

On the Operational Definition of Homogeneous Products in Transaction data

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Outline

Homogeneous vs heterogeneous products

Recent case studies

Coffee

Dental services



Homogeneous products

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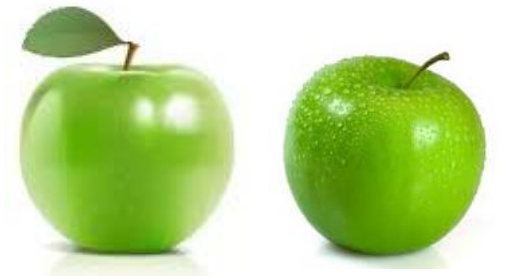


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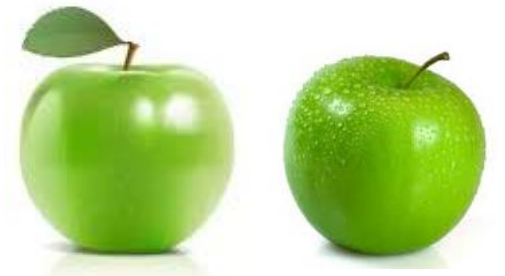
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Heterogeneous products should be treated according to the principles of index number theory



Homogeneous products in transaction (scanner) data

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Homogeneous product (HP)

=

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Sweden currently - some examples:

Most daily necessities: [GTIN x Outlet]

Medicines: [Item-specific codes]

Train tickets: [Weekday x Time interval x Adult/Youth x Destination]

Case studies

→ Subindex for Coffee prices

→ Subindex for Dental service prices

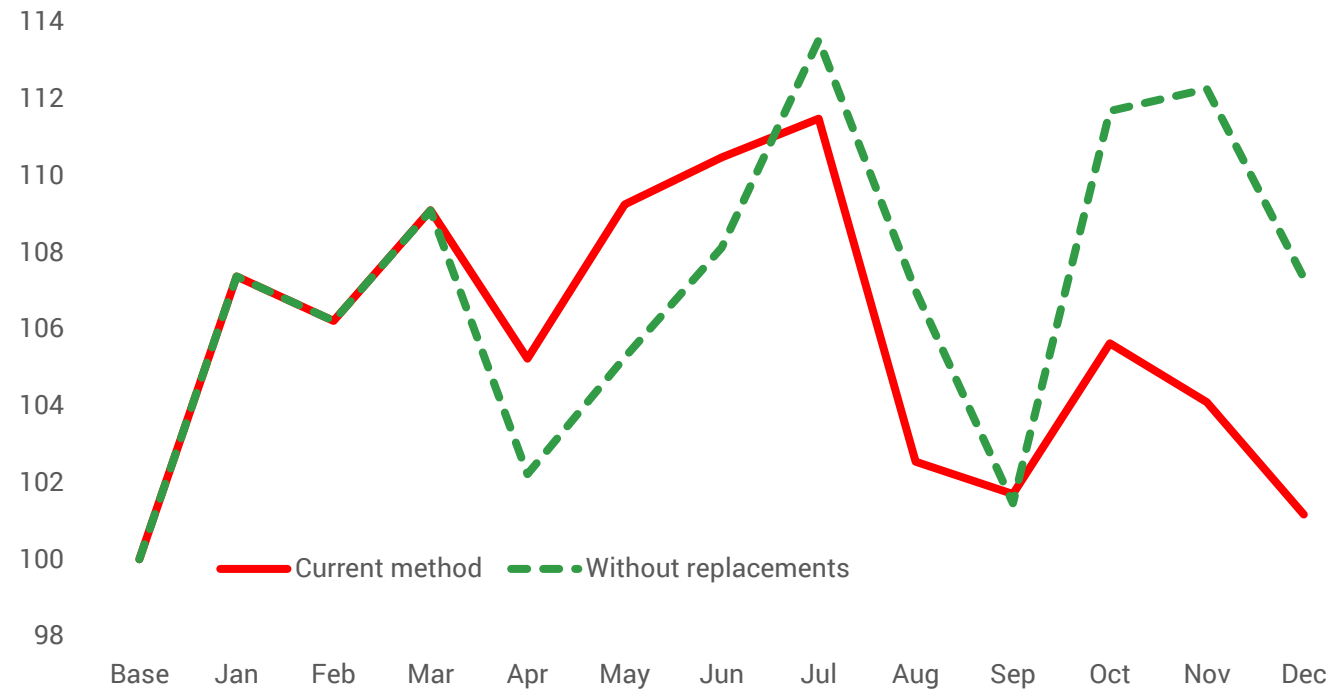
Homogeneous products - Coffee

In 2017 – a lot of manual replacements were made for coffee products



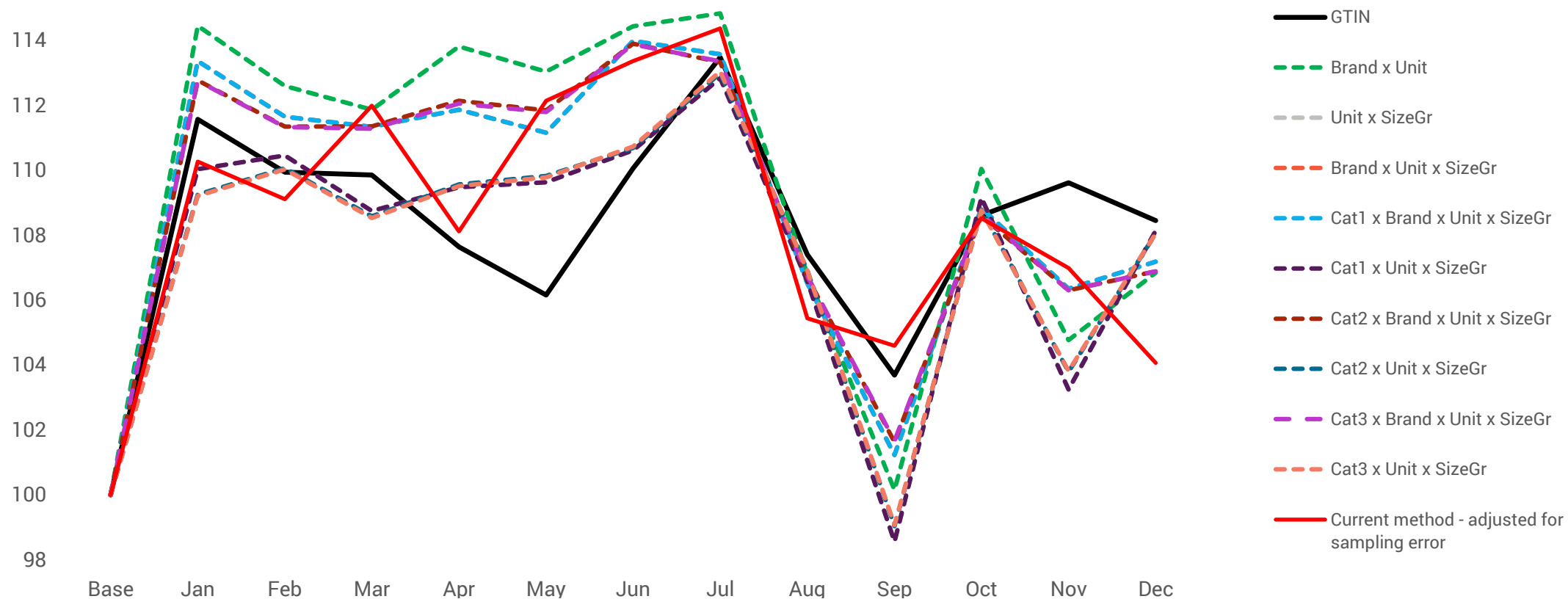
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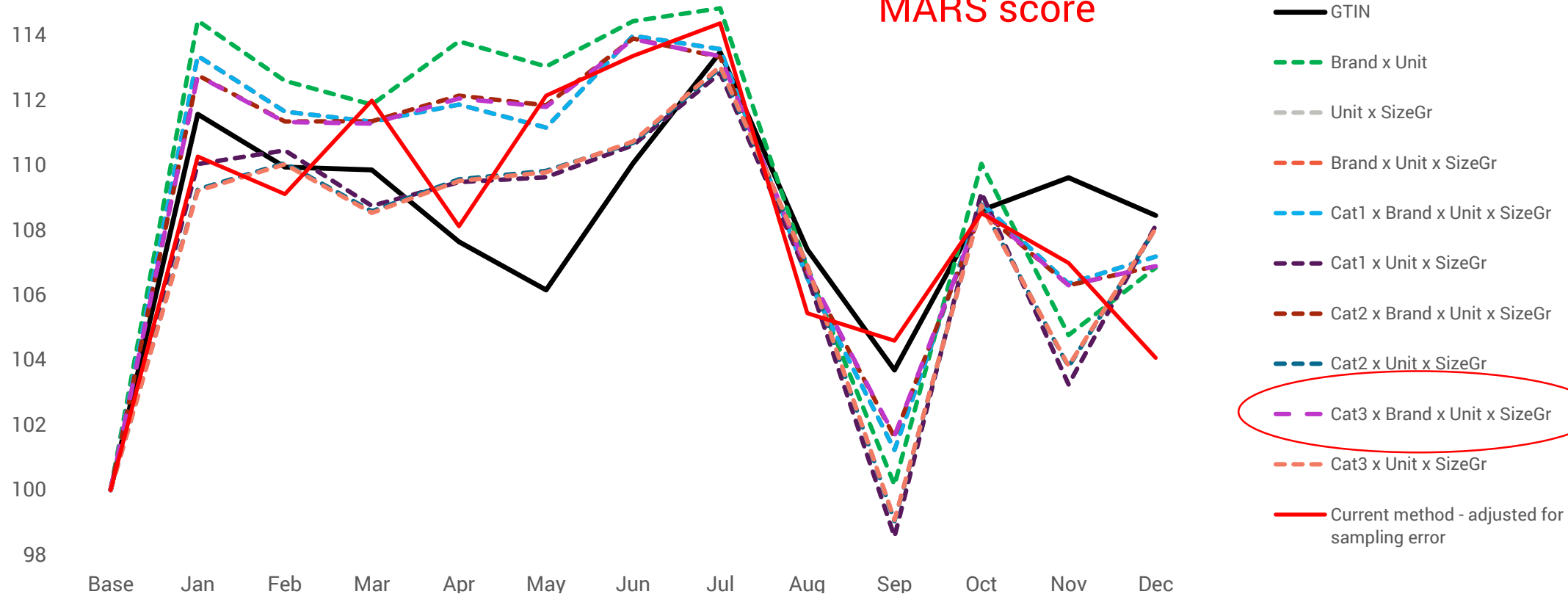
Indices using different HP specifications



Homogeneous products - Coffee

Indices using different HP specifications

Top HP-definition
with respect to the
MARS score



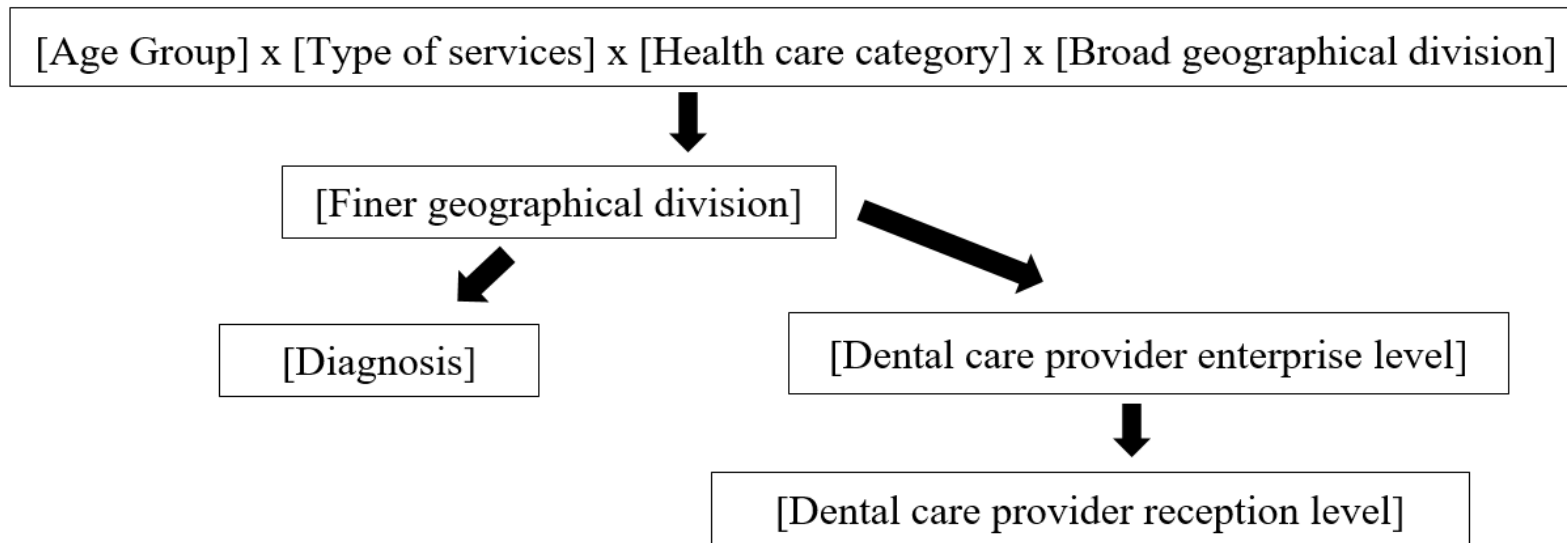
Homogeneous products – Dental services

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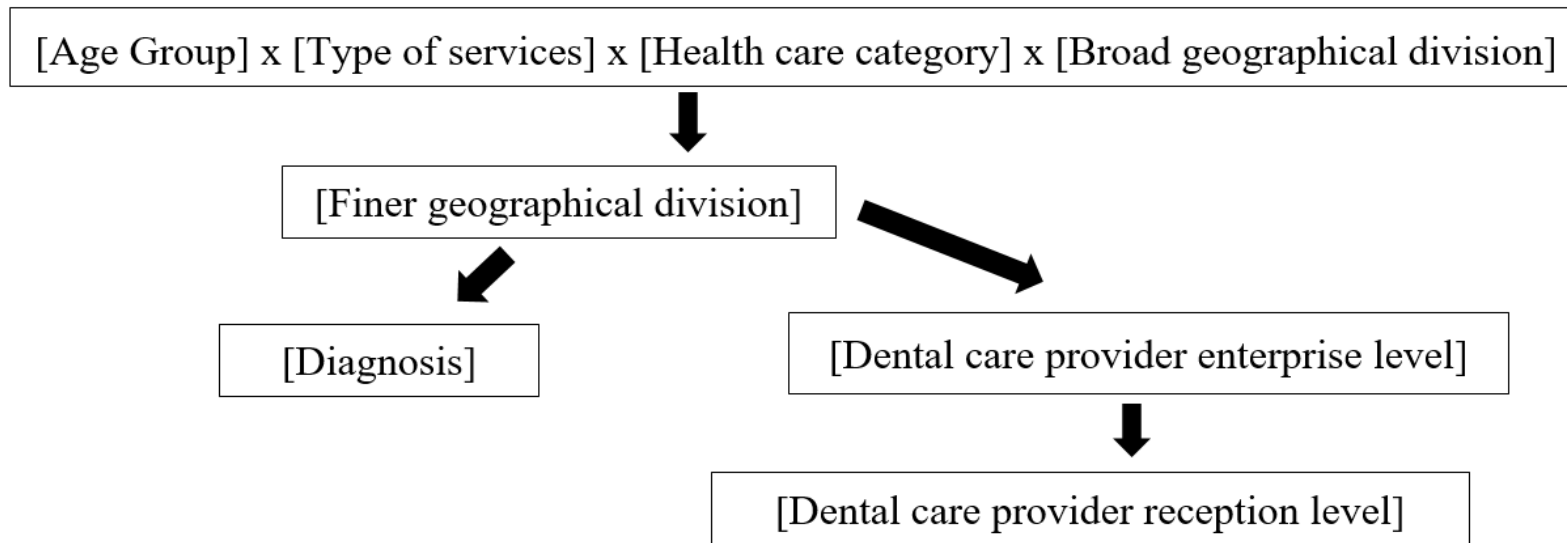
Data from the Social Insurance Agency, including:

- Actual transaction prices (including effect of subsidies)
- List prices as set by the dental care providers
- Information on the dental service provider (private/public, enterprise, reception, dentist-Id)
- Patients age + Additional information (type of service, tooth position, diagnosis)

Homogeneous products – Dental services



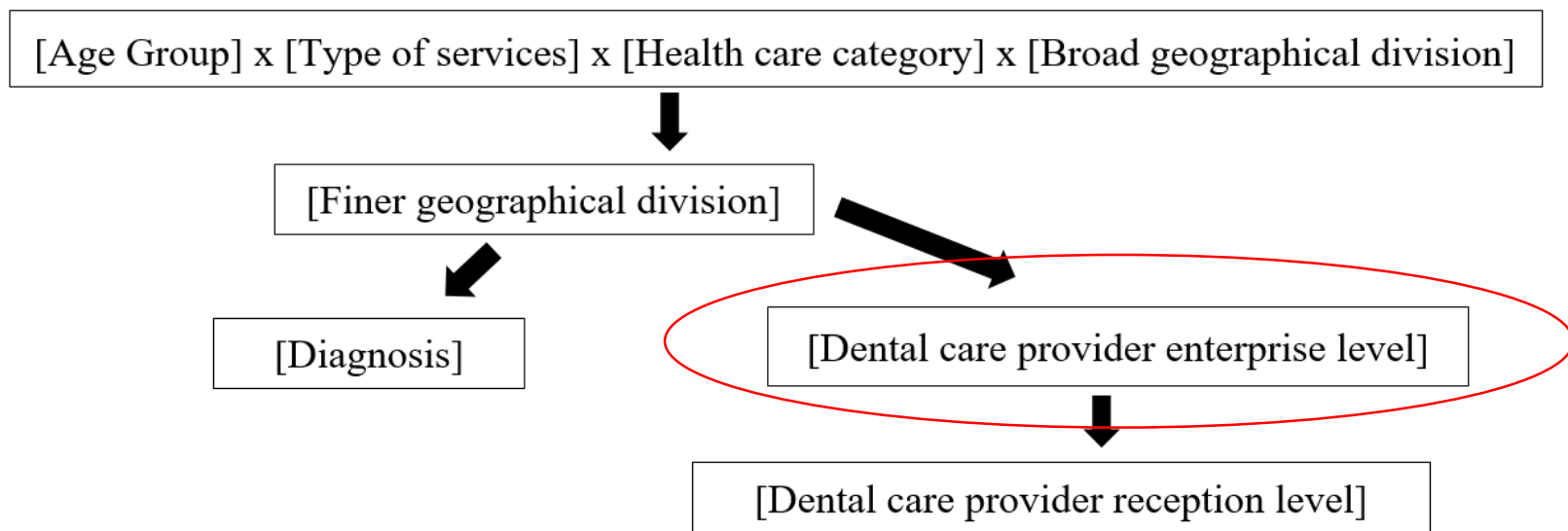
Homogeneous products – Dental services



In each step, a condition was set w.r.t. **number of yearly visits** and the **coefficient of variation** within a particular group

If condition fulfilled → Subdivision is performed for the whole group (symmetric treatment)

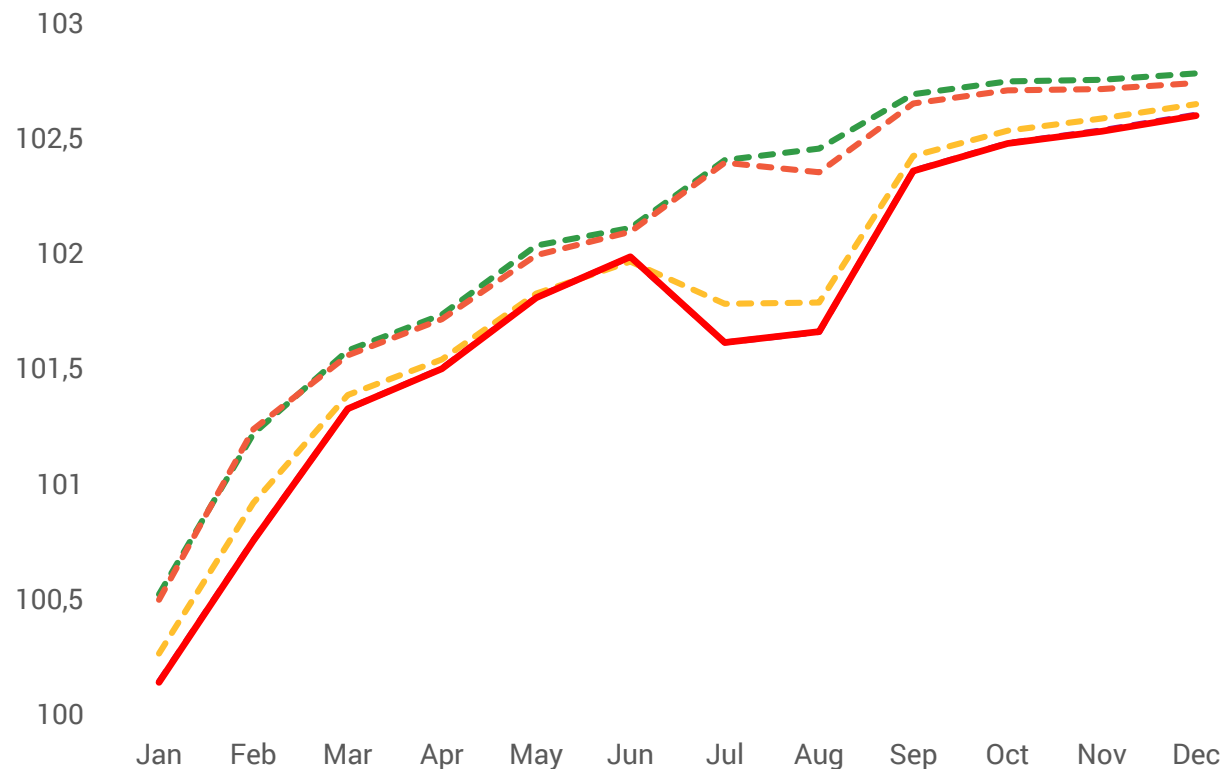
Homogeneous products – Dental services



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Homogeneous products – Dental services



Top 4 HP-definitions with
respect to MARS score

Index based on Dental care
provider's list prices

Preliminary conclusions

Services different from goods - MARS could be useful for both

Relaunches are important – but also important not to mix items which are not truly homogeneous

Application of MARS on seasonal products deserves further investigation



An aerial photograph of a dense forest with a winding road. The road is a light-colored, unpaved path that curves through the center of the image, separating two sections of the forest. The trees are mostly evergreens, with some deciduous trees showing early autumn colors. The lighting is bright, creating high contrast between the dark green of the trees and the light color of the road.

Thank you!

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