The MAKRO project

December 2017

WHAT DO WE USE MACRO-MODELS FOR?

Medium and long term projections

- Notably medium-term *budgetary outlook* and *fiscal sustainability*

- Also as a framework for short-term forecasts.

Structural fiscal balance in projections

Policy evaluation

- Impact of fiscal initiatives, fiscal stance, a... reforms (structural effects, e.g. labour supply effects, are primarily assessed in micro-based models)

Exogenous shocks and risk scenarios

- Example: What if interest rates stay low for longer – house prices, overheating risks?

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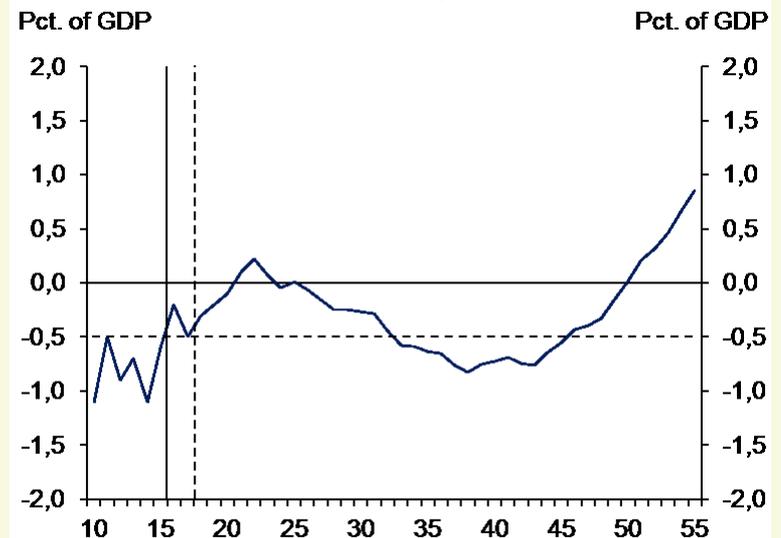
DK POLICY FRAMEWORK AND ITS EVOLUTION

Three decades of structural reforms

• Structural reforms have been key in bringing down unemployment, shoring up public finances and preparing for aging.

• DK economy currently in good shape: high employment, low unemployment, moderate inflation, sustainable public finances…

Fiscal policy framework

• Fiscal policy targets: long-term sustainab[l] balance.

The model should incorporate these key fiscal variables and help in assessing them.

Employment

1.000 persons   1.000 persons

2017

Actual

Structural

Structural
without reforms
since 2011
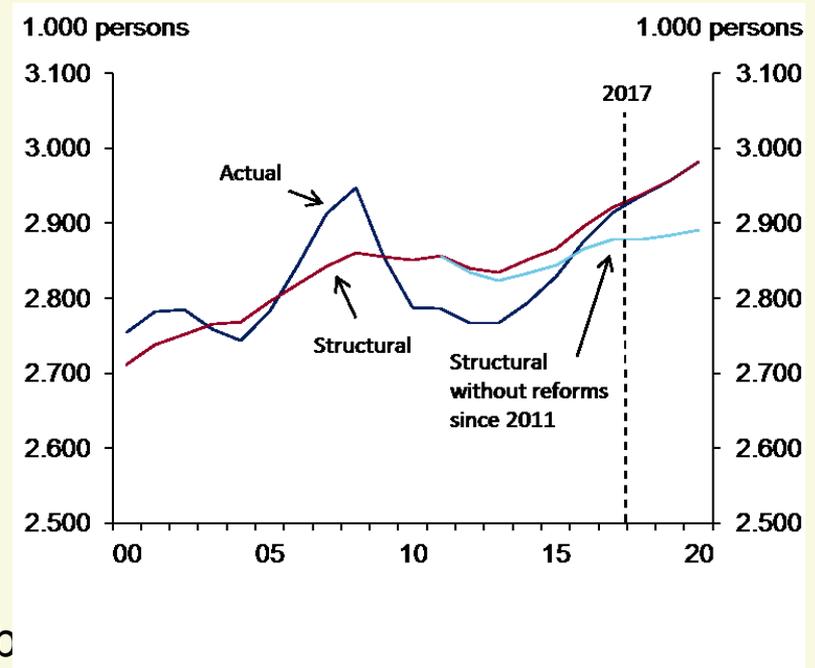
MODEL NEEDS / WISHES

- Integrate <u>structural levels</u> more explicitly in the model

- Contain some element of <u>forward-looking expectations</u> (as well as OLG households)

- Draw on a range of empirical evidence, including <u>empirical foundation of overall model properties</u>

<u>This</u> project is not about:

- Potential dynamic effects of public consumption spending, tax elasticities, environmental policies…

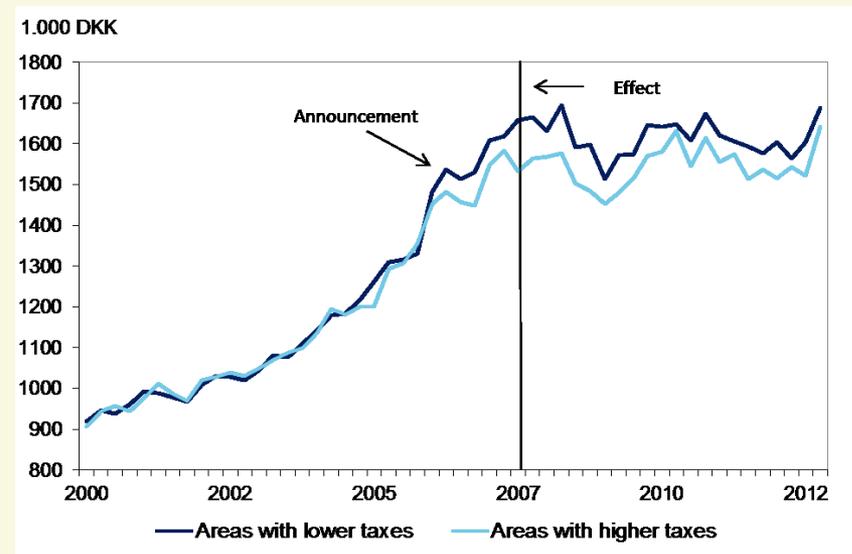- These are subject to separate reviews and projects

STRUCTURAL LEVELS – OUTPUT, EMPLOYMENT, UNEMPLOYMENT, FISCAL BALANCE

- Having structural measures in the model facilitates model use and interpretation.

- *DK experience*: reforms have lowered structural unemployment. Recent crisis impact not 'hysteretic'

Unemployment

Wages and unemployment gap

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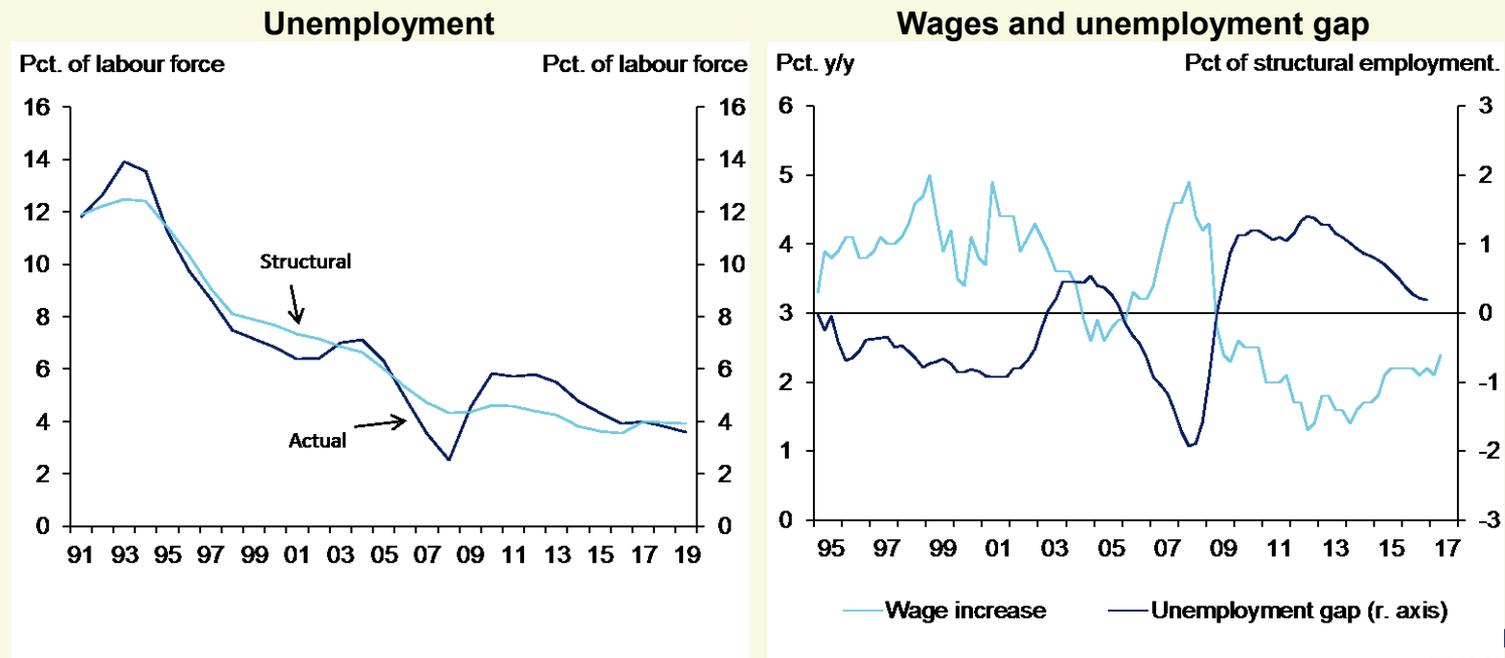
SOME DEGREE OF FORWARD-LOOKING EXPECTATIONS

- Expectations-formation is key in macro-modelling. Policy relevance, e.g.:

  o MPC out of temporary vs. permanent tax changes

  o Adjustment to structural reforms, e.g. pensions.

  o Pre-announced corporate tax reduction (e.g. DK 2013)

- Some degree of forward-lookingness does not mean all agents should be fully rational and possess full information.

- It will be an empirical question and up to the modeling work to determine expectations-formation in the model.


1.000 DKK

Announcement

Effect

Areas with lower taxes   Areas with higher taxes

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Source: Danish Economic Council, Spring 2016

DANISH DEBATE ON REFORMS: ADJUSTMENT SPEED AND MECHANISMS

ADAM model pre-2016:

- lengthy adjustment period (15-20 yrs excl. fiscal reaction function)

- external competitiveness only channel; Armington-model and long-term real wage loss

Smaller models, e.g. DSGE or Blanchard-Quah VAR (MoF, 2014):

- adjustment time e.g. 3-5 years (*including* fiscal reaction – comparable to 7-8 years in ADAM including fiscal reaction).

1.000 persons   1.000 persons

ADAM: No FP reaction   ADAM: With FP reaktion
DSGE   VAR
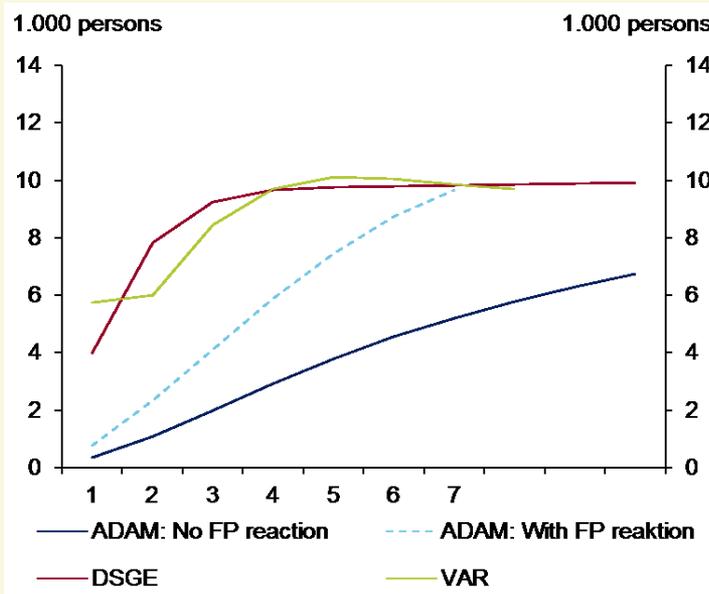
Other evidence, e.g. Krugman's 45-degree rule:

Countries with higher supply growth generally see higher exports with little or no need for real depreciation:

- through product variety or more companies entering export markets (now included in ADAM).

Event studies.

Micro evidence: small mark-ups in trade sector.

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THE ROAD AHEAD

- Annual model – overlapping generations – great institutional detail

- Projections – scenarios – policy analysis.

- Structural levels – some degree of forward looking behaviour

- Behaviour as far as possible derived from optimization problems

- But subject to a range of potential imperfections to be explored, e.g:

  o *incomplete information, bounded rationality, financial constraints, heterogeneity…?*

- Challenging: large empirical model <u>and</u> theoretically well-founded

- Open process: Looking forward to views and contributions!

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