Table of Contents

List of Figures ix
List of Tables xii
Acknowledgements xiii

1 Markets and measurements: An introduction 1
Metrology, mensuration and measurement practices 1
What made measurements reliable? 8
The State and the science of measurements 12
Was Britain unique? 15
The economy, markets and measurement practices 16
Implications 28

2 Inching towards the metre: Measurements, metrology and reform 29
Nature and variability of historical measurements 31
Reforming Britain’s weights and measures 38
Reforming European metrology 54
Trade, empire and metrology 62
Importance of local measurement practices 66

3 Mensuration and local measurement practices 68
Metrological realism and measurement conventions 68
Understanding mensuration 70
Measurement tools: instruments, protocols and standards 78
Standard setting and standardisation 84
Mensuration and local measurement practices 90

4 Governance and regulation: Standardising measurements in the London coal trade (c. 1830) 95
Structure of the London coal trade 100
Measurements used in the London coal trade 107
Reforming the coal trade (1800–1830) 114
Significance of the reforms 126
Conclusions 132
## Contents

5 Competition, cooperation and standardisation: Uniform measurements in the British wire industry (c. 1880) 134
- Wire manufacturing in England 137
- Wire sizes: the source of transactional problems 143
- Standardising measurements: a solution for transactional problems 151
- Competition, coordination and negotiation for standard wire sizes 159
- Gauges after 1883 167
- Conclusions 169

6 Globalisation, commodity grading and quality measurements in nineteenth-century wheat markets 171
- British wheat markets in the nineteenth century 175
- Measuring quality: a supply-side perspective 183
- Measuring quality: a demand-side perspective 191
- The case of natural weight measurements 201
- Measurements, grading and institutions 208
- Conclusions 216

7 ‘Man is the measure of all things’: Conclusions and Implications 218
- Historical (re)interpretation 223
- Implications 225

- Appendix 2.1: Milestones in the international acceptance of the metric system 229
- Appendix 4.1: Analysis of local practices and measurement inconsistencies in the London coal trade 232
- Appendix 4.2: Financial details of the metage system operated by the city of London 237
- Appendix 5.1: Comparison of sizes of various wire gauges 238
- Appendix 5.2: Comparison of the standard wire gauge with other proposed gauges 240

- Bibliography 243
- Index 259
## List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Diversity of measurement units, e.g. bushel.</td>
<td>33</td>
</tr>
<tr>
<td>2.2</td>
<td>Imperial system of weights and measures (1824).</td>
<td>44</td>
</tr>
<tr>
<td>4.1</td>
<td>Quantity of coal transported to London (1700–1830).</td>
<td>97</td>
</tr>
<tr>
<td>4.2</td>
<td>Quantity of coal delivered by mode of transport.</td>
<td>101</td>
</tr>
<tr>
<td>4.3</td>
<td>Structure of the London coal trade (c. 1830).</td>
<td>102</td>
</tr>
<tr>
<td>4.4</td>
<td>Composition of average price paid by Greenwich Hospital for coal in London (1759–1827).</td>
<td>118</td>
</tr>
<tr>
<td>5.1</td>
<td>The Board of Trade standard wire gauge (1884).</td>
<td>146</td>
</tr>
<tr>
<td>5.2</td>
<td>Comparison of wire sizes across gauges.</td>
<td>148</td>
</tr>
<tr>
<td>6.1</td>
<td>Trends in domestic sales and imports of wheat into Britain.</td>
<td>176</td>
</tr>
<tr>
<td>6.2</td>
<td>Composition of wheat imports.</td>
<td>177</td>
</tr>
<tr>
<td>6.3</td>
<td>Structure of the domestic wheat trade in Britain (c. 1830).</td>
<td>178</td>
</tr>
<tr>
<td>6.4</td>
<td>Structure of the international wheat trade (c. 1880).</td>
<td>179</td>
</tr>
<tr>
<td>6.5</td>
<td>Determinants of the yield of British wheat crops.</td>
<td>184</td>
</tr>
<tr>
<td>6.6</td>
<td>Comparison of densities of British and imported wheat grains (c. 1884).</td>
<td>202</td>
</tr>
</tbody>
</table>
List of Tables

2.1 British exports to countries using various measurement standards  
4.1 Quantity of coal shipped coastwise during 1829, comparing the quantity sold by weight and volume  
4.2 Measurement units used in the London coal trade (c. 1830)  
4.3 Specific gravity estimates of coal varieties sold in London  
4.4 Milestones: review and reform of the London coal trade (1800–1832)  
5.1 Distribution of wire workers in England and Wales  
5.2 Estimates of domestic production and exports of wire (England and Wales)  
5.3 Relative growth of wire exports (United Kingdom and Germany)  
5.4 Impact of switching from Lancashire wire gauge to Harding’s proposed wire gauge  
6.1 Weight per bushel of different cereals charged with duty as specified in the corn returns  
4.1A.1 Reports of measurement fraud in London (c. 1800)  
4.1A.2 Estimate of ratios used to convert quantities of coal from Newcastle chaldron to London chaldron  
4.1A.3 Analysis of the difference between certified quantity and measured quantity of coal delivered from colliers in the Port of London (1827–1829)