



FINANSMINISTERIET

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.

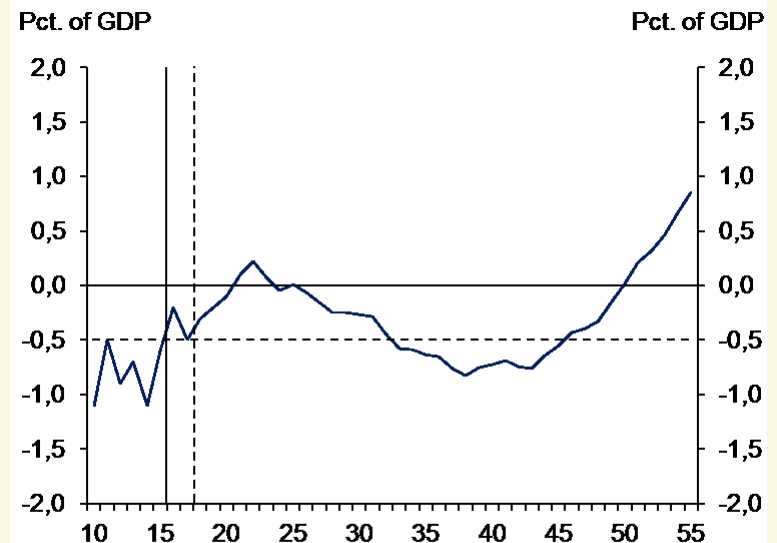
Policy evaluation

- Impact of fiscal initiatives, fiscal stance, and 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?

Structural fiscal balance in projections



DK POLICY FRAMEWORK AND ITS EVOLUTION

Three decades of structural reforms

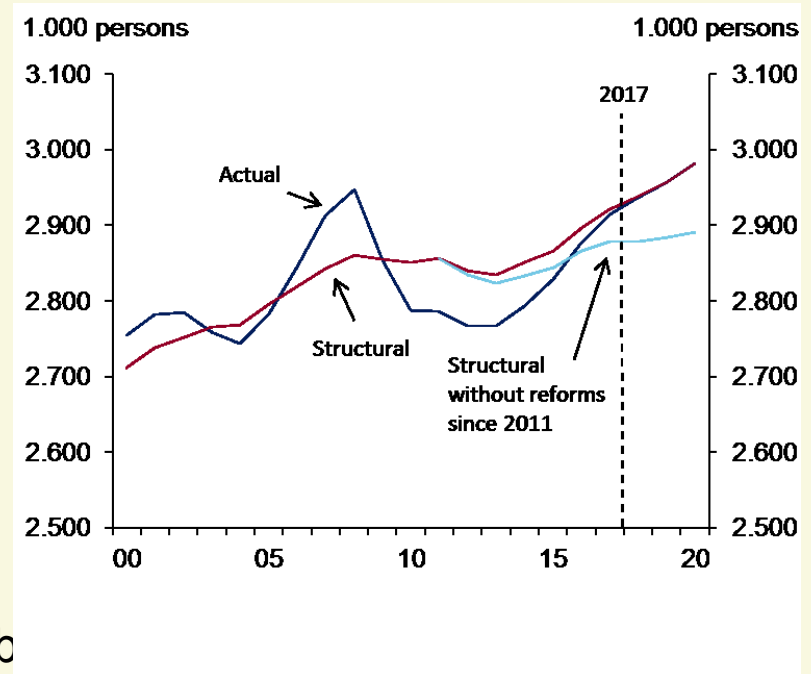
- Structural reforms have been key in bringing down unemployment, shoring up public finances and preparing for aging.
- DK economy currently in good shape: high employment, low unemployment, moderate inflation, sustainable public finances...

Fiscal policy framework

- Fiscal policy targets: long-term sustainable balance.

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

Employment



MODEL NEEDS / WISHES

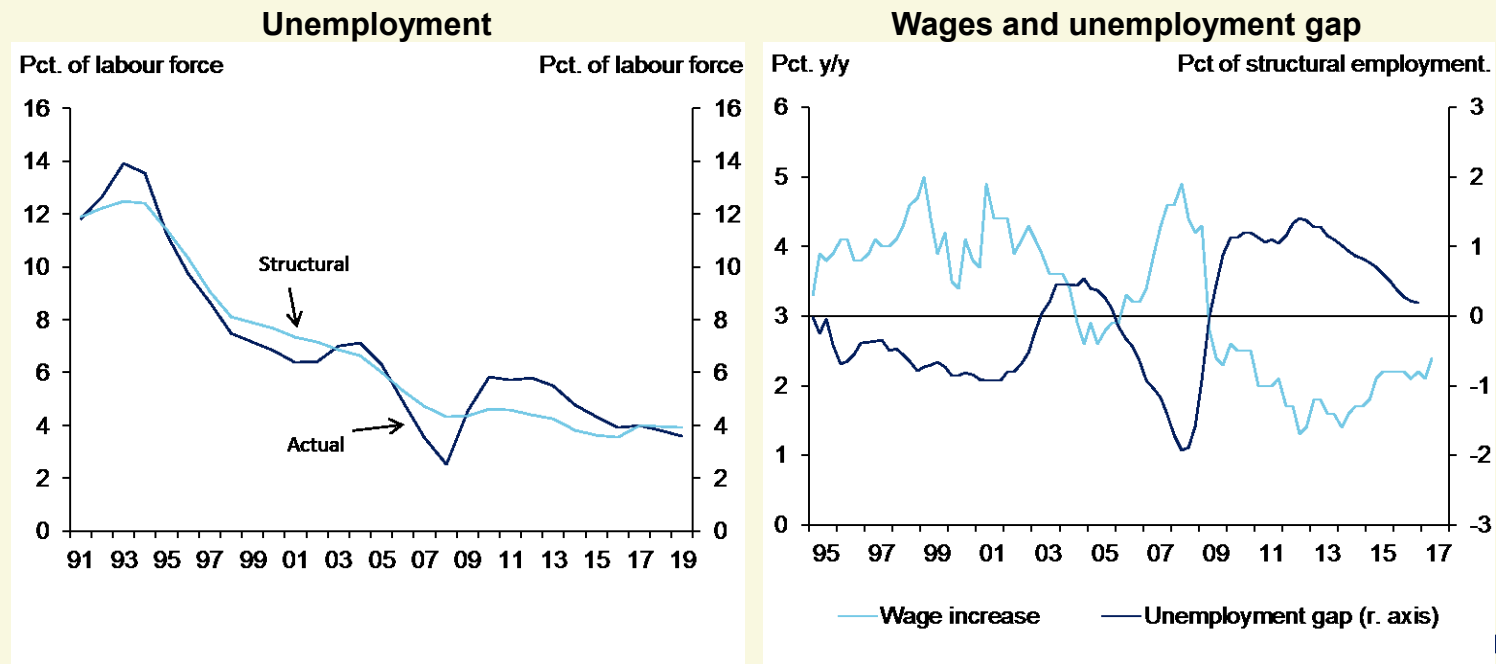
- Integrate structural levels more explicitly in the model
- Contain some element of forward-looking expectations (as well as OLG households)
- Draw on a range of empirical evidence, including empirical foundation of overall model properties

This project is not about:

- Potential dynamic effects of public consumption spending, tax elasticities, environmental policies...
- These are subject to separate reviews and projects

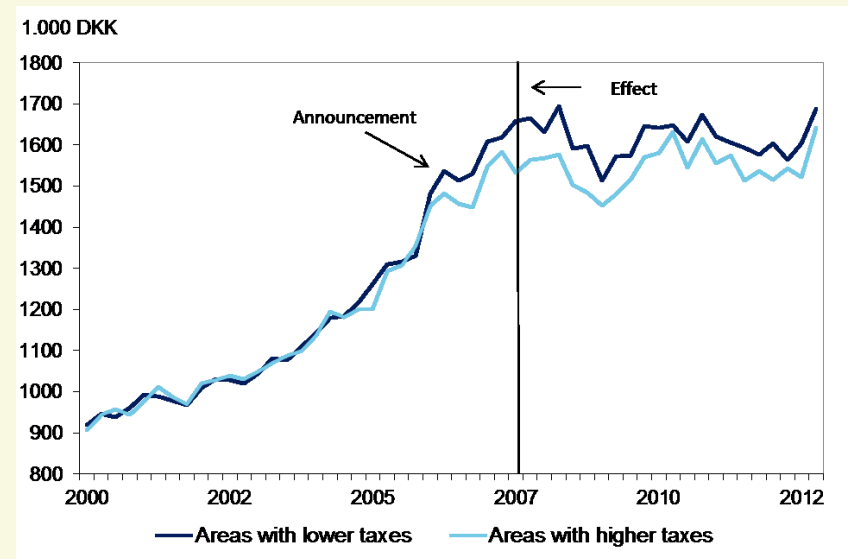
STRUCTURAL LEVELS – OUTPUT, EMPLOYMENT, UNEMPLOYMENT, FISCAL BALANCE

- Having structural measures in the model facilitates model use and interpretation.
- *DK experience*: reforms have lowered structural unemployment. Recent crisis impact not ‘hysteretic’



SOME DEGREE OF FORWARD-LOOKING EXPECTATIONS

- Expectations-formation is key in macro-modelling. Policy relevance, e.g.:
 - MPC out of temporary vs. permanent tax changes
 - Adjustment to structural reforms, e.g. pensions.
 - 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.



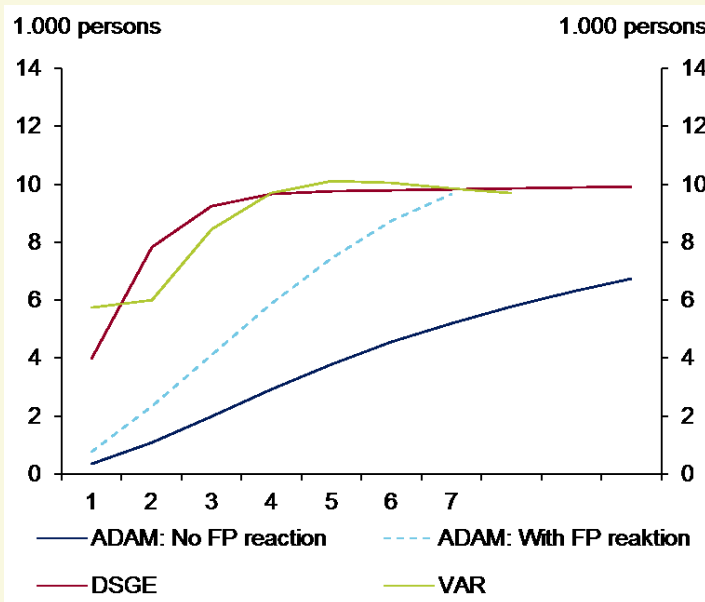
DANISH DEBATE ON REFORMS: ADJUSTMENT SPEED AND MECHANISMS

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).



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.

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:
 - *incomplete information, bounded rationality, financial constraints, heterogeneity...?*
- Challenging: large empirical model and theoretically well-founded
- Open process: Looking forward to views and contributions!