Subsidy Control Principle G: calculating a subsidy's beneficial effects vis-à-vis its negative effects

Prepared for White Paper's Subsidy Control Conference

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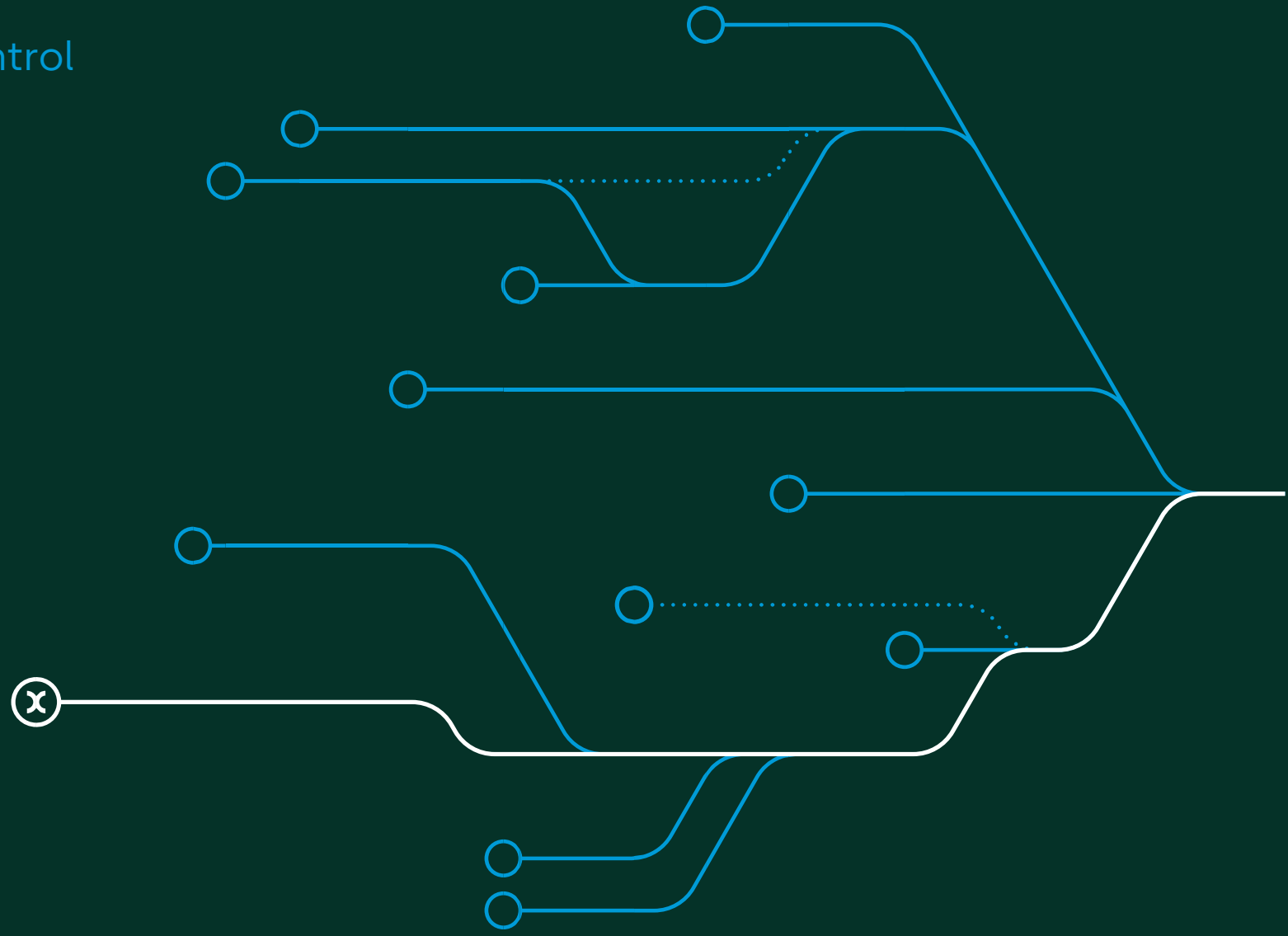

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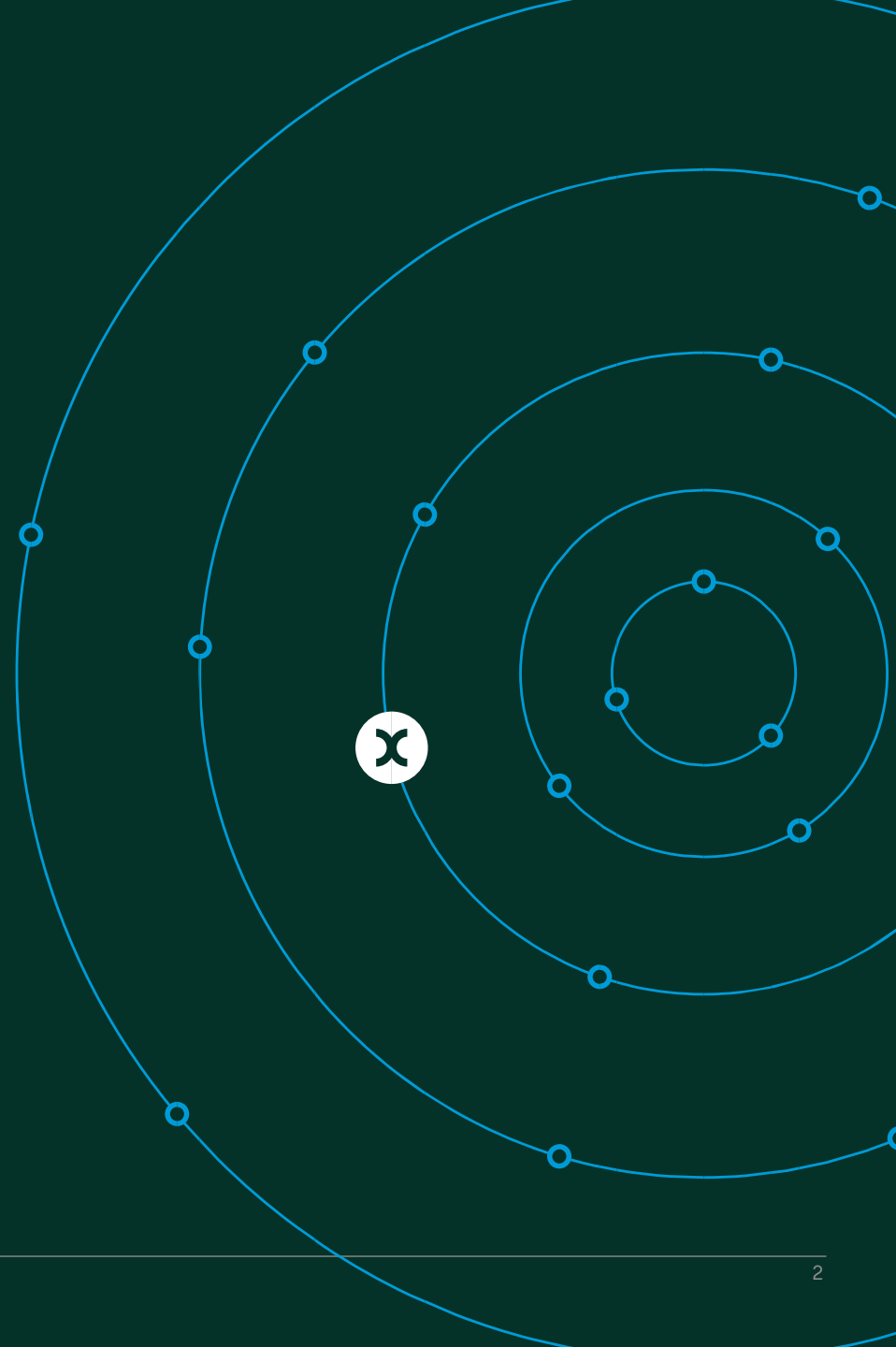
Overview

- Overview of Principle G
- Assessing the benefits of subsidies
- Assessing the negative effects of subsidies
- Conclusion



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Overview of Principle G

Assessing the benefits of subsidies

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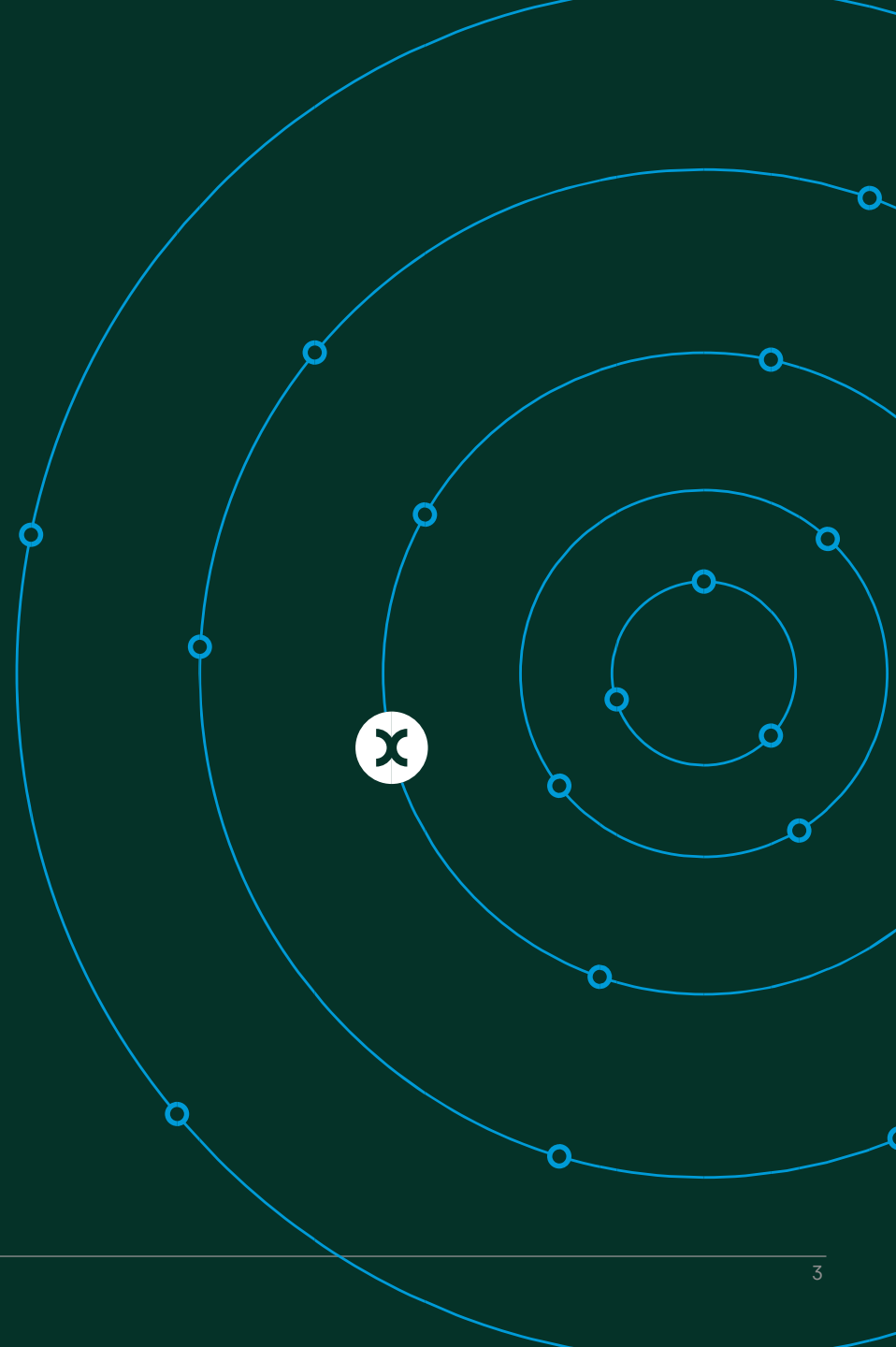

Overview of Subsidy Control Principle G

The balancing exercise

To comply with Principle G, **the benefits of the subsidy** in relation to the specific policy objective(s) must **outweigh its negative effects**

Expected benefits from a subsidy > **Expected negative effects from a subsidy** → **Compliant with Principle G**

- The benefits must only relate to the public policy objectives pursued by the subsidy
- Wider benefits that do not relate to the policy objective must not be included
- Subsidies can have more than one policy objective

- All relevant negative effects must be considered
- Including the negative effects on competition, investment, trade and climate change and carbon emissions
- Adverse effects on a particular group or geographic area should also be examined

The balancing exercise should include both quantitative and qualitative elements

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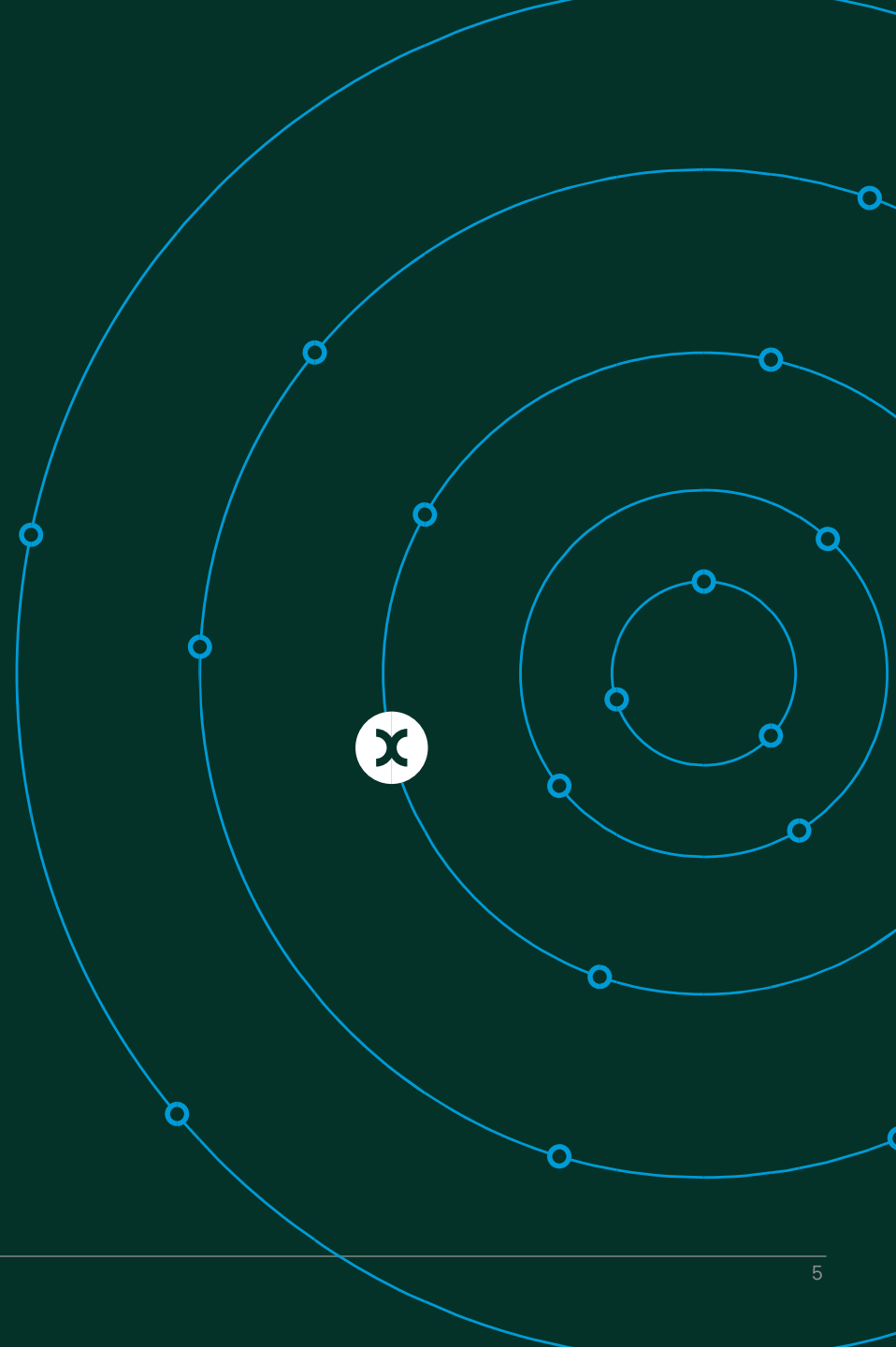

Identifying the policy objective(s) (I)

Compliance with Principle A

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- Only those benefits that relate to the specific public policy objective(s) identified for the purposes of Principle A should be considered
- The specific policy objective(s) must address a market failure or equity concern, or both

Equity concern

- Seeks to reduce disparities between different groups in society or geographic areas
- Aims at addressing inequality in the opportunities and outcomes

Market failure

- If market forces alone do not produce an efficient outcome
- Evidence that a project would not go ahead in the absence of a subsidy does not necessarily indicate a market failure

Identifying the policy objective(s) (II)

Common types of market failures

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- Common types of market failures where subsidies can represent an appropriate policy instrument to improve market efficiency, include:

Externalities

- Indirect costs or benefits to an uninvolved third party that arise due to a different party's activities

Asymmetric information

- Arises if there is a discrepancy between the information available to certain market participants compared to others

Public goods

- Goods that are commonly available to all people within a society
- Often undersupplied or are not supplied without intervention

Missing/incomplete markets

- Arises when there is demand for a good or service, but there is no supply

Coordination/network failure

- Difficulties coordinating large number of partners with conflicting interests, including designing contracts and sharing information

Quantifying the benefits of subsidies in terms of addressing market failures and equity concerns (I)

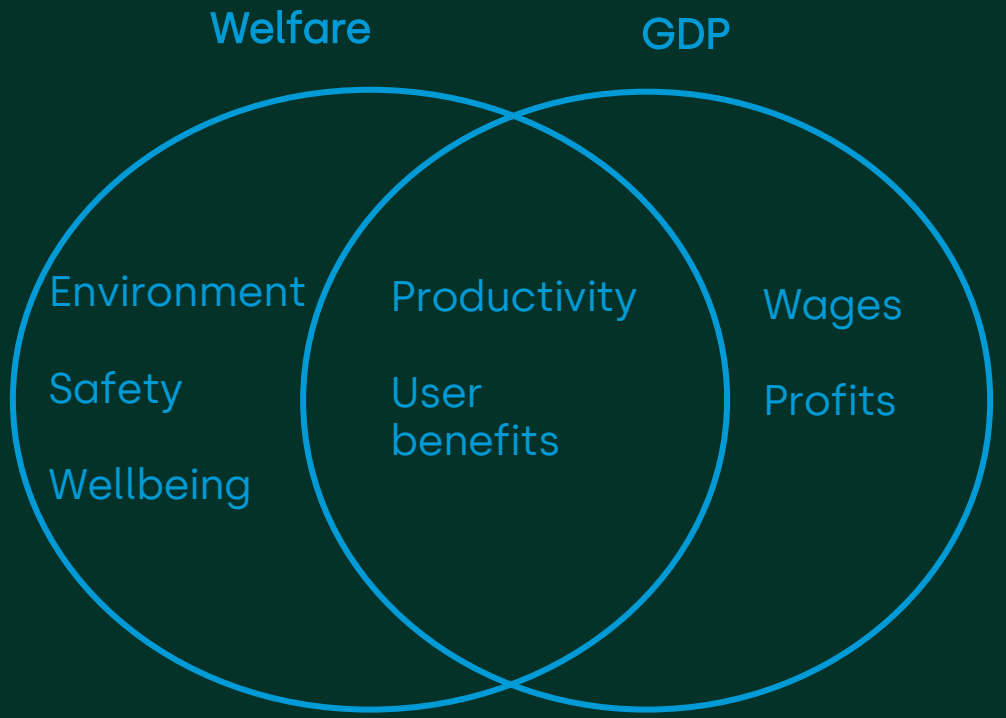
The role of the Green Book

- Quantifying the benefits of subsidies can be informed by the Green Book
  - the government's guidance for appraising and evaluating the impact of policies and projects on economic welfare
  - guidance for estimating values that economic markets are unable to fully capture, if at all, i.e. market failures, in addition to equity measures

the Green Book's guidance applies to all proposals concerning public spending

based on **welfare economics** principles and overall **social welfare efficiency**

covers the impact on health, environment and equality, among other factors



Quantifying the benefits of subsidies in terms of addressing market failures and equity concerns (II)

The approach to the impact assessment

To quantify the benefits of subsidies, the following elements should be considered:

Establish a counterfactual

The net effect is calculated as the benefit from the project relative to the counterfactual scenario

Economic welfare measures

The assessment should ideally include measures beyond GVA/employment to fully capture the likely effects of a subsidy

Equity vs efficiency

The latest developments in the Green Book place greater emphasis on levelling up policy objectives

Treatment of risk and uncertainty

Sensitivity analysis around the key assumptions is increasingly important

Quantifying the benefits of subsidies in terms of addressing market failures and equity concerns (III)

The approach to the impact assessment

The Green Book can be used to quantify a range of measures, including the positive effects of subsidies as well as any negative effects in terms of increasing carbon emissions

Factors that have clear market values	Factors with (relatively) well-defined 'shadow' prices	Less well quantified values
GVA	Carbon emissions	Subjective wellbeing
Employment	Foregone leisure	Biodiversity / natural resources
Changes in prices	Health outcomes	Sense of belonging

Quantifying the benefits of subsidies in terms of addressing market failures

Case study – Assessment of the economic impact of a subsidised technology facility

Market failures in R&D investments include:

- **Attribution / spillover**: the innovative product or service may not be able to be attributed the initial research, leading to under-production
- **Natural monopoly**: due to significant fixed costs, multiple competing research facilities may not be efficient
- **Co-ordination failures**: scientific research (and the facilities needed to support it) requires co-ordination of inputs, which could be adversely affected by incentives to free ride

Quantifying the benefits of R&D investments:

- **Benefits arising from training** PhD students at the facility
- Contribution of **spin-off** firms that result from innovation undertaken by the facility
- Value of **public domain scientific research**
- **Producer surplus** for industrial users of the facility

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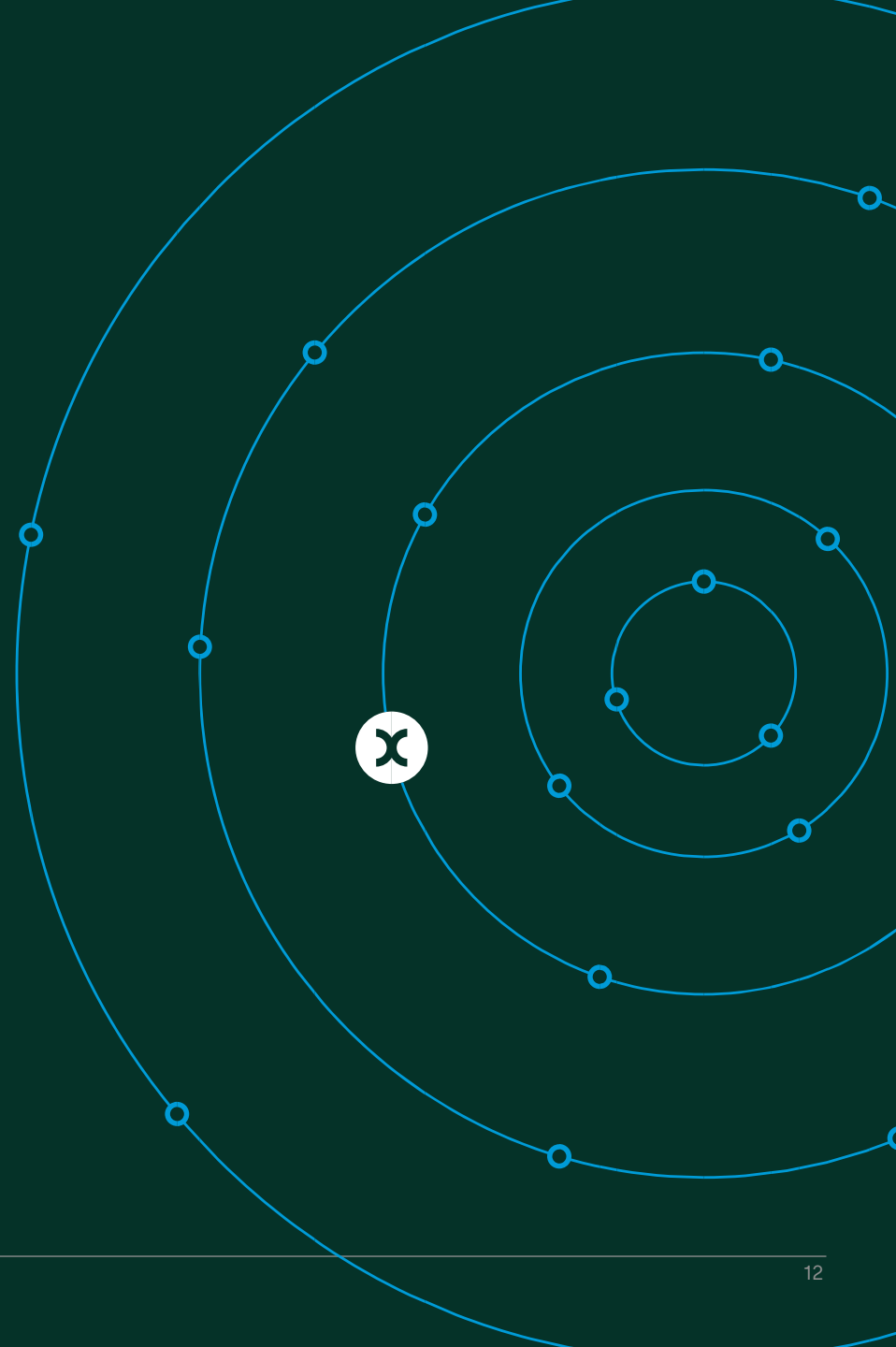

Assessing the negative impact of a subsidy on competition, investment and trade (I)

Design of the subsidy

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- To ensure that the **distortive effects are as limited as possible,** the following factors should be considered when designing the subsidy:

short-term and long-term effects of the subsidy on the relevant markets

whether the subsidy could be designed differently to reduce its distortive impact

potential for the subsidy to prevent entry or induce exit of competitors

whether the subsidy would have an adverse effect on certain markets/areas

potential for the subsidy to strengthen the market power of the beneficiary

Assessing the negative impact of a subsidy on competition, investment and trade (II)

Analytical framework

A three-step approach to assess the likely impact of a subsidy on competition, investment and trade

Step 1: Description of the subsidy and its objectives

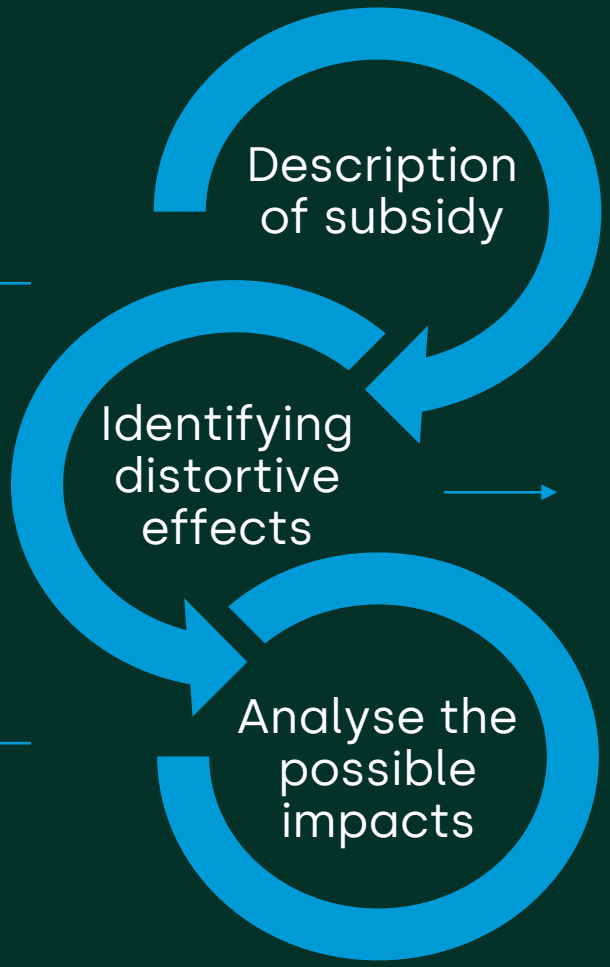
- characteristics of the subsidy
- identify the potential markets affected—define the relevant product and geographic markets

Step 2: Identify potential distortions of competition, investment and trade due to the subsidy

- identify the counterfactual scenario
- identify testable hypotheses and key competition parameters
  - structural indicators and indicators of market outcomes and dynamics

Step 3: assess the likely impact of the subsidy on competition, investment and trade

- assessment against the counterfactual scenario



Assessing the negative impact of a subsidy on competition, investment and trade (III)

Defining the relevant product and geographic markets

Product market

Products/services that are considered interchangeable

- Demand-side substitutability: capture those products that are considered by consumers to be substitutable
- Supply-side substitutability: capture those products that are considered by suppliers to be substitutable

Geographic market

Area where competition conditions are sufficiently homogenous and differ from other geographic areas

- Demand-side substitutability between suppliers in different areas: important if the location of the customer does not influence the conditions at which products are offered
- Supply-side factors: extent of imports/exports from/to other regions and how these might change if relative prices between the two regions changed

Case study – Investment aid to Newquay Airport (I)

Description of the aid and its objectives

Newquay Airport received **£46.8m of aid** to convert the airport from part-military to fully commercial use

Did the aid create distortions to competition?

Description of the aid

- Annual payments from 2006 to 2011
- Aid was significant compared to size of airport

Define the relevant market

Product market

- Passengers: domestic leisure passengers
- Airlines: low-cost carriers

Geographic market

- Passengers: Plymouth and Exeter airports
- Airlines: Plymouth and Exeter airports (potentially wider)

Source: Oxera, based on a d-maps.com; European Commission (2007), 'State aid No N 303/2007 – United Kingdom Newquay Cornwall Airport Development ', C (2007) 4316 final, 10 October.

Case study – Investment aid to Newquay Airport (II)

Possible distortions and the impact of aid

Factual (aid)
Aid to Newquay Airport

VS

Counterfactual (no aid)
Closure of Newquay Airport

Testable hypotheses

1. Did the aid adversely affect traffic at neighbouring airports?

   Significant long-term decline in passenger traffic at Plymouth and Exeter airports

2. Did the aid adversely affect traffic at neighbouring airports?

   The aid may have contributed towards the **closure of Plymouth Airport** (together with other factors)

Source: European Commission (2007), 'State aid No N 303/2007 – United Kingdom Newquay Cornwall Airport Development ', C (2007) 4316 final, 10 October.

Case study – Aid to RWE for the conversion of its coal plant to biomass (I)

Description of the aid and its objectives

RWE received aid **in the form of a Contract for Difference** to convert its coal fired power station at Lynemouth to operate entirely on biomass

\+ Pre-fixed price (the strike price)

\– Market price for electricity (the reference price)

= Price difference

if Price difference > 0 → Top-up payment

if Price difference < 0 → Repayment

Significant amount of wood pellets required to operate Lynemouth on biomass

7.4% of world's wood pellet consumption

11.2% of EU's wood pellet consumption

88.2% of UK's consumption with increasing imports

Potential distortions to wood pellets market

Source: European Commission (2015), 'COMMISSION DECISION of 1.12.2015 on State aid for Lynemouth Power Station Biomass Conversion SA.38762 (2015/C) which the United Kingdom is planning to implement', C(2015) 8441 final, 1 December.

Case study – Aid to RWE for the conversion of its coal plant to biomass (II)

Possible distortions to competition, investment and trade

Define relevant market

Product market

- Industrial-grade **wood pellets**
- Indirect effects on the raw material market of wood pellets (i.e. wood fibre market)

Geographic Market

- **Global**, especially US South East
- Source 60%-80% of wood pellets from US South East, c. 15% from EU, and rest from Canada

Assessing distortions to trade

- New pellet mills can be built within two years
- Additional capacity available as demand rises

Distortions by market — **Distortions unlikely**

- Low quantity to be sourced from EU

- Spot price in US South East did not change significantly when imports from EU increased
- Lynemouth's required wood pellets low compared to total production in US South East

- Demand from Lynemouth is less than Canada's surplus in wood pellets production

Source: European Commission (2015), 'COMMISSION DECISION of 1.12.2015 on State aid for Lynemouth Power Station Biomass Conversion SA.38762 (2015/C) which the United Kingdom is planning to implement', C(2015) 8441 final, 1 December.

Assessing the negative effects of a subsidy on competition, investment and trade

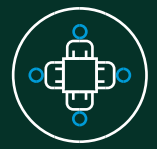
Factors that influence the likely distortions created by a subsidy

Nature of the instrument

- E.g., a loan is less distortive than a grant
- A loan provided at market interest rates is less distortive than a loan at a lower interest rate

Size of subsidy

- A large subsidy is more likely to distort competition
- Consider the size of a subsidy in absolute terms as well as relative terms, e.g., to size of recipient, costs of project etc



Breadth of beneficiaries

- Broad set of recipients, fewer distortions
- The more competitive the bidding process for the subsidy, the less likely to distort competition

Frequency of subsidy

- Subsidies should be time-limited, with payment schedules linked to performance criteria
- Recurring subsidies more likely to distort competition

Nature of costs being covered

- Subsidies that support funding of initial investment or set-up costs tend to be less distortive
- Subsidies covering 'day-to-day' costs more likely to be distortive

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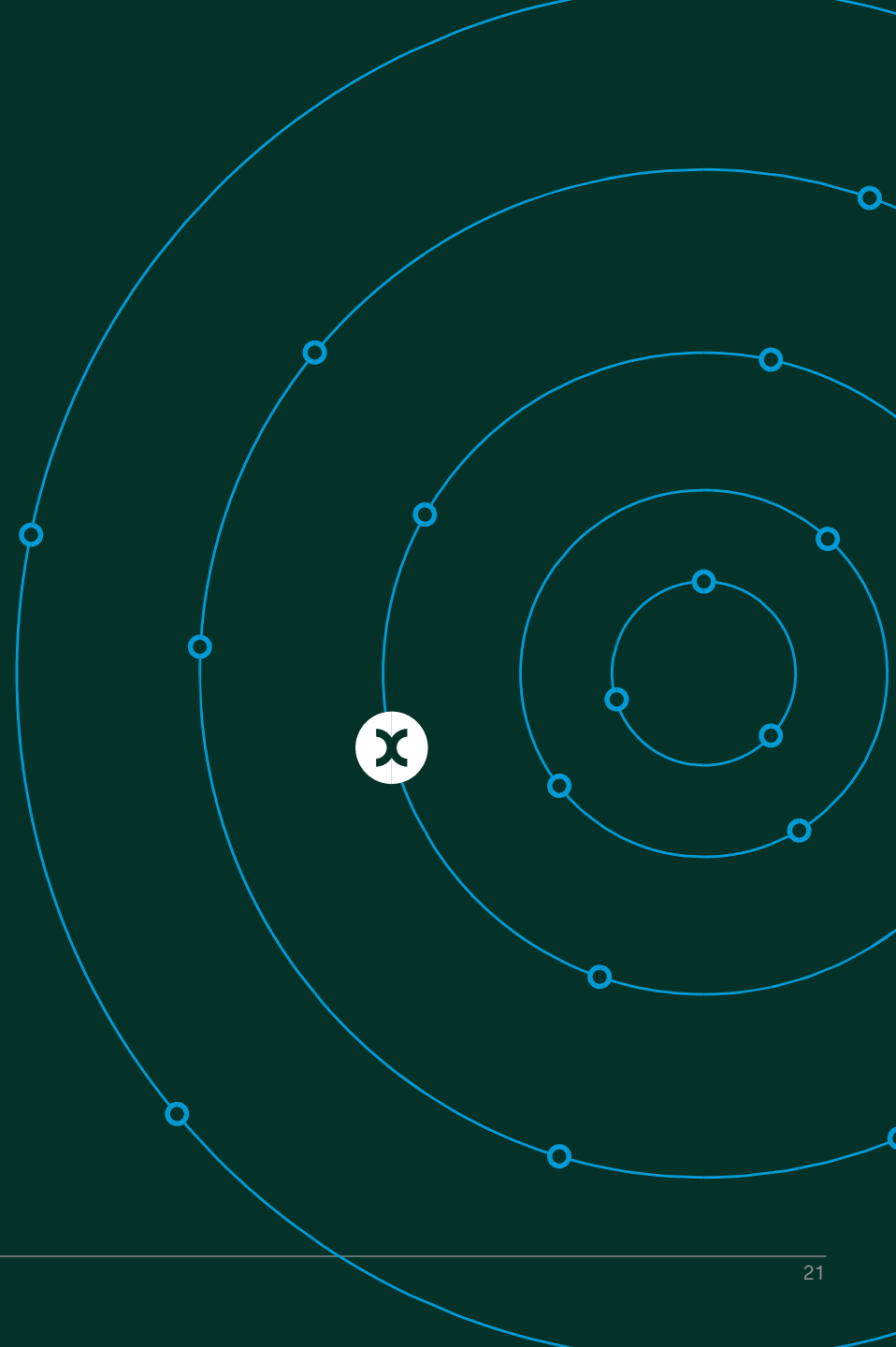


Conclusions

The assessment of Subsidy Control Principle G

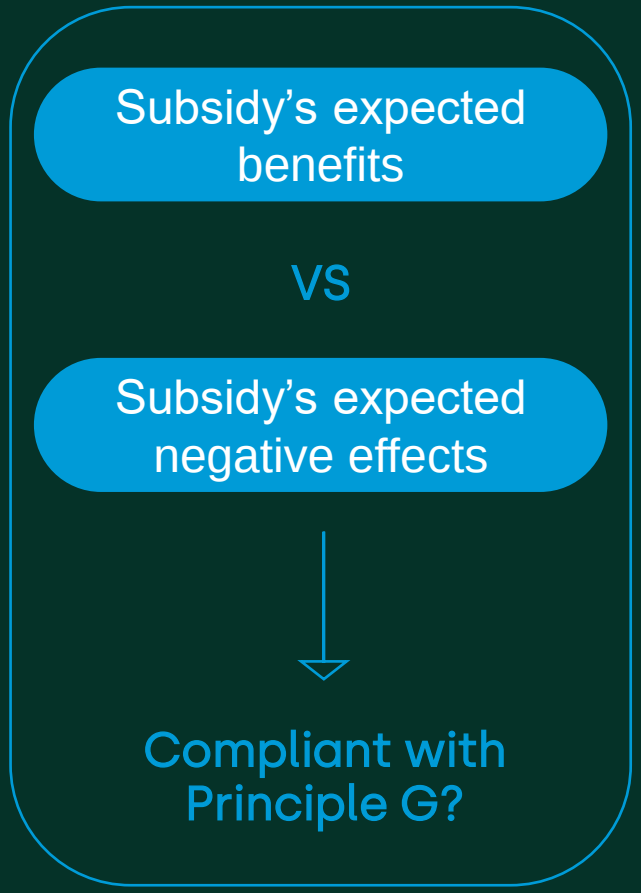
The assessment of Principle G should be considered in light of the assessment of the other subsidy control principles

Investment appraisals are a useful starting point for the assessment of the likely positive effects of subsidies, as well as any negative effects on climate change

→ the Green Book can underpin such an analysis

The assessment of the **negative effects** of a subsidy **on competition, investment and trade** draws upon the same economic tools that are standard in other areas of competition

→ the starting point is to identify the boundaries of the relevant product and geographic markets



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