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THE LONG VIEW: SCENARIOS FOR THE WORLD ECONOMY TO 2060

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BETTER POLICIES FOR BETTER LIVES

Motivation

- Long-term projections needed to investigate economic issues which play out over decades:
  - Technological development
  - Demographic change
  - Increasing importance of emerging-market economies
  - Effects of structural reforms
  - Fiscal sustainability

Long-term scenarios model

- 46 countries: 35 OECD + 8 non-OECD G20 + 3 other small countries
- Core is production function for potential output
- Linked to *Economic Outlook* projections (currently to 2019) assuming output gaps close over 4-5 years
- Model also has:
  - Fiscal block
  - Market and PPP exchange rates
  - Saving, investment, current account balances and equilibrating mechanism through interest rates

Production function

- Core of system is a Cobb-Douglas production function for each country

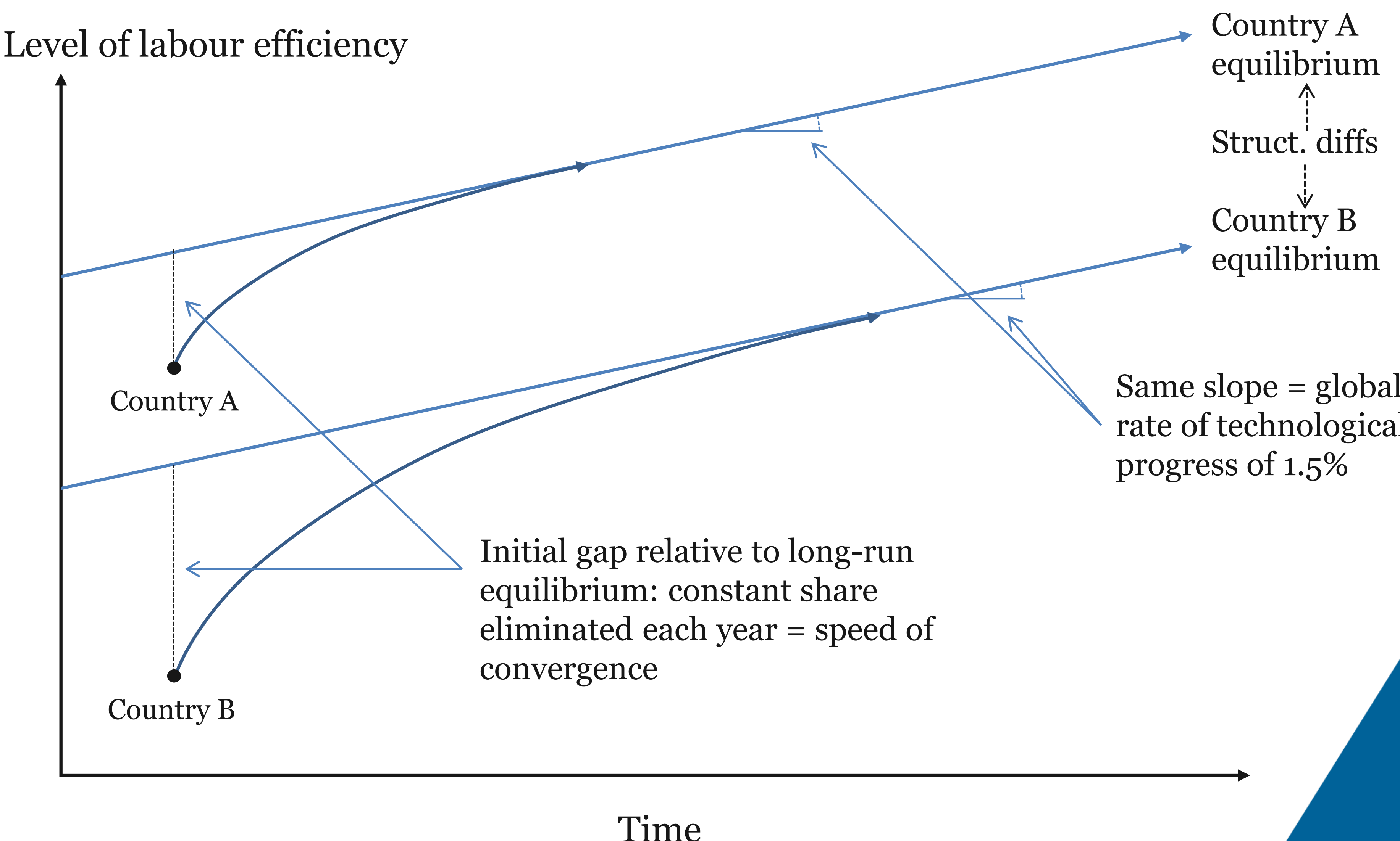
$$Y_t = (A_t L_t)^\alpha K_t^{1-\alpha}$$

> K: Productive capital stock (excluding housing)
> L: Labour input
> A: Labour efficiency
> α: Share of national income going to labour: 2/3

- Long-term projections require projections for A, K and L, and any of their (exogenous) determinants

- Human capital is assumed to be a determinant of labour efficiency rather than an explicit factor of production

Labour efficiency framework: conditional convergence



Labour input: potential employment

- Estimate age/sex-specific <u>trend</u> employment rates on historical data

- Extract entry and exit rates for different birth cohorts

- Use entry/exit rates to project future age/sex-specific employment rates

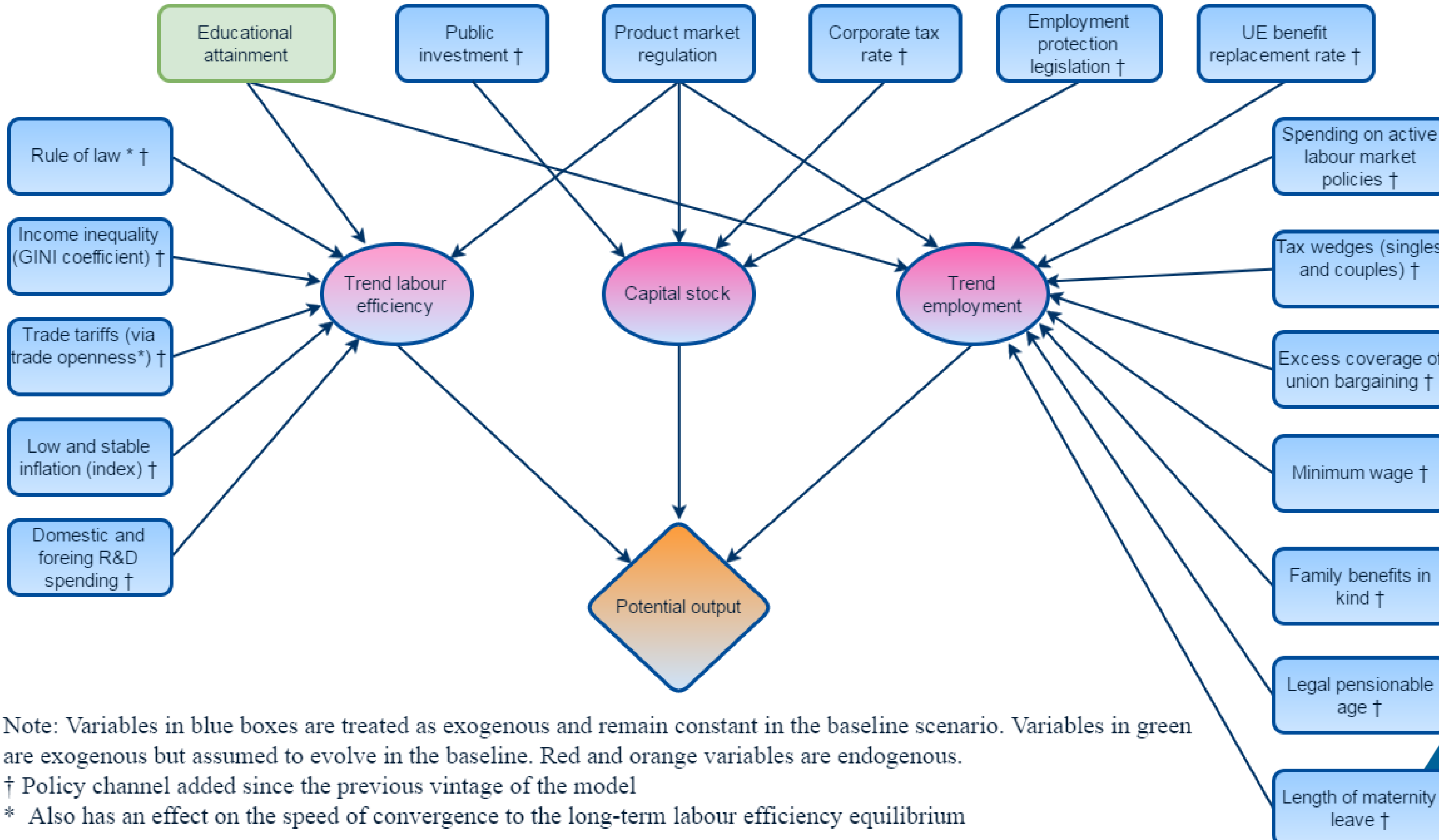
- Apply impact of policy reforms from QSR exercise to age/sex-specific employment rates
    - ALMPs
    - Unemployment insurance
    - Tax wedges
    - Excess coverage of union bargaining
    - Minimum wage
    - Family benefits and maternity leave
    - Legal retirement age
    - Product market regulation

- Combine age/sex-specific employment rate projections with population projections (from Eurostat and UN) to get aggregate trend employment

Capital stock

- Desire to keep contribution of capital accumulation to growth relatively small in the baseline scenario
- Long-run equilibrium: stable K^*/Y except for effects of:
  - PMR and EPL from QSR work (Égert and Gal, 2017)
  - User cost of capital
    - Interest rate
    - Corporate tax rate
    - Depreciation rate
    - Relative investment price inflation
- Gradual convergence to equilibrium capital stock
  - Speed of convergence 3% per year
- Empirical tests support assumed functional form except for elasticity of -1 on user cost of capital

Policy channels



Note: Variables in blue boxes are treated as exogenous and remain constant in the baseline scenario. Variables in green are exogenous but assumed to evolve in the baseline. Red and orange variables are endogenous.

† Policy channel added since the previous vintage of the model

* Also has an effect on the speed of convergence to the long-term labour efficiency equilibrium

Fiscal block

- Explicit accounting for fiscal costs of ageing
  - Health spending per capita projected using equation as in Lorenzoni et al. (2018)
    - Growth in real GDP per capita
    - Change in the share of population aged 65+
    - Time trend for excess of wage inflation over productivity growth in the health sector (Baumol effect) + cost pressure due to technological progress: 1.3% per year in baseline
  - Projected government pension expenditure are from European Commission Ageing Report (2018) and Standard and Poor's
- Other primary expenditure (excluding health and pension) maintained in real terms on a per capita basis.
  - Additional channel through which demographics affect public finances because revenue follows employment while spending follows population.
  - Structural reforms that boost the employment rate also yield fiscal dividends.
- Fiscal rule gradually stabilizes gross debt-to-GDP ratio at initial point using primary revenue ratio (overall tax rate)
- Fiscal pressures show up in the projected change in this overall tax rate

BASELINE SCENARIO

No institutional or policy reforms

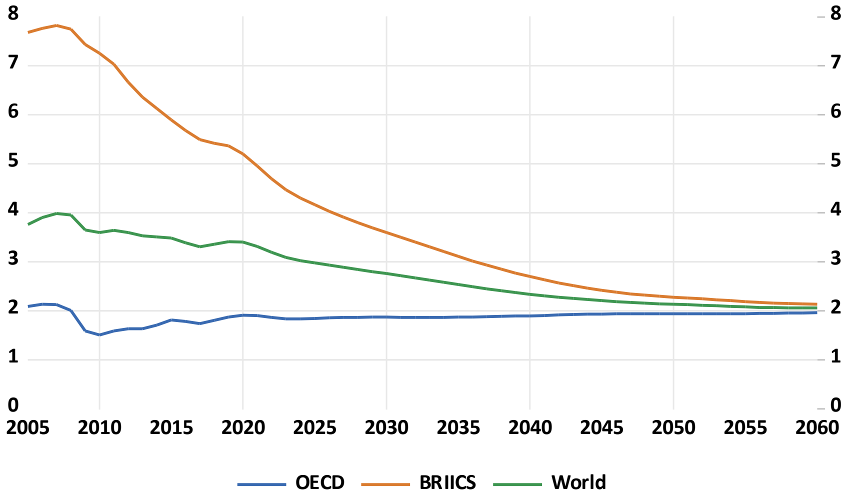
Look at fiscal pressures building up

Reference point for reform scenarios

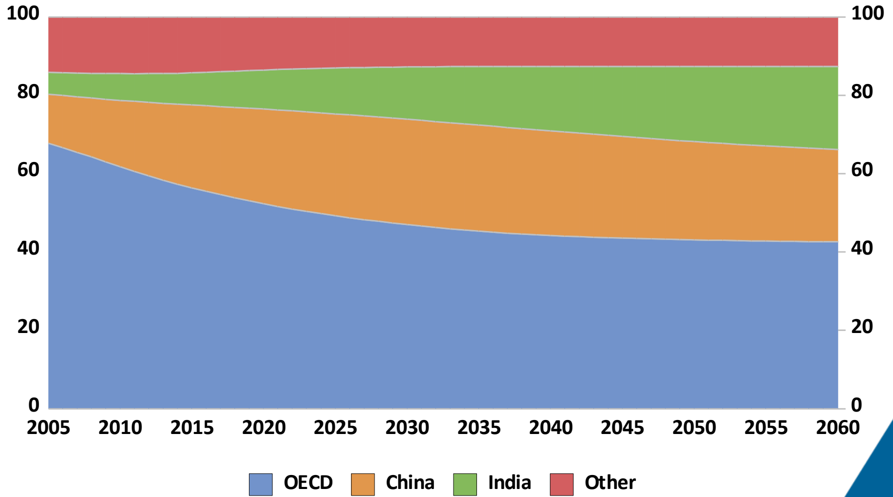
World growth slows

- World trend growth declines from 3½ % now to 2% pa in 2060
- Mainly due to a deceleration of large emerging economies
- India and China take rising share of world output

A. Trend real GDP growth by area, %



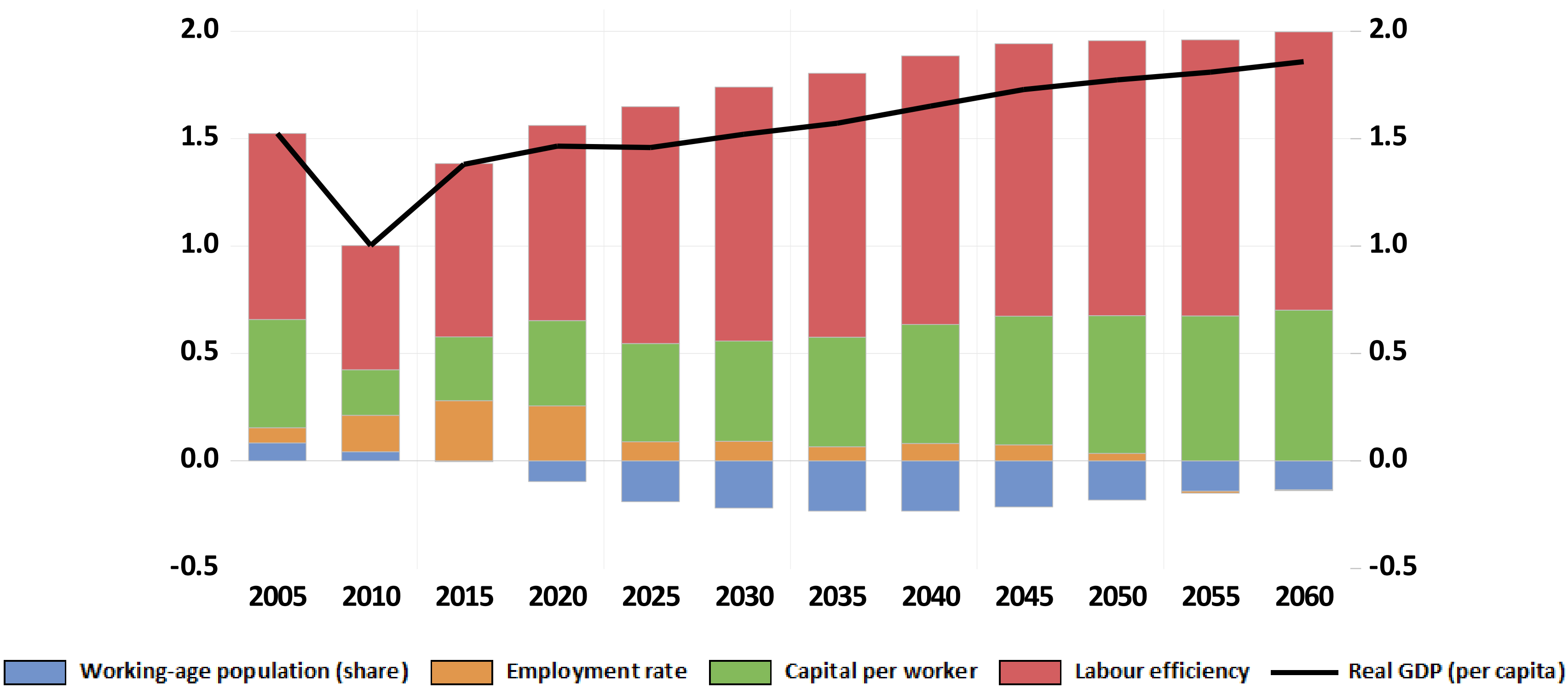
B. Composition of world output, in USD at 2010 PPPs



Demographic change weighs on growth in OECD living standards

The positive contribution from a rising employment rate declines and the contribution of the working-age population share turns negative

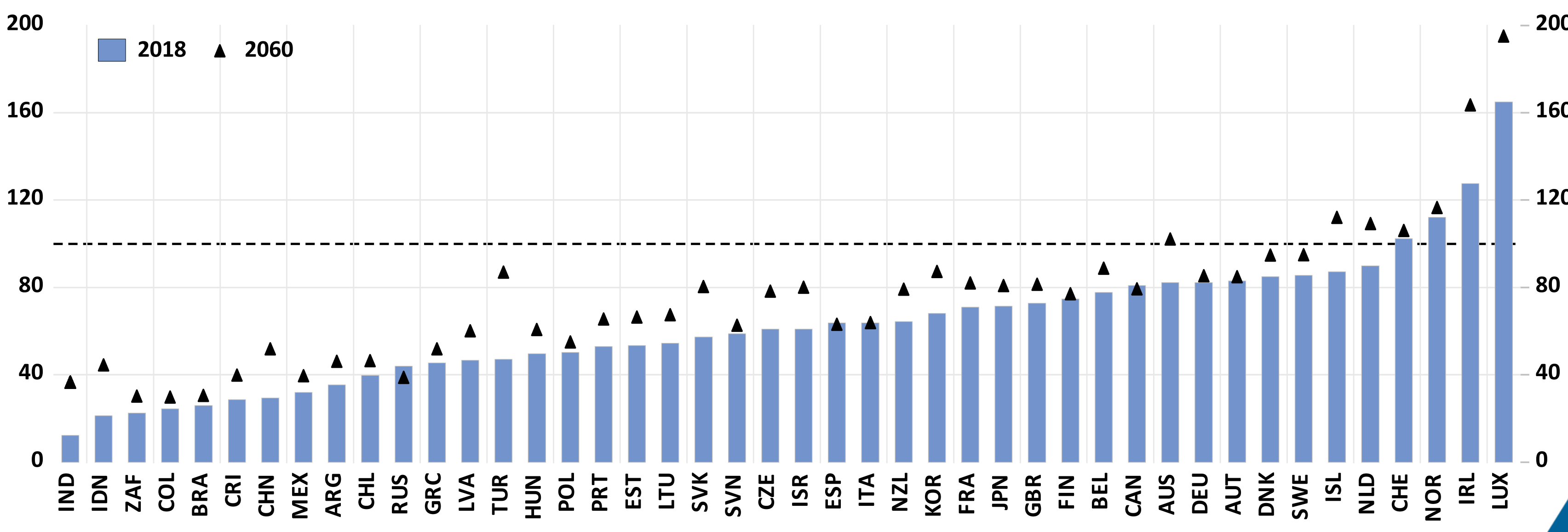
Trend real GDP per capita growth in the OECD, %



Living standards converge slowly

- GDP per capita advances in all countries and gradually converges toward those of the most advanced countries, but to varying degrees.
- Living standards in high-growth emerging market and Eastern European converge most, driven by catch-up in trend labour efficiency,
- But GDP per capita in the BRIICS and some low-income OECD countries remains below half that of United States in 2060.

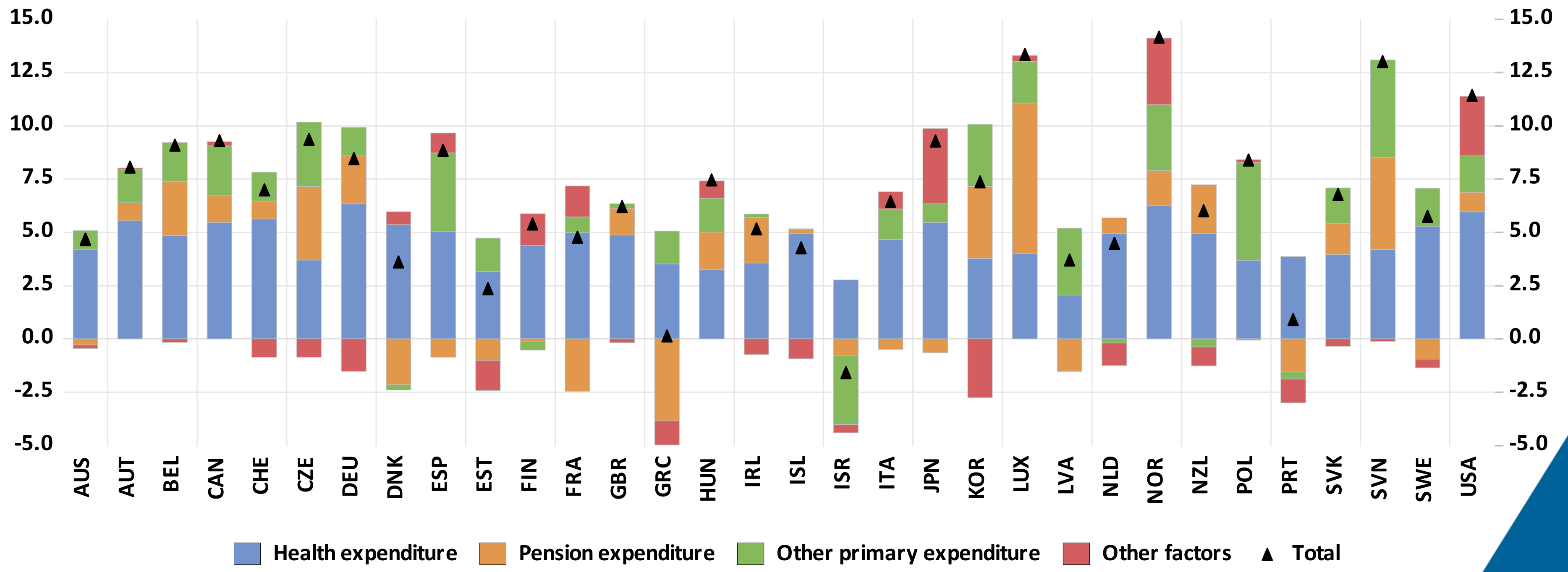
C. Real GDP per capita at 2010 Purchasing Power Parities, USA = 100



Fiscal pressure builds up

Stabilising public debt while meeting pressures from health spending & demographic change => median OECD government primary revenue up 6½ % pts of GDP.

Change in primary revenue necessary by 2060 to stabilise public debt ratios, % pts of potential GDP



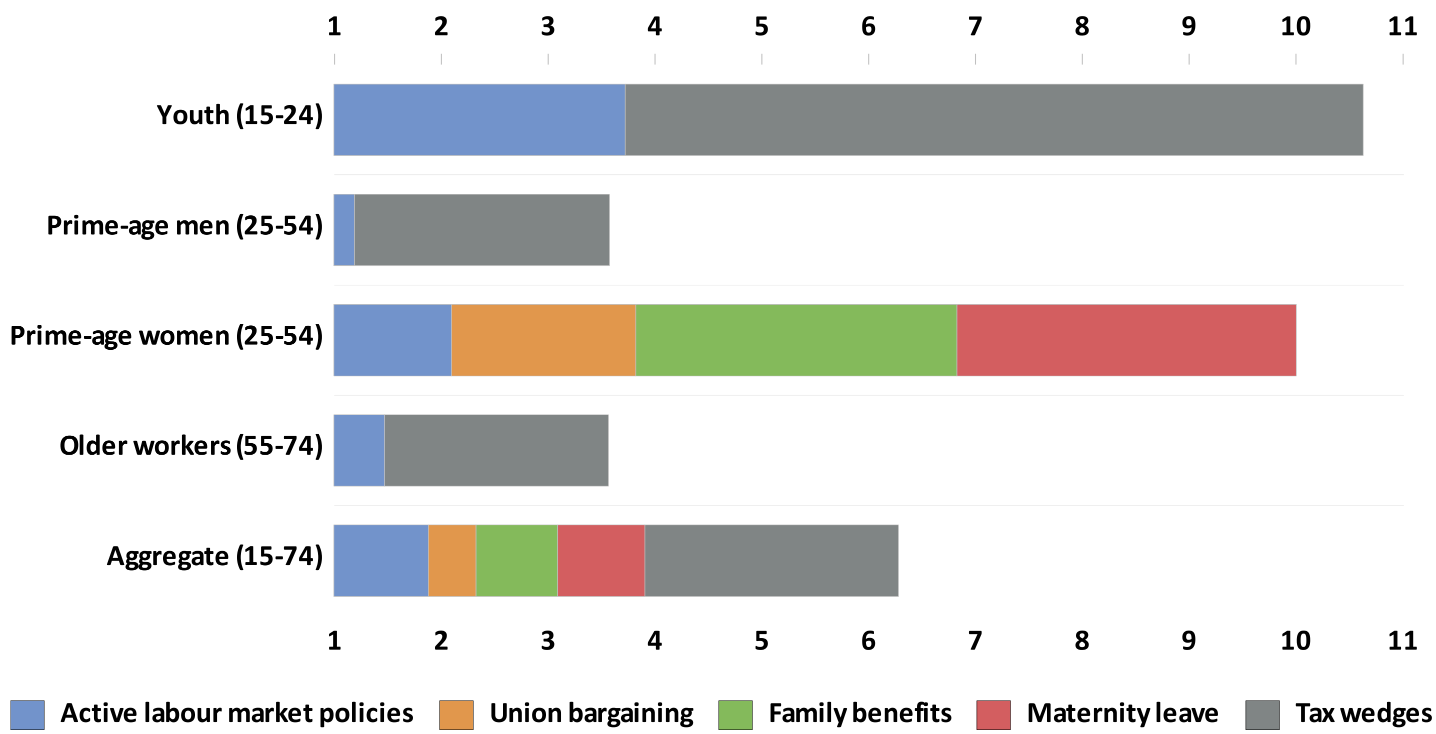
REFORM SCENARIOS

1. Better governance & educational attainment in BRIICS
2. Competition-enhancing product market reforms in OECD
3. **Flexibility-enhancing labour market reforms in OECD**
4. Increase in pensionable age in OECD
5. Higher R&D spending in OECD
6. Higher public investment in OECD
7. **Cost containment in health care sector in OECD**
8. Higher average import tariffs in all countries

Labour market reforms could be most beneficial to women and youth

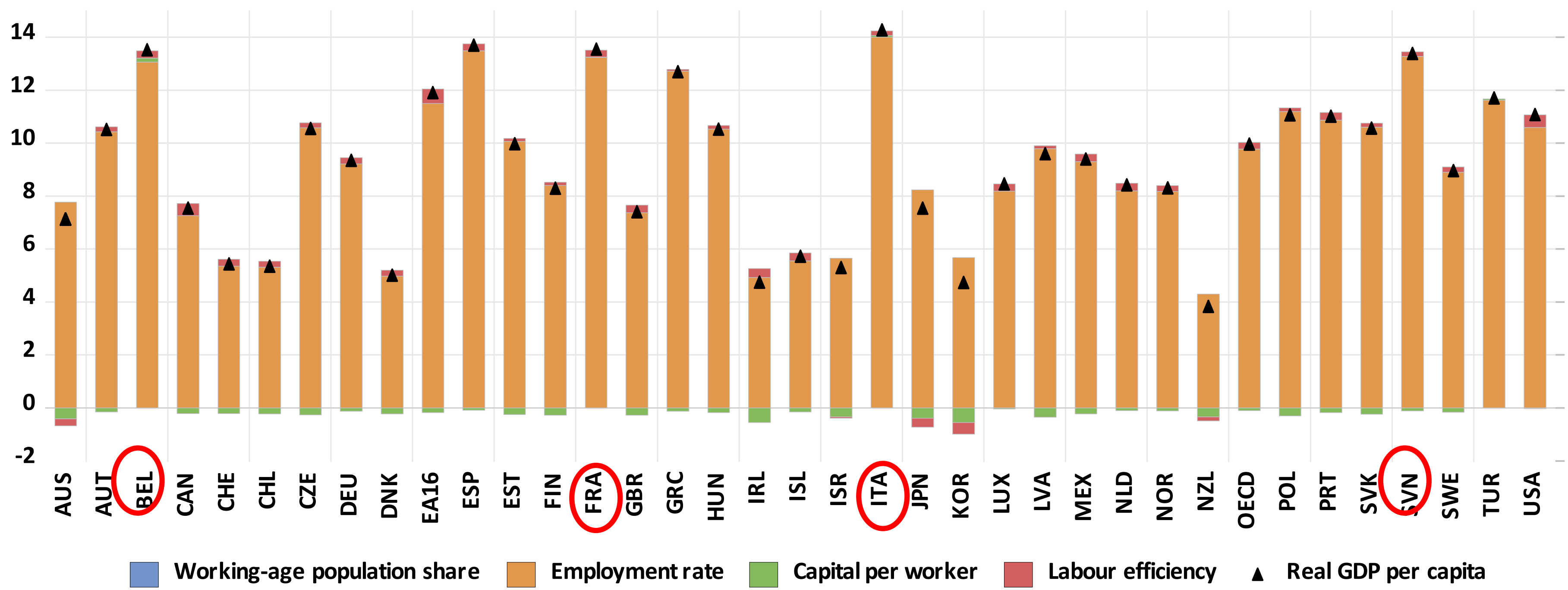
A reform package to improve labour market policy settings in OECD countries up to those of leading countries raises the aggregate employment rate by 6½ percentage points by 2040, mostly via higher youth and female employment.

Impact of labour market reforms on OECD employment rates
Difference from baseline by 2040, % pts of labour force



Belgium, Spain, France, Italy and Slovenia have most to gain from labour market reforms

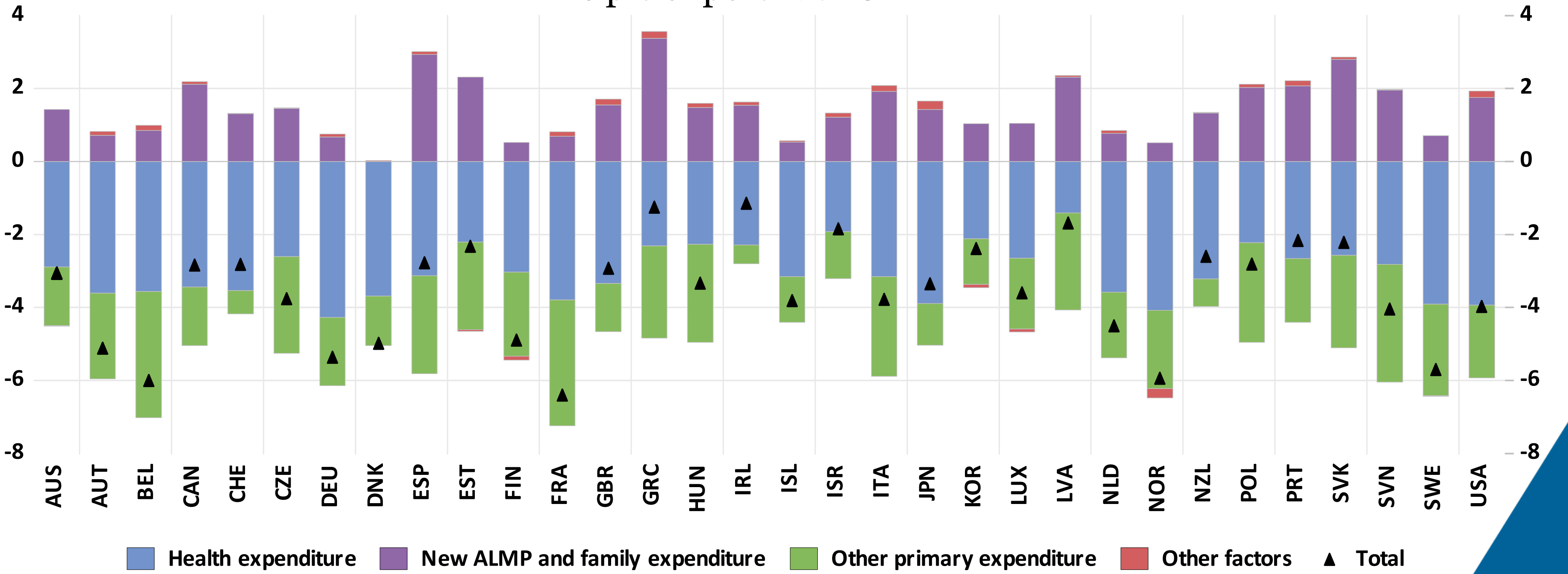
Per cent increase in real GDP per capita by 2060 relative to baseline with labour market reforms



Labour market reforms + health cost containment would help alleviate projected fiscal pressures

Scenario shows median reduction of 3½ percentage points of GDP in fiscal pressure relative to baseline.

Change in primary revenue necessary by 2060 to stabilise public debt ratios with health cost containment and labour market reforms, difference from baseline in % pts of potential GDP



Future work

- Updated baseline, but only every other year
- Support Survey work, policy scenarios
- Possible model improvements:
  - More complete modelling of fiscal impacts of reforms
  - Incorporate Laffer curve effects of taxation
  - Add natural capital / environment
  - Expand country coverage
  - Etc.

References

Guillemette, Y. and D. Turner (2018), "The Long View: Scenarios for the World Economy to 2060", *OECD Economic Policy Papers*, No. 22, OECD, Paris, https://doi.org/10.1787/b4f4e03e-en

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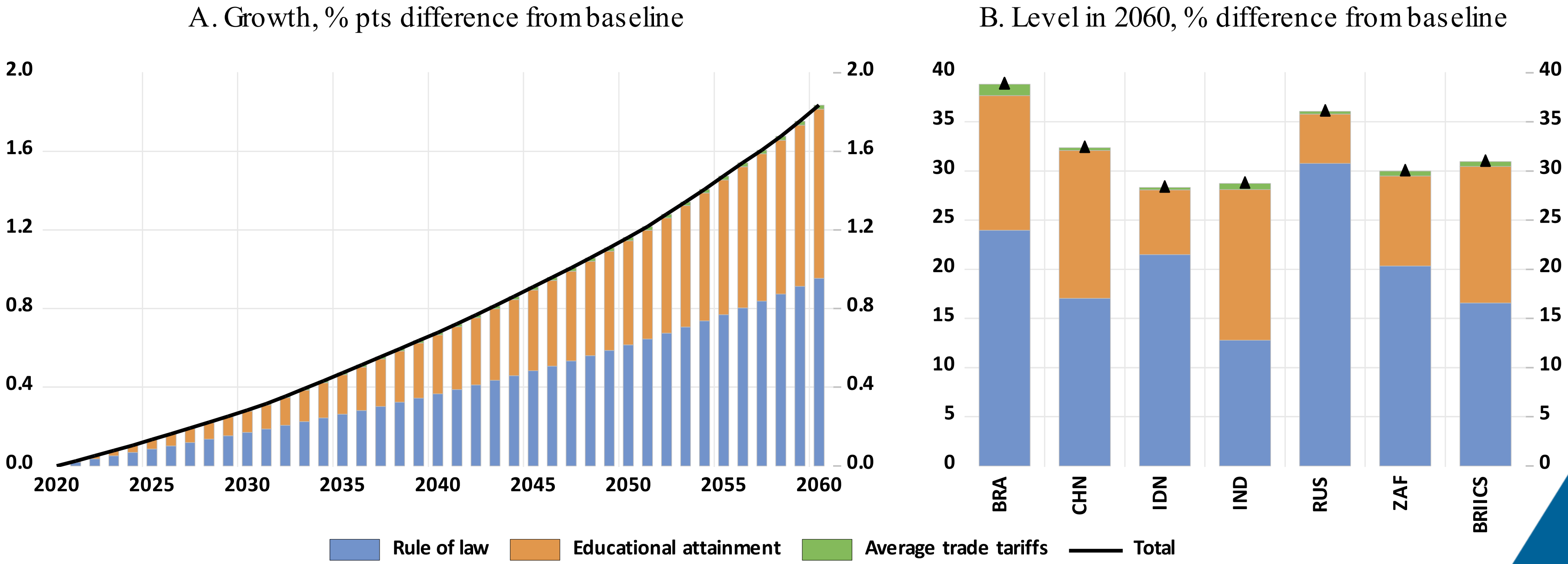
Institutional reforms would speed up the convergence of EMEs

Relative to OECD countries, the BRIICS have substantial room to improve the quality of governance and raise educational attainment. In a scenario where both factors catch up with average OECD levels by 2060, living standards in the BRIICS are 30% to 50% higher in 2060 than in the baseline scenario.

Impact of governance reform, educational gains and tariff reduction in the BRIICS on real GDP per capita



Higher tariffs on trade would depress living standards

Slipping back on trade liberalisation – returning to 1990 average tariff rates – depresses long-run living standards by 14% for the world as a whole and as much as 15-25% in the most affected countries.

Per cent change in real GDP per capita by 2060 relative to baseline with increase in average tariff rates back to 1990 levels

Product market reform could lift living standards in most countries

Reforms through 2030 to make product market regulation in OECD countries as friendly to competition as in the 5 leading countries raise living standards by over 8% in aggregate (as much as 15-20% in the countries furthest away from best practices).

Per cent increase in real GDP per capita by 2060 relative to baseline with product market liberalisation

Innovation can drive gains in living standards via productivity

Boosting R&D intensity in all OECD countries to the level of the five leading countries raises aggregate living standards by 6% by 2060 (as much as 10-18% in countries currently spending little on R&D).

Per cent increase in real GDP per capita by 2060 relative to baseline with R&D spending boost

Higher public investment can contribute to lifting living standards

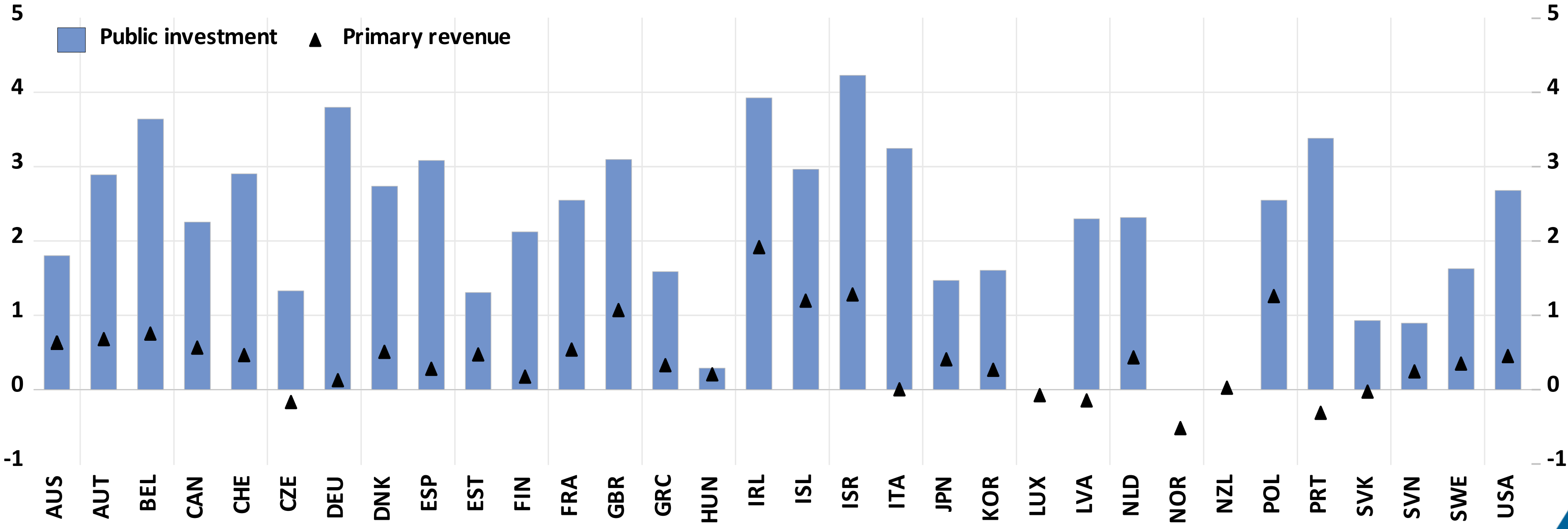
Permanently raising public investment in all OECD countries to 6% of GDP raises aggregate living standards by over 4% by 2060 (as much as 6-9% in some countries).

Per cent increase in real GDP per capita by 2060 relative to baseline with public investment boost

Higher public investment would not necessarily raise fiscal burdens

Fiscal burdens rise by much less than the cost of the additional investment and the policy is even self-financing in some countries.

Impact of higher public investment scenario on the fiscal burden
Public investment and tax revenue as a percentage of GDP in 2060, % pts difference from baseline



Gains in life expectancy allow longer working lives and higher living standards

Tying future increases in pensionable ages to life expectancy raises the aggregate employment rate of older people in the OECD by more than 5 percentage points by 2060 and living standards by about 2½ per cent by 2060 (as much as 5-7% in countries with currently no explicit plans to change pensionable ages).

Per cent increase in real GDP per capita by 2060 relative to baseline with pension age increase equal to at least two-thirds of projected gain in life expectancy