Irish Fiscal Advisory Council

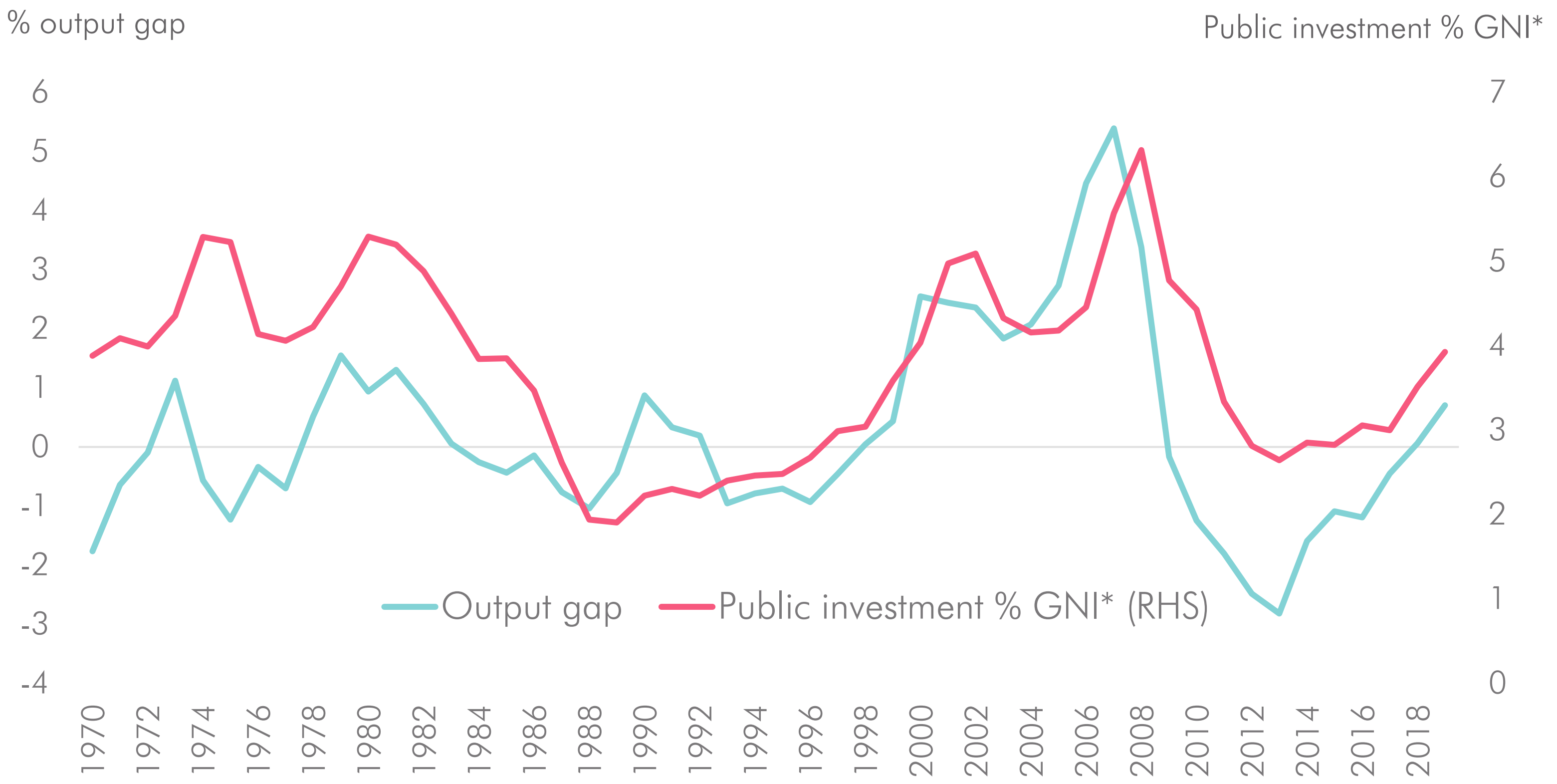
# Ireland's next ramp up in public investment

Niall Conroy, Eddie Casey, Elliott Jordan-Doak

Fiscal Council Conference 7 February 2022

# Ireland's public investment and capital stock, past and present.

# Public investment has risen in booms and fallen in busts




Sources: CSO; and Fiscal Council output gap estimates.
Notes: The output gap is the difference between actual economic output and its potential with negative output gaps suggesting spare capacity or some slack in the economy. Public investment refers to general government gross fixed capital formation. Nominal modified GNI* is backcast from 1995 using data for gross national income.

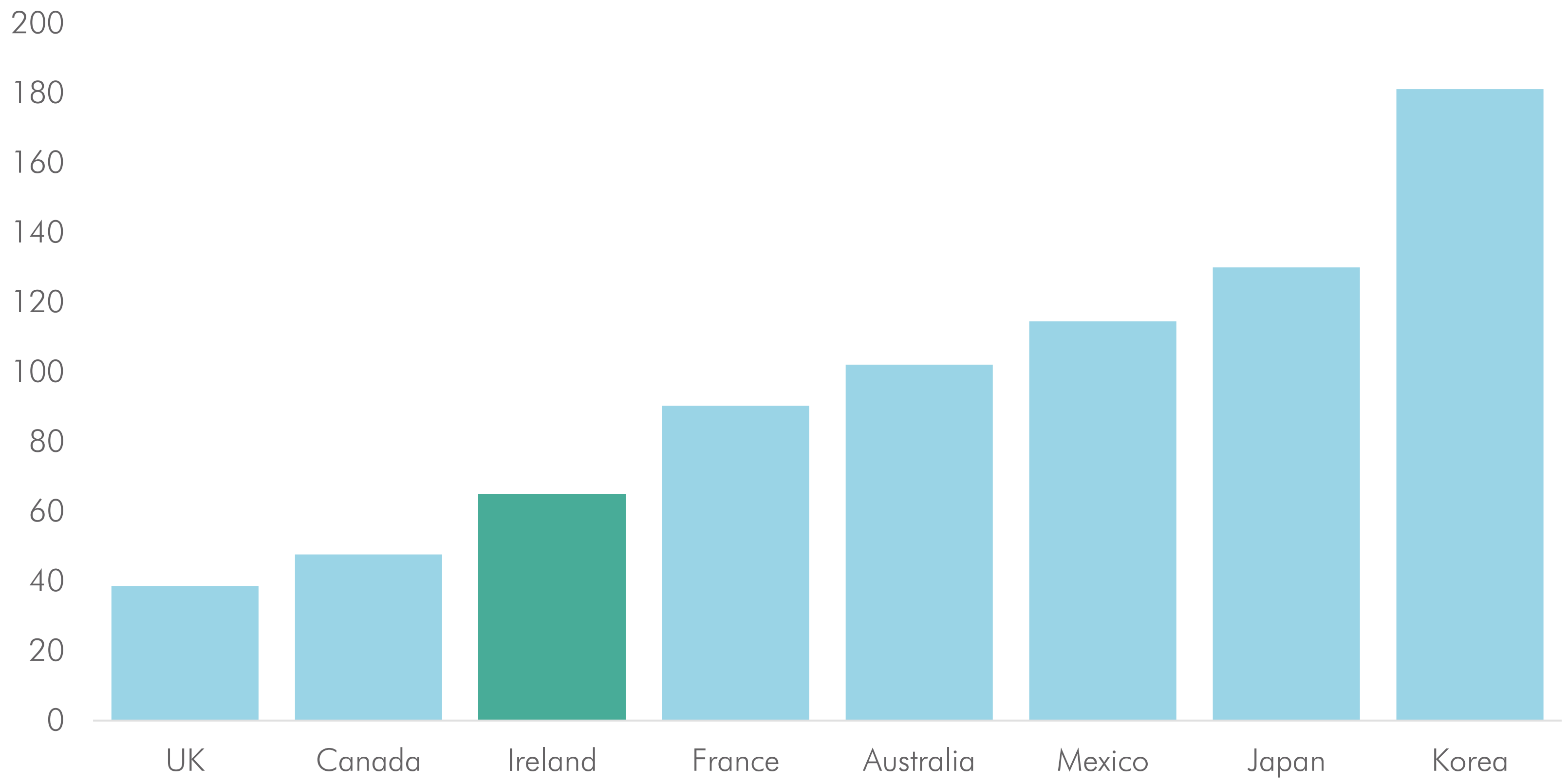
# Public investment has risen in booms and fallen in busts

Implications:

- Procyclical
- Poor value for money, investing when prices are high
- Doesn’t support planning or viability in construction sector
- Productivity in the construction sector may suffer as a result

# Irish public capital stock compared to OECD countries

## %GDP (% GNI* for Ireland), 2018 data

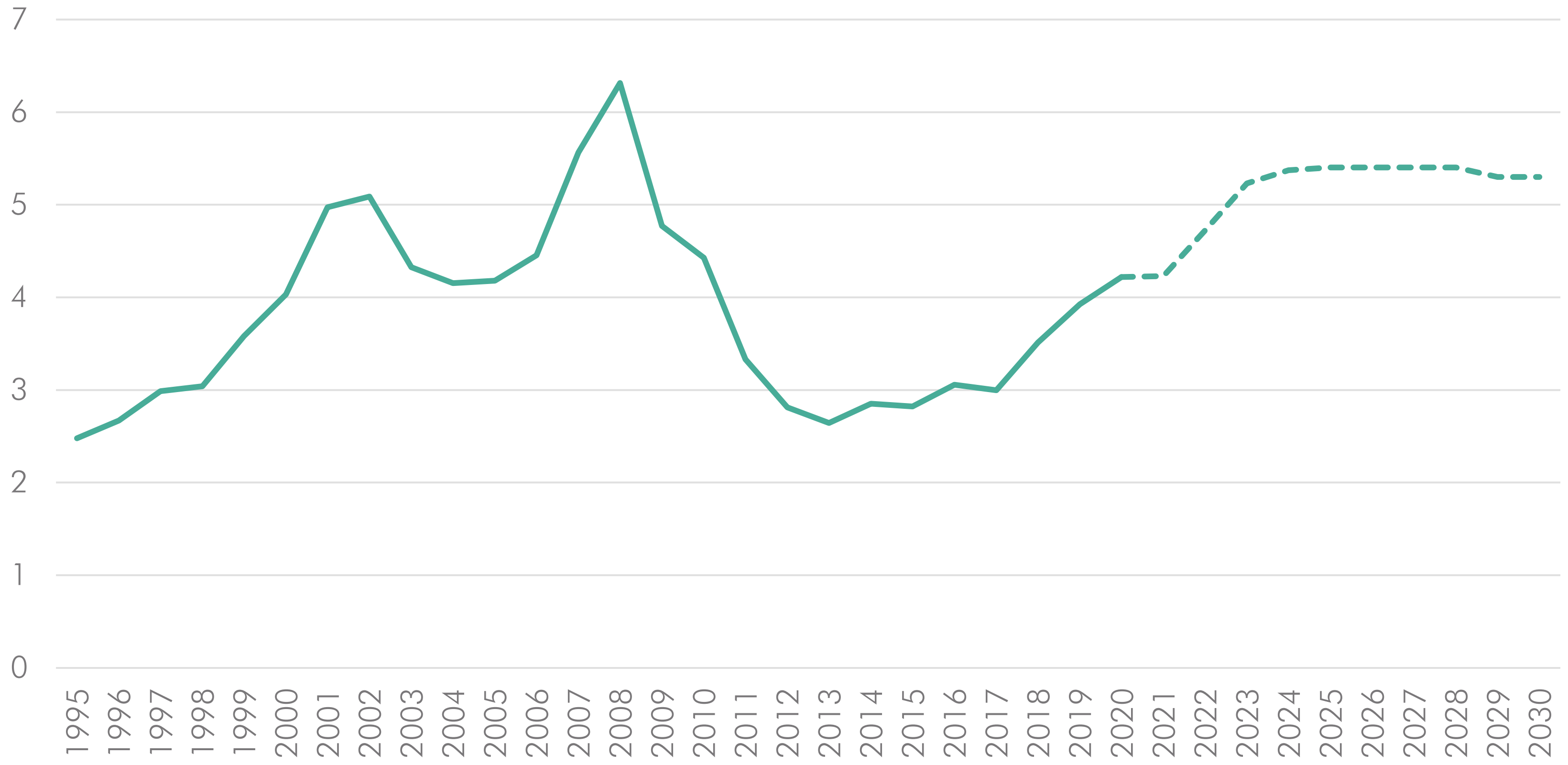



Sources: CSO and OECD.

# Ambitious plans for public investment in the years ahead

# Public investment planned to rise sharply

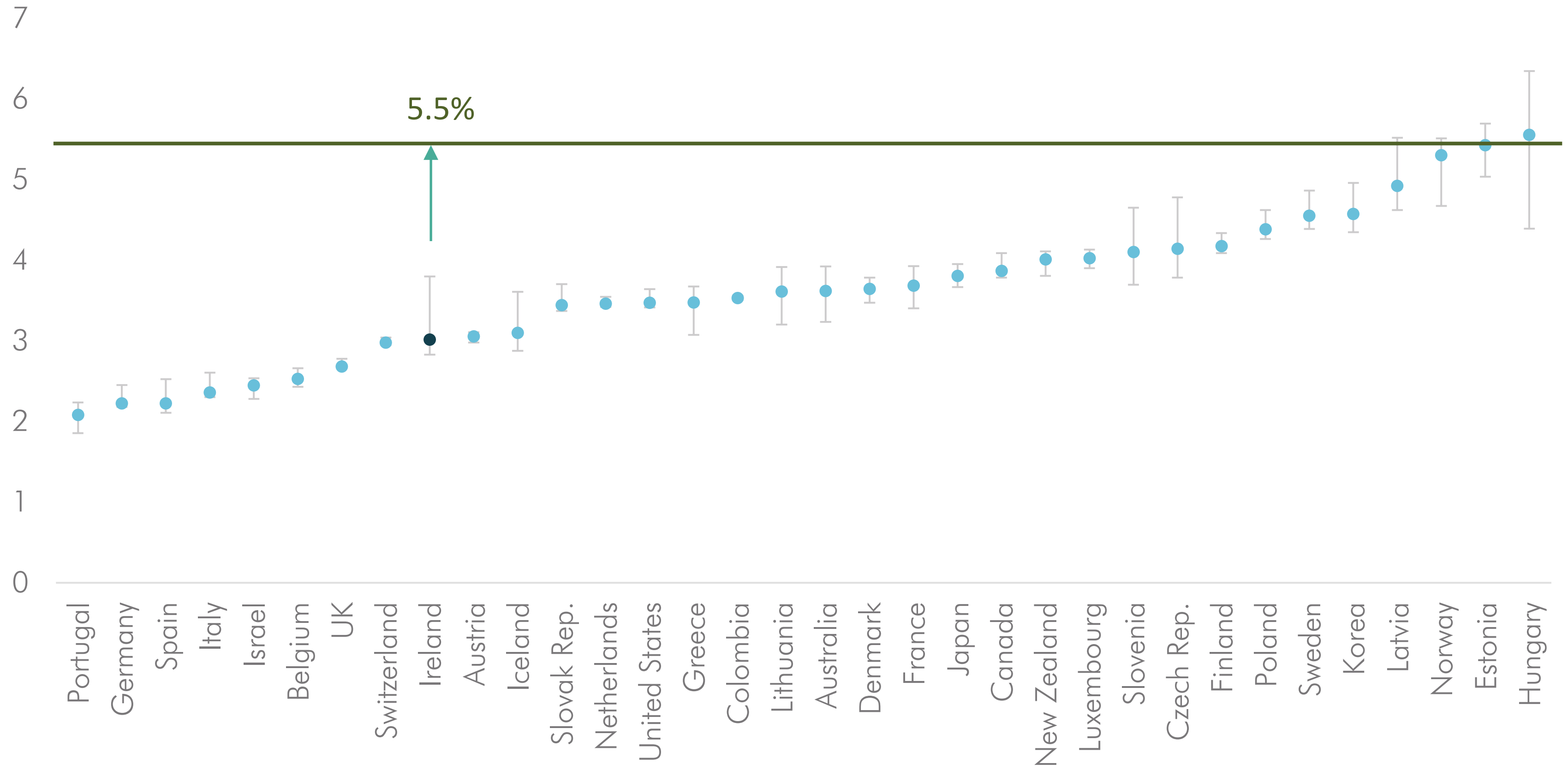
## % GNI*, general government basis




Sources: OECD; CSO; and own workings.
Notes: Data up until 2020 is CSO outturn data on general government gross fixed capital formation and nominal GNI*. Values from 2021-2025 are general government gross fixed capital formation and nominal GNI* forecasts from *Budget 2022*. Values for 2026-2030 are obtained by applying the year-to-year change in this ratio from using NDP forecasts of GNI* and exchequer funding for capital expenditure.

# Public investment will be high by historical and international standards

## Public investment as a % GDP (% GNI* for Ireland), general government basis)

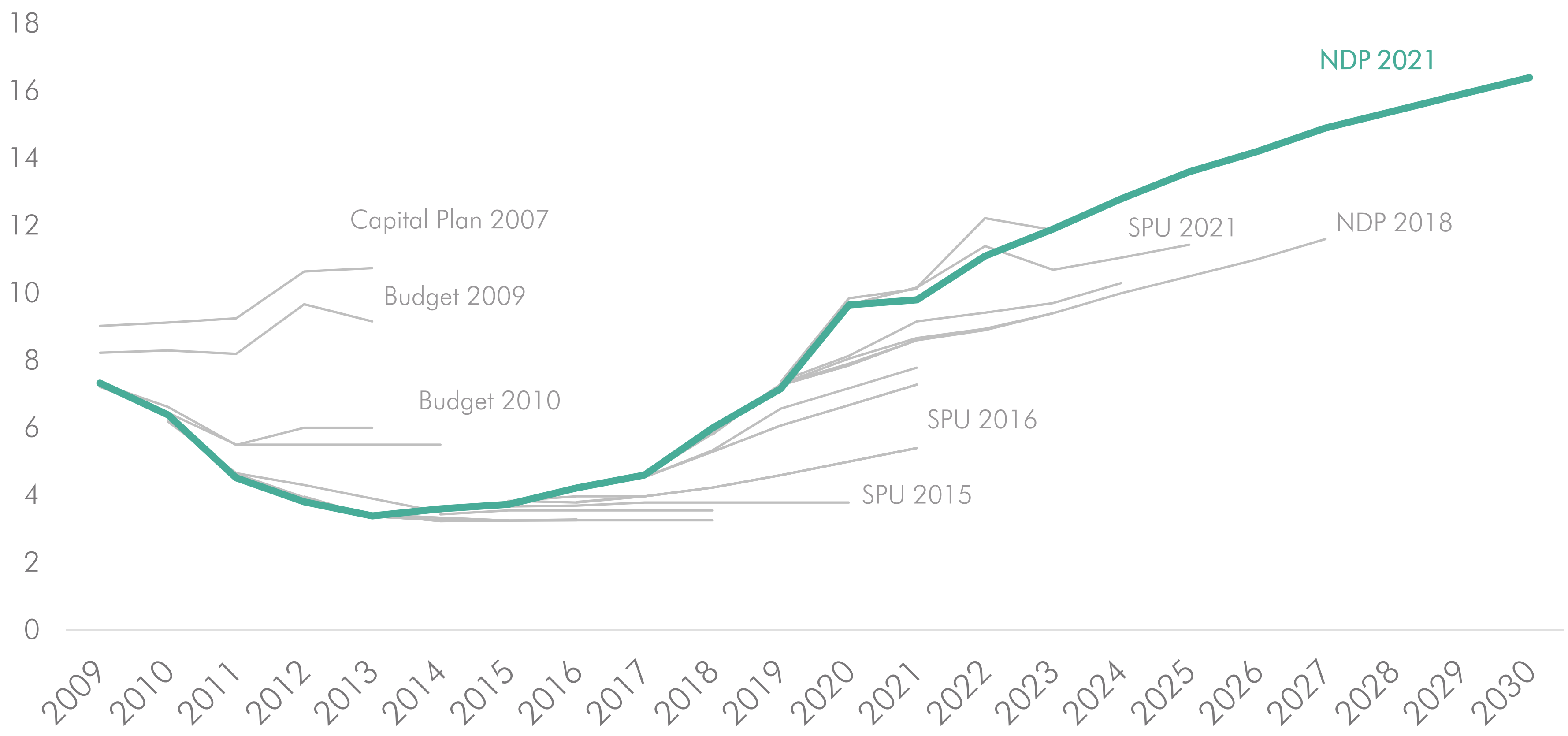



Sources: OECD and own workings.
Notes: The median shows the median public investment ratio for the past ten years (2012–2021) and lines the middle 50% (interquartile) range observed over the same period.

Irish Fiscal Advisory Council

# NDP 2021 much more ambitious than previous plans

## € billions




Sources: Various budget plans.

# NDP plans

- Sharp increase (5.5% of GNI*) from post financial crisis low (3%)
- High level of investment relative to Ireland’s previous investment rates and those seen internationally.
- NDP plans much more ambitious than previous plans.

# Economic impacts/ multipliers

# Economic impact

- 3 Ways of assessing the economic impact of these public investment plans:
- International literature
- Production function
- Council’s maq model

# Public investment multipliers

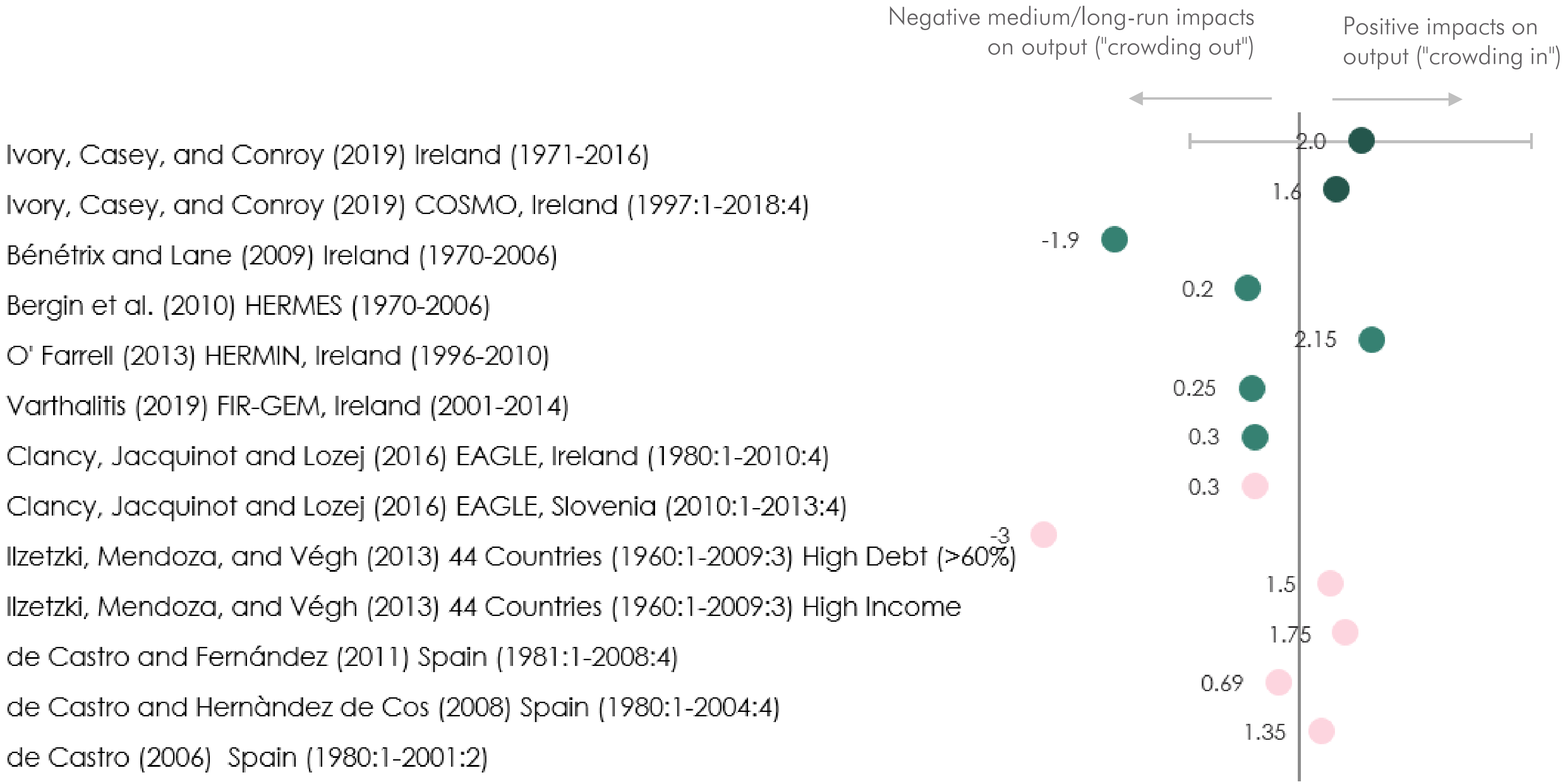
- Typically larger than other government multipliers
- Uncertainty is large, multipliers depend on a large number of factors

Irish Fiscal Advisory Council

# Public investment multipliers

- Crowding out and crowding in effects
- Timing: investing during a boom or bust?
- Type of investment: Labour intensive? Capacity constraints?
- Size and openness of economy: Large and closed likely to have bigger multipliers than small and open.
- Policy responses: Monetary policy, NDP unlikely to alter ECB policy stance!!
- Expectations: Debt levels and how forward looking people are matter

# Government investment multipliers




Sources: Various studies as cited.
Notes: The 95% confidence intervals are shown for Ireland's fiscal multiplier estimates set out in Ivory, Casey and Conroy (2019). Multipliers for Ireland are shown in green; pink for other countries.

# Public investment multipliers

- Different estimates of multipliers in Ireland
- Green multipliers. Small number of studies, but suggestive of multipliers just above one.
- Housing multipliers, typically larger than one.
- Using share of investment in NDP plans, one can calculate a weighted multiplier.

Irish Fiscal Advisory Council

# Multipliers for specific areas

| Investment area | Weight in NDP gross voted capital spending for 2021–2025 | Long-run multiplier assumed | Source |
|---|---|---|---|
| Housing | 29.7% | 1.6 | Canada PBO |
| Transport | 22.0% | 1.5 | Canada PBO |
| Environment | 7.1% | 1.1 | Batini *et al.*, (2021) |
| Other | 41.3% | 1.097 | Various sources* |
| Weighted average multiplier | 100.0% | 1.34 | |

Sources: Batini *et al.*, (2021); Parliamentary Budget Officer (2021); Casey and Purdue (2021); and various sources
The multiplier used for other categories of investment is the same as used for public investment in Council's Maq model (Casey and Purdue, 2021) and as the average of various estimates shown in Figure 10 of the paper excluding the two negative figures from Bénétrix and Lane (2009) and Ilzetzki, Mendoza, and Végh (2013) for high debt countries. The estimate for the environment used is the same as in Batini et al., (2021) for renewable energy infrastructure.

# Production function approach
# Estimates seem relatively robust to assumptions applied

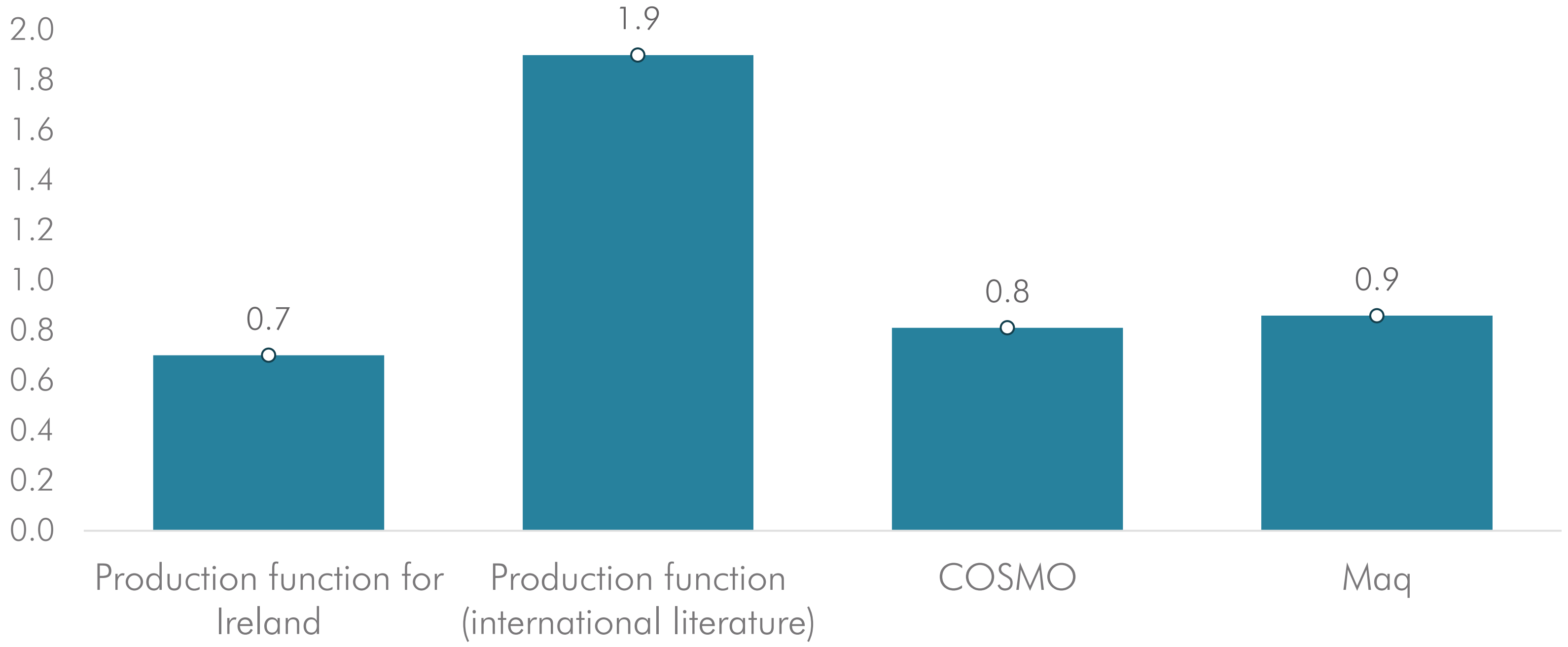
- Counterfactual: public investment fixed at 2021 levels (4.1% of GNI*)
- Results suggest the level of real output may be 0.7% higher in 2030 than would have been the case with less ambitious public investment.

| Sensitivity check | Real GNI*, % deviation from counterfactual in 2030 |
|---|---|
| Baseline results | 0.7% |
| Higher elasticity to capital ($\alpha$ = ½) | 1.0% |
| Lower inflation (investment deflator = 0%) | 0.8% |
| Higher inflation (investment deflator = 3.3%) | 0.6% |
| Lower depreciation (halved from 4.8% to 2.4%) | 0.7% |

Sources: Author's workings.

# Impact of NDP on output based on various methods

## Estimated percentage boost to real economic output by 2030 due to public investment plans




Sources: NDP 2021–2030; *Budget 2022*; Batini *et al.*, (2021); author's own workings.
Notes: All estimates are derived based on a comparison of a counterfactual where public investment remains constant at 4.2% of GNI* as is projected for 2021 in *Budget 2022*. Estimates for the production function approach are based on authors' workings using data on Ireland's capital stock and the public investment plans. The "international literature" refers to the elasticity of output to public capital estimated in Batini *et al.*, (2021). The COSMO estimates are based on the results shown in the NDP of 1.6% for 2025–2030, however, these are re-scaled to allow for the fact that we assume investment does not remain constant at 2021euro levels but in % GNI* levels. The Maq model estimates draw on the 1.34 multiplier assumed for investments included in the NDP.

# Economic impacts of NDP

- Focus on housing and transport suggests a higher multiplier than would otherwise be the case.
- Real output may be almost 1% higher than otherwise would be the case in 2030.
- Prices 0.6% higher due to the additional investment.
- Risk that price impacts could be larger given the economic cycle (particularly in the construction sector)

# Capacity constraints

Irish Fiscal Advisory Council

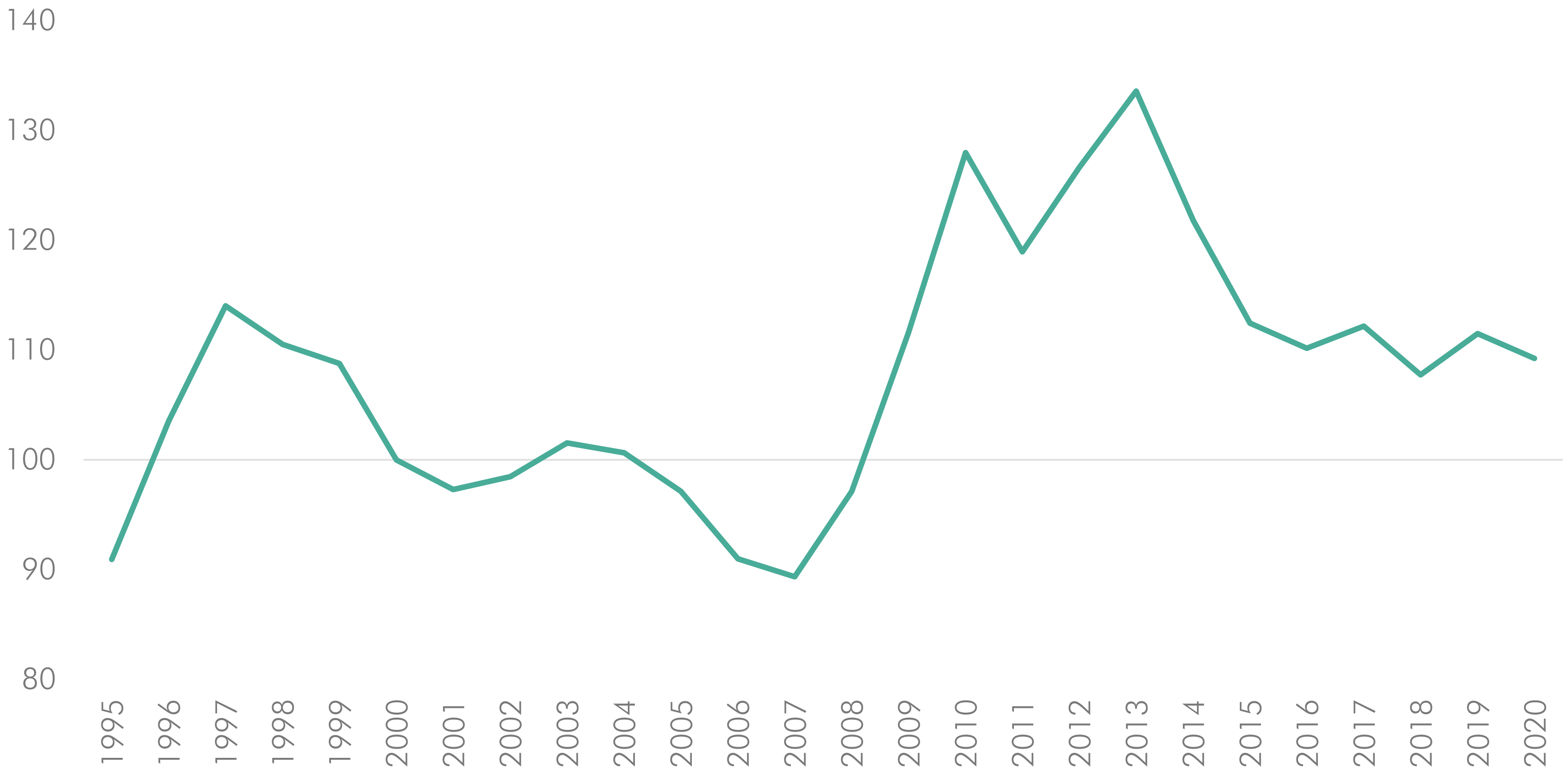
# Capacity constraints

- Ramp up in public investment at a time when the economy is forecast to be growing strongly
- Capacity constraints in the construction sector could become apparent
- This could result in higher prices, lower real output and poorer value for money

- Labour supply in construction is likely to be a key issue.
- Migration previously supplied increases in labour supply
- Limited unemployment in construction pre-pandemic suggests modest contribution from that channel.

# Productivity has been relatively stagnant in construction

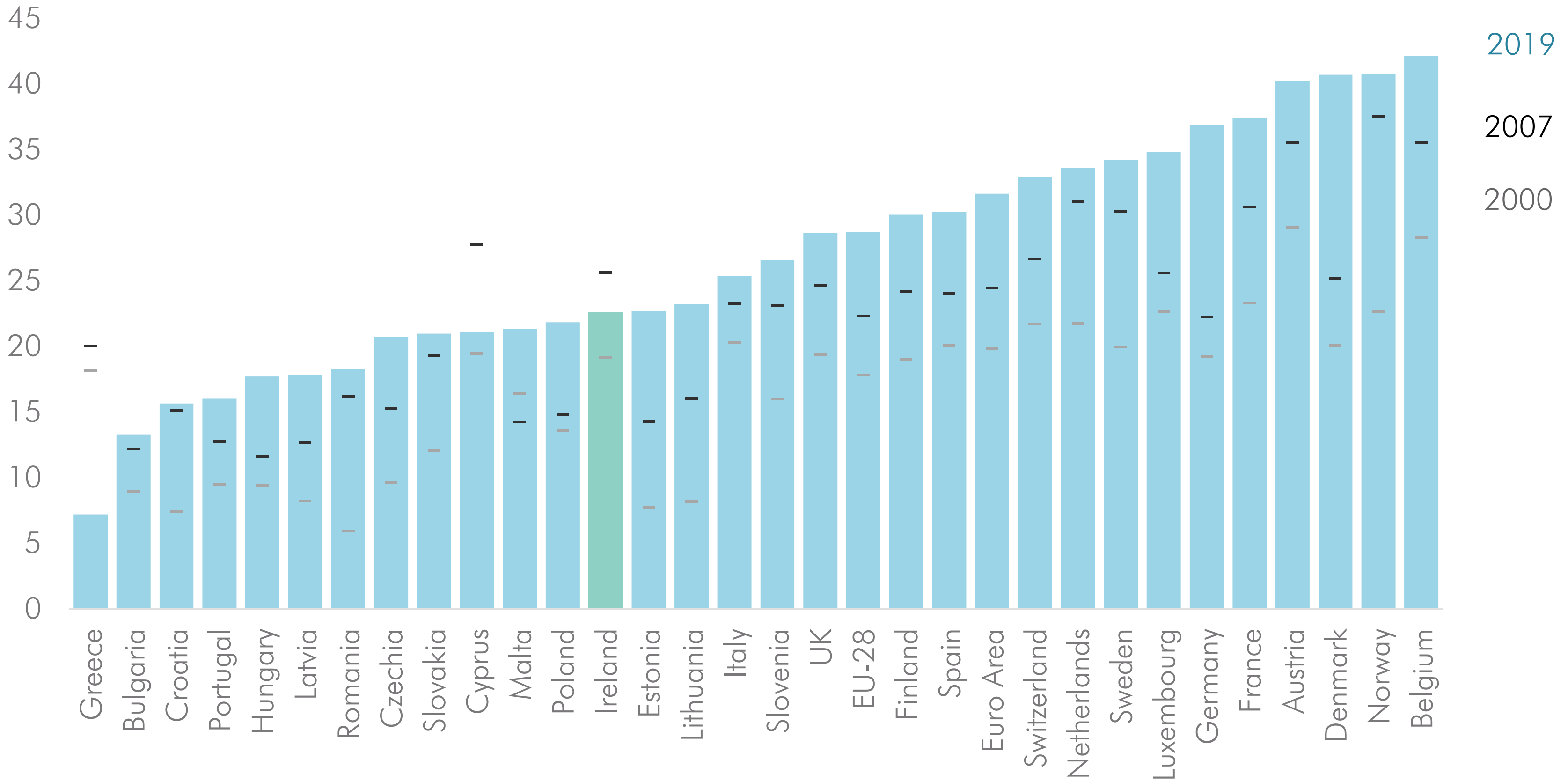
## Labour Productivity index in construction, 2000 = 100




Sources: Eurostat; own workings.
Notes: The measure shown is real gross valued added in construction divided by hours worked in construction.

# Irish construction productivity remains low internationally

## Labour Productivity index in construction, 2000 = 100

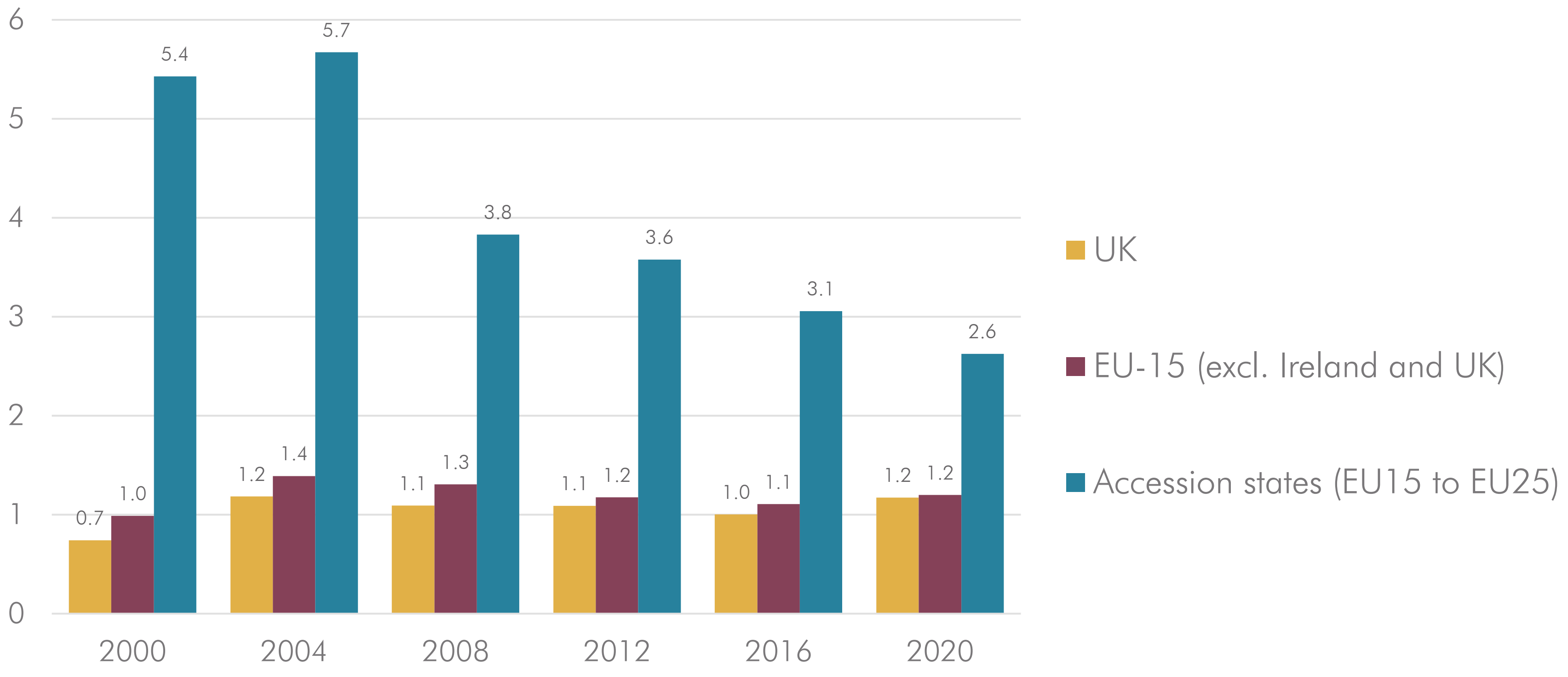



Source: Eurostat; and own workings.

Notes: Data show gross value added in the construction sector (current prices, million purchasing power standards) divided by total annual hours worked by all employed in the sector.

# Migration less likely to provide the labour force

## Multiple of average hourly wages in construction compared to Ireland

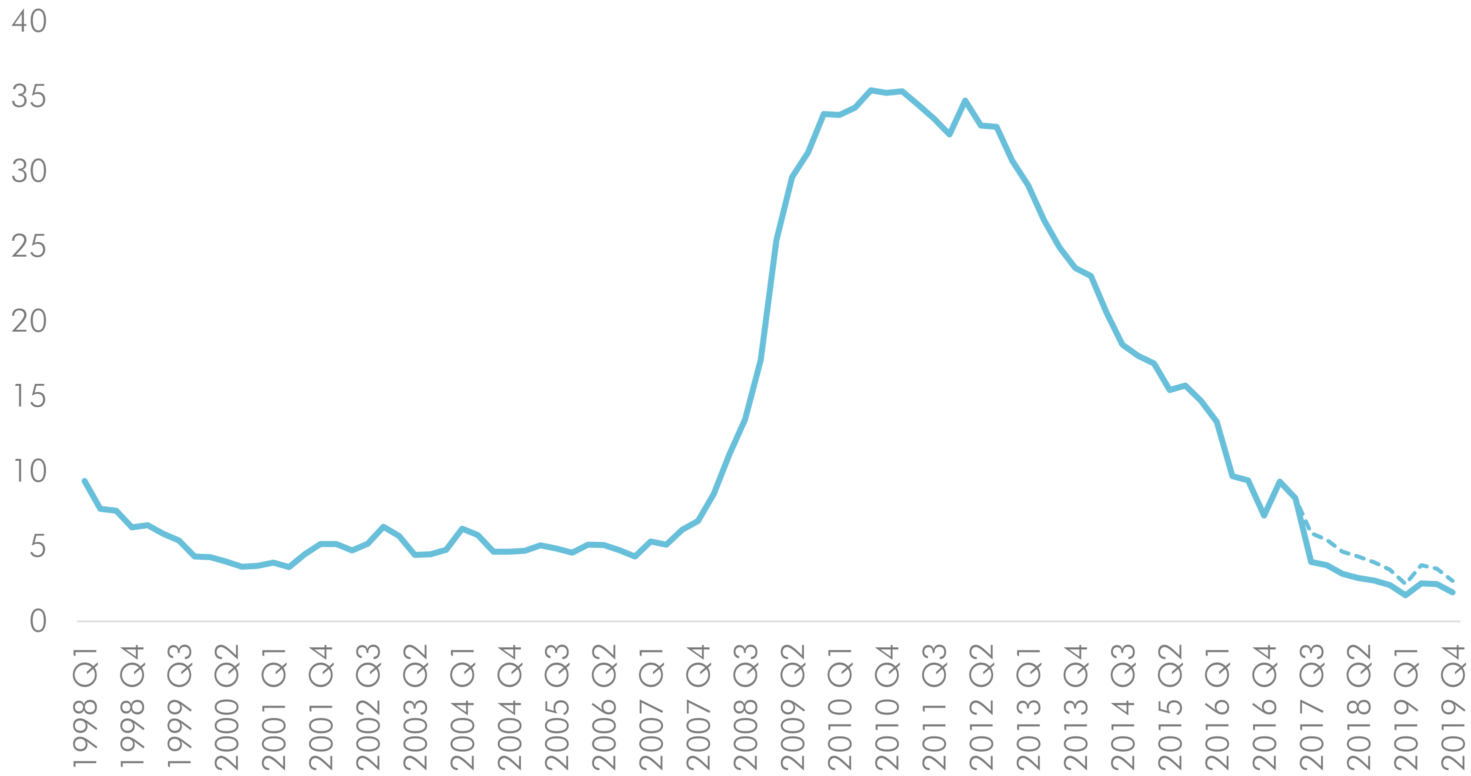



Source: Eurostat; authors' workings.
Notes: A simple unweighted average of wage levels is used for Accession states.

Irish Fiscal Advisory Council

# Unemployment in the construction sector is already low

## % unemployment rate for construction




Source: CSO and Fiscal Council workings.

Notes: The construction sector unemployment rate is estimated as: unemployed construction workers/(unemployed construction workers + employed construction workers + total potential additional labour force). The CSO's methodologies to calculate potential additional labour changed in 2017, making the time series non-comparable. To account for this, the dashed lines uses imputed potential additional labour force figures from Q3 2017 onwards based on changes in the new series.

# Construction employment

- Even restoring all unemployed construction workers to employment, a shortfall of approx. 28k relative to NDP plans

3 potential sources:

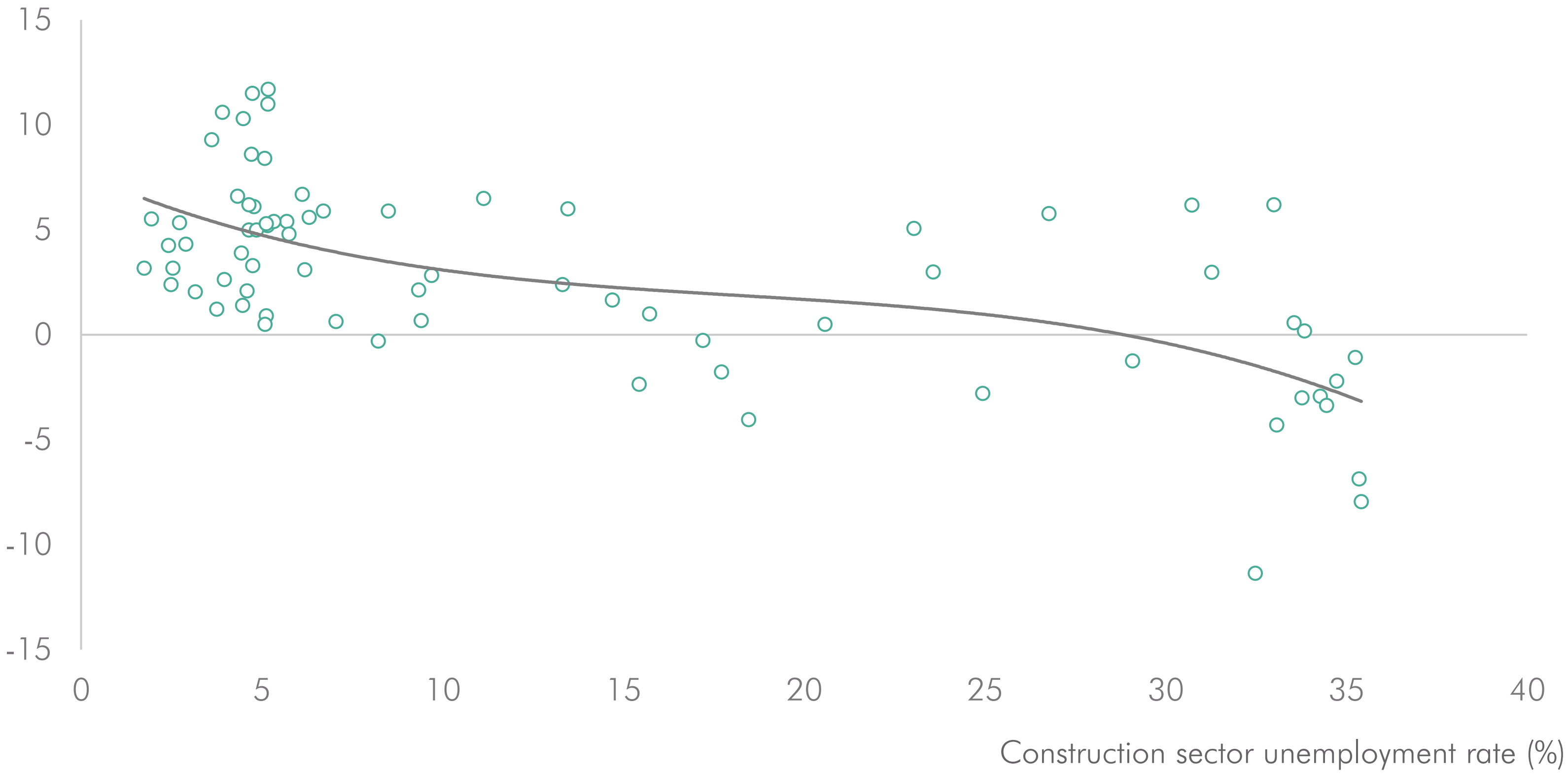
- Migration
- Inactive (not in the labour force)
- Employed in other sectors

All may imply wage pressures

Irish Fiscal Advisory Council

# Wage pressures to remain in construction sector

## Construction sector hourly wage growth (%)

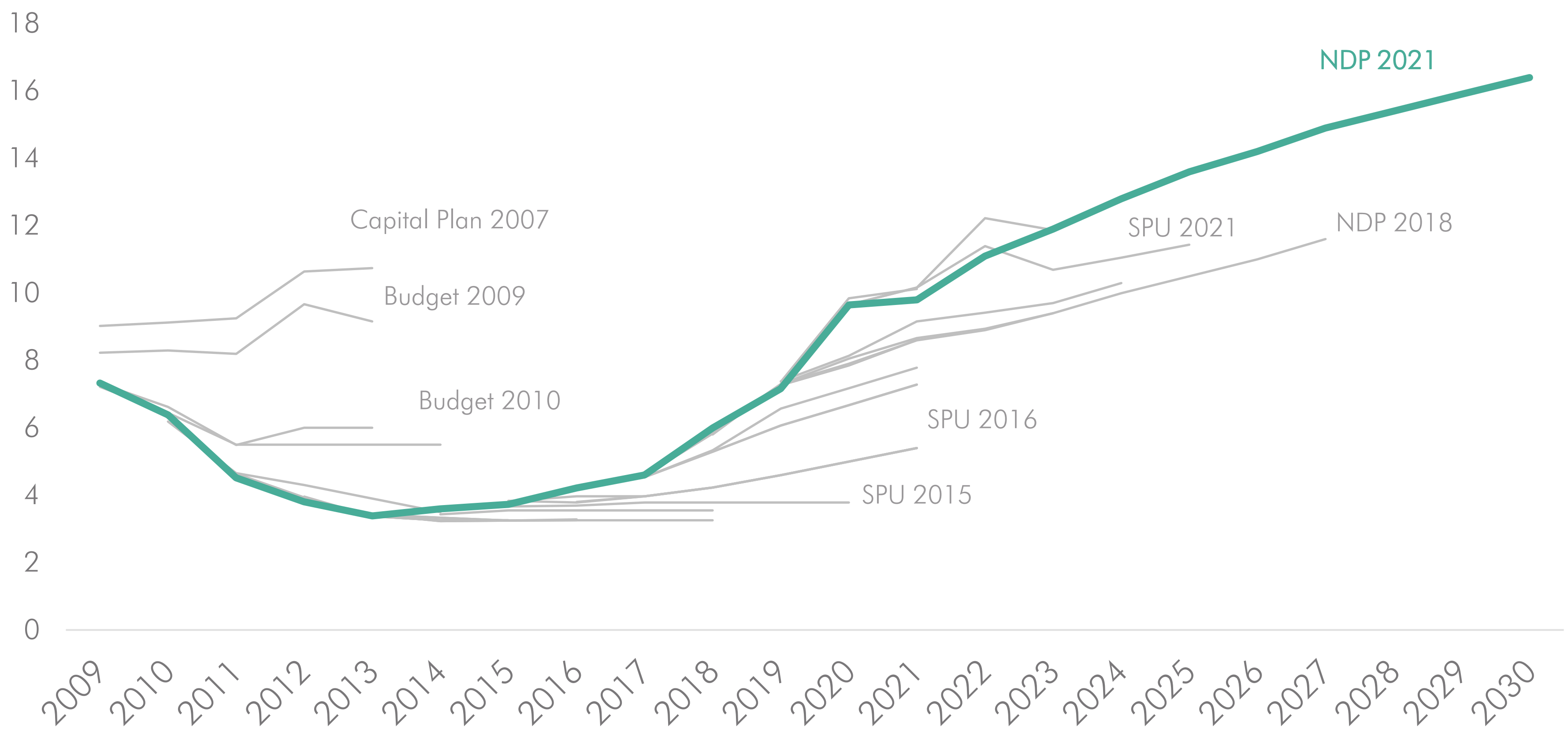



Sources: CSO; authors' workings.
Notes: Data on annual hourly wage growth for construction are taken from the CSO's Earnings Hours and Employment Costs Survey. The construction sector unemployment rate is calculated as unemployed construction workers/(unemployed construction workers + employed construction workers + total potential additional labour force). Note that we remove outlier observations Q4 2008 to Q2 2009.

# Challenges arise with Public investment

# Revisions to public capital spending have been procyclical

€ billions




Sources: Various budget plans.

# Revisions to public capital spending have been procyclical

- In the boom, an underestimation of costs is possible as is a desire by policymakers to simply do more in terms of the size and number of investment projects undertaken.
- In a bust, capital spending is easier to cut politically.

# Selected past IMF PIMA recommendations

## 2017 report

| IMF recommendation | Progress assessment |
|---|---|
| 1) Building up the Department's in-house expertise | |
| Establish an "Infrastructure Projects Unit" in DPER to enhance its role as coordinator and gatekeeper of appraisal and selection process, provide advisory services to Minister, studies of infrastructure bottlenecks, financing, and lessons learnt from previous projects | The Investment Projects and Programmes Office (now National Investment Office) was set up in 2018 and advises on appraisal and selection issues |
| Establish common analytical framework for estimating demand pressures and infrastructure gaps | Some efforts have been made to introduce common frameworks for looking at infrastructure demand and capacity within the NDP process |
| Strengthen use and application of cost-benefit analysis + other appraisal techniques | The updated Public Spending Code provides some new guidance and requirements for investment planning, appraisal and management but use of these techniques is not necessarily required |
| Provide greater analysis on cost of maintaining & rehabilitating existing capital stock to prevent its degradation | In place for certain sectors, but not comprehensively |

Sources: IMF (2017); and authors workings.
Notes: The progress assessment is made by the authors. Deeper red shaded assessments indicate that weaker progress is assessed to have been made.

Irish Fiscal Advisory Council

# Selected past IMF PIMA recommendations
## 2017 report

| IMF recommendation | Progress assessment |
|---|---|
| **2) Improving transparency** | |
| Develop a central register of infrastructure assets to improve management of assets and maintenance funding | No provision for this appears to be in place |
| Further develop the "Investment Projects and Programmes Tracker" to show annual cost profiles; implementation of projects; clear capital and recurrent costs; data on adjustments to project design and costs; implementation delays; and results | The tracker was updated, with implementation status updates included. Other aspects are available internally, but not made public: annual cost profiles, the split of capital and recurrent costs, data on adjustments to project design and costs, and information on implementation delays. It gives limited information on results |
| Publish project assessments with key economic performance indicators and underlying assumptions | Updated Public Spending Code now requires publication of business cases + post-project reviews |
| Promote transparency around public-private partnerships | Updated Public Spending Code now requires publication of business cases + post-project reviews |

Sources: IMF (2017); and authors workings.
Notes: The progress assessment is made by the authors. Deeper red shaded assessments indicate that weaker progress is assessed to have been made.

# Selected past IMF PIMA recommendations
## 2017 report

| IMF recommendation | Progress assessment |
|---|---|
| 3) Learning from the past | |
| Strengthen ex-post assessments of major projects to improve design of future projects; publish reviews of projects | Updated Public Spending Code now requires publication of business cases + post-project reviews |
| Encourage C&AG to carry out performance audits of major investment projects | No provision for this appears to be in place |
| Prepare a summary every two years of government-wide lessons from reviews of the 10 largest projects completed | No provision for this appears to be in place |

Sources: IMF (2017); and authors workings.
Notes: The progress assessment is made by the authors of this Analytical Note. Deeper red shaded assessments indicate that weaker progress is assessed to have been made.

# Summing up

# Conclusions

- Public investment in Ireland has been procyclical.
- Irish public capital stock looks low compared to OECD peers
- NDP plans to increase public investment to very high levels.
- While this may yield economic benefits, capacity constraints and price pressures could be significant.
- Increasing labour supply in the construction sector is a key challenge.
- Given the scale of public investment planned in the coming years, any improvements in processes and value for money will be key.

# Thank you