An Roinn Airgeadais
Department of Finance

Budget 2020: macro-economic outlook and projections

Presentation to Irish Fiscal Advisory Council

Economics team, Department of Finance

27th September 2019

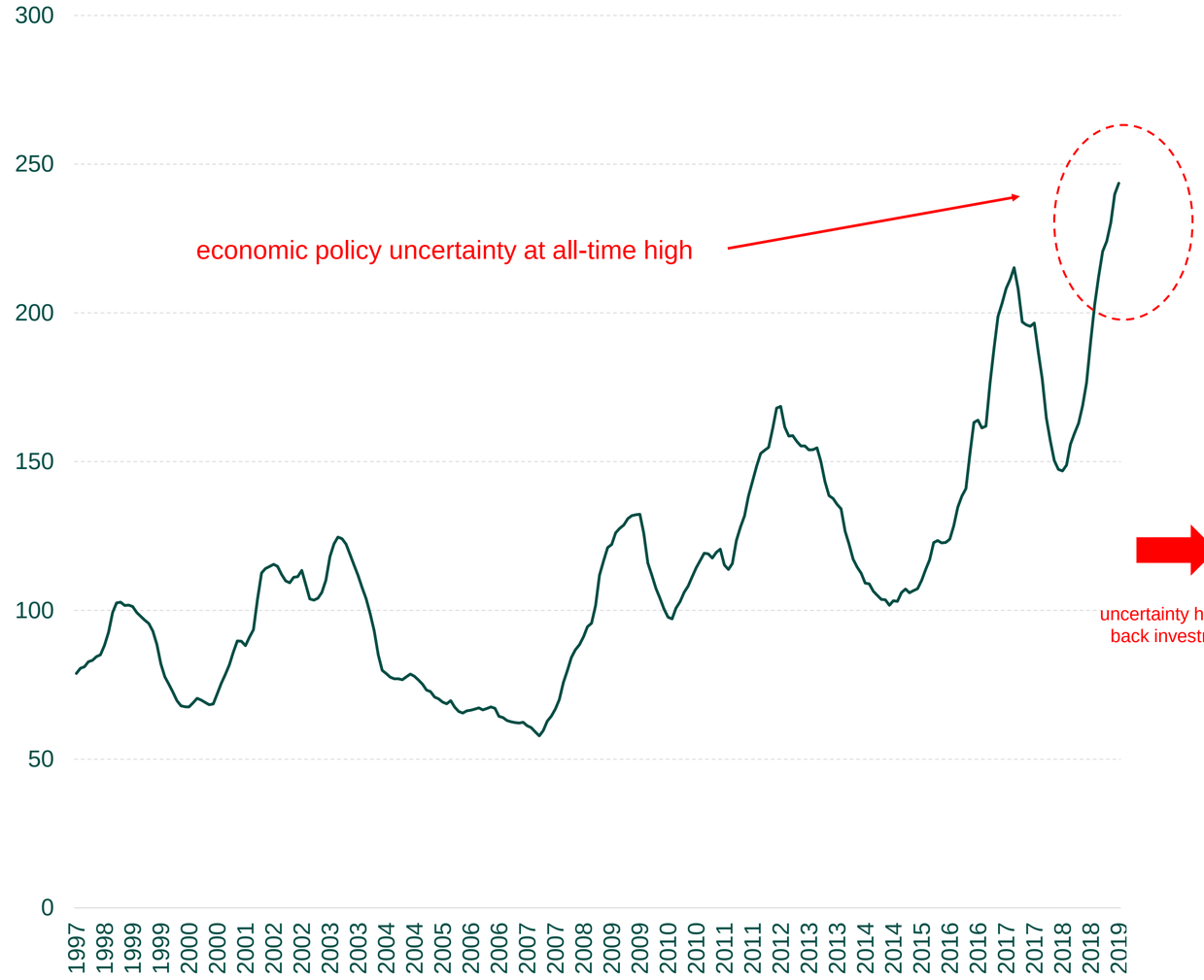
Birds-eye view

- Developments since SPU
- Methodological approach
- Counterfactual ‘deal’ scenario
- ‘No-deal’ simulations
- Short-term developments and forecasts
- Supply-side estimates

Developments since SPU

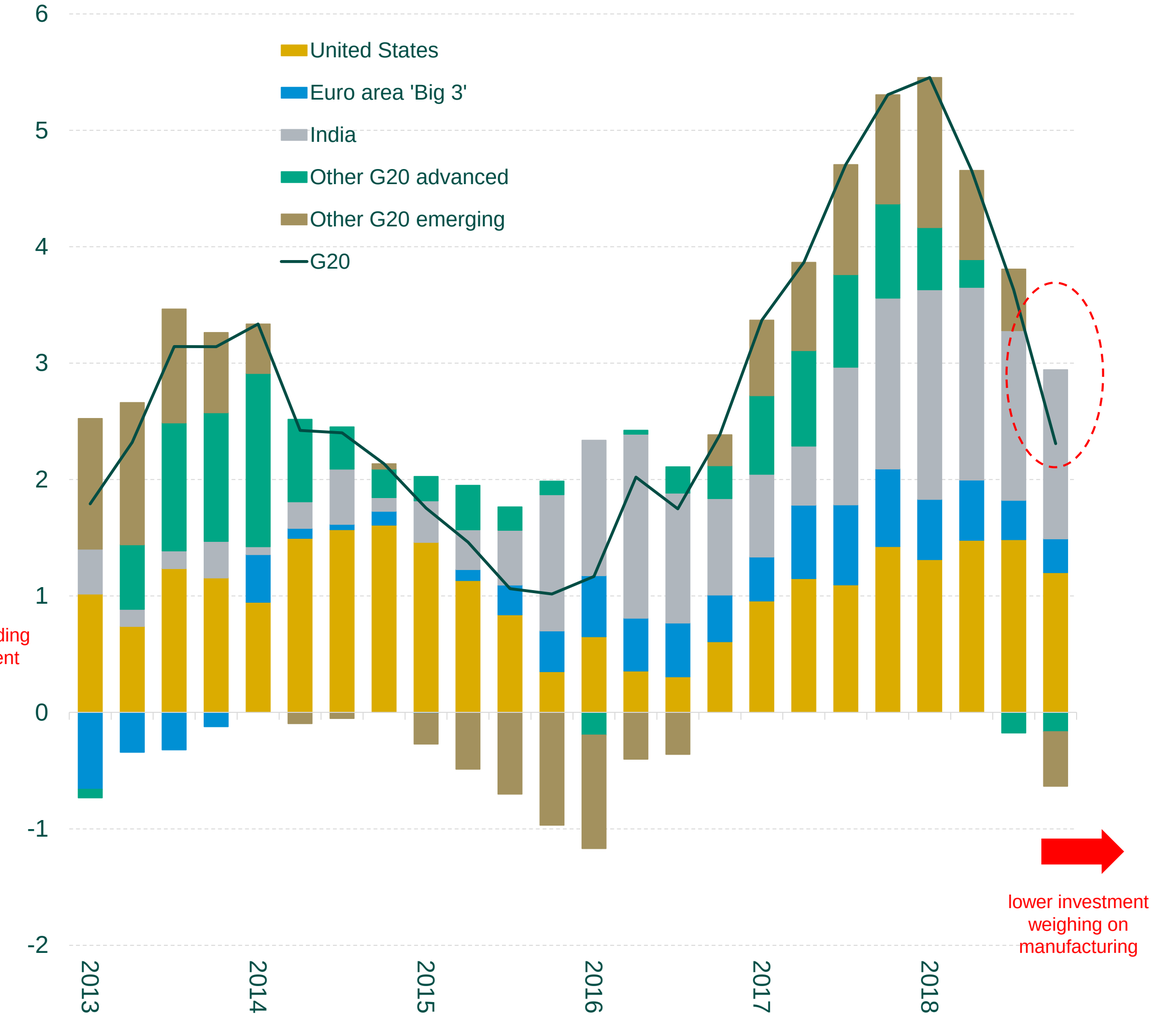
External environment: mounting evidence of turning point

Global economic policy uncertainty (12mma), 1999=100



uncertainty holding back investment

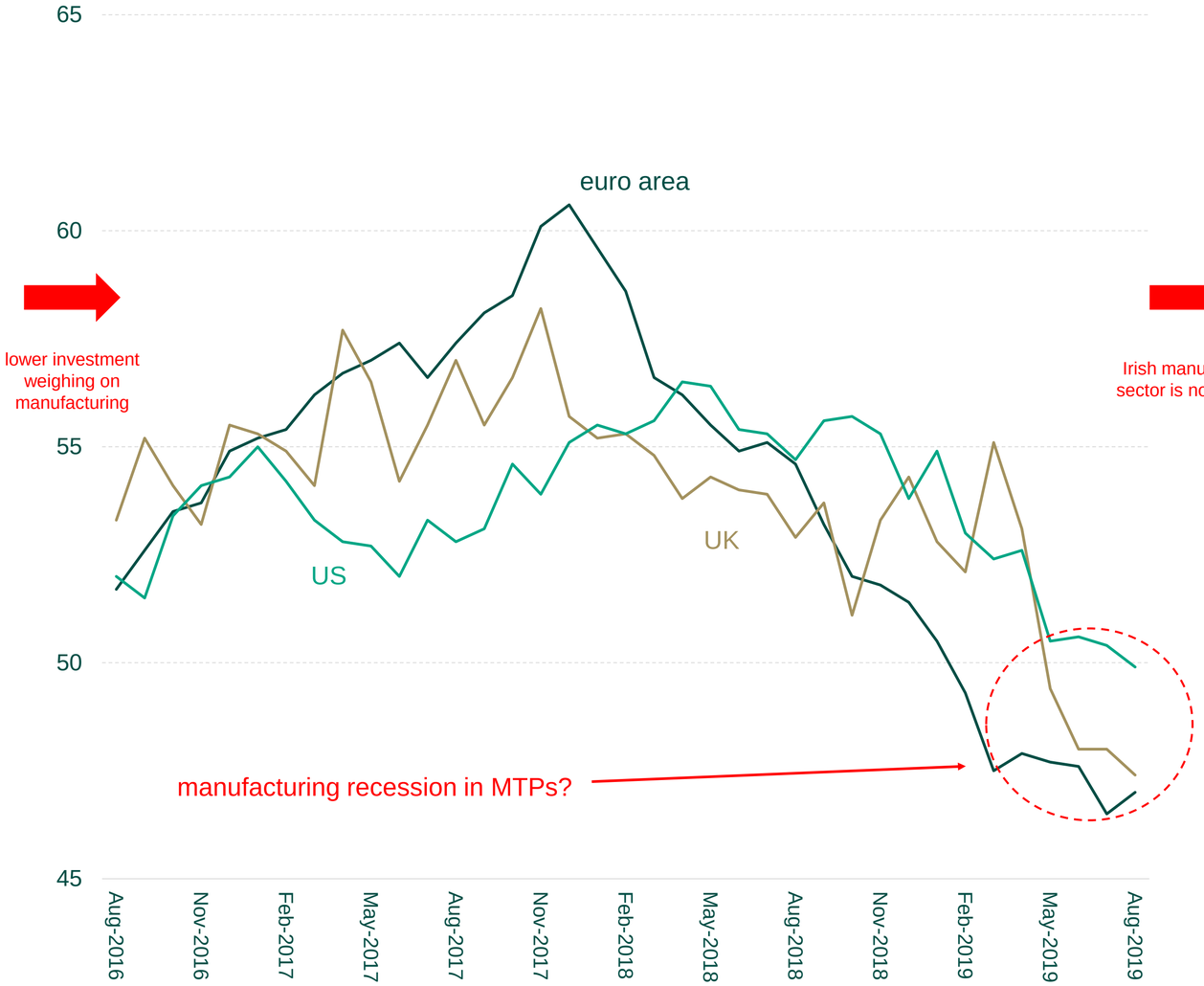
Fixed investment in G20 countries: pp cont. to y/y change



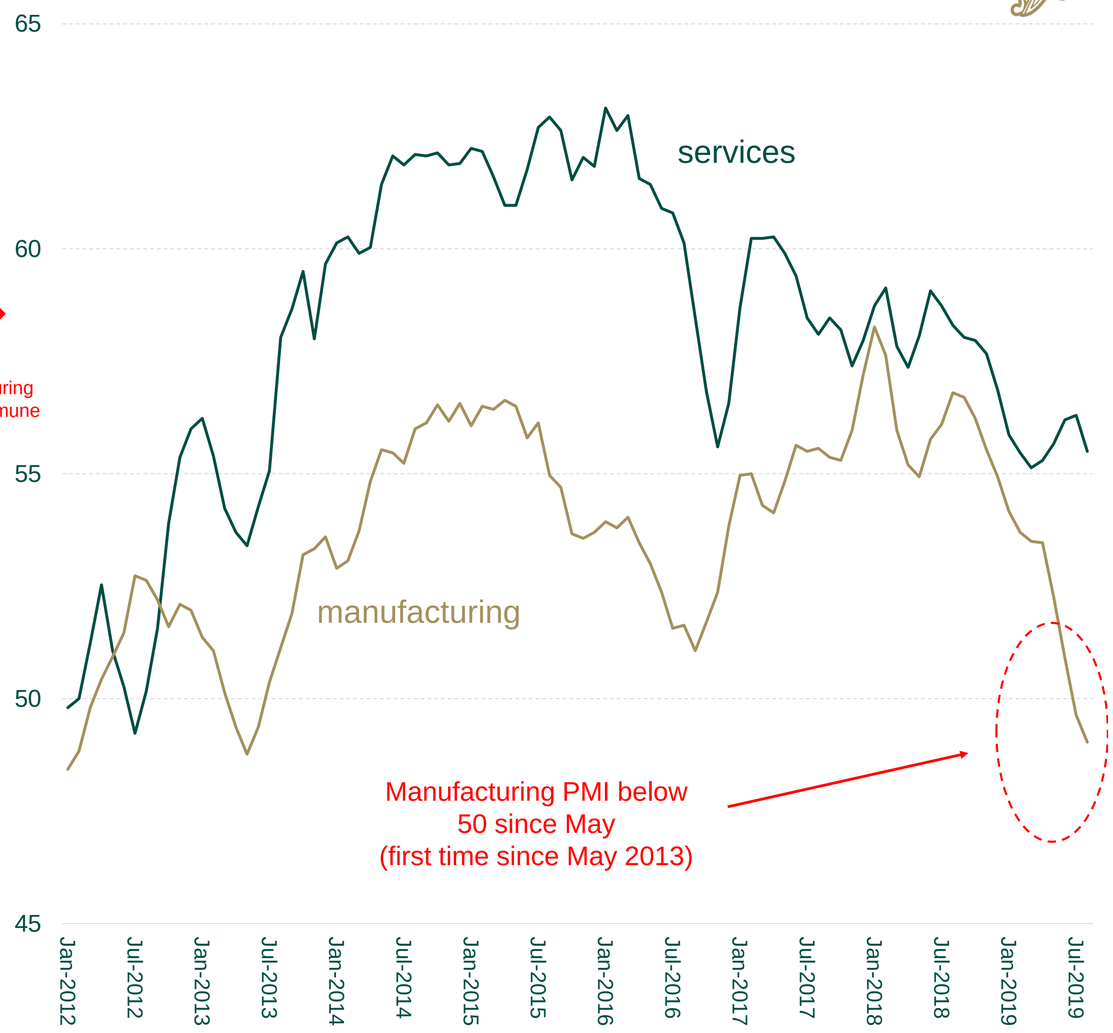
lower investment weighing on manufacturing

Weaker investment driving a “manufacturing recession”

PMI_manufacturing: major trading partners (< 50 = contraction)

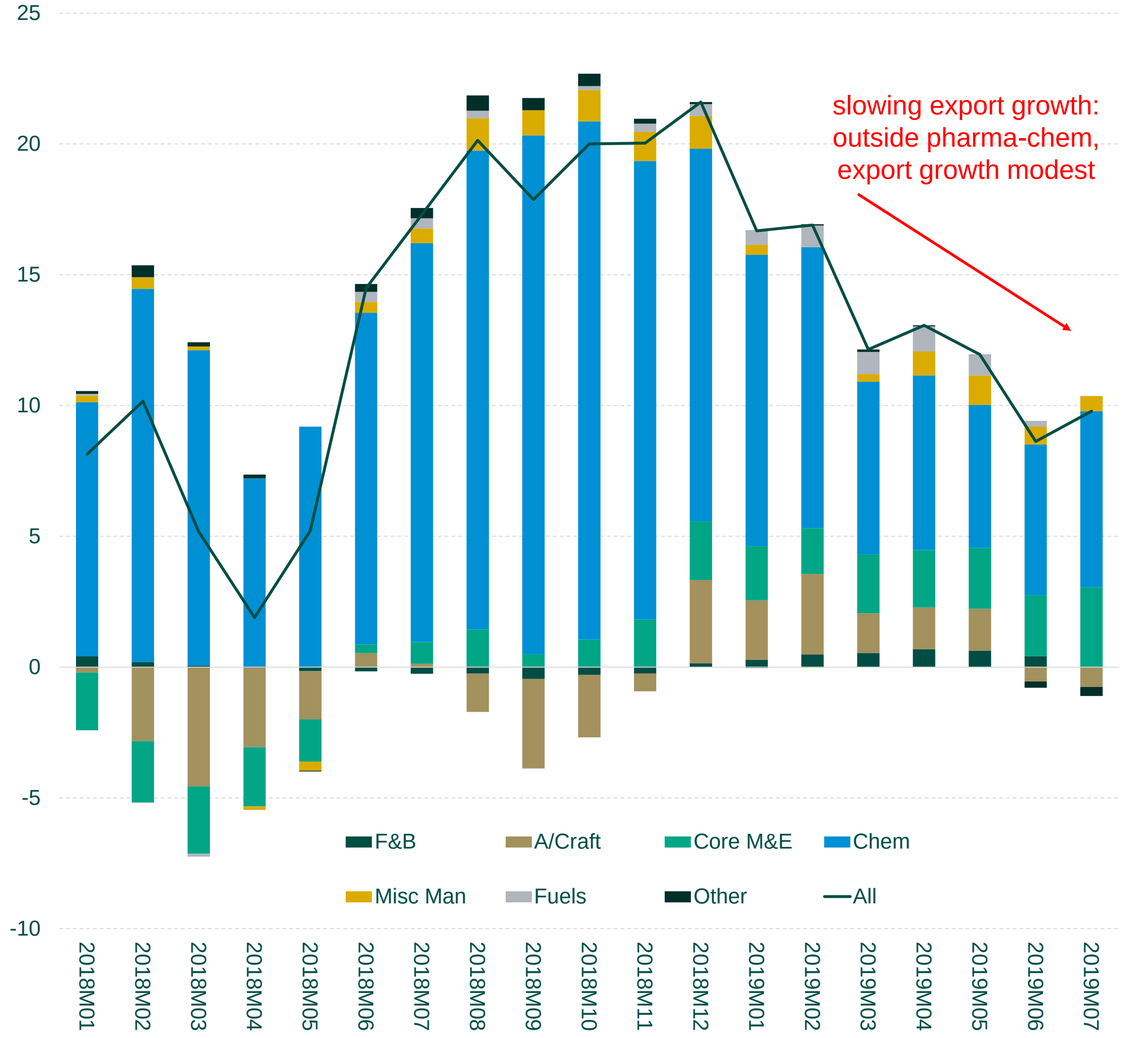


Irish PMIs (< 50 = contraction)



Soft data borne out by hard data in Ireland

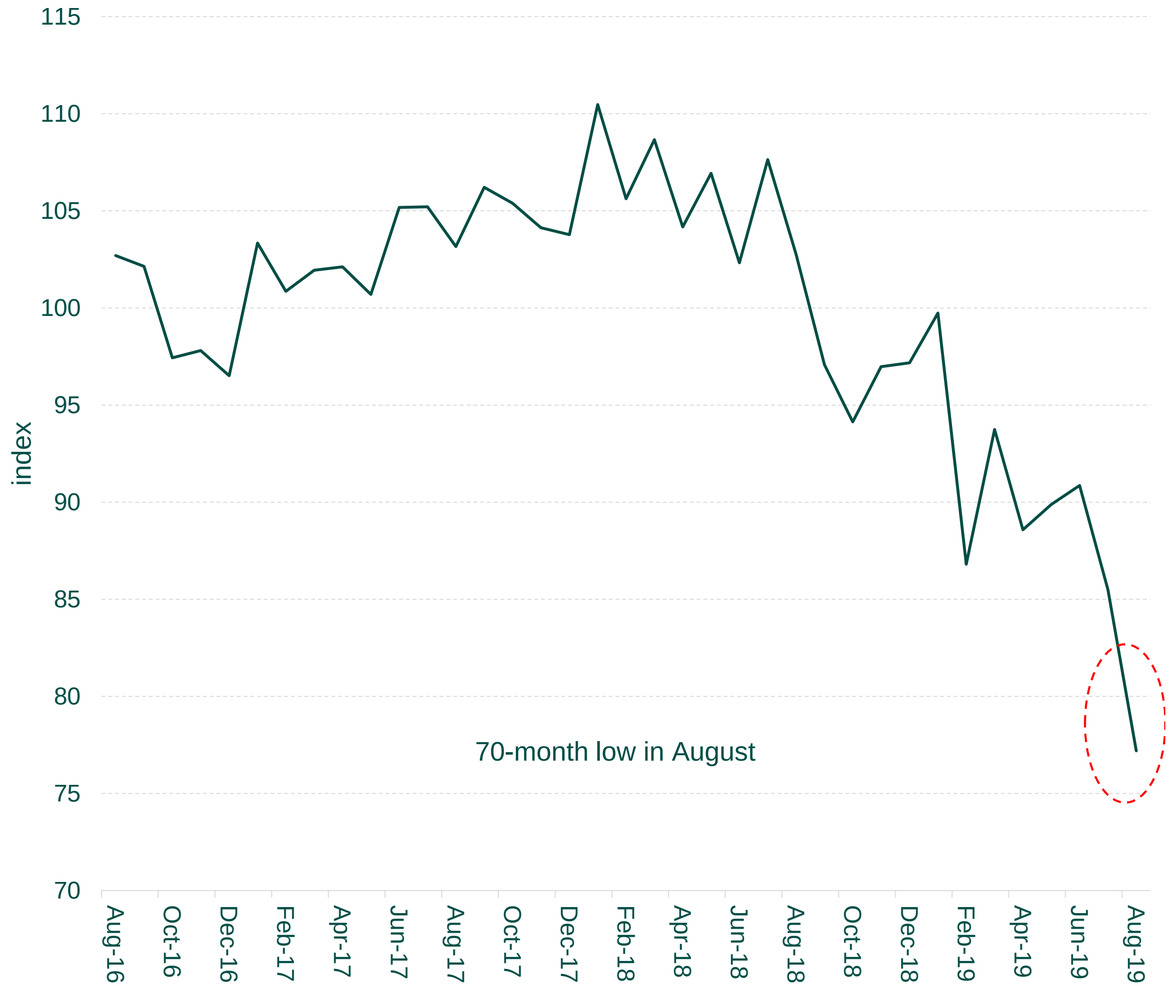
Contribution to y/y goods export change, pp



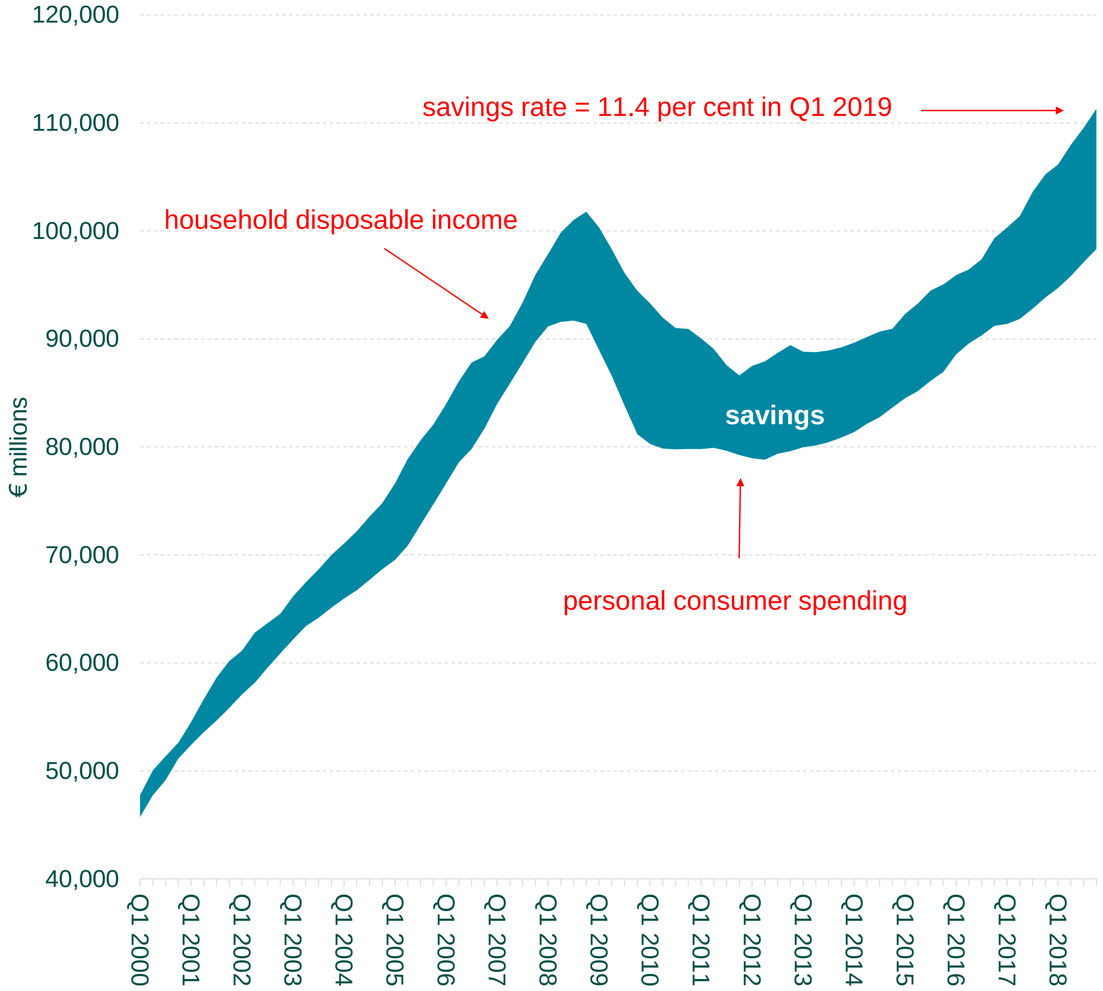
Modified domestic demand, y/y per cent change

Not just external sector: household sector increasingly cautious

Consumer sentiment index

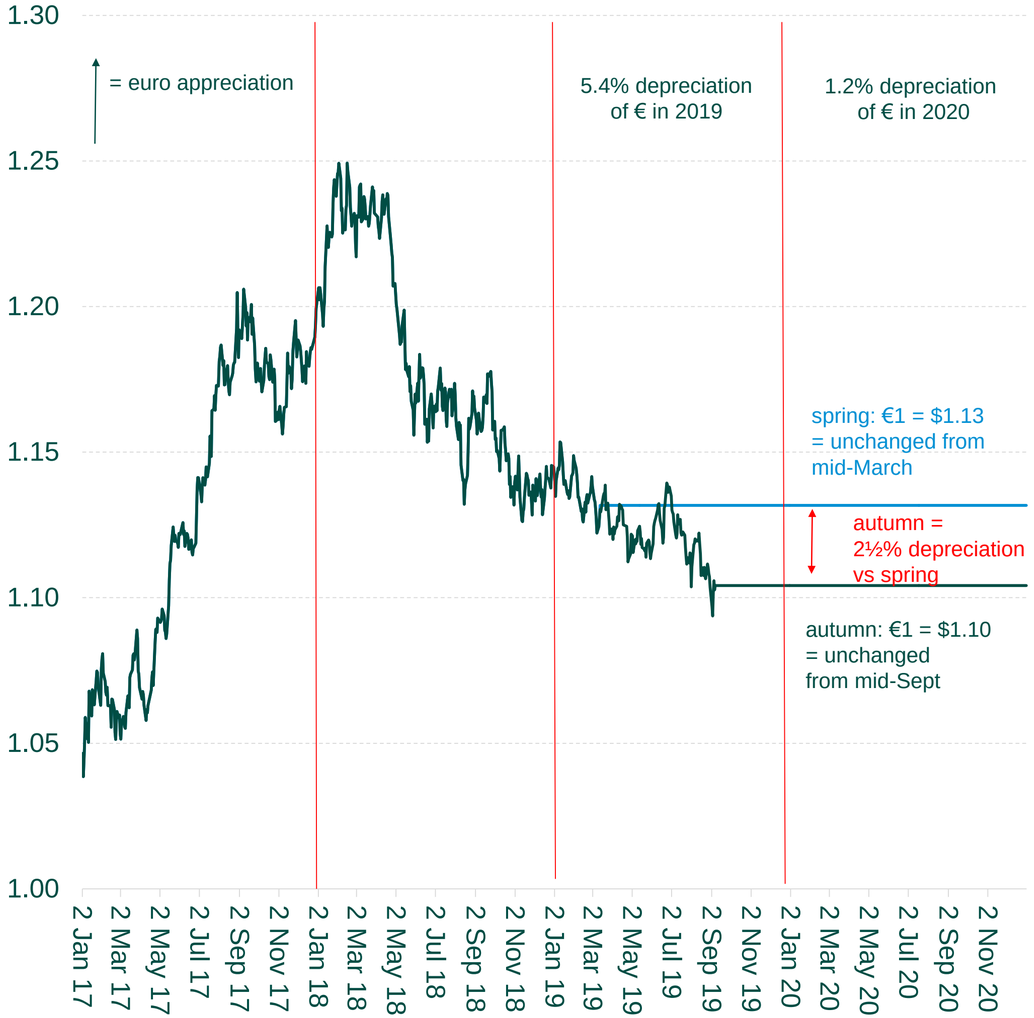


Savings rate: precautionary behaviour

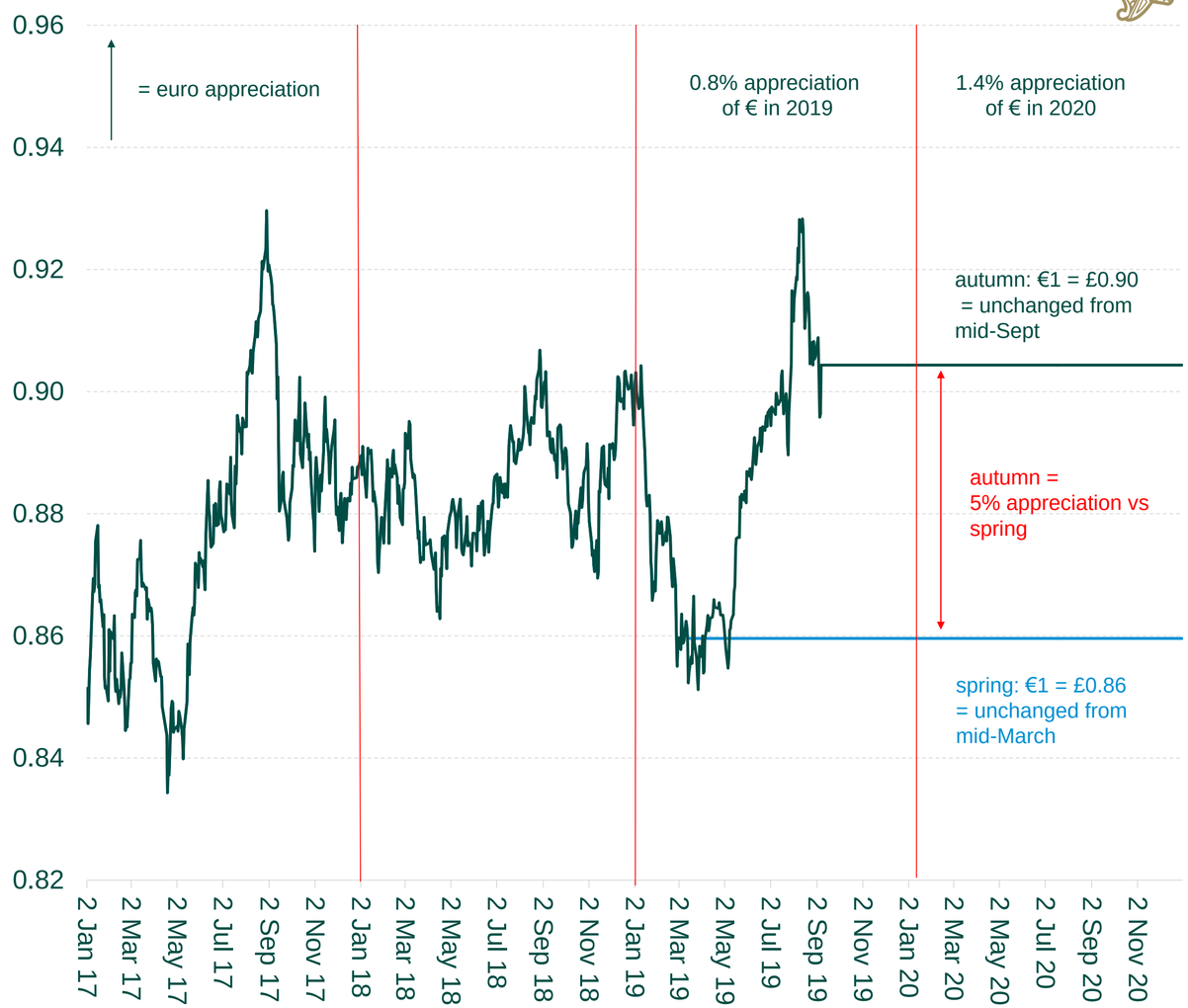


Exchange rates (held unchanged at mid-Sept levels)

euro-dollar bilateral exchange rate, €1 = $X



euro-sterling bilateral exchange rate, €1 = stg£X



Methodological approach

Constructing a disorderly exit economic forecast

- Government decision:
  - budget based on disorderly UK exit
- Need to construct ‘no deal’ economic outlook
- Operationalising this involves:
  i) create a counterfactual ‘deal’ scenario
  ii) apply COSMO model ‘no-deal’ scenario results to the counterfactual
  iii) arrive at ‘no deal’ projection
- Sequencing

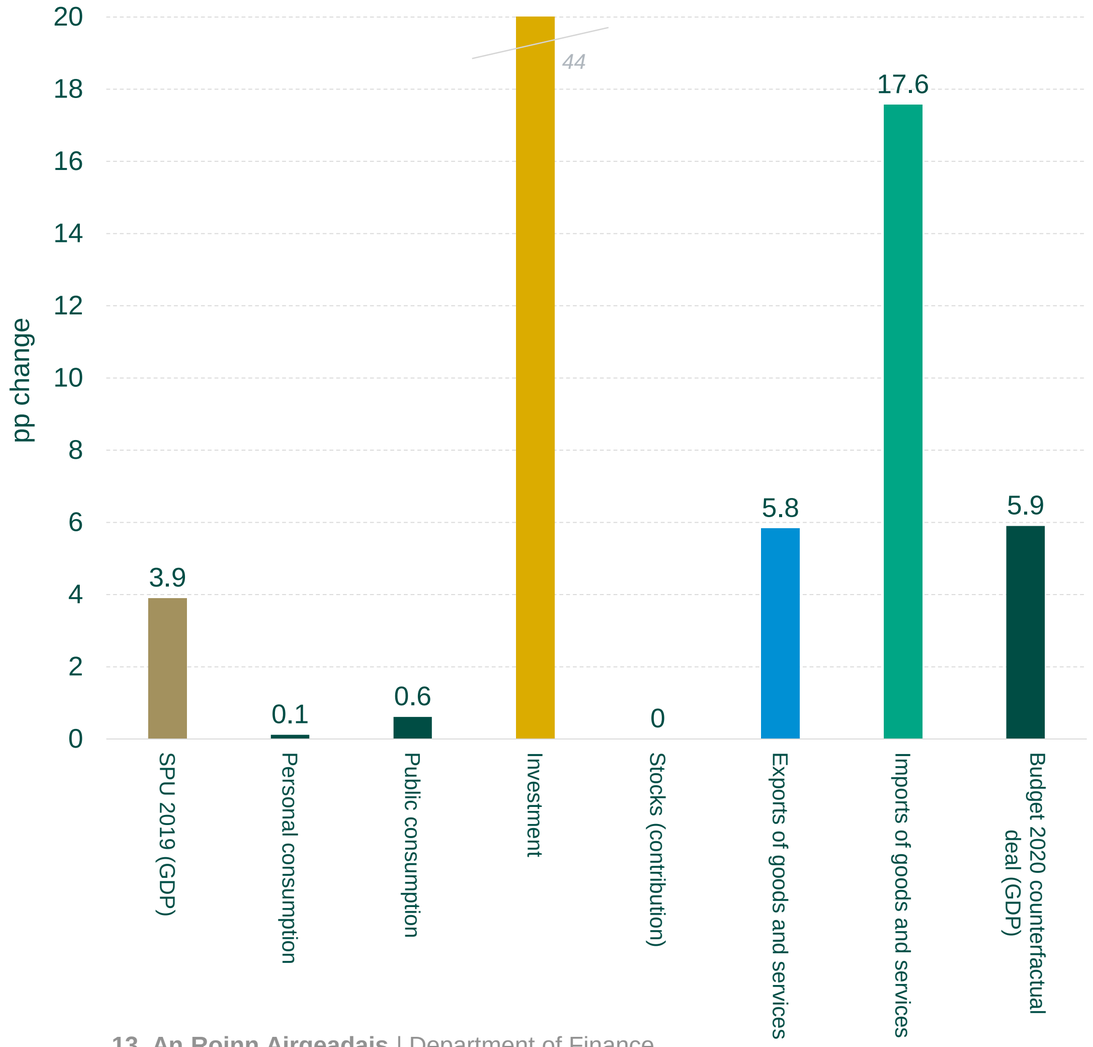
Counterfactual ‘deal’ scenario

Main changes to the forecasts vs spring in ‘deal’ scenario

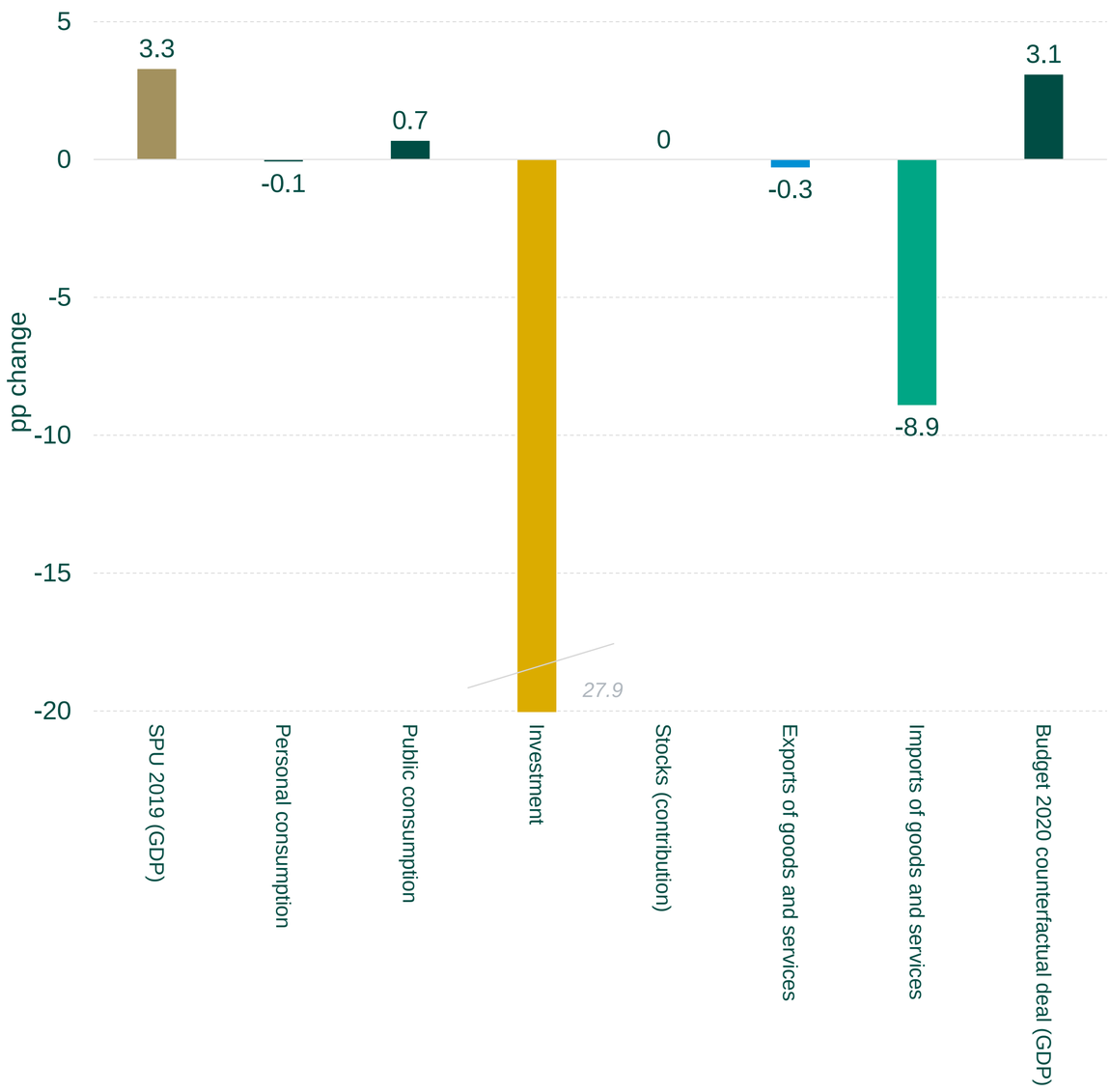
- Deterioration in global outlook
  - incorporation of more modest X_G into forecast
- Services exports
  - incorporation of stronger X_S into forecast
- Continued weakness in m&e investment, house completions below expectations, IP on-shoring
  - lowering of I_m&e forecast
  - lowering of I_b&c forecast
  - raising of I_r&d forecast
- Labour market slightly stronger than expectations
  - raising of employment forecast and CoE / capita
  - lowering of unemployment rate forecast

Counterfactual '*deal scenario*' vs SPU

2019



2020



Counterfactual deal projections – changes vs SPU

year-on-year per cent change	2018	2019	2020	2021	2022	2023
GDP	1.5	2.0	-0.2	0.0	0.0	0.0
GNP	0.6	1.3	-0.1	0.0	0.1	0.0
Nominal GDP	0.8	1.4	0.1	0.2	0.2	-0.2
Personal Consumption	0.5	0.1	-0.1	0.0	0.0	0.0
Govt Consumption	-2.0	0.6	0.7	0.0	0.0	0.0
Investment	-30.9	44.0	-27.9	0.0	0.0	0.0
Exports	1.5	5.8	-0.2	0.0	0.0	0.0
Imports	-9.9	17.5	-8.9	0.0	0.0	0.0
HICP	0.0	0.0	-0.1	-0.2	-0.2	-0.3
GDP Deflator	-0.7	-0.6	0.2	0.2	0.1	-0.1
Employment	0.0	0.1	-0.4	0.0	0.0	0.0
Unemployment (rate)	0.1	-0.2	-0.1	-0.2	-0.1	-0.1
contributions to growth (p.p)*						
Final Domestic Demand	-8.9	10.3	-8.8	-0.1	0.0	-0.2
Change in Stocks	-1	0.0	0.0	0.0	0.0	0.0
Net Exports	11.1	-8.4	8.6	0.1	0.1	0.0
Modified Domestic Demand (excl stocks)	-0.9	-0.5	-0.3	0.0	-0.1	-0.1
Modified Net Exports	2.1	2.5	0.0	0.0	0.1	0.1

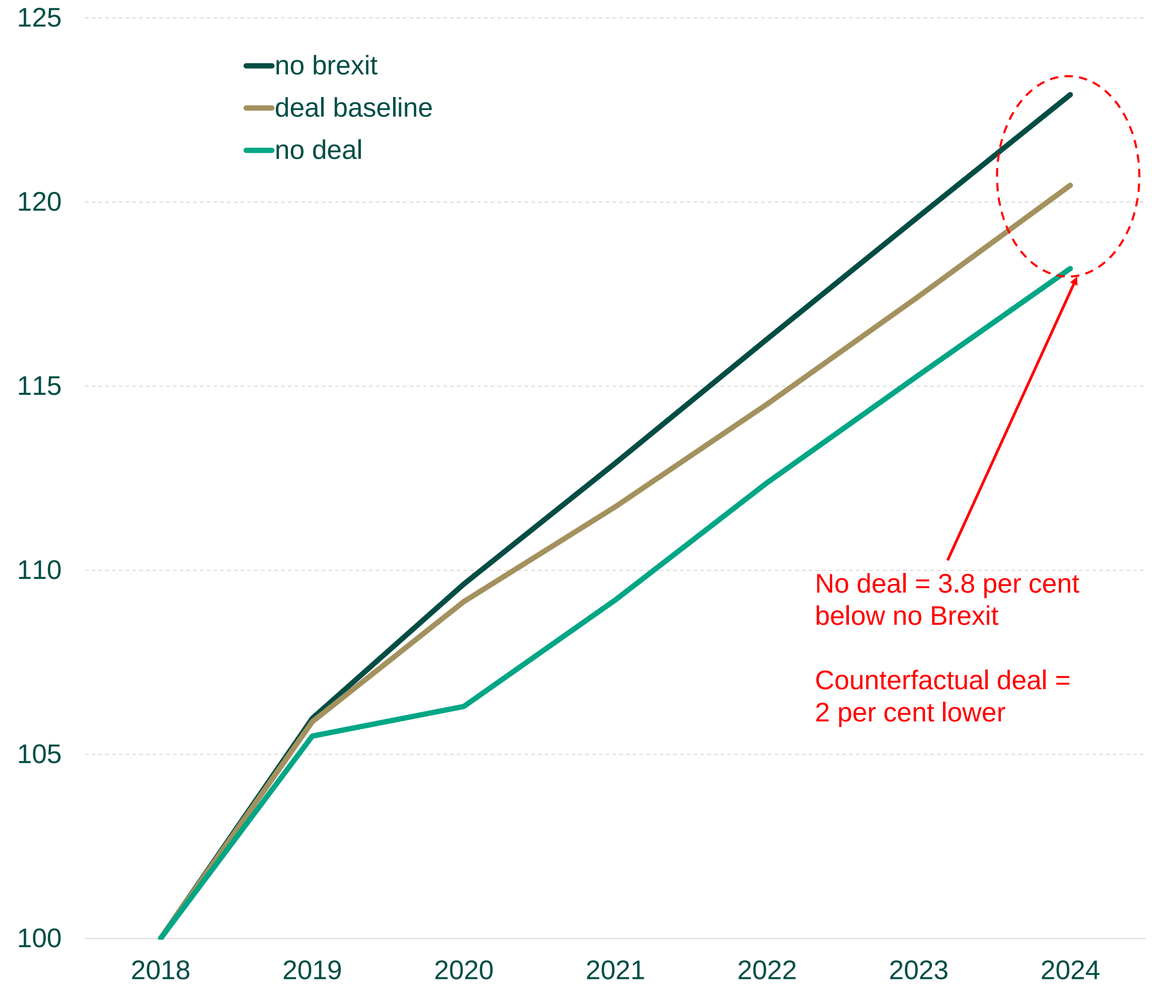
‘No deal’ scenario

Modelling approach

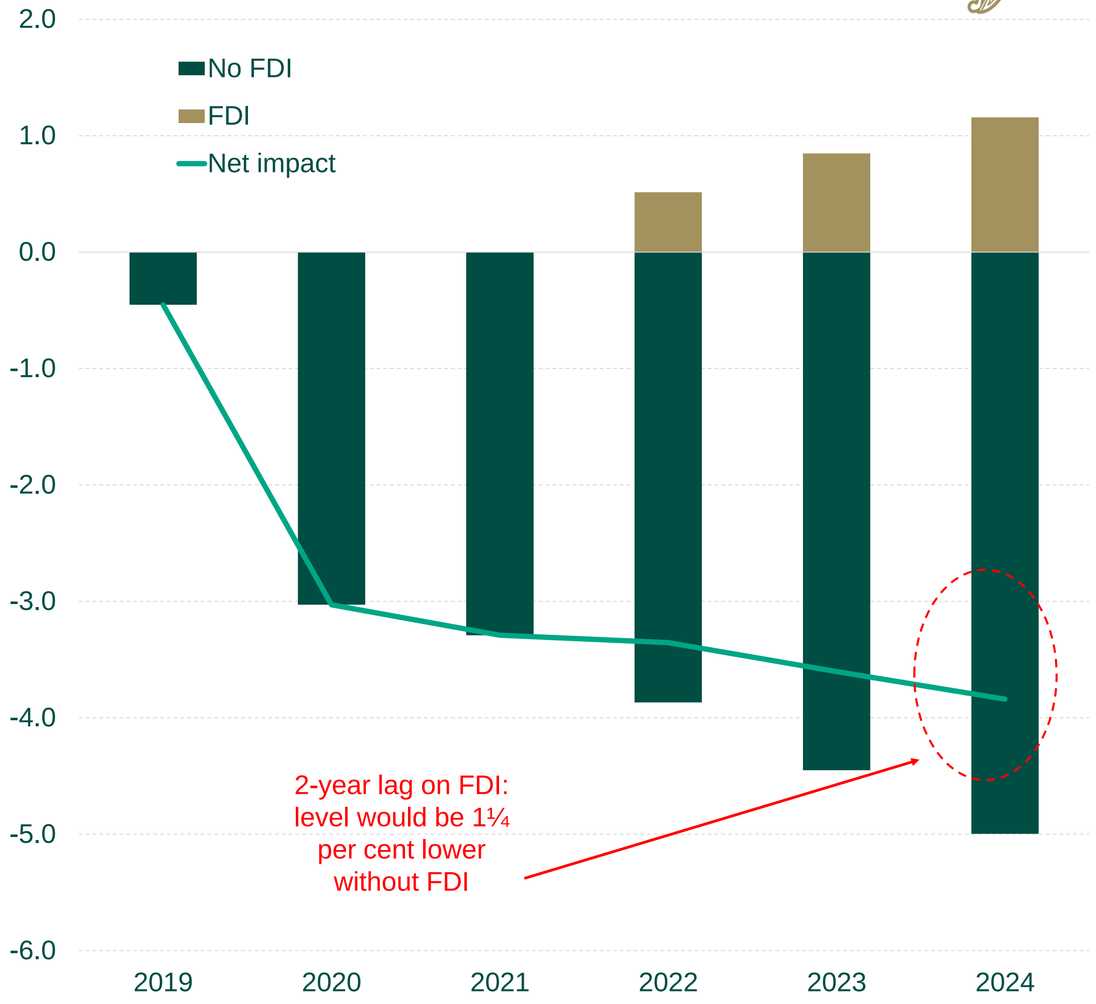
- Based on joint DoF-ESRI research
  - medium-term focus
  - judgement re. short-term impact
- Timing:
  - original deadline = Q2 2019
  - shock moved to Q4 2019
- FDI channel:
  - assumed with a 2-year lag
- Public consumption ‘exogenised’
- Current set of forecasts calibrated s.t. :
  - levels of output and employment in T+5 are in line with model output

Impact of Brexit on Ireland (change from baseline in levels) – real GDP

Level of GDP, 2018=100

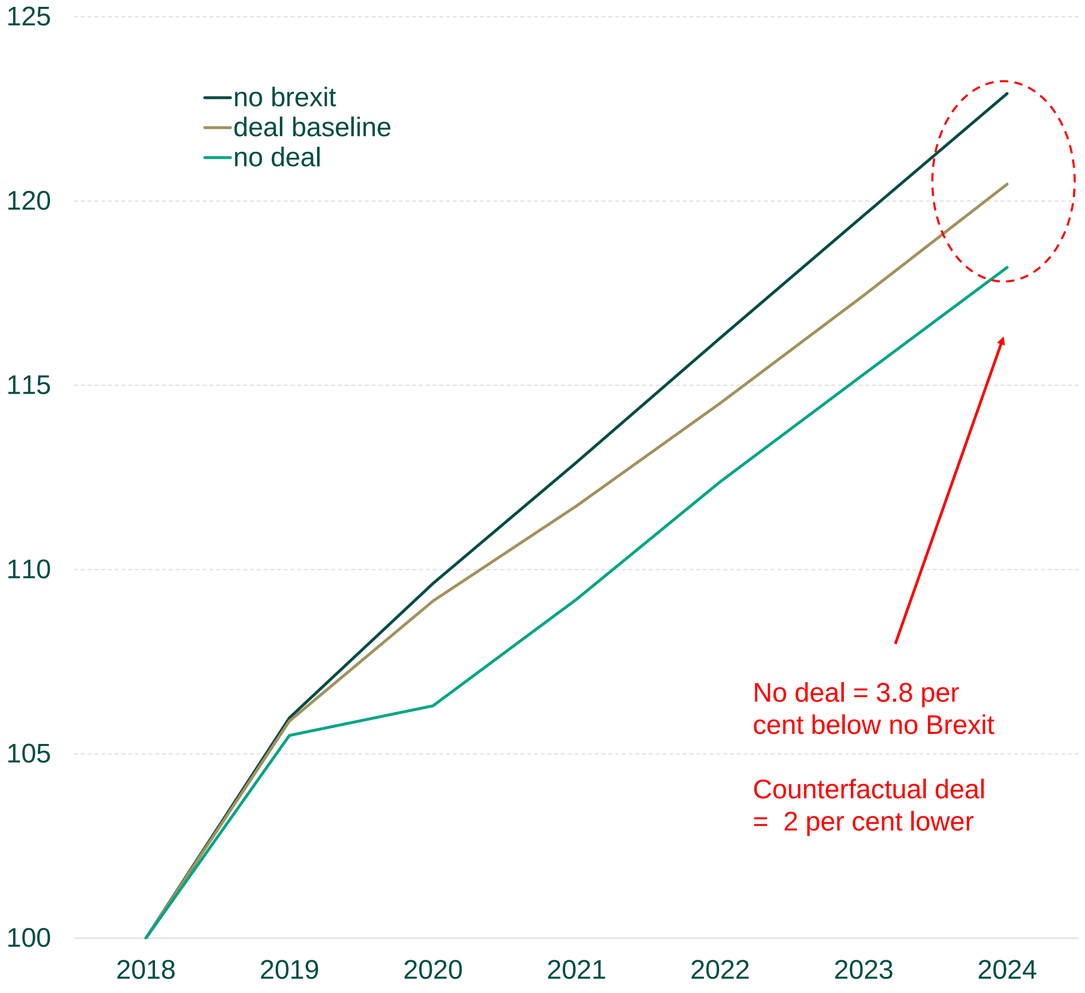


Difference to no brexit baseline, pp

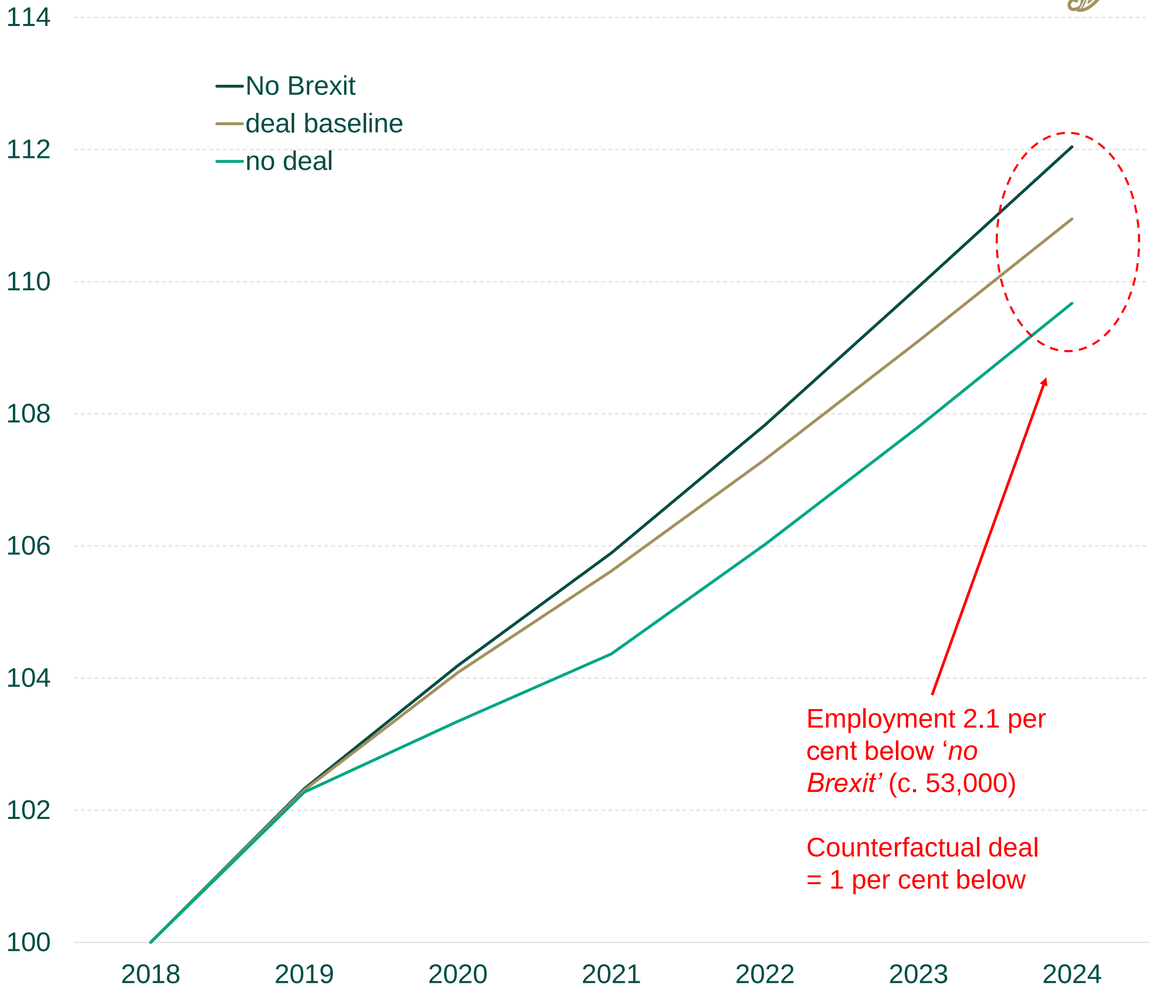


Impact of no-deal Brexit in medium-term

Level of GDP, 2018=100



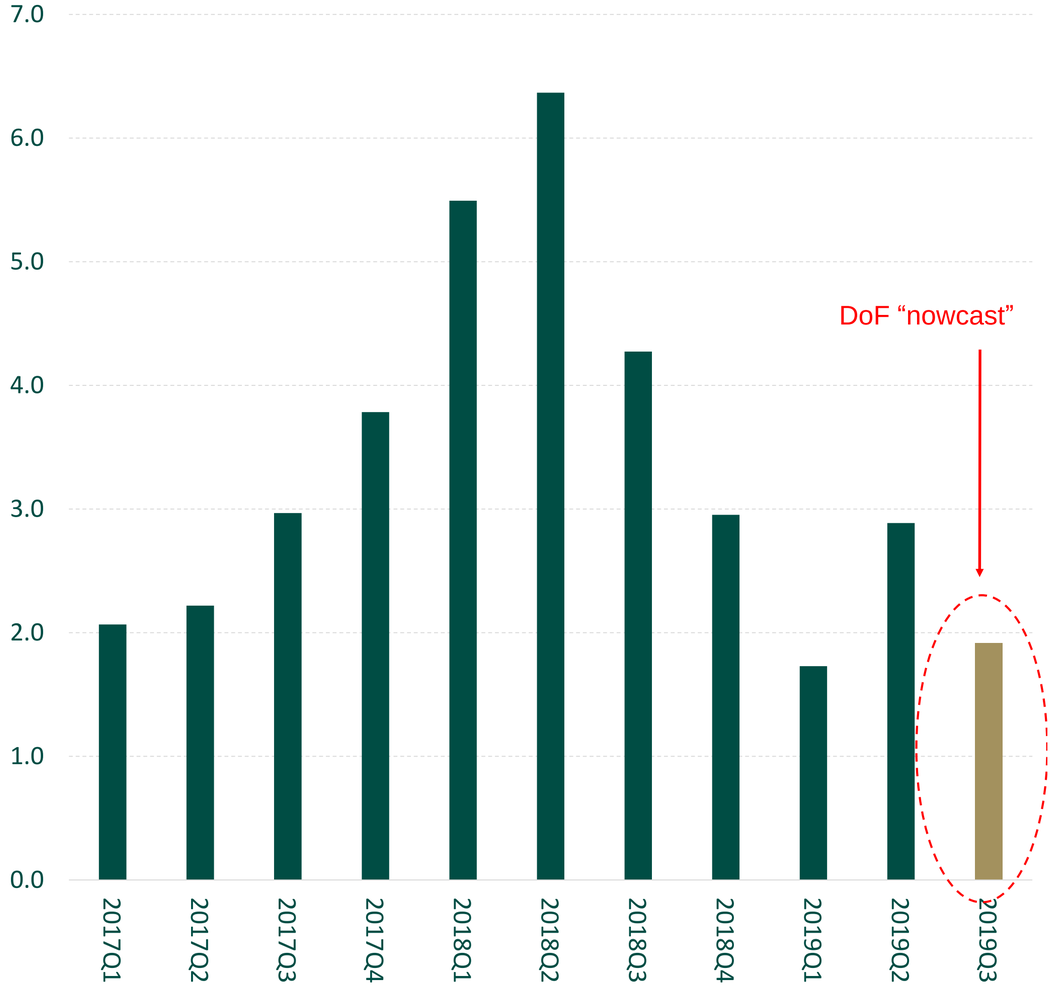
Level of employment, 2018=100



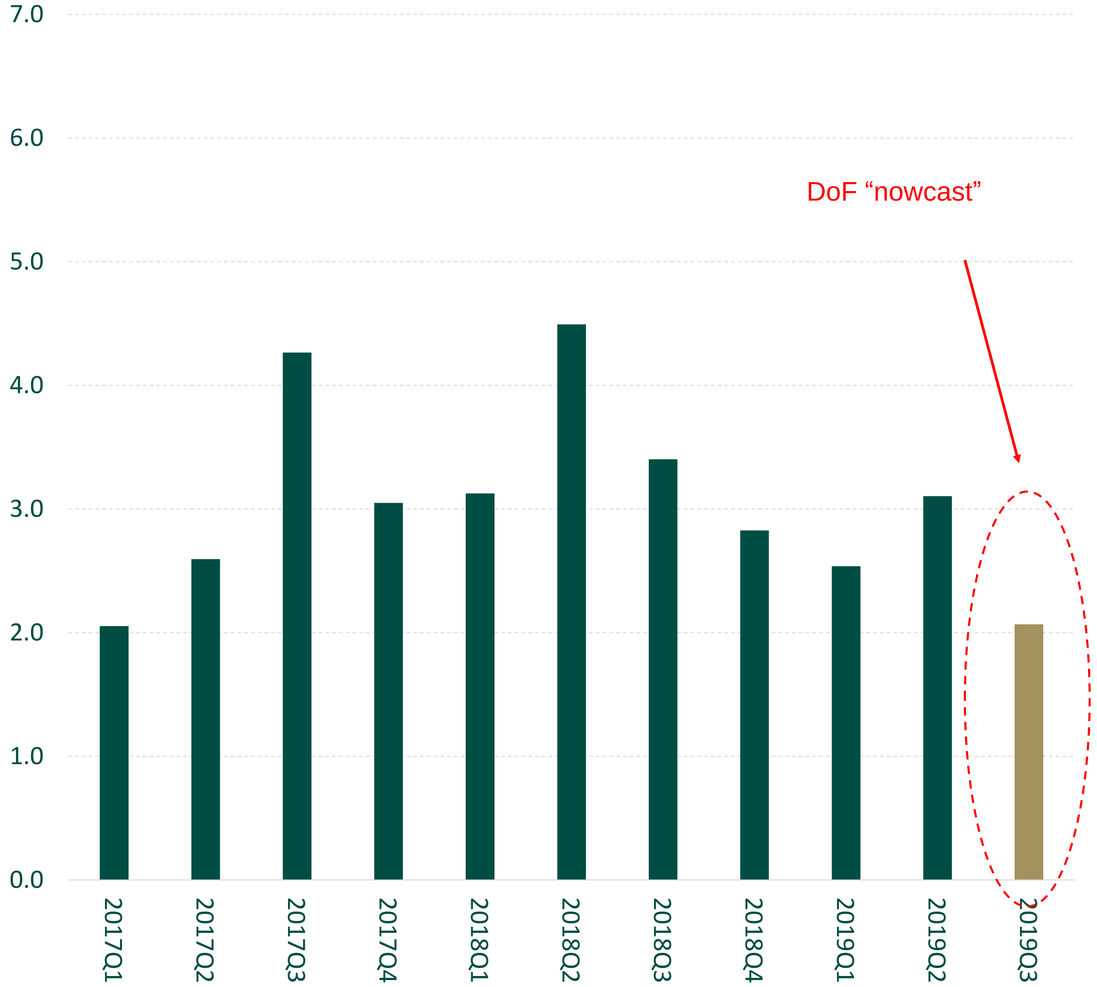
Short-term developments and forecasts

Q3 2019 ‘now-cast’ estimates

Modified domestic demand, y/y per cent change

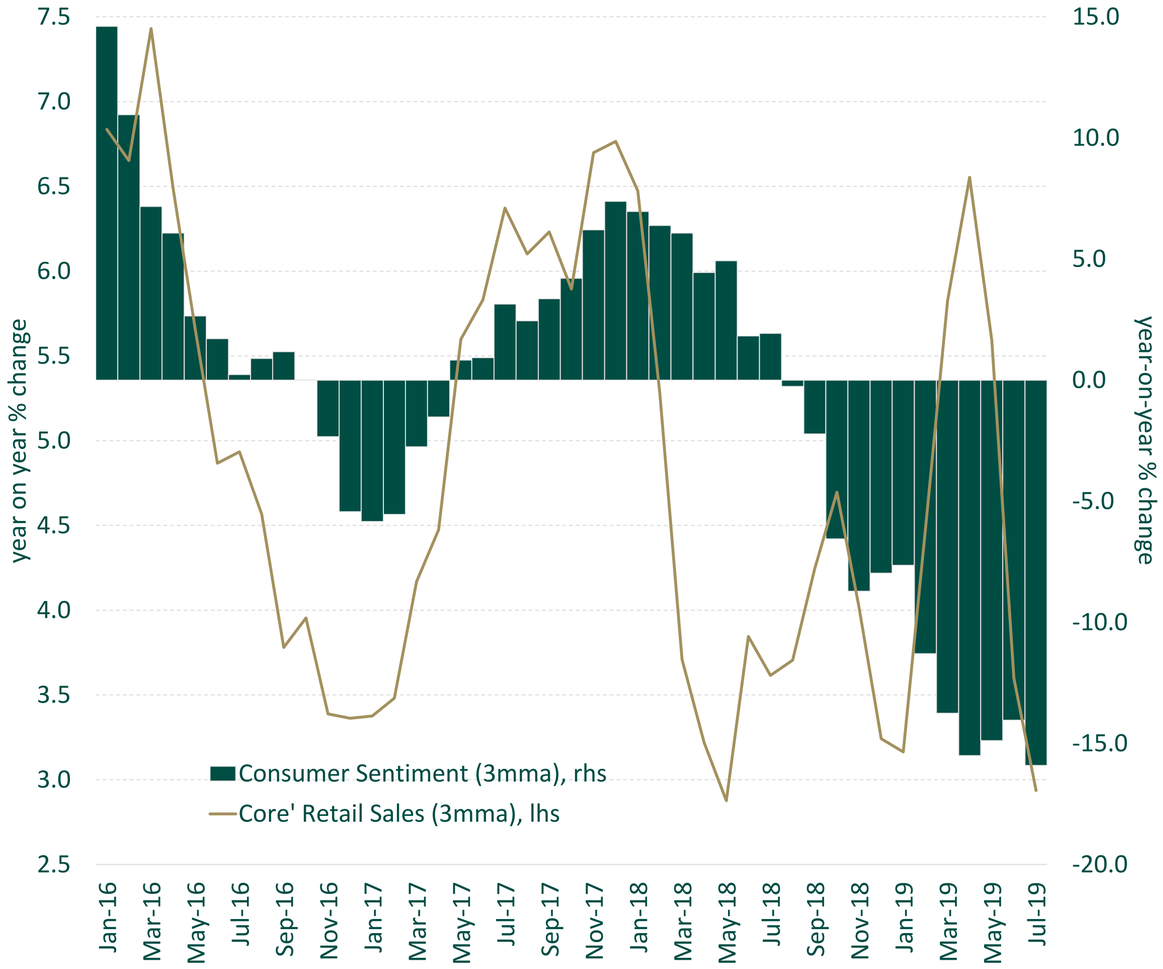


Personal consumer spending, y/y per cent change

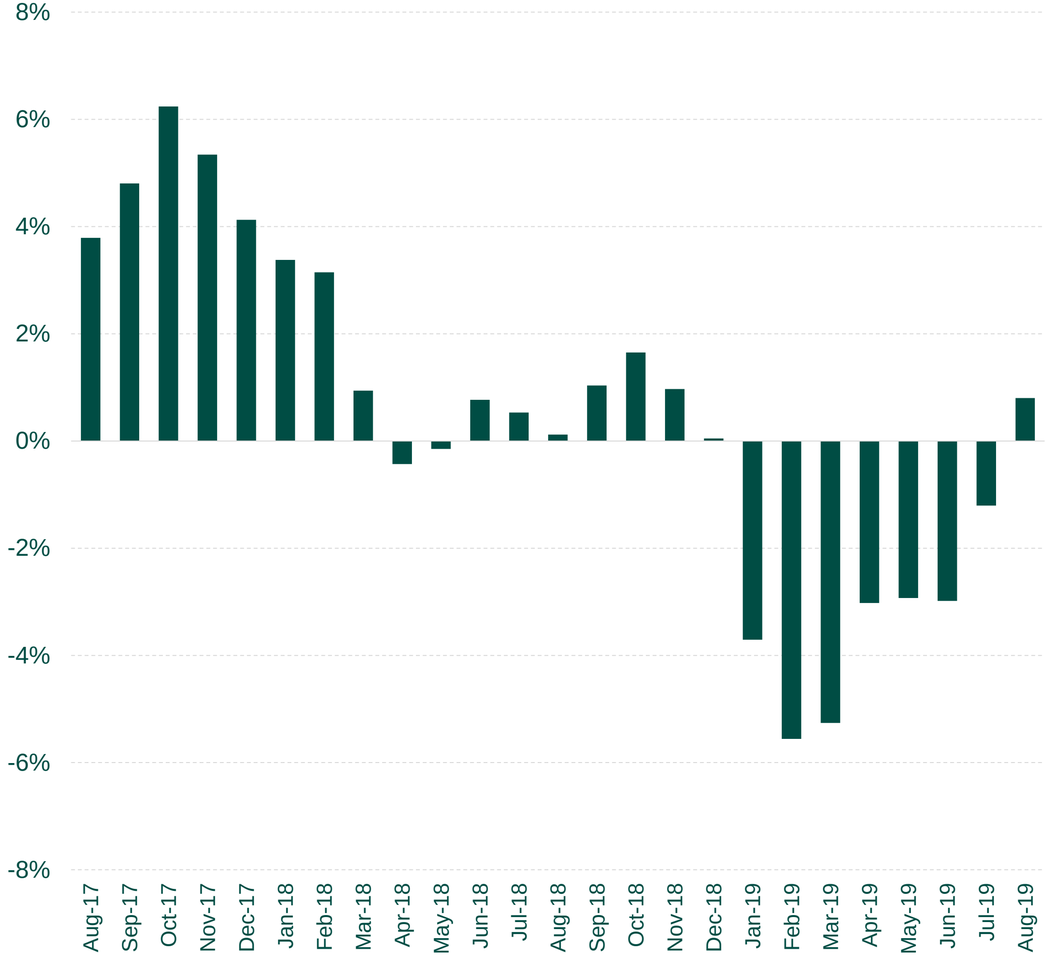


Consumption

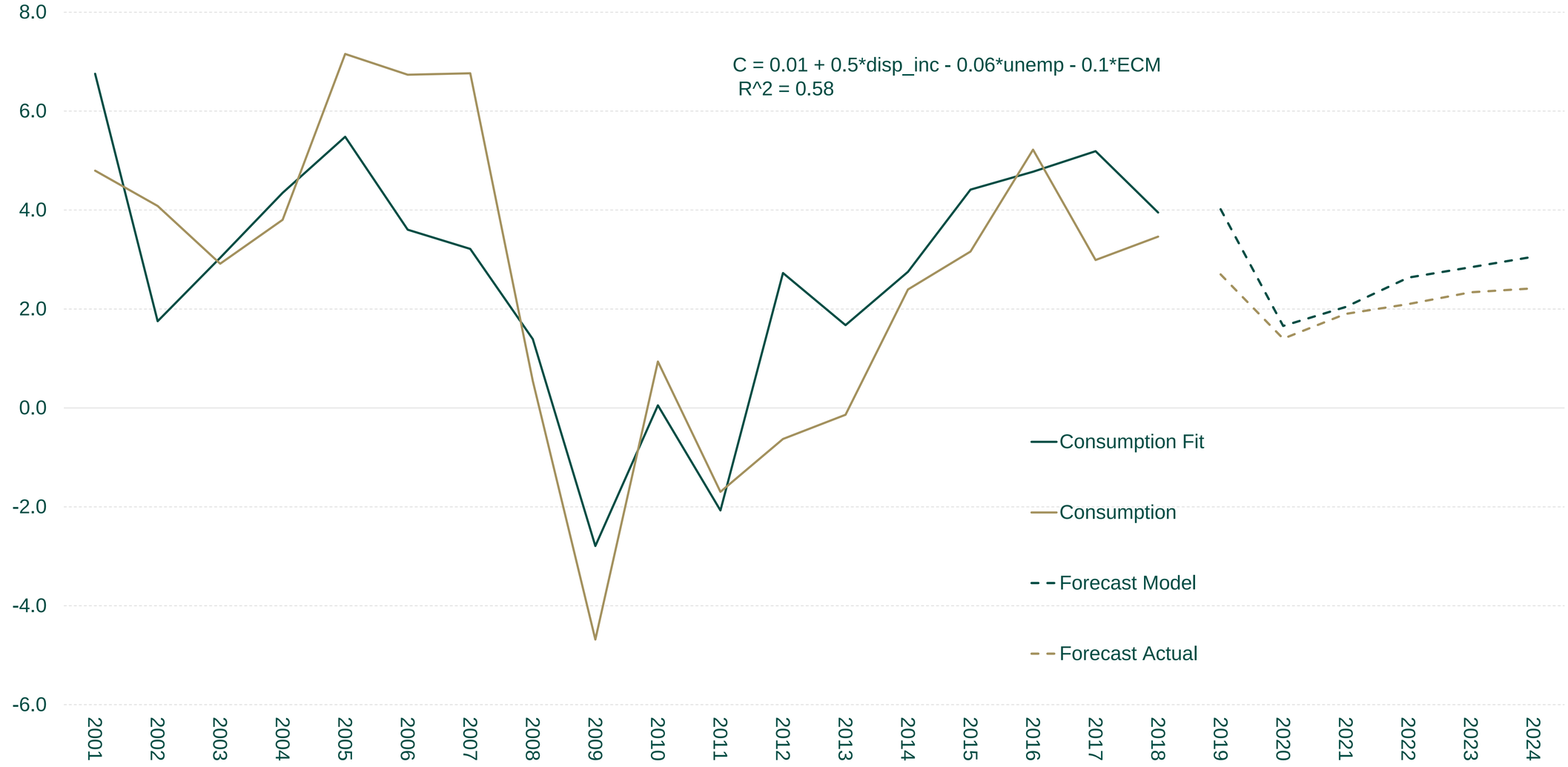
Retail Sales vs Consumer Sentiment



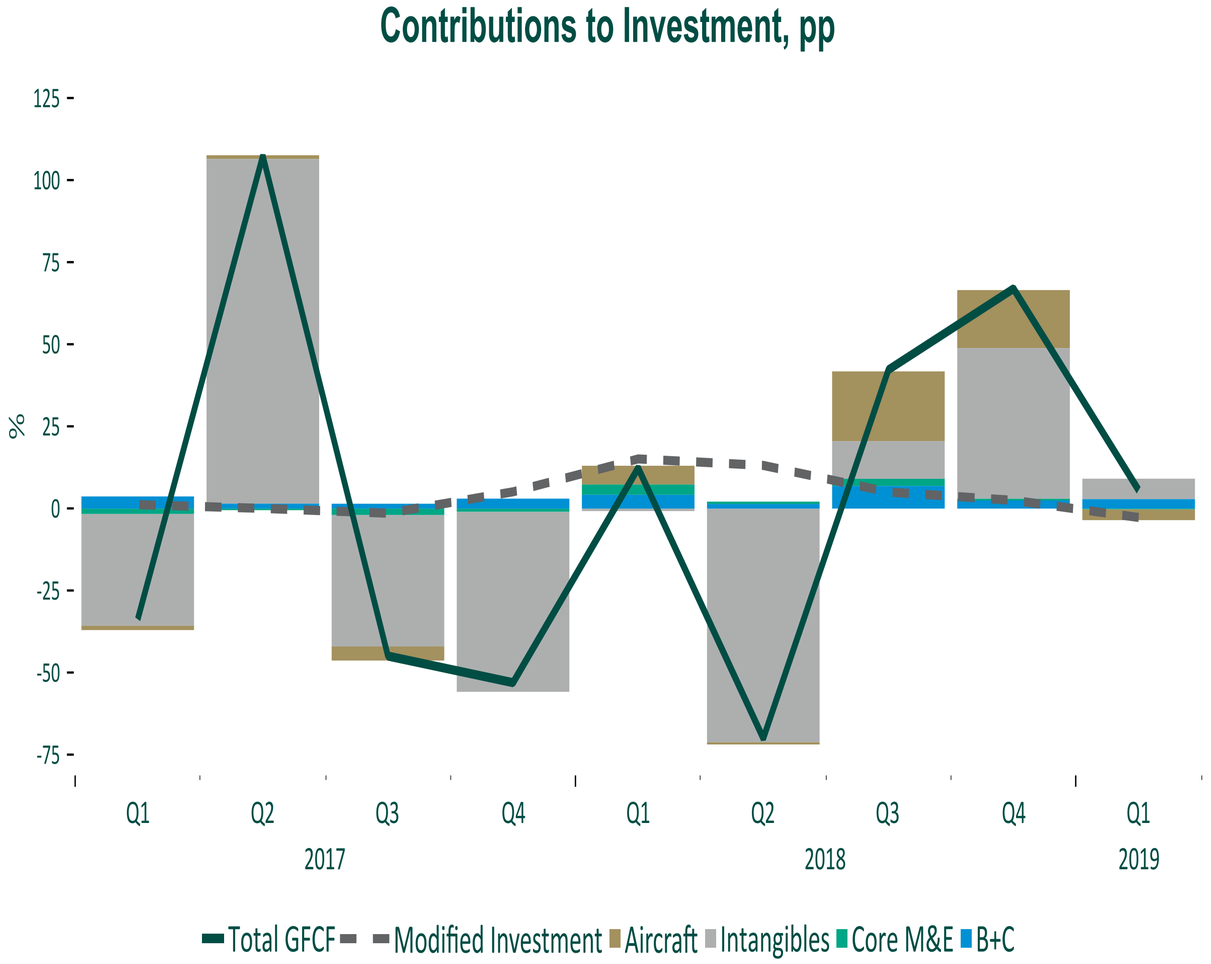
Cars licensed (6MMA)

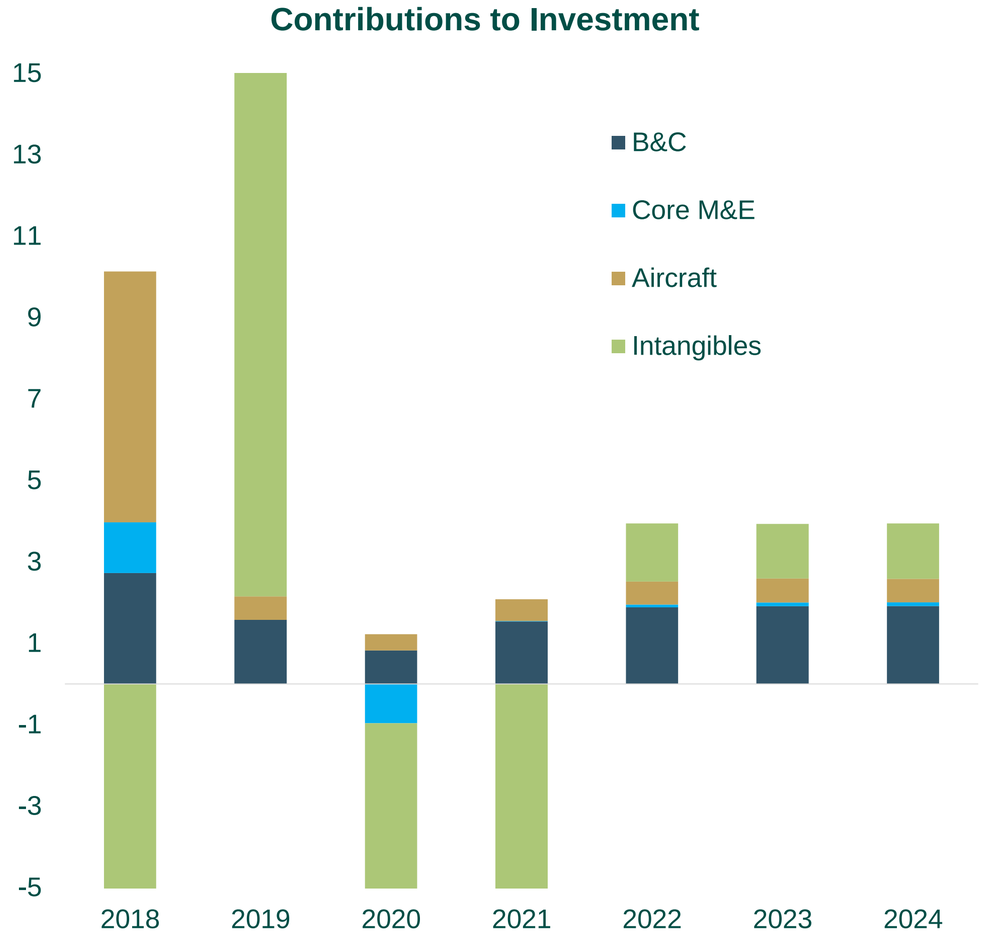


Consumption model



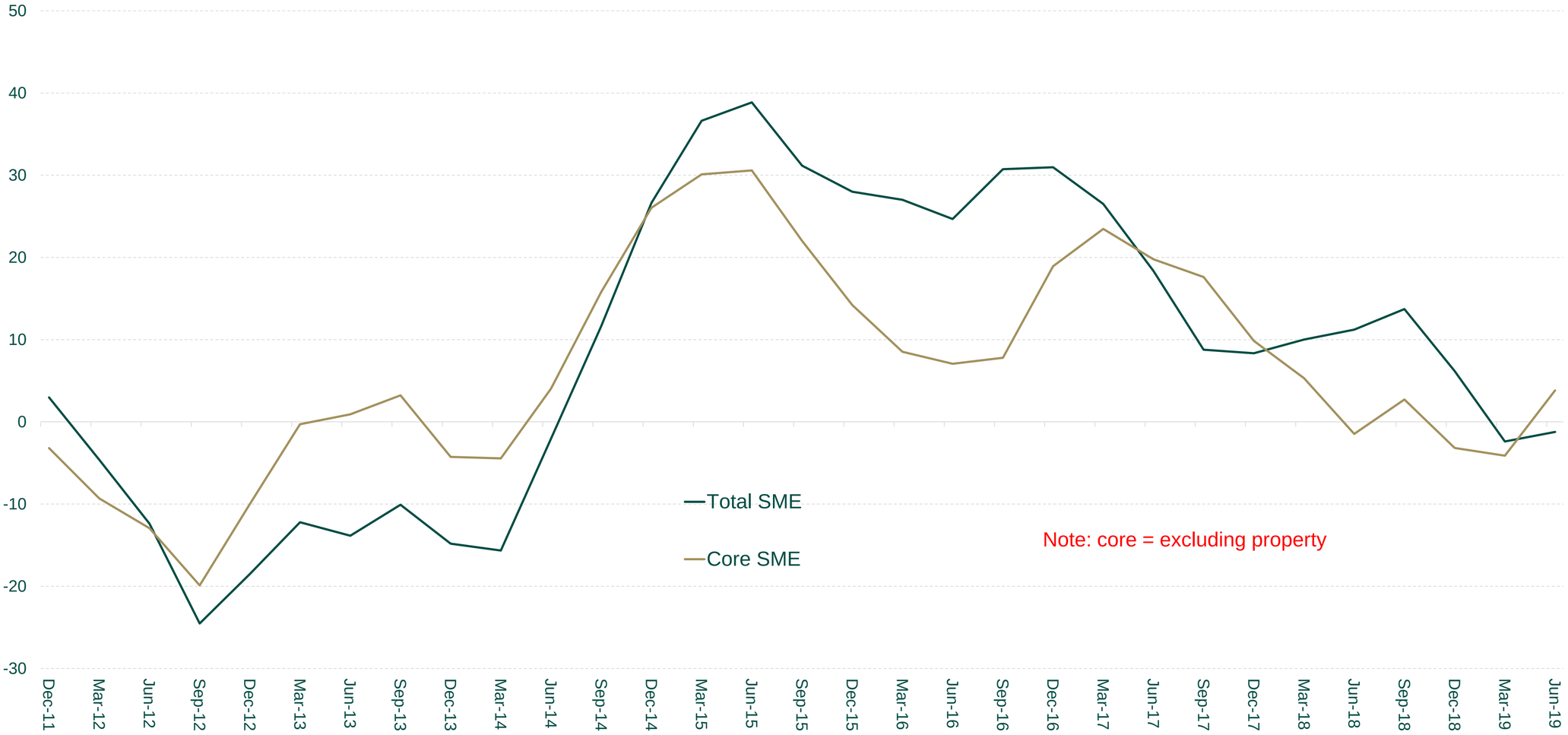
Investment


Contributions to Investment, pp
125
100
75
50
25
0
-25
-50
-75
%
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
2017
2018
2019
Total GFCF
Modified Investment
Aircraft
Intangibles
Core M&E
B+C

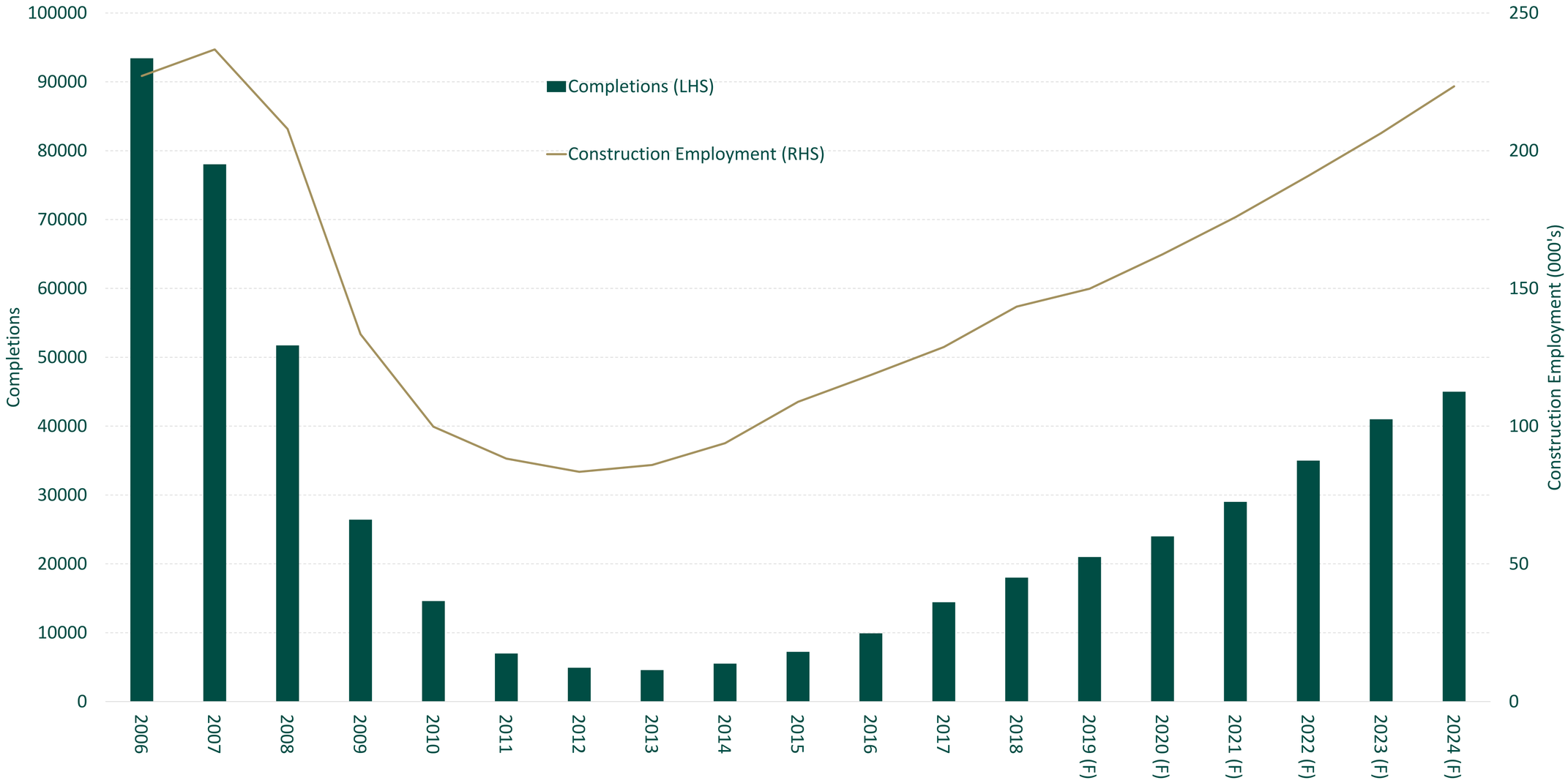

Contributions to Investment
15
13
11
9
7
5
3
1
-1
-3
-5
B&C
Core M&E
Aircraft
Intangibles
2018
2019
2020
2021
2022
2023
2024

Credit for Investment still fairly subdued

Gross new lending to SMEs, annual per cent change



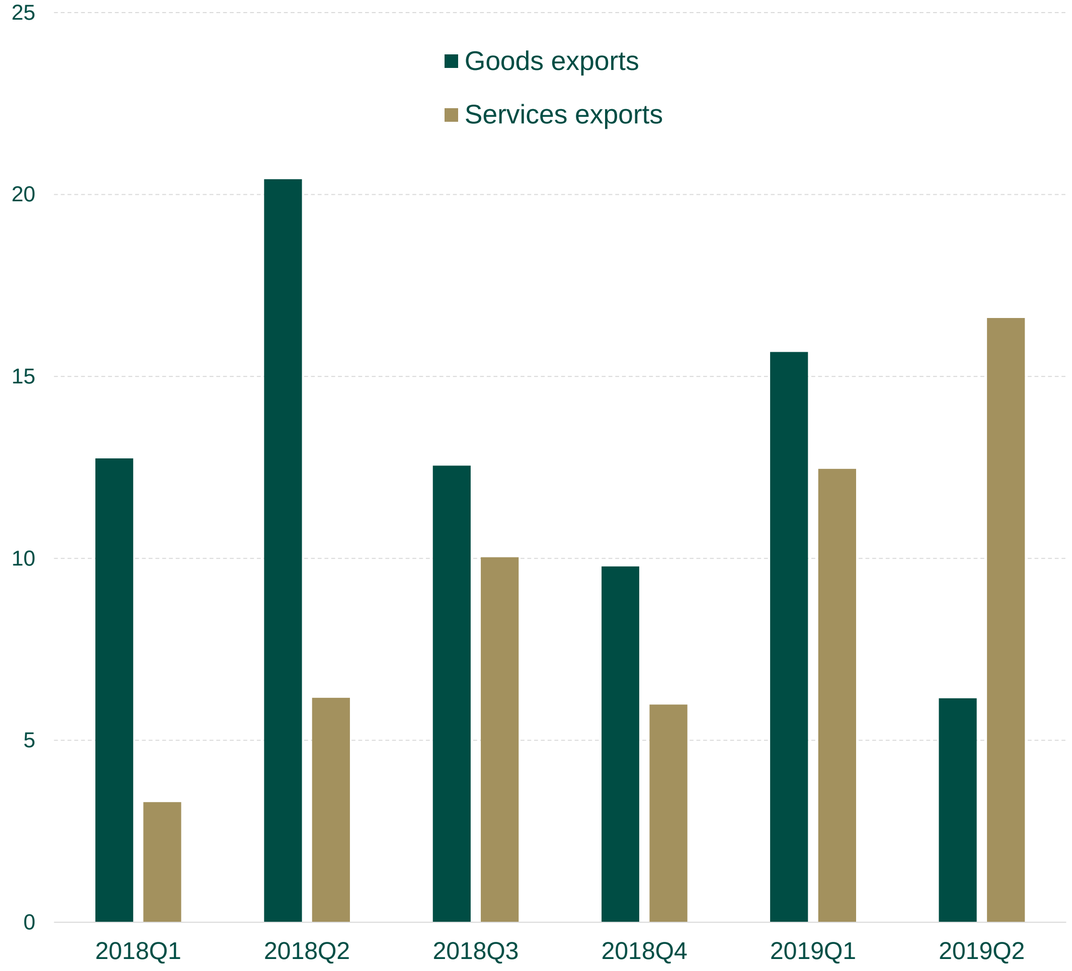
Building and construction: new dwellings underperformed relative to earlier forecasts



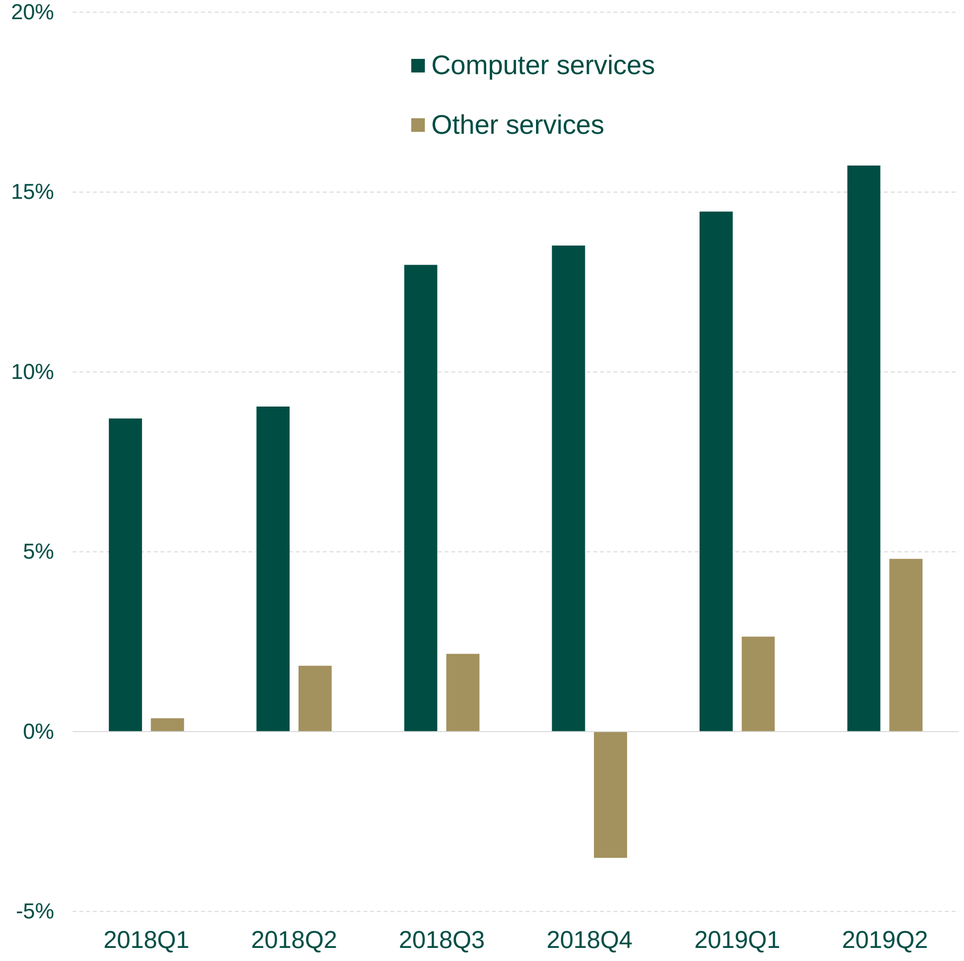
Downward revisions to trading partner outlook…

…but export portfolio = source of resilience

Real export growth, y/y per cent change

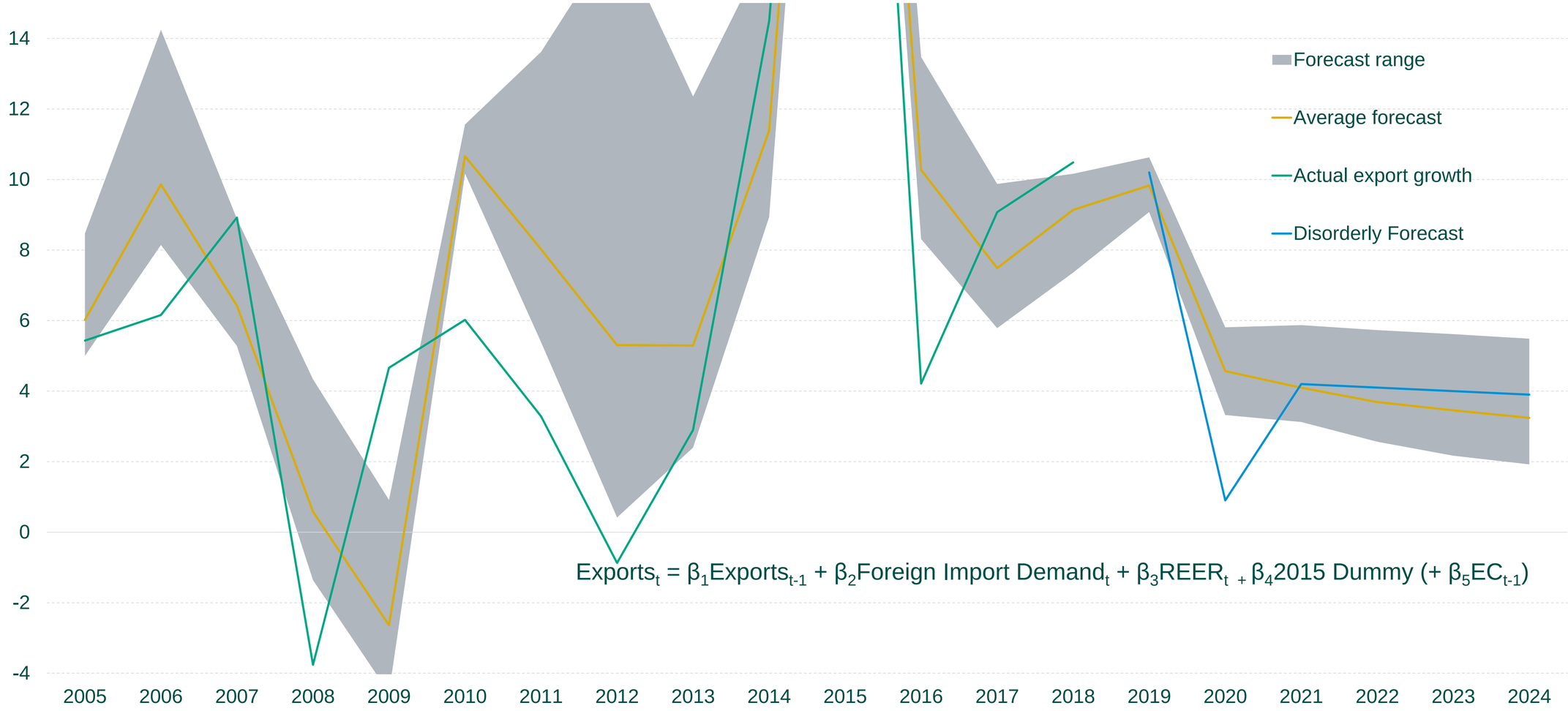


The importance of services, especially ICT



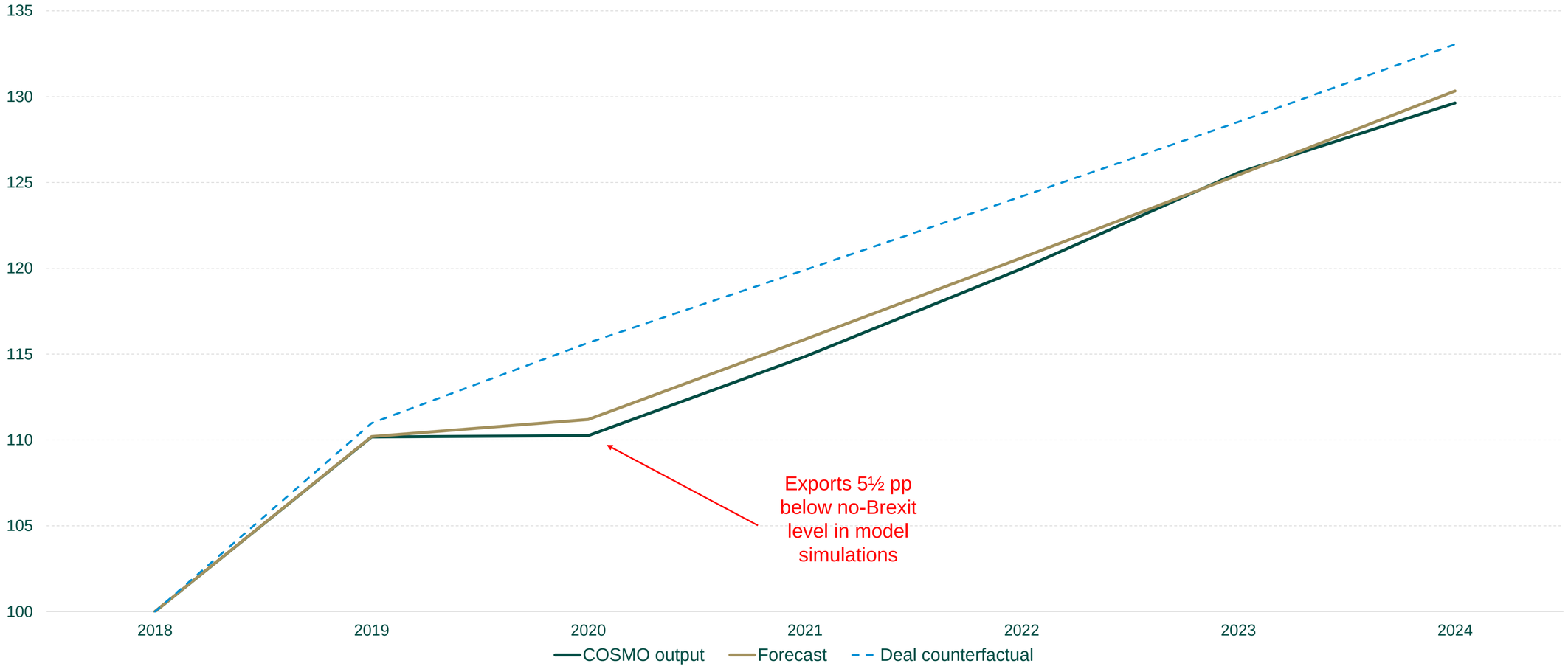
Export forecasts guided by model results

Real export growth, y/y per cent change



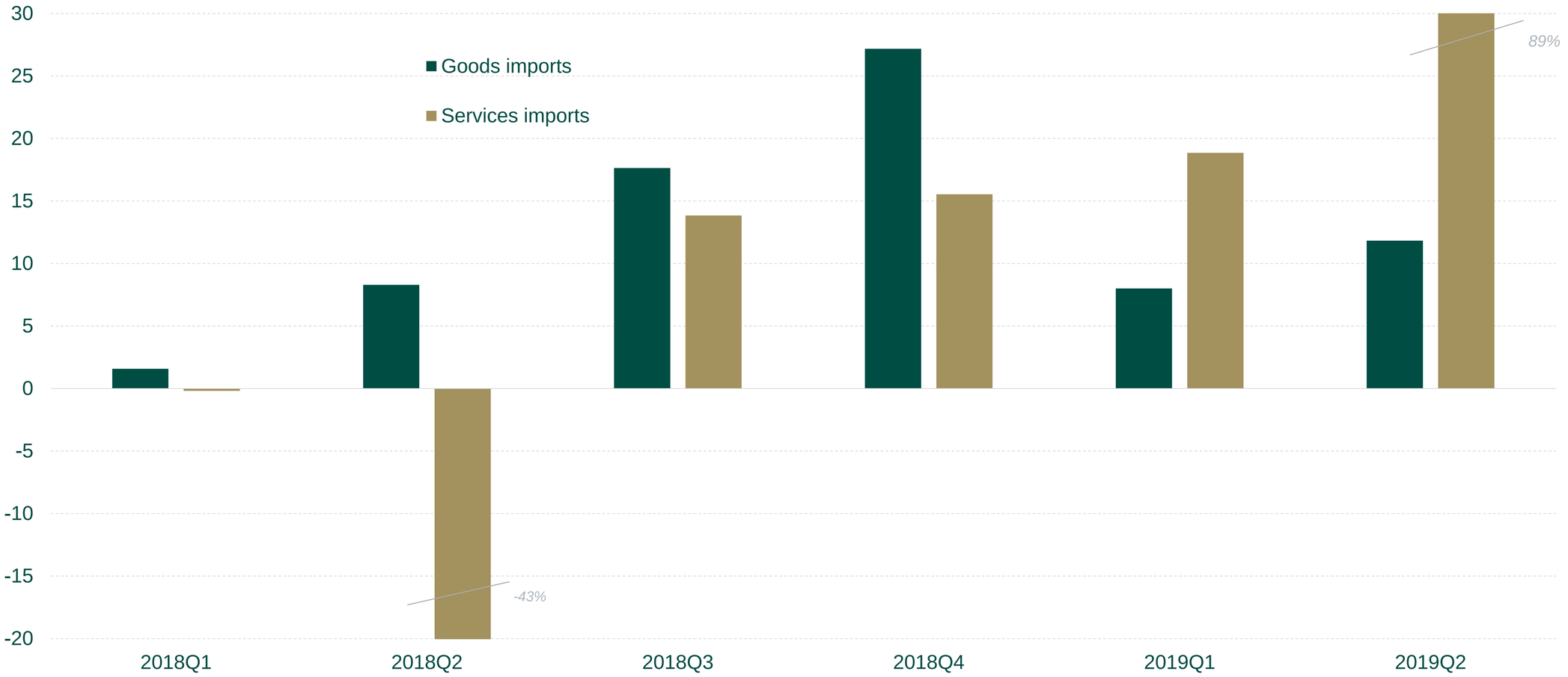
Trade channel: single most important in disorderly Brexit

Real export levels, 2018 = 100



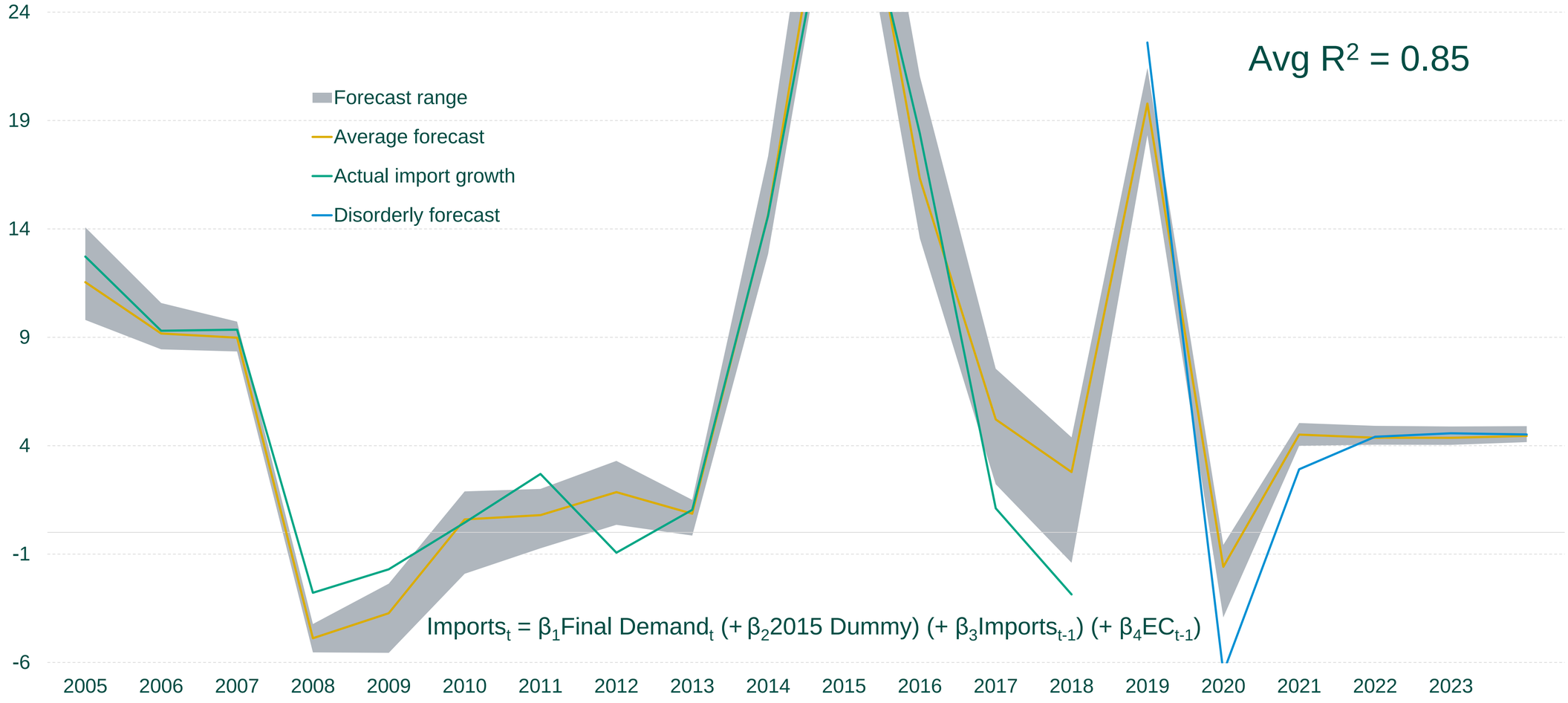
Strong import growth even excluding IP on-shoring

Real import growth, y/y per cent change



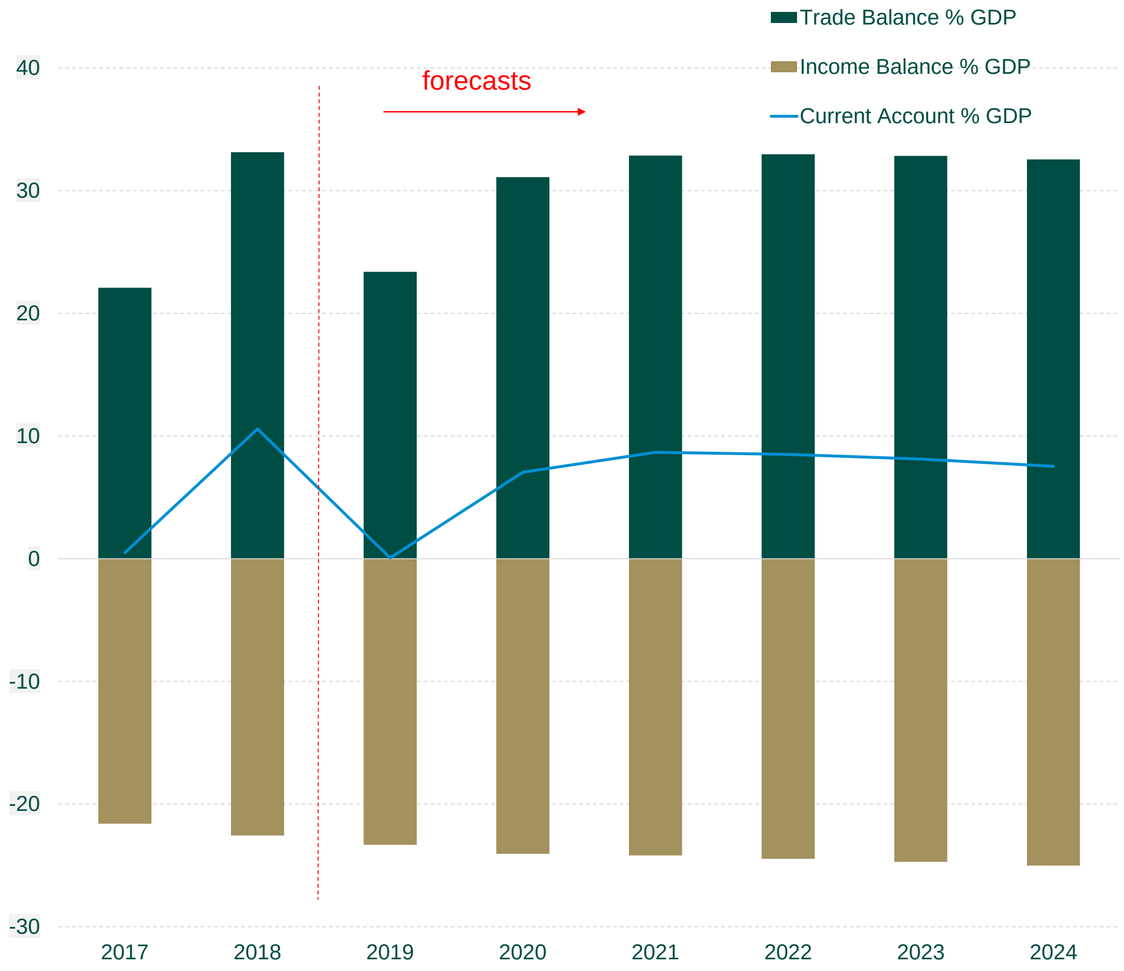
Import forecasts guided by model results

Real import growth, y/y per cent change

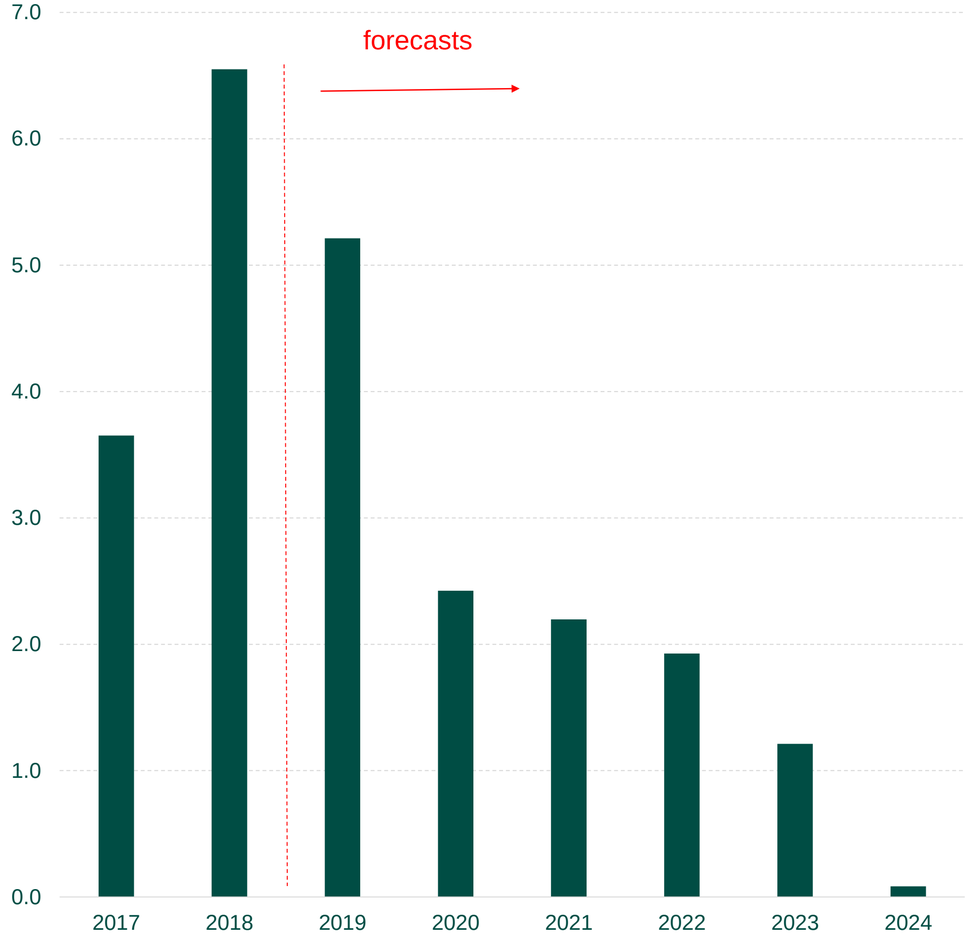


Current account surplus to reduce post-Brexit impact

Current account, per cent GDP

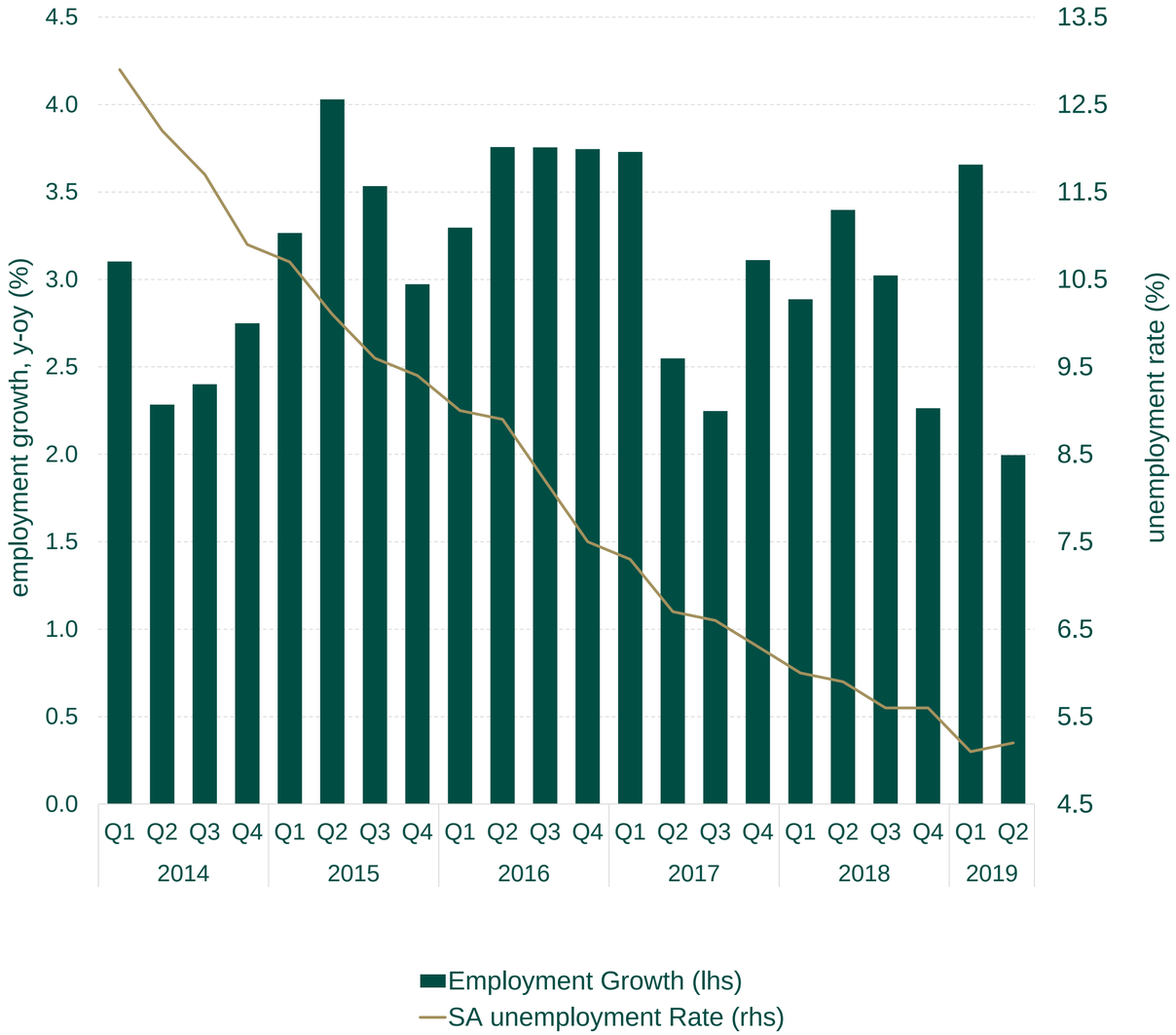


Modified current account, per cent GNI*

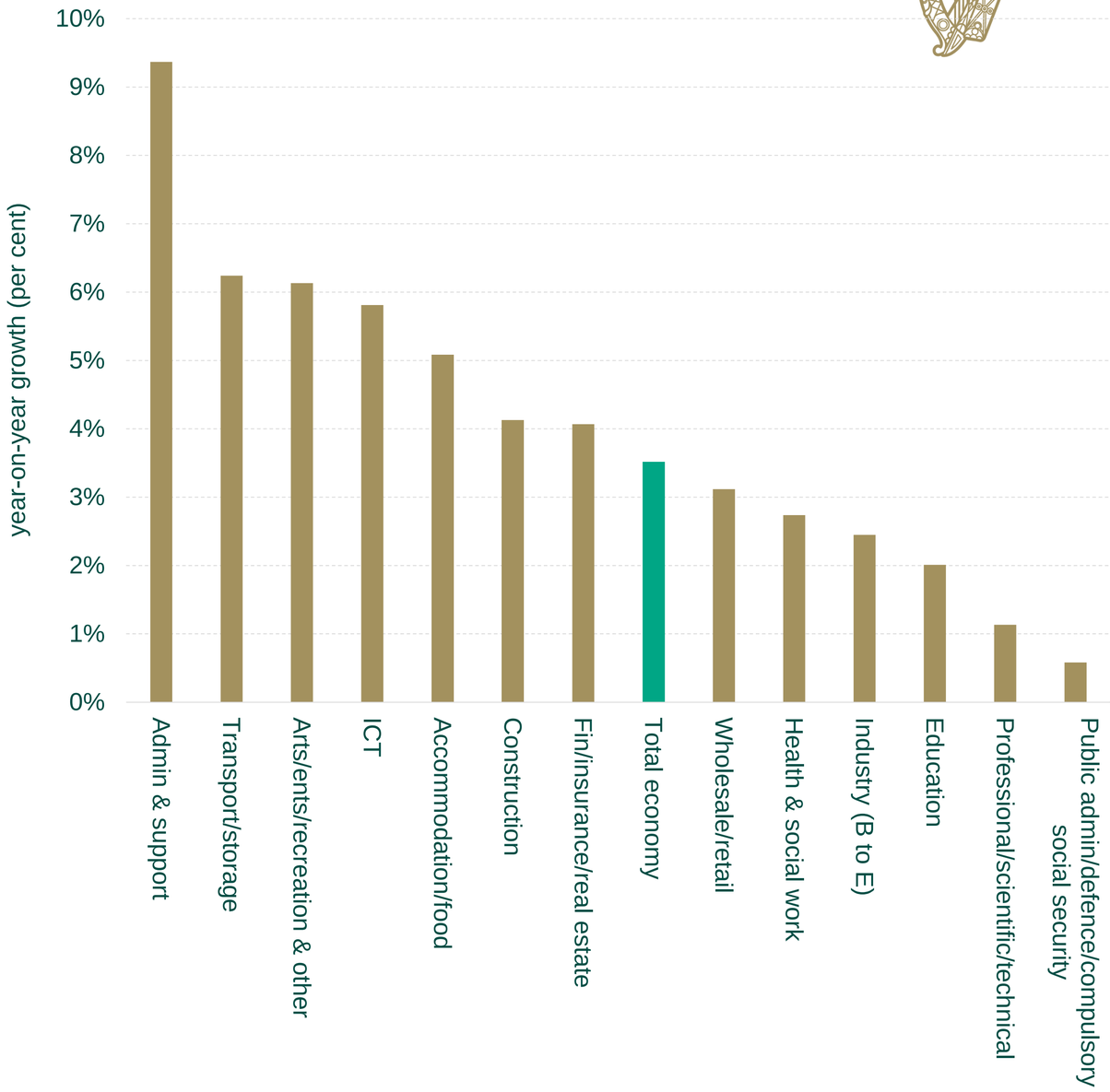


- **Modified current account (CA*) =** CA - Profits of firms that have re-domiciled to Ireland - Depreciation on R&D service imports and trade in intellectual property assets - Depreciation of aircraft owned by aircraft-leasing companies + Net aircraft imports from the aircraft leasing sector + Net R&D related intellectual property imports + R&D service imports

Current state of play in labour market



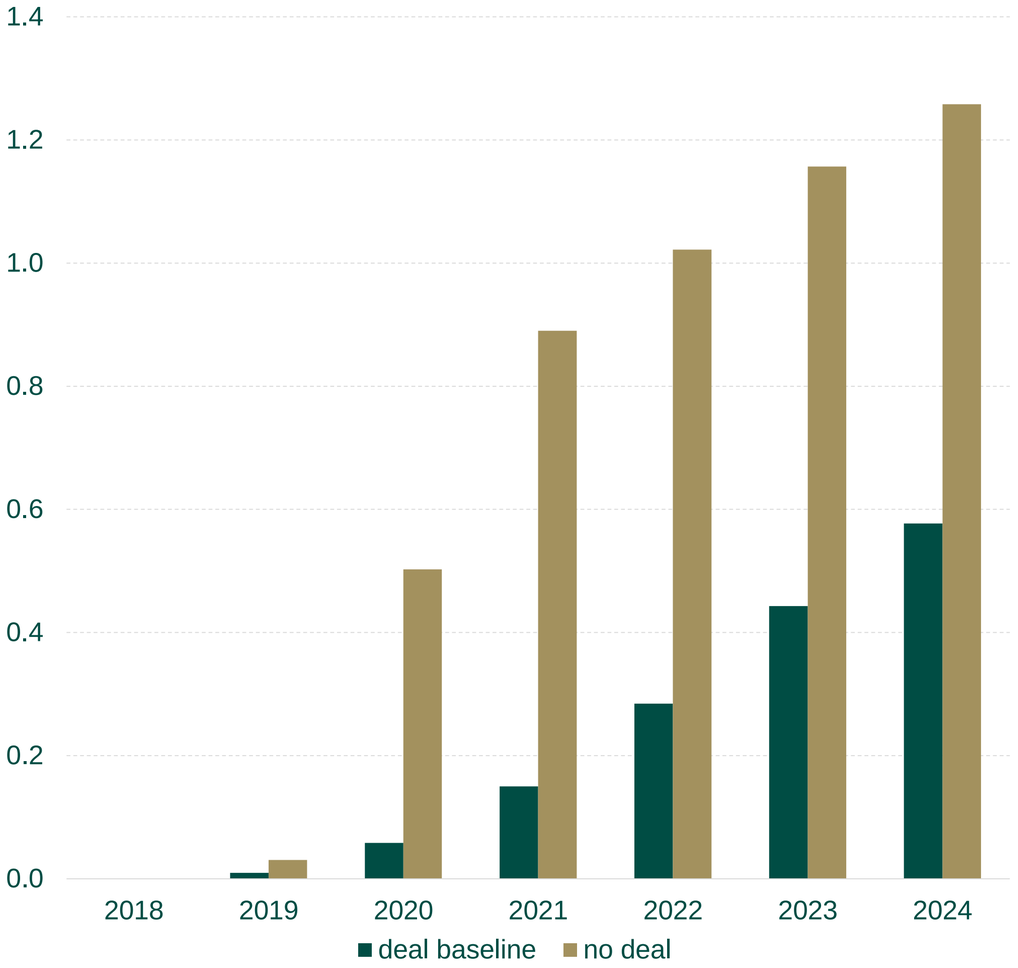
y-on-y growth, weekly earnings, Q2 2019 (4qma)



Impacts in main labour market series: COSMO outputs

Employment - per cent difference from no Brexit

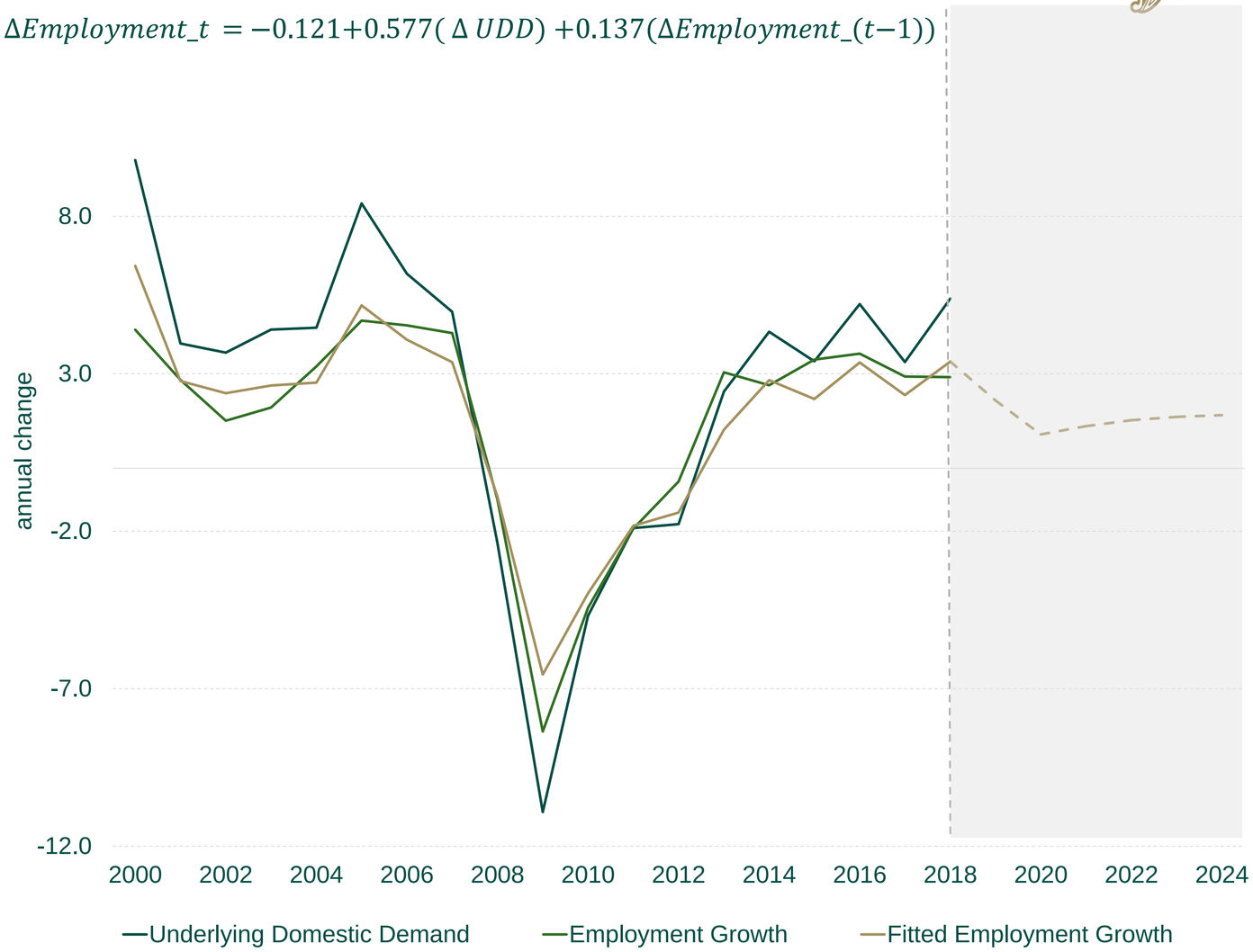
Unemployment rate – pp difference from no Brexit



Employment projections

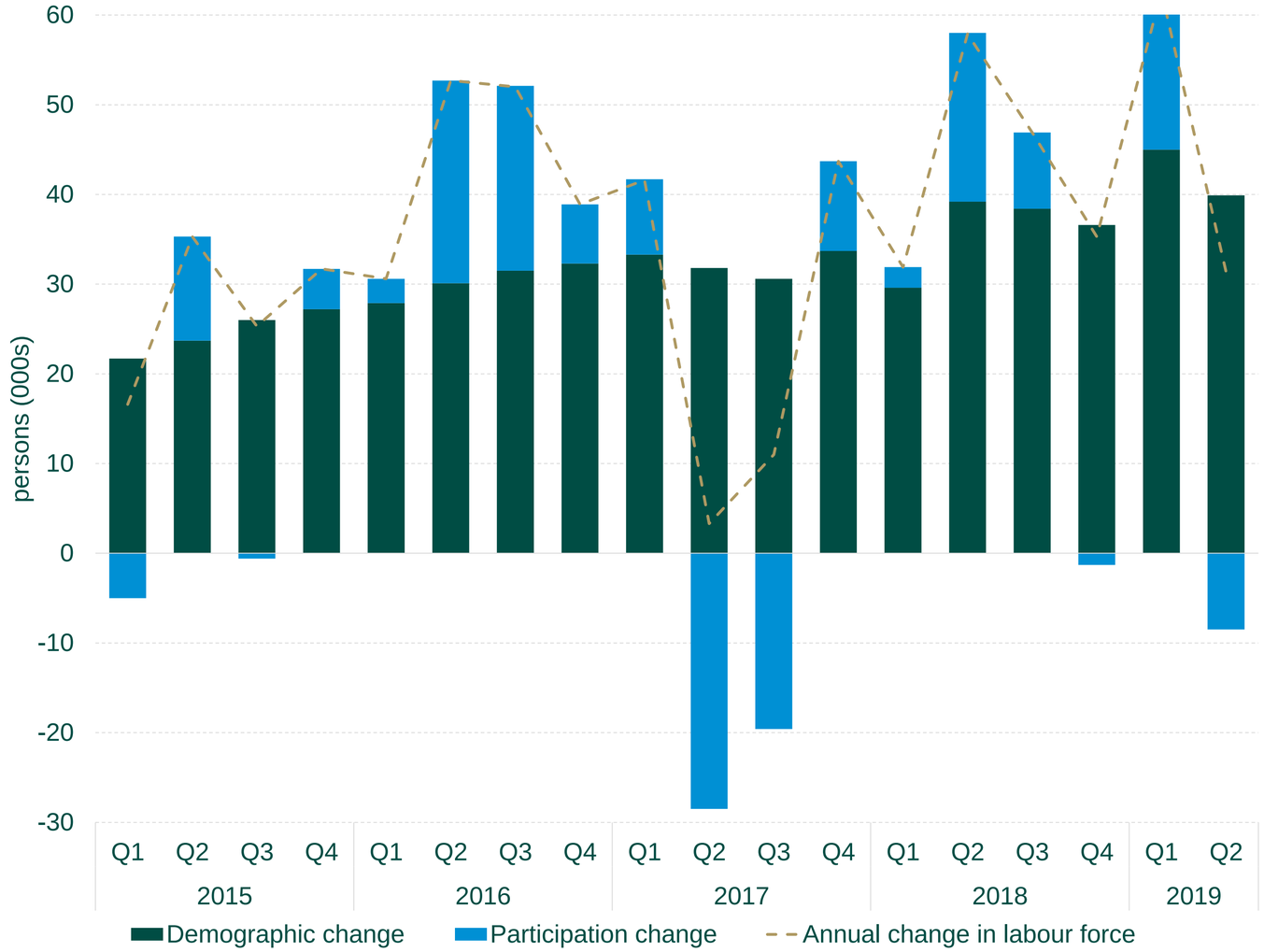
	2018	2019	2020	2021	2022	2023	2024
SPU	2.9	2.2	2.1	1.5	1.6	1.7	
'original' fitted		2.1	1.1	1.3	1.5	1.6	1.7
COSMO		2.3	1.0	1.0	1.6	1.7	1.7
Budget forecasts		**2.4**	**0.8**	**1.1**	**1.5**	**1.7**	**1.9**

$$\Delta Employment_t = -0.121 + 0.577(\Delta UDD) + 0.137(\Delta Employment_(t-1))$$



Labour force growth

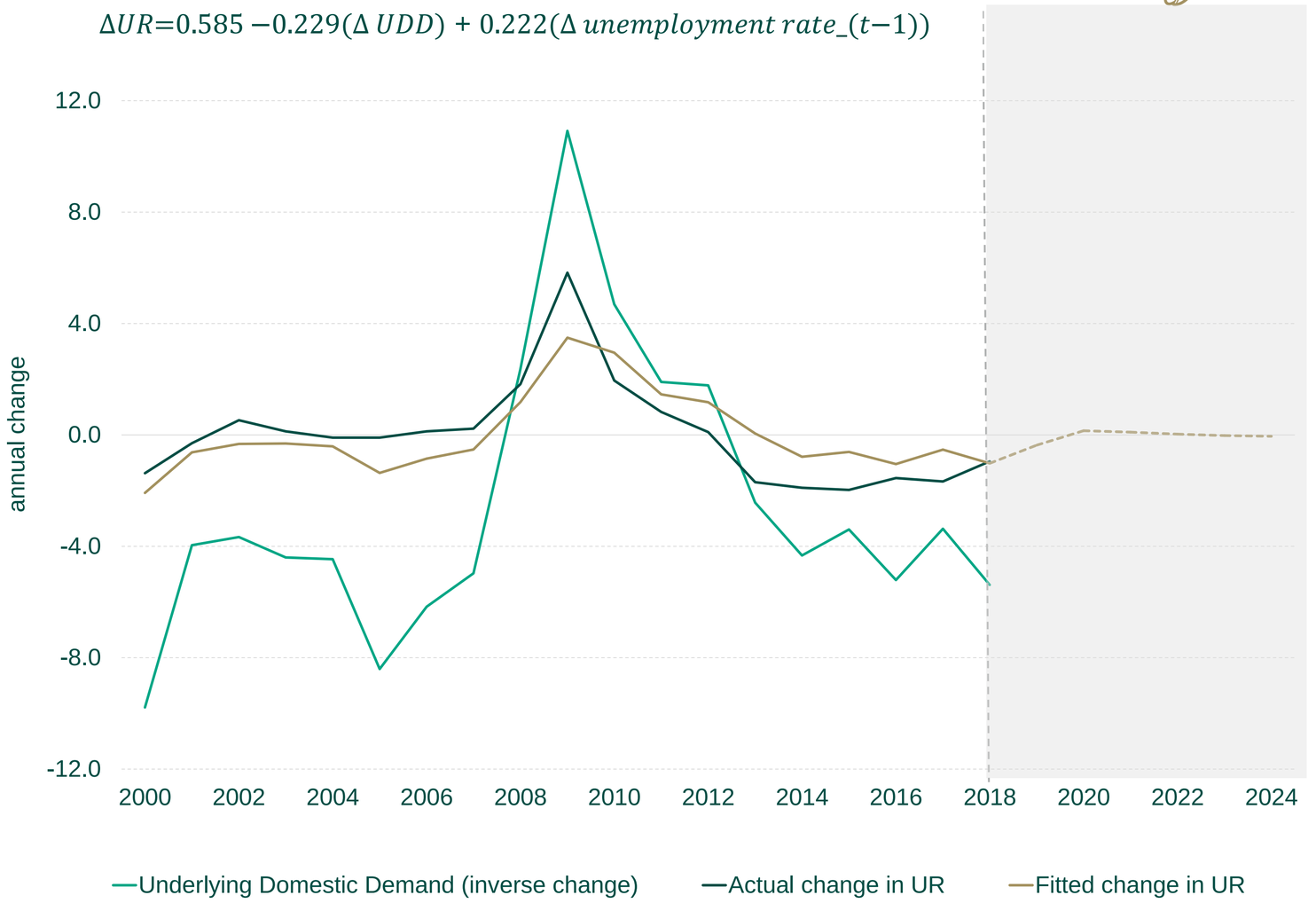
	2018	2019	2020	2021	2022	2023	2024
SPU	1.7	1.9	1.9	1.5	1.5	1.6	
COSMO		1.7	1.4	1.4	1.5	1.5	1.6
Budget forecasts		**1.7**	**1.4**	**1.3**	**1.4**	**1.5**	**1.6**



Unemployment rate

	2018	2019	2020	2021	2022	2023	2024
SPU	5.7	5.4	5.2	5.3	5.2	5.1	
'original' fitted	5.7	5.4	5.6	5.7	5.7	5.7	5.6
COSMO		5.2	5.5	5.9	5.8	5.7	5.6
Budget forecasts		**5.2**	**5.7**	**5.9**	**5.9**	**5.7**	**5.5**

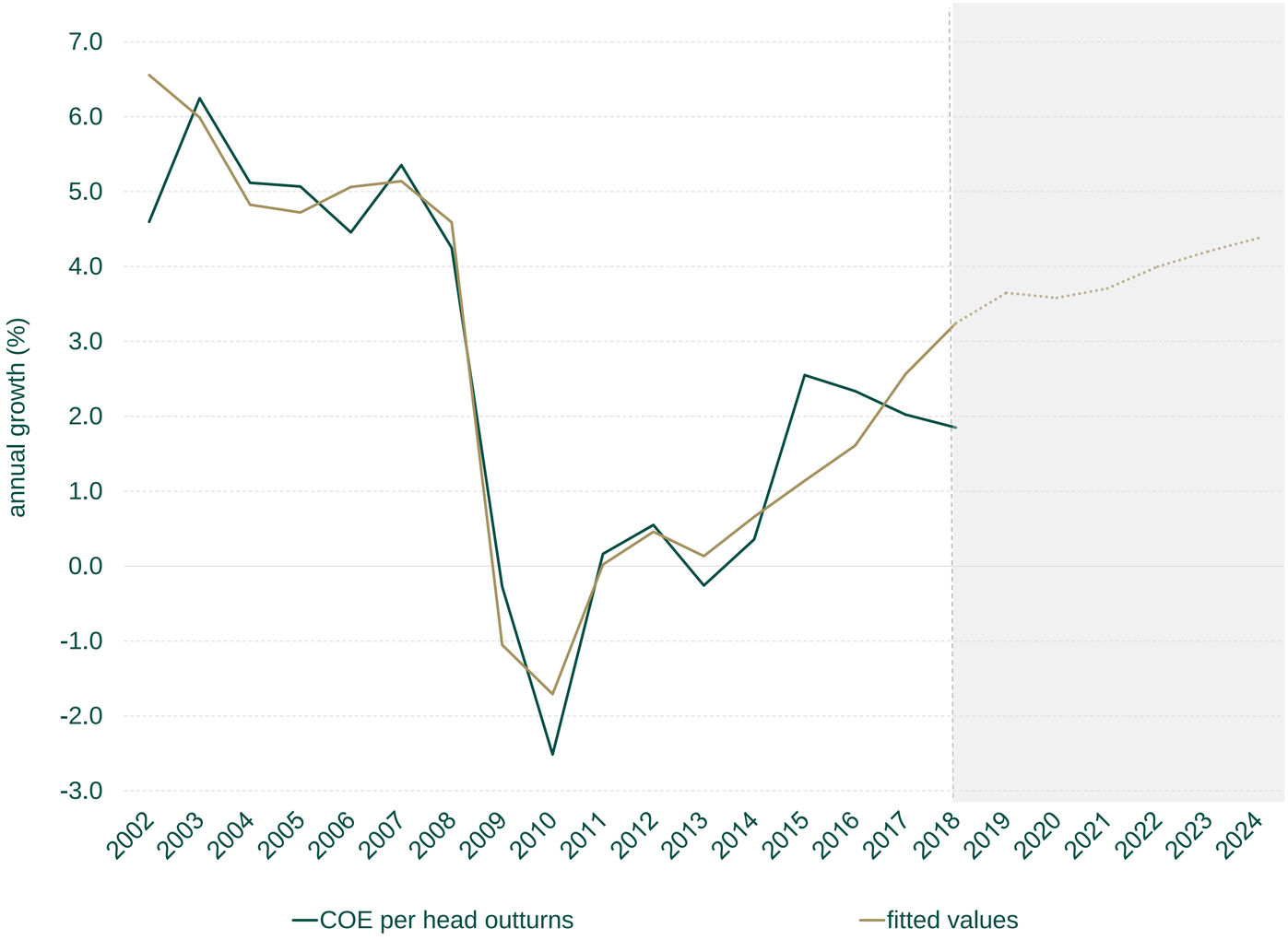
$$\Delta UR = 0.585 - 0.229(\Delta\, UDD) + 0.222(\Delta\, unemployment\ rate_(t-1))$$



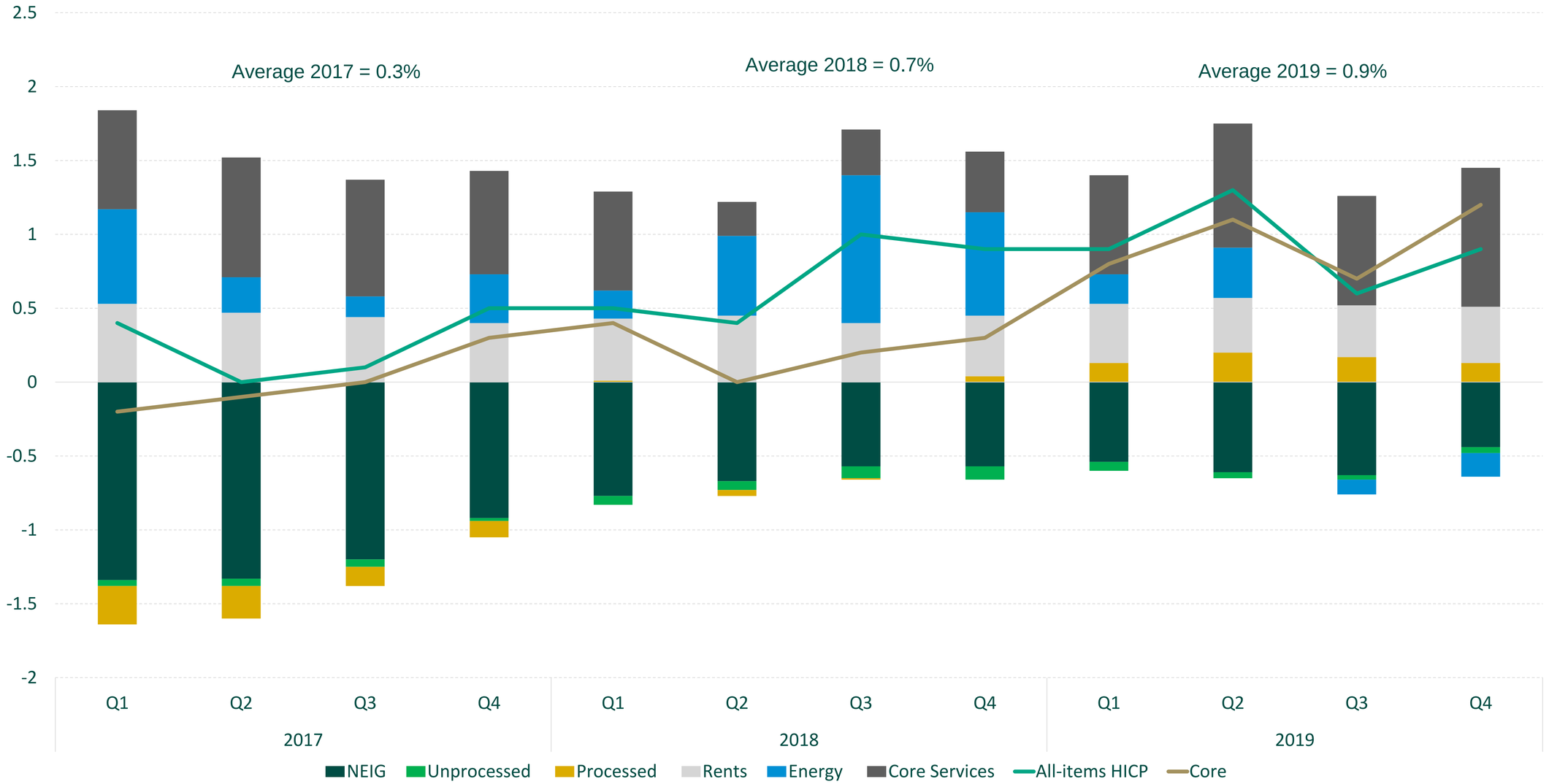
Wage outlook

	2018	2019	2020	2021	2022	2023	2024
SPU	2.5	3.0	3.2	3.3	3.4	3.6	
'original' fitted	3.2	3.6	3.6	3.7	4.0	4.2	4.4
COSMO		3.5	3.3	3.7	4.2	4.4	4.3
Budget forecasts		**3.5**	**3.0**	**3.2**	**3.4**	**3.7**	**3.9**

$$\Delta COE\ per\ head_t\ = 4.891 - 0.373(UR) + 0.727(\Delta HICP)$$

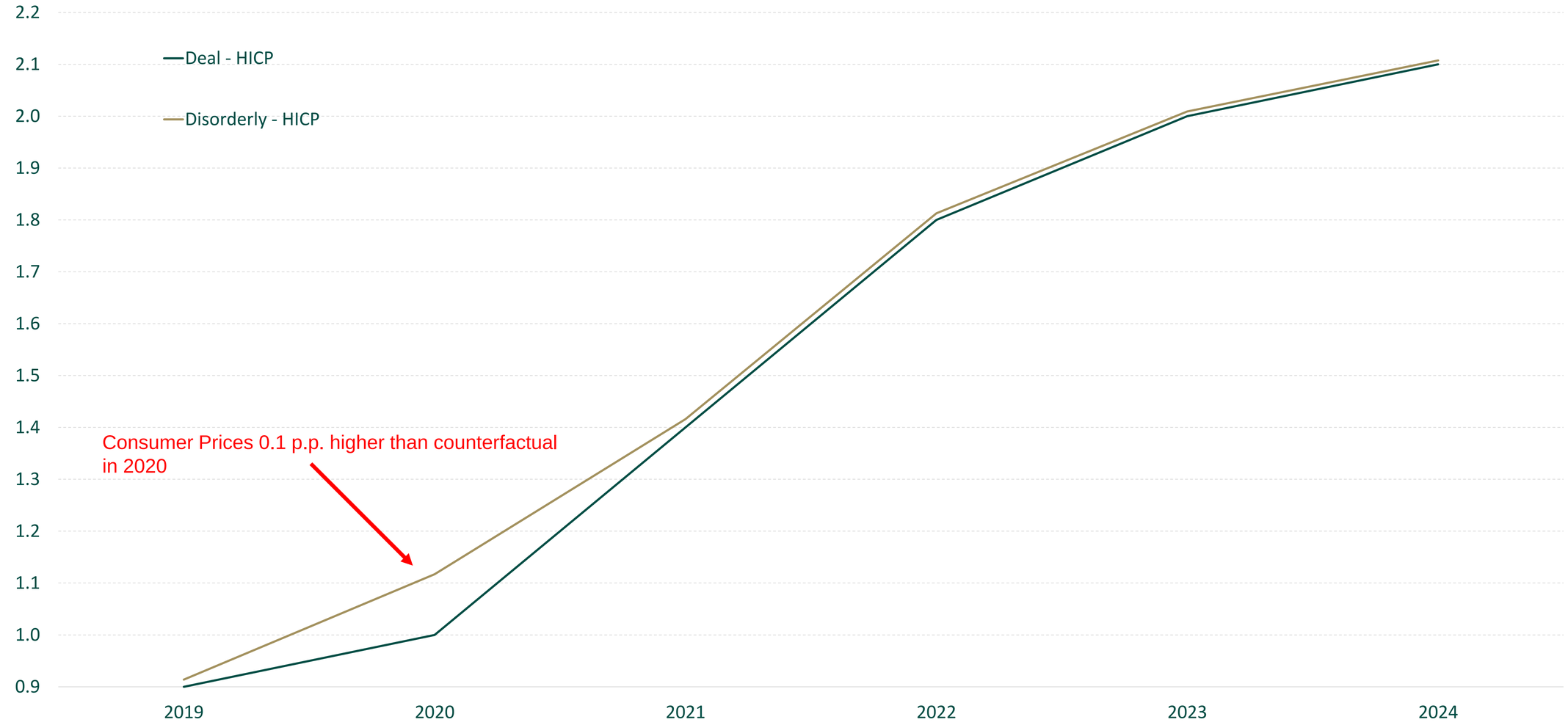


Consumer prices: drag from goods prices, while service prices grow strongly…

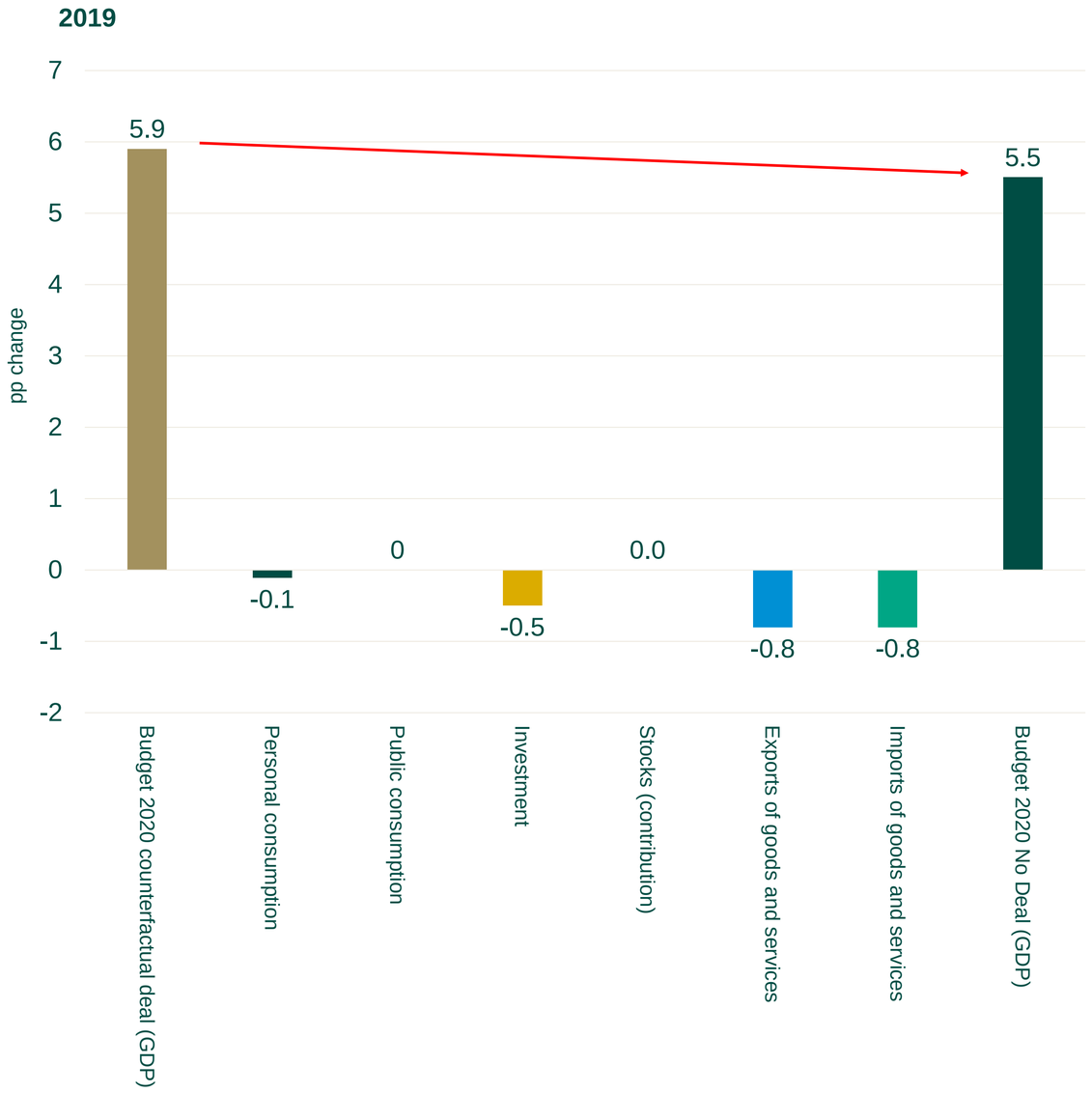


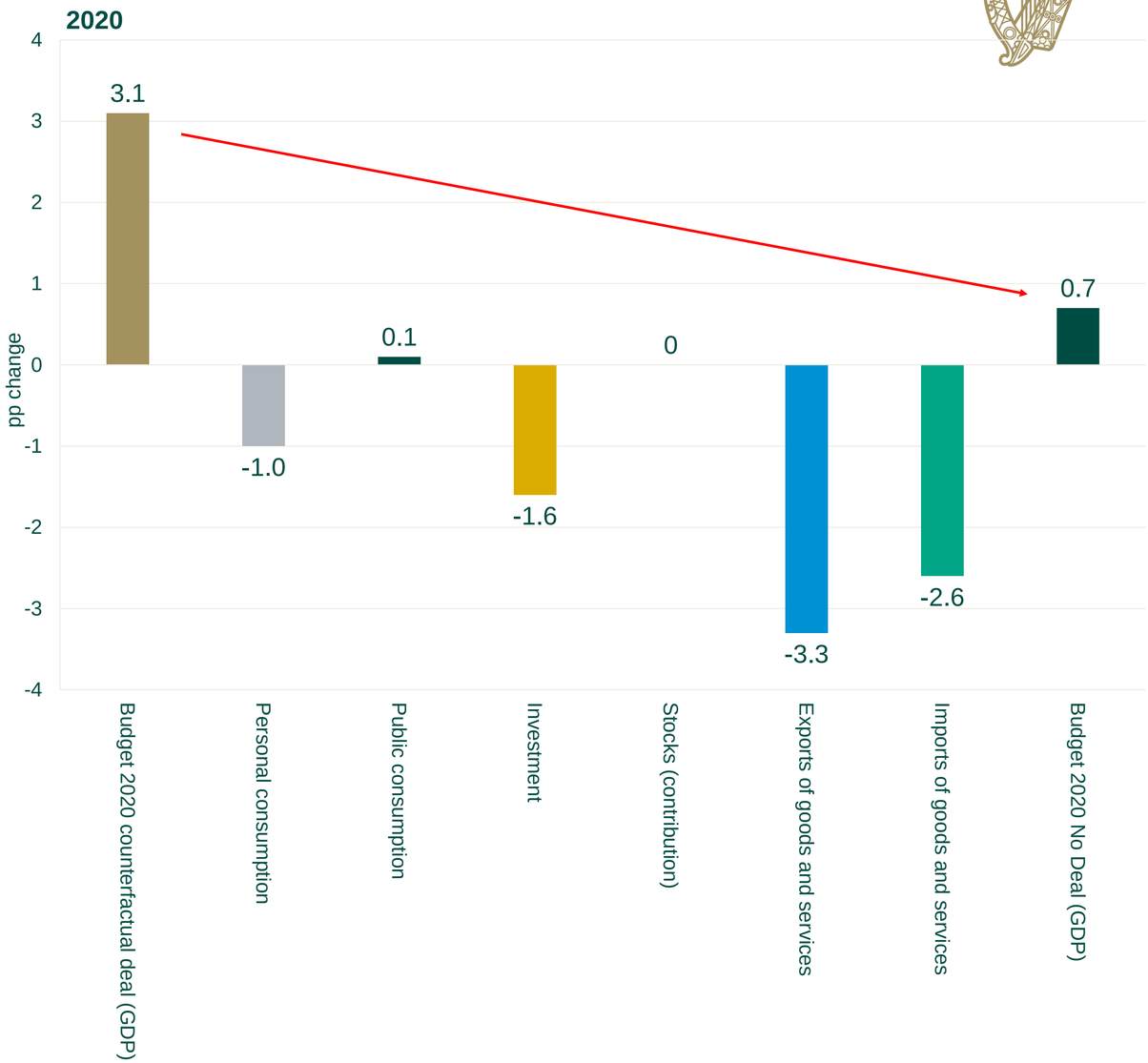
Inflation response to disorderly Brexit…

HICP rate of inflation, y/y per cent change



Changes from counterfactual deal scenario to no-deal

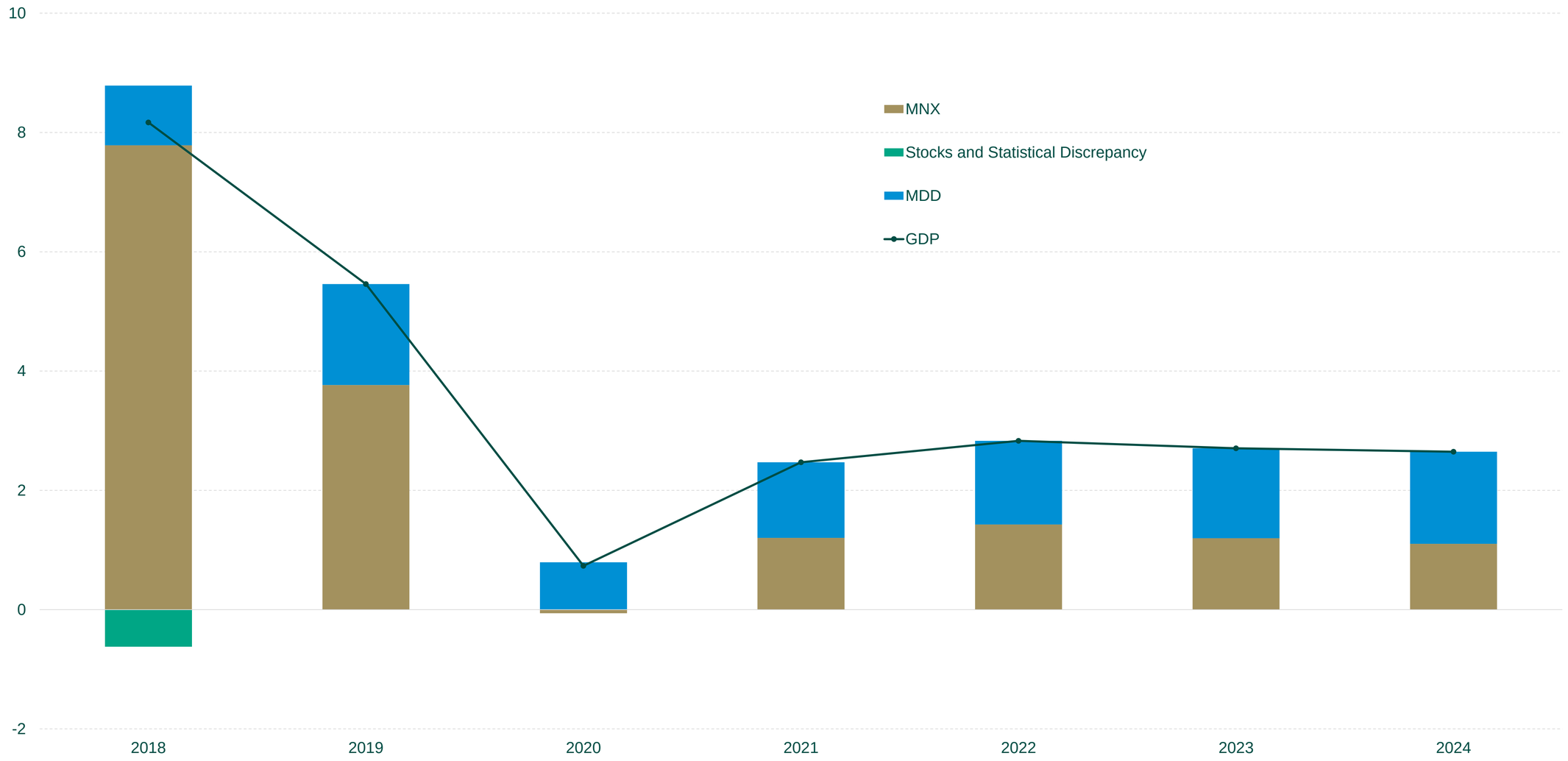




Key variables: forecast under disorderly Brexit

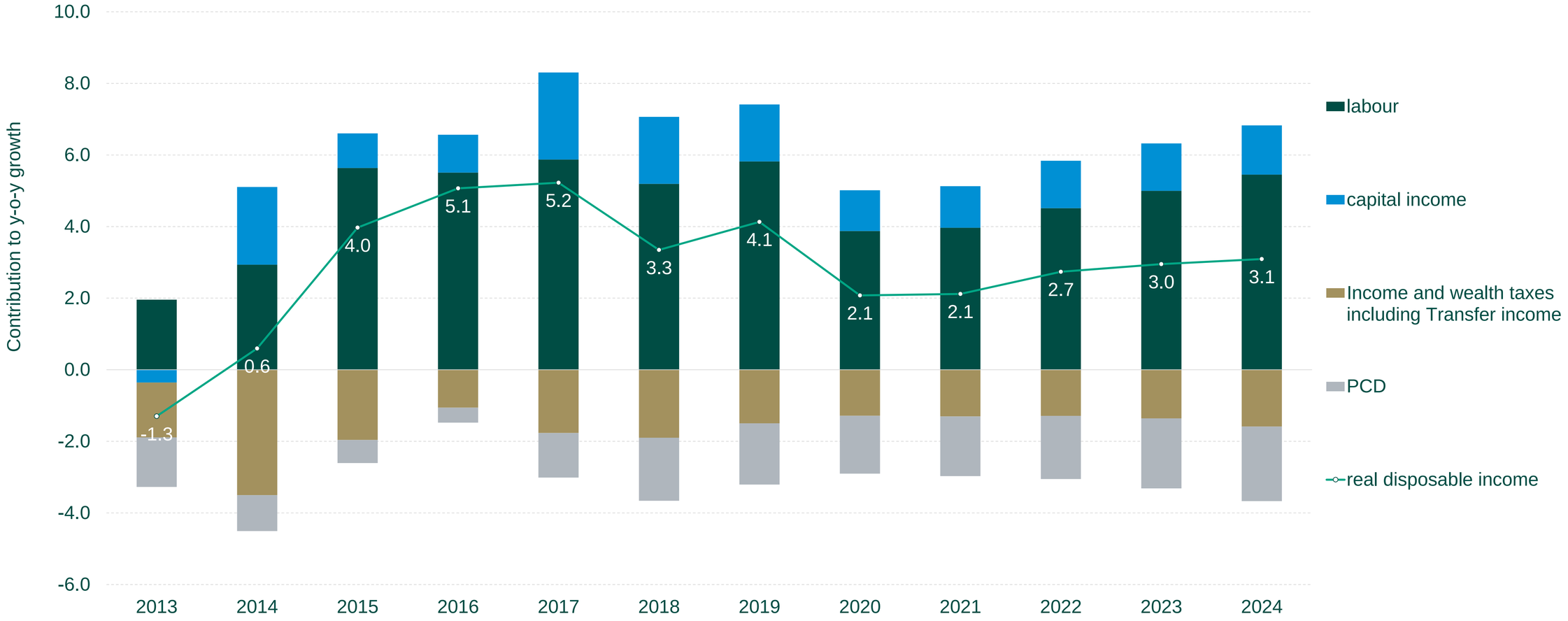
year-on-year % change	2019	2020	2021	2022	2023	2024
GDP	5.5	0.7	2.5	2.8	2.7	2.6
GNP	4.3	-0.1	2.4	2.5	2.4	2.3
Nominal GDP	5.9	2.4	3.9	4.3	4.1	4.1
Personal Consumption	2.7	1.4	1.9	2.1	2.3	2.4
Govt Consumption	4.5	3.5	2.0	2.0	2.0	2.0
Investment	50.4	-24.0	-3.6	3.9	3.9	3.9
Exports	10.2	0.9	4.2	4.1	4.0	3.9
Imports	22.6	-6.5	2.9	4.4	4.6	4.5
HICP	0.9	1.1	1.4	1.8	2.0	2.1
GDP Deflator	0.4	1.6	1.4	1.4	1.4	1.4
Employment	2.4	0.8	1.1	1.5	1.7	1.9
Unemployment (rate)	5.2	5.7	5.9	5.9	5.7	5.5
contributions to growth (p.p)*						
Final Domestic Demand	13.2	-7.2	-0.1	1.8	1.9	2.0
Change in Stocks	-0.1	0.0	0.0	0.0	0.0	0.0
Net Exports	-7.6	7.9	2.5	1.0	0.8	0.7
Modified Domestic Demand (exc. stocks)	1.7	0.8	1.3	1.4	1.5	1.5
Modified Net Exports	3.8	-0.1	1.2	1.4	1.2	1.1

Contributions to change in GDP



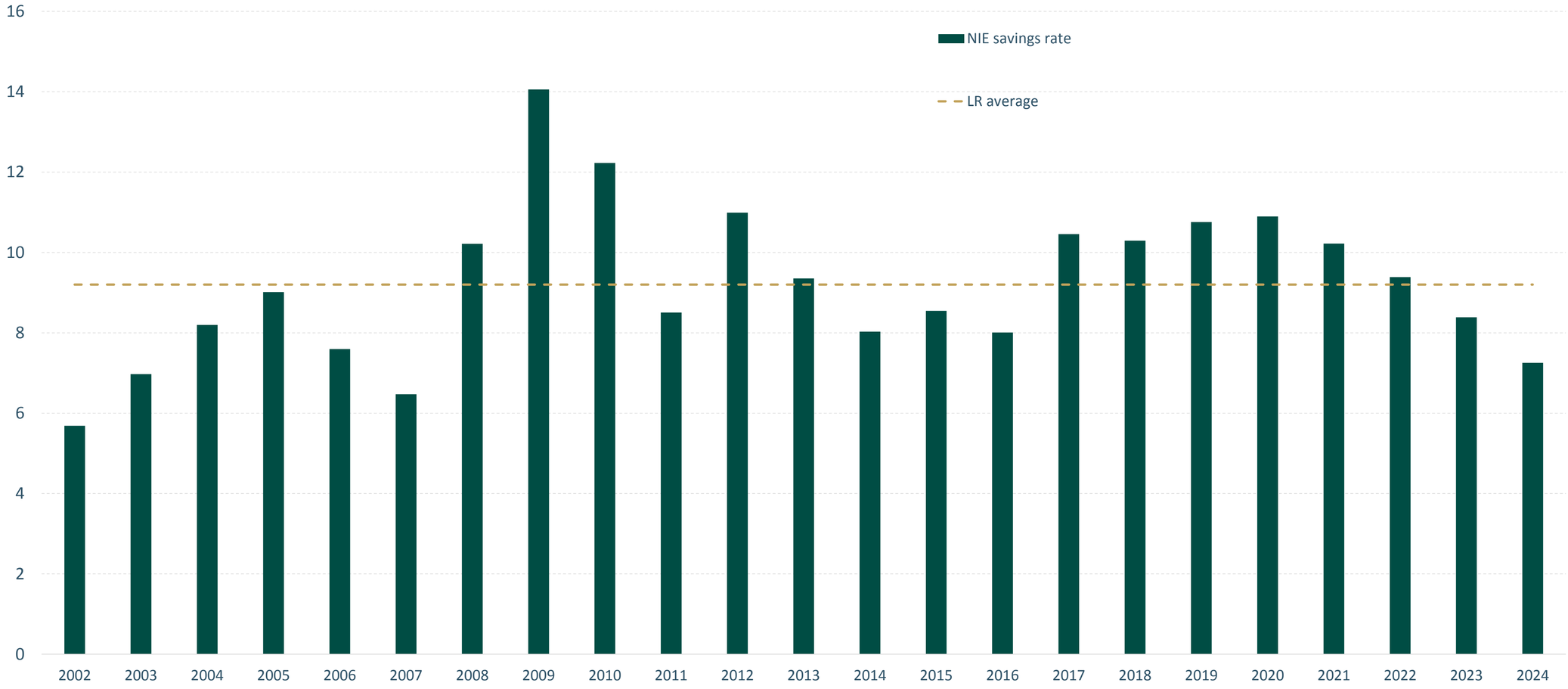
Household income

Change in real personal disposable income



Higher savings ratio driven by Brexit uncertainty

HH Savings Rate



Risk matrix – firmly tilted to the downside

Downside	Upside
Brexit outcome worse than model projection	Sectoral strength (ICT, Pharma etc.)
Continued weakness in world demand	Brexit – UK exit with a deal
Trade tensions spill over to the EU	
Repricing of risk	
Oil price – supply shock persists	

Supply side

Brexit impact on potential output?

Supply-side variable	Channel	Impact on potential output growth
Labour input	Migration	- / +
	Employment rate	?
	Participation rate	?
Capital input	Domestic and Foreign Investment	- / +
Total Factor Productivity	Competition	-
	Learning by export/import	-
	Economies of Scale	-
	R&D investment	-
	Creative destruction	- Short term/+ long term

Department's preferred approach

- Two estimates produced based on GDP and Domestic GVA

- GDP based models
  - Extended HP with private sector credit growth, employment in construction, core inflation
  - Extended HP with unemployment rate and net migration

- Domestic GVA based models
  - Univariate KF: Trend; random walk with drift, cycle; AR(2)
  - Multivariate KF: Univariate Model + Unemployment
  - Multivariate KF: Univariate Model + Construction employment share
  - Multivariate KF: Univariate Model + Private sector credit growth
  - Multivariate KF: Univariate Model + House prices

- Output gap estimates taken as mid point of estimates

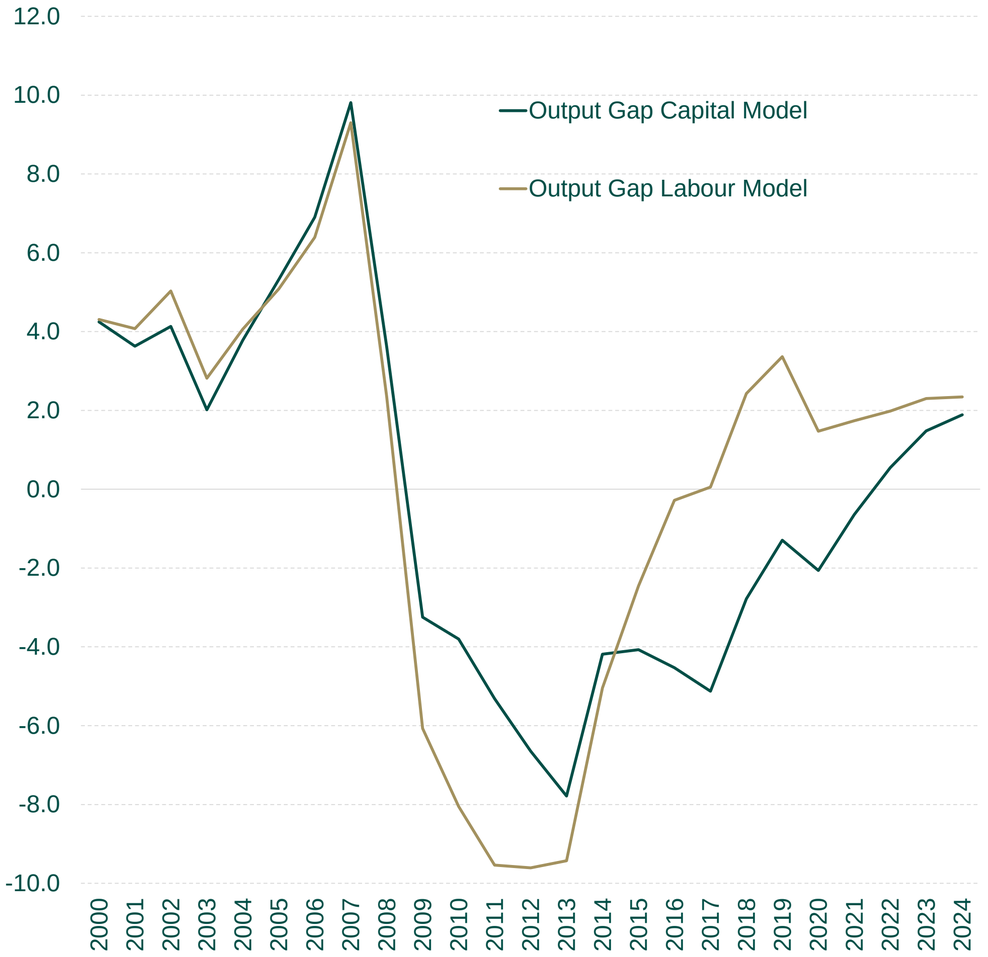
Explanatory variables and forecast assumptions

- **Forecast for 2019 – 2024 taken from demand side**
  - Share of construction in total employment
  - Core inflation
  - Unemployment rate
  - Net migration as share of labour force
  - Private sector credit growth: assumed (technical) to return to long-run growth rate by 2024

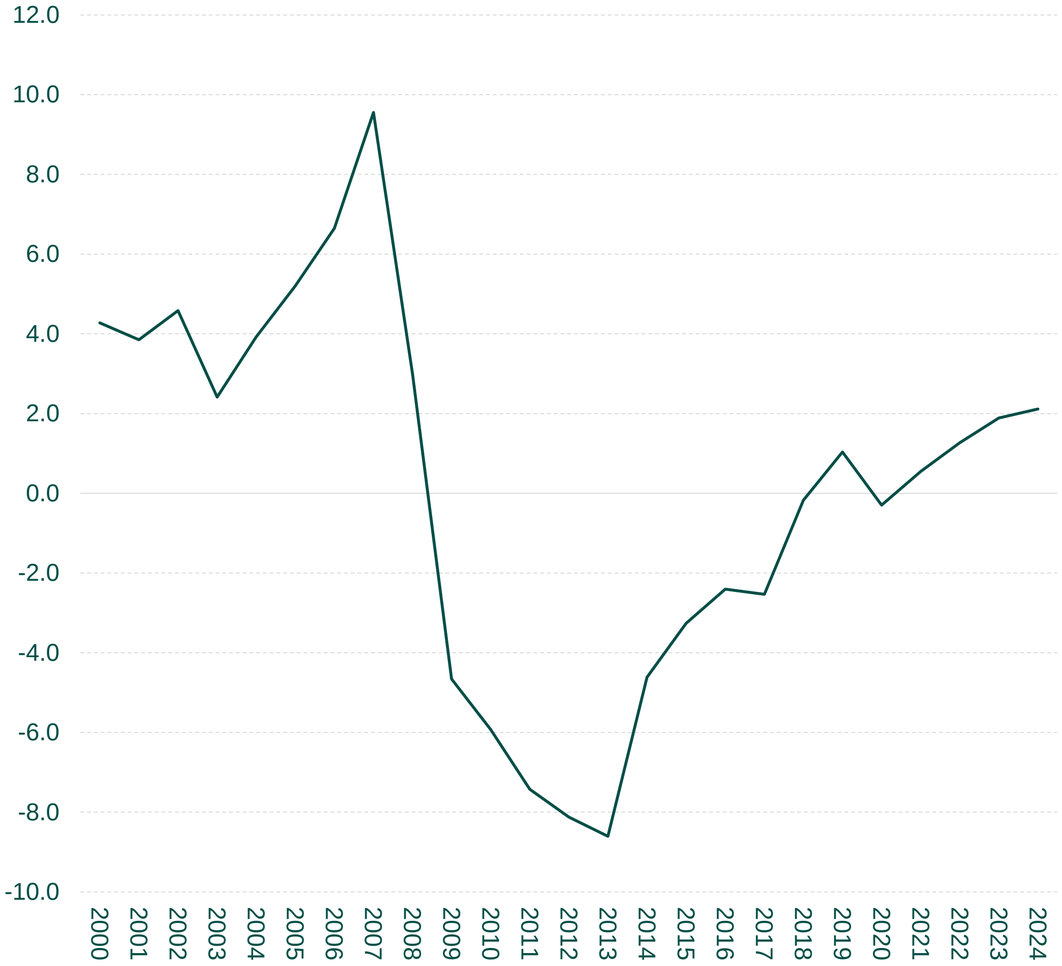
- **Account for end-point bias**
  - extend forecasts to 2027 using ARIMA methodology

Alternative approaches to assessing the cyclical position

Alternative output gap measure: GDP, Extended HP

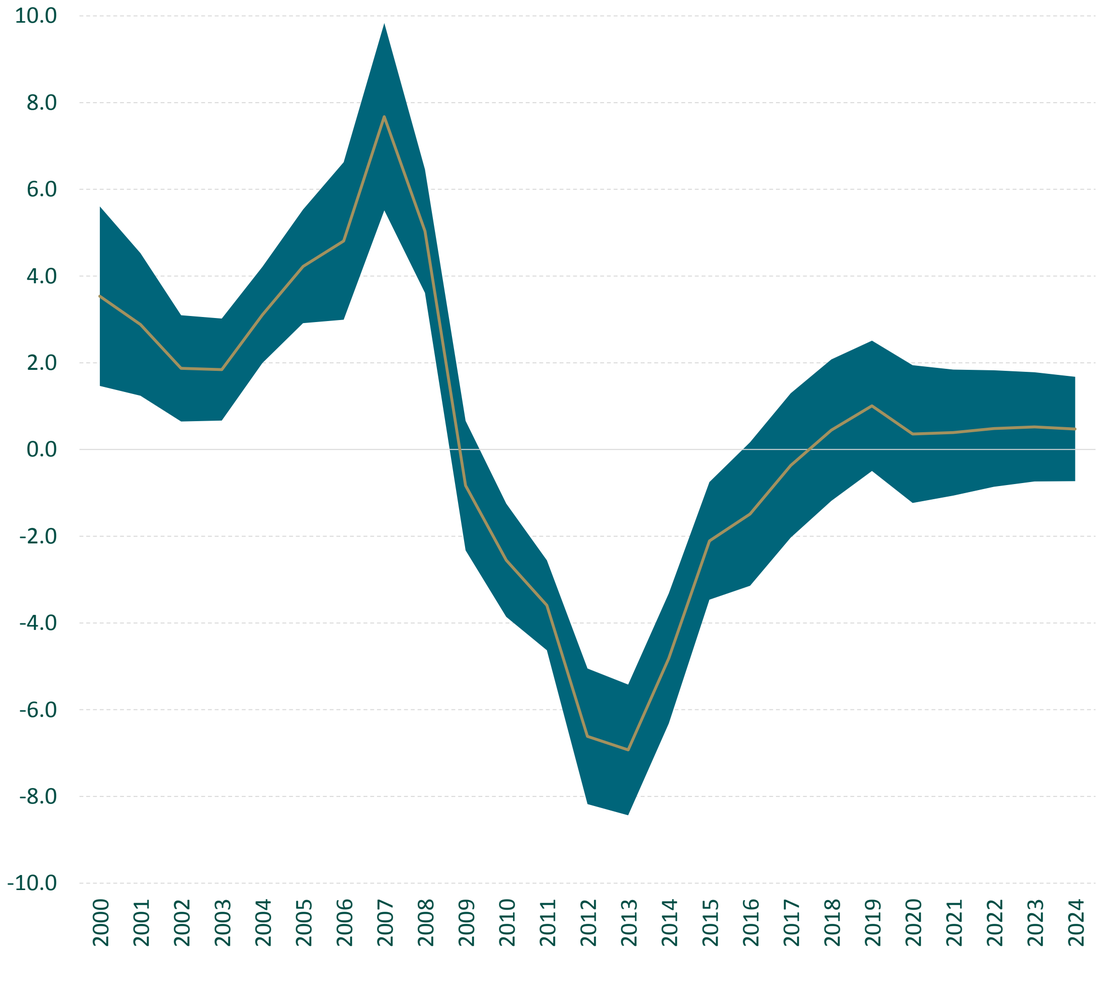


Average of K and L model estimates



Alternative output gap measures : Domestic GVA, Kalman filters

Midpoint of range



Application of harmonised methodology

No technical changes since SPU 2019

NAWRU

- HP Filter with lambda equal to 10 still used instead of bivariate Kalman Filter

TFP model

- Dummy situation for 2018 still undecided by COM – dummy included in Budget 2020 forecast

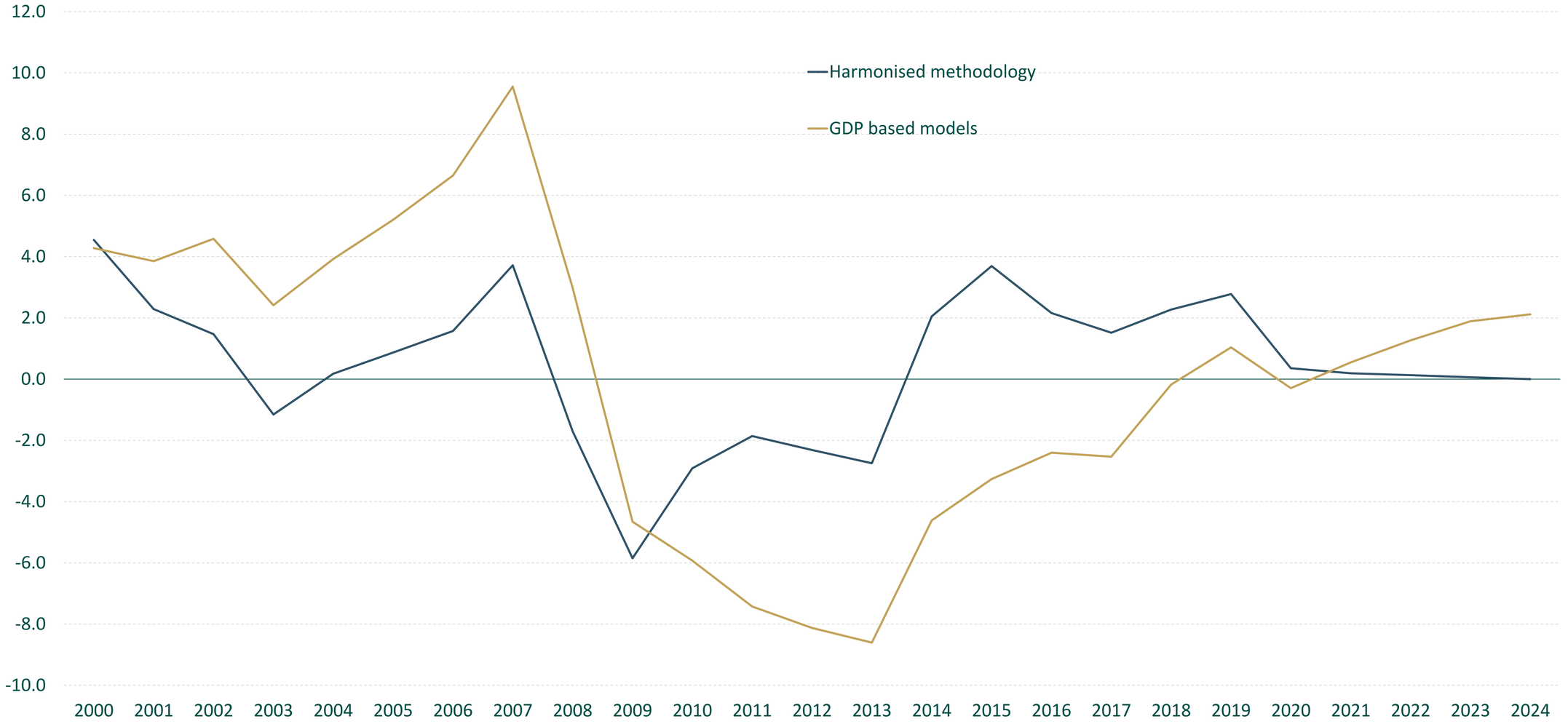
Filters run to 2021 in line with the Commission's approach

Budget 2020 harmonised methodology

	2018	2019	2020	2021	2022	2023	2024
Potential output growth	7.42	4.94	3.15	2.63	2.32	2.40	2.46
contribution from:							
Labour	2.36	1.91	1.33	0.88	0.50	0.50	0.47
Capital	-0.13	1.29	0.17	0.05	0.10	0.15	0.22
TFP	5.08	1.65	1.62	1.69	1.71	1.74	1.76
Real GDP	281.7	297.1	299.3	306.7	313.6	321.0	328.7
Real Potential Output	275.6	289.2	298.3	306.2	313.3	320.8	328.7
Output Gap	**2.22**	**2.73**	**0.33**	**0.17**	**0.11**	**0.06**	**0.00**

Note: NAWRU or trend unemployment rate based on HP filter with lambda equal to 10 to 2021 with mechanical extension thereafter. Trend TFP estimated using Bayesian bivariate Kalman filter based on actual TFP including specification of dummy with new CUBS inputs adjusted for 2015 distortion in value added.

Plausibility of Output Gap Paths



Disclaimer and other information:

The cut-off date for these projections was mid-September 2019.

Exchange rates are based on the purely assumption that the level remains unchanged at that prevailing at the cut-off date

Outturn data are sourced from a variety of sources including the Department of Finance, Central Statistics Office, European Commission (AMECO and Eurostat), Central Bank of Ireland, OECD, IMF and policyuncertainty.com.

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