Development of the Latvian Macroeconomic Model in the Context of Competitiveness

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LAIMA 9 - Latvian Inter-industry Model, Annual, with 9 Industries

For Training, Education and Research
Contents

- Model structure and ideas
- Some data issues
- Further tasks
9 industries:
- Agriculture
- Industry
- Construction
- Trade and hospitality
- Transport
- Public administration
- Education
- Health care
- Other services

\[ \text{ex}[i] = \text{exq}[i] \times \text{EX}[t]; \]
\[ \text{im}[i] = \text{imq}[i] \times \text{out}[i]; \]
\[ \text{IM}[t] = \text{im}.\text{sum}(); \]
\[ \text{hces}[i] = \text{hcesq}[i] \times \text{HCES}[t]; \]
\[ \text{gces}[i] = \text{gcesq}[i] \times \text{GCES}[t]; \]
\[ \text{gcf}[i] = \text{gcfq}[i] \times \text{GCF}[t]; \]
\[ \text{fd} = \text{hces} + \text{gces} + \text{gcf} + \text{ex}; \]
\[ \text{GDP}[t] = \text{HCES}[t] + \text{GCES}[t] + \text{GCF}[t] + \text{EX}[t] - \text{IM}[t]; \]
\[ \text{out} = !(I - \text{AT}) \times (\text{fd} - \text{im}); \]
\[ \text{OUT}[t] = \text{out}.\text{sum}(); \]
\[ \text{iit} = \text{ebemul}(%\text{colsum(\text{AT})},\text{out}); \]
\[ \text{IIT}[t] = \text{iit}.\text{sum}(); \]
\[ \text{valu} = \text{out} - \text{iit}; \]
\[ \text{VALU}[t] = \text{valu}.\text{sum}(); \]
Model Structure

\[ \text{out} = \left( \begin{array}{c} I \\ -A \end{array} \right) -1 \]

- orange – exogenous
- green – endogenous

Final demand by industries:

- hces
- gces
- gcf
- ex
- im

OUT

\[ \text{valu} \]

VALU

POPU

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Total increase of population
\[ \text{POP}_I[t] = \text{POP}_N\text{I}[t] + \text{POP}_N\text{M}[t]; \]
Number of population at the beginning of the year
\[ \text{POP}_B\text{Y}[t] = \text{POP}_B\text{Y}[t-1] + \text{POP}_I[t-1]; \]
Average number of population
\[ \text{POPU}[t] = \text{POP}_B\text{Y}[t] + 0.5 \times \text{POP}_I[t] \]
Model Runs

Net Migration

Number of Population
Model Runs

Real GDP

GDP use

Riga Technical University
Model Runs

OUTPUT by industries

Riga Technical University
Competitiveness

- Exports + Export Structure
- Input-output coefficients $\rightarrow$ value added per unit of output
- Labour productivity
- Unit labour costs

$\rightarrow$ Increasing shares for more competitive industries
$\rightarrow$ Less inputs, more effective production
$\rightarrow$ Increases for competitive industries
$\rightarrow$ Increases less than productivity for competitive industries
Some Data Issues

- Export structure

- Import structure
Some Data Issues

- «Updating IO»
- RAS?
Further Tasks

- Update IO tables for other years
- Improve the structure of the model
- Get more detailed and recent IO table
- Make another version of LAIMA
Thank you