



**ISWA 2024**  
**WASTE TO WEALTH:**  
SOLUTIONS FOR A SUSTAINABLE FUTURE  
15 - 18 Sept | CTICC, CAPE TOWN



CITY OF CAPE TOWN  
ISIXEKO SASEKAPA  
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forestry, fisheries  
& the environment  
Department of Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA



REGIONAL CHAPTER



AFRICA



# Meeting Waste Management Targets

## Towards a Monitoring and Guidance Framework for EU Member States

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Flemish Institute for Technological Research (VITO),  
Materials & Chemistry Unit,  
Belgium



# MSW in the EU: History & Present

No two EU Member States have the same policies and management practices.

1<sup>st</sup> Waste Framework Directive published in 1975



MSW represents app. 10% of the total waste generated in the EU in 2022. (\*)

High-income EU Member States have some of the highest MSW generation rates worldwide. (\*)

\* Based on Eurostat, 3/9/2024

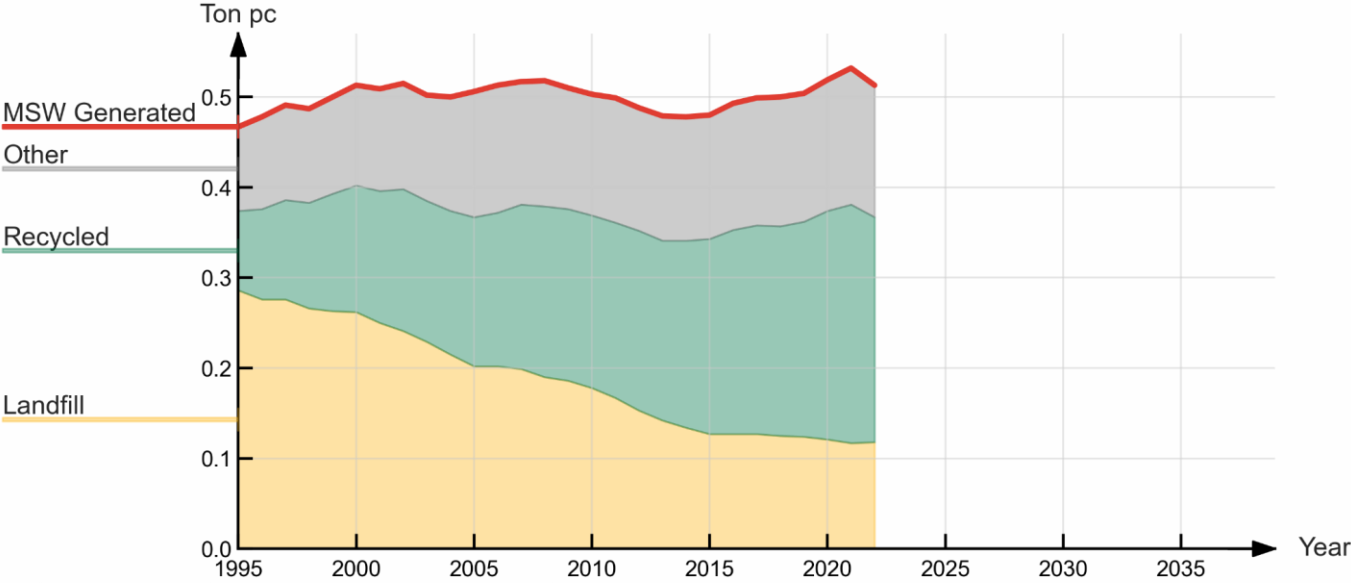
# MSW in the EU: History & Present



Data Source: Eurostat, 03/09/2024



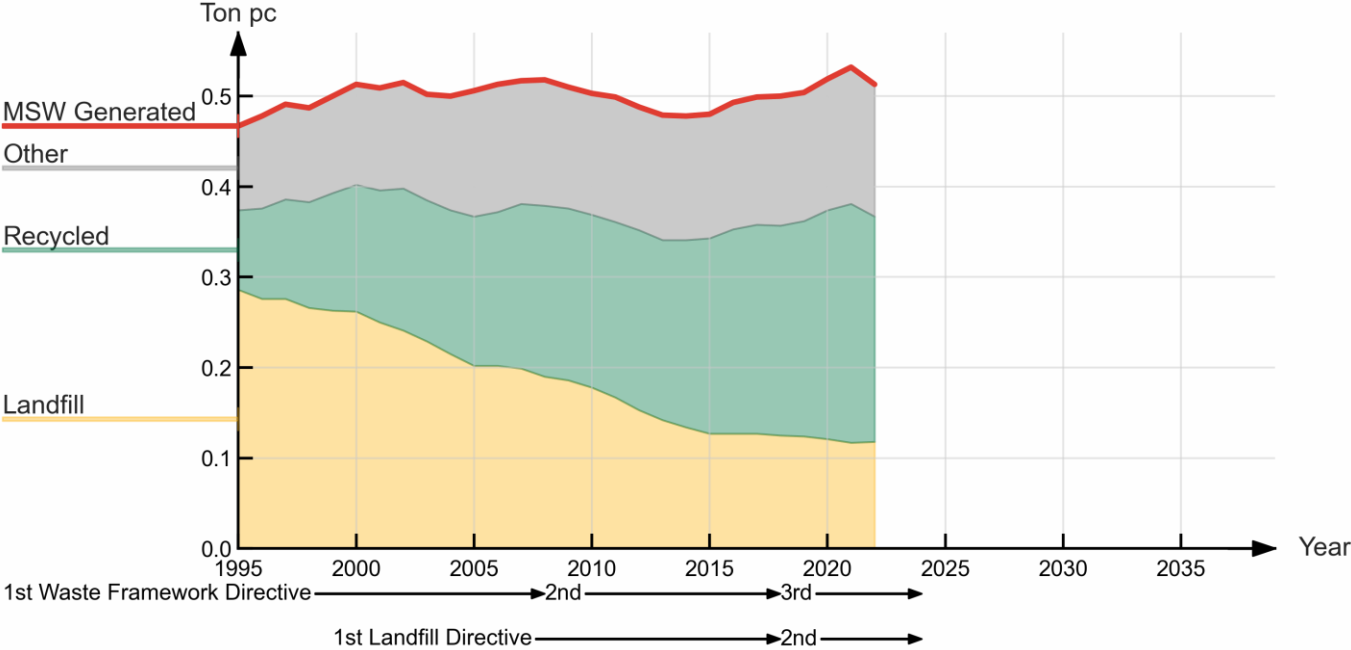
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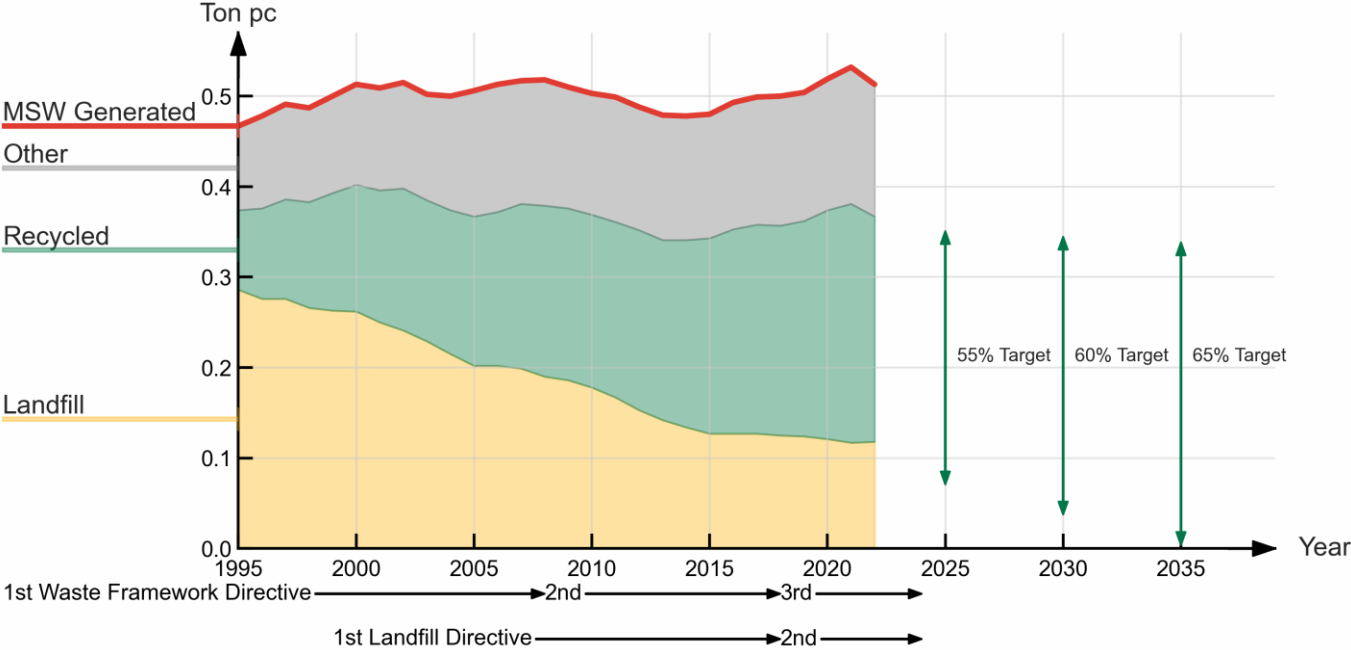
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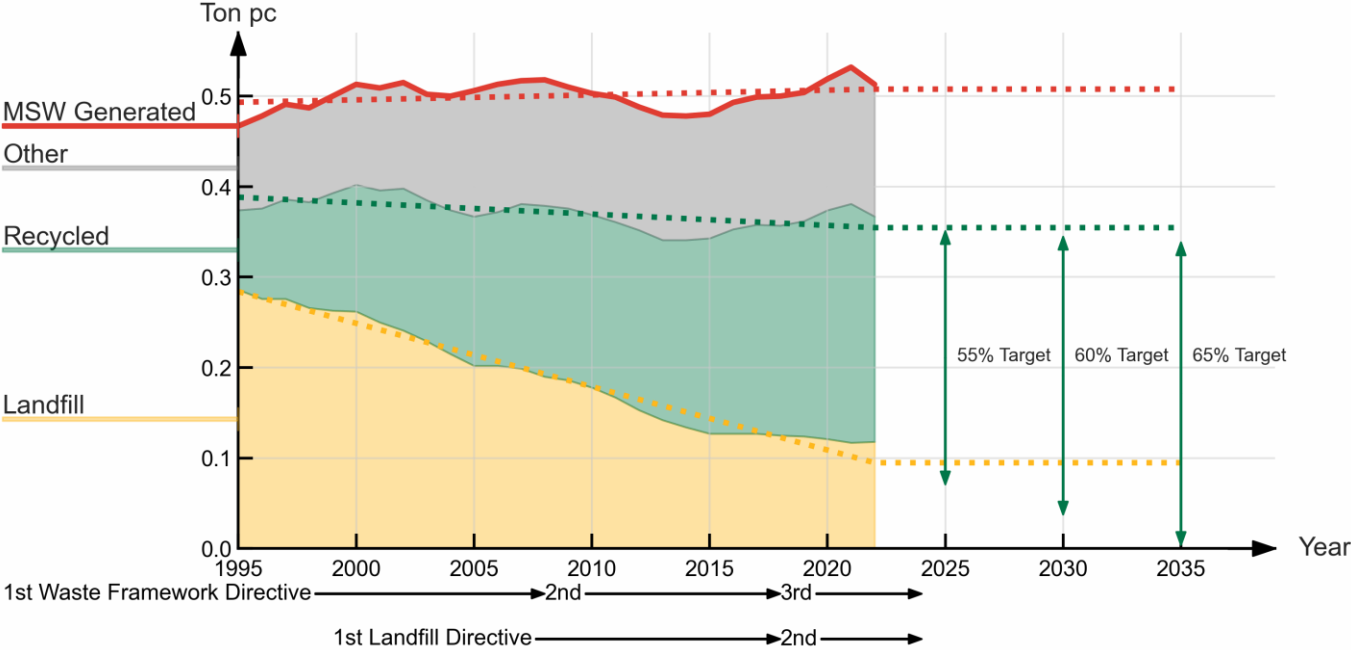


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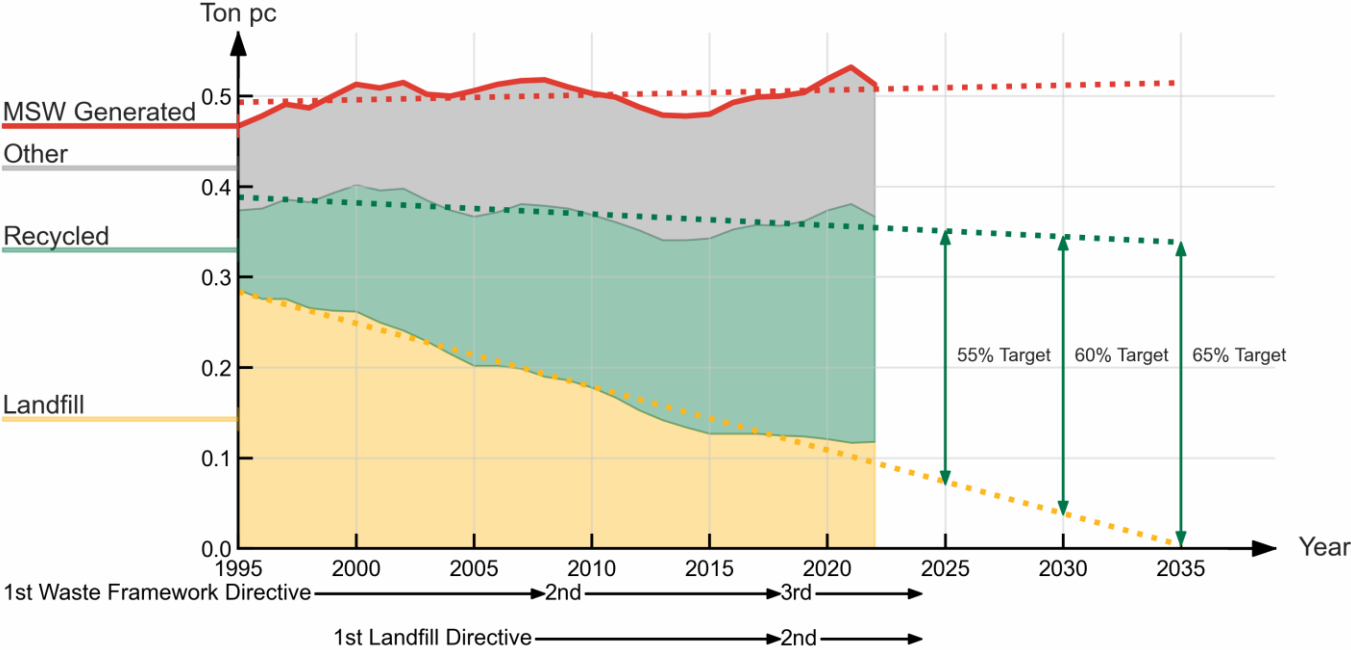
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# Present Monitoring and Guidance Practice

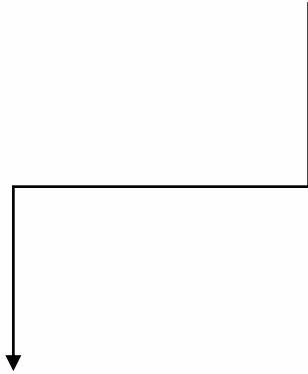
## Country profile

Early warning assessment related to the 2025 targets for municipal waste and packaging waste



European Environment Agency 

# Present Monitoring and Guidance Practice

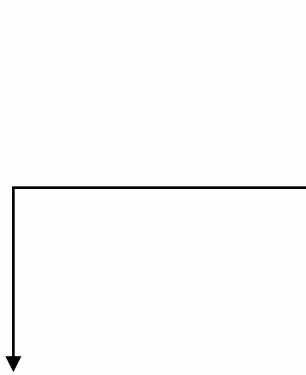


## Data submitted by the Member States via:

- Eurostat, and
- Questionnaire



# Present Monitoring and Guidance Practice



## Data submitted by the Member States via:

- Eurostat, and
- Questionnaire

	Austria	Belgium	Bulgaria	Croatia	Cyprus
Recycling rate	Green	Yellow	Red	Red	Red
Recycling rate trend	Yellow	Red	Red	Yellow	Red
Pay-as-you-throw	Red	Red	Yellow	Red	Yellow
Separate collection systems	Yellow	Yellow	Yellow	Green	Yellow
Taxes/ban on landfill	Green	Green	Green	Yellow	Red



# Present Monitoring and Guidance Practice






## Data submitted by the Member States via:

- Eurostat, and
- Questionnaire

	Austria	Belgium	Bulgaria	Croatia	Cyprus
Recycling rate	Favorable	Uncertain	Unfavorable	Unfavorable	Unfavorable
Recycling rate trend	Uncertain	Unfavorable	Unfavorable	Uncertain	Unfavorable
Pay-as-you-throw	Unfavorable	Unfavorable	Uncertain	Uncertain	Uncertain
Separate collection systems	Uncertain	Uncertain	Uncertain	Favorable	Uncertain
Taxes/ban on landfill	Favorable	Favorable	Favorable	Uncertain	Unfavorable

## Each indicator value is categorized into:

- Favorable 
- Uncertain 
- Unfavorable 

# Present Guidance Practice

- Foregoes connections of indicators and countries.
- Erases nuance of numerical indicators and historical trend.
- Does not take advantage of full information provided by monitoring data.



# Present Monitoring and Guidance Practice

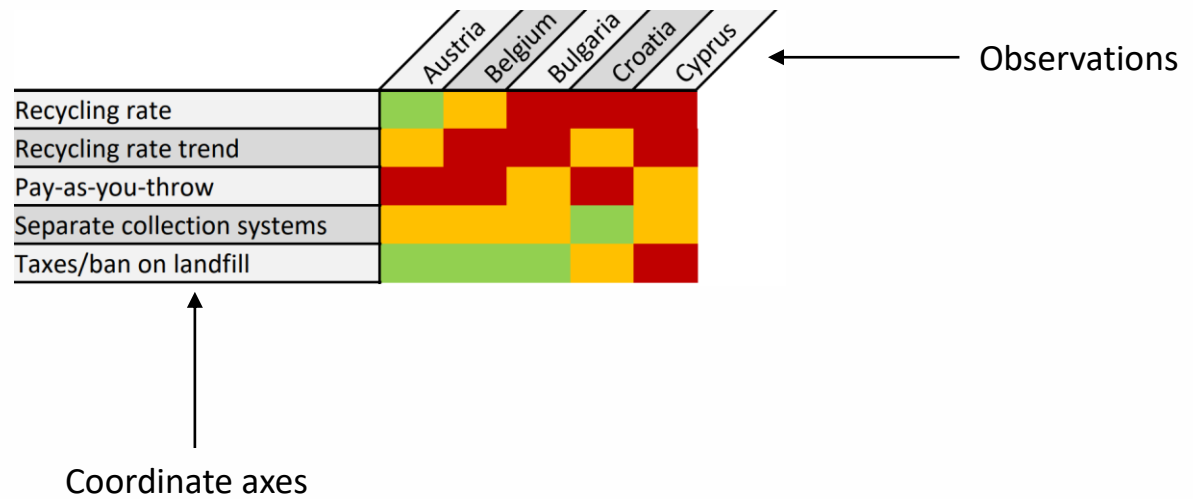
- Missing connections of indicators and countries.
- Erases nuance of numerical indicators.
- States what managements practices to improve, but not how it could be done.



Advance present guidance through:

- 1) Multivariate Analysis
- 2) Productivity Analysis

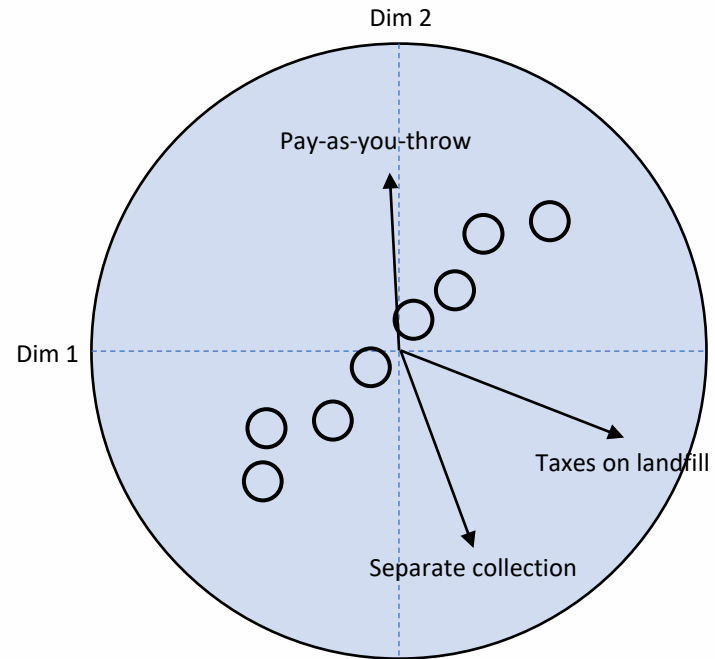
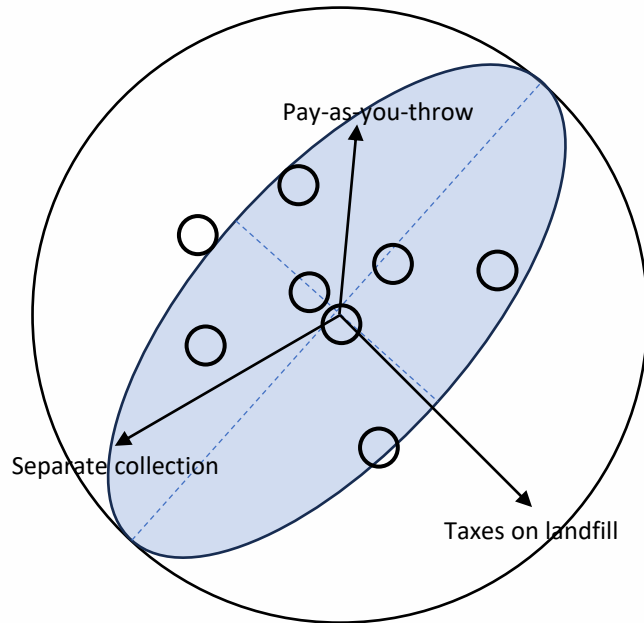
# 1) Multivariate Analysis



Data Source: Eurostat, 03/09/2024



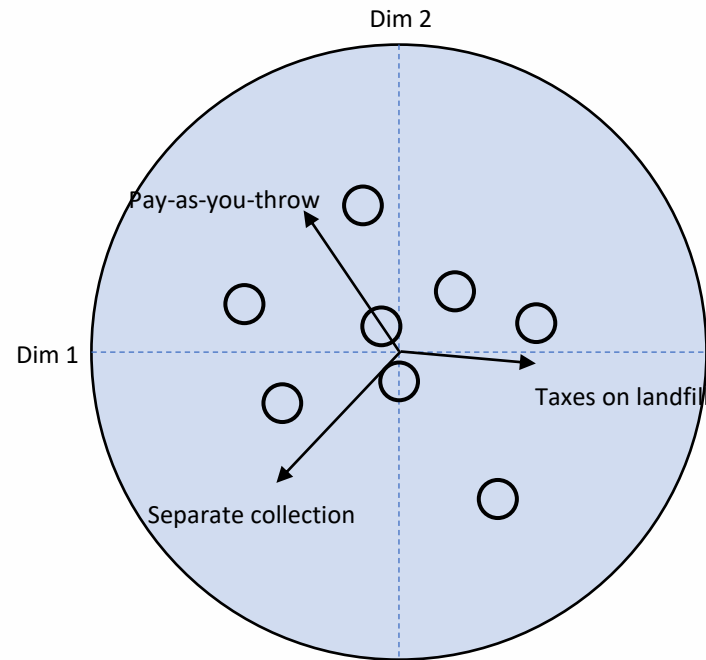
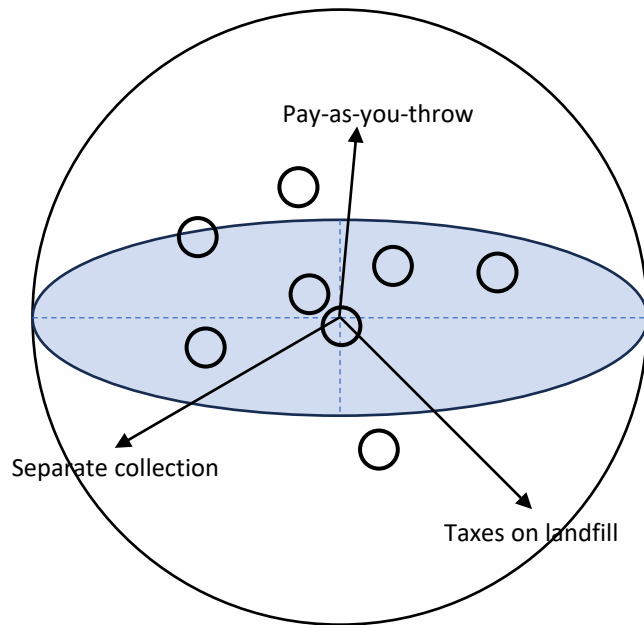
# 1) Multivariate Analysis



a) N-dimensional space, spanned by N policy indicators.

b) Projection onto two dimension.

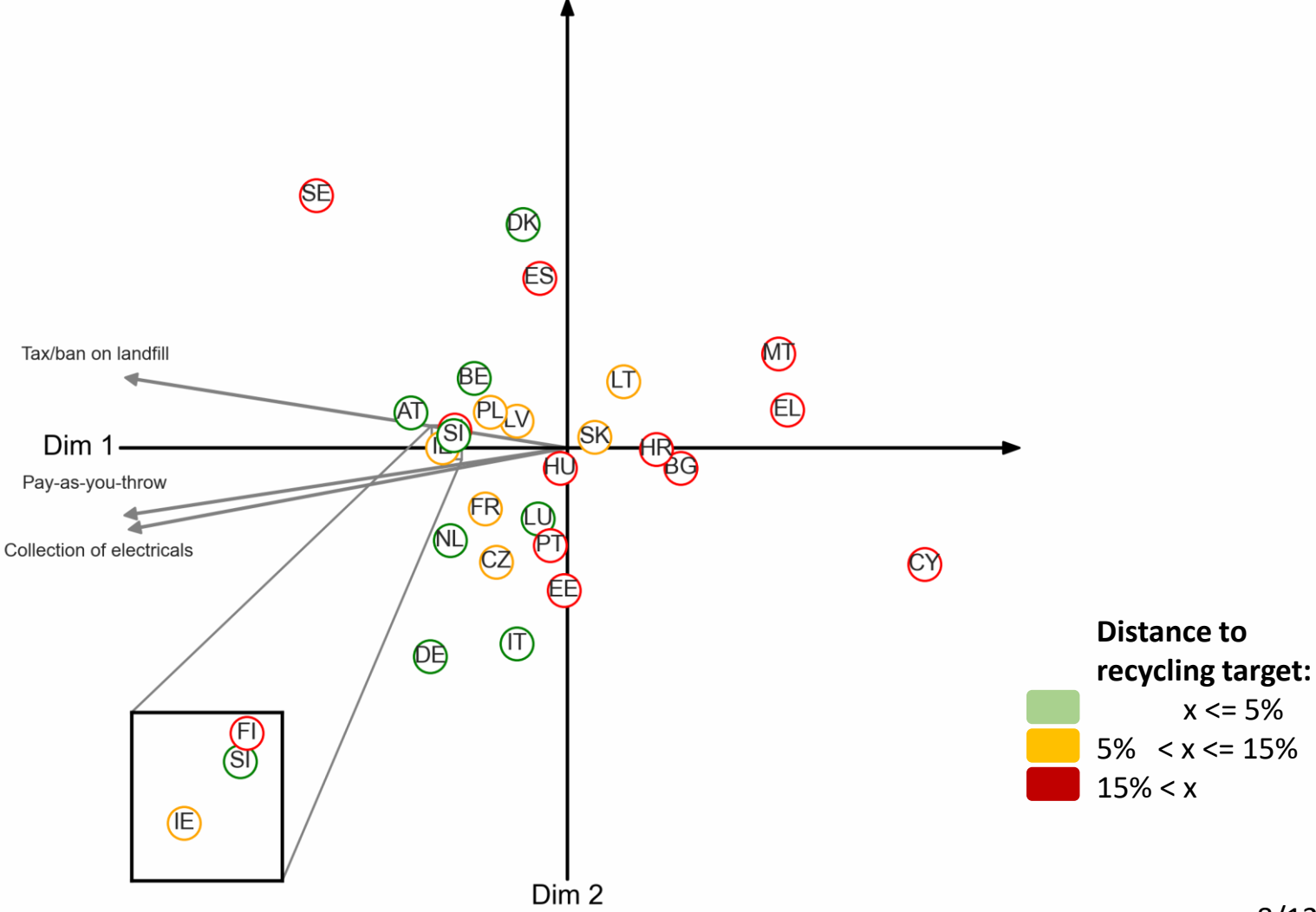
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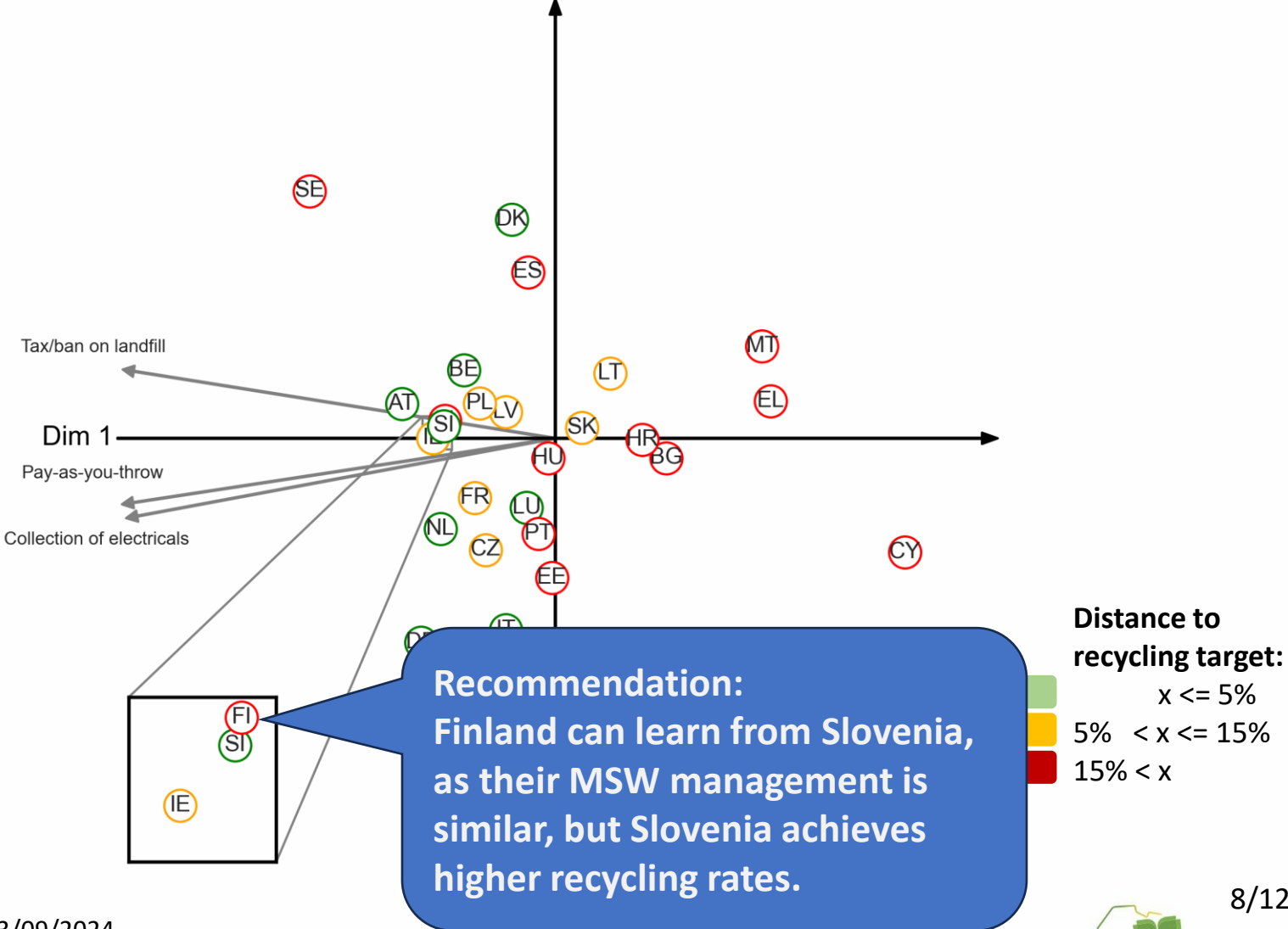
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# 1) Multivariate Analysis



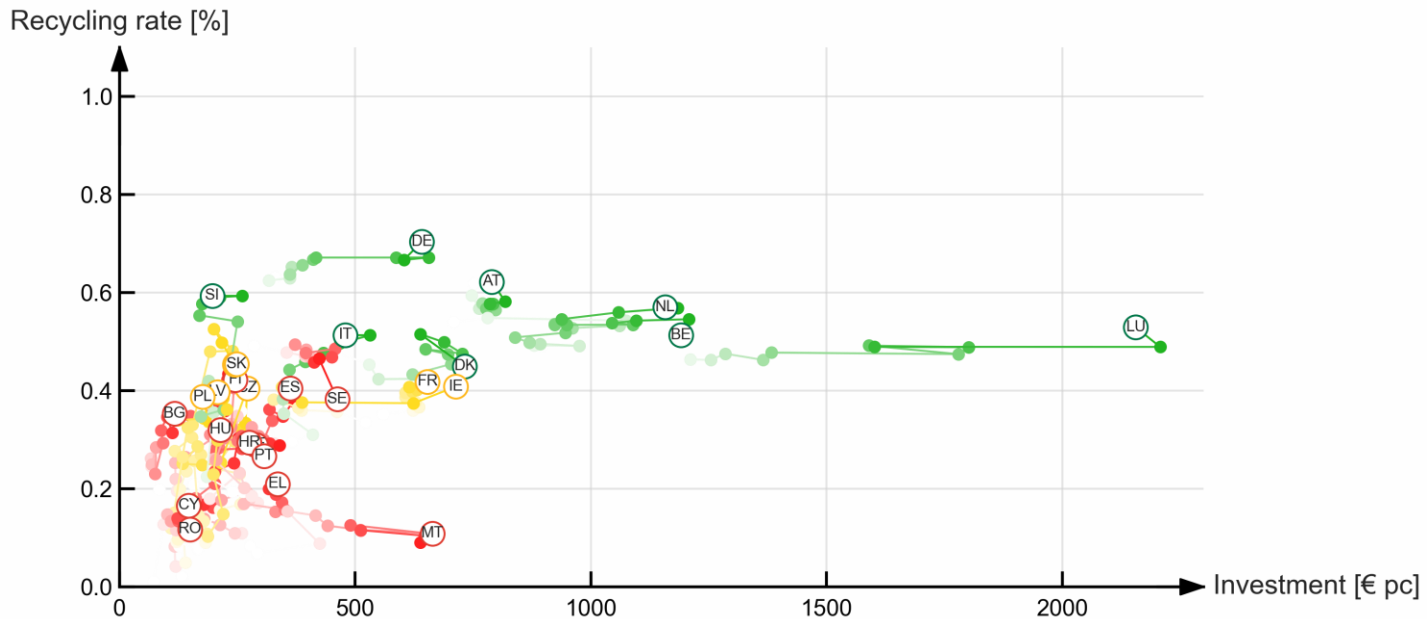
Data Source: Eurostat, 03/09/2024



# 2) Productivity Analysis

Distance to recycling target:

- $x \leq 5\%$
- $5\% < x \leq 15\%$
- $15\% < x$

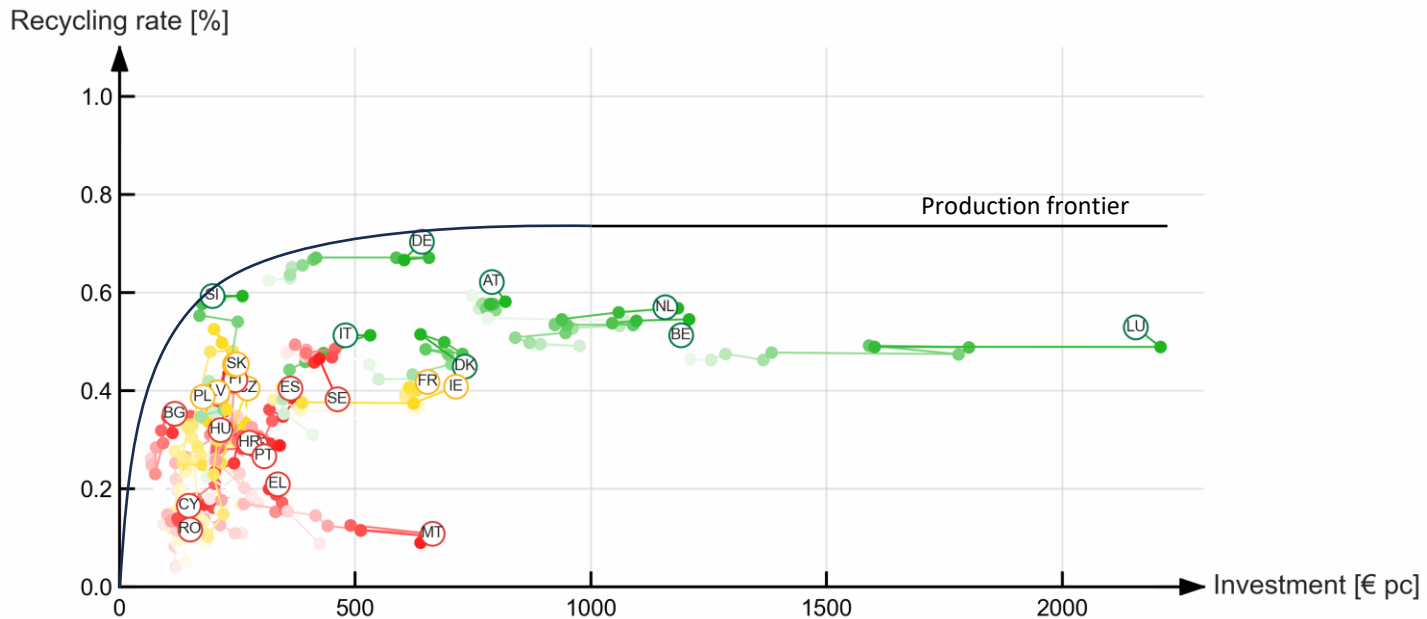


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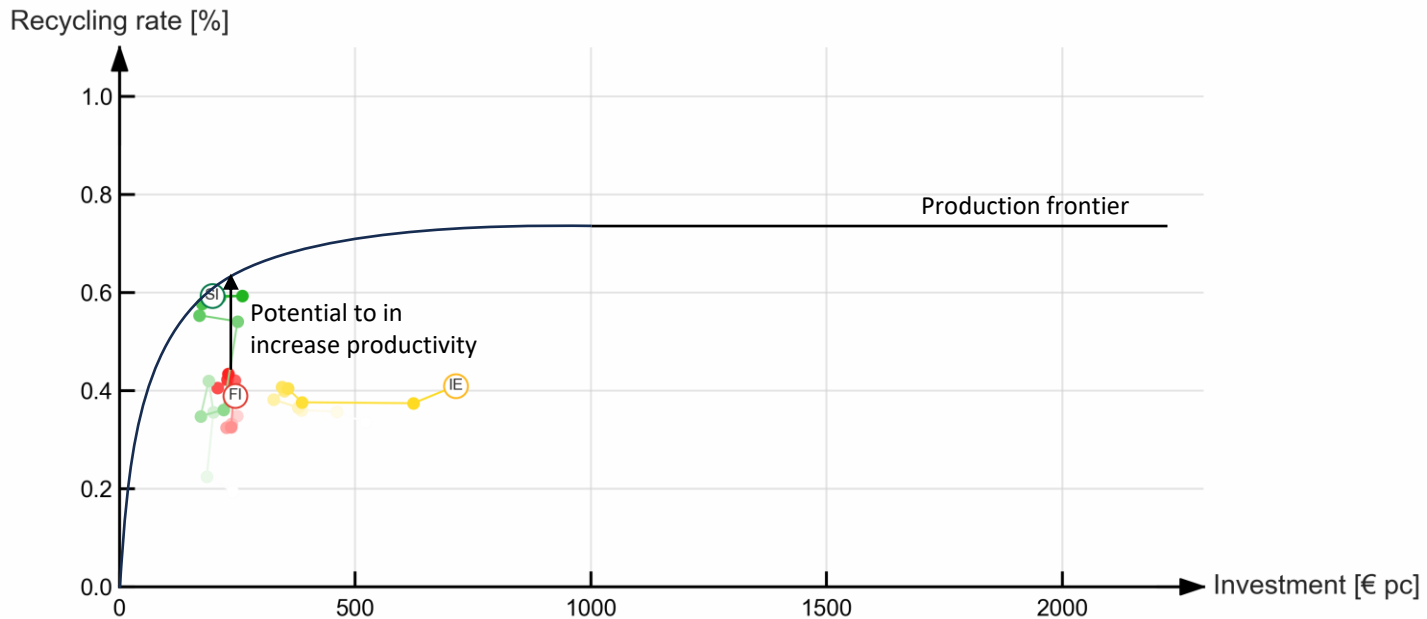
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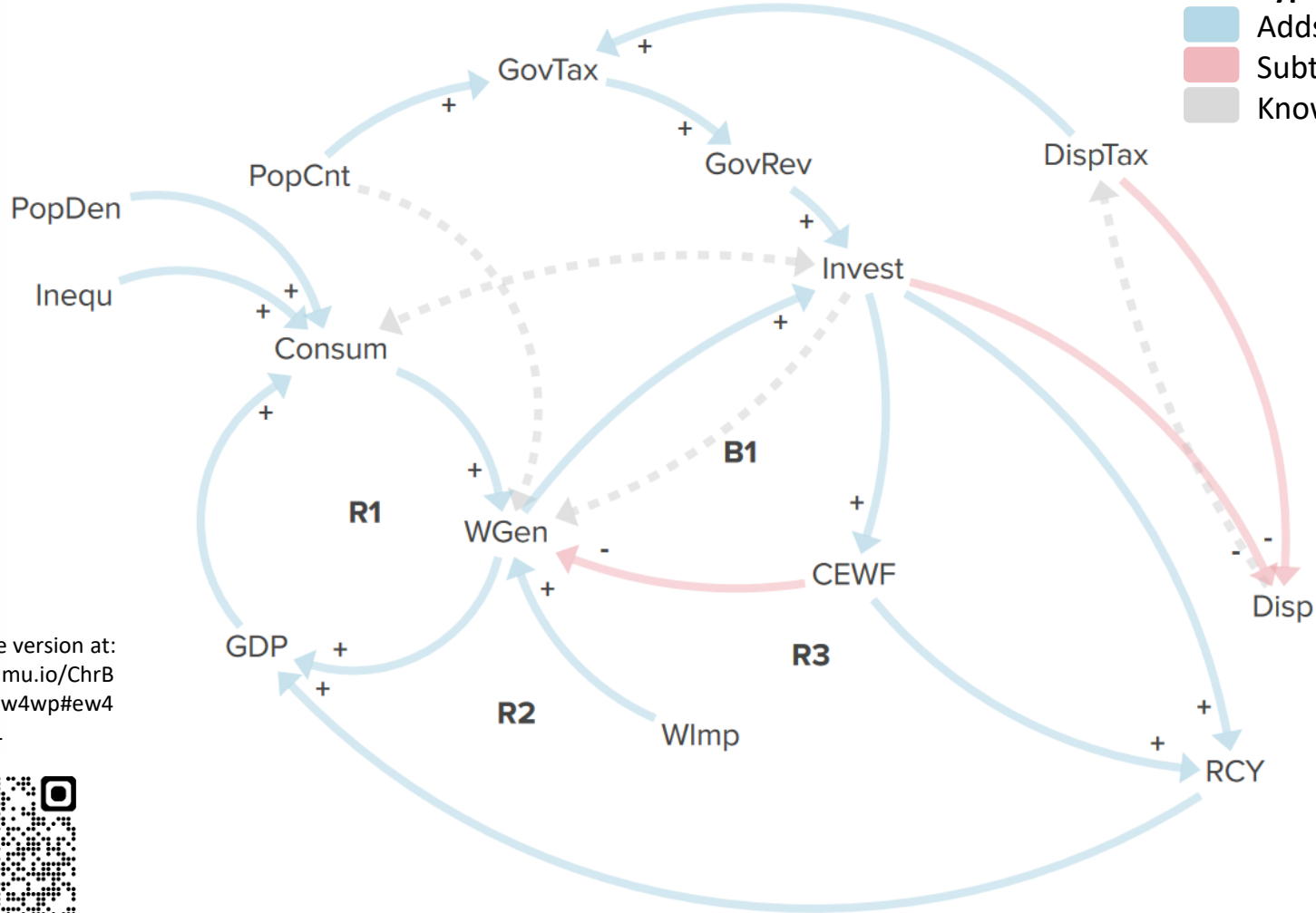


Data Source: Eurostat, 03/09/2024



# 2) Productivity Analysis

**Type of relation:**  
→ Adds to  
→ Subtracts from  
→ Known to be absent

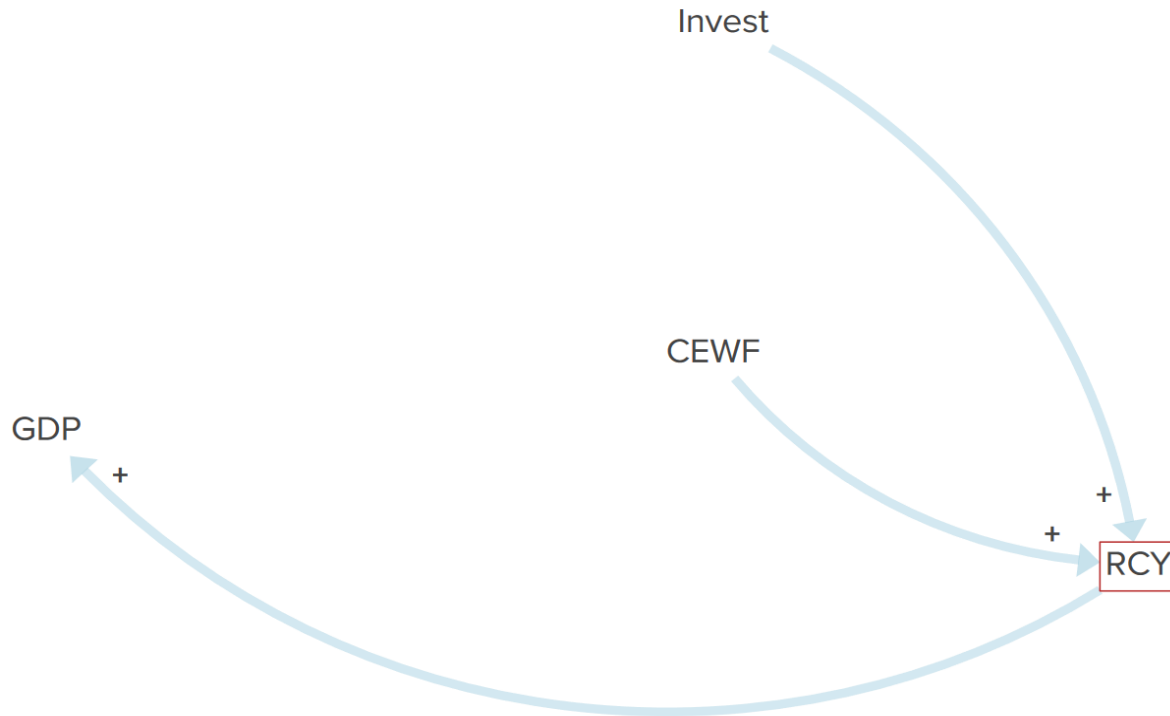


Interactive version at:  
<https://kumu.io/ChrBecker01/ew4wp#ew4wp2024v1>



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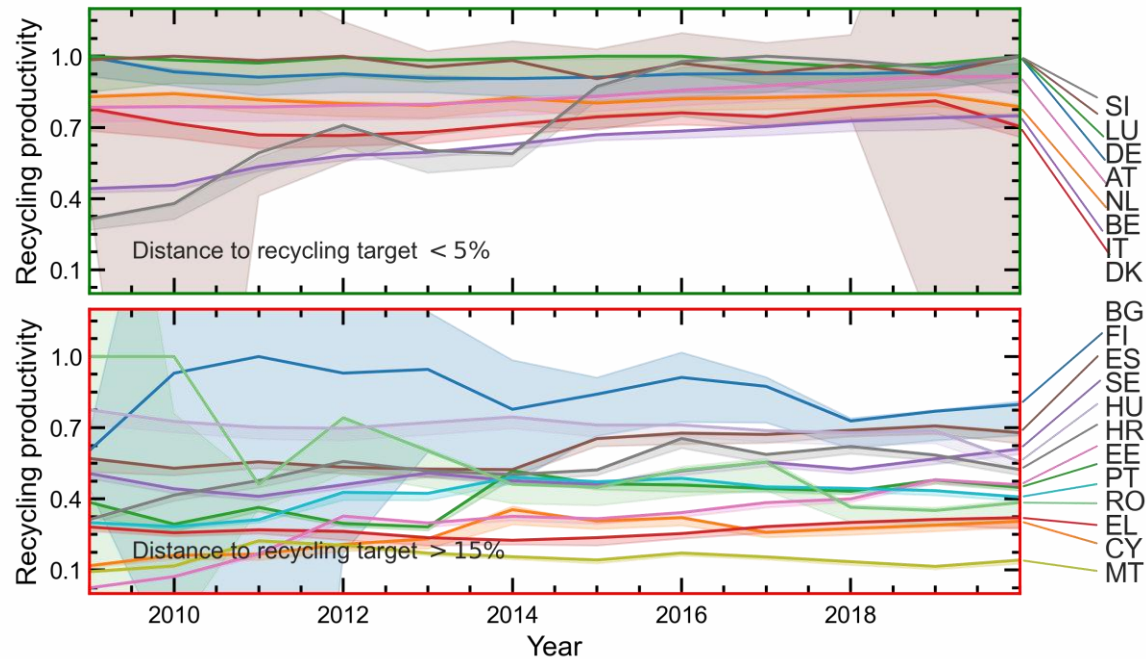
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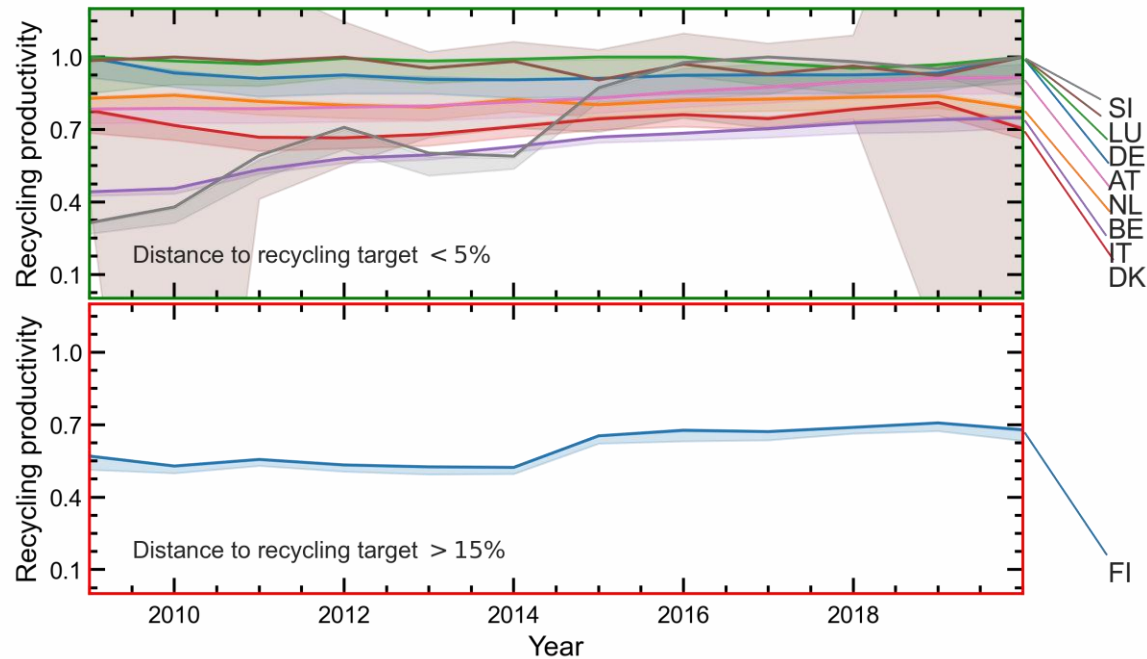


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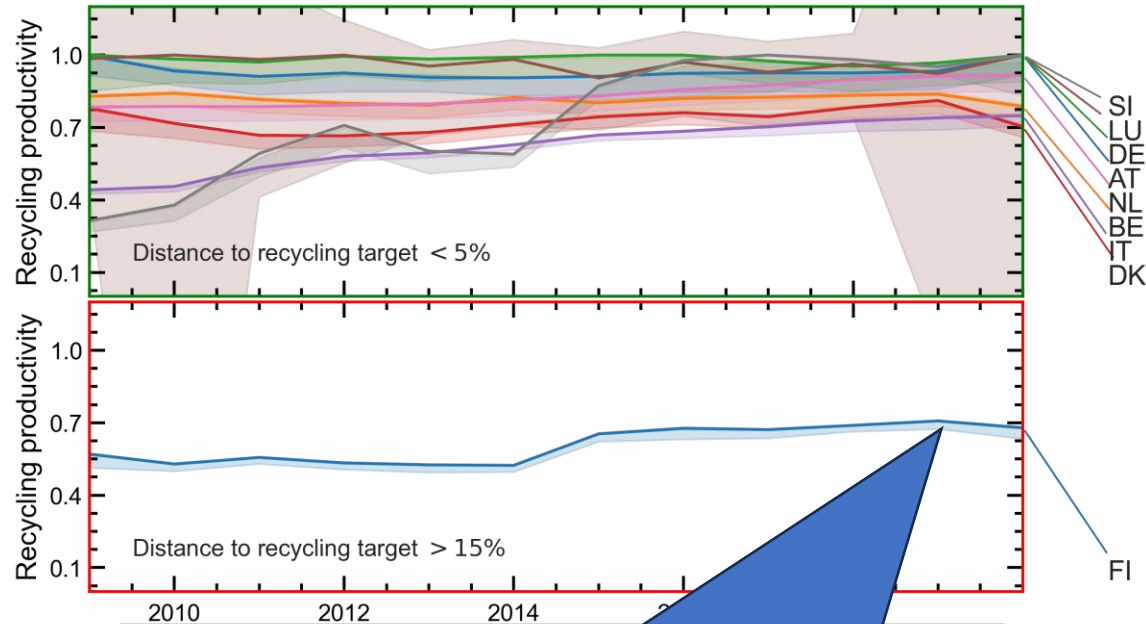
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Data Source: Eurostat, 03/09/2024

## 2) Productivity Analysis



### Recommendation:

Stagnant recycling productivity is indicative of technological lock-in. As the city of Göteborg faced a similar situation [1], it could hold the answer for a way out.

# Conclusions

- Shortcomings of present guidance practices are:
  - Foregoes connections of indicators and countries.
  - Erases nuance of numerical indicators and historical trend.
  - Does not take advantage of full information provided by monitoring data.
- Can be improved via:
  - Multivariate analysis to identify similarities between Member States.
  - Productivity analysis to reveal potential improvement of recycling rate at fixed investment and employment rate.

# Thank You!

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