

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

Subject CA3 - Communications (Presentation) August 2016

Scenario: Training for new staff on a price inflation index

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus.

For the CA3 communications examination the examination is designed to examine the communication of an "actuarial" concept to a non actuarial audience. Sufficient technical detail on the scenario is provided in the question so that candidates from all backgrounds are able to answer the question.

One approach to the slides required for the presentation is reproduced in this report; other valid approaches were given appropriate credit.

Luke Hatter
Chairman of the Board of Examiners

November 2016

A possible set of slides to accompany a candidate's presentation is given below. This is not intended to be a model set of slides. In practice, a wide number of sets of slides were acceptable and candidates would have achieved good pass standards without having the same level of detail as the slides below.

Candidates were asked to give a presentation at a training day for new staff on the construction and calculation of a specific price inflation index.

Candidates were given clear instructions from their manager on what the presentation should include:

- *An introduction to the nature and purpose of price inflation indices, giving brief examples of how they are used.*
- *An illustration of the structure of the MPI. We need to bring out the “hierarchical¹” structure of the goods & services within the index showing the key Divisions. Perhaps use a diagram to illustrate this based on the composition of the MPI below.*
- *Comments on how the Divisions are weighted and how those weights are determined.*
- *Numerical examples of how an index is calculated using the weights. I suggest you do this for the “All Items MPI” both at December 2014 and December 2015.*
- *Please also show how the index at both these dates is used to calculate the annual rate of inflation over the year to December 2015.*
- *You should also illustrate the inflation rate in recent years and make any appropriate comments.*

Candidates were provided with all the information that they needed to answer the question including sample calculations of the index at the two dates and a table setting out the inflation rate.

The main points that the Examiners were looking for and some common problems encountered were as follows:

1. Candidates were asked to deliver a presentation lasting 8-10 minutes. Most candidates delivered presentations that were within an appropriate time frame.
2. Most presentations had an appropriate first slide with a clear title, date and name of presenter.
3. Most presentations had an agenda. On better presentations, the agenda linked directly to the titles and content of the following slides. On weaker presentations, too much time was spent on the agenda giving rise to a laboured start, which tended to disengage the audience.

¹ Hierarchical structure: a structure in which groups or classes are arranged in order of rank.

4. There was a great variation in the quality of the format of slides. Good presentations had slides that clearly backed up the information that was being provided to the audience in a manner that they could understand. Some candidates included a pie chart to illustrate the weights given to the different divisions and this worked well. Some candidates had slides that included far too much information on them. For example on the slide explaining the different divisions some candidates had extensive lists of the representative items, which they then read out. It was not necessary for the audience to precisely understand which items made up a division – a few selective items were sufficient for the audience to understand the concept.
5. Some candidates put full-length narrative sentences on the slides. This was not appropriate to the slide format and tended to make slides over-busy. This also distracted the audience from listening to the presenter.
6. Some candidates used complicated mathematical formulae to explain how the price inflation index was calculated. This was unnecessary and not appropriate to an audience that included non mathematicians.
7. Some candidates ignored the instruction to provide “*numerical examples of “the calculation of the index “at December 2014 and December 2015”*” and only showed how the index was calculated at a single date. Some candidates ignored the instruction to show how the indices they had calculated were used “*to calculate the annual rate of inflation*” and just stated what the rate of inflation was. Some candidates said the rate of inflation was 6.5% but then followed it up with a graph quoting the rate of inflation for the same period being 7%. Better candidates followed the instructions in the question and provided the information in a simple way that the audience would understand.
8. Better candidates completed their presentation with a brief summary of the key points from their presentation and provided the opportunity to ask questions.

Candidates were not asked to provide a script to accompany the presentation.

In general, despite the problems provided above, the presentation question was answered better than the written question in this exam.

Pass Mark

The overall Pass Mark for the CA3 subject from the August sitting was 65%.

SOLUTION

Slide 1

Construction and Calculation of Market Price Index

Staff Training
Sabina Puerta
Date

Slide 2

Agenda

- Introduction to Price Indices
- Structure of Market Prices Index (MPI)
 - Weighted basket of goods and services
- Calculation of MPI
 - Dec 2014
 - Dec 2015
- MPI inflation rate
 - year to Dec 2015
 - last 5 years
- Summary & Questions

Slide 3

Introduction to Price Indices

- Means by which trends in prices are tracked
- Important statistics used for range of purposes
 1. Government for pension increases
 2. Employers for wage negotiation

Slide 4

Structure of Market Prices Index




- Many items at bottom of the hierarchical structure
- Prices of individual items monitored
- Prices of individual items combined into Divisions
- Divisions combined according to “weights” to determine “All Items MPI”


Slide 5

How are weights determined?

“Weights” reflect “typical” relative expenditure on range of goods & services from “Divisions”

E.g., Typical households spend higher amount on food than transport


\$\$\$\$\$\$


\$\$

⇒ MPI - higher “weight” of “food” compared to “transport”

Slide 6

Calculation of MPI

December 2014

MPI Division	Price of Division	Weighting (%)	Price x Weighting
Food	325	60%	195.0
Clothing	105	14%	14.7
Household	120	20%	24.0
Transport	1500	6%	90.0
Total		100%	323.7


“All Items MPI” = Total of “Price x Weighting” for all the MPI Divisions

MPI value at December 2014 = 323.7


Slide 7

Move on one year to Dec 2015

Changes in price of items in food & transport Divisions



Price changed from \$325 to \$365 (+ \$40)



Price changed from \$1,500 to \$1,450 (- \$50)

other prices have remained unchanged

What impact has this had on the index?

Slide 8

Calculation of MPI

December 2015

MPI Division	Price of Division	Weighting (%)	Price x Weighting
Food	365	60%	219.0
Clothing	105	14%	14.7
Household	120	20%	24.0
Transport	1450	6%	87.0
Total		100%	344.7

MPI at December 2015 = 344.7 (vs 323.7 @ December 2014)

- Index higher at December 2015
- Food has larger weighting than Transport

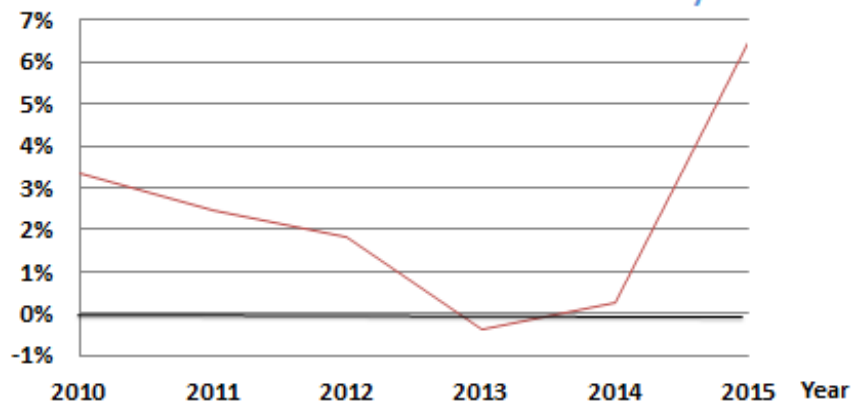
Slide 9

MPI Inflation rate

- Change in MPI - Important statistic
- Inflation may be calculated for any period
 - typically calculated for one year periods
- MPI in December 2014 = 323.7
- MPI in December 2015 = 344.7
 - increase in year to Dec 2015 = $344.7 / 323.7 = 1.065$
 - ⇒ **MPI annual inflation over year to Dec 2015 = 6.5%**
- **A negative rate would indicate deflation**

Slide 10

MPI annual “Inflation” over last 5 years



- Inflation most years between 0.5% - 6.5%
- Deflation 2013

Slide 11

Summary

- MPI has many uses
 - salary increase negotiations, setting pension increases
 - ...
- MPI = weighted average of goods and services
 - Individual prices monitored & combined to form Divisions
 - Divisions combined using “weights” to form MPI
- Example calculations of MPI for Dec 2014 & Dec 2015 show 6.5% annual inflation to Dec 2015
- Inflation can vary, or even be negative (“deflation”)

Slide 12

Questions?

Contact:
Sabina Puerta
020 7123 4567
spuerta@nsi.gov

END OF EXAMINERS REPORT