Course title: Pearson LCCI Business Statistics (Level 2 and Level 3)
Event Code: 15IOLC04
Your Online Environment

- Technical difficulties & support
- Recording
- Communication in an online environment
- Asking questions
- Using polls
- Downloading documents
Aims and Objectives

1. Identify the key features and benefits of studying for these qualifications
2. Identify the content changes compared with the previous specifications
3. Preparing for external assessment
4. Delivering this qualification
Session Agenda

1. Undertake a poll to identify delegate needs
2. Benefits of studying for the qualifications
3. Content changes
4. Assessment changes
5. Assessment examples
6. Delivering the qualification
Poll

Polls to get to know the delegates
Key features and benefits
Background

• Part of the redevelopment of the LCCI Financial and Quantitative suite of qualifications

• Need to update the existing Business Statistics specifications

• Awareness of computer developments

• A qualification appropriate for learners aiming for a career in business
Key features & benefits at Level 2

• Provides confidence in handling numerical data within a business or research environment

• Prepares learners in basic quantitative skills needed in international business

• Assists progression to Level 3 qualifications

• 120 guided learning hours
Key features & benefits at Level 3

- Enhances learner’s statistical knowledge and abilities
- Develop a critical perspective of statistics
- Allows progression to employment in business and finance
- Progression and recognition by employers, universities and professional bodies e.g. ACCA
- 135 guided learning hours
Overview and Differences between Levels 2 and 3

**Level 2** – Descriptive aspects of Statistics using diagrams and basic statistical measures to illustrate data sets.

**Level 3** – Builds on level 2 but emphasizes the use of Inferential Statistics (including statistical testing and confidence intervals) using sample data.
Paper Availability

Four sessions per year:

- April
- June
- September
- November
What has changed at both levels (2 & 3)?

- Less emphasis on routine statistical calculations (which, in a modern business environment, can now be carried out using a computer)
- More emphasis on understanding and interpretation of statistical techniques
- Greater emphasis on applying techniques within a real business situation
Overview of content L2

1. Management Information
   1.1 Data collection
   1.2 Data presentation
   1.3 Descriptive statistics

2. Forecasting for Business Decisions
   2.1 Correlation and regression
   2.2 Time based data

3. Risk Management and Decision Making
   3.1 Probability
Additions at Level 2

- Understanding and use of categorical data
- Use of multistage sampling
- Email or computer surveys
- Draw a boxplot from median and quartiles
- Increased emphasis on interpretation of measures of location and dispersion
Additions at Level 2

- Distinguish between response and explanatory variables
- Interpret the regression coefficients
- Role of time-series components (trend, seasonality, random effects)
- Change a base year to a more recent time
Omissions at Level 2

- Consequences of non-response when a survey is conducted
- Drawing a Z-chart
- Calculation of a geometric mean
- Use of multiplicative model in time-series data
- Index of Industrial Production
Overview of content L3

1. Management Information
   1.1 Data collection
   1.2 Descriptive statistics
2. Business Planning Models
   2.1 Correlation and regression
   2.2 Time based data
3. Risk Management And Business Decision Making
   3.1 Probability, including the normal distribution
   3.2 Estimation and confidence intervals
   3.3 Significance testing
   3.4 Chi squared test
4. Quality Assurance and Control
   4.1 Quality control
Additions at Level 3

• Awareness of all factors that influence the planning for data collection

• Knowledge of multistage sampling

• Telephone, email or computer surveys

• Increased emphasis on the interpretation of measures of location and dispersion
Additions at Level 3

- Distinguish between the **response variable** and **explanatory variable** in situations where one variable is dependent on the other.
- Learners are expected to **interpret the regression coefficients**.
- Learners should understand the role of **time series components**, namely trend, seasonality, and random effects within the context of time-related business data.
Additions at Level 3

• There is greater emphasis on interpreting the results of a statistical test; for example, the underlying reasons why two factors are associated when undertaking a chi-squared test

• Understand a range of reasons why a production process may be considered to be out of control based on a quality control chart
Omissions at Level 3

- No need to distinguish between different types of data, such as continuous or discrete
- No need to construct basic statistical diagrams such as pictograms, bar charts, pie charts, Z-charts or Lorenz curves
- No need to calculate a range of measures from ungrouped data such as the geometric mean, mean deviation, quartile deviation for a set of business data
- No need to describe the construction of a national Index of Industrial Production
- Chi-squared goodness of fit tests are restricted to situations where we are testing whether observed sample frequencies fit a given set of expected percentages
Assessment changes
Assessment summary at both levels (Levels 2 & 3)

• Externally set and marked written examination paper
  • Level 2  2 hours 30 minutes
  • Level 3  3 hours
• Five questions broken down into several parts
• Answer all questions (i.e. no choice)
• All sections of the specification will be tested
• Graded as pass/merit/distinction
• Calculators and bilingual dictionaries allowed
• Formulae sheet provided
• Enhanced statistical tables for Level 3
# Assessment objectives

<table>
<thead>
<tr>
<th>Assessment Objective</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorise</td>
<td>5-9%</td>
<td>1-5%</td>
</tr>
<tr>
<td>Perform procedure</td>
<td>61-65%</td>
<td>59-63%</td>
</tr>
<tr>
<td>Communicate understanding</td>
<td>23-27%</td>
<td>28-32%</td>
</tr>
<tr>
<td>Analyse</td>
<td>3-7%</td>
<td>4-8%</td>
</tr>
</tbody>
</table>
Assessment examples
The Capital Tourist Company organises visits around the city of London’s attractions and consequently its volume of business is dependent on the number of visitors to London from overseas. The following chart shows the total number of visitors (in thousands) to London from eight countries in 2003 and 2013.

(a) Name the type of chart used to display the data

(b) State the country that had the largest increase in visitors to London between 2003 and 2013

(c) Using the chart:

(i) describe the general pattern in visitor numbers

(ii) describe one exception to the pattern described in (c)(i)
A company involved with corporate mediation services carry out research into industrial disputes within the United Kingdom. The following table shows the number of work stoppages in the United Kingdom due to industrial disputes for the years 2010 to 2013.

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan-March</th>
<th>April-June</th>
<th>July-Sept</th>
<th>Oct-Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>30</td>
<td>28</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>2011</td>
<td>42</td>
<td>67</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>2012</td>
<td>32</td>
<td>50</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>2013</td>
<td>29</td>
<td>52</td>
<td>48</td>
<td>30</td>
</tr>
</tbody>
</table>

(a) (i) Plot the data on a time series graph

(ii) Comment on the general pattern of the graph

(b) Calculate the trend values for the data using a four-point centred moving average

(c) Explain why any forecasts of future values are likely to be inaccurate. Use your answers from parts (a) and (b)
A large supermarket chain is planning to open a new store based on the number of houses built, median house prices and traffic flow.

<table>
<thead>
<tr>
<th>English Region</th>
<th>Number of houses built (000) in 2013, x</th>
<th>Median house price (£000) in 2013, y</th>
<th>% increase in traffic between 2003 and 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East</td>
<td>3.9</td>
<td>120</td>
<td>9.1</td>
</tr>
<tr>
<td>North West</td>
<td>12.9</td>
<td>130</td>
<td>9.2</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>10.6</td>
<td>130</td>
<td>8.4</td>
</tr>
<tr>
<td>East Midlands</td>
<td>9.0</td>
<td>135</td>
<td>7.3</td>
</tr>
<tr>
<td>West Midlands</td>
<td>9.1</td>
<td>142</td>
<td>7.8</td>
</tr>
<tr>
<td>East</td>
<td>13.5</td>
<td>175</td>
<td>6.8</td>
</tr>
<tr>
<td>London</td>
<td>12.2</td>
<td>250</td>
<td>-6.3</td>
</tr>
<tr>
<td>South East</td>
<td>22.0</td>
<td>203</td>
<td>4.2</td>
</tr>
<tr>
<td>South West</td>
<td>13.8</td>
<td>175</td>
<td>11.6</td>
</tr>
</tbody>
</table>

($\sum x = 107$, $\sum y = 1460$, $\sum x^2 = 1463.32$, $\sum y^2 = 251548$, $\sum xy = 18323.7$)

Use the data from the table to calculate the product moment correlation coefficient, test for significance, and obtain a regression equation. Identify the usefulness of such measures in deciding where the supermarket chain might locate a new store.
Example question Level 3

Town officials want residents to apply for home improvement grants. They need to find out the most effective way to inform residents of the grants. A random sample of 300 residents was contacted by letter, email or telephone, informing them about the grants. The table summarises the results obtained.

<table>
<thead>
<tr>
<th>Contact method</th>
<th>Apply for a grant</th>
<th>Do not apply for a grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>35</td>
<td>110</td>
</tr>
<tr>
<td>Letter</td>
<td>12</td>
<td>42</td>
</tr>
<tr>
<td>Email</td>
<td>37</td>
<td>64</td>
</tr>
</tbody>
</table>

Analysis of these outcomes, using a software package, gave a calculated chi squared ($\chi^2$) value = 5.701

Test whether there is a significant association.

State, in context, what the test shows.
Delivering the qualifications
Delivering to learners at both levels (Levels 2 & 3)

- To get the most out of this qualification it is important that learners use real business data
- Use technology to collect and explore large business data sets
- Investigate a range of problems to provide an insight into statistical methods and processes
- Learners can use data either on an individual basis or in group work
Reading for Level 2 - Textbooks


Example data for Level 2

- Real data can be used when carrying out project work such as the investigation of:
  - Relationship between wages and prices
  - Identifying patterns in sales data
  - Price comparisons between products online or in store
  - Differences in house prices in two regions
Reading for Level 3 - Textbooks


Example data for Level 3

• Real data can be used when carrying out project work such as the investigation of:
  • Maintenance costs linked to the age of equipment
  • Staff performance before and after training
  • Association between amount of debt and age of borrower
Websites for both levels (Levels 2 & 3)

Data sets are readily available on the internet. Good sources include media sites (newspapers, television, online publications, learned journals etc.), and especially government sources such as the UK Office of National Statistics:

- [http://www.ons.gov.uk](http://www.ons.gov.uk)
- Or the equivalent for other countries:
  - [http://www.stats.gov.cn/English/statisticaldata](http://www.stats.gov.cn/English/statisticaldata)

- UK labour market statistics
  - [https://www.nomisweb.co.uk](https://www.nomisweb.co.uk)
- International newspapers
  - [http://www.thebigproject.co.uk/news/](http://www.thebigproject.co.uk/news/)
Top 10 tips to delivering these qualifications

1. Know the specification and the associated content
2. Use the specimen assessment materials to familiarise learners with the format of the examination
3. Make use of Pearson LCCI materials
4. Undertake relevant group and project work or use students’ own business experience
5. Use national sources of data to illustrate concepts such as sampling and data presentation
6. Ensure students know how to respond to the various ‘command words’

7. Carry out calculations accurately giving answers to a suitable level of detail

8. Concentrate on fully interpreting data within a business context

9. Get learners to practice, practice, practice

10. Use appropriate technology to collect and explore business data sets
# Level 2 Diploma

<table>
<thead>
<tr>
<th>New diploma title</th>
<th>Structure</th>
<th>Qualifying period</th>
</tr>
</thead>
</table>
| **Diploma in Book-Keeping & Accounting** | Core subject *(one subject only)*  
  - Pearson LCCI Level 2 Certificate in Book-Keeping and Accounts (VRQ)  
  And Optional subject *(at least two from the following)*  
    - Pearson LCCI Level 2 Award in Computerised Book-Keeping (VRQ)  
    - Pearson LCCI Level 2 Certificate in Cost and Management Accounting (VRQ)  
    - Pearson LCCI Level 2 Certificate in Business Statistics (VRQ)  
    - Pearson LCCI Level 2 Business Calculations | 24 months          |
## Level 3 Diploma

<table>
<thead>
<tr>
<th>New diploma title</th>
<th>Structure</th>
<th>Qualifying period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma in Accounting &amp; Finance</td>
<td>Core subject <em>(two subjects only)</em>&lt;br&gt;  • Pearson LCCI Level 3 Certificate in Financial Accounting (VRQ)&lt;br&gt;  • Pearson LCCI Level 3 Certificate in Cost and Management Accounting (VRQ)&lt;br&gt;  And Optional subject <em>(at least one from the following)</em>&lt;br&gt;  • Pearson LCCI Level 2 Award in Computerised Book-Keeping (VRQ)&lt;br&gt;  • Pearson LCCI Level 3 Certificate in Business Statistics (VRQ)&lt;br&gt;  • Pearson LCCI Level 3 Advanced Business Calculations</td>
<td>24 months</td>
</tr>
</tbody>
</table>
## Level 4 Diploma

<table>
<thead>
<tr>
<th>New diploma title</th>
<th>Structure</th>
<th>Qualifying period</th>
</tr>
</thead>
</table>
| **Professional Diploma in Accounting & Finance** | Core subject (three subjects only)
  - Pearson LCCI Level 4 Certificate in Financial Accounting (VRQ)
  - Pearson LCCI Level 4 Certificate in Management Accounting (VRQ)
  - Pearson LCCI Level 4 Certificate in Organisational Behaviour and Performance (VRQ)
  *Optional “top-up” with following optional subjects:
    - Pearson LCCI Level 4 Legal Environment
    - Pearson LCCI Level 4 Award in Islamic Finance and Business (QCF)
    - Pearson LCCI Level 4 Certificate in Applied Business Economics (QCF)                                                                 | 24 months         |
Support

Training:
Pearson offers support and training to teachers on standard of delivery and preparing students to meet the assessment requirements

Resources:
Sample Assessment Materials document
qualifications.pearson.com/lccisupport

Other resources:
Past exam papers and mark schemes will become available together with examiner’s reports