 

Variables relating to commodity flows !

Variable
Basic Demands for commodities (excluding margin demands) !
(all, c, COM)(all, s, SRC)(all, i, IND) x1(c, s, i) # Intermediate basic demands #;
(all, c, COM)(all, s, SRC)(all, i, IND) x2(c, s, i) # Investment basic demands #;
(all, c, COM)(all, s, SRC)(all, h, HH) x3(c, s, h) # Household basic demands #;
(all, c, COM) x4(c) # Export basic demands #;
(all, c, COM)(all, s, SRC) x5(c, s) # Government basic demands #;
(change) (all, c, COM)(all, s, SRC) delx6(c, s) # Inventories demands #;
(all, c, COM)(all, s, SRC) p0(c, s) # Basic prices by commodity and source #;

! Technical or Taste Change Variables affecting Basic Demands !
(all, c, COM)(all, s, SRC)(all, i, IND) a1(c, s, i) # Intermediate basic tech change #;
(all, c, COM)(all, s, SRC)(all, i, IND) a2(c, s, i) # Investment basic tech change #;
(all, c, COM)(all, s, SRC) a3(c, s) # Household basic taste change #;
(all, c, COM)(all, s, SRC) f5(c, s) # Government demand shift #;

! Margin Usage on Basic Flows !
(all, c, COM)(all, s, SRC)(all, i, IND)(all, m, MAR) x1mar(c, s, i, m) # Intermediate margin demands #;
(all, c, COM)(all, s, SRC)(all, i, IND)(all, m, MAR) x2mar(c, s, i, m) # Investment margin demands #;
(all, c, COM)(all, s, SRC)(all, m, MAR)(all, h, HH) x3mar(c, s, m, h) # Household margin demands #;
(all, c, COM)(all, m, MAR) x4mar(c, s, m) # Export margin demands #;
(all, c, COM)(all, s, SRC)(all, m, MAR) x5mar(c, s, m) # Government margin demands #;

! Technical Change in Margins Usage !
(all, c, COM)(all, s, SRC)(all, i, IND)(all, m, MAR) a1mar(c, s, i, m) # Intermediate margin tech change #;
(all, c, COM)(all, s, SRC)(all, i, IND)(all, m, MAR) a2mar(c, s, i, m) # Investment margin tech change #;
(all, c, COM)(all, s, SRC)(all, m, MAR)(all, h, HH) a3mar(c, s, m) # Household margin tech change #;
(all, c, COM)(all, m, MAR) a4mar(c, s, m) # Export margin tech change #;
(all, c, COM)(all, s, SRC)(all, m, MAR) a5mar(c, s, m) # Government margin tech change #;

! Powers of Commodity Taxes on Basic Flows !
(all, c, COM)(all, s, SRC)(all, i, IND) t1(c, s, i) # Power of tax on intermediate #;
(all, c, COM)(all, s, SRC)(all, i, IND) t2(c, s, i) # Power of tax on investment #;
(all, c, COM)(all, s, SRC)(all, h, HH) t3(c, s, h) # Power of tax on household #;
(all, c, COM) t4(c) # Power of tax on export #;
(all, c, COM)(all, s, SRC) t5(c, s) # Power of tax on government #;

! Purchaser’s Prices (including margins and taxes) !
(all, c, COM)(all, s, SRC)(all, i, IND) p1(c, s, i) # Purchaser’s price, intermediate #;
(all, c, COM)(all, s, SRC)(all, i, IND) p2(c, s, i) # Purchaser’s price, investment #;
(all, c, COM)(all, s, SRC)(all, h, HH) p3(c, s, h) # Purchaser’s price, household #;
(all, c, COM) p4(c) # Purchaser’s price, exports rupiah #;
(all, c, COM)(all, s, SRC) p5(c, s) # Purchaser’s price, government #;

! Excerpt 3 of TABLO input file: !

Variables for primary-factor flows, commodity supplies and import duties !

Variables relating to usage of labour, occupation o, in industry i !
(all, i, IND)(all, o, OCC) x1lab(i, o) # Employment by industry and occupation #;
(all, i, IND)(all, o, OCC) p1lab(i, o) # Wages by industry and occupation #;
(all, i, IND) a1lab_o(i) # Labor augmenting technical change #;
(all, i, IND)(all, o, OCC) f1lab(i, o) # Wage shift variable #;

Variables relating to usage of fixed capital in industry i!
(all, i, IND) x1cap(i) # Current capital stock #;
(all, i, IND) p1cap(i) # Rental price of capital #;
(all, i, IND) a1cap(i) # Capital augmenting technical change #!
Variables relating to usage of land:
(all.i,AGIND) x1lnd(i) # Use of land #;
(all.i,AGIND) p1lnd(i) # Rental price of land #;
(all.i,IND) a1lnd(i) # Land augmenting technical change #;

Variables relating to "Other Costs":
(all.i,IND) x1oct(i) # Demand for "other cost" tickets #;
(all.i,IND) p1oct(i) # Price of "other cost" tickets #;
(all.i,IND) a1oct(i) # "other cost" ticket augmenting technical change #;
(all.i,IND) f1oct(i) # Shift in price of "other cost" tickets #;

Variables relating to commodity supplies, import duties and stocks:
(c.COM)(all,i,IND) q1(c,i) # Output by commodity and industry #;
(c.COM) t0imp(c) # Power of tariff #;
(change) (c.COM)(all,c,COM)(all,s,SRC) fx6(c,s) # Shifter on rule for stocks #;

Excerpt 4 of TABLO input file:

Variables describing composite commodities:

Demands for import/domestic commodity composites:
(c.COM)(all,i,IND) x1_s(c,i) # Intermediate use of imp/dom composite #;
(c.COM)(all,i,IND) x2_s(c,i) # Investment use of imp/dom composite #;
(c.COM)(all,h,HH) x3_s(c,h) # Household use of imp/dom composite #;
(c.COM)(all,h,HH) x3lux(c,h) # Household - supernumerary demands #;
(c.COM)(all,h,HH) x3sub(c,h) # Household - subsistence demands #;

Effective Prices of import/domestic commodity composites:
(c.COM)(all,i,IND) p1_s(c,i) # Price, intermediate imp/dom composite #;
(c.COM)(all,i,IND) p2_s(c,i) # Price, investment imp/dom composite #;
(c.COM)(all,h,HH) p3_s(c,h) # Price, household imp/dom composite #;

Technical or Taste Change Variables for import/domestic composites:
(c.COM)(all,i,IND) a1_s(c,i) # Tech change, intermediate imp/dom composite #;
(c.COM)(all,i,IND) a2_s(c,i) # Tech change, investment imp/dom composite #;
(c.COM)(all,h,HH) a3_s(c,h) # Taste change, household imp/dom composite #;
(c.COM)(all,h,HH) a3lux(c,h) # Taste change, supernumerary demands #;
(c.COM)(all,h,HH) a3sub(c,h) # Taste change, subsistence demands #;

Excerpt 5 of TABLO input file:

Miscellaneous vector variables:
Variable

delB # %(%Balance of trade)/GDP #;

f1lab_io # Overall wage shifter #;

f1tax_csi # Uniform % change in powers of taxes on intermediate usage #;

f2tax_csi # Uniform % change in powers of taxes on investment #;

f3tax_s(c,h) #%change in powers of taxes on HH usage#;

f3tot # Ratio, consumption/income #;

f3tot_h(h) # Ratio, consumption/income by hh#;

f4ntrad # Upward demand shift, non-traditional export aggregate #;

f4trad # Right demand shift, non-traditional export aggregate #;

f4ntrad # Uniform % change in powers of taxes on nontradtnl exports #;

f4trad # Uniform % change in powers of taxes on tradtnl exports #;

f5cs # Uniform % change in powers of taxes on government usage #;

f5t # Overall shift term for government demands #;

f5t2 # Ratio between f5tot and x3tot #;

p0cif_c # Imports price index, C IF, rupiah #;

p0cif_c_ag # Imports price index, CIF, rupiah for agriculture commodity#;

p0cif_c_mo # Imports price index, CIF, rupiah for mining/oil commodity#;

p0cif_c_mn # Imports price index, CIF, rupiah for manufaecture commodity#;

p0cif_c_se # Imports price index, CIF, rupiah for service commodity#;

p0dexp # GDP price index, expenditure side #;

p0dexp_ag # GDP price index, expenditure side for agriculture sectors #;

p0dexp_mo # GDP price index, expenditure side for mining/oil sectors#;

p0dexp_mn # GDP price index, expenditure side for manufacturing sectors#;

p0dexp_se # GDP price index, expenditure side for service sectors#;

p0imp_c # Duty-paid imports price index, rupiah #;

p0realdev # Real devaluation #;

p0t # Terms of trade #;

p0cap_i # Average capital rental #;

p0lab_io # Average nominal wage #;

p0tot_i # Aggregate investment price index #;

p0tot_i_ag # Aggregate investment price index for agriculture commodity#;

p0tot_i_mo # Aggregate investment price index for mining/oil commodity#;

p0tot_i_mn # Aggregate investment price index for manufacturing commodity#;

p0tot_i_se # Aggregate investment price index for service commodity#;

p0tot # Consumer price index #;

p0tot_ag # Consumer price index for agriculture commodity#;

p0tot_mo # Consumer price index for mining/oil commodity#;

p0tot_mn # Consumer price index for manufacture commodity#;

p0tot_se # Consumer price index for service commodity#;

p0t # Exports price index #;

p0tot_ag # Exports price index for agriculture commodity#;
p4tot_mo # Exports price index for mining/oil commodity#;
p4tot_mn # Exports price index for manufacture commodity#;
p4tot_se # Exports price index for service commodity#;
p5tot # Government price index #;
p5tot_ag # Government price index for agriculture commodity#;
p5tot_mo # Government price index for mining/oil commodity#;
p5tot_mn # Government price index for manufacture commodity#;
p5tot_se # Government price index for service commodity#;
p6tot # Inventories price index #;
p6tot_ag # Inventories price index for agriculture commodity#;
p6tot_mo # Inventories price index for mining/oil commodity#;
p6tot_mn # Inventories price index for manufacture commodity#;
p6tot_se # Inventories price index for service commodity#;
phi # Exchange rate, rupiah/$world #;

((all, h, HH))q(h) # Number of households #;
realwage # Average real wage #;
((all, h, HH))utility(h) # Utility per household #;

cif_c # C.I.F. rupiah value of imports #;
cif_c_ag # C.I.F. rupiah value of imports for agriculture sectors #;
cif_c_mo # C.I.F. rupiah value of imports for mining sectors#;
cif_c_mn # C.I.F. rupiah value of imports for manufacture sectors#;
cif_c_se # C.I.F. rupiah value of imports for service sectors#;
dpexp # Nominal GDP from expenditure side #;
dpexp_ag # Nominal GDP from expenditure side for agriculture sectors#;
dpexp_mo # Nominal GDP from expenditure side for mining sectors#;
dpexp_mn # Nominal GDP from expenditure side for manufacture sectors#;
dpexp_se # Nominal GDP from expenditure side for service sectors#;
dpinc # Nominal GDP from income side #;
mp_c # Value of imports plus duty #;
apt_c # Aggregate tariff revenue #;
ax_csi # Aggregate revenue from all indirect taxes #;
cap_i # Aggregate payments to capital #;
lab_io # Aggregate payments to labour #;
ind_i # Aggregate payments to land #;
ct_i # Aggregate "other cost" ticket payments #;
ax_csi # Aggregate revenue from indirect taxes on intermediate #;
ax_csi # Aggregate revenue from indirect taxes on investment #;
tot_i # Aggregate nominal investment #;
tot_i_ag # Aggregate nominal investment for agriculture sectors#;
tot_i_mo # Aggregate nominal investment for mining/oil sectors#;
tot_i_mn # Aggregate nominal investment for manufacture sectors#;
tot_i_se # Aggregate nominal investment for service sectors#;

((all, h, HH))w3lux(h) # Total nominal supernumerary household expenditure #;
tax_cs # Aggregate revenue from indirect taxes on households #;

((all, h, HH))w3tot_hh(h) # Nominal total consumption, each household #;
((all, h, HH))w3tot_hh_ag(h) # Nom tot consumption, each HH f agriculture commodity#;
((all, h, HH))w3tot_hh_mo(h)# # Nom tot consumption, each HH f mining/oil commodity#;
((all, h, HH))w3tot_hh_mn(h)# # Nom tot consumption, each HH f manufacture commodity#;
((all, h, HH))w3tot_hh_se(h) # Nom tot consumption, each HH f service commodity#;

((all, h, HH))x3tot_hh(h) # Nominal total consumption, each HH #;
((all, h, HH))x3tot_hh_ag(h) # Nominal tot consumption, each HH f agriculture comm#;
((all, h, HH))x3tot_hh_mo(h)# # Nominal tot consumption, each HH f mining/oil comm #;
((all, h, HH))x3tot_hh_mn(h)# # Nominal tot consumption, each HH f manufacture comm #;
((all, h, HH))x3tot_hh_se(h) # Nominal tot consumption, each HH f service comm #;

((all, h, HH))p3tot_hh(h)# Nominal total consumption, each household #;
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>w3tot</td>
<td>Nominal total household consumption #;</td>
</tr>
<tr>
<td>w3tot_ag</td>
<td>Nominal total household consumption for agriculture commodity #;</td>
</tr>
<tr>
<td>w3tot_mo</td>
<td>Nominal total household consumption for mining/oil commodity #;</td>
</tr>
<tr>
<td>w3tot_mn</td>
<td>Nominal total household consumption for manufacture commodity #;</td>
</tr>
<tr>
<td>w3tot_se</td>
<td>Nominal total household consumption for service commodity #;</td>
</tr>
<tr>
<td>w4tax_c</td>
<td>Aggregate revenue from indirect taxes on export #;</td>
</tr>
<tr>
<td>w4tot</td>
<td>Rupiah border value of exports #;</td>
</tr>
<tr>
<td>w4tot_ag</td>
<td>Rupiah border value of exports for agriculture commodity #;</td>
</tr>
<tr>
<td>w4tot_mo</td>
<td>Rupiah border value of exports for mining/oil commodity #;</td>
</tr>
<tr>
<td>w4tot_mn</td>
<td>Rupiah border value of exports for manufacture commodity #;</td>
</tr>
<tr>
<td>w4tot_se</td>
<td>Rupiah border value of exports for service commodity #;</td>
</tr>
<tr>
<td>w5tax_cs</td>
<td>Aggregate revenue from indirect taxes on government #;</td>
</tr>
<tr>
<td>w5tot</td>
<td>Aggregate nominal value of government demands #;</td>
</tr>
<tr>
<td>w5tot_ag</td>
<td>Aggregate nominal value of government demands for agriculture commodity #;</td>
</tr>
<tr>
<td>w5tot_mo</td>
<td>Aggregate nominal value of government demands for mining/oil commodity #;</td>
</tr>
<tr>
<td>w5tot_mn</td>
<td>Aggregate nominal value of government demands for manufacture commodity #;</td>
</tr>
<tr>
<td>w5tot_se</td>
<td>Aggregate nominal value of government demands for service commodity #;</td>
</tr>
<tr>
<td>w6tot</td>
<td>Aggregate nominal value of inventories #;</td>
</tr>
<tr>
<td>w6tot_ag</td>
<td>Aggregate nominal value of inventories for agriculture commodity #;</td>
</tr>
<tr>
<td>w6tot_mo</td>
<td>Aggregate nominal value of inventories for mining/oil commodity #;</td>
</tr>
<tr>
<td>w6tot_mn</td>
<td>Aggregate nominal value of inventories for manufacture commodity #;</td>
</tr>
<tr>
<td>w6tot_se</td>
<td>Aggregate nominal value of inventories for service commodity #;</td>
</tr>
<tr>
<td>x0cif_c</td>
<td>Import volume index, C.I.F. weights #;</td>
</tr>
<tr>
<td>x0cif_c_ag</td>
<td>Import volume index, C.I.F. weights for agriculture sectors #;</td>
</tr>
<tr>
<td>x0cif_c_mo</td>
<td>Import volume index, C.I.F. weights for mining sectors #;</td>
</tr>
<tr>
<td>x0cif_c_mn</td>
<td>Import volume index, C.I.F. weights for manufacture sectors #;</td>
</tr>
<tr>
<td>x0cif_c_se</td>
<td>Import volume index, C.I.F. weights for service sectors #;</td>
</tr>
<tr>
<td>x0gdpexp</td>
<td>Real GDP from expenditure side #;</td>
</tr>
<tr>
<td>x0gdpexp_ag</td>
<td>Real GDP from expenditure side for agriculture sectors #;</td>
</tr>
<tr>
<td>x0gdpexp_mn</td>
<td>Real GDP from expenditure side for manufacture sectors #;</td>
</tr>
<tr>
<td>x0gdpexp_se</td>
<td>Real GDP from expenditure side for service sectors #;</td>
</tr>
<tr>
<td>x1cap_i</td>
<td>Aggregate capital stock, rental weights #;</td>
</tr>
<tr>
<td>x1prim_i</td>
<td>Aggregate output: value-added weights #;</td>
</tr>
<tr>
<td>x2tot_i</td>
<td>Aggregate real investment expenditure #;</td>
</tr>
<tr>
<td>x2tot_i_ag</td>
<td>Aggregate real investment expenditure for agriculture #;</td>
</tr>
<tr>
<td>x2tot_i_mo</td>
<td>Aggregate real investment expenditure for mining/oil #;</td>
</tr>
<tr>
<td>x2tot_i_mn</td>
<td>Aggregate real investment expenditure for manufacture #;</td>
</tr>
<tr>
<td>x2tot_i_se</td>
<td>Aggregate real investment expenditure for service #;</td>
</tr>
<tr>
<td>x3tot</td>
<td>Real household consumption #;</td>
</tr>
<tr>
<td>x3tot_ag</td>
<td>Real household consumption for agriculture commodity #;</td>
</tr>
<tr>
<td>x3tot_mo</td>
<td>Real household consumption for mining/oil commodity #;</td>
</tr>
<tr>
<td>x3tot_mn</td>
<td>Real household consumption for manufacture commodity #;</td>
</tr>
<tr>
<td>x3tot_se</td>
<td>Real household consumption for service commodity #;</td>
</tr>
<tr>
<td>x4tot</td>
<td>Export volume index #;</td>
</tr>
<tr>
<td>x4tot_ag</td>
<td>Export volume index for agriculture commodity #;</td>
</tr>
<tr>
<td>x4tot_mo</td>
<td>Export volume index for mining/oil commodity #;</td>
</tr>
<tr>
<td>x4tot_mn</td>
<td>Export volume index for manufacture commodity #;</td>
</tr>
<tr>
<td>x4tot_se</td>
<td>Export volume index for service commodity #;</td>
</tr>
<tr>
<td>x5tot</td>
<td>Aggregate real government demands #;</td>
</tr>
<tr>
<td>x5tot_ag</td>
<td>Aggregate real government demands for agriculture commodity #;</td>
</tr>
<tr>
<td>x5tot_mo</td>
<td>Aggregate real government demands for mining/oil commodity #;</td>
</tr>
</tbody>
</table>
x5tot_mn  # Aggregate real government demands for manufacture commodity#;
x5tot_se  # Aggregate real government demands for service commodity#;
x6tot   # Aggregate real inventories #;
x6tot_ag  # Aggregate real inventories for agriculture commodity#;
x6tot_mo  # Aggregate real inventories for mining/oil commodity#;
x6tot_mn  # Aggregate real inventories for manufacture commodity#;
x6tot_se  # Aggregate real inventories for service commodity#;
shrgdpexp_ag  # Share agri sector GDP from expenditure side #;
shrgdpexp_mo  # Share mining/oil sector GDP from expenditure side #;
shrgdpexp_mn  # Share manufacturing sector GDP from expenditure side #;
shrgdpexp_se  # Share services sector GDP from expenditure side #;
(Change) delFudge  # "Fudge Factor": set to Unity for dynamic simulation #;
(All,i,IND) f_accum(i)  # Capital Accumulation Shifter #;
(Change) delUnity  # dummy variable, always exogenously set to one #;

! Excerpt 7 of TABLO input file: !
! Data coefficients relating to basic commodity flows !

Coefficient

Basic Flows of Commodities!

(all,c,COM)(all,s,SRC)(all,i,IND) V1BAS(c,s,i)  # Intermediate basic flows #;
(all,c,COM)(all,s,SRC)(all,i,IND) V2BAS(c,s,i)  # Investment basic flows #;
(all,c,COM)(all,s,SRC)(all,h,HH) V3BAS(c,s,h)  # Household basic flows #;
(all,c,COM) V4BAS(c)  # Export basic flows #;
(all,c,COM)(all,s,SRC) V5BAS(c,s)  # Government basic flows #;
(all,c,COM)(all,s,SRC) V6BAS(c,s)  # Inventories basic flows #;

Read

V1BAS from file MDATA header "1BAS";
V2BAS from file MDATA header "2BAS";
V3BAS from file MDATA header "3BAS";
V4BAS from file MDATA header "4BAS";
V5BAS from file MDATA header "5BAS";
V6BAS from file MDATA header "6BAS";

Update

(all,c,COM)(all,s,SRC)(all,i,IND) V1BAS(c,s,i) = p0(c,s)*x1(c,s,i);
(all,c,COM)(all,s,SRC)(all,i,IND) V2BAS(c,s,i) = p0(c,s)*x2(c,s,i);
(all,c,COM)(all,s,SRC)(all,h,HH) V3BAS(c,s,h) = p0(c,s)*x3(c,s,h);
(all,c,COM) V4BAS(c) = pe(c)*x4(c);
(all,c,COM)(all,s,SRC) V5BAS(c,s) = p0(c,s)*x5(c,s);

Coefficient

Basic Flows of Commodities!

(all,c,COM)(all,s,SRC)(all,i,IND) V1BAS(c,s,i)  # Intermediate basic flows #;
(all,c,COM)(all,s,SRC)(all,i,IND) V2BAS(c,s,i)  # Investment basic flows #;
(all,c,COM)(all,s,SRC)(all,h,HH) V3BAS(c,s,h)  # Household basic flows #;
(all,c,COM) V4BAS(c)  # Export basic flows #;
(all,c,COM)(all,s,SRC) V5BAS(c,s)  # Government basic flows #;
(all,c,COM)(all,s,SRC) V6BAS(c,s)  # Inventories basic flows #;

Read

V1MAR from file MDATA header "1MAR";
V2MAR from file MDATA header "2MAR";
V3MAR from file MDATA header "3MAR";
V4MAR from file MDATA header "4MAR";
V5MAR from file MDATA header "5MAR";

Update
(all,c,COM)(all,s,SRC)(all,i,IND)(all,m,MAR) \ V1MAR(c,s,i,m) = p0dom(m)*x1mar(c,s,i,m);
(all,c,COM)(all,i,IND)(all,m,MAR) \ V2MAR(c,s,i,m) = p0dom(m)*x2mar(c,s,i,m);
(all,c,COM)(all,s,SRC)(all,m,MAR)(all,h,HH) \ V3MAR(c,s,m,h) = p0dom(m)*x3mar(c,s,m,h);
(all,c,COM)(all,m,MAR) \ V4MAR(c,m) = p0dom(m)*x4mar(c,m);
(all,c,COM)(all,s,SRC) \ V5MAR(c,s,m) = p0dom(m)*x5mar(c,s,m);

! Excerpt 8 of TABLO input file: !
! Data coefficients relating to commodity taxes!

Coefficient ! Taxes on Basic Flows!
(all,c,COM)(all,s,SRC)(all,i,IND) \ V1TAX(c,s,i) # Taxes on intermediate #;
(all,c,COM)(all,s,SRC)(all,i,IND) \ V2TAX(c,s,i) # Taxes on investment #;
(all,c,COM) \ V3TAX(c,s,m) # Taxes on households #;
(all,c,COM) \ V4TAX(c) # Taxes on export #;
(all,c,COM)(all,s,SRC) \ V5TAX(c,s) # Taxes on government #;

Read

TAX from file MDATA header "ITAX";
TAX from file MDATA header "2TAX";
TAX from file MDATA header "3TAX";
TAX from file MDATA header "4TAX";
TAX from file MDATA header "5TAX";

Update (change) \ (all,c,COM)(all,s,SRC)(all,i,IND)
\ V1TAX(c,s,i) = V1TAX(c,s,i)*[x1(c,s,i) + p0(c,s)]/[100 + [V1BAS(c,s,i)+V1TAX(c,s,i)]]*
t1(c,s,i)/100;

Update (change) \ (all,c,COM)(all,s,SRC)(all,i,IND)
\ V2TAX(c,s,i) = V2TAX(c,s,i)*[x2(c,s,i) + p0(c,s)]/[100 + [V2BAS(c,s,i)+V2TAX(c,s,i)]]*
t2(c,s,i)/100;

Update (change) \ (all,c,COM)(all,s,SRC)(all,h,HH)
\ V3TAX(c,s,m,h) = V3TAX(c,s,m,h)*[x3(c,s,m,h) + p0(c,s,m,h)]/[100 + [V3BAS(c,s,m,h)+V3TAX(c,s,m,h)]]*
t3(c,s,m,h)/100;

Update (change) \ (all,c,COM)
\ V4TAX(c) = V4TAX(c)*[x4(c) + pe(c)]/[100 + [V4BAS(c)+V4TAX(c)]]*t4(c)/100;

Update (change) \ (all,c,COM)(all,s,SRC)
\ V5TAX(c,s) = V5TAX(c,s)*[x5(c,s) + p0(c,s)]/[100 + [V5BAS(c,s)+V5TAX(c,s)]]*t5(c,s)/100;

! Excerpt 9 of TABLO input file: !
! Data coefficients relating to primary-factor flows!

Coefficient ! Primary Factor and Other Industry costs!
(all,k,KAP)(all,i,NAGR) \ V1CAPN(k,i) # Capital rentals by mobility #;
(all,i,AGIND) \ V1CAPA (i) # Capital rentals, agric. #;
(all,i,IND) \ V1CAP(i) # Capital rentals #;
(all,i,IND)(all,o,OCC) \ V1LAB(i,o) # Wage bill matrix #;
(all,i,IND) \ V1LND(i) # Land rentals #;
(all,i,IND) \ V1OCT(i) # Other cost tickets #;

Read

CAPN from file MDATA header "1CAP";
CAPA from file MDATA header "1CAG";
LAB from file MDATA header "1LAB";
LND from file MDATA header "1LND";
OCT from file MDATA header "1OCT";

Update (change) \ (all,i,IND)(all,o,OCC) \ V1LAB(i,o) = p1lab(i,o)*x1lab(i,o);
(all,i,AGIND) \ V1LND(i) = p1ind(i)*x1ind(i);
(all,i,IND) \ V1OCT(i) = p1oct(i)*x1oct(i);

! Excerpt 10 of TABLO input file: !
! Data coefficients relating to commodity outputs and import duties!
Coefficient \((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) MAKE\((c,i)\) \# Multiproduction matrix \#;
Read MAKE from file MDATA header “MAKE”; 
Update \((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) MAKE\((c,i)\)= p0com\((c)\)*q1\((c,i)\);

Coefficient \((\text{all}, c, \text{COM}) \) V0TAR\((c)\) \# Tariff revenue \#; 
Read V0TAR from file MDATA header “0TAR”; 
Coefficient \((\text{all}, c, \text{COM}) \) V0IMP\((c)\) \# Total basic-value imports of good \(c\) \#; 
\(\text{V0IMP}\((c)\)\) is needed to update V0TAR: it is declared now and defined later!

Update \((\text{all}, c, \text{COM}) \) V0TAR\((c)\)= V0TAR\((c)\)*\([x0imp\((c))+p0cif\((c)+phi]/100 + \text{V0IMP}\((c)*t0imp\((c)/100;\)

Excerpt 11 of TABLO input file: !

Aggregates and shares of flows at purchasers’ prices!

Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) V1PUR\((c,s,i)\) \# Intermediate purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) V2PUR\((c,s,i)\) \# Investment purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, h, \text{HH}) \) V3PUR\((c,s,h)\) \# Households purch. value \#; 
Coefficient \((\text{all}, c, \text{COM}) \) V4PUR\((c)\) \# Export purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC}) \) V5PUR\((c,s)\) \# Government purch. value \#;

Formula 
\((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) V1PUR\((c,s,i)\) = V1BAS\((c,s,i)\) + V1TAX\((c,s,i)\) + \(\sum\{m,MAR, \text{V1MAR}\((c,s,i,m)\}\); 
\((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) V2PUR\((c,s,i)\) = V2BAS\((c,s,i)\) + V2TAX\((c,s,i)\) + \(\sum\{m,MAR, \text{V2MAR}\((c,s,i,m)\}\); 
\((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, h, \text{HH}) \) V3PUR\((c,s,h)\) = V3BAS\((c,s,h)\) + V3TAX\((c,s,h)\) + \(\sum\{m,MAR, \text{V3MAR}\((c,s,m,h)\}\); 
\((\text{all}, c, \text{COM}) \) V4PUR\((c)\) = V4BAS\((c)\) + V4TAX\((c)\) + \(\sum\{m,MAR, \text{V4MAR}\((c,m)\}\); 
\((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC}) \) V5PUR\((c,s)\) = V5BAS\((c,s)\) + V5TAX\((c,s)\) + \(\sum\{m,MAR, \text{V5MAR}\((c,s,m)\}\);

Coefficient \((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) V1PUR_S\((c,i)\) \# Dom+imp intermediate purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) V2PUR_S\((c,i)\) \# Dom+imp investment purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, h, \text{HH}) \) V3PUR_S\((c,h)\) \# Dom+imp households purch. value \#; 
Coefficient \((\text{all}, c, \text{COM}) \) V4PUR\((c)\) \# Export purch. value \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC}) \) V5PUR\((c,s)\) \# Government purch. value \#;

Formula 
\((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) V1PUR_S\((c,i)\) = \(\sum\{s,SRC, \text{V1PUR}\((c,s,i)\}\); 
\((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) V2PUR_S\((c,i)\) = \(\sum\{s,SRC, \text{V2PUR}\((c,s,i)\}\); 
\((\text{all}, c, \text{COM})(\text{all}, h, \text{HH}) \) V3PUR_S\((c,h)\) = \(\sum\{s,SRC, \text{V3PUR}\((c,s,h)\}\);

Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) S1\((c,s,i)\) \# Intermediate source shares \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \) S2\((c,s,i)\) \# source shares \#; 
Coefficient \((\text{all}, c, \text{COM})(\text{all}, h, \text{HH}) \) S3\((c,s,h)\) \# Households source shares \#; 

Source Shares in Flows at Purchaser’s prices!

Formula 
\((\text{all}, c, \text{COM})(\text{all}, i, \text{IND}) \) S1\((c,s,i)\) = V1PUR\(_S\((c,i)\)/ V1PUR\(_S\((c,i)\); 
\((\text{all}, c, \text{COM})(\text{all}, h, \text{HH}) \) S3\((c,s,h)\) = V3PUR\(_S\((c,h)/V3PUR\(_S\((c,h)\);
! Cost and usage aggregates !

Coefficient ! Industry-Specific Cost Totals !

(all.f, AGRIFAC)(all.i, AGIND) V1FAC(f, i) # Total factor input to ind. i, agri. #;
(all.f, N_AGRIFAC)(all.i, NAGR) V1FACO(f, i) # Total factor input non-agri. #;
(all.i, IND) V1LAB_O(i) # Total labour bill in industry i #;
(all.i, IND) V1PRIM(i) # Total factor input to industry i #;
(all.i, IND) V1TOT(i) # Total cost of industry i #;
(all.o, OCC) V1LAB_I(o) # Total wages, occupation o #;

Formula

V1LAB_O(i) = sum{o, OCC, V1LAB(i, o)};
V1PRIM(i) = sum{f, AGRIFAC, V1FAC(f, i)} + sum{f, N_AGRIFAC, V1FACO(f, i)};
V1TOT(i) = V1PRIM(i) + V1OCT(i) + sum{c, NONFERT, V1PUR_S(c, i)};

Coefficient ! Total usage for margins purposes #;

(all.m, MAR) MARSALES(m) = sum{c, COM, V4MAR(c, m) + sum{s, SRC, sum{h, HH, V3MAR(c, s, m, h)} + V5MAR(c, s, m) + sum{i, IND, V1MAR(c, i, s, m) + V2MAR(c, i, s, m)}}};

Coefficient ! Total sales to local market #;

(all.c, COM) DOMSALES(c) = sum{i, IND, V1BAS(c, "dom", i) + V2BAS(c, "dom", i)} + sum{h, HH, V3BAS(c, "dom", h)} + V5BAS(c, "dom") + V6BAS(c, "dom") + MARSALES(c);

Coefficient ! Total sales of domestic commodities #;

(all.c, COM) SALES(c) = DOMSALES(c) + V4BAS(c);

Coefficient ! Total basic-value imports of good c #;

(all.c, COM) V0IMP(c) = sum{i, IND, V1BAS(c, "imp", i) + V2BAS(c, "imp", i)} + sum{h, HH, V3BAS(c, "imp", h)} + V5BAS(c, "imp") + V6BAS(c, "imp") + MARSALES(c);

Coefficient ! Total ex-duty imports of good c #;

(all.c, COM) V0CIF(c) = V0IMP(c) - V0TAR(c);

Excerpt 13 of TABLO input file: !

Income-Side Components of GDP !

Coefficient ! Total indirect tax revenues !

TAX_CSI # Total intermediate tax revenue #;
TAX_CSIAG # Total intermediate tax revenue from agriculture sectors #;
TAX_CSIMO # Total intermediate tax revenue from mining/oil sectors #;
TAX_CSIMN # Total intermediate tax revenue from manufacture sectors #;
Formula

\[
V_{\text{TAX	extunderscore CSI}} = \text{sum}[c, \text{COM}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CSIAG}} = \text{sum}[c, \text{AGRI	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CSIMO}} = \text{sum}[c, \text{MINO	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CSIMN}} = \text{sum}[c, \text{MANF	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CSISE}} = \text{sum}[c, \text{SERV	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CIAG}} = \text{sum}[c, \text{AGRI	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore SEMO}} = \text{sum}[c, \text{MINO	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore SIMN}} = \text{sum}[c, \text{MANF	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]

\[
V_{\text{TAX	extunderscore CSISE}} = \text{sum}[c, \text{SERV	extunderscore C}, \text{sum}[s, \text{SRC}, \text{sum}[i, \text{IND}, V_{\text{TAX}}(c,s,i)]]]
\]
\[ V_{4TAX_C} = \sum_{c \in COM} V_{4TAX(c)} \]
\[ V_{4TAX_CAG} = \sum_{c \in AGRI_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{4TAX_CMN} = \sum_{c \in MANF_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{4TAX_CSE} = \sum_{c \in SERV_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{5TAX_CS} = \sum_{c \in COM} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{5TAX_CSAG} = \sum_{c \in AGRI_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{5TAX_CSMO} = \sum_{c \in MINO_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{5TAX_CSMN} = \sum_{c \in MANF_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]
\[ V_{5TAX_CSSE} = \sum_{c \in SERV_C} \sum_{s \in SRC} V_{5TAX(c,s)} \]

\[ V_{0TAX_C} = \sum_{c \in COM} V_{0TAR(c)} \]
\[ V_{0TAX_CAG} = \sum_{c \in AGRI_C} V_{0TAR(c)} \]
\[ V_{0TAX_CMO} = \sum_{c \in MINO_C} V_{0TAR(c)} \]
\[ V_{0TAX_CMN} = \sum_{c \in MANF_C} V_{0TAR(c)} \]
\[ V_{0TAX_CSE} = \sum_{c \in SERV_C} V_{0TAR(c)} \]

\[ V1TAX_CSI = V1TAX_CSIAG + V1TAX_CSIMO + V1TAX_CSMN + V1TAX_CSISE \]
\[ V2TAX_CSI = V2TAX_CSIAG + V2TAX_CSIMO + V2TAX_CSMN + V2TAX_CSISE \]
\[ V3TAX_CSI = V3TAX_CSIAG + V3TAX_CSIMO + V3TAX_CSMN + V3TAX_CSISE \]
\[ V4TAX_CSI = V4TAX_CAG + V4TAX_CMO + V4TAX_CMN + V4TAX_CSE \]
\[ V5TAX_CSI = V5TAX_CSAG + V5TAX_CSMO + V5TAX_CSMN + V5TAX_CSSE \]

\[ V_{0GDPINC} = V_{0TAX_CSI} + \sum_{c \in COM} V_{0TAR(c)} \]
Formula

\[ V_{1\text{CAP}_I} = \sum_{i, \text{IND}} V_{1\text{CAP}(i)}; \]
\[ V_{1\text{CAP}_I\text{ AG}} = \sum_{i, \text{AGRI}} V_{1\text{CAP}(i)}; \]
\[ V_{1\text{CAP}_I\text{ MO}} = \sum_{i, \text{MINO}} V_{1\text{CAP}(i)}; \]
\[ V_{1\text{CAP}_I\text{ MN}} = \sum_{i, \text{MANF}} V_{1\text{CAP}(i)}; \]
\[ V_{1\text{CAP}_I\text{ SE}} = \sum_{i, \text{SERV}} V_{1\text{CAP}(i)}; \]
\[ V_{1\text{CAP}_I\text{ SEC}} = V_{1\text{CAP}_I\text{ AG}} + V_{1\text{CAP}_I\text{ MO}} + V_{1\text{CAP}_I\text{ MN}} + V_{1\text{CAP}_I\text{ SE}}; \]
\[ V_{1\text{LAB}_O} = \sum_{i, \text{IND}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{LAB}_O\text{ AG}} = \sum_{i, \text{AGRI}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{LAB}_O\text{ MO}} = \sum_{i, \text{MINO}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{LAB}_O\text{ MN}} = \sum_{i, \text{MANF}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{LAB}_O\text{ SE}} = \sum_{i, \text{SERV}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{LAB}_O\text{ SEC}} = V_{1\text{LAB}_O\text{ AG}} + V_{1\text{LAB}_O\text{ MO}} + V_{1\text{LAB}_O\text{ MN}} + V_{1\text{LAB}_O\text{ SE}}; \]
\[ V_{1\text{LND}} = \sum_{i, \text{IND}} V_{1\text{LND}(i)}; \]
\[ V_{1\text{LND}_I\text{ AG}} = \sum_{i, \text{AGRI}} V_{1\text{LND}(i)}; \]
\[ V_{1\text{LND}_I\text{ MO}} = \sum_{i, \text{MINO}} V_{1\text{LND}(i)}; \]
\[ V_{1\text{LND}_I\text{ MN}} = \sum_{i, \text{MANF}} V_{1\text{LND}(i)}; \]
\[ V_{1\text{LND}_I\text{ SE}} = \sum_{i, \text{SERV}} V_{1\text{LND}(i)}; \]
\[ V_{1\text{LND}_I\text{ SEC}} = V_{1\text{LND}_I\text{ AG}} + V_{1\text{LND}_I\text{ MO}} + V_{1\text{LND}_I\text{ MN}} + V_{1\text{LND}_I\text{ SE}}; \]
\[ V_{1\text{OCT}_I} = \sum_{i, \text{IND}} V_{1\text{OCT}(i)}; \]
\[ V_{1\text{OCT}_I\text{ AG}} = \sum_{i, \text{AGRI}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{OCT}_I\text{ MO}} = \sum_{i, \text{MINO}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{OCT}_I\text{ MN}} = \sum_{i, \text{MANF}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{OCT}_I\text{ SE}} = \sum_{i, \text{SERV}} V_{1\text{LAB}_O(i)}; \]
\[ V_{1\text{OCT}_I\text{ SEC}} = V_{1\text{OCT}_I\text{ AG}} + V_{1\text{OCT}_I\text{ MO}} + V_{1\text{OCT}_I\text{ MN}} + V_{1\text{OCT}_I\text{ SE}}; \]
\[ V_{1\text{PRIM}_I} = V_{1\text{LAB}_O} + V_{1\text{CAP}_I} + V_{1\text{LND}_I}; \]
\[ V_{1\text{PRIM}_I\text{ SEC}} = V_{1\text{LAB}_O\text{ SEC}} + V_{1\text{CAP}_I\text{ SEC}} + V_{1\text{LND}_I\text{ SEC}}; \]
\[ V_{0\text{GDPINC}} = V_{1\text{PRIM}_I} + V_{1\text{OCT}_I} + V_{0\text{TAX}_{\text{CSI}}}; \]

! Excerpt 14 of TABLO input file: !
! Expenditure-side components of GDP !

Coefficient ! Expenditure Aggregates at Purchaser's Prices !
\[ V_{0\text{CIF}_C} \] # Total rupiah import costs, excluding tariffs #;
\[ V_{0\text{CIF}_\text{AGRI}} \] # Total rupiah import costs, exc.tariffs for agriculture sectors #;
\[ V_{0\text{CIF}_\text{MINO}} \] # Total rupiah import costs, exc.tariffs for mining& oil sectors #;
\[ V_{0\text{CIF}_\text{MANF}} \] # Total rupiah import costs, exc.tariffs for manufacturing sectors#;
\[ V_{0\text{CIF}_\text{SERV}} \] # Total rupiah import costs, excl.tariffs for services sectors #;
\[ V_{0\text{IMP}_C} \] # Total basic-value imports (includes tariffs) #;
\[ V_{2\text{TOT}_I} \] # Total investment usage #;
\[ V_{2\text{TOT}_\text{AGRI}} \] # Total investment for agriculture sectors #;
\[ V_{2\text{TOT}_\text{MINO}} \] # Total investment for mining and oil sectors #;
\[ V_{2\text{TOT}_\text{MANF}} \] # Total investment for manufacturing sectors #;
\[ V_{2\text{TOT}_\text{SERV}} \] # Total investment for services sectors #;
\[ V_{h,h}\text{HH}V_{3\text{TOT}_\text{HH}(h)} \] # Total purchases by each households #;
\[ V_{h,h}\text{HH}V_{3\text{TOT}_\text{HH}_\text{AG}(h)} \] # Total purchases by each HH for agriculture comm#;
\[ V_{h,h}\text{HH}V_{3\text{TOT}_\text{HH}_\text{MO}(h)} \] # Total purchases by each HH for mining/oil comm #;
\[ V_{h,h}\text{HH}V_{3\text{TOT}_\text{HH}_\text{MN}(h)} \] # Total purchases by each HH for manufacture comm #;
\[ V_{h,h}\text{HH}V_{3\text{TOT}_\text{HH}_\text{SE}(h)} \] # Total purchases by each HH for service comm #;
(all,c,COM)V3TOT_C(c) #Total purchases by each commodity#

V3TOT # Total purchases by households #
V3TOT_AGRI # Total purchase for agriculture commodity #
V3TOT_MINO # Total purchase for mining and oil commodity #
V3TOT_MANF # Total purchase for manufacturing commodity #
V3TOT_SERV # Total purchase for services commodity #

V3TOT_HH(h) = sum{(c,COM), V3PUR_S(c,h)}
V3TOT = sum{(h,HH), V3TOT_HH(h)}

V4TOT # Total export earnings #
V4TOT_AGRI # Total export for agriculture commodity #
V4TOT_MINO # Total investment for mining and oil commodity #
V4TOT_MANF # Total investment for manufacturing commodity #
V4TOT_SERV # Total investment for services commodity #

V5TOT # Total value of government demands #
V5TOT_AGRI # Total value of government demands for agr. commodity #
V5TOT_MINO # Total value of government demands for mining and oil commodity #
V5TOT_MANF # Total value of government demands for manufacturing commodity #
V5TOT_SERV # Total value of government demands for services commodity #

V6TOT # Total value of inventories #
V6TOT_AGRI # Total value of inventories for agriculture commodity #
V6TOT_MINO # Total value of inventories for mining and oil commodity #
V6TOT_MANF # Total value of inventories for manufacturing commodity #
V6TOT_SERV # Total value of inventories for services commodity #

V0GDPEXP # Nominal GDP from expenditure side #
V0GDPEXP_SEC # Nominal GDP from sectoral expenditure side #
V0GDPEXP_AG # Nominal GDP from expenditure side for agriculture sectors#
V0GDPEXP_MO # Nominal GDP from expenditure side for mining/oil sectors#
V0GDPEXP_MN # Nominal GDP from expenditure side for manufacture sectors#
V0GDPEXP_SE # Nominal GDP from expenditure side for service sectors#

SHGDPEXP_AG # Value of Share agri sector GDP from expenditure side #
SHGDPEXP_MO # Value of Share mining/oil sector GDP from expenditure side #
SHGDPEXP_MN # Value of Share manufacturing sector GDP from expenditure side #
SHGDPEXP_SE # Value of Share services sector GDP from expenditure side #

Formula

V0CIF_C = sum{(c,COM), V0CIF(c)}
CIF_AGRI = sum{(c,AGRI_C), V0CIF(c)}
CIF_MINO = sum{(c,MINO_C), V0CIF(c)}
CIF_MANF = sum{(c,MANF_C), V0CIF(c)}
CIF_SERV = sum{(c,SERV_C), V0CIF(c)}

IMP_C = sum{(c,COM), V0IMP(c)}

TOT_I = sum{(i,IND), V2TOT(i)}
TOT_AGRI = sum{(i,AGRI), V2TOT(i)}
TOT_MINO = sum{(i,MINO), V2TOT(i)}
TOT_MANF = sum{(i,MANF), V2TOT(i)}
TOT_SERV = sum{(i,SERV), V2TOT(i)}

V3TOT_HH(h) = sum{(c,COM), V3PUR_S(c,h)}
V3TOT = sum{(h,HH), V3TOT_HH(h)}
\[ \text{(all,h,HH)} V3\text{TOT\_HH\_AG}(h) = \sum\{c,\text{AGRI\_C}, V3\text{PUR\_S}(c,h) \}; \]
\[ V3\text{TOT\_AGRI} = \sum\{h,\text{HH}, V3\text{TOT\_HH\_AG}(h)\}; \]
\[ \text{(all,h,HH)} V3\text{TOT\_HH\_MO}(h) = \sum\{c,\text{MINO\_C}, V3\text{PUR\_S}(c,h) \}; \]
\[ V3\text{TOT\_MINO} = \sum\{h,\text{HH}, V3\text{TOT\_HH\_MO}(h)\}; \]
\[ \text{(all,h,HH)} V3\text{TOT\_HH\_MN}(h) = \sum\{c,\text{MANF\_C}, V3\text{PUR\_S}(c,h) \}; \]
\[ V3\text{TOT\_MANF} = \sum\{h,\text{HH}, V3\text{TOT\_HH\_MN}(h)\}; \]
\[ \text{(all,h,HH)} V3\text{TOT\_HH\_SE}(h) = \sum\{c,\text{SERV\_C}, V3\text{PUR\_S}(c,h) \}; \]
\[ V3\text{TOT\_SERV} = \sum\{h,\text{HH}, V3\text{TOT\_HH\_SE}(h)\}; \]
\[ \text{(all,c,COM)} V3\text{TOT\_C}(c) = \sum\{h,\text{HH}, V3\text{PUR\_S}(c,h) \}; \]
\[ V3\text{TOT\_AGRI} = \sum\{c,\text{AGRI\_C}, V3\text{TOT\_C}(c) \}; \]
\[ V3\text{TOT\_MINO} = \sum\{c,\text{MINO\_C}, V3\text{TOT\_C}(c) \}; \]
\[ V3\text{TOT\_MANF} = \sum\{c,\text{MANF\_C}, V3\text{TOT\_C}(c) \}; \]
\[ V3\text{TOT\_SERV} = \sum\{c,\text{SERV\_C}, V3\text{TOT\_C}(c) \}; \]
\[ \text{TOT} = \sum\{c,\text{COM}, V4\text{PUR}(c) \}; \]
\[ \text{TOT\_AGRI} = \sum\{c,\text{AGRI\_C}, V4\text{PUR}(c) \}; \]
\[ \text{TOT\_MINO} = \sum\{c,\text{MINO\_C}, V4\text{PUR}(c) \}; \]
\[ \text{TOT\_MANF} = \sum\{c,\text{MANF\_C}, V4\text{PUR}(c) \}; \]
\[ \text{TOT\_SERV} = \sum\{c,\text{SERV\_C}, V4\text{PUR}(c) \}; \]
\[ \text{TOT} = \sum\{c,\text{COM}, \sum\{s,\text{SRC}, V5\text{PUR}(c,s) \}\}; \]
\[ \text{TOT\_AGRI} = \sum\{c,\text{AGRI\_C}, \sum\{s,\text{SRC}, V5\text{PUR}(c,s) \}\}; \]
\[ \text{TOT\_MINO} = \sum\{c,\text{MINO\_C}, \sum\{s,\text{SRC}, V5\text{PUR}(c,s) \}\}; \]
\[ \text{TOT\_MANF} = \sum\{c,\text{MANF\_C}, \sum\{s,\text{SRC}, V5\text{PUR}(c,s) \}\}; \]
\[ \text{TOT\_SERV} = \sum\{c,\text{SERV\_C}, \sum\{s,\text{SRC}, V5\text{PUR}(c,s) \}\}; \]
\[ \text{V0GDPEXP\_AG} = V3\text{TOT\_AGRI} + V2\text{TOT\_AGRI} + V5\text{TOT\_AGRI} + V6\text{TOT\_AGRI} + V4\text{TOT\_AGRI} - V0\text{CIF\_AGRI}; \]
\[ \text{V0GDPEXP\_MO} = V3\text{TOT\_MINO} + V2\text{TOT\_MINO} + V5\text{TOT\_MINO} + V6\text{TOT\_MINO} + V4\text{TOT\_MINO} - V0\text{CIF\_MINO}; \]
\[ \text{V0GDPEXP\_MN} = V3\text{TOT\_MANF} + V2\text{TOT\_MANF} + V5\text{TOT\_MANF} + V6\text{TOT\_MANF} + V4\text{TOT\_MANF} - V0\text{CIF\_MANF}; \]
\[ \text{V0GDPEXP\_SE} = V3\text{TOT\_SERV} + V2\text{TOT\_SERV} + V5\text{TOT\_SERV} + V6\text{TOT\_SERV} + V4\text{TOT\_SERV} - V0\text{CIF\_SERV}; \]
\[ \text{V0GDPEXP} = V2\text{TOT\_I} + V3\text{TOT} + V4\text{TOT} + V5\text{TOT} + V6\text{TOT} - V0\text{CIF\_C}; \]
\[ \text{V0GDPEXP\_SEC} = \frac{\text{V0GDPEXP\_AG} + \text{V0GDPEXP\_MO} + \text{V0GDPEXP\_MN} + \text{V0GDPEXP\_SE}}{\text{V0GDPEXP\_SEC} * 100}; \]
\[ \text{TINY} \# \text{Small number to prevent singular matrix} \#; \]
\[ \text{Formula TINY} = 0.000000000001; \]

**Excerpt 15 of TABLO input file:**

**Occupational composition of labour demand!**
Problem: for each industry \( i \), minimize labour cost

\[
\sum_{o, OCC} P1LAB(i,o) \times X1LAB(i,o)
\]

such that \( X1LAB_O(i) = CES( All, o, OCC: X1LAB(i,o) ) \)

Coefficient (parameter) \((all, i, IND)\) SIGMA1LAB(i)

# CES substitution between skill types #

Read SIGMA1LAB from file MDATA header "SLAB"

Equation \( E_x1lab \) # Demand for labour by industry and skill group #

\[
(\text{all,} i, \text{IND})(\text{all,} o, \text{OCC})x1lab(i,o) = x1lab_o(i) - \text{SIGMA1LAB}(i) \times [p1lab(i,o) - p1lab_o(i)]
\]

Equation \( E_p1lab_o \) # Price to each industry of labour composite #

\[
(\text{all,} i, \text{IND})[
NY+V1LAB_O(i)]^p1lab_o(i) = \sum_{o, OCC} V1LAB(i,o)^p1lab(i,o)
\]

Excerpt 16 of TABLO input file: !

Excerpt 16A: Primary factor proportions !

Translog unit cost function. This is outlined in appendix G of WAYANG document downloaded from CIES site.

It is used to preserve a matrix of factor demand elasticities without the restrictions of CRESH or CDE. See p. 133-141 of the Black Book.

Variable

\( (\text{all,} f, \text{AGRIFAC})(\text{all,} i, \text{AGIND}) x1fac(f,i) \) # Primary factor demands, agriculture #;

\( (\text{all,} f, \text{AGRIFAC})(\text{all,} i, \text{AGIND}) p1fac(f,i) \) # Primary factor prices, agriculture #;

\( (\text{all,} f, \text{AGRIFAC})(\text{all,} i, \text{AGIND}) a1fac(f,i) \) # Primary factor tech. change, agri. #;

\( (\text{all,} f, \text{N_AGRIFAC})(\text{all,} i, \text{NAGR}) a1faco(f,i) \) # Prim. factor tech. change, other #;

\( (\text{all,} f, \text{N_AGRIFAC})(\text{all,} i, \text{NAGR}) x1faco(f,i) \) # Primary factor demands, other #;

\( (\text{all,} f, \text{N_AGRIFAC})(\text{all,} i, \text{NAGR}) p1faco(f,i) \) # Primary factor price, other #;

Coefficient

\( (\text{all,} f, \text{AGRIFAC})(\text{all,} i, \text{AGIND}) \) V1FACSH(f,i) #Agri. ind. factor share#;

\( (\text{all,} f, \text{AGRIFAC})(\text{all,} v, \text{AGRIFAC})(\text{all,} i, \text{AGIND}) \) SHR_FAC(f,v,i)#Agri. industry modified factor share (for translog)#;

\( (\text{all,} f, \text{N_AGRIFAC})(\text{all,} i, \text{NAGR}) \) V1FACSH_N(f,i) #Non-ag. ind. factor share#;

\( (\text{all,} f, \text{N_AGRIFAC})(\text{all,} v, \text{N_AGRIFAC})(\text{all,} i, \text{NAGR}) \) SHR_FAC_N(f,v,i)#Non-ag. ind. modified factor share (for translog)#;

Coefficient (parameter)\((all, f, \text{AGRIFAC})(all, i, \text{AGIND})\)

\( BETA_A(f,v,i) \);

Coefficient (parameter)\((all, f, \text{N_AGRIFAC})(all, v, \text{N_AGRIFAC})(all, i, \text{NAGR})\)

\( BETA_N(f,v,i) \);

Read

\( \text{BETA}_A \) from file MDATA header "ALPH";

\( \text{BETA}_N \) from file MDATA header "ALP2";

Zerodivide Default 0.33;

Formula !calculate the modified cost shares, appendix G, equation G.17!

\( x1fac(f,i) = V1FACSH(f,i) / \sum_{g, AGRIFAC, V1FAC(g,i)} \)

\( a1fac(f,i) = V1FACSH_N(f,i) / \sum_{g, N_AGRIFAC, V1FACO(g,i)} \)

\( p1fac(f,i) = V1FACSH_N(f,i) / \sum_{g, N_AGRIFAC, V1FACO(g,i)} \)

Zerodivide Off;
Coefficient (all,i,IND)SIGMA1PRIM(i);
Coefficient (parameter)(all,i,IND)TRNL(i);
(all,i,IND)CESFORM(i);
Read TRNL from file MDATA header "TRNL";
Formula (all,i,IND)SIGMA1PRIM(i)=0.5; !CES alternative!
(all,i,IND)CESFORM(i) = 1 - TRNL(i); !if TRNL =0, CES functional form!

Equation E_x1fac # Primary factor demands, agriculture # ! equation G.16!
(all,f,AGRIFAC)(all,i,AGIND)x1fac(f,i) - a1fac(f,i)=

x1prim(i) - TRNL(i)*[p1fac(f,i) - Sum{v,AGRIFAC,SHR_FAC(f,v,i)*p1fac(v,i)}] - TRNL(i)*[a1fac(f,i) - Sum{v,AGRIFAC,SHR_FAC(f,v,i)*a1fac(v,i)}] - CESFORM(i)*SIGMA1PRIM(i)*[p1fac(f,i) + a1fac(f,i) -p1prim(i)];

Equation E_x1faco # Primary factor demands, non-agriculture # ! equation G.16!
(all,f,N_AGRIFAC)(all,i,NAGR)x1faco(f,i) - a1faco(f,i)=

x1prim(i) - TRNL(i)*[p1faco(f,i) - Sum{v,N_AGRIFAC,SHR_FAC_N(f,v,i)*p1faco(v,i)}] - TRNL(i)*[a1faco(f,i) - Sum{v,N_AGRIFAC,SHR_FAC_N(f,v,i)*a1faco(v,i)}] - CESFORM(i)*SIGMA1PRIM(i)*[p1faco(f,i) + a1faco(f,i) -p1prim(i)];

Excerpt 16B: household supply and prices of primary factors!
WAYANG2 factor market modifications!

Variable (all,i,AGIND)(all,h,HH) x1lndi_hh(i,h) # Household supply of land, agri.##

p1cap_ag # National variable capital rental, agri. #;
p1cap_nagv # National variable capital rental, non-ag. #;
w1cap_v(h) # Returns to variable capital by household #;
w1cap_f(h) # Returns to fixed capital by household #;
x1cap_vah(h) # variable capital by household, agri. #;
x1cap_vnh(h) # variable capital by household, non-agri. #;
x1cap_ag # variable capital, agriculture #;
x1cap_nag # variable capital, non-ag. #;
x1cap_f(i) # fixed capital, non-ag. #;

Coefficient (all,i,AGIND)(all,h,HH) LANDS(i,h) # Household land rentals by industry##;
Read LANDS from file mdata Header "LAND";
Update (all,i,AGIND)(all,h,HH) LANDS(i,h)= p1fac("land",i)*x1lndi_hh(i,h);
(all,i,NAGR) V1CAPA(i) = p1fac("varcap",i)*x1fac("varcap",i);

Coefficient (all,h,HH)(all,f,occ) HINC(h,f) # household factor income #;
Read HINC from file MDATA header "HINC";
Equation E_p1lab_i # Supply of labour #
(all,o,OCC)sum{h,HH,HINC(h,o)}* x1lab_i(o) =

sum[h,HH,HINC(h,o)]*[x1lab_i_h(o,h)+f1lab_i_x(o)];

Equation E_p1lab # Flexible setting of money wages #
(all,i,IND)(all,o,OCC) p1lab(i,o)= p1lab_i(o)*p3tot + f1lab_io;!

Equation E_p1lnd # supply of land #
(all,i,AGIND)V1LND(i)*x1lnd(i) = Sum{h,HH, LANDS(i,h)*x1lndi_hh(i,h)};

Equation E_p1capA # Price of variable + fixed capital, non-agri. #
Equation $E_{p1primA}$ # Effective price term for factor demand equations, ag. #
(all,i,AGIND) $V1PRIM(i)^*p1prim(i) = \sum_k f.AGRIFAC.V1FAC(f,i)^*\{p1fac(f,i) + a1fac(f,i)\};$

Equation $E_{p1primN}$ # Effective price term for factor demand equations, N_AG #
(all,i,NAGR) $V1PRIM(i)^*p1prim(i) = \sum_f f.N_AGRIFAC.V1FACO(f,i)^*\{p1faco(f,i) + a1faco(f,i)\};$

!Excerpt 16C: Matching factor $p$ and $x$ to $E_{x1fac}$ and $E_{x1faco}$!
This block deleted if using CES form!

Equation $E_{p1facLB}$ # Industry demands for effective labour #
(all,i,AGIND) $p1lab_o(i)=p1fac("unskil",i);$

Equation $E_{x1lab_oA}$ # Effective labour input, agriculture #
(all,i,AGIND) $x1lab_o(i)= x1fac("unskil",i);$

Equation $E_{p1facF}$ # Price of fertiliser in agri.#
(all,i,AGIND) $p1fac("fert",i) = p1_s ("IndPupPest",i);$;

Equation $E_{p1capB}$ # Price of variable capital, agri. #
(all,i,AGIND)p1cap(i) = p1fac("varcap",i);

Equation $E_{x1lnd}$ # Industry demands for land #
(all,i,AGIND) x1lnd(i) = x1fac("land",i);

Equation $E_{p1facL}$ # Price of land in agri. #
(all,i,AGIND)p1lnd(i) = p1fac("land",i);

Equation $E_{p1facK}$ # Equalise price of capital in agri. #
(all,i,AGIND)p1fac("varcap",i)=p1cap_ag ;

Equation $E_{x1lab_oB}$ # Industry demands for effective labour #
(all,i,NAGR) x1lab_o(i)= x1faco("labcomp",i);

Equation $E_{p1facoLC}$ # Price to each industry of labour composite #
(all,i,NAGR)p1faco("labcomp",i) = p1lab_o(i) ;

Equation $E_{p1facoKN}$ # Price of variable capital in non-ag #
(all,i,NAGR)p1faco("varcap",i)=p1cap_nagv;

Equation $E_{p1facoFC}$ # supply of fixed capital by household #
(all,i,NAGR)x1cap_f(i) = x1faco("fixcap",i);

Excerpt 16D: household supply coefficients!
coefficient
h,HH)(all,i,NAGR)FIXEDK(h,i)#Household supplies of fixed capital#;

h,HH) MMA(h) # Household supplies of agri variable capital#;

h,HH) MMN(h) # Household supplies of non-agri variable capital#;

FIXEDK from file mdata Header "CAPS";
MMA from file mdata Header "CAPA";
MMN from file mdata Header "CAPN";

Update

\[ HINC(h,o) = x1lab_i_h(o,h) * p1lab_i(o) * f1lab_j_x(o); \]
\[ FIXEDK(h,i) = p1faco("fixcap",i) * x1cap_f_hh(i,h); \]
\[ MMA(h) = p1cap_ag * x1cap_vah(h); \]
\[ MMN(h) = p1cap_nagv * x1cap_vnh(h); \]

Excerpt 16E: Market clearing of household factors!

Equation E_x1cap_f # supply of fixed capital by household #

\[ \sum{i,NAGR} \{ h,HH,FIXEDK(h,i) \} * x1cap_f(i) = \sum{i,NAGR} \{ h,HH,FIXEDK(h,i) * x1cap_f_hh(i,h) \}; \]

Equation E_p1cap_ag # market clearing, variable capital, agriculture #

\[ \sum{i,AGIND} \{ V1CAP(i) \} * x1cap_ag = \sum{i,AGIND} \{ V1CAP(i) * x1cap(i) \}; \]

Equation E_x1cap_ag # household supply of variable capital, ag. #

\[ \sum{i,HH,MMA(h)} \{ x1cap_ag \} = \sum{i,HH,MMA(h) * x1cap_vah(h) \}; \]

Equation E_p1cap_nagv # variable capital, non-ag. #

\[ \sum{i,HH,MMN(h)} \{ x1cap_nag \} = \sum{i,HH,MMN(h) * x1cap_vnh(h) \}; \]

Equation E_x1cap_nag # market clearing for variable capital, non-ag. #

\[ \sum{i,NAGR,\{ V1CAPN(\"varcap\",i) \} * x1cap_nag = \sum{i,NAGR,\{ V1CAPN(\"varcap\",i) * x1faco(\"varcap\",i) \}; \]

Equation E_x1capA # agri. industry capital, variable #

\[ \sum{i,AGIND} x1cap(i) = x1faco("varcap",i); \]

Equation E_x1capN # non-agri. industry capital, fixed + variable #

\[ \sum{i,NAGR} \{ V1CAP(i) * x1cap(i) \} = \sum{k,KAP} \{ V1CAPN(k,i) * x1faco(k,i) \}; \]

!Summing returns to household factors!

Equation E_w1cap_v # Returns to variable capital by household #

\[ (all,h,HH) \{ MMA(h) + MMN(h) \} * w1cap_v(h) = MMA(h) * [p1cap_ag + x1cap_vah(h)] + MMN(h) * [p1cap_nagv + x1cap_vnh(h)]; \]

Equation E_w1cap_f # Returns to fixed capital by household #

\[ (all,h,HH) \{ i,NAGR,\{ FIXEDK(h,i) \} * w1cap_f(h) = \sum{i,NAGR,\{ FIXEDK(h,i) * [p1faco("fixcap",i) + x1cap_f_hh(i,h)] \}; \]

Equation E_x1 # Source-specific commodity demands #

\[ x1_S(c,i) = CES(All,s,SRC: x1(c,s,i) / A1(c,s,i)); \]

Coefficient (parameter)(all.c,COM) SIGMA1(c) # Armington elasticities: intermediate #;

Read SIGMA1 from file MDATA header "IARM";

Equation E_x1l # Source-specific commodity demands #

\[ (all.c,COM)(all.s,SRC)(all.i,IND) \]
\[ \text{Equation } E_{p1_s} \# \text{Effective price of commodity composite } \#
\{(c,\text{COM})(i,\text{IND}) \}
\]
\[
p_{1_s}(c,i) = \text{sum}\{s,\text{SRC}, s_{1(c,s,i)}*\{p_1(c,s,i) + a_{1(c,s,i)}\}\};
\]

Excerpt 18 of TABLO input file:

Top nest of industry input demands:

\[
\text{Excerpt 19A of TABLO input file: ! }
\]

Output mix of commodities!

Coefficient (parameter)(i,\text{IND}) SIGMA1OUT(i)
# CET transformation elasticities #;
Read SIGMA1OUT from file MDATA header "SCET";

Equation E_{q1} # Supplies of commodities by industries #
\{(c,\text{COM})(i,\text{IND}) \}
\[
q_1(c,i) = x_1t(i) + \text{SIGMA1OUT(i)*}\{p_0(c) - p_1(i)\};
\]

Coefficient (i,\text{IND}) MAKE_C(i) # All production by industry i #;
(all,c,COM) MAKE_I(c) # Total production of commodities #;

Formula
(all,i,IND) MAKE_C(i) = sum{c,COM, MAKE(c,i) };
(all,c,COM) MAKE_I(c) = sum{i,IND, MAKE(c,i) };

Equation E_x1tot # Average price received by industries #
(all,i,IND) MAKE_C(i)*p1tot(i) = sum{c,COM, MAKE(c,i)*p0com(c) };

Equation E_x0com # Total output of commodities #
(all,c,COM) MAKE_I(c)*x0com(c) = sum{i,IND, MAKE(c,i)*q1(c,i) };

Coefficient
(all,c,COM) EXPSHR(c) # share going to exports #;
(all,c,COM) TAU(c) # 1/elast. of transformation, exportable/locally used #;
Zerodivide Default 0.5;

Formula
(all,c,COM) EXPSHR(c) = V4BAS(c)/SALES(c);
(all,c,COM) TAU(c) = 0.0; if zero, p0dom = pe, and CET is nullified !
Zerodivide Off;

Equation E_x0dom # supply of commodities to export market #
(all,c,COM) TAU(c)*[x0dom(c) - x4(c)] = p0dom(c) - pe(c);

Equation E_x0com1 # supply of commodities to domestic market #
(all,c,COM) x0com(c) = [1.0-EXPSHR(c)]*x0dom(c) + EXPSPHR(c)*x4(c);

Equation E_p0com # Zero pure profits in transformation #
(all,c,COM) p0com(c) = [1.0-EXPSHR(c)]*p0dom(c) + EXPSPHR(c)*pe(c);

Map between vector and matrix forms of basic price variables !

Equation E_p0dom # Basic price of domestic goods = p0(c,"dom") #
(all,c,COM) p0dom(c) = p0(c,"dom");

Equation E_p0imp # Basic price of imported goods = p0(c,"imp") #
(all,c,COM) p0imp(c) = p0(c,"imp");

Excerpt 1B of TABLO input file: !

Investment demands !
X2_S(c,i) = CES( All,s,SRC: X2(c,s,i)/A2(c,s,i) ) !

Coefficient (parameter)(all,c,COM) SIGMA2(c)
# Armington elasticities: investment #;
Read SIGMA2 from file MDATA header "2ARM";

Equation E_x2 # Source-specific commodity demands #
(all,c,COM)(all,s,SRC)(all,i,IND)
G(c,s,i)-a2(c,s,i) - x2_s(c,i) = - SIGMA2(c)*[p2(c,s,i)+a2(c,s,i) - p2_s(c,i)];
Equation E_p2_s # Effective price of commodity composite #
(all,c,COM)(all,i,IND) p2_s(c,i) = sum{all,SRC, S2(c,s,i)*[p2(c,s,i)+a2(c,s,i)]};

! Investment top nest !
! $ X2TOT(i) = MIN( All,c,COM: X2_S(c,i)/[A2_S(c,s,i)*A2TOT(i)] ) !$

Equation E_x2_s # Demands for commodity composites #
(all,c,COM)(all,i,IND) x2_s(c,i) - [a2_s(c,i) + a2tot(i)] = x2tot(i);

Equation E_p2tot # Zero pure profits in investment #
(all,i,IND) V2TOT(i)*(p2tot(i) - a2tot(i)) = sum{all,c,COM, V2PUR_S(c,i) *[p2_s(c,i)+a2_s(c,i)]};

! Excerpt 21 of TABLO input file: !
! import/domestic composition of household demands !

Coefficient (parameter)(all,c,COM) SIGMA3(c) # Armington elasticities: households #;
Read SIGMA3 from file MDATA header "3ARM";

Equation E_x3 # Source-specific commodity demands #
(all,c,COM)(all,s,SRC)(all,h,HH) x3(c,s,h)-a3(c,s) = x3_s(c,h) - SIGMA3(c)*[p3(c,s,h)+a3(c,s) - p3_s(c,h)];

Equation E_p3_s # Effective price of commodity composite #
(all,c,COM)(all,h,HH) p3_s(c,h) = sum{all,SRC, S3(c,s,h)*[p3(c,s,h)+a3(c,s)]};

! Excerpt 22 of TABLO input file: !
! Data and formulae for coefficients used in household demand equations !

Coefficient (all,h,HH)FRISCH(h) # Frisch LES 'parameter'= - (total/luxury) #;
Read FRISCH from file MDATA header "P021";
Update (change) (all,h,HH)FRISCH(h) = FRISCH(h)*[w3tot_hh(h) - w3lux(h)]/100.0;

Coefficient (all,c,COM)(all,h,HH)
B3LUX(c,h) # Ratio, (supernumerary expenditure/total expenditure), by commodity #;

Formula (all,c,COM)(all,h,HH) S3_S(c,h) = V3PUR_S(c,h)/V3TOT_HH(h);

Coefficient (all,c,COM)(all,h,HH)S3_S(c,h) # Household average budget shares #;
Zerodivide Default 0.5;

Coefficient (all,c,COM)(all,h,HH)S3_S(c,h) # Household average budget shares #;
Zerodivide off;
Zerodivide Default 0.5;

Formula (all,c,COM)(all,h,HH) B3LUX(c,h) = -EPS(c,h)/FRISCH(h);

Zerodivide off;

Coefficient(all,c,COM)(all,h,HH)S3LUX(c,h) # Marginal household budget shares #;

Formula (all,c,COM)(all,h,HH)S3LUX(c,h) = EPS(c,h)*S3_S(c,h);

! Excerpt 23 of TABLO input file: !

! Commodity composition of household demand !

Equation E_x3sub # Subsistence demand for composite commodities #
(all,c,COM)(all,h,HH) x3sub(c,h) = q(h) + a3sub(c,h);

Equation E_x3lux # Luxury demand for composite commodities #
(all,c,COM)(all,h,HH) x3lux(c,h) + p3_s(c,h) = w3lux(h) + a3lux(c,h);

Equation E_x3_s # Total household demand for composite commodities #
(all,c,COM)(all,h,HH) x3_s(c,h) = B3LUX(c,h)*x3lux(c,h) + [1-B3LUX(c,h)]*x3sub(c,h);

Equation E_utility # Change in utility disregarding taste change terms #
(all,h,HH)utility(h) + q(h) = sum{c,COM, S3LUX(c,h)*x3lux(c,h) }

Equation E_a3lux # Default setting for luxury taste shifter #
(all,c,COM)(all,h,HH)a3lux(c,h) = a3sub(c,h) - sum{k,COM,S3LUX(k,h)*a3sub(k,h)};

Equation E_a3sub # Default setting for subsistence taste shifter #
(all,c,COM)(all,h,HH)a3sub(c,h) = a3_s(c,h) - sum{k,COM, S3_S(k,h)*a3_s(k,h) };

! Excerpt 24 of TABLO input file: !

! Export and government demands !

Coefficient (parameter)(all,c,COM) EXP_ELAST(c)
# Export demand elasticities: typical value -20.0 #;

Read EXP_ELAST from file MDATA header “P018”;

Equation E_x4A # Traditional export demand functions #
(all,c,COM) x4(c) - f4q(c) = EXP_ELAST(c)*[p4(c) - phi - f4p(c)];

Equation E_x5 # Government demands #
(all,c,COM)(all,s,SRC) x5(c,s) = f5(c,s) + f5tot;

Equation E_f5tot # Overall government demands shift #
 f5tot = x3tot + f5tot2;

! Excerpt 25 of TABLO input file: !

Margin demands !

Equation E_x1mar # Margins to producers #
(all,c,COM)(all,s,SRC)(all,i,IND)(all,m,MAR)
\[ x_{1\text{mar}}(c,s,i,m) = x_1(c,s,i) + a_{1\text{mar}}(c,s,i,m); \]

**Equation E_x2mar**  
# Margins to capital creators #
\[(c, \text{COM})(s, \text{SRC})(i, \text{IND})(m, \text{MAR}) \]  
\[x_{2\text{mar}}(c,s,i,m) = x_2(c,s,i) + a_{2\text{mar}}(c,s,i,m); \]

**Equation E_x3mar**  
# Margins to households #
\[(c, \text{COM})(s, \text{SRC})(m, \text{MAR})(h, \text{HH}) \]  
\[x_{3\text{mar}}(c,s,m,h) = x_3(c,s,h) + a_{3\text{mar}}(c,s,m); \]

**Equation E_x4mar**  
# Margins to exports #
\[(c, \text{COM})(m, \text{MAR}) \]  
\[x_{4\text{mar}}(c,m) = x_4(c) + a_{4\text{mar}}(c,m); \]

**Equation E_x5mar**  
# Margins to government users #
\[(c, \text{COM})(s, \text{SRC})(m, \text{MAR}) \]  
\[x_{5\text{mar}}(c,s,m) = x_5(c,s) + a_{5\text{mar}}(c,s,m); \]

"Excerpt 26 of TABLO input file:"
"The price system!"

**Equation E_p1**  
# Purchasers prices - producers #
\[(c, \text{COM})(s, \text{SRC})(i, \text{IND}) \]  
\[V_1\text{PUR}(c,s,i) + \text{TINY} \]
\[p_1(c,s,i) = \]
\[V_1\text{BAS}(c,s,i) + V_1\text{TAX}(c,s,i) \]
\[\times \]
\[p_0(c,s) + t_1(c,s,i) \]
\[+ \sum_{m, \text{MAR}, V_1\text{MAR}(c,s,i,m)} \]
\[p_0\text{dom}(m) + a_{1\text{mar}}(c,s,i,m) \];

**Equation E_p2**  
# Purchasers prices - capital creators #
\[(c, \text{COM})(s, \text{SRC})(i, \text{IND}) \]  
\[V_2\text{PUR}(c,s,i) + \text{TINY} \]
\[p_2(c,s,i) = \]
\[V_2\text{BAS}(c,s,i) + V_2\text{TAX}(c,s,i) \]
\[\times \]
\[p_0(c,s) + t_2(c,s,i) \]
\[+ \sum_{m, \text{MAR}, V_2\text{MAR}(c,s,i,m)} \]
\[p_0\text{dom}(m) + a_{2\text{mar}}(c,s,i,m) \];

**Equation E_p3**  
# Purchasers prices - households #
\[(c, \text{COM})(s, \text{SRC})(h, \text{HH}) \]  
\[V_3\text{PUR}(c,s,h) + \text{TINY} \]
\[p_3(c,s,h) = \]
\[V_3\text{BAS}(c,s,h) + V_3\text{TAX}(c,s,h) \]
\[\times \]
\[p_0(c,s) + t_3(c,s,h) \]
\[+ \sum_{m, \text{MAR}, V_3\text{MAR}(c,s,m,h)} \]
\[p_0\text{dom}(m) + a_{3\text{mar}}(c,s,m) \];

**Equation E_p4**  
# Zero pure profits in exporting #
\[(c, \text{COM}) \]  
\[V_4\text{PUR}(c) + \text{TINY} \]
\[p_4(c) = \]
\[V_4\text{BAS}(c) + V_4\text{TAX}(c) \]
\[\times \]
\[p_0(c) + t_4(c) + a_{4\text{mar}}(c, m) \]
\[+ \sum_{m, \text{MAR}, V_4\text{MAR}(c,m)} \]
\[p_0\text{dom}(m) + a_{4\text{mar}}(c,m) \];

! note that we refer to export taxes, not subsidies!

**Equation E_p5**  
# Zero pure profits in distribution of government #
\[(c, \text{COM})(s, \text{SRC}) \]  
\[V_5\text{PUR}(c,s) + \text{TINY} \]
\[p_5(c,s) = \]
\[V_5\text{BAS}(c,s) + V_5\text{TAX}(c,s) \]
\[\times \]
\[p_0(c,s) + \]
\[\sum_{m, \text{MAR}, V_5\text{MAR}(c,s,m)} \]
\[p_0\text{dom}(m) + a_{5\text{mar}}(c,s,m) \];

**Equation E_p0A**  
# Zero pure profits in importing #
\[(c, \text{COM}) \]  
\[p_0(c, \text{"imp"}) = p_0\text{cif}(c) + \phi + t_0\text{imp}(c); \]

"Excerpt 27 of TABLO input file:"
"Market clearing equations!"

**Equation E_p0B**  
# Demand equals supply for non margin commodities #
\[(n, \text{NONMAR}) \]
\[\text{DOMSALES}(n) \times \text{xdom}(n) = \]
\[\sum_{i, \text{IND}} \text{V1\text{BAS}(n,"dom",i)} \times \text{x1(n,"dom",i)} + \text{V2\text{BAS}(n,"dom",i)} \times \text{x2(n,"dom",i)} \]
\[\text{sum}\{h, HH, V3BAS(n, "dom", h) \times x3(n, "dom", h)\} + V5BAS(n, "dom") \times x5(n, "dom") \text{ ! note exports omitted !} + 100 \times \text{LEVP0(n, "dom")} \times \text{delx6(n, "dom")};\]

Equation \text{E}_p0C \# Demand equals supply for margin commodities \#

\[
(\text{all}, m, \text{MAR}) \quad \text{DOMSALES(m)} \times x0dom(m) = \text{! basic part first !} \\
\text{sum}\{i, \text{IND}, V1BAS(m, "dom", i) \times x1(m, "dom", i)\} + V2BAS(m, "dom", i) \times x2(m, "dom", i) \}
\text{sum}\{h, HH, V3BAS(m, "dom", h) \times x3(m, "dom", h)\} + V5BAS(m, "dom") \times x5(m, "dom") \text{ ! note exports omitted !} + 100 \times \text{LEVP0(m, "dom")} \times \text{delx6(m, "dom")} \text{ ! now margin part !} \\
\text{sum}\{c, \text{COM}, V4MAR(c, m) \times x4mar(c, m) \text{ ! note nesting of sum parentheses !} \}
\text{sum}\{s, \text{SRC}, \text{sum}\{h, HH, V3MAR(c, s, m, h) \times x3mar(c, s, m, h)\} \}
\text{V5MAR(c, s, m) \times x5mar(c, s, m) \}
\text{sum}\{i, \text{IND}, V1MAR(c, s, i, m) \times x1mar(c, s, i, m) \}
\text{sum}\{h, HH, V2MAR(c, s, i, m) \times x2mar(c, s, i, m) \}
\}];

Equation \text{E}_x0imp \# Import volumes \#

\[
(\text{all}, c, \text{COM}) \quad [\text{TINY} + V0IMP(c)] \times x0imp(c) = \\
\text{sum}\{i, \text{IND}, V1BAS(c, "imp", i) \times x1(c, "imp", i)\} + V2BAS(c, "imp", i) \times x2(c, "imp", i) \}
\text{sum}\{h, HH, V3BAS(c, "imp", h) \times x3(c, "imp", h)\} + V5BAS(c, "imp") \times x5(c, "imp") + 100 \times \text{LEVP0(c, "imp")} \times \text{delx6(c, "imp")};
\]

Equation \text{E}_x1lab_i \# Demand equals supply for labour of each skill \#

\[
(\text{all}, o, \text{OCC}) \quad V1LAB_I(o) \times x1lab_i(o) = \text{sum}\{i, \text{IND}, V1LAB(i, o) \times x1lab(i, o) \}
\]

\text{Excerpt 28 of TABLO input file: !} 
\text{! Tax rate equations !} 

Equation \text{E}_t1 \# Power of tax on sales to intermediate \#

\[
(\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \quad t1(c, s, i) = f0tax_s(c) + f1tax_csi;
\]

Equation \text{E}_t2 \# Power of tax on sales to investment \#

\[
(\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, i, \text{IND}) \quad t2(c, s, i) = f0tax_s(c) + f2tax_csi;
\]

Equation \text{E}_t3 \# Power of tax on sales to households \#

\[
(\text{all}, c, \text{COM})(\text{all}, s, \text{SRC})(\text{all}, h, \text{HH}) \quad t3(c, s, h) = f0tax_s(c) + f3tax_s(c, h);
\]

Equation \text{E}_t4A \# Power of tax on sales to traditional exports \#

\[
(\text{all}, c, \text{COM}) \quad t4(c) = f0tax_s(c) + f4tax_trad;
\]

Equation \text{E}_t5 \# Power of tax on sales to government \#

\[
(\text{all}, c, \text{COM})(\text{all}, s, \text{SRC}) \quad t5(c, s) = f0tax_s(c) + f5tax_cs;
\]

\text{Excerpt 29 of TABLO input file: !} 
\text{! Indirect tax revenue !} 

Equation \text{E}_w1tax_csi \# Revenue from indirect taxes on flows to intermediate \#

\[
\text{TINY} + \text{V1TAX_CSI} \times w1tax_csi = \text{sum}\{c, \text{COM}, \text{sum}\{s, \text{SRC}, \text{sum}\{i, \text{IND}, \text{V1TAX(c, s, i) \times [p0(c, s)+x1(c, s, i)]} + \{\text{V1TAX(c, s, i)+V1BAS(c, s, i) \times t1(c, s, i) \}\}}
\]
$E_{\text{w2tax_csi}}$ # Revenue from indirect taxes on flows to investment #

$$[\text{TINY} + V2\text{TAX\_CSI}] \times w2\text{tax\_csi} = \sum[c,\text{COM}, \sum[s,\text{SRC}, \sum[i,\text{IND}, \text{V2TAX}(c,s,i) \times (p0(c,s) + x2(c,s,i)) + V2\text{BAS}(c,s,i)] \times t2(c,s,i)]];$$

$E_{\text{w3tax_cs}}$ # Revenue from indirect taxes on flows to households #

$$[\text{TINY} + V3\text{TAX\_CS}] \times w3\text{tax\_cs} = \sum[c,\text{COM}, \sum[s,\text{SRC}, \sum[h,\text{HH}, \text{V3TAX}(c,s,h) \times (p0(c,s) + x3(c,s,h)) + V3\text{BAS}(c,s,h)] \times t3(c,s,h)];$$

$E_{\text{w4tax_c}}$ # Revenue from indirect taxes on exports #

$$[\text{TINY} + V4\text{TAX\_C}] \times w4\text{tax\_c} = \sum[c,\text{COM}, \sum[c,\text{COM}, \sum[s,\text{SRC}, \sum[i,\text{IND}, \text{V4TAX}(c) \times (\text{pe}(c) + x4(c)) + V4\text{BAS}(c)] \times t4(c)];$$

$E_{\text{w5tax_cs}}$ # Revenue from indirect taxes on flows to government #

$$[\text{TINY} + V5\text{TAX\_CS}] \times w5\text{tax\_cs} = \sum[c,\text{COM}, \sum[s,\text{SRC}, \sum[h,\text{HH}, \text{V5TAX}(c,s) \times (p0(c,s) + x5(c,s)) + V5\text{BAS}(c,s)] \times t5(c,s)];$$

$E_{\text{w0tar_c}}$ # Tariff revenue #

$$[\text{TINY} + V0\text{TAR\_C}] \times w0\text{tar\_c} = \sum[c,\text{COM}, \sum[c,\text{COM}, \sum[s,\text{SRC}, \sum[i,\text{IND}, \text{V0TAR}(c) \times (\text{pf0cif}(c) + \phi + x0\text{imp}(c)) + V0\text{IMP}(c)] \times t0\text{imp}(c)];$$

! Excerpt 30 of TABLO input file: !

Factor incomes and GDP

Equation

$E_{\text{w1lnd_i}}$ # Aggregate payments to land #

$$V1\text{LND\_I} \times w1\text{lnd\_i} = \sum[i,\text{AGIND}, V1\text{LND}(i) \times (x1\text{lnd}(i) + p1\text{lnd}(i))];$$

$E_{\text{w1lab_io}}$ # Aggregate payments to labour #

$$V1\text{LAB\_IO} \times w1\text{lab\_io} = \sum[i,\text{IND}, \sum[o,\text{OCC}, V1\text{LAB}(i,o) \times (x1\text{lab}(i,o) + p1\text{lab}(i,o))]);$$

$E_{\text{w1cap_i}}$ # Aggregate payments to capital #

$$V1\text{CAP\_I} \times w1\text{cap\_i} = \sum[i,\text{IND}, V1\text{CAP}(i) \times (x1\text{cap}(i) + p1\text{cap}(i))];$$

$E_{\text{w1oct_i}}$ # Aggregate other cost ticket payments #

$$V1\text{OCT\_I} \times w1\text{oct\_i} = \sum[i,\text{IND}, V1\text{OCT}(i) \times (x1\text{oct}(i) + p1\text{oct}(i))];$$

$E_{\text{w0tax_csi}}$ # Aggregate value of indirect taxes #

$$V0\text{TAX\_CSI} \times w0\text{tax\_csi} = V1\text{TAX\_CSI} \times w1\text{tax\_csi} + V2\text{TAX\_CSI} \times w2\text{tax\_csi} + V3\text{TAX\_CS} \times w3\text{tax\_cs} + V4\text{TAX\_C} \times w4\text{tax\_c} + V5\text{TAX\_CS} \times w5\text{tax\_cs} + V0\text{TAR\_C} \times w0\text{tar\_c};$$

$E_{\text{w0gdpinc}}$ # Aggregate nominal GDP from income side #

$$V0\text{GDPINC} \times w0\text{gdpinc} = V1\text{LND\_I} \times w1\text{lnd\_i} + V1\text{CAP\_I} \times w1\text{cap\_i} + V1\text{LAB\_IO} \times w1\text{lab\_io} + V1\text{OCT\_I} \times w1\text{oct\_i} + V0\text{TAX\_CSI} \times w0\text{tax\_csi};$$

! Excerpt 31 of TABLO input file: !

GDP expenditure aggregates

Equation

$E_{\text{2tot_i}}$ # Total real investment #

$$V2\text{TOT\_I} \times x2\text{tot\_i} = \sum[i,\text{IND}, V2\text{TOT}(i) \times x2\text{tot}(i)];$$

$E_{\text{2tot_i_ag}}$ # Total real investment for agriculture sectors #

$$V2\text{TOT\_AGRI} \times x2\text{tot\_i_ag} = \sum[i,\text{AGRI}, V2\text{TOT}(i) \times x2\text{tot}(i)];$$

$E_{\text{2tot_i_mn}}$ # Total real investment mining/oil sectors#

$$V2\text{TOT\_MINO} \times x2\text{tot\_i_mn} = \sum[i,\text{MINO}, V2\text{TOT}(i) \times x2\text{tot}(i)];$$

$E_{\text{2tot_i_mn}}$ # Total real investment manufacture sectors#

$$V2\text{TOT\_MANF} \times x2\text{tot\_i_mn} = \sum[i,\text{MANF}, V2\text{TOT}(i) \times x2\text{tot}(i)];$$
E_x2tot_i_se  # Total real investment service sectors#
V2TOT_SERV*x2tot_i_se = sum{i,SERV, V2TOT(i)*x2tot(i) ;}

E_p2tot_i  # Investment price index #
V2TOT*lp2tot_i = sum{i,IND, V2TOT(i)*p2tot(i) ;}

E_p2tot_i_ag  # Investment price index for agriculture sectors#
V2TOT_AGRI*p2tot_i_ag = sum{i,AGRI, V2TOT(i)*p2tot(i) ;}

E_p2tot_i_mo  # Investment price index for mining/oil sectors#
V2TOT_MINO*p2tot_i_mo = sum{i,MINO, V2TOT(i)*p2tot(i) ;}

E_p2tot_i_mn  # Investment price index for manufacture sectors#
V2TOT_MANF*p2tot_i_mn = sum{i,MANF, V2TOT(i)*p2tot(i) ;}

E_p2tot_i_se  # Investment price index for service sectors#
V2TOT_SERV*p2tot_i_se = sum{i,SERV, V2TOT(i)*p2tot(i) ;}

E_w2tot_i  # Total nominal investment #
w2tot_i = x2tot_i + p2tot_i;

E_w2tot_i_ag  # Total nominal investment for agriculture sectors#
w2tot_i_ag = x2tot_i_ag + p2tot_i_ag;

E_w2tot_i_mo  # Total nominal investment for mining/oil sectors#
w2tot_i_mo = x2tot_i_mo + p2tot_i_mo;

E_w2tot_i_mn  # Total nominal investment for manufacture sectors#
w2tot_i_mn = x2tot_i_mn + p2tot_i_mn;

E_w2tot_i_se  # Total nominal investment for service sectors#
w2tot_i_se = x2tot_i_se + p2tot_i_se;

E_x3tot_hh  # Real consumption #
(all,h,HH)V3TOT_HH(h)*x3tot_hh(h)=sum[c,COM,sum{s,SRC,V3PUR(c,s,h)*x3(c,s,h)}];

E_x3tot_hh_ag  # Real consumption for agriculture commodity#
(all,h,HH)V3TOT_HH_AG(h)*x3tot_hh_ag(h)=sum[c,AGRI_c,
sum{s,SRC,V3PUR(c,s,h)*x3(c,s,h)}];

E_x3tot_hh_mo  # Real consumption for mining/oil commodity#
(all,h,HH)V3TOT_HH_MO(h)*x3tot_hh_mo(h)=sum[c,MINO_C,
sum{s,SRC,V3PUR(c,s,h)*x3(c,s,h)}];

E_x3tot_hh_mn  # Real consumption for manufacture commodity#
(all,h,HH)V3TOT_HH_MN(h)*x3tot_hh_mn(h)=sum[c,MANF_C,
sum{s,SRC,V3PUR(c,s,h)*x3(c,s,h)}];

E_x3tot_hh_se  # Real consumption for service commodity#
(all,h,HH)V3TOT_HH_SE(h)*x3tot_hh_se(h)=sum[c,SERV_C,
sum{s,SRC,V3PUR(c,s,h)*x3(c,s,h)}];

E_p3tot_hh  # Household price index #
(all,h,HH)V3TOT_HH(h)*p3tot_hh(h)=sum[c,COM,sum{s,SRC,V3PUR(c,s,h)*p3(c,s,h)}];

E_p3tot_hh_ag  # Household price index for agriculture commodity#
(all,h,HH)V3TOT_HH_AG(h)*p3tot_hh_ag(h)=sum[c,AGRI_c,
sum{s,SRC,V3PUR(c,s,h)*p3(c,s,h)}];

E_p3tot_hh_mo  # Household price index for mining/oil commodity#
(all,h,HH)V3TOT_HH_MO(h)*p3tot_hh_mo(h)=sum[c,MINO_C,
sum{s,SRC,V3PUR(c,s,h)*p3(c,s,h)}];

E_p3tot_hh_mn  # Household price index for manufacture commodity#
(all,h,HH)V3TOT_HH_MN(h)*p3tot_hh_mn(h)=sum[c,MANF_C,
sum{s,SRC,V3PUR(c,s,h)*p3(c,s,h)}];

E_p3tot_hh_se  # Household price index for service commodity#
(all,h,HH)V3TOT_HH_SE(h)*p3tot_hh_se(h)=\[\text{sum}\{c,SERV_C,} \\
\text{sum}\{s,SRC,V3PUR(c,s,h)*p3(c,s,h)}\];

E_w3tot_hh \hspace{1cm} \# Household budget constraint
\hspace{1cm} (all,h,HH)w3tot_hh(h) = x3tot_hh(h) + p3tot_hh(h);

E_w3tot_hh_ag \hspace{1cm} \# Household budget constraint for agriculture commodity
\hspace{1cm} (all,h,HH)w3tot_hh_ag(h) = x3tot_hh_ag(h) + p3tot_hh_ag(h);

E_w3tot_hh_mo \hspace{1cm} \# Household budget constraint for mining/oil commodity
\hspace{1cm} (all,h,HH)w3tot_hh_mo(h) = x3tot_hh_mo(h) + p3tot_hh_mo(h);

E_w3tot_hh_mn \hspace{1cm} \# Household budget constraint for manufacture commodity
\hspace{1cm} (all,h,HH)w3tot_hh_mn(h) = x3tot_hh_mn(h) + p3tot_hh_mn(h);

E_w3tot_hh_se \hspace{1cm} \# Household budget constraint for service commodity
\hspace{1cm} (all,h,HH)w3tot_hh_se(h) = x3tot_hh_se(h) + p3tot_hh_se(h);

E_x3tot \hspace{1cm} \# Real consumption
\hspace{1cm} V3TOT*x3tot = \text{sum}\{h,HH,V3TOT_HH(h)*x3tot_hh(h)}

E_x3tot_ag \hspace{1cm} \# Real consumption for agriculture commodity
\hspace{1cm} V3TOT_AGRI*x3tot_ag = \text{sum}\{h,HH,V3TOT_HH_AG(h)*x3tot_hh_ag(h)}

E_x3tot_mo \hspace{1cm} \# Real consumption for mining/oil commodity
\hspace{1cm} V3TOT_MINO*x3tot_mo = \text{sum}\{h,HH,V3TOT_HH_MO(h)*x3tot_hh_mo(h)}

E_x3tot_mn \hspace{1cm} \# Real consumption for manufacture commodity
\hspace{1cm} V3TOT_MANF*x3tot_mn = \text{sum}\{h,HH,V3TOT_HH_MN(h)*x3tot_hh_mn(h)}

E_x3tot_se \hspace{1cm} \# Real consumption for service commodity
\hspace{1cm} V3TOT_SERV*x3tot_se = \text{sum}\{h,HH,V3TOT_HH_SE(h)*x3tot_hh_se(h)}

E_p3tot \hspace{1cm} \# Consumer price index
\hspace{1cm} V3TOT*p3tot = \text{sum}\{h,HH,V3TOT_HH(h)*p3tot_hh(h)}

E_p3tot_ag \hspace{1cm} \# Consumer price index for agriculture commodity
\hspace{1cm} V3TOT_AGRI*p3tot_ag = \text{sum}\{h,HH,V3TOT_HH_AG(h)*p3tot_hh_ag(h)}

E_p3tot_mo \hspace{1cm} \# Consumer price index for mining/oil commodity
\hspace{1cm} V3TOT_MINO*p3tot_mo = \text{sum}\{h,HH,V3TOT_HH_MO(h)*p3tot_hh_mo(h)}

E_p3tot_mn \hspace{1cm} \# Consumer price index for manufacture commodity
\hspace{1cm} V3TOT_MANF*p3tot_mn = \text{sum}\{h,HH,V3TOT_HH_MN(h)*p3tot_hh_mn(h)}

E_p3tot_se \hspace{1cm} \# Consumer price index for service commodity
\hspace{1cm} V3TOT_SERV*p3tot_se = \text{sum}\{h,HH,V3TOT_HH_SE(h)*p3tot_hh_se(h)}

E_w3tot \hspace{1cm} \# Household budget constraint
\hspace{1cm} w3tot = x3tot + p3tot;

E_w3tot_ag \hspace{1cm} \# Household budget constraint for agriculture commodity
\hspace{1cm} w3tot_ag = x3tot_ag + p3tot_ag;

E_w3tot_mo \hspace{1cm} \# Household budget constraint for mining/oil commodity
\hspace{1cm} w3tot_mo = x3tot_mo + p3tot_mo;

E_w3tot_mn \hspace{1cm} \# Household budget constraint for manufacture commodity
\hspace{1cm} w3tot_mn = x3tot_mn + p3tot_mn;

E_w3tot_se \hspace{1cm} \# Household budget constraint for service commodity
\hspace{1cm} w3tot_se = x3tot_se + p3tot_se;

E_x4tot \hspace{1cm} \# Export volume index
\hspace{1cm} V4TOT*x4tot = \text{sum}\{c,COM, V4PUR(c)*x4(c)}

E_x4tot_ag \hspace{1cm} \# Export volume index for agriculture commodity
\hspace{1cm} V3TOT_AGRI*x4tot_ag = \text{sum}\{c,AGRI_C, V4PUR(c)*x4(c)}
\[ \text{E}_{x4tot\_mo} \quad \text{# Export volume index for mining/oil commodity} \]
\[ V4TOT\_MINO*_{x4tot\_mo} = \text{sum}(c,MINO\_C, V4PUR(c)*x4(c)) \];

\[ \text{E}_{x4tot\_mn} \quad \text{# Export volume index for manufacture commodity} \]
\[ V4TOT\_MANF*_{x4tot\_mn} = \text{sum}(c,MANF\_C, V4PUR(c)*x4(c)) \];

\[ \text{E}_{x4tot\_se} \quad \text{# Export volume index for service commodity} \]
\[ V4TOT\_SERV*_{x4tot\_se} = \text{sum}(c,SERV\_C, V4PUR(c)*x4(c)) \];

\[ \text{E}_{p4tot} \quad \text{# Exports price index, rupiah} \]
\[ V4TOT*_{p4tot} = \text{sum}(c,COM, V4PUR(c)*p4(c)) \];

\[ \text{E}_{p4tot\_ag} \quad \text{# Exports price index, rupiah for agriculture commodity} \]
\[ V4TOT\_AGRI*_{p4tot\_ag} = \text{sum}(c,AGRI\_C, V4PUR(c)*p4(c)) \];

\[ \text{E}_{p4tot\_mo} \quad \text{# Exports price index, rupiah for mining/oil commodity} \]
\[ V4TOT\_MINO*_{p4tot\_mo} = \text{sum}(c,MINO\_C, V4PUR(c)*p4(c)) \];

\[ \text{E}_{p4tot\_mn} \quad \text{# Exports price index, rupiah for manufacture commodity} \]
\[ V4TOT\_MANF*_{p4tot\_mn} = \text{sum}(c,MANF\_C, V4PUR(c)*p4(c)) \];

\[ \text{E}_{p4tot\_se} \quad \text{# Exports price index, rupiah for service commodity} \]
\[ V4TOT\_SERV*_{p4tot\_se} = \text{sum}(c,SERV\_C, V4PUR(c)*p4(c)) \];

\[ \text{E}_{w4tot} \quad \text{# Rupiah border value of exports} \]
\[ w4tot = x4tot + p4tot \];

\[ \text{E}_{w4tot\_ag} \quad \text{# Rupiah border value of exports for agriculture commodity} \]
\[ w4tot\_ag = x4tot\_ag + p4tot\_ag \];

\[ \text{E}_{w4tot\_mo} \quad \text{# Rupiah border value of exports for mining/oil commodity} \]
\[ w4tot\_mo = x4tot\_mo + p4tot\_mo \];

\[ \text{E}_{w4tot\_mn} \quad \text{# Rupiah border value of exports for manufacture commodity} \]
\[ w4tot\_mn = x4tot\_mn + p4tot\_mn \];

\[ \text{E}_{w4tot\_se} \quad \text{# Rupiah border value of exports for service commodity} \]
\[ w4tot\_se = x4tot\_se + p4tot\_se \];

\[ \text{E}_{x5tot} \quad \text{# Aggregate real government demands} \]
\[ V5TOT*_{x5tot} = \text{sum}(c,COM, \text{sum}(s,SRC, V5PUR(c,s)*x5(c,s))) \];

\[ \text{E}_{p5tot} \quad \text{# Government price index} \]
\[ V5TOT*_{p5tot} = \text{sum}(c,COM, \text{sum}(s,SRC, V5PUR(c,s)*p5(c,s))) \];

\[ \text{E}_{x5tot\_ag} \quad \text{# Aggregate real government demands for agriculture commodity} \]
\[ V5TOT\_AGRI*_{x5tot\_ag} = \text{sum}(c,AGRI\_C, \text{sum}(s,SRC, V5PUR(c,s)*x5(c,s))) \];

\[ \text{E}_{x5tot\_mo} \quad \text{# Aggregate real government demands for mining/oil commodity} \]
\[ V5TOT\_MINO*_{x5tot\_mo} = \text{sum}(c,MINO\_C, \text{sum}(s,SRC, V5PUR(c,s)*x5(c,s))) \];

\[ \text{E}_{x5tot\_mn} \quad \text{# Aggregate real government demands for manufacture commodity} \]
\[ V5TOT\_MANF*_{x5tot\_mn} = \text{sum}(c,MANF\_C, \text{sum}(s,SRC, V5PUR(c,s)*x5(c,s))) \];

\[ \text{E}_{x5tot\_se} \quad \text{# Aggregate real government demands for service commodity} \]
\[ V5TOT\_SERV*_{x5tot\_se} = \text{sum}(c,SERV\_C, \text{sum}(s,SRC, V5PUR(c,s)*x5(c,s))) \];

\[ \text{E}_{p5tot\_ag} \quad \text{# Government price index for agriculture commodity} \]
\[ V5TOT\_AGRI*_{p5tot\_ag} = \text{sum}(c,AGRI\_C, \text{sum}(s,SRC, V5PUR(c,s)*p5(c,s))) \];

\[ \text{E}_{p5tot\_mo} \quad \text{# Government price index for mining/oil commodity} \]
\[ V5TOT\_MINO*_{p5tot\_mo} = \text{sum}(c,MINO\_C, \text{sum}(s,SRC, V5PUR(c,s)*p5(c,s))) \];

\[ \text{E}_{p5tot\_mn} \quad \text{# Government price index for manufacture commodity} \]
\[ V5TOT\_MANF*_{p5tot\_mn} = \text{sum}(c,MANF\_C, \text{sum}(s,SRC, V5PUR(c,s)*p5(c,s))) \];

\[ \text{E}_{p5tot\_se} \quad \text{# Government price index for service commodity} \]
\[ V5TOT\_SERV*_{p5tot\_se} = \text{sum}(c,SERV\_C, \text{sum}(s,SRC, V5PUR(c,s)*p5(c,s))) \];
E_w5tot  # Agg.nominal val of government demands #
w5tot = x5tot + p5tot;
E_w5tot_ag  # Agg.nominal val of government demands for agriculture commodity#
w5tot_ag = x5tot_ag + p5tot_ag;
E_w5tot_mo  # Agg.nominal val of government demands for mining/oil commodity#
w5tot_mo = x5tot_mo + p5tot_mo;
E_w5tot_mn  # Agg.nominal val of government demands for manufacture commodity#
w5tot_mn = x5tot_mn + p5tot_mn;
E_w5tot_se  # Agg.nominal val of government demands for service commodity#
w5tot_se = x5tot_se + p5tot_se;

E_x6tot  # Inventories volume index #
V6TOT*x6tot = 100*sum{c,COM, sum{s,SRC, LEVP0(c,s)*delx6(c,s) }};
E_x6tot_ag  # Inventories volume index for agriculture commodity#
V6TOT_AGR I*x6tot_ag = 100*sum{c,AGRI_C, sum{s,SRC, LEVP0(c,s)*delx6(c,s) }};
E_x6tot_mo  # Inventories volume index for mining/oil commodity#
V6TOT_MINO*x6tot_mo = 100*sum{c,MINO_C, sum{s,SRC, LEVP0(c,s)*delx6(c,s) }};
E_x6tot_mn  # Inventories volume index for manufacture commodity#
V6TOT_MANF*x6tot_mn = 100*sum{c,MANF_C, sum{s,SRC, LEVP0(c,s)*delx6(c,s) }};
E_x6tot_se  # Inventories volume index for service commodity#
V6TOT_SERV*x6tot_se = 100*sum{c,SERV_C, sum{s,SRC, LEVP0(c,s)*delx6(c,s) }};

E_p6tot  # Inventories price index #
[TINY+V6TOT]*p6tot = sum{c,COM, sum{s,SRC, V6BAS(c,s)*p0(c,s) }};
E_p6tot_ag  # Inventories price index for agriculture commodity#
[TINY+V6TOT_AGR]*p6tot_ag = sum{c,AGRI_C, sum{s,SRC, V6BAS(c,s)*p0(c,s) }};
E_p6tot_mo  # Inventories price index for mining/oil commodity#
[TINY+V6TOT_MINO]*p6tot_mo = sum{c,MINO_C, sum{s,SRC, V6BAS(c,s)*p0(c,s) }};
E_p6tot_mn  # Inventories price index for manufacture commodity#
[TINY+V6TOT_MANF]*p6tot_mn = sum{c,MANF_C, sum{s,SRC, V6BAS(c,s)*p0(c,s) }};
E_p6tot_se  # Inventories price index for service commodity#
[TINY+V6TOT_SERV]*p6tot_se = sum{c,SERV_C, sum{s,SRC, V6BAS(c,s)*p0(c,s) }};

E_w6tot  # Aggregate nominal value of inventories #
w6tot = x6tot + p6tot;
E_w6tot_ag  # Agg.nominal value of inventories for agriculture commodity#
w6tot_ag = x6tot_ag + p6tot_ag;
E_w6tot_mo  # Agg.nominal value of inventories for mining/oil commodity#
w6tot_mo = x6tot_mo + p6tot_mo;
E_w6tot_mn  # Agg.nominal value of inventories for manufacture commodity#
w6tot_mn = x6tot_mn + p6tot_mn;
E_w6tot_se  # Agg.nominal value of inventories for service commodity#
w6tot_se = x6tot_se + p6tot_se;

V0CIF_c  # Import volume index, C.I.F. weights #
V0CIF_C*c0Cif_c = sum{c,COM, V0CIF(c)*x0imp(c) };
V0CIF_AGRI*c0Cif_c_ag = sum{c,AGRI_C, V0CIF(c)*x0imp(c) };
V0CIF_MINO*c0Cif_c_mn = sum{c,MINO_C, V0CIF(c)*x0imp(c) };
V0CIF_MANF*c0Cif_c_mn = sum{c,MANF_C, V0CIF(c)*x0imp(c) };
V0CIF_SERV*c0Cif_c_se = sum{c,SERV_C, V0CIF(c)*x0imp(c) };

V0CIF_C*c0Cif_c  # Import volume index, C.I.F. weights #
V0CIF_AGRI*c0Cif_c_ag  # Import volume index, C.I.F. weights for agriculture commodity#
V0CIF_MINO*c0Cif_c_mn  # Import volume index, C.I.F. weights for mining/oil commodity#
\[ V0CIF_{\text{MINO}} \times \text{cif}_e \text{c}_m = \text{sum}(c, \text{MINO}_C, V0CIF(c) \times x0imp(c)); \]

\[ E_{\text{x0cif}_e \text{c}_m} \quad \# \text{Import volume index, C.I.F. weights for manufacture commodity} \]

\[ V0CIF_{\text{MANF}} \times \text{cif}_e \text{c}_m = \text{sum}(c, \text{MANF}_C, V0CIF(c) \times x0imp(c)); \]

\[ E_{\text{x0cif}_e \text{c}_s} \quad \# \text{Import volume index, C.I.F. weights for service commodity} \]

\[ V0CIF_{\text{SERV}} \times \text{cif}_e \text{c}_s = \text{sum}(c, \text{SERV}_C, V0CIF(c) \times x0imp(c)); \]

\[ E_{\text{p0cif}_e \text{c}} \quad \# \text{Imports price index, rupiah C.I.F.} \]

\[ V0CIF_{\text{C}} \times p0cif_e \text{c}_m = \text{sum}(c, \text{COM}, V0CIF(c) \times [\phi + p0cif(c)]); \]

\[ E_{\text{p0cif}_e \text{c}_a} \quad \# \text{Imports price index, rupiah C.I.F. for agriculture commodity} \]

\[ V0CIF_{\text{AGRI}} \times p0cif_e \text{c}_a = \text{sum}(c, \text{AGRI}_C, V0CIF(c) \times [\phi + p0cif(c)]); \]

\[ E_{\text{p0cif}_e \text{c}_m} \quad \# \text{Imports price index, rupiah C.I.F. for mining/oil commodity} \]

\[ V0CIF_{\text{MINO}} \times p0cif_e \text{c}_m = \text{sum}(c, \text{MINO}_C, V0CIF(c) \times [\phi + p0cif(c)]); \]

\[ E_{\text{p0cif}_e \text{c}_m} \quad \# \text{Imports price index, rupiah C.I.F. for manufacture commodity} \]

\[ V0CIF_{\text{MANF}} \times p0cif_e \text{c}_m = \text{sum}(c, \text{MANF}_C, V0CIF(c) \times [\phi + p0cif(c)]); \]

\[ E_{\text{p0cif}_e \text{c}_s} \quad \# \text{Imports price index, rupiah C.I.F. for service commodity} \]

\[ V0CIF_{\text{SERV}} \times p0cif_e \text{c}_s = \text{sum}(c, \text{SERV}_C, V0CIF(c) \times [\phi + p0cif(c)]); \]

\[ E_{\text{w0cif}_e \text{c}} \quad \# \text{Value of imports, rupiah C.I.F.} \]

\[ \text{w0cif}_e \text{c} = \text{x0cif}_e \text{c} + \text{p0cif}_e \text{c}; \]

\[ E_{\text{w0cif}_e \text{c}_a} \quad \# \text{Value of imports, rupiah C.I.F. for agriculture commodity} \]

\[ \text{w0cif}_e \text{c}_a = \text{x0cif}_e \text{c}_a + \text{p0cif}_e \text{c}_a; \]

\[ E_{\text{w0cif}_e \text{c}_m} \quad \# \text{Value of imports, rupiah C.I.F. for mining/oil commodity} \]

\[ \text{w0cif}_e \text{c}_m = \text{x0cif}_e \text{c}_m + \text{p0cif}_e \text{c}_m; \]

\[ E_{\text{w0cif}_e \text{c}_s} \quad \# \text{Value of imports, rupiah C.I.F. for service commodity} \]

\[ \text{w0cif}_e \text{c}_s = \text{x0cif}_e \text{c}_s + \text{p0cif}_e \text{c}_s; \]

\[ E_{\text{x0gdexp}} \quad \# \text{Real GDP, expenditure side} \]

\[ V0GDPEXP \times x0gdexp = V3TOT \times x3tot + V2TOT \times x2tot_i + V5TOT \times x5tot + V6TOT \times x6tot + V4TOT \times x4tot - V0CIF_{\text{C}} \times x0cif_e \text{c}; \]

\[ E_{\text{x0gdexp}_a} \quad \# \text{Real GDP, expenditure side Agriculture Sectors} \]

\[ V0GDPEXP_{\text{AGRI}} \times x0gdexp_{a} = V3TOT_{\text{AGRI}} \times x3tot_{a} + V2TOT_{\text{AGRI}} \times x2tot_{i\_a} + V5TOT_{\text{AGRI}} \times x5tot_{a} + V6TOT_{\text{AGRI}} \times x6tot_{a} + V4TOT_{\text{AGRI}} \times x4tot_{a} - V0CIF_{\text{AGRI}} \times x0cif_e \text{c}_a; \]

\[ E_{\text{x0gdexp}_m} \quad \# \text{Real GDP, expenditure side Mining/Oil Sectors} \]

\[ V0GDPEXP_{\text{MINO}} \times x0gdexp_{m} = V3TOT_{\text{MINO}} \times x3tot_{m} + V2TOT_{\text{MINO}} \times x2tot_{i\_m} + V5TOT_{\text{MINO}} \times x5tot_{m} + V6TOT_{\text{MINO}} \times x6tot_{m} + V4TOT_{\text{MINO}} \times x4tot_{m} - V0CIF_{\text{MINO}} \times x0cif_e \text{c}_m; \]

\[ E_{\text{x0gdexp}_s} \quad \# \text{Real GDP, expenditure side Manufacture Sectors} \]

\[ V0GDPEXP_{\text{MANF}} \times x0gdexp_{s} = V3TOT_{\text{MANF}} \times x3tot_{m} + V2TOT_{\text{MANF}} \times x2tot_{i\_m} + V5TOT_{\text{MANF}} \times x5tot_{m} + V6TOT_{\text{MANF}} \times x6tot_{m} + V4TOT_{\text{MANF}} \times x4tot_{m} - V0CIF_{\text{MANF}} \times x0cif_e \text{c}_m; \]

\[ E_{\text{x0gdexp}_s} \quad \# \text{Real GDP, expenditure side Service Sectors} \]

\[ V0GDPEXP_{\text{SERV}} \times x0gdexp_{s} = V3TOT_{\text{SERV}} \times x3tot_{s} + V2TOT_{\text{SERV}} \times x2tot_{i\_s} + V5TOT_{\text{SERV}} \times x5tot_{s} + V6TOT_{\text{SERV}} \times x6tot_{s} + V4TOT_{\text{SERV}} \times x4tot_{s} - V0CIF_{\text{SERV}} \times x0cif_e \text{c}_s; \]

\[ E_{\text{p0gdexp}} \quad \# \text{Price index for GDP, expenditure side} \]

\[ V0GDPEXP \times p0gdexp = V3TOT \times p3tot + V2TOT \times p2tot_i + V5TOT \times p5tot + V6TOT \times p6tot + V4TOT \times p4tot - V0CIF_{\text{C}} \times p0cif_e \text{c}; \]
E_p0gdpexp_ag  # Price index for GDP, expenditure side for agriculture sectors#
V0GDPEXP_AG*p0gdpexp_ag = V3TOT_AGRI*p3tot_ag + V2TOT_AGRI*p2tot_i_ag +
V5TOT_AGRI*p5tot_ag + V6TOT_AGRI*p6tot_ag + V4TOT_AGRI*p4tot_ag
- V0CIF_AGRI*p0cif_c_ag;

E_p0gdpexp_mo  # Price index for GDP, expenditure side for mining/oil sectors#
V0GDPEXP_MO*p0gdpexp_mo = V3TOT_MINO*p3tot_mo + V2TOT_MINO*p2tot_i_mo +
V5TOT_MINO*p5tot_mo + V6TOT_MINO*p6tot_mo + V4TOT_MINO*p4tot_mo
- V0CIF_MINO*p0cif_c_mo;

E_p0gdpexp_mn  # Price index for GDP, expenditure side for manufacture sectors#
V0GDPEXP_MN*p0gdpexp_mn = V3TOT_MANF*p3tot_mn + V2TOT_MANF*p2tot_i_mn +
V5TOT_MANF*p5tot_mn + V6TOT_MANF*p6tot_mn + V4TOT_MINO*p4tot_mn
- V0CIF_MANF*p0cif_c_mn;

E_p0gdpexp_se  # Price index for GDP, expenditure side for service sectors#
V0GDPEXP_SE*p0gdpexp_se = V3TOT_SERV*p3tot_se + V2TOT_SERV*p2tot_i_se +
V5TOT_SERV*p5tot_se + V6TOT_SERV*p6tot_se + V4TOT_SERV*p4tot_se
- V0CIF_SERV*p0cif_c_se;

E_w0gdpexp  # Nominal GDP from expenditure side#
wdexp = x0gdpexp + p0gdpexp;

E_w0gdpexp_ag  # Nominal GDP from expenditure side for agriculture sectors#
wdexp_ag = x0gdpexp_ag + p0gdpexp_ag;

E_w0gdpexp_mo  # Nominal GDP from expenditure side for mining/oil sectors#
wdexp_mo = x0gdpexp_mo + p0gdpexp_mo;

E_w0gdpexp_mn  # Nominal GDP from expenditure side for manufacture sectors#
wdexp_mn = x0gdpexp_mn + p0gdpexp_mn;

E_w0gdpexp_se  # Nominal GDP from expenditure side for service sectors#
wdexp_se = x0gdpexp_se + p0gdpexp_se;

E_shrgdpexp_ag  # share GDP from expenditure side for agriculture sectors#
SHGDPEXP_AG*shrgdpexp_ag = x0gdpexp_ag - x0gdpexp;

E_shrgdpexp_mo  # share GDP from expenditure side for mining/oil sectors#
SHGDPEXP_MO*shrgdpexp_mo = x0gdpexp_mo - x0gdpexp;

E_shrgdpexp_mn  # share GDP from expenditure side for manufacture sectors#
SHGDPEXP_MN*shrgdpexp_mn = x0gdpexp_mn - x0gdpexp;

E_shrgdpexp_se  # share GDP from expenditure side for service sectors#
SHGDPEXP_SE*shrgdpexp_se = x0gdpexp_se - x0gdpexp;

Equation  # %(Balance of trade)/GDP #
E_delB = V4TOT*w4tot - V0CIF_C*w0cif_c -(V4TOT-V0CIF_C)*w0gdexp;

E_imp_c  # Import volume index, duty paid weights#
V0IMP_C*x0imp_c = sum{c,COM, V0IMP(c)*x0imp(c) }

E_imp_c  # Duty paid imports price index#
V0IMP_C*p0imp_c = sum{c,COM, V0IMP(c)*p0(c,"imp") }

E_imp_c  # Value of imports (duty paid)#
w0imp_c = x0imp_c + p0imp_c;
Equation E_employ # Employment by industry #
(\text{all},i,\text{IND}) \ V1LAB(O(i))^{\text{employ(i)}} = \sum\{o,O\text{CC}, V1LAB(i,o)\times x1lab(i,o) \};

Equation E_p1lab_io # Average nominal wage #
V1LAB.IO^{\text{p1lab(io)}} = \sum\{i,\text{IND}, \sum\{o,O\text{CC}, V1LAB(i,o)\times p1lab(i,o) \} \};

Equation E_realwage # Average real wage #
realwage = \text{p1lab(io)} - \text{p3tot};

Equation E_x1prim_i # Aggregate output: value-added weights #
V1PRIM.I^{\text{x1prim(i)}} = \sum\{i,\text{IND}, V1PRIM(i)\times x1tot(i) \};

Equation E_p0toft # Terms of trade #
p0toft = p4tot - p0cif_c;

Equation E_p0realdev # Real devaluation #
p0realdev = p0cif_c - p0gdpexp;

! Excerpt 33 of TABLO input file: !

! Investment equations !

Variable (\text{all},i,\text{IND}) ggro(i) # Gross growth rate of capital = Investment/capital #;
(\text{all},i,\text{IND}) gret(i) # Gross rate of return = Rental/[Price of new capital] #;

Equation E_ggro (\text{all},i,\text{IND}) ggro(i) = x2tot(i) - x1cap(i);
E_gret (\text{all},i,\text{IND}) gret(i) = p1cap(i) - p2tot(i);

! Three alternative rules for investment:
Choose which applies to each industry by setting JUST ONE of
the corresponding elements of x2tot, finv1, finv2, or finv3 exogenous.
aggregate investment x2tot_i is exogenous, invslack must be endogenous. !

Variable (\text{all},i,\text{IND}) finv1(i) # Shifter to enforce DPSV investment rule #;
(\text{all},i,\text{IND}) finv2(i) # Shifter for "exogenous" investment rule #;
(\text{all},i,\text{IND}) finv3(i) # Shifter for longrun investment rule #;
invslack # Investment slack variable for exogenizing aggregate investment #;

Rule 1: Follows Section 19 of DPSV. The ratios Q and G are treated as
parameters, just as in the original ORANI implementation. Attempts to
improve the theory by updating these parameters have been found to
cassionally lead to perversely signed coefficients !

Equation E_finv1 # DPSV investment rule #
(\text{all},i,\text{IND}) ggro(i) = finv1(i) + 0.33*(2.0*gret(i) - invslack);
Note: above equation comes from substituting together DPSV
Rule 2: For industries where investment is not mainly driven by current profits (e.g., Education) make investment follow aggregate investment.

\[ E_{\text{finv2}} \]

**Alternative rule for "exogenous" investment industries**

\[(\text{all}, \text{i}, \text{IND}) * x_{2\text{tot}}(i) = x_{2\text{tot}_i} + \text{finv2}(i); \]

NB: you must not set ALL of finv2 exogenous else above would conflict with Equation \( E_{x2\text{tot}_i} \)!

Rule 3: longrun investment rule: investment/capital ratios are exogenous

\[ E_{\text{finv3}} \]

**Alternative long-run investment rule**

\[(\text{all}, \text{i}, \text{IND}) * \text{ggro}(i) = \text{finv3}(i) + \text{invslack}; \]

Variable \( f2\text{tot} \)

**Ratio, investment/consumption**

\[ E_{\text{f2tot}} \]

\[ x_{2\text{tot}_i} = x_{3\text{tot}} + f2\text{tot}; \]

Set \( f2\text{tot} \) exogenous and invslack endogenous

link aggregate investment to real consumption!

Excerpt 34 of TABLO input file:

**Indexing and other equations**

\[ E_{\text{p1oct}} \]

**Indexing of prices of "other cost" tickets**

\[(\text{all}, \text{i}, \text{IND}) * p_{1\text{oct}}(i) = p_{3\text{tot}} + f_{1\text{oct}}(i); \]

assumes full indexation!

\[ E_{\text{delx6}} \]

**possible rule for stocks**

\[(\text{all}, \text{c}, \text{COM})(\text{all}, \text{s}, \text{SRC}) * 100*\text{LEVP0}(c,s)\text{xdelx6}(c,s)=\text{V6BAS}(c,s)\text{x0com}(c)+\text{fx6}(c,s); \]

Excerpt 35 of TABLO input file:

Decomposition of Fan

Set \( \text{FANCAT} \)

**parts of Fan decomposition**

\[(\text{LocalMarket}, \text{ImportShare}, \text{Export}, \text{Total}); \]

Variable

\[(\text{all}, \text{c}, \text{COM}) \text{x0loc(c)} \]

real percent change in \( \text{LOCSALES} \) (dom+imp)

change(\text{all}, \text{c}, \text{COM})(\text{all}, \text{f}, \text{FANCAT}) \text{fandecomp(c,f)}\]

Fan decomposition

Coefficient

\[(\text{all}, \text{c}, \text{COM}) \text{LOCSALES}(c) \]

Total local sales of dom + imp commodity \( c \)

\[(\text{all}, \text{c}, \text{COM}) \text{INITSALES}(c) \]

Initial volume of SALES at final prices

Formula

\[(\text{all}, \text{c}, \text{COM}) \text{LOCSALES}(c) = \text{DOMSALES}(c) + \text{V0IMP}(c); \]

Initial (\text{all}, \text{c}, \text{COM}) \text{INITSALES}(c) = \text{SALES}(c); \]

Date

\[(\text{all}, \text{c}, \text{COM}) \text{INITSALES}(c) = \text{p0com}(c); \]
Equation $E_{x0loc}$ # % growth in local market #
(all,c,COM) LOC_SALES(c)*x0loc(c) = DOM_SALES(c)*x0dom(c) + V0IMP(c)*x0imp(c);

Equation $E_{fandecompA}$ # growth in local market effect #
(all,c,COM) INIT_SALES(c)*fandecomp(c,"LocalMarket") = DOM_SALES(c)*x0loc(c);

! The local market effect is the % change in output that would have occurred if local sales of the domestic product had followed dom+imp sales (x0loc)!

Equation $E_{fandecompB}$ # export effect #
(all,c,COM) INIT_SALES(c)*fandecomp(c,"Export") = V4BAS(c)*x4(c);

Equation $E_{fandecompC}$ # import leakage effect - via residual #
(all,c,COM) fandecomp(c,"Total") = fandecomp(c,"LocalMarket") + fandecomp(c,"ImportShare") + fandecomp(c,"Export");

Equation $E_{fandecompD}$ # Fan total = x0com #
(all,c,COM) INIT_SALES(c)*fandecomp(c,"Total") = SALES(c)*x0com(c);

! Excerpt 36 of TABLO input file: !
! Fiscal extension !

Set TYPE (expend, recp); expend=govt. payments, recp=govt. receipts !

Variable
(all,h,HH)(all,t,TYPE)fgov_h(h,t) # Shift in transfers: govt. -- households #;
(all,t,TYPE) fgov_f(t) # Shift in transfers: govt. -- foreign #;
(all,h,HH)(all,t,TYPE)gov_h(h,t) # Transfers: govt. -- households #;
(all,t,TYPE) gov_f(t) # Transfers: govt. -- foreign #;
(all,h,HH) w0hhtax(h) # % change in personal income tax #;
(all,h,HH)w0hhinc(h) # Aggregate nominal take-home income earned by households#;
(change) delbudget # Rupiah change in budget balance G-T #;
w0govt_t # Aggregate government revenue#;
w0govt_g # Aggregate government expenditure#;
f1inc_tax # Overall income tax shifter #;

Coefficient
GOVTREV # Total government revenue #;
GOVTEXP # Nominal total current and capital government expenditure #;
(i,i,EXOGINV)V2TOT_G(i) # Total govt. funding of capital created for i #;
(i,t,TYPE)TRANSFER_F(t) # Government transfers: payments/receipts foreign#;
(h,h,HH)(all,t,TYPE)TRANSFER_H(h,t) # Govt transfers to and from h'holds#;
(h,h,HH)V0HHTAX(h) # Personal income tax on all household factors #;
(h,h,HH)V0HHINC(h) # Income earned by households #;

Read V0HHTAX from file MDATA header "PINC";
TRANSFER_F from file MDATA header "TRAN";
TRANSFER_H from file MDATA header "GOHH";
Update (all,t,TYPE) TRANSFER_F(t) = fgov_f(t);
(all,h,HH)(all,t,TYPE)TRANSFER_H(h,t) = gov_h(h,t);
(all,h,HH) V0HHTAX(h) = w0hhtax(h);
Formula
\[(\text{all }, i, \text{EXOGINV})V2TOT_G(i) = \text{sum}\{c, \text{COM}, V2PUR_S(c, i) \} \times 0.3; \]

\text{allocation of public investment!}

\text{GOVTREV} = \text{V0TAX_CSI} + \text{sum}\{h, \text{HH}, \text{V0HHTAX}(h)\} + \text{TRANSFER}_F(\text{"recp")} + \text{sum}\{h, \text{HH}, \text{TRANSFER}_H(h, \text{"recp")}; \}

\text{GOVTEXP} = \text{V5TOT} + \text{Sum}\{i, \text{EXOGINV}, V2TOT_G(i)\} + \text{TRANSFER}_F(\text{"expend")} + \text{sum}\{h, \text{HH}, \text{TRANSFER}_H(h, \text{"expend")}; \}

Equation \text{E}_w3lux \# consumption function \#
\[(\text{all }, h, \text{HH}) \text{w3tot}_h(h) = f3tot + f3tot_h(h) + w0hhinc(h); \]

Equation \text{E}_w0hhtax \# Aggregate nominal income tax paid by households \#
\[(\text{all }, h, \text{HH})\text{w0httax}(h) = w0hhinc(h) + f1inc_tax; \]

\text{Equation \text{E}_w0hhtax constrains any exogenous shifts in the income tax rate to being equal across all household factors of production. Note that take-home household income is used in the consumption function.}!

Equation \text{E}_\text{gov}_f \# Government transfers to and from foreigners \#
\[(\text{all }, t, \text{TYPE})\text{gov}_f(t) = p3tot + fgov_f(t); \]

Equation \text{E}_\text{gov}_h \# Government transfers to and from households \#
\[(\text{all }, h, \text{HH})\text{gov}_h(h, t) = p3tot + fgov_h(h, t); \]

Formula \[(\text{all }, h, \text{HH})\text{V0HHINC}(h) = \text{sum}\{i, \text{AGIND}, \text{LANDS}(i, h)\} + \text{sum}\{o, \text{OCC}, \text{HINC}(h, o)\} + \text{MM}(h) + \text{MN}(h) + \text{sum}\{i, \text{NAGR}, \text{FIXEDK}(h, i)\} + \text{TRANSFER}_H(h, \text{"expend")} - \text{TRANSFER}_H(h, \text{"recp")} - \text{V0HHTAX}(h); \]

Equation \text{E}_\text{w0hhinc} \# Aggregate nominal take-home income earned by households \#
\[(\text{all }, h, \text{HH})\text{w0hhinc}(h) = \text{sum}\{i, \text{AGIND}, \text{LANDS}(i, h)*[p1lnd(i) + x1lndi_hh(h, i)]\} + \text{sum}\{o, \text{OCC}, \text{HINC}(h, o)\}*[x1lab_i_h(h, o) + p1lab_i(h, o) + f1lab_i_x(o)] + \text{MM}(h) + \text{MN}(h)*w0cap_v(h) + \text{sum}\{i, \text{NAGR}, \text{FIXEDK}(h, i)\}*w0cap_f(h) + \text{TRANSFER}_H(h, \text{"expend")}*\text{gov}_h(h, \text{"expend")} + \text{TRANSFER}_H(h, \text{"recp")}*\text{gov}_h(h, \text{"recp")} - \text{V0HHTAX}(h)*w0httax(h); \]

Equation \text{E}_\text{w0govt}_t \# Aggregate government revenue \#
\[\text{GOVTREV}\text{w0govt}_t = \text{V0TAX_CSI} \times \text{w0tax_csi} + \text{sum}\{h, \text{HH}, \text{V0HHTAX}(h)\} \times \text{w0httax}(h) \times \text{TRANSFER}_F(\text{"recp")} \times \text{gov}_f(\text{"recp")} + \text{sum}\{h, \text{HH}, \text{TRANSFER}_H(h, \text{"recp")} \times \text{gov}_h(h, \text{"recp")}; \]

Equation \text{E}_\text{w0govt}_g \# Aggregate government expenditure \#
\[\text{GOVTEXP}\text{w0govt}_g = \text{V5TOT} \times \text{w5tot} + \text{sum}\{i, \text{EXOGINV}, V2TOT_G(i)\} \times \text{w2tot}(i) \times \text{p2tot}(i) \times \text{TRANSFER}_F(\text{"expend")} \times \text{gov}_f(\text{"expend")} + \text{sum}\{h, \text{HH}, \text{TRANSFER}_H(h, \text{"expend")} \times \text{gov}_h(h, \text{"expend")}; \]

Equation \text{E}_\text{delbudget} \# Change in budget balance G-T \# !increased deficit \>0!
\[\text{delbudget} = \text{GOVTEXP}\text{w0govt}_g - \text{GOVTREV}\text{w0govt}_t; \]

Excerpt 37 of TABLO input file: !
Data for Checking Identities !
File (new) SUMMARY  # Summary and checking data #;

Coefficient  ! coefficients for checking !
(all,i,IND) PURE_PROFITS(i)  # COSTS-MAKE_C : should be zero #;
(all,c,COM) LOST_GOODS(c)    # SALES-MAKE_I : should be zero #;
(all,h,HH) EPSTOT(h)          # Average Engel elasticity: should = 1 #;

Formula
(all,i,IND) PURE_PROFITS(i) = V1TOT(i) - MAKE_C(i);
(all,c,COM) LOST_GOODS(c) = SALES(c) - MAKE_I(c);
(all,h,HH) EPSTOT(h) = sum{c,COM, S3_S(c,h)*EPS(c,h)};

Write PURE_PROFITS to file SUMMARY header "PURE" longname "COSTS-MAKE_C: should = 0";
Write LOST_GOODS to file SUMMARY header "LOST" longname "SALES-MAKE_I: should = 0";
Write EPSTOT to file SUMMARY header "ETOT" longname "Average Engel elast: should = 1";

! Excerpt 38 of TABLO input file: !
! Components of GDP from income and expenditure sides !

Set EXPMAC # Expenditure Aggregates #
(consumption, Investment, Government, Stocks, Exports, Imports);
Coefficient (all,e,EXPMAC) EXPGDPE(c) # Expenditure Aggregates #;

Formula
EXPGDPE("Consumption") = V3TOT;
EXPGDPE("Investment") = V2TOT_I;
EXPGDPE("Government") = V5TOT;
EXPGDPE("Stocks") = V6TOT;
EXPGDPE("Exports") = V4TOT;
EXPGDPE("Imports") = -V0CIF_C;

Write EXPGDPE to file SUMMARY header "EMAC" longname "Expenditure Aggregates";

Set EXPSEC # Expenditure Aggregates by Sector #
(Agriculture, MiningOil, Manufacture, Services);
Coefficient (all,e,EXPSEC) EXPGDPSSEC(e) # Expenditure Aggregates by Sectors #;

Formula
EXPGDPSSEC("Agriculture") = V0GDPEXP_AG;
EXPGDPSSEC("MiningOil") = V0GDPEXP_MO;
EXPGDPSSEC("Manufacture") = V0GDPEXP_MN;
EXPGDPSSEC("Services") = V0GDPEXP_SE;

Write EXPGDPSSEC to file SUMMARY header "GSEC" longname "Expenditure Aggregates by Sectors";

Set INCMAC # Income Aggregates # (Land, Labour, Capital, OCT, IndTaxes);
Coefficient (all,i,INCMAC) INCGDP(i) # Income Aggregates #;

Formula
INCGDP("Land") = V1LND_I;
INCGDP("Labour") = V1LAB_IO;
INCGDP("Capital") = V1CAP_I;
INCGDP("OCT") = V1OCT_I;
INCGDP("IndTaxes") = V0TAX_CSI;
Write INCGDP to file SUMMARY header "IMAC" longname "Income Aggregates";

Set INCFACT # Income Aggregates by Factors #
(Primer, OtherCost, Tax);
Coefficient (all, e, INCFACT) INCGDPFAC(e) # Income Aggregates by Factors #;
Formula
INCGDPFAC("Primer") = V1PRIM_I_SEC;
INCGDPFAC("OtherCost") = V1OCT_I_SEC;
INCGDPFAC("Tax") = V0TAX_CSISEC;
Write INCGDPFAC to file SUMMARY header "IFAC" longname "Income Aggregates by Factors";

Set EXPGOV # Government Expenditure #
(Agriculture, MiningOil, Manufacture, Services);
Coefficient (all, e, EXPGOV) EXPGOVE(e) # Government Expenditure #;
Formula
EXPGOVE("Agriculture") = V5TOT_AGRI;
EXPGOVE("MiningOil") = V5TOT_MINO;
EXPGOVE("Manufacture") = V5TOT_MANF;
EXPGOVE("Services") = V5TOT_SERV;
Write EXPGOVE to file SUMMARY header "EGOV" longname "Government Expenditure";

Set TAXMAC # Tax Aggregates #
(Intermediate, Investment, Consumption, Exports, Government, Tariff);
Coefficient (all, t, TAXMAC) TAX(t) # Tax Aggregates #;
Formula
TAX("Intermediate") = V1TAX_CSI;
TAX("Investment") = V2TAX_CSI;
TAX("Consumption") = V3TAX_CS;
TAX("Exports") = V4TAX_C;
TAX("Government") = V5TAX_CS;
TAX("Tariff") = V0TAR_C;
Write TAX to file SUMMARY header "TMAC" longname "Tax Aggregates";

Set SHREXPSEC # Share of Expenditure Aggregates by Sector #
(Agriculture, MiningOil, Manufacture, Services);
Coefficient (all, e, EXPSEC) EXPGDPSHR(e) # Share of Expenditure Aggregates by Sectors #;
Formula
EXPGDPSHR("Agriculture") = SHGDPEXP_AG;
EXPGDPSHR("MiningOil") = SHGDPEXP_MO;
EXPGDPSHR("Manufacture") = SHGDPEXP_MN;
EXPGDPSHR("Services") = SHGDPEXP_SE;
Write EXPGDPSHR to file SUMMARY header "SSEC" longname "Share of Expenditure Aggregates by Sectors";
! Excerpt 39 of TABLO input file: !
! Matrix of Industry Costs !

Set COSTCAT # Cost Categories #
(IntDom, IntImp, margin, IndTax, Lab, Cap, Lnd, ProdTax); ! co!
Coefficient (all,i,IND)(all,co,COSTCAT) COSTMAT(i,co);
Formula
(all,i,IND) COSTMAT(i,"IntDom") = sum{c,COM, V1BAS(c,"dom",i)};
(all,i,IND) COSTMAT(i,"IntImp") = sum{c,COM, V1BAS(c,"imp",i)};
(all,i,IND) COSTMAT(i,"margin") =
   sum{c,COM, sum{s,SRC, sum{m,MAR, V1MAR(c,s,i,m)}}};
(all,i,IND) COSTMAT(i,"IndTax") = sum{c,COM, sum{s,SRC, V1TAX(c,s,i)});
(all,i,IND) COSTMAT(i,"Lab") = V1LAB_O(i);
(all,i,IND) COSTMAT(i,"Cap") = V1CAP(i);
(all,i,IND) COSTMAT(i,"Lnd") = V1LND(i);
(all,i,IND) COSTMAT(i,"ProdTax") = V1OCT(i);
Write COSTMAT to file SUMMARY header "CSTM" longname "Cost Matrix";

Write COSTMAT to file SUMMARY header "COSH" longname "Cost Share Matrix";

! Excerpt 40 of TABLO input file: !
! Matrix of domestic commodity sales with total imports !

Subscript !
SALECAT # SALE Categories #
(Interm, Invest, HouseH, Export, GovGE, Stocks,margins, Total, Imports);
Coefficient (all,c,COM)(all,sa,SALECAT) SALEMAT(c,sa);
Formula
(all,c,COM) SALEMAT(c,"Interm") = sum{i,IND, V1BAS(c,"dom",i)};
(all,c,COM) SALEMAT(c,"Invest") = sum{i,IND, V2BAS(c,"dom",i)};
(all,c,COM) SALEMAT(c,"HouseH") = sum{h,HH, V3BAS(c,"dom",h)};
(all,c,COM) SALEMAT(c,"Export") = V4BAS(c);
(all,c,COM) SALEMAT(c,"GovGE") = V5BAS(c,"dom");
(all,c,COM) SALEMAT(c,"Stocks") = V6BAS(c,"dom");
(all,c,COM) SALEMAT(c,"margins") = MARSALES(c);
(all,c,COM) SALEMAT(c,"Total") = SALES(c);
(all,c,COM) SALEMAT(c,"Imports") = V0IMP(c);
Write SALEMAT to file SUMMARY header "SLSM" longname "Matrix of domestic commodity sales with total imports";

Write SALEMAT to file SUMMARY header "SLSH" longname "market shares for domestic goods with total import share";
! Excerpt 41 of TABLO input file:
! Weight Vectors for use in aggregation and other calculations!

Write
V1TOT to file SUMMARY header "1TOT" longname "Industry Output";
V2TOT to file SUMMARY header "2TOT" longname "Investment by Industry";
V3TOT_C to file SUMMARY header "3TOC" longname "Total purchases by commodity";
V3TOT_HH to file SUMMARY header "3TOT" longname "Total purchases by each households";
V3TOT_HH_AG to file SUMMARY header "3TAG" longname "Total purchases by each households for agriculture commodity";
V3TOT_HH_MO to file SUMMARY header "3TMO" longname "Total purchases by each households for mining/oil commodity";
V3TOT_HH_MN to file SUMMARY header "3TMN" longname "Total purchases by each households for manufacture commodity";
V3TOT_HH_SE to file SUMMARY header "3TSE" longname "Total purchases by each households for service commodity";
V1PUR_SI to file SUMMARY header "1PUR" longname "Interm.Usage by com at PP";
V2PUR_SI to file SUMMARY header "2PUR" longname "Invest.Usage by com at PP";
V3PUR_S to file SUMMARY header "3PUR" longname "Consumption at Purch.Prices";
V4PUR to file SUMMARY header "4PUR" longname "Exports at Purchasers Prices";
V1LAB_O to file SUMMARY header "LAB1" longname "Industry Wages";
V1CAP to file SUMMARY header "1CAP" longname "Capital Rentals";
V1PRIM to file SUMMARY header "VLAD" longname "Industry Factor Cost";

! Excerpt 42 of TABLO input file:
Set
SALECAT2 # SALE Categories # (Interm, Invest, HouseH, Export, GovGE, Stocks);
FLOWTYPE # type of flow # (Basic, margin, Tax);

Coefficient
(all,c,COM)(all,f,FLOWTYPE)(all,s,SRC)(all,sa,SALECAT2) SALEMAT2(c,f,s,sa)
# Basic, margin and tax components of purchasers' values #;

Formula
(all,c,COM)(all,f,FLOWTYPE)(all,s,SRC)(all,sa,SALECAT2) SALEMAT2(c,f,s,sa)=0;
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Basic","Interm") = sum[i,IND,V1BAS(c,s,i)];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Tax","Interm") = sum[i,IND,V1TAX(c,s,i)];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"margin","Interm") =
  sum[i,IND, sum[m,MAR, V1MAR(c,s,i,m) ]];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Basic","Invest") = sum[i,IND,V2BAS(c,s,i)];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Tax","Invest") = sum[i,IND,V2TAX(c,s,i)];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"margin","Invest") =
  sum[i,IND, sum[m,MAR, V2MAR(c,s,i,m) ]];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Basic","HouseH") = sum[h,HH,V3BAS(c,s,h)];
(all,c,COM)(all,s,SRC) SALEMAT2(c,"Tax","HouseH") = sum[h,HH,V3TAX(c,s,h)];
all, c, COM) SALEMAT2(c, "Basic", s, "GovGE") = V5BAS(c, s);
(all, c, COM) SALEMAT2(c, "Tax", s, "GovGE") = V4TAX(c, s);
all, c, COM) SALEMAT2(c, "Basic", s, "Stocks") = V6BAS(c, s);

Write GOVTREV to file SUMMARY header "TGOV":
Write GOVTEXP to file SUMMARY header "GGOV":

! Business scale extension to model: small, medium, big!
! Excerpt 43 of TABLO input file: 
! Business scale sets 3 units!

Set SCL (Small, Medium, Large);
Set LOCCOM # Local Commodity # (JasaJasa, KilangMinyak);
Subset LOCCOM is subset of COM;
Set MARLOCCOM # Local margin commodities # (JasaJasa);
Subset MARLOCCOM is subset of MAR;
Subset MARLOCCOM is subset of LOCCOM;
Set NONMARLOCCOM # Local non-margin commodities # = LOCCOM - MARLOCCOM;
Set LOCIND # Local industries # (KilangMinyak);
Subset LOCIND is subset of IND;
NATIND = IND - LOCIND;
NATCOM = COM - LOCCOM;

! Excerpt 44 of TABLO input file: 
Business scale variables!

RIABLE
(All, c, LOCCOM)(All, l, SCL) x0_scl(c, l) # Output of business scale commodities #;
(All, i, IND)(All, l, SCL) x1tot_l(c, i, l) # Output of business scale industries #;
(All, l, SCL) labrev_scl(l) # Wage bills by business scale #;
(All, c, LOCCOM)(All, l, SCL) x1csi_scl(c, i, l) # Business scale demands for intermediate inputs #;
(All, c, LOCCOM)(All, l, SCL) x2csi_scl(c, i, l) # Business scale demands for inputs for investment #;
Business scale coefficients from database

(All,c,LOCCOM)(All,s,SRCAll,l,SCL)(all,h,HH)
x3cs_scl(c,s,l) # business scale household demand for goods #;
(All,c,LOCCOM)(All,l,SCL)
x4_scl(c,l) # Foreign exports by business scale #;
(All,c,LOCCOM)(All,s,SRCAll,l,SCL)
x5cs_scl(c,s,l) # business scale "other" demands #;
(All,c,COM)(All,s,SRCAll,i,IND)(All,m,MARLOCCOM)(All,l,SCL)
x1marg_scl(c,s,m,l) # Usage of margins on production by business scale #;
(All,c,COM)(All,s,SRCAll,i,IND)(All,m,MARLOCCOM)(All,l,SCL)
x2marg_scl(c,s,m,l) # Usage of margins on investment by business scale #;
(All,c,COM)(All,s,SRCAll,m,MARLOCCOM)(All,l,SCL)(all,h,HH)
x3marg_scl(c,s,m,l,h)# Usage of margins on private cons by scale #;
(All,c,COM)(All,m,MARLOCCOM)(All,l,SCL)
x4marg_scl(c,s,m,l) # Usage of margins on foreign exports by business scale #;
(All,c,COM)(All,s,SRCAll,m,MARLOCCOM)(All,l,SCL)
x5marg_scl(c,s,m,l) # Usage of margins on "other" demands by business scale #;
(all,i,IND) lsun1(i) # Sum of scale shares in Indonesia-wide ind. production #;
(all,i,IND) lsun2(i) # Sum of scale shares in Indonesia-wide investment #;
(all,c,COM) lsum3(c) # Sum of scale shares in Indonesia-wide consumption #;
(all,c,COM) lsum4(c) # Sum of scale shares in Indonesia-wide foreign exports #;
(all,c,COM) lsum5(c) # Sum of scale shares in Indonesia-wide other demands #;
(all,i,NATIND)lsun_nat(i) # Sum of scale shares in Indonesia-wide production of nat. inds. #;
(all,i,IND) ffsc12(i) # scale-uniform shifts in scshr2(i,l) from scshr1(i,l) #;
(all,c,COM) ffsc13(c) # business-scale-uniform shifts in scshr3(i,l) #;
(all,c,COM) ffsc14(c) # business-scale-uniform shifts in scshr4(i,l) #;
(all,c,COM) ffsc15(c) # business-scale-uniform shifts in scshr5(i,l) #;
(all,i,IND)(All,l,SCL) fsc2(i,l) # Commodity-specific complement of ffsc12 #;
(all,c,COM)(All,l,SCL) fsc3(c,l) # Commodity-specific complement of ffsc13 #;
(all,c,COM)(All,l,SCL) fsc4(c,l) # Commodity-specific complement of ffsc14 #;
(all,c,COM)(All,l,SCL) fsc5(c,l) # Commodity-specific complement of ffsc15 #;
(all,i,IND)(All,l,SCL) scshr1(i,l) # scale shares in Indonesia-wide industry production #;
(all,i,IND)(All,l,SCL) scshr2(i,l) # scale shares in Indonesia-wide industry investment #;
(all,c,COM)(All,l,SCL) scshr3(c,l) # scale shares in Indonesia-wide private consumption #;
(all,c,COM)(All,l,SCL) scshr4(c,l) # scale shares in Indonesia-wide foreign exports #;
(all,c,COM)(All,l,SCL) scshr5(c,l) # scale shares in Indonesia-wide "other" demands #;
(all,i,NATIND)(All,l,SCL) f_x1tot_l(i,l) # scale-specific deviations from normal nat.ind. rule #;
(all,i,NATIND) ff_x1tot_l(i) # scale-uniform deviations from normal nat.ind. rule #;
(All,l,SCL) fttot_scl(l) # Real Gross Business Scale Products (GSP)#;
(All,l,SCL) personscl_scl(l) # Aggregate business scale employment, persons #;
(all,i,IND)(All,l,SCL) zcon_scl(i,l) # Contributions to deviations in total scale outputs from
national GDP #;
(all,i,IND)(All,l,SCL) person_scl(i,l) # Employment by industry and business scale, persons #;
(All,l,SCL) q_scl(l) # Population by business scale #;

Excerpt 45 of TABLO input file: 

Business scale coefficients from database!
Variable
qnat # national population: q is by household #;

Read
SCLSHARE1 from file mdata Header "1SCL";
SCLSHARE2 from file mdata Header "2SCL";
SCLSHARE3 from file mdata Header "3SCL";
SCLSHARE4 from file mdata Header "4SCL";
SCLSHARE5 from file mdata Header "5SCL";

Update
(all,i,IND)(All,l,SCL) SCLSHARE1(i,l) = scshr1(i,l);
(all,i,IND)(All,l,SCL) SCLSHARE2(i,l) = scshr2(i,l);
(all,c,COM)(All,l,SCL) SCLSHARE3(c,l) = scshr3(c,l);
(all,c,COM)(All,l,SCL) SCLSHARE4(c,l) = scshr4(c,l);
(all,c,COM)(All,l,SCL) SCLSHARE5(c,l) = scshr5(c,l);

! Excerpt 46 of TABLO input file: !
! Business Scale coefficients calculated within model!

Coefficient
(All,l,SCL) LABINDSCL(i,l) # Labour bills by industry and scale #;
(All,l,SCL) LABSCLTOT(l) # Total labour bill by scale #;
(All,l,SCL) VALUADD(i,l) # Factor bills by industry and scale #;
(All,l,SCL) VALUADDTOT(l) # Total factor bill by business scale #;

Formula
(All,i,IND)(All,l,SCL) LABINDSCL(i,l) = V1LAB_O(i)*SCLSHARE1(i,l);
(All,l,SCL) LABSCLTOT(l) = SUM(i,IND, LABINDSCL(i,l));
(All,i,IND)(All,l,SCL) VALUADD(i,l) = V1PRIM(i)*SCLSHARE1(i,l);
(All,l,SCL) VALUADDTOT(l) = SUM(i,IND, VALUADD(i,l));

Zerodivide (zero_by_zero) default 0.1;
Zerodivide (nonzero_by_zero) default 0.1;

Formula
(i,IND)(All,l,SCL) SCLSHARE(i,l) = LABINDSCL(i,l)/SUM(s,SCL,LABINDSCL(i,s));
Zerodivide (zero_by_zero) off;
Zerodivide (nonzero_by_zero) off;

Write
SCLSHARE to file SUMMARY header "3SHR" longname "Share of consumption";

Coefficient (all,c,LOCCOM)(All,l,SCL) TDEMSCL(c,l) # All basic + margin use of good c in business scale l #;

! Excerpt 47 of TABLO input file: !
Business Scale formulae!
Formula

\( \text{TOTDEMSCL}(c,l) = \text{SUM}(i, \text{IND}, \text{SCLSHARE1}(i,l) \times \text{V1BAS}(c,"\text{dom"},i)) + \text{SUM}(i, \text{IND}, \text{SCLSHARE2}(i,l) \times \text{V2BAS}(c,"\text{dom"},i)) + \text{V4BAS}(c) \times \text{SCLSHARE4}(c,l) + \text{V5BAS}(c,"\text{dom"}) \times \text{SCLSHARE5}(c,l) + \text{SUM}(u, \text{COM}, \text{V4MAR}(u,c) \times \text{SCLSHARE4}(u,l)) + \text{SUM}(s, \text{Src}, \text{SUM}(h, \text{HH}, \text{V3MAR}(u,s,c,h)) \times \text{SCLSHARE3}(u,l)) + \text{SUM}(i, \text{IND}, \text{SCLSHARE1}(i,l) \times \text{V1MAR}(u,s,i,c) + \text{SCLSHARE2}(i,l) \times \text{V2MAR}(u,s,i,c)) \));

Formula

\( \text{TOTDEMSCL}(c,l) = \text{SUM}(i, \text{IND}, \text{SCLSHARE1}(i,l) \times \text{V1BAS}(c,"\text{dom"},i)) + \text{SUM}(i, \text{IND}, \text{SCLSHARE2}(i,l) \times \text{V2BAS}(c,"\text{dom"},i)) + \text{V4BAS}(c) \times \text{SCLSHARE4}(c,l) + \text{V5BAS}(c,"\text{dom"}) \times \text{SCLSHARE5}(c,l) + \text{SUM}(s, \text{Src}, \text{SUM}(h, \text{HH}, \text{V3MAR}(u,s,c,h)) \times \text{SCLSHARE3}(u,l)) + \text{SUM}(i, \text{IND}, \text{SCLSHARE1}(i,l) \times \text{V1MAR}(u,s,i,c) + \text{SCLSHARE2}(i,l) \times \text{V2MAR}(u,s,i,c)) \));

! Excerpt 48 of TABLO input file: !

"Business scale equations: direct and marginal demands follow business scale shares !"

Equation

\( \text{E}_{x1csi_scl} \) Direct intermediate demands by industry and business scale #

\((\text{All}, c, \text{LOCCOM})(\text{All}, s, \text{Src})(\text{All}, i, \text{IND})(\text{All}, l, \text{SCL}) \times_1 \text{csi}_scl(c,s,i,l) = x_1(c,s,i) + \text{scshr1}(i,l);\)

\( \text{E}_{x2csi_scl} \) Direct investment demands by industry and business scale #

\((\text{All}, c, \text{LOCCOM})(\text{All}, s, \text{Src})(\text{All}, i, \text{IND})(\text{All}, l, \text{SCL}) \times_2 \text{csi}_scl(c,s,i,l) = x_2(c,s,i) + \text{scshr2}(i,l);\)

\( \text{E}_{x3cs_scl} \) Consumption by business scale #

\((\text{All}, c, \text{LOCCOM})(\text{All}, l, \text{SCL})(\text{All}, s, \text{Src})(\text{All}, h, \text{HH}) \times_3 \text{cs}_scl(c,s,l,h) = x_3(c,s,h) + \text{scshr3}(c,l);\)

\( \text{E}_{x4_scl} \) Foreign exports by business scale #

\((\text{All}, c, \text{LOCCOM})(\text{All}, l, \text{SCL}) \times_4 \text{scl}(c,l) = x_4(c) + \text{scshr4}(c,l);\)

\( \text{E}_{5cs_scl} \) "Other" demands by business scale #

\((\text{All}, c, \text{LOCCOM})(\text{All}, s, \text{Src})(\text{All}, l, \text{SCL}) \times_5 \text{cs}_scl(c,s,l) = x_5(c,s) + \text{scshr5}(c,l);\)

\( \text{E}_{1marg_scl} \) margin intermediate demands by industry and business scale #

\((\text{All}, c, \text{COM})(\text{All}, s, \text{Src})(\text{All}, i, \text{IND})(\text{All}, m, \text{MARLOCCOM})(\text{All}, l, \text{SCL}) \times_1 \text{marg}_scl(c,s,i,m,l) = x_{1\text{mar}}(c,s,i,m) + \text{scshr1}(i,l);\)

\( \text{E}_{2marg_scl} \) margin investment demands by industry and business scale #
(all,c,COM)(All,s,Src)(all,i,IND)(All,m,MARLOCCOM)(All,l,SCL)
x2marg_scl(c,s,i,m,l) = x2mar(c,s,i,m) + scshr2(i,l);

E_x3marg_scl
# margin private consumption by business scale #
(all,c,COM)(All,s,Src)(All,m,MARLOCCOM)(All,l,SCL)(all,h,HH)
x3marg_scl(c,s,m,l,h) = x3mar(c,s,m,h) + scshr3(c,l);

E_x4marg_scl
# margin to foreign export by business scale #
(all,c,COM)(All,m,MARLOCCOM)(All,l,SCL)
x4marg_scl(c,m,l) = x4mar(c,m) + scshr4(c,l);

E_scshr1
# business scale shares of industry production #
(all,i,IND)(All,l,SCL) scshr1(i,l) = x1tot_l(i,l) - x1tot(i);

E_scshr2
# scale shares of industry investment related to regional production shares #
(all,i,IND)(All,l,SCL)scshr2(i,l) = scshr1(i,l) + fsc12(i,l)+ ffsc12(i);

E_qnat
# Indonesia-wide population equals sum of business scale populations #
Sum(l,SCL,LABSCLTOT(l))*qnat = Sum(s,SCL,LABSCLTOT(s)*q_scl(s));

E_scshr3
# scale shares in private cons'n move with regional labour income shares #
(all,c,COM)(All,l,SCL) scshr3(c,l) = (labrev_scl(l) - w1lab_io) + fscl3(c,l)+ ffsc12(c);

E_scshr4
# business scale shares in foreign exports #
(all,c,COM)(All,l,SCL) scshr4(c,l) = fsc14(c,l)+ ffsc14(c);

E_scshr5
# business scale shares in "other" demands #
(all,c,COM)(All,l,SCL) scshr5(c,l) = fsc15(c,l)+ ffsc15(c);

E_sum1
# For checking purposes: rsum1 should be endogenous and zero #
(all,i,IND) Sum(l,SCL, SCLSHARE1(i,l)*scshr1(i,l)) = lsum1(i);

E_sum2
# For checking purposes: rsum2 should be endogenous and zero #
(all,i,IND) Sum(l,SCL, SCLSHARE2(i,l)*scshr2(i,l)) = lsum2(i);

E_sum3
# For checking purposes: rsum3 should be endogenous and zero #
(all_c,COM) ∑(l,SCL, SCLSHARE3(c,l)*scshr3(c,l)) = lsum3(c);

E_lsum4
# For checking purposes: rsum4 should be zero #
(all_c,COM) ∑(l,SCL, SCLSHARE4(c,l)*scshr4(c,l)) = lsum4(c);

E_lsum5
# Used to ensure rsum5 is zero #
(all_c,COM) ∑(l,SCL, SCLSHARE5(c,l)*scshr5(c,l)) = lsum5(c);

Excerpt 42 of TABLO input file: !
! Output of three Business scale industry types!

Equation

E_x0_scl_A
# Output of nonmargins local commodities, Green book, eq39.8a #
(All,l,NONMARLOCCOM)(All,l,SCL) TOTDEMscl(i,l)*x0_scl(i,l)
SUM(i,IND, SCLSHARE1(i,l)*V1BAS(i,"dom",i)*x1csi_scl(i,"dom",i,l))
SUM(i,IND, SCLSHARE2(i,l)*V2BAS(i,"dom",i)*x2csi_scl(i,"dom",i,l))
+ SCLSHARE3(i,l)*SUM(h,HH,V3BAS(i,"dom",h)*x3cs_scl(i,"dom",h,l))
+ V4BAS(i)*SCLSHARE4(i,l)*x4_scl(i,l)
+ V5BAS(i,"dom")*SCLSHARE5(i,l)*x5cs_scl(i,"dom",l);

E_x0_scl_B
# Usage of margins local commodities #
(All,c,MARLOCCOM)(All,l,SCL) TOTDEMscl(c,l)*x0_scl(c,l)
SUM(i,IND, SCLSHARE1(i,l)*V1BAS(c,"dom",i)*x1csi_scl(c,"dom",i,l))
SUM(i,IND, SCLSHARE2(i,l)*V2BAS(c,"dom",i)*x2csi_scl(c,"dom",i,l))
+ SCLSHARE3(c,l)*SUM(h,HH,V3BAS(c,"dom",h)*x3cs_scl(c,"dom",h,l))
+ V4BAS(c)*SCLSHARE4(c,l)*x4_scl(c,l)
+ V5BAS(c,"dom")*SCLSHARE5(c,l)*x5cs_scl(c,"dom",l)
+ SUM(u,COM, V4MAR(u,c)*SCLSHARE4(u,l)*x4marg_scl(u,c,l))
+ SCLSHARE3(u,l)*SUM(s,Src, V3MAR(u,s,c,h)*x3marg_scl(u,s,c,l,h))
+ SUM(s,Src, V5MAR(u,s,c)*SCLSHARE5(u,l)*x5marg_scl(u,s,c,l))
+ SUM(i,IND, SCLSHARE1(i,l)*V1MAR(u,s,i,c)*x1marg_scl(u,s,i,c,l)
+ SCLSHARE2(i,l)*V2MAR(u,s,i,c)*x2marg_scl(u,s,i,c,l)));

E_x1tot_l_A
# Supplies of local commodities related to production of local industries #
(All,c,LOCCOM)(All,l,SCL) x0_scl(c,l) = \text{SUM}(j,IND, \{MAKE(c,j)/MAKE_I(c)\}*x1tot_l(j,l));

E_x1tot_l_B
# Output of national industries eq39.2, DPSV P.260 #
(All,i,NATIND)(All,l,SCL) x1tot_l(i,l) = x1tot(i) + f_x1tot_l(i,l) + ff_x1tot_l(i) + zcon_scl(i,l);
lsum_nat
# Adding up rule for national industries: lsum_nat normally end. and zero #
(All,i,NATIND) ∑(l,SCL, SCLSHARE1(i,l)*x1tot_l(l,i)) = x1tot(i) + lsum_nat(i);

Excerpt 49 of TABLO input file: !
! Extra scale equations for reporting variables !
Equation

E_labrev_scl # Total wage bills by business scale #
(All.l,SCL) LABSCLTOT(l)*labrev_scl(l) = SUM(i,IND, SCLSHARE1(i,l)*
SUM(o,OCC, V1LAB(i,o)*{sclshr1(i,l) + p1lab(i,o) + x1lab(i,o)} )
);

E_ztot_scl # Gross business scale Products (income weights) #
(All.l,SCL) ztot_scl(l) = x1prim_i + SUM(i,IND, zcon_scl(i,l))

# Contributions to deviations in total scale outputs from national GDP #
con_scl (i,IND)(All.l,SCL) zcon_scl(i,l) = [{VALUADD(i,l)/VALUADDTOT(l)}
- [V1PRIM(i)/SUM(k,IND, V1PRIM(k))]*[x1tot_l(i,l) - x1prim_i]
+ [V1PRIM(i)/SUM(k,IND, V1PRIM(k))]*[x1tot_l(i,l) - x1tot(i)]
]

E_person_scl # employment by business scale and industry#
person_scl(i,l) = x1lab_o(i) + sclshr1(i,l);

Display LABINDSCL;
Display LABSCLTOT;
! end of addition!
! end of file!
Exogenous  gret ; !IND Gross rate of return = Rental/[Price of new capital]
Exogenous  employ_i; !aggregate employment, wage bill weights
Exogenous  q ; ! HH Number of households
Exogenous  f5 ; ! COM*SRC Government demand shift!
Exogenous  f4p ; ! COM Price (upward) shift in export demand schedule
Exogenous  f4q ; ! COM Quantity (right) shift in export demands
Exogenous  fx6 ; ! COM*SRC Shifter on rule for stocks
Exogenous  pe ; !COM Basic price of export commodity
Exogenous  a3_s ; ! COM*HH Taste change, hhold imp/dom composite
Exogenous  a1fac ; ! AGRIFAC*AGIND Primary factor tech. change, agri.
Exogenous  a1tot ; ! IND All input augmenting technical change
Exogenous  a2tot ; ! IND Neutral technical change - investment
Exogenous  f1oct ; ! IND Shift in price of "other cost" tickets
Exogenous  t0imp ; ! COM Power of tariff
Exogenous  a1faco ; ! N_AGRIFAC*N_AGIND Prim. factor tech. change, other
Exogenous  f5tot2 ; ! / Ratio between f5tot and x3tot
Exogenous  fgov_f ; ! TYPE Shift in transfers: govt. -- foreign
Exogenous  fgov_h ; ! HH*TYPE Shift in transfers: govt. -- households
Exogenous  pf0cif ; ! COM C.I.F. foreign currency import prices
Exogenous  f0tax_s ; ! COM General sales tax shifter
Exogenous  f3tot_h ; ! HH Ratio, consumption/income by hh
Exogenous  f3tax_s ; ! / Uniform % change in powers of taxes on hh usage
Exogenous  f5tax_cs ; ! / Uniform % change in powers of taxes on gov. usage
Exogenous  f1inc_tax ; ! / Overall income tax shifter
Exogenous  f1lab_i_x ; ! OCC Skill-specific labour shifter
Exogenous  f1tax_csi ; ! / Uniform % change in powers of taxes on intermediate usage
Exogenous  f2tax_csi ; ! / Uniform % change in powers of taxes on investment
Exogenous  x1cap_vah ; ! HH Variable capital by household, agri.
Exogenous  x1cap_vnh ; ! HH Variable capital by household, non-agri.
Exogenous  x1lab_i_h ; ! OCC*HH Household labour supply
Exogenous  x1lndi_hh ; ! AGIND*HH Household supply of land, agri.
Exogenous  x1cap_f_hh ; ! N_AGIND*HH Fixed capital by hhold, non-ag.
Exogenous  finv3 ; ! IND Shifter for longrun investment rule
Exogenous  invslack ; ! / Investment slack variable for exogenizing agg. investment
Exogenous  ff scl2 ; ! IND
Exogenous  ff scl3 ; ! COM
Exogenous  ff scl4 ; ! COM
Exogenous  ff scl5 ; ! COM
Exogenous  ff x1tot_l ; ! NATIND
Exogenous  f x1tot_l ; ! NATIND*SCL
Exogenous  f scl2 ; ! IND*SCL
Exogenous  f scl3 ; ! COM*SCL
Exogenous  f scl4 ; ! COM*SCL
Exogenous  f scl5 ; ! COM*SCL
Exogenous  q_scl ; ! SCL
Rest endogenous;