

# The Quarterly Japanese Economic Model

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in SEMI-STRUCTURAL MODELS

# 1. Introduction

## Mission of Q-JEM

### Quarterly Forecast Exercises

- Comparison of Q-JEM's forecast with judgmental forecast
  - ✓ Reported to the Policy Board
  - ✓ *Outlook for Economic Activity and Prices*

### Policy Simulations

- Scenario analysis for risk assessment
  - ✓ Changes in foreign GDP/exchange rate/oil price
- Assessment of the effectiveness of monetary policy
  - ✓ Policy rate change
  - ✓ Unconventional monetary policy (Kan et al. 2016, BOJ-WP)

# 1. Introduction

## The (Short-term) Goal and Recent Developments

### Program/Infrastructures

- Applying Dulmage-Mendelsohn Decomposition for solving the model
  - ✓ Forecasting : 5 min (in 2017 version) ➔ 20 sec (current)
  - ✓ Simulation : 7 min (in 2017 version) ➔ 2 min (current)

### Transparency/Public access

- Sharing the replication files of the simulations on the website  
Hirakata et al. (2019), [https://www.boj.or.jp/en/research/wps\\_rev/wps\\_2019/wp19e07.htm/](https://www.boj.or.jp/en/research/wps_rev/wps_2019/wp19e07.htm/)

### Ongoing Works: Transmission Channels for UMPs

- Inflation Targeting, Quantitative and Qualitative Easing, Negative Interest Rate Policy, Yield Curve Control, Overshooting Commitment
- Expectations Formation Mechanism

## 2. ABCs of Q-JEM

### Overview

#### Semi-structural model

- High flexibility
- Closely fitting the data
- Not necessarily micro-founded
  - ✓ Expectations formation is not model consistent

#### Model system

- 900 equations and Equation-by-Equation estimation
  - ✓ Detailed modeling of GDP expenditure components, financial markets and inflation dynamics
- Error correction mechanism to long-run equilibrium

## 2. ABCs of Q-JEM

### Core features of the Model

