**Appendix**

Cricket is a popular sport in many Commonwealth nations, including India, Australia, England, Bangladesh, South Africa, Pakistan, Sri Lanka, and New Zealand. It is played between two teams, each consisting of 11 players. The game is played on a field with a 22-yard pitch at the center, and each team takes turns to bat and field. The most elementary feature of the game is a ball. A bowler from the fielding team throws the ball towards a batter from the opponent team. Each bowler bowls six times and this six-ball stretch is called an over. When a team is batting, the players try to score runs by hitting the ball with a bat and running between two sets of stumps, called wickets, at either end of the pitch. The fielding team tries to prevent this by getting the batters out in various ways, such as catching the ball, hitting the stumps with the ball, or trapping the batter’s leg in front of the stumps. At any point of time, the number of players on the field is fixed (13 players). There are two batters from the batting team, 11 fielders from the fielding team (one of these 11 players is a bowler and another one a wicket-keeper), and two referees called umpires. There are various formats of the game. The ODI cricket is divided into innings, with each team having a turn to bat and field only once. The team with the most runs at the end of the game wins.  Cricket is a game of skill, strategy, and teamwork, and is enjoyed by millions of people around the world.

In the following figure, we demonstrate the distribution of runs scored by a batter in a match (panel a) and the distribution of the number of wickets claimed by a bowler in a match (panel b). These are the two key variables of interest.

[Figure A1 comes here]

We finally address the concern about whether our criterion for sample-selection has any direct bearing on the results we observe. Figure A2 shows the density of cricketers by age-group in our sample. For example, the frequencies of 9.24%, 9.15%, 9.00% and 9.04% of players respectively falling in the age groups of 26, 27, 28, and 29 years are the highest we observe (25 year-olds have a frequency of 7.92%, and for 30 year olds it is 7.27% - these are the second highest figures). We specifically ask if our results are potentially endogenous to our sample-selection-strategy. If there is a specific age-group that is more prone to career-threatening or career-ending injuries, then we should witness a sharp decline in the frequency/percentages of players in those age-groups falling in our sample-study (since our sample-selection strategy depends on career-threatening/career-ending injuries). The smoothness seen in the age-distribution among cricketers (Figure A2) in our sample suggests otherwise. To the extent that career-threatening/career-ending injuries (that lead to exclusion of cricketers from our study sample) are truly exogenous and random, we have strong reasons to believe that our selected sample of cricketers are reasonably representative of the overall population of cricketers who played during our study period.

[Figure A2 comes here]

Table A1: List of players included in our analyses

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 1 | Aamer Sohail | Pakistan |
| 2 | Aaqib Javed | Pakistan |
| 3 | Abdul Qadir | Pakistan |
| 4 | Adam Parore | New Zealand |
| 5 | Ajay Jadeja | India |
| 6 | Akram Khan | Bangladesh |
| 7 | Alec Stewart | England |
| 8 | Ali Shah | Zimbabwe |
| 9 | Alistair Campbell | Zimbabwe |
| 10 | Allan Border | Australia |
| 11 | Allan Donald | South Africa |
| 12 | Allan Lamb | England |
| 13 | Alvin Kallicharran | West Indies |
| 14 | Aminul Islam | Bangladesh |
| 15 | Anderson Cummins | West Indies |
| 16 | Andrew Hudson | South Africa |
| 17 | Andrew Jones | New Zealand |
| 18 | Andy Flower | Zimbabwe |
| 19 | Andy Roberts | West Indies |
| 20 | Angus Fraser | England |
| 21 | Anil Kumble | India |
| 22 | Aravinda De Silva | Sri Lanka |
| 23 | Arjuna Ranatunga | Sri Lanka |
| 24 | Asanka Gurusinha | Sri Lanka |
| 25 | Asif Mujtaba | Pakistan |
| 26 | Bill Athey | England |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 27 | Bob Willis | England |
| 28 | Brendon Kuruppu | Sri Lanka |
| 29 | Brian Lara | West Indies |
| 30 | Brian McMillan | South Africa |
| 31 | Bruce Edgar | New Zealand |
| 32 | Bruce Reid | Australia |
| 33 | Bryan Young | New Zealand |
| 34 | Carl Hooper | West Indies |
| 35 | Chaminda Vaas | Sri Lanka |
| 36 | Champaka Ramanayake | Sri Lanka |
| 37 | Chandika Hathurusinghe | Sri Lanka |
| 38 | Chetan Sharma | India |
| 39 | Chris Cairns | New Zealand |
| 40 | Chris Harris | New Zealand |
| 41 | Chris Lewis | England |
| 42 | Chris Old | England |
| 43 | Clive Lloyd | West Indies |
| 44 | Courtney Walsh | West Indies |
| 45 | Craig Evans | Zimbabwe |
| 46 | Craig Mathews | South Africa |
| 47 | Craig McDermott | Australia |
| 48 | Craig White | England |
| 49 | Curtly Ambrose | West Indies |
| 50 | Damien Fleming | Australia |
| 51 | Danny Morrison | New Zealand |
| 52 | Darren Gough | England |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 53 | Daryll Cullinan | South Africa |
| 54 | Dave Richardson | South Africa |
| 55 | David Boon | Australia |
| 56 | David Gower | England |
| 57 | David Hougton | Zimbabwe |
| 58 | Dean Jones | Australia |
| 59 | Dennis Lillee | Australia |
| 60 | Derek Pringle | England |
| 61 | Derek Randall | England |
| 62 | Derek Underwood | England |
| 63 | Desmond Haynes | West Indies |
| 64 | Dilip Vengsarkar | India |
| 65 | Don Anurasiri | Sri Lanka |
| 66 | Duleep Mendis | Sri Lanka |
| 67 | Eddo Brandes | Zimbabwe |
| 68 | Eldine Baptiste | West Indies |
| 69 | Ewen Chatfield | New Zealand |
| 70 | Fanie De Villiers | South Africa |
| 71 | Gary Kirsten | South Africa |
| 72 | Gavin Larsen | New Zealand |
| 73 | Geoff Boycott  | England |
| 74 | Geoff Howarth | New Zealand |
| 75 | Geoff Marsh | Australia |
| 76 | Gladstone Small | England |
| 77 | Glen McGrath | Australia |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 78 | Glenn Turner | New Zealand |
| 79 | Gordon Greenidge | West Indies |
| 80 | Graeme Hick | England |
| 81 | Graeme Labrooy | Sri Lanka |
| 82 | Graham Dilley | England |
| 83 | Graham Gooch | England |
| 84 | Graham Thorpe | England |
| 85 | Graham Yallop | Australia |
| 86 | Grant Flower | Zimbabwe |
| 87 | Greg Chappell | Australia |
| 88 | Greg Matthews | Australia |
| 89 | Gus Logie | West Indies |
| 90 | Guy Whittall | Zimbabwe |
| 91 | Hansie Cronje | South Africa |
| 92 | Hashan Tillakaratne | Sri Lanka |
| 93 | Heath Streak | Zimbabwe |
| 94 | Ian Bishop | West Indies |
| 95 | Ian Botham | England |
| 96 | Ian Healy | Australia |
| 97 | Ian Smith | New Zealand |
| 98 | Ijaz Ahmed | Pakistan |
| 99 | Imran Khan | Pakistan |
| 100 | Inzamam-ul-haq | Pakistan |
| 101 | Jack Russell | England |
| 102 | Javagal Srinath | India |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 103 | Javed Miandad | Pakistan |
| 104 | Jeff Crowe | New Zealand |
| 105 | Jeff Dujon | West Indies |
| 106 | Jeff Thomson | Australia |
| 107 | Jeremy Coney | New Zealand |
| 108 | Jimmy Adams | West Indies |
| 109 | Joel Garner | West Indies |
| 110 | John Bracewell | New Zealand |
| 111 | John Emburey | England |
| 112 | John Rennie | Zimbabwe |
| 113 | John Wright | New Zealand |
| 114 | Jonty Rhodes | South Africa |
| 115 | Kapil Dev | India |
| 116 | Keith Arthurton | West Indies |
| 117 | Ken Rutherford | New Zealand |
| 118 | Kepler Wessels | Australia |
| 119 | Kim Hughes | Australia |
| 120 | Kiran More | India |
| 121 | Krishnamachari Srikanth | India |
| 122 | Kumar Dharmasena | Sri Lanka |
| 123 | Lance Cairns | New Zealand |
| 124 | Lary Gomes | West Indies |
| 125 | Len Pascoe | Australia |
| 126 | Madan Lal | India |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 127 | Malcolm Marshall | West Indies |
| 128 | Manoj Prabhakar | India |
| 129 | Mark Burgess | New Zealand |
| 130 | Mark Greatbatch | New Zealand |
| 131 | Mark Taylor | Australia |
| 132 | Mark Waugh | Australia |
| 133 | Martin Crowe | New Zealand |
| 134 | Martin Snedden | New Zealand |
| 135 | Marvin Atapattu | Sri Lanka |
| 136 | Michael Atherton | England |
| 137 | Michael Holding | West Indies |
| 138 | Mike Gatting | England |
| 139 | Minhajul Abedin | Bangladesh |
| 140 | Mohammad Azharuddin | India |
| 141 | Mohinder Amarnath | India |
| 142 | Moin Khan | Pakistan |
| 143 | Mudassar Nazar | Pakistan |
| 144 | Mushtaq Ahmed | Pakistan |
| 145 | Muttiah Muralitharan | Sri Lanka |
| 146 | Nasser Hussain | England |
| 147 | Navjot Singh Sidhu | India |
| 148 | Nayan Mongia | India |
| 149 | Neil Fairbrother | England |
| 150 | Pat Symcox | South Africa |
| 151 | Patrick Patterson | West Indies |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 152 | Paul Reiffel | Australia |
| 153 | Peter Taylor | Australia |
| 154 | Peter Willey | England |
| 155 | Phil Edmonds | England |
| 156 | Phil Simmons | West Indies |
| 157 | Phillip DeFreitas | England |
| 158 | Pramodya Wickramasinghe | Sri Lanka |
| 159 | Ramiz Raja | Pakistan |
| 160 | Rashid Latif | Pakistan |
| 161 | Ravi Ratnayeke | Sri Lanka |
| 162 | Ravi Shastri | India |
| 163 | Richard Hadlee | New Zealand |
| 164 | Richie Richardson | West Indies |
| 165 | Robin Singh | India |
| 166 | Robin Smith | England |
| 167 | Rodney Hogg | Australia |
| 168 | Roger Binny | India |
| 169 | Roger Harper | West Indies |
| 170 | Romesh Kaluwitharana | Sri Lanka |
| 171 | Roshan Mahanama | Sri Lanka |
| 172 | Roy Dias | Sri Lanka |
| 173 | Rumesh Ratnayeke | Sri Lanka |
| 174 | Ruwan Kalpage | Sri Lanka |
| 175 | Sachin Tendulkar | India |
| 176 | Saeed Anwar | Pakistan |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 177 | Saleem Malik | Pakistan |
| 178 | Saleem Yousuf | Pakistan |
| 179 | Sanath Jayasuriya | Sri Lanka |
| 180 | Sandeep Patil | India |
| 181 | Sanjay Manjrekar | India |
| 182 | Sarfraz Nawaz | Pakistan |
| 183 | Shane Thomson | New Zealand |
| 184 | Shane Warne | Australia |
| 185 | Shivnarine Chanderpaul | West Indies |
| 186 | Shoaib Mohammad | Pakistan |
| 187 | Sikander Bakht | Pakistan |
| 188 | Simon Doull | New Zealand |
| 189 | Simon O'Donnell | Australia |
| 190 | Somachandra De Silva | Sri Lanka |
| 191 | Sourav Ganguly | India |
| 192 | Stephen Fleming | New Zealand |
| 193 | Steve Waugh | Australia |
| 194 | Sunil Gavaskar | India |
| 195 | Syed Kirmani | India |
| 196 | Tauseef Ahmed | Pakistan |
| 197 | Terry Alderman | Australia |
| 198 | Tim May | Australia |
| 199 | Tom Moody | Australia |
| 200 | Venkatapathy Raju | India |
| 201 | Venkatesh Prasad | India |

Table A1: Continued (Contd.)

|  |  |  |
| --- | --- | --- |
| **S No.** | **Name** | **Country** |
| 202 | Vinod Kambli | India |
| 203 | Viv Richards | West Indies |
| 204 | Waqar Younis | Pakistan |
| 205 | Wasim Akram | Pakistan |
| 206 | Wasim Bari | Pakistan |
| 207 | Wasim Raja | Pakistan |
| 208 | Willie Watson | New Zealand |
| 209 | Yashpal Sharma | India |
| 210 | Zaheer Abbas | Pakistan |

Table A2: Determinants of runs scored

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Independent variable | Least squares(1) | Fixed-effects(2) | Fixed-effects(3) | Fixed-effects(4) | Fixed-effects(5) |
| Age | 1.3913\*\*(0.5926) | 6.1002\*\*\*(0.9733) | 5.9814\*\*\*(0.9663) | 0.9919\*(0.5534) | 1.2283\*\*\*(0.4417) |
| Age-squared | -0.0275\*\*\*(0.0101) | -0.1027\*\*\*(0.015) | -0.1007\*\*\*(0.0149) | -0.0184\*\*(0.0072) | -0.0215\*\*\*(0.0068) |
| Experience | 0.0849\*\*\*(0.0134) | -0.0129(0.0291) | -0.0122(0.0279) | 0.0179(0.0172) | 0.015(0.0163) |
| Experience-squared | -0.0002\*\*\*(0.0000) | 0.0000(0.0000) | 0.0000(0.0000) | -0.0000(0.0000) | -0.0000(0.0000) |
| All-rounder | -1.6795\*\*\*(0.5898) | - | - | - | - |
| Balls faced | - | - | - | 0.7456\*\*\*(0.0132) | 0.7473\*\*\*(0.0133) |
| Constant | 7.1156(8.4005) | -59.8797\*\*\*(14.7724) | -54.9134\*\*\*(14.5482) | -14.414\*\*\*(13.8646) | -18.2016\*\*\*(6.6133) |
| Observations | 14,112 | 14,112 | 14,112 | 14,112 | 14,112 |
| R-squared | 0.0085 | 0.0011 | 0.0039 | 0.8197 | 0.8203 |
| Player fixed-effects | No | Yes | Yes | Yes | Yes |
| Country/opponent dummies | No | No | Yes | Yes | No |
| Year of the match dummies | No | No | No | Yes | No |
| Workload | No | No | No | Yes | Yes |
| Venue dummies | No | No | No | No | Yes |

Note: \*, \*\*, \*\*\* report significance levels at the 10%, 5%, and 1% respectively. Robust standard errors are reported in the parentheses.

Table A3: Determinants of wickets claimed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Independent variable | Least squares(1) | Fixed-effects(2) | Fixed-effects(3) | Fixed-effects(4) | Fixed-effects(5) |
| Age | 0.0945\*\*\*(0.0289) | 0.1482\*\*\*(0.0511) | 0.1568\*\*\*(0.0521) | 0.1287(0.0847) | 0.1817\*\*(0.0743) |
| Age-squared | -0.0018\*\*\*(0.0004) | -0.0022\*\*\*(0.0008) | -0.0024\*\*\*(0.0008) | -0.0029\*\*(0.0013) | -0.0029\*\*(0.0012) |
| Experience | 0.0009(0.0007) | -0.0026\* (0.0015) | -0.0031\* (0.0015) | -0.0041\*\*\* (0.0014) | -0.0022\*(0.0013) |
| Experience-squared | -3.22e-06(3.21e-06) | 1.11e-06 (3.80e-06) | 1.52e-06 (3.79e-06) | 2.37e-06 (4.23e-06) | 1.60e-07 (4.04e-06) |
| All-rounder | -0.0936\*\*\*(0.0297) | - | - | - | - |
| Overs bowled | - | - | - | 0.1564\*\*\*(0.0065) | 0.1573\*\*\*(0.0066) |
| Constant | 0.0398(0.4111) | -0.9193 (0.7682) | -0.6261 (0.8202) | 0.4887(1.8743) | -2.2513\*\*(1.2078) |
| Observations | 8,002 | 8,002 | 8,002 | 8,002 | 8,002 |
| R-squared | 0.0046 | 0.0000 | 0.0000 | 0.0198 | 0.0318 |
| Player fixed-effects | No | Yes | Yes | Yes | No |
| Country/opponent dummies | No | No | Yes | Yes | No |
| Year of the match dummies | No | No | No | Yes | No |
| Workload | No | No | No | Yes | Yes |
| Bowler-type | No | No | No | Yes | Yes |
| Venue dummies | No | No | No | No | Yes |

Note: \*, \*\*, \*\*\* report significance levels at the 10%, 5%, and 1% respectively. Robust standard errors are reported in the parentheses.

Table A4: Reduced form joint estimation

|  |  |  |
| --- | --- | --- |
|  | 3SLS(1) | 3SLS(2) |
|  | Runs | Strike-rate | Economy-rate | Wickets |
| Age | 2.8668\*\*\*(0.6237) | -2.239\*\*\*(0.8126) | -0.0749\*(0.0404) | 0.0871\*\*\*(0.0309) |
| Age-squared | -0.0488\*\*\*(0.0106) | 0.0359\*\*\*(0.0139) | 0.0011(0.0007) | -0.0017\*\*\*(0.0005) |
| Constant | -24.8628\*\*\*(9.4366) | 74.5836\*\*\*(12.2933) | 5.8845\*\*\*(0.5931) | 0.1762 (0.4537) |
| Observations | 14,080 | 14,080 | 8,002 | 8,002 |
| P-value for joint significance | 0.0197 | 0.0245 | 0.0544 | 0.0173 |
| Country/opponent dummies | Yes | Yes | Yes | Yes |
| Year of the match dummies | Yes | Yes | Yes | Yes |

Note: \*, \*\*, \*\*\* report significance levels at the 10%, 5%, and 1% respectively. Robust standard errors are reported in the parentheses. Note that the number of observations for the regressions on batting measures here is only 14,080. This is less than the number of observations in other regressions with runs as the dependent variable. This is because it is possible for a batter to be dismissed for an individual score of 0 runs without facing even a single ball (for example, a new batter who is run-out at the runner's end before he faces his first delivery). This was indeed the case for a few observations that were associated with a 0 in the denominator (see the formula for strike-rate provided in the main body of the paper).