



QUANTIFYING RISK, ENABLING OPPORTUNITY

## ITAP inflation measurement

Christoff Raath  
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# Purpose

To understand the inflationary claims components that drive **medical scheme contribution increases**

## Demand-side

- Plan mix (option selection)
- Demographic changes

## Supply-side

- New technologies
- Changes in provider behaviour
- Changes in medical practice

Not yet included in analysis: Non-health, reserve building

# Elements of inflation

## Various interpretations depending on purpose

### Medical scheme contribution increases

- Tariff increases (unit cost)
- Utilisation
  - Demographic changes
  - Plan mix (option selection)
  - Any remaining / residual increases such as
    - Technology
    - PMB scope or definitional creep
    - Behavioural change of members and/or providers
    - Other supply-side effects

# Inflation model

Plan reweighting (“plan mix”)

Demographic impact

- Scheme Risk Measurement weighting tables published by CMS
- Age+chronic+maternity and age-only

Tariffs

Unexplained – “residual impact” or supply-side factors

# The importance of plan reweighting

## We need to explain contribution increases experienced by members

- A common criticism: contribution increases >> claims on a PLPM level
- Self-sustaining s33(2)(b) requirement: pricing happens on an option level
- Evident even if **no** demographic changes occurred
  
- Disregarding plan reweighting leaves us unable to talk about one of the most important drivers of contribution increases
  
- Open schemes – roughly 2.5%
- Restricted schemes – rapidly increasing and approaching 2%

# Plan reweighting

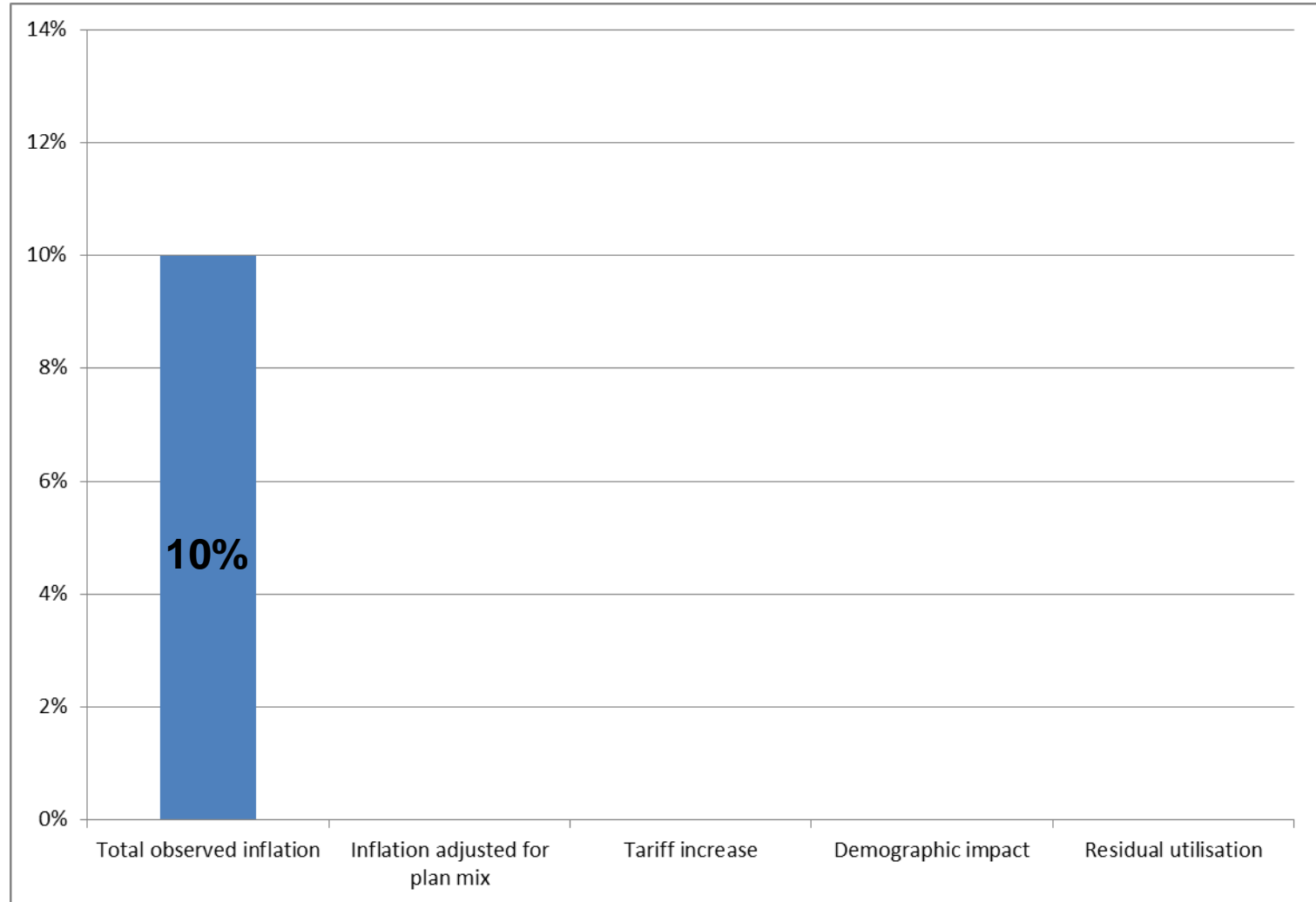


# Option mix impact illustration

|          | Membership |        | Total claims |             | PLPM claims |          | Increase |
|----------|------------|--------|--------------|-------------|-------------|----------|----------|
|          | 2014       | 2015   | 2014         | 2015        | 2014        | 2015     |          |
| Option 1 | 9 671      | 11 328 | 139 262 400  | 179 435 520 | 1 200.00    | 1 320.00 | 10.00%   |
| Option 2 | 7 018      | 8 068  | 109 480 800  | 138 446 880 | 1 300.00    | 1 430.00 | 10.00%   |
| Option 3 | 8 023      | 9 269  | 134 786 400  | 171 291 120 | 1 400.00    | 1 540.00 | 10.00%   |
| Option 4 | 908        | 700    | 16 344 000   | 13 860 000  | 1 500.00    | 1 650.00 | 10.00%   |
| Option 5 | 24 065     | 20 568 | 490 926 000  | 461 545 920 | 1 700.00    | 1 870.00 | 10.00%   |
|          | 51 699     | 51 948 | 890 801 614  | 964 581 455 | 1 435.87    | 1 547.35 | 7.76%    |

|   |          |
|---|----------|
| Observed increase in PLPM claims        | 7.76%    |
| 2014 claims weighted by 2015 exposure   | 1 406.68 |
| 2014 claims weighted by 2014 exposure   | 1 435.87 |
| Option mix effect                       | 2.08%    |
| Increase inclusive of option mix effect | 10.00%   |

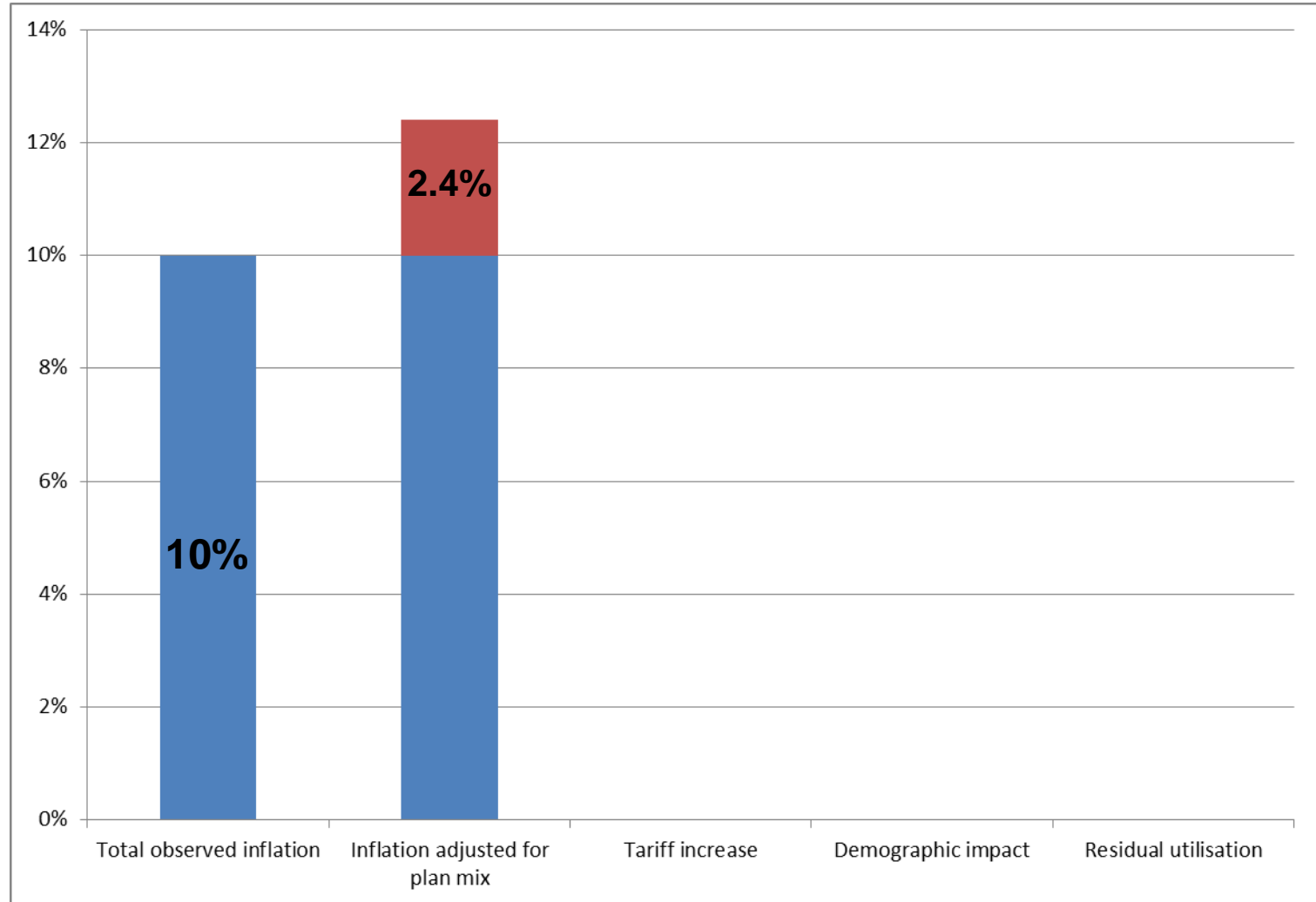
# Inflation model



Values shown are for illustrative purposes only

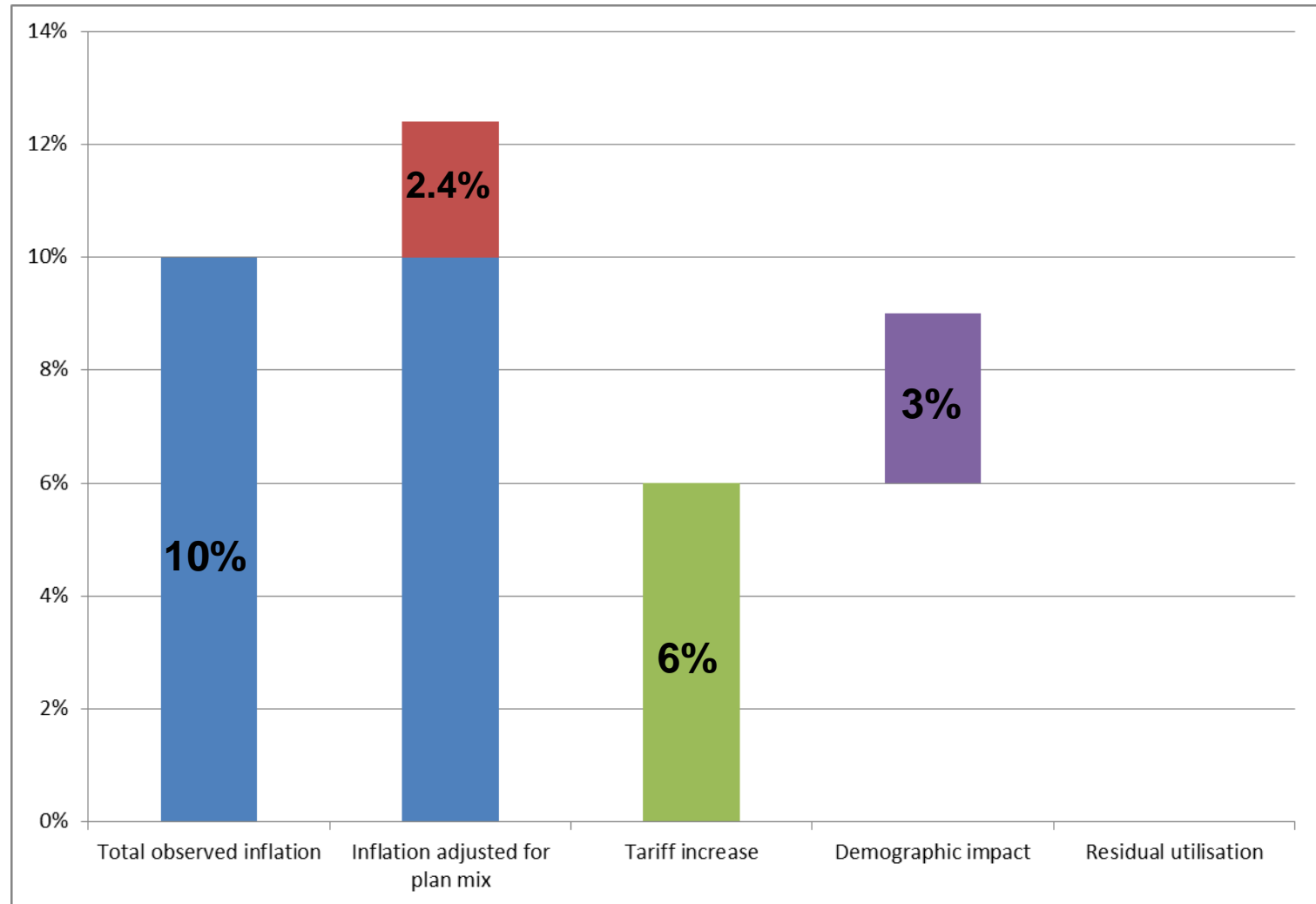


# Inflation model



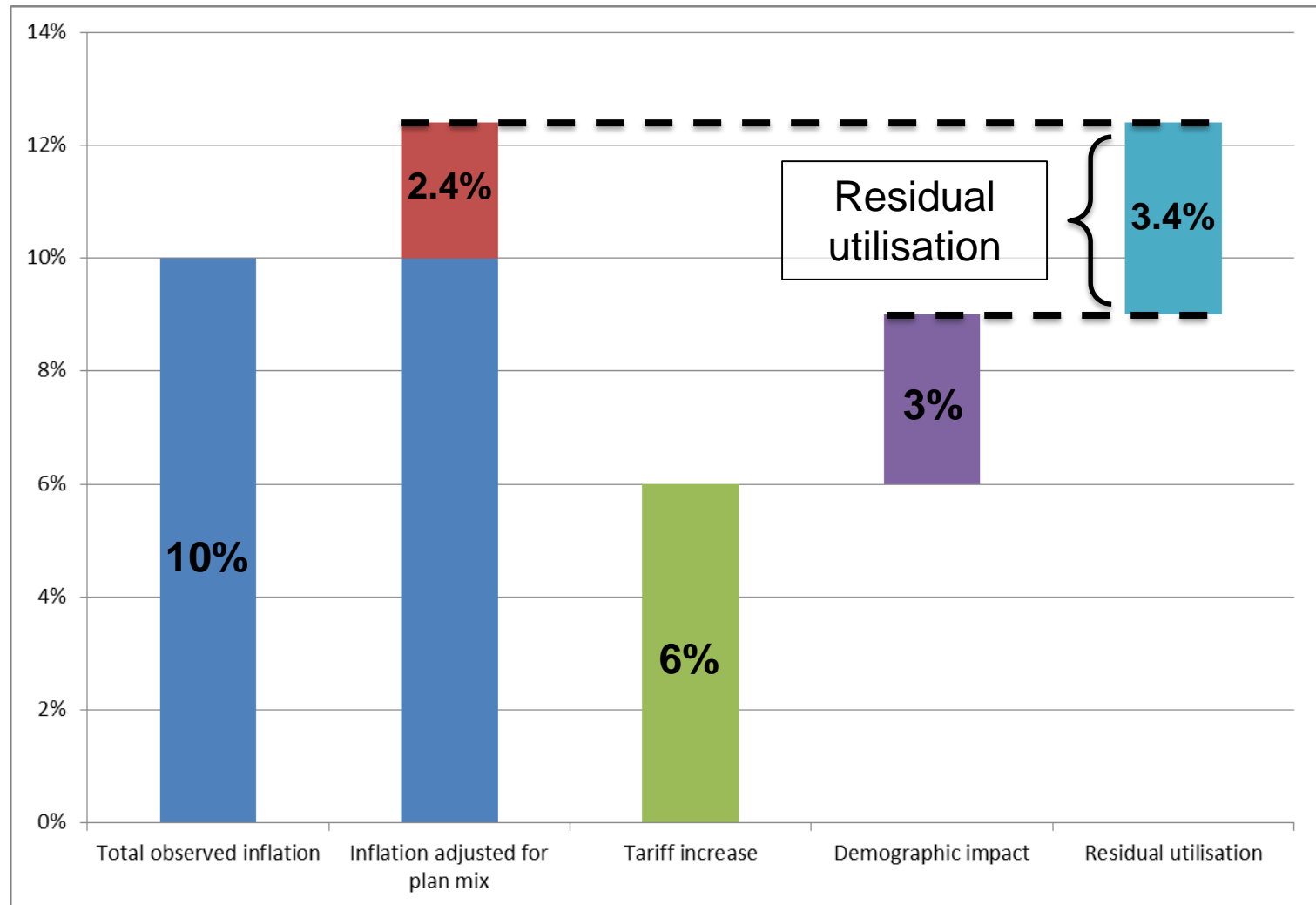
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# Inflation model



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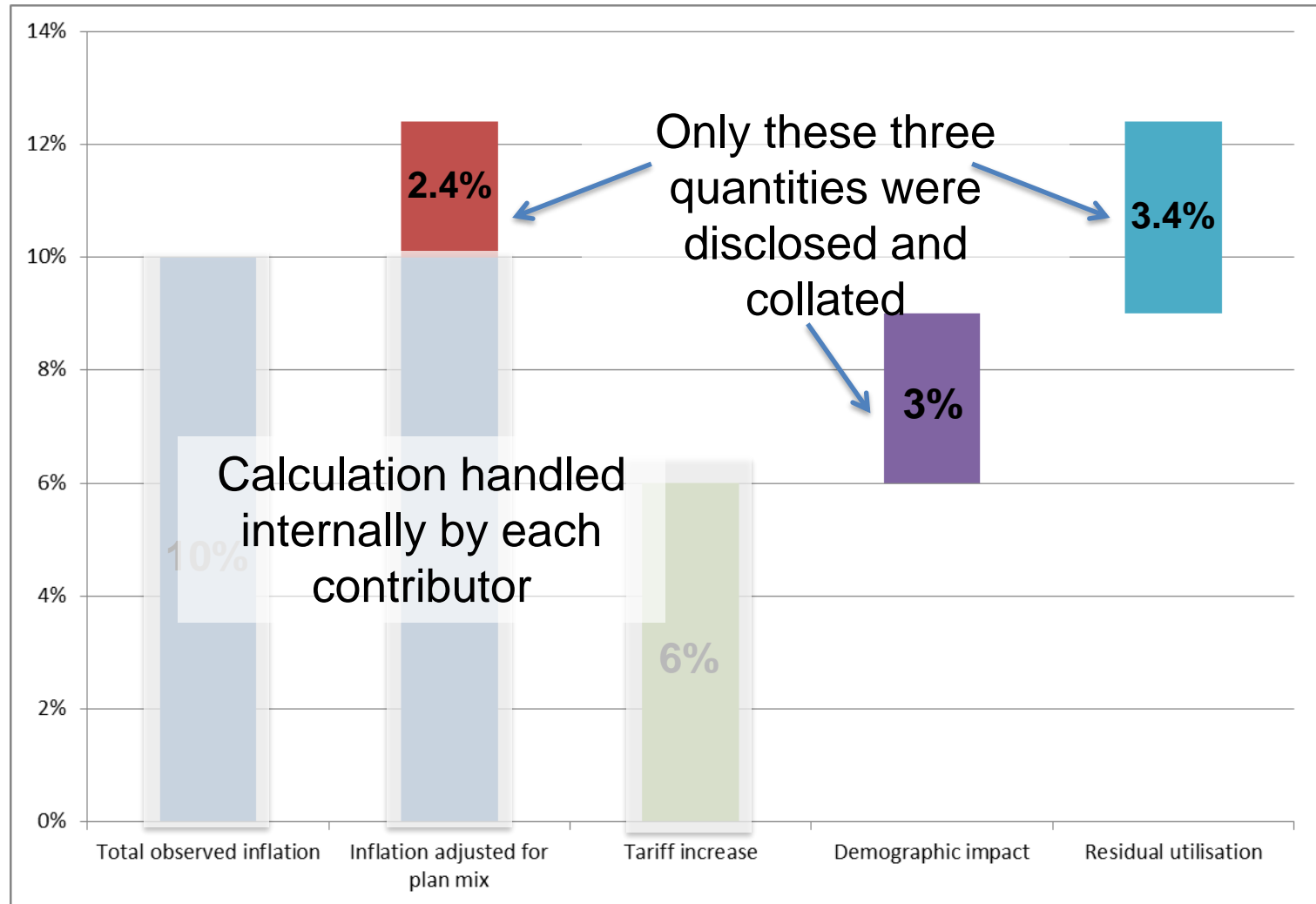


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# Collection of tariff information

- Sensitivities regarding centralised collection of any tariff-related data
- CMS approached Competition Commissioner in 2012
- ...Responded that central tariff collection should be avoided
  
- For further discussion
  - Aggregated nature of *collected data* (across providers)
  - Aggregated nature of *disclosed results* (across schemes)
  - CMS as an appropriate central agency for data collection

# Inflation model



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# Historical analyses

- 2012: Pilot attempt in 2012 based on 2011-2012 (Q1-Q3 of each year)
- 2013/2014: Updated 2011-2012 to a full year analysis (Q1-Q4)
- Now: added
  - 2012-2013
  - 2013-2014
  - 2014-2015

# Pragmatic or detailed approach

## Pragmatic approach

- “Top-down”
- Simpler to understand benefits and limitations
- Easier to collect data
- More representative
- Trend analyses
- Can direct detailed investigations in relevant directions

## Detailed approach

- “Bottom-up”
- Difficult to collect consistent data across systems
- Difficult to perform a representative study
- More detailed interrogation of subcomponents possible

# Contributors

- Discovery 15 schemes 2.9 million beneficiaries
- Insight 8 schemes 646 000 beneficiaries
- Medscheme 8 schemes 1.0 million beneficiaries
- Metropolitan 13 schemes 2.6 million beneficiaries

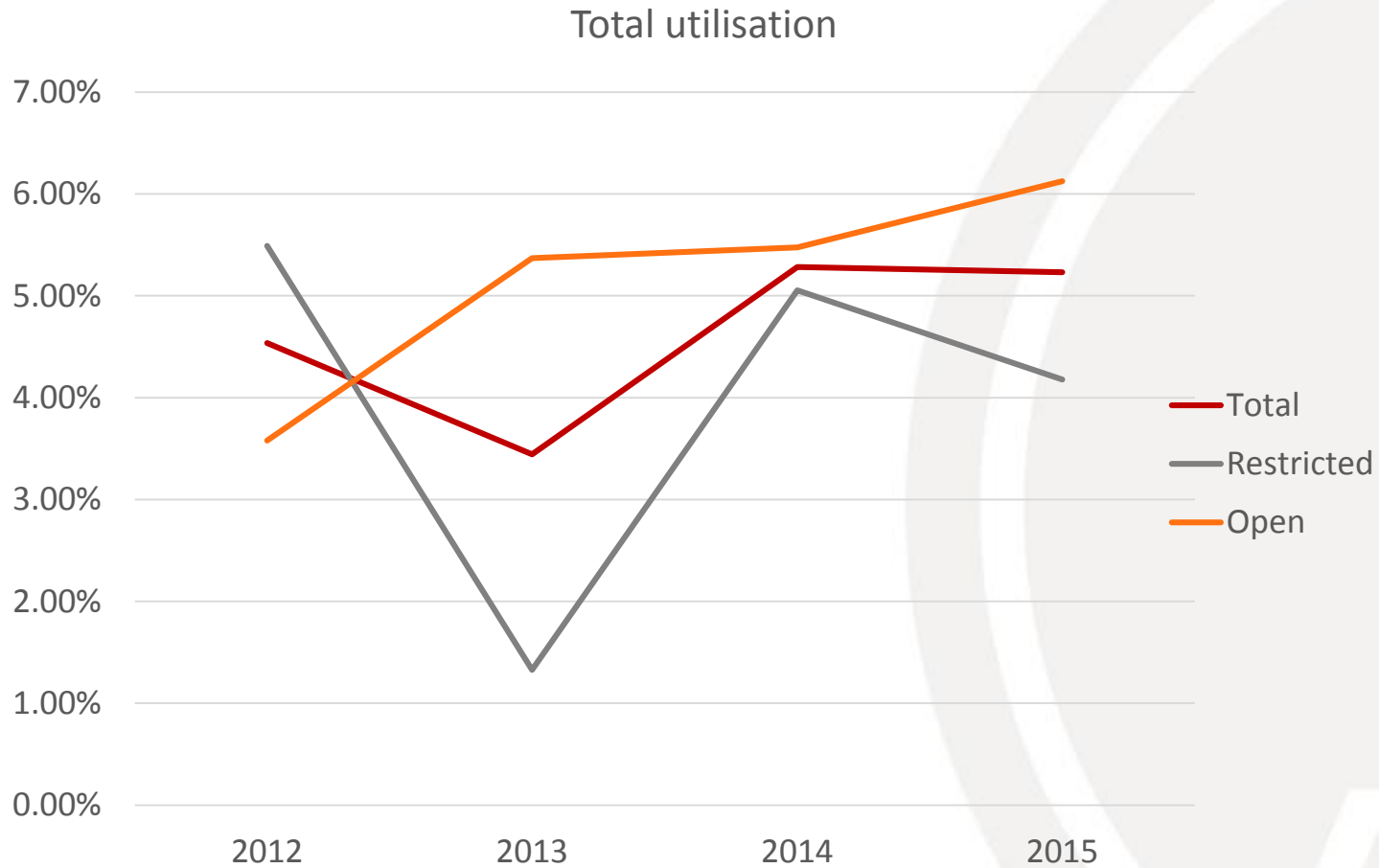
|      | Open      | Restricted | Total     |
|------|-----------|------------|-----------|
| 2013 | 3 937 147 | 3 226 907  | 7 164 054 |
| 2014 | 4 013 644 | 3 207 575  | 7 221 219 |
| 2015 | 4 052 957 | 3 187 788  | 7 240 745 |

**= 82.2% of industry in 2015**

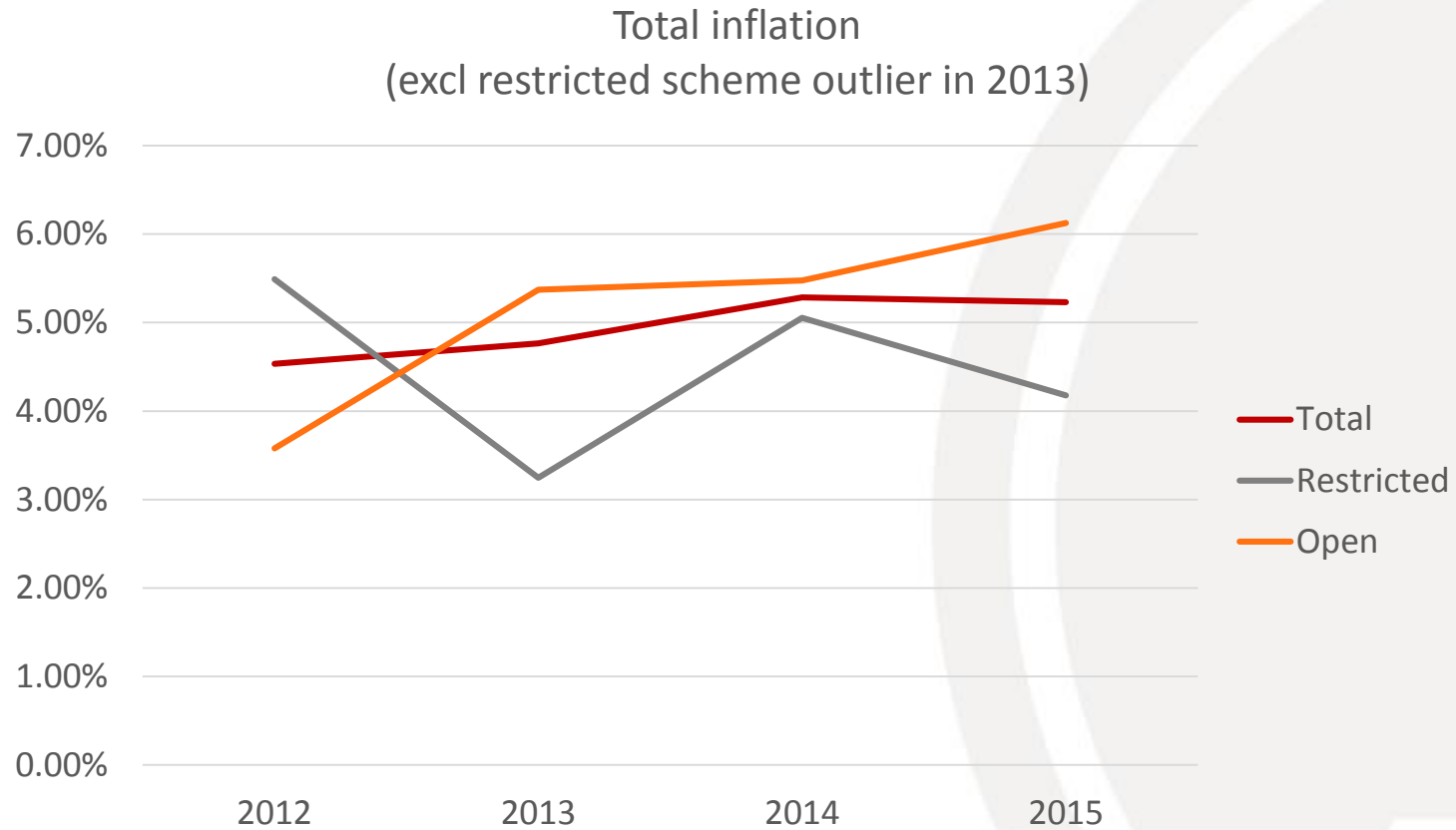
**Special thanks to: Alex Brownlee, Jaco de Wet, Pieter Grobler, Declan Isaacs**



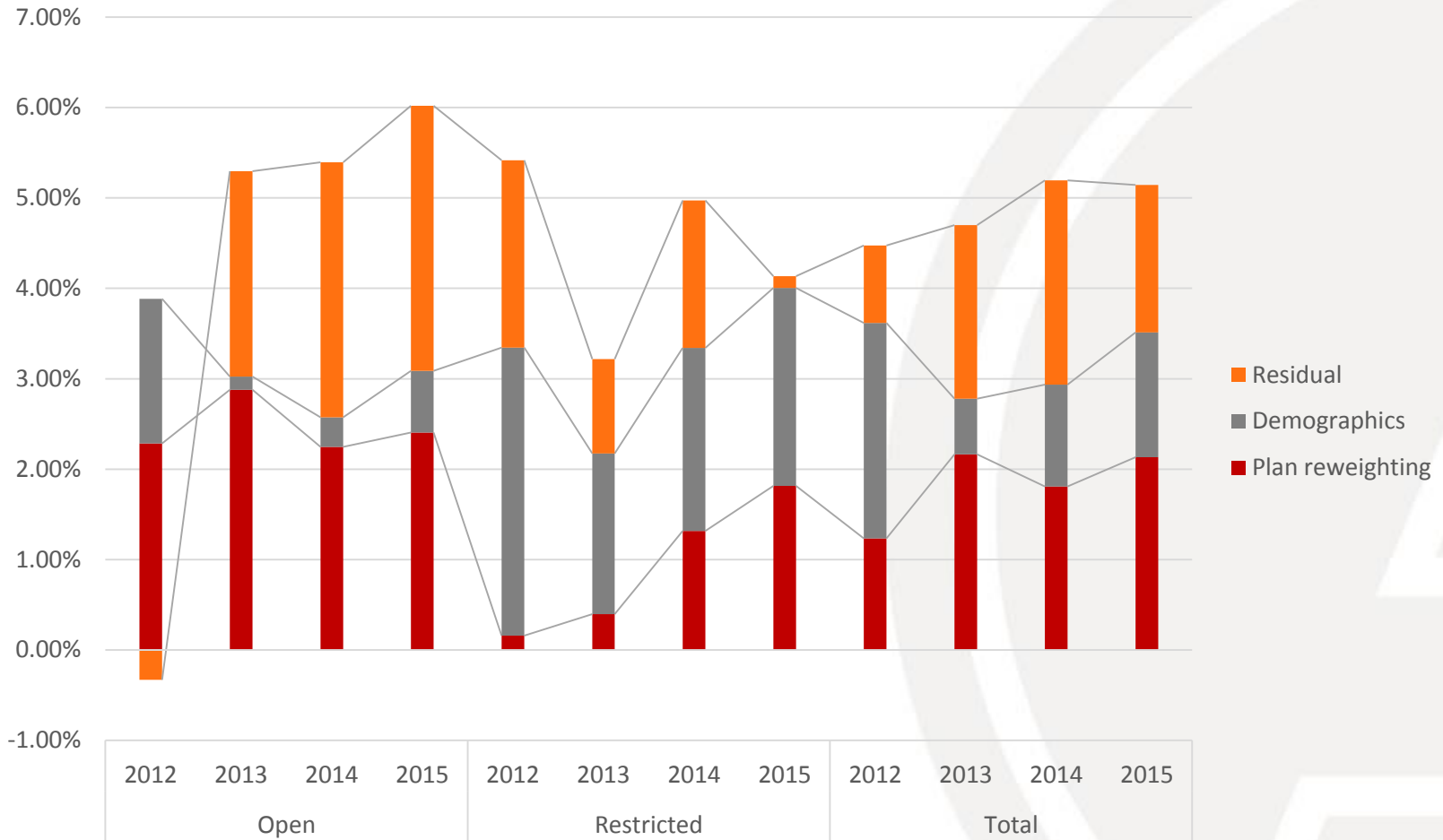
# Results



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# Results

|              |             | Plan reweighting | Demographics | Residual      | Total        |
|--------------|-------------|------------------|--------------|---------------|--------------|
| <b>Open</b>  | <b>2012</b> | <b>2.28%</b>     | <b>1.60%</b> | <b>-0.33%</b> | <b>3.58%</b> |
|              | <b>2013</b> | <b>2.88%</b>     | <b>0.15%</b> | <b>2.27%</b>  | <b>5.37%</b> |
|              | <b>2014</b> | <b>2.25%</b>     | <b>0.33%</b> | <b>2.82%</b>  | <b>5.48%</b> |
|              | <b>2015</b> | <b>2.41%</b>     | <b>0.68%</b> | <b>2.93%</b>  | <b>6.13%</b> |
| Restricted   | 2012        | 0.16%            | 3.19%        | 2.07%         | 5.49%        |
|              | 2013        | 0.40%            | 1.78%        | 1.05%         | 3.25%        |
|              | 2014        | 1.32%            | 2.02%        | 1.63%         | 5.05%        |
|              | 2015        | 1.82%            | 2.19%        | 0.13%         | 4.18%        |
| <b>Total</b> | <b>2012</b> | <b>1.23%</b>     | <b>2.38%</b> | <b>0.86%</b>  | <b>4.54%</b> |
|              | <b>2013</b> | <b>2.16%</b>     | <b>0.62%</b> | <b>1.92%</b>  | <b>4.77%</b> |
|              | <b>2014</b> | <b>1.81%</b>     | <b>1.13%</b> | <b>2.26%</b>  | <b>5.28%</b> |
|              | <b>2015</b> | <b>2.13%</b>     | <b>1.38%</b> | <b>1.63%</b>  | <b>5.23%</b> |

# What does this mean for pricing actuaries?

| Overall weighted utilisation assumption increase | Weighted average | 25th percentile | 50th percentile | 75th percentile | Weighted average |            |
|--|------------------|-----------------|-----------------|-----------------|------------------|------------|
|  |                  |                 |                 |                 | Open             | Restricted |
| Circular 26 of 2016                              | 3.05%            | 1.15%           | 1.66%           | 2.42%           | 3.37%            | 2.62%      |
| Circular 23 of 2017                              | 3.96%            | 1.44%           | 2.50%           | 3.74%           | 4.11%            | 3.76%      |



- These figures may exclude plan reweighting
- **Average > 75<sup>th</sup> percentile**
- Larger schemes (open and restricted) are budgeting for higher utilisation. Why?
- Possibly because of ability to analyse and predict utilisation with more rigour (less random variation or “noise” in data)
- Smaller schemes could be left at a disadvantage, forced to correct later on

# Study limitations

- Data could be broken down into more detail
- “Residual utilisation” covers a wide array of potential causes
- Submissions cannot be audited against statutory returns (given limited nature of disclosure)
- Benefit changes – reliance on contributors’ judgement
- Nature of plan-mix calculation and its potential 2<sup>nd</sup> order interaction with demographics
- Decentralised calculation process is not ideal

# Concluding remarks

1. Total utilisation on a benefit option level is increasing and exceeding 5% (6% in open schemes)
2. Compared to our original 2011-2012 study this increase appears to be due to increases in residual (supply side?) utilisation - ie not demographics or plan mix
3. Plan reweighting for restricted schemes is increasing and could approach open scheme levels if trend persists
4. Actuaries could use these results as guidance when formulating pricing assumptions, especially for smaller schemes
5. Should CMS submissions be expanded to ask for a more detailed / standardised breakdown of utilisation assumptions employed by actuaries?

# Thank you

