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Medium term macroeconomic and public finances projections: the Italian experience

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Italian Ministry of Economy and Finance, Treasury Department

MINISTERO DELL'ECONOMIA E DELLE FINANZE

MEDIUM TERM PROJECTIONS FOR ITALY

Outline of the presentation

- **Setting the scene:** the current projection methods
- **A new baseline:** a work in progress
- **Simulation scenarios – two extreme cases:**
  - +100 bp on yield curve
  - Tax wedge cut
- **Further extensions** on real-time potential growth and output gap estimates; structural external imbalances.

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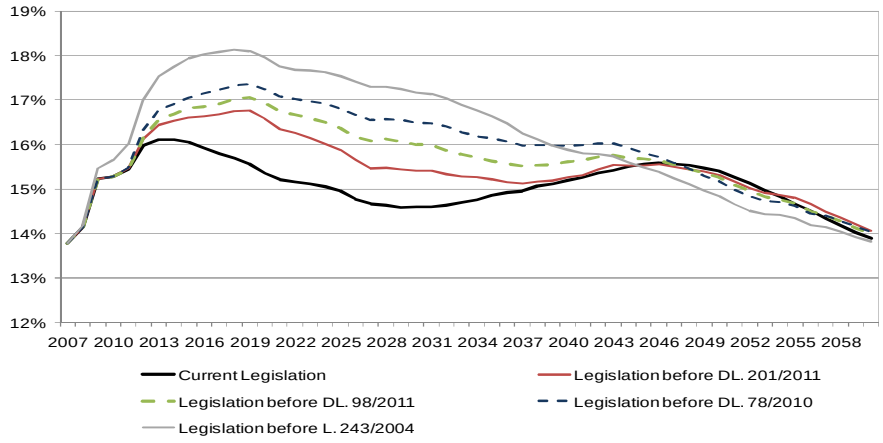
MEDIUM TERM PROJECTIONS FOR ITALY

Current Framework

- Based on long run demographic projections (Europop2010, Istat 2011)
- Cohort Simulation Model (CSM) for labour force projections
- Convergence to a pre-crisis NAWRU
- Convergence to 1% TFP growth in 2025
- Capital rule

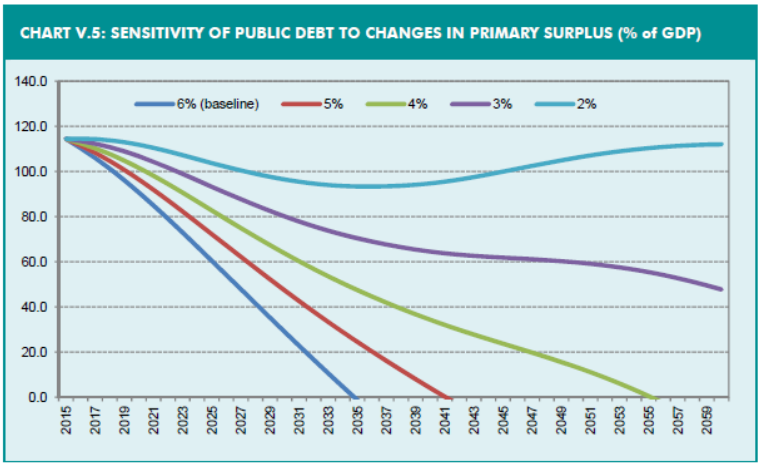
CURRENT FRAMEWORK

Long-term projections: pension expenditures/GDP (DEF2012)



CURRENT FRAMEWORK

Debt/GDP projections: alternative assumptions (DEF 2012)



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CURRENT FRAMEWORK

Shortcomings and need for further developments

- **Medium to long term projections in Stability Programs** – AWG Framework to project debt/GDP
  - Long Run approach
  - Difficult to use as a no-policy change scenario
  - Difficult to use for alternative scenarios
  - Difficult to use for simulating structural reforms different from pensions.

- **Need to refine the analysis** – a new baseline scenario for medium term projections in application of the Constitutional Amendment introducing a Budget Balance Fiscal Rule in Italy and in the Six Pack Stability and Growth Pact

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THE CONSTITUTIONAL AMENDMENT

The Budget balance rule in constitution (L.C.1/2012) and the Secondary legislation (reinforced law – December 2012)

- Government balance in equilibrium in structural term → at the MTO
- Admissible government deficit/surplus depending of the phases of the cycle (Output gap)
- Significant deviations from MTO needs to be corrected immediately
- Definition of exceptional circumstances
- Application of the debt rule
- Application of the expenditure rule
- Sub-national level of government in equilibrium
- Creation of a fiscal council

Monitoring MTO + Debt/GDP developments on real time basis and on a medium term span

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THE BASELINE MEDIUM TERM PROJECTIONS

The Medium Term Scenario – a work in progress

- **Reliance on the work developed at the Output Gap Working Group** (work in progress)
- **Refined public debt and primary balance projections**
- **Possibility to introduce shocks and simulate the impact of structural reforms**
- Possible extensions to external imbalances (in progress)

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THE BASELINE MEDIUM TERM PROJECTIONS

Medium Term Scenario: projection strategy (1)

Update of DEF (Sept. 2012) - Baseline macroeconomic outlook

	2012	2013	2014	2015
Real GDP growth rate	-2.4	-0.2	1.1	1.3
Gross fixed capital formation (% ch.)	-8.3	0.1	2.6	2.8
GDP deflator	1.4	1.4	1.9	1.9
Nominal GDP growth rate	-1.0	1.2	3.0	3.2
Consumption deflator	2.6	2.0	1.9	1.9
Wage growth	1.1	0.9	1.2	1.2
Labour prdouctivity	-1.2	0.1	0.6	0.7
Unemployment rate	10.8	11.4	11.3	10.9
Employment growth	-0.7	-0.2	0.4	0.5
Hours worked (per employed) (% ch.)	-0.8	-0.1	0.0	0.1

- T+0 – T+3: estimation of potential growth and output gaps with standard Production Function and Macro outlook from Update DEF (Sept 2012)

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THE BASELINE MEDIUM TERM PROJECTIONS

Medium Term Scenario: projection strategy (2)

- OGWG methodologies and assumptions
- T+3 – T+5: extrapolation of labour factor components (autoregressive methods and HP filter/mechanical), NAWRU in line wth the OGWG methodology.
- T+3 – T+10: Participation rate (15-74) dynamic in line with Cohort Simulation Model – occupational effects of pension reform
- T+6 – T+10: NAWRU convergence to structural anchor; TFP, KF model; Capital Stock, convergence to a capital rule in T+15; constant Hours worked as T+6
- Linear Output Gap closure from T+3 (2016) to T+5 (2018)

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THE BASELINE MEDIUM TERM PROJECTIONS

Medium Term Scenario: projection strategy (3)

- T+3 – T+10: Primary balance /GDP moves in line with the gap closure rule and the change in age-related expenditures.

$$PB_{T+i} = CAPB_{T+i-1} + \varepsilon * OG_{T+i} + \Delta ARE_{T+i}$$
$$with\ i = 4 \ldots . 10$$

- Real interest rate: converging to 3% in t+5 constant afterwards
- GDP deflator (inflation): converging to 2% in t+5 constant afterwards

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THE BASELINE MEDIUM TERM PROJECTIONS

The baseline scenario: potential output projections

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Real GDP growth rate	-2.4	-0.2	1.1	1.3	1.2	1.4	1.5	1.1	1.2	1.2	1.2	1.5
Potential output growth	-0.6	-0.2	0.0	0.2	0.6	0.8	1.0	1.1	1.2	1.2	1.2	1.5
Factor contributions												
Labor	-0.4	0.0	0.0	0.1	0.4	0.5	0.6	0.7	0.7	0.7	0.6	0.8
Capital	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4
Total Factor Productivity	-0.3	-0.2	-0.1	-0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Output gap	-3.7	-3.8	-2.7	-1.7	-1.1	-0.6	0.0	0.0	0.0	0.0	0.0	0.0

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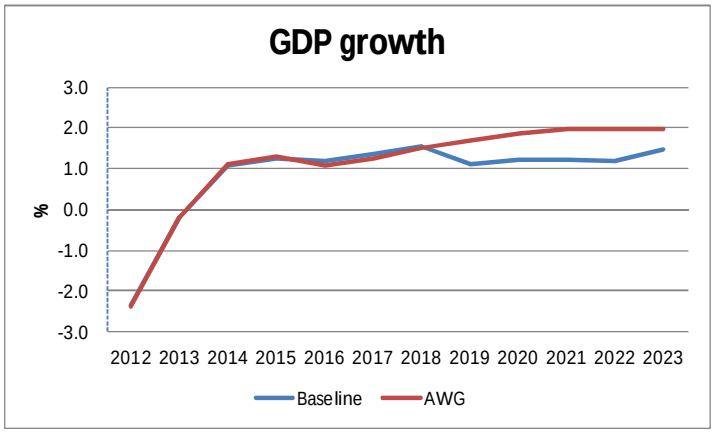
THE BASELINE MEDIUM TERM PROJECTIONS

The baseline scenario: potential output projections



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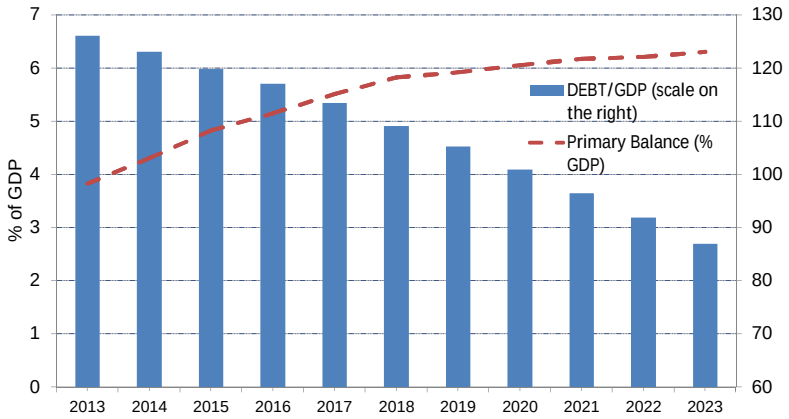
THE BASELINE MEDIUM TERM PROJECTIONS

Primary surplus and debt-GDP developments



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THE ALTERNATIVE SCENARIOS

Simulation Scenarios: two extreme cases

- Projection strategy: shocks from different models are added to the Baseline
- Extreme cases in terms of effects and duration of the shocks

- Scenario 1: +100bp on yield curve from 2012 to 2018 and afterwards
  - Macro+fiscal shocks on Public Finance → (macro-econometric model ITEM & interest expenditures simulation model)

- Scenario 2: 10% cut in Tax wedge and administrative costs
  - Structural Reforms assessment → IGEM (DSGE model)

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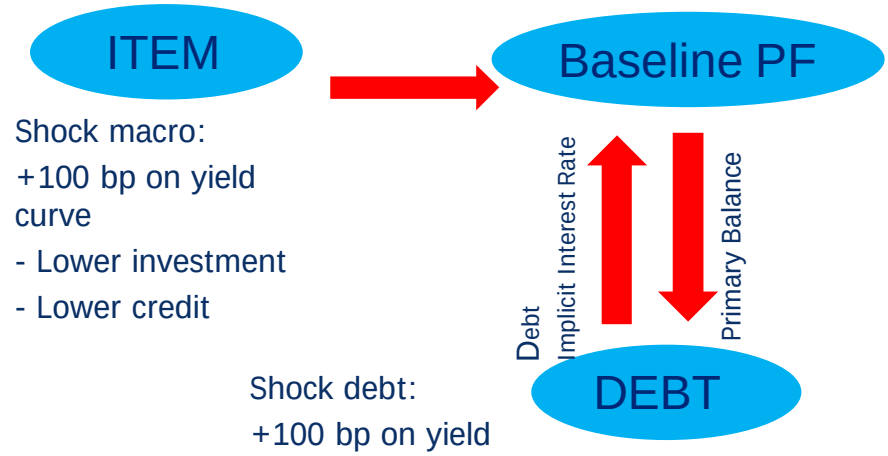
THE ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – estimation strategy (1)



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ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – estimation strategy (2)

Shock +100 bp – ITEM model
Change with respect to the baseline

	2012	2013	2014	2015
Real GDP growth	-0.1	-0.5	-0.5	-0.1
Gross fixed capital formation (% ch)	-0.1	-1.6	-2.1	-1.7
Employment (%)	0.0	-0.1	-0.3	-0.3
Hours worked	0.0	-0.1	-0.3	-0.3
Active population	0.0	0.0	0.0	0.0
Unemployment rate	0.0	0.1	0.4	0.5
Labor productivity	-0.1	-0.3	-0.2	0.2
Private consumption deflator	0.0	-0.1	-0.2	-0.3
GDP deflator	0.0	-0.1	-0.3	-0.4
Wage growth	0.0	-0.1	-0.3	-0.4

- T+0 – T+3: estimation of potential growth and output gaps with standard Production Function and Macro outlook from Update DEF revised according to the shock results

ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – estimation strategy (3)

MACRO ASSUMPTIONS

- T+6 – T+10: the negative effect on gross fixed capital investment (-1,7% vis-à-vis the baseline) is gradually being reduced.

- T+6 – T+10: the average negative effect on GDP growth (-0,3% over 2012-2015) is assigned to TFP and gradually reduced by the end of the projection period.

ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – estimation strategy (4)

FISCAL ASSUMPTIONS

- T+0 – T+3: The cyclically adjusted primary balance is given by the difference between the cyclically-adjusted revenue and expenditures as a deviation from the baseline

$$revenue_A^{ca} = \left(\frac{R^{ca}}{Y_B}\right) * \left(\frac{Y_B}{\bar{Y}_A}\right) * \left[1 + \varepsilon_R * \left(\frac{\bar{Y}_A - \bar{Y}_B}{\bar{Y}_B}\right)\right]$$

$$expenditure_A^{ca} = \left(\frac{E^{ca}}{Y_B}\right) * \left(\frac{Y_B}{\bar{Y}_A}\right) * \left[1 + \varepsilon_E * \left(\frac{\bar{Y}_A - \bar{Y}_B}{\bar{Y}_B}\right)\right]$$

- T+6 – T+10: Primary balance /GDP moves in line with the gap closure rule and the change in age-related expenditures.

$$PB_{T+i} = CAPB_{T+i-1} + \varepsilon * OG_{T+i} + \Delta ARE_{T+i}$$

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ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – estimation strategy (5)

PUBLIC DEBT

- Estimation through an ad-hoc model that projects the composition and the duration of the current stock of public debt.
- T+0 – T+6: interest expenditure/GDP increases exponentialy from 0 (in T+0) to 0.8% of GDP in (T+6) to remain constant to this level afterwards.
- Implicit interest rate increases on average by 0.3 p.p over T+0 – T+3 and reaches 6.2% in T+6 and then declines slightly afterwards.

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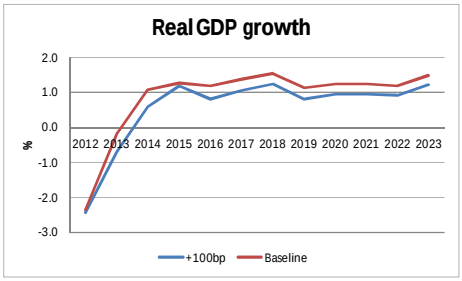
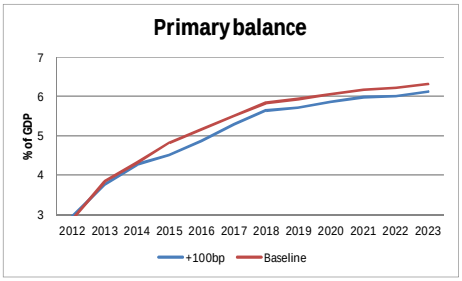
ALTERNATIVE SCENARIOS

Scenario 1: +100 bp on yield curve – some results (5)





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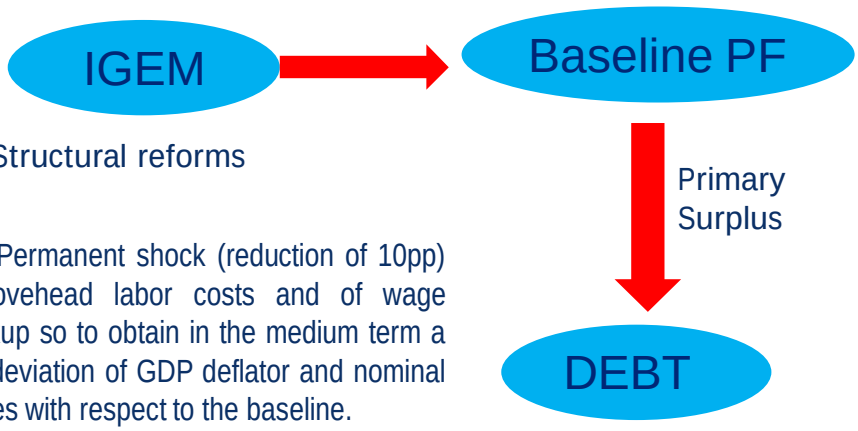
ALTERNATIVE SCENARIOS

Scenario 2: Structural reforms - a taw wedge cut



HP: Permanent shock (reduction of 10pp) on ovehead labor costs and of wage markup so to obtain in the medium term a 1% deviation of GDP deflator and nominal wages with respect to the baseline.

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ALTERNATIVE SCENARIOS

Scenario 2: Tax Wedge cut – estimation strategy (1)

Shock: -10% Tax Wedge – NIGEM

Change with respect to the baseline

	2012	2013	2014	2015
Real GDP growth rate	0.9	0.3	0.1	0.1
Gross fixed capital formation (% ch.)	0.4	0.0	0.1	0.1
GDP deflator	-0.5	0.0	-0.1	-0.1
Consumption deflator	-0.3	-0.1	0.0	0.0
Wage growth	-1.4	0.0	0.1	0.1
Labour prdouctivity	0.8	0.0	0.0	0.0
Unemployment rate	-0.1	-0.3	-0.4	-0.5
Employment growth	0.1	0.2	0.1	0.1
Hours worked (per employed) (% ch.)	0.2	0.0	0.0	0.1

- T+0 – T+3: estimation of potential growth and output gaps with standard Production Function and Macro outlook from Update DEF (Sept 2012)

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ALTERNATIVE SCENARIOS

Scenario 2: Tax Wedge cut – estimation strategy (2)

MACRO ASSUMPTIONS

- Transposition of IGEM results on structural and anchors
- T+6 – T+10: increase gross fixed capital investment is reabsorbed slowly – convergence to capital rule only in 2035
- T+6 – T+10: the average positive effect on GDP growth (0,3% over 2012-2023) is assigned to TFP growth and gradually reduced afterwards
- Tax wedge parameter in panel anchor NAWRU is reduced by 10pp

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ALTERNATIVE SCENARIOS

Scenario 2: Tax Wedge cut – estimation strategy (3)

FISCAL ASSUMPTIONS

- Strong assumption: no second-round effects from measures to finance the reform
- T+0 – T+3: The cyclically adjusted primary balance is given by the difference between the cyclically-adjusted revenue and expenditures as a deviation from the baseline

$$revenue_A^{ca} = \left(\frac{R^{ca}}{Y_B}\right) * \left(\frac{Y_B}{\bar{Y}_A}\right) * \left[1 + \varepsilon_R * \left(\frac{\bar{Y}_A - \bar{Y}_B}{\bar{Y}_B}\right)\right]$$

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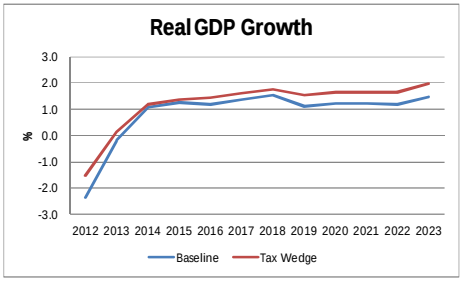
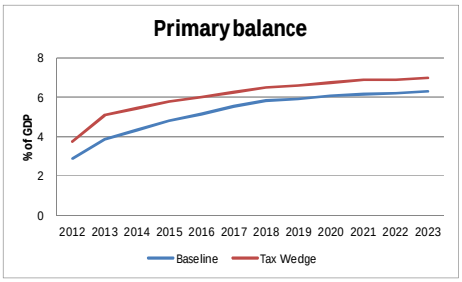
ALTERNATIVE SCENARIOS

Scenario 2: Tax Wedge cut – some results (4)





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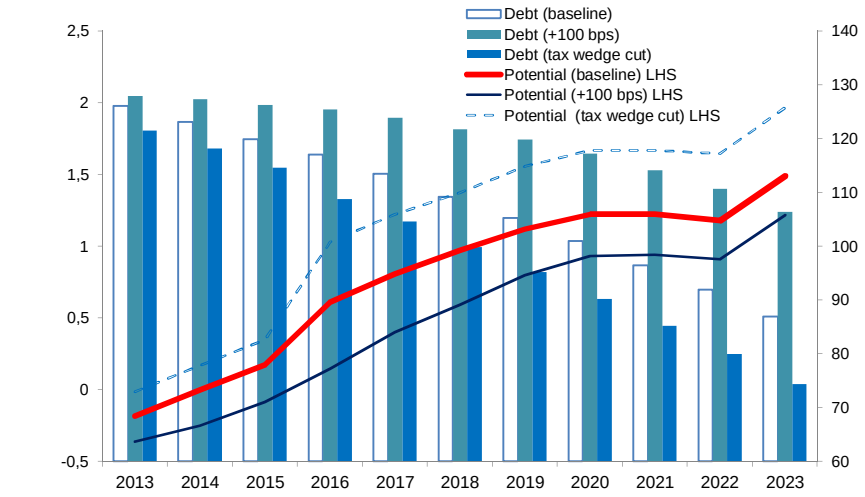
COMPARISON ACROSS SCENARIOS

Simulation result: Debt/GDP and potential growth rate



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CONCLUDING REMARKS

Medium Term scenarios – some concluding remarks

- Need to improve fiscal projections to include second round effects
- Fiscal Multipliers? Change in underlying parameters?
- More refined solutions to deal with structural reforms
- Definition of country specific parameters for structural determinants
- Further extensions on real-time potential growth and output gap estimates; structural external imbalances.

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