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Challenges to implementing the EU water directives, economic analysis

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Preface

A good investment planning for financing water-related investments in many EU members is delayed by a lack of data and patchy information.

→ Projections on financing needs can vary by several orders of magnitude ☹

The Organisation for Economic Co-operation and Development-OECD is working with the EC to project financing needs for water supply, sanitation and flood protection for the EU member states by 2050.

Drivers of investment needs

The most significant drivers of investment needs have been identified as follows (*Roundtable on Financing Water, 12 November 2018, Paris):*

Water supply

- Urbanisation (including the number of additional people to be connected to water supply systems)
- Compliance with the Drinking Water Directive
- The number of people from vulnerable groups who do not have access
- Additional investment to approximate the best performance in terms of the efficiency of water networks (minimising non-revenue water or resource losses).

Sanitation

- Urbanisation (and the number of additional people to be connected to sanitation systems)
- Compliance with the Urban Wastewater Treatment Directive

Flood protection

- The value of assets at risk of flooding.

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EU water directives in estimating investment needs and financing capacities

In assessing investment needs for water supply, sanitation and flood risk management in Europe, next directives need particular attention:

- Water Framework Directive (2000/60/EC)

and three technical directives

- Urban Waste Water Treatment Directive (91/271/EEC);
- Drinking Water Directive (98/83/EC);
- Floods Directive (2007/60/EC).

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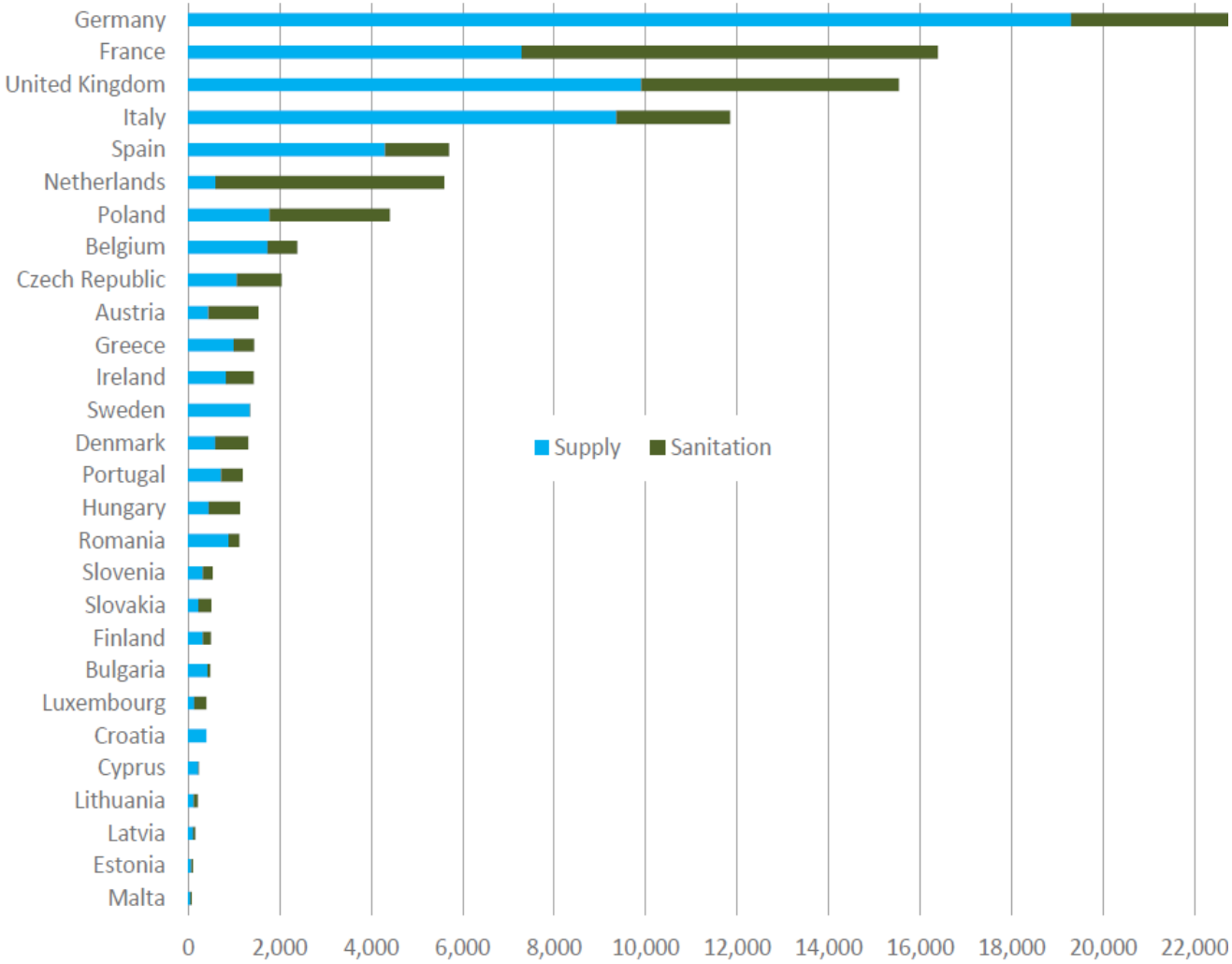
Water supply and sanitation

Financing water supply and sanitation



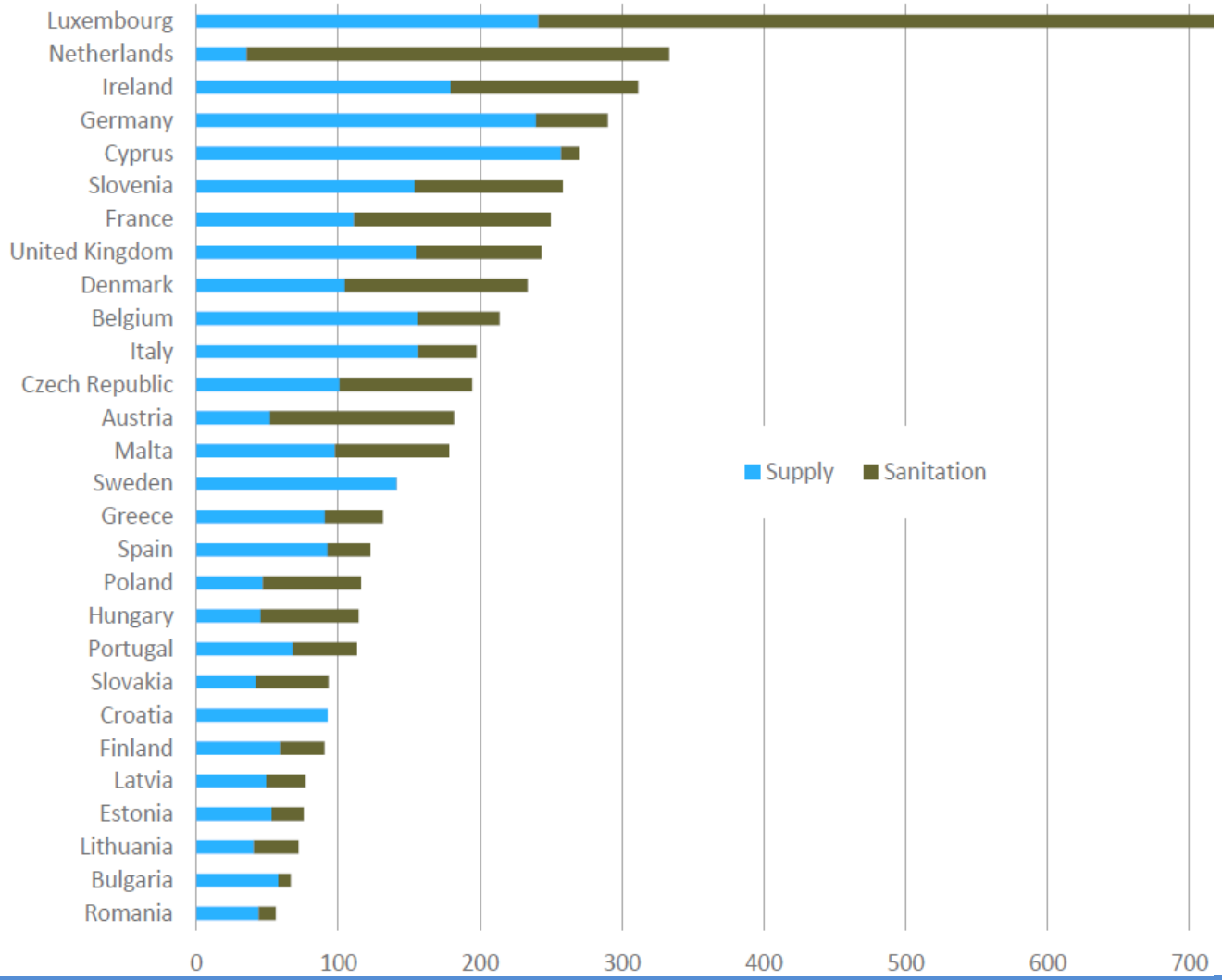
Current levels of expenditures

Total
annual expenditures for water supply and sanitation per member state

million EUR,
annual average for the Reference period 2011-15

Source: OECD analysis 18 May 2018

Financing water supply and sanitation



Current levels of expenditures

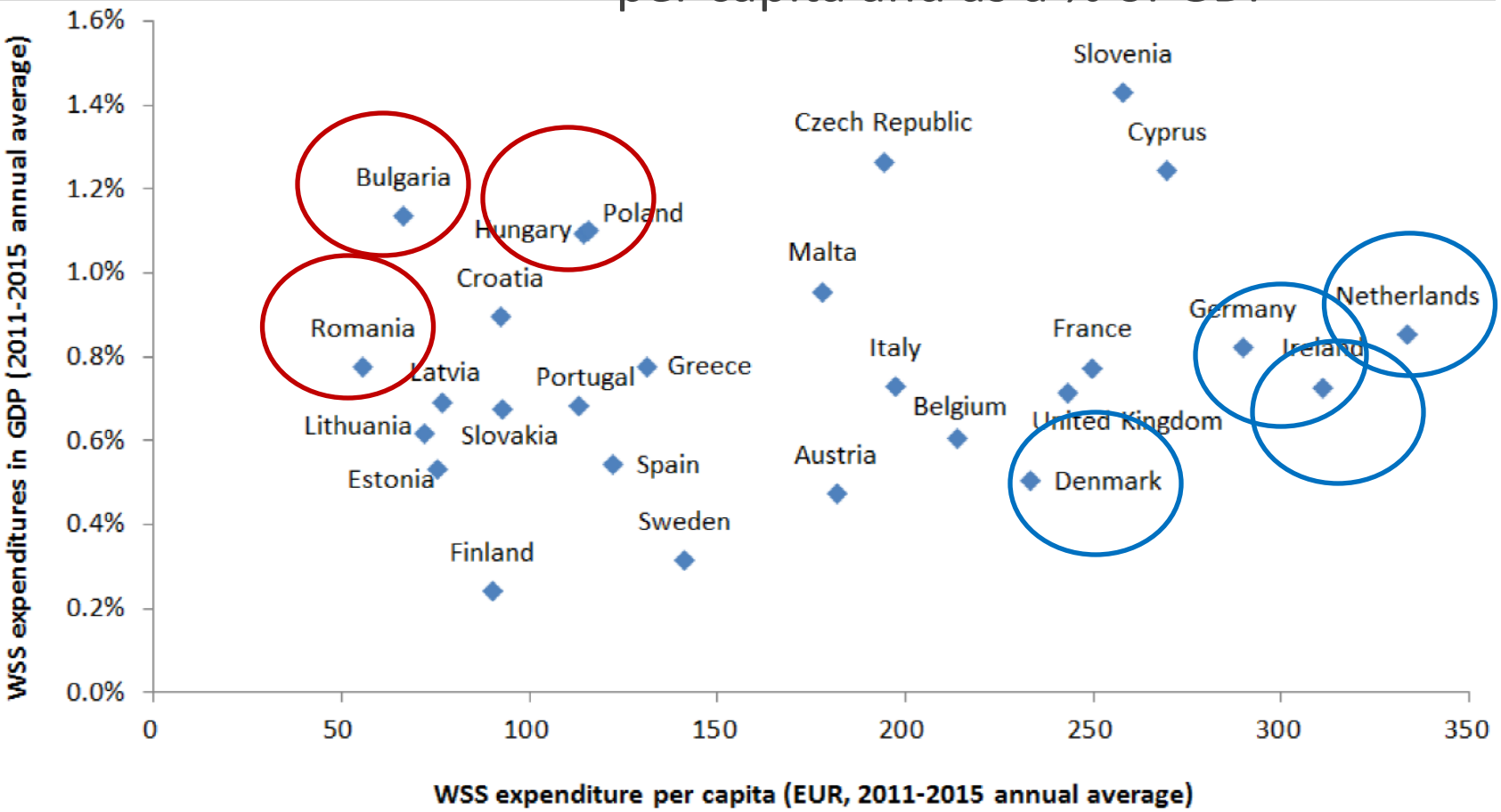
Per capita

annual expenditures for water supply and sanitation per member state

EUR, 2011-15
annual average

Source: OECD analysis 18 May 2018

Estimated expenditures on water supply and sanitation per capita and as a % of GDP



Note: Expenditure for Finland, Croatia and Sweden are underestimated due to data limitations.
Source: OECD analysis based on EUROSTAT (WSS-related public and household expenditures, GDP, population).

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Sources of finance for water supply and sanitation services per member state

2011-15
annual average

Source:
OECD analysis 18 May 2018

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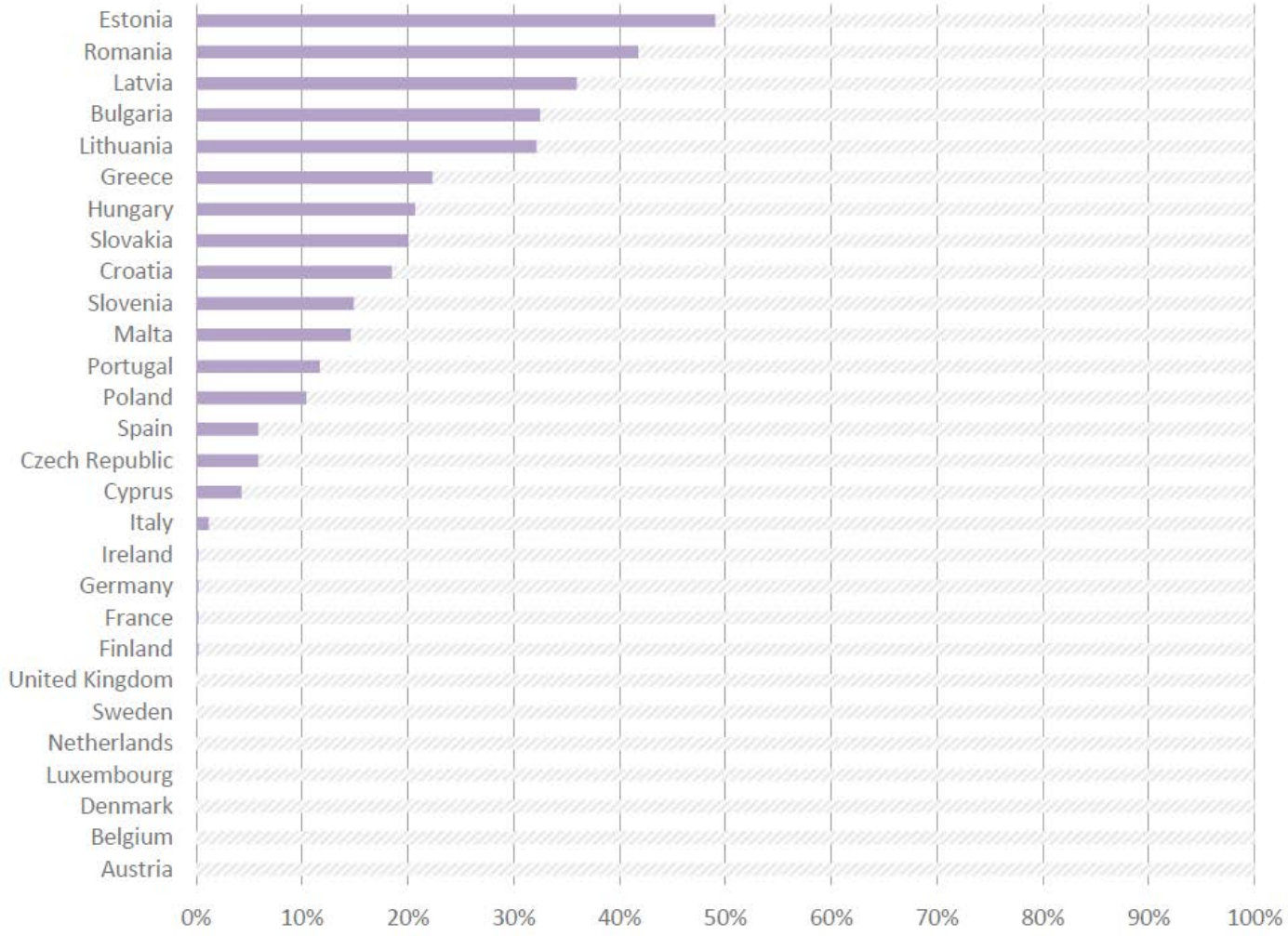
Share of EU transfers in estimated total expenditures for WSS per country



2011-15
annual average

Source:
OECD analysis 18 May 2018

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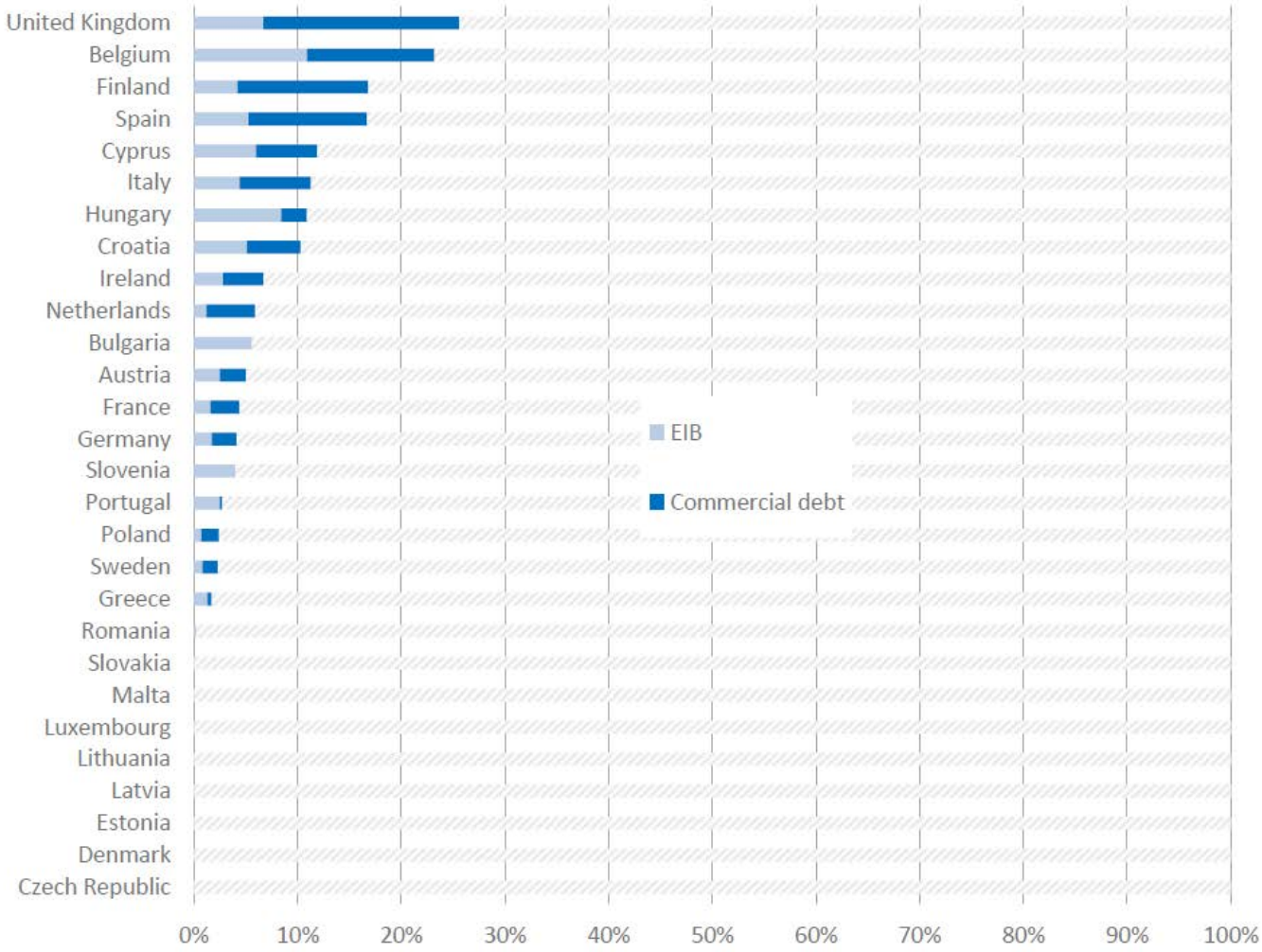
Share of debt in estimated total expenditures for WSS per country



2011-15
annual average

Source:
OECD analysis 18 May 2018

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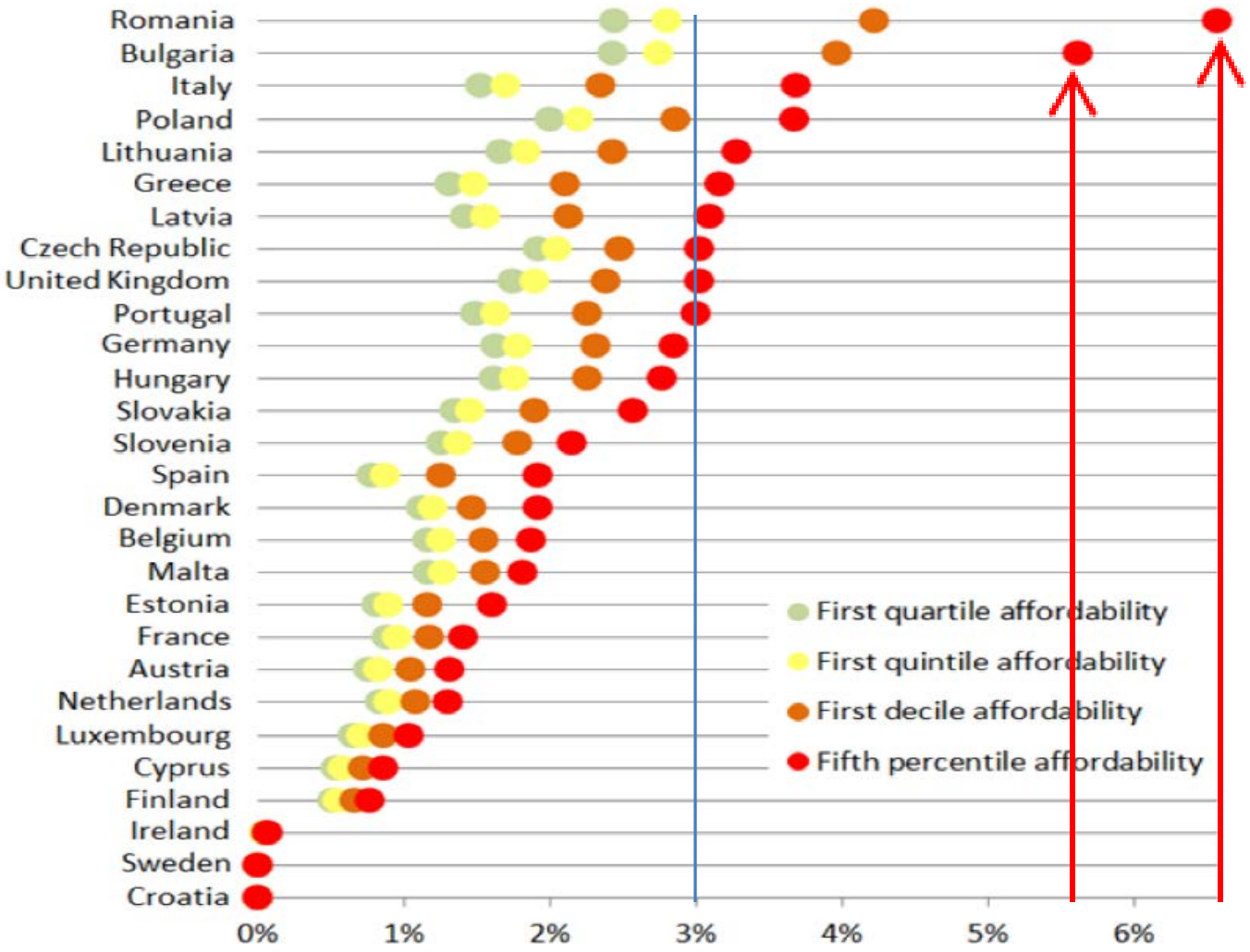
Affordability

Share of WSS expenditures in households' disposable income



2011-15
annual average

Source: OECD analysis based on EUROSTAT (household expenditures and income data)

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Projected investment needs: Water supply and sanitation by 2030

Projections explore three scenarios:

1. **Business-as-usual (BAU) scenario**: driven by the growth in urban population

– Underestimation of the deteriorating asset problem, including the large legacy

2. **Additional scenario for water supply**

– Compliance with the revised Drinking Water Directive (DWD)

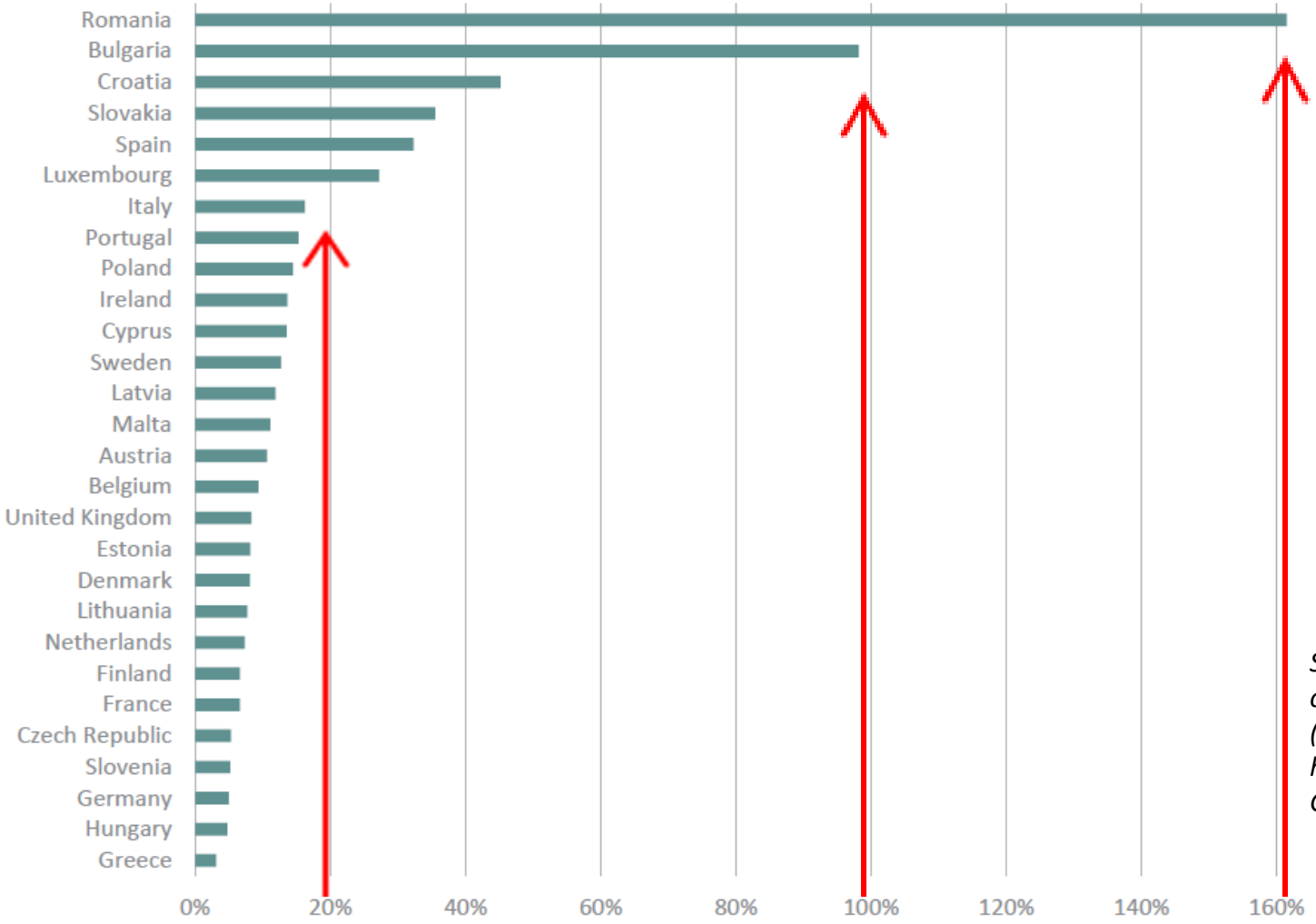
– Efficiency (convergence towards 10% leakage)

– Access (convergence towards 90% people connected)

3. **Additional scenario for sanitation**

– Compliance with Urban Waste Water Treatment Directive (UWWTD)

Additional expenditures by 2030 (BAU + compliance + efficiency) vs. baseline



Source: OECD analysis based on EUROSTAT (WSS-related public and household expenditures, GDP, population).

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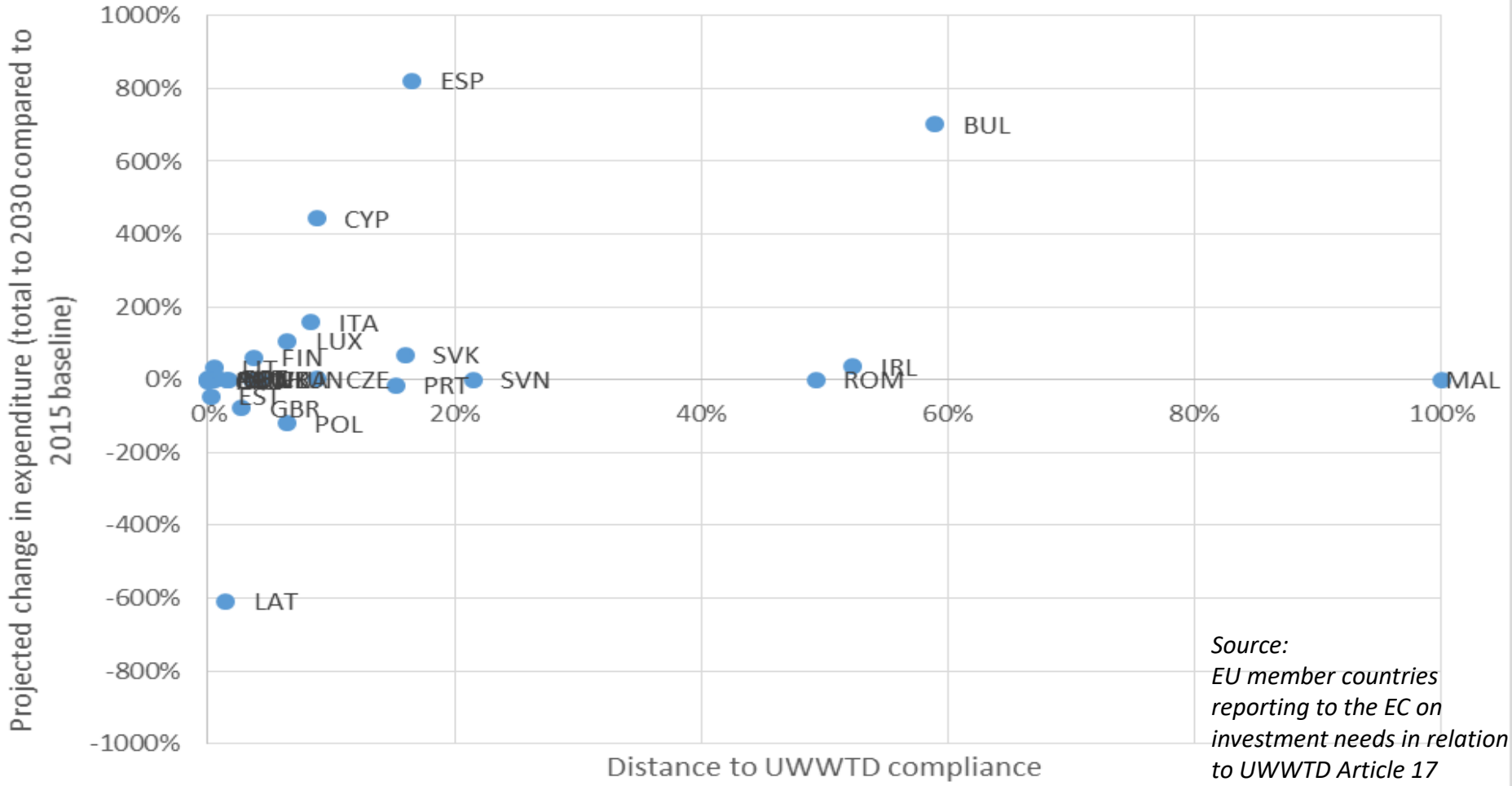
UWWD distance to compliance vs country Art 17 investment data



Source:
EU member countries reporting to the EC on investment needs in relation to UWWTD Article 17 compliance

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Financing flood protection

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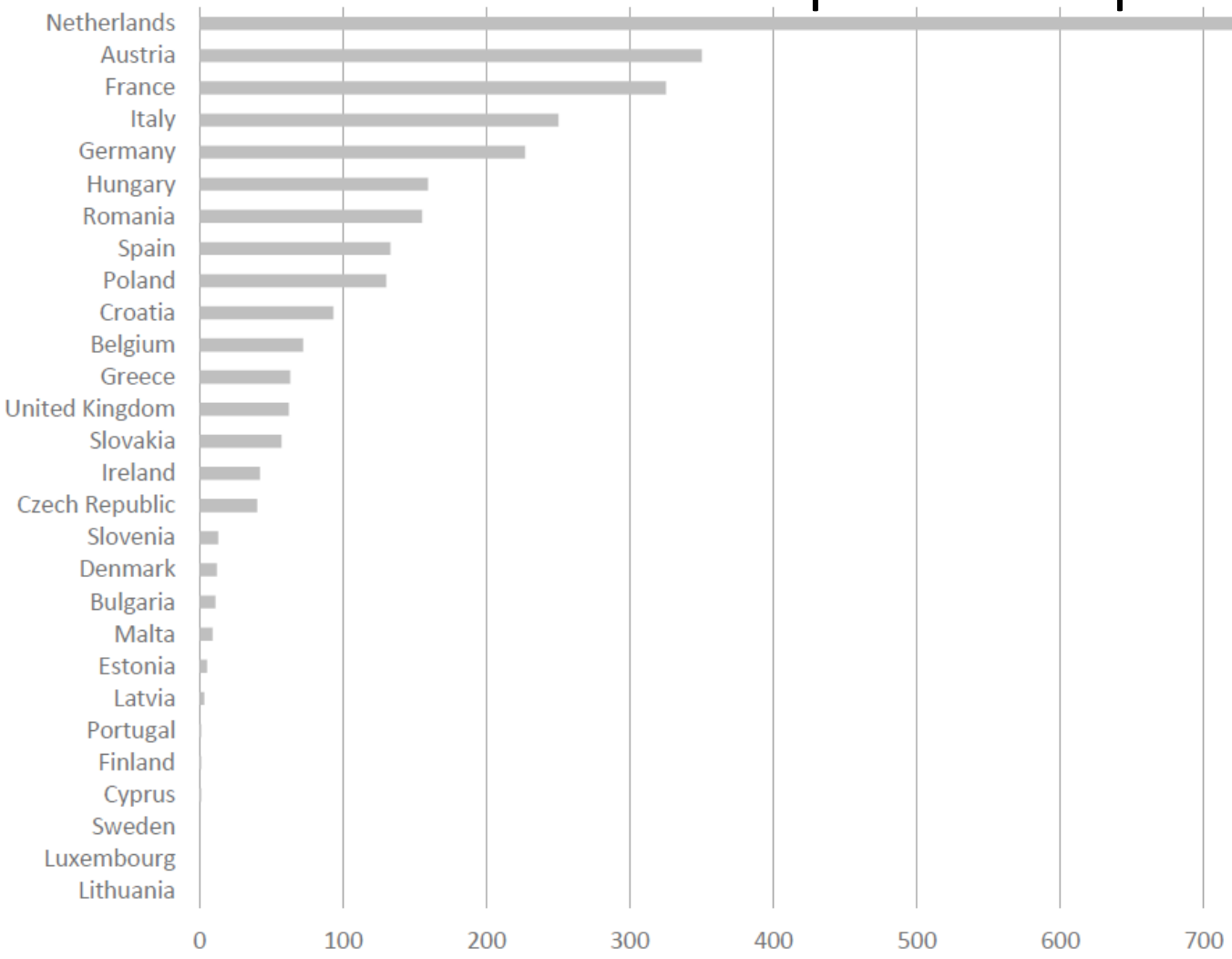
Estimated public budget expenditures for flood protection per country



Source: OECD analysis 18 May 2018

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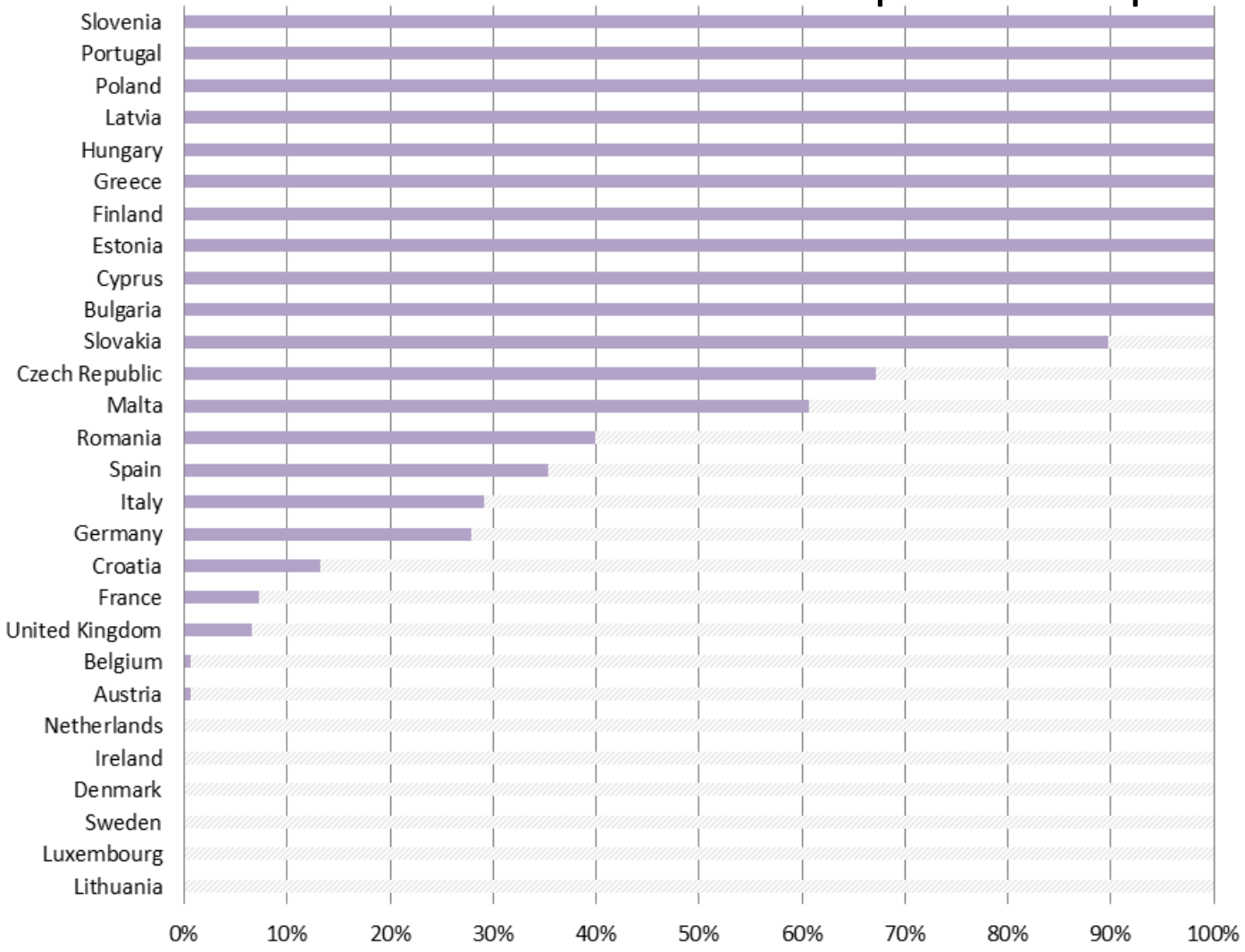
Share of EU transfers in estimated public budgets for flood protection per country



period 2011-15

Source:
EUROSTAT

PROJECTIONS TO 2030
EXPOSURE TO FLOOD RISKS

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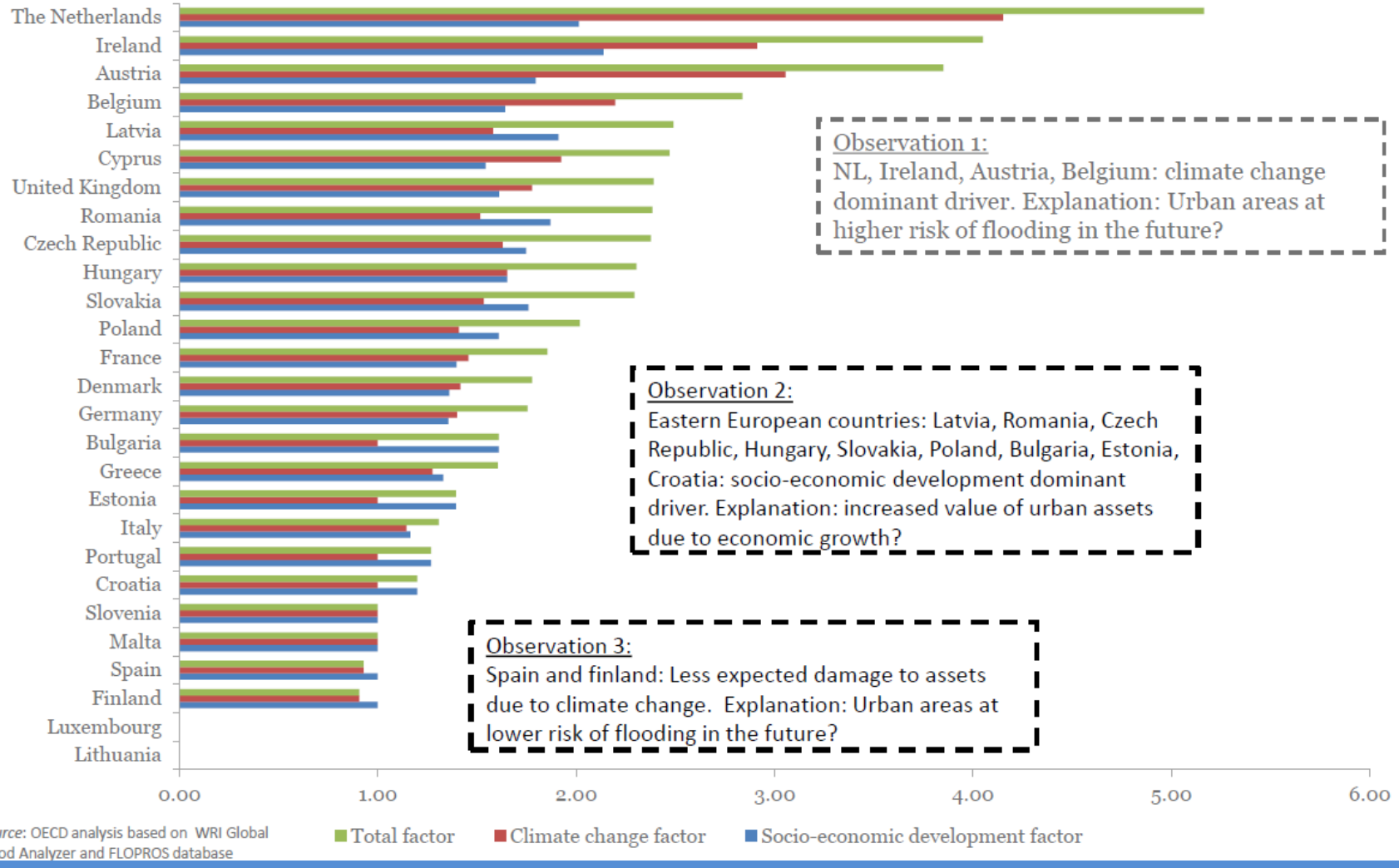
Growth factors of expected damage to urban assets



Observation 1:
NL, Ireland, Austria, Belgium: climate change dominant driver. Explanation: Urban areas at higher risk of flooding in the future?

Observation 2:
Eastern European countries: Latvia, Romania, Czech Republic, Hungary, Slovakia, Poland, Bulgaria, Estonia, Croatia: socio-economic development dominant driver. Explanation: increased value of urban assets due to economic growth?

Observation 3:
Spain and finland: Less expected damage to assets due to climate change. Explanation: Urban areas at lower risk of flooding in the future?

Source: OECD analysis based on WRI Global Flood Analyzer and FLOPROS database

PROJECTIONS TO 2030
EXPOSURE TO FLOOD RISKS

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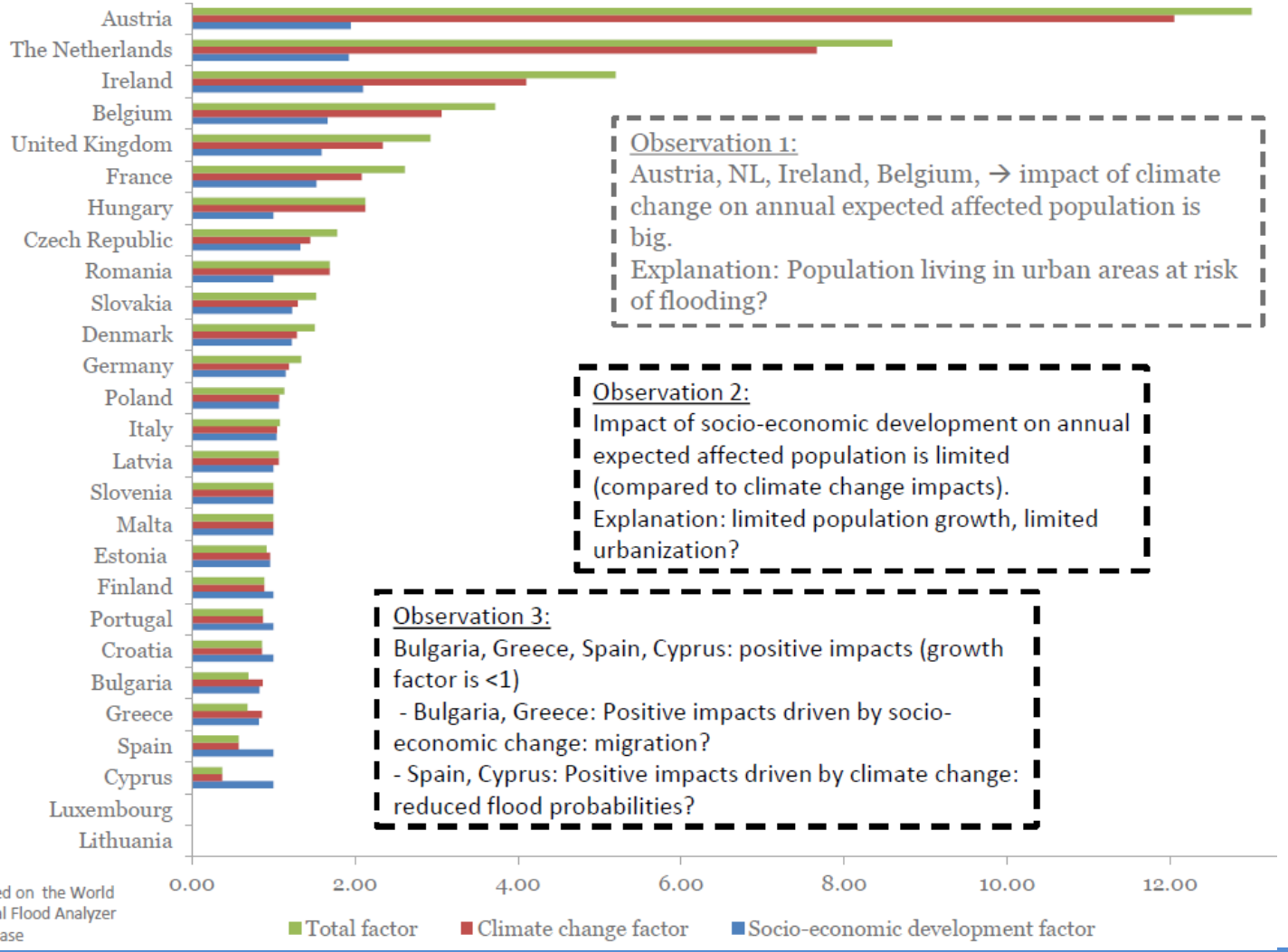
Growth factors of number of people affected



Observation 1:
Austria, NL, Ireland, Belgium, → impact of climate change on annual expected affected population is big.
Explanation: Population living in urban areas at risk of flooding?

Observation 2:
Impact of socio-economic development on annual expected affected population is limited (compared to climate change impacts).
Explanation: limited population growth, limited urbanization?

Observation 3:
Bulgaria, Greece, Spain, Cyprus: positive impacts (growth factor is <1)
- Bulgaria, Greece: Positive impacts driven by socio-economic change: migration?
- Spain, Cyprus: Positive impacts driven by climate change: reduced flood probabilities?

Source: OECD analysis based on the World Resources Institute's Global Flood Analyzer and on the FLOPROS database

PROJECTIONS TO 2030
EXPOSURE TO FLOOD RISKS

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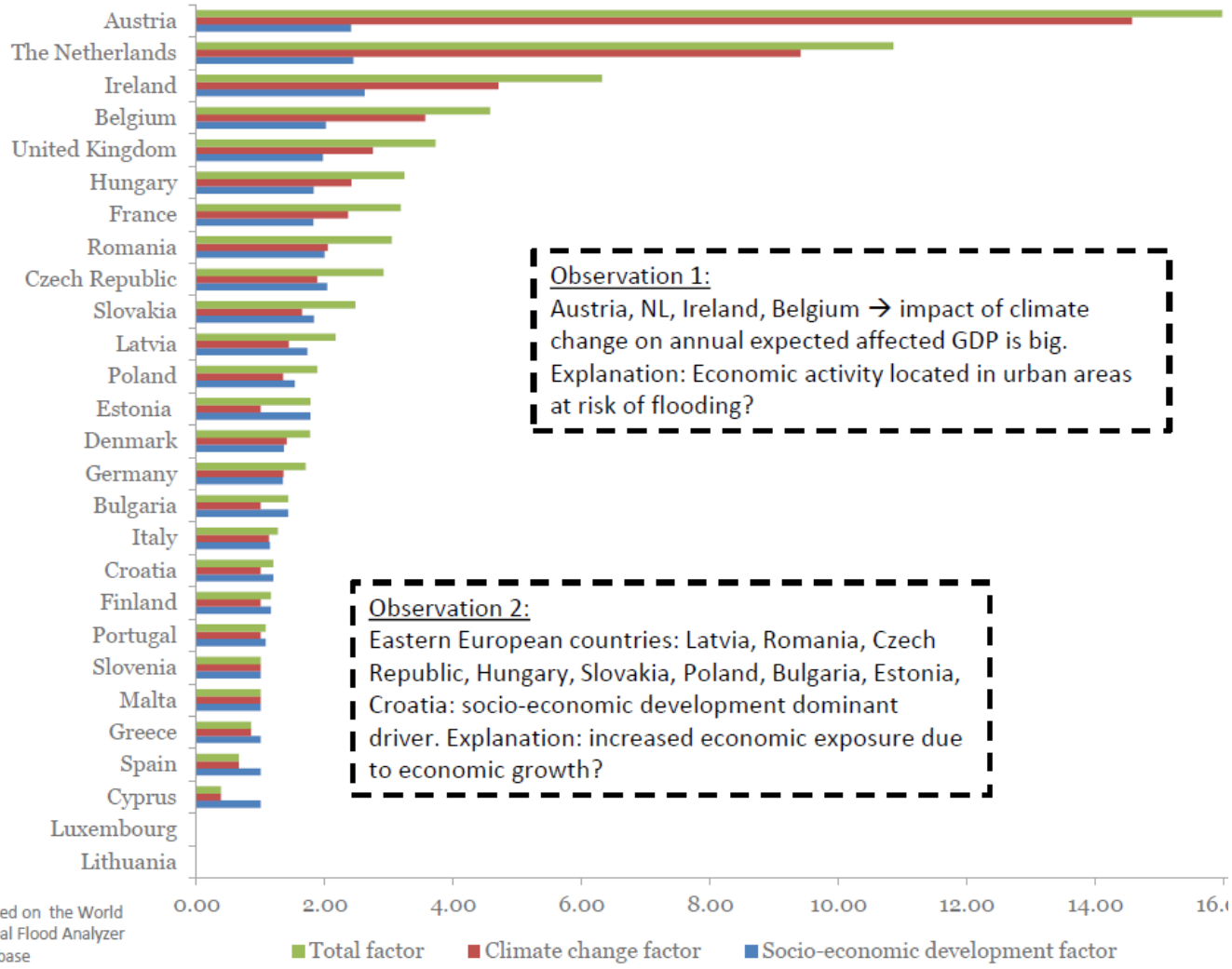
Growth factors for affected GDP



Observation 1:
Austria, NL, Ireland, Belgium → impact of climate change on annual expected affected GDP is big.
Explanation: Economic activity located in urban areas at risk of flooding?

Observation 2:
Eastern European countries: Latvia, Romania, Czech Republic, Hungary, Slovakia, Poland, Bulgaria, Estonia, Croatia: socio-economic development dominant driver. Explanation: increased economic exposure due to economic growth?

Source: OECD analysis based on the World Resources Institute's Global Flood Analyzer and on the FLOPROS database

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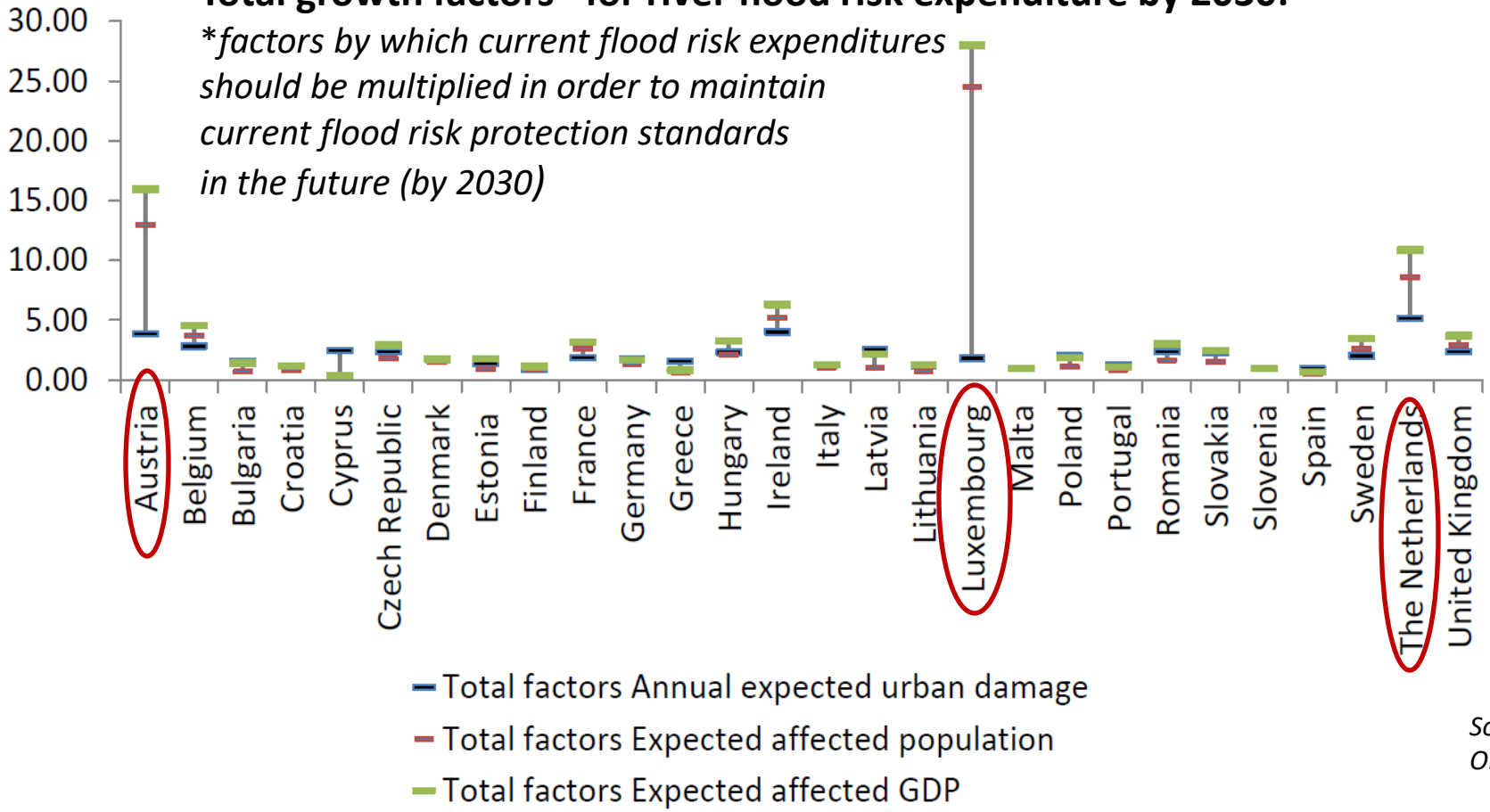
Projected investment needs: FLOOD PROTECTION

Total growth factors* for river flood risk expenditure by 2030:

**factors by which current flood risk expenditures should be multiplied in order to maintain current flood risk protection standards in the future (by 2030)*



Source:
OECD report 2018

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Questions for reflection/discussion

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The following issues would be most useful:

- How can a better understanding of investment needs and financing capacities be used to inform financial planning for water-related investments at country level?
- The state of existing assets is a major driver for future investment needs, but this is usually poorly documented at national level. Are there practical suggestions for how to overcome this difficulty?
- Which elements of the regulatory framework are the most fundamental to ensure the effective use of existing sources of finance and attract additional sources of finance?

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