

A photograph of four male athletes from Northern Ireland standing together and smiling. They are all wearing green cycling jerseys and have the Northern Irish flag draped over their shoulders. Each athlete is holding a Commonwealth Games medal. The athlete on the far left is holding a bronze medal, while the others are holding gold medals. The background is a blurred outdoor setting with some banners visible.

Northern Ireland

An Analysis of Northern Ireland's Performance in the Commonwealth Games

1950 - 2010

January 2010

Foreword



On behalf of Sport Northern Ireland I am delighted to introduce this analysis of Northern Ireland's performance at the Commonwealth Games between 1950 and 2010. The analysis, which focuses on medals won at the Games, provides a useful benchmark for the state of high performance sport in Northern Ireland, as the Commonwealth Games is the only global, multi-sport event in which a team from Northern Ireland competes in its own right.

As the statistics within the report demonstrate, the Northern Ireland Team's performance at the Commonwealth Games over the past 60 years has been erratic, with results steadily declining between 1994 and 2010.

2010, however, saw a significant upturn in the number of medals won with the Northern Ireland Team returning home with a total of ten medals in boxing, bowls, cycling and shooting. Sport Northern Ireland considers that this result is due to a number of factors, including the development of high performance structures at an All-Ireland and UK level within sports; the establishment of the Sports Institute for Northern Ireland and ongoing government investment in building the high performance system in Northern Ireland. There has also been more effective partnership working across key agencies, in particular the Northern Ireland Commonwealth Games Council, governing bodies of sport, the Sports Institute for Northern Ireland and Sport Northern Ireland.

Whilst the 2010 results are to be welcomed, this report highlights a number of long-standing issues that need to be addressed. These include an over reliance on male athletes and a limited number of sports for our medal success. In addition, in 2010 Northern Ireland has still under achieved compared with how its macro economic resources would predict.

It is acknowledged that this report, which is very statistical in nature, does not consider the impact of the wider sporting culture and environment in relation to our Commonwealth Games performance. In addition, it only looks at medal success and does not report on wider team performance measures such as the number of finalists and personal bests achieved etc. However, the information contained in this report will be used to inform future planning towards Glasgow 2014 in order to build further on the positive messages from Delhi 2010, and address ongoing weaknesses within Northern Ireland's high performance system.

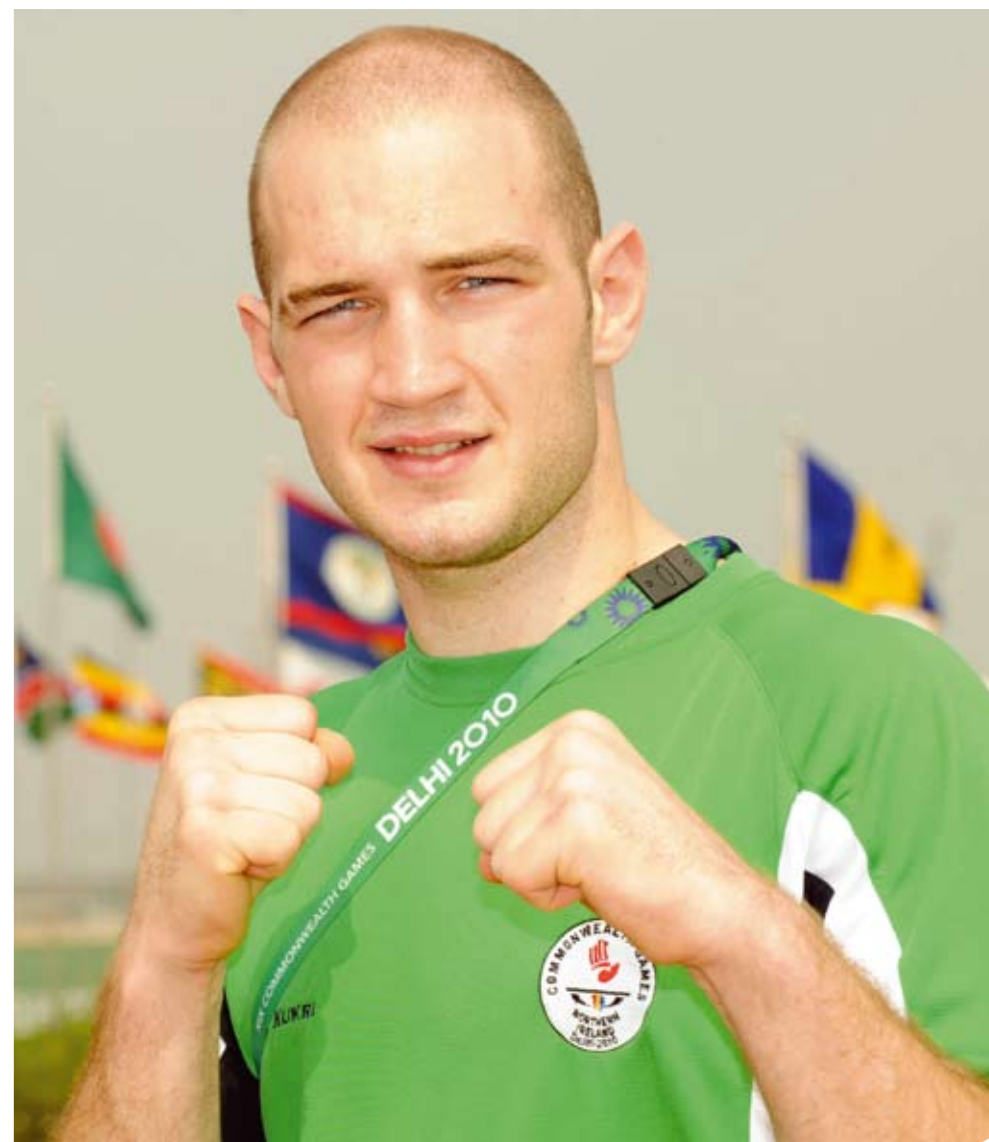
In taking this work forward, Sport Northern Ireland and the Sports Institute for Northern Ireland will work in close partnership with the NI Commonwealth Games Council, governing bodies of sports, coaches and athletes; pooling our resources and sharing our expertise. There will be challenges. However, I am confident that these can be overcome so that we send the best prepared NI Team to Glasgow in 2014.

Olive Brown

Chair of Sport Northern Ireland's Delhi 2010 Preparation Committee

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Steven Ward, Delhi 2010 Silver medallist (Boxing).

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Gary Kelly, Delhi 2010 Bronze medallist (Lawn Bowls).

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Martyn Irvine, Delhi 2010 Bronze medallist (Cycling, Team Pursuit).

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Sean Downey, Delhi 2010 Bronze medallist (Cycling, Team Pursuit).

Executive Summary

Introduction

This report has been written by the Sport Industry Research Centre (SIRC) at Sheffield Hallam University on behalf of Sport Northern Ireland. The report presents a comprehensive analysis

of Northern Ireland's performance at the Commonwealth Games in Delhi 2010. Comparisons are made over time (1950-2010) between:

- Northern Ireland, other Commonwealth countries and specifically the home countries (England, Wales and Scotland);
- Athletes representing Northern Ireland in different types of events including men, women and men and women combined (mixed) events;
- Different sports or disciplines in which Northern Ireland's athletes competed.



Sean Downey, Thomas McCarthy, Patrick Barnes, Nelson McCausland, Steven Ward, Pat Convery, Eamonn O'Kane, Matthew Hall, Patrick Gallagher, Robert McVeigh.

Methodology

The method used to compile this report was desk research, whereby a programme of secondary analysis was conducted on the results' database of the Commonwealth Games from 1950-2010. The Commonwealth Games take place every four years and thus the results are based on 16 editions of the event. The prime sources for our data were:

- the official website of the Commonwealth Games (www.thecgf.com);
- the official website of the Delhi 2010 Games (www.cwgdelhi2010.com); and
- the official website of the Glasgow 2014 Games (www.glasgow2014.com).

Results

The Commonwealth Games in context

- The number of nations contesting the Commonwealth Games has increased from twelve in 1950 to full representation of all 71 nations in 2010.
- The number of athletes contesting the Commonwealth Games has increased from 590 in 1950 to a record breaking 4,399 in 2010.
- The number of sports has increased from nine in 1950 to 17 in 2010. It is already confirmed that 17 sports will be contested in Glasgow 2014.
- The number of events contested has increased from 88 in 1950 to 272 in 2010.
- Ten core sports that are obliged to be staged accounted for 53% of the total events in 2010, with seven optional sports making up the remaining 47%.

- The number of events contested by women increased from 17 (19%) in 1950 to 121 (44%) in 2010.

Increasing competition for medals

- Competition, defined by the number of nations capable of winning medals, has increased for gold medals and decreased for medals of any colour. However, there is a marked difference in the number of nations winning medals when analysed by gender.
- In men's events, the number of nations winning a gold medal in 2010 reduced by one and there was also a decrease in the number of nations winning any medal.
- In women's events, the number of nations winning a gold medal in 2010 increased by two and the number of nations winning any medal reached a new record high of 26.

Northern Ireland's performance in the Commonwealth Games

- Northern Ireland won its second highest ever total of gold medals (three) in the Delhi 2010 Commonwealth Games.
- The ten medals won by Northern Ireland in 2010 equate to its third highest ever points total of 19, where a gold medal equals three points, a silver two points and a bronze one point.
- On a standardised basis, Northern Ireland's market share for 2010 is 1.2%, which is higher than the last three editions (1998-2006). Market share is defined as the percentage of points won expressed as a proportion of the total points available.
- Northern Ireland's increase in success in 2010 relative to 2006 is identified as being largely attributable to its male athletes.



David McCann, Delhi 2010 Bronze medallist (Cycling, Team Pursuit).

Northern Ireland's performance in 2010 compared with that of 2006

- Northern Ireland's performance in Delhi 2010 was better than Melbourne 2006 on all four measures of performance used in this research, namely: final position in the overall medal table; total medals won; points value of medals; and market share percentage.
- Northern Ireland's performance, sub analysed by gender, reveals that performance in events for men only and women only, as well as in open events, was better in 2010 than in 2006. Performance in women only and open events improved from a zero base in 2006.
- At a sport-specific level, Northern Ireland performed particularly well in boxing, with a gain of three gold medals and five medals in total. Performance in cycling improved by two medals and by one medal in shooting.

Actual performance compared with expected performance

- In 2010, Northern Ireland under achieved compared with how its macro economic resources predicted, although this indicator has improved since 2006.
- Relative to the other home nations, Northern Ireland was the best performing country when linking market share to population.

Sports in which Northern Ireland has won medals

- Northern Ireland has won 97 medals in eight different sports over the period 1950 to 2010.
- Boxing has historically been the most successful sport. Along with boxing, shooting and lawn bowls are driving contemporary success.

- Northern Ireland tends to medal in a minority of the sports contested and historically, men have performed better in this regard than women.
- Comparison with Wales highlights the importance of strategies which prioritise quality rather than quantity of medals won to improve ranking in the medals' table.

Benchmarking against other nations

- Northern Ireland has won 1% of all medals won at the Commonwealth Games between 1950 and 2010.
- Relative to other home nations, Northern Ireland's three sport market concentration is very high at 79% (boxing 43%, athletics 18% and lawn bowls 18%). In elite sport policy terms this would be regarded as being a specialisation policy, rather than a diversity policy.
- Northern Ireland is consistently over reliant on men for its medal winning success. Longer term improvements in performance could be developed by greater emphasis on achieving success in events for women.
- In terms of the quality of medals won, Northern Ireland wins relatively more silver and bronze medals (72%) than gold medals (28%). The proportion of gold medals to total medals won in 2010 (40%) counters the long-term trend.

Success by sport

- Historically, boxing has been Northern Ireland's most successful sport in the Commonwealth Games. Following two consecutive editions without a medal (2002 and 2006), performance in boxing in 2010 has recovered to previously unprecedented levels. All

three gold medals won in Delhi, and five out of the ten medals won were in boxing.

- Northern Ireland has won a medal in shooting in every edition since 1994. However, success in this sport is in relative decline between 1994 and 2010, particularly in terms of the quality of medals won.
- Northern Ireland's performance in lawn bowls is also on a declining trend. Only two out of the 17 medals won in lawn bowls have been since 2006, and the last gold medal in the sport dates back to 1998. The potential to improve performance in lawn bowls is quite limited, given that relatively few events are contested and that there are restrictions on the number of athletes that can represent each nation.
- Northern Ireland won two medals (one silver and one bronze medal) in cycling events in Delhi 2010, to complement the eight medals won in boxing, shooting and lawn bowls.

Planning for Glasgow 2014

The information contained in this report should be used to inform future planning. For this purpose, we have calculated the level of success required in Glasgow 2014 for Northern Ireland to be performing in line with its macro-economic resources (GDP and population). A 'par' estimate for 2014 of between twelve and fourteen total medals is derived, which includes three to four gold medals, three to four silver medals and six bronze medals. In principle, targets should be set for sports and athletes in receipt of public funding. However, there is a fine line between constructive pressure that motivates athletes to achieve their full potential and destructive pressure, which stresses athletes and causes them to under achieve.

1. Introduction

This report has been written by staff from the Sport Industry Research Centre (SIRC) at Sheffield Hallam University on behalf of Sport Northern Ireland, the leading public body for developing sport in Northern Ireland. The report updates a previous study¹ examining Northern Ireland's performance in the 2002 Commonwealth Games. First, we analyse the results of the Delhi 2010 Commonwealth Games and thereby continue the time series analysis begun in the original study. Second, we make a detailed comparison between Northern Ireland's performance in 2010 and its performance in 2006 and 2002.

The significance of this research is that, for the first time, it is possible to make comparisons between three editions of the Commonwealth Games in which Northern Ireland's athletes have benefited from elite athlete development programmes that have been in place for complete four

year cycles. Thus, in addition to updating an historical record of performance, this research also contributes to the forward planning of Northern Ireland's performance in future editions of the Commonwealth Games.



Matthew Hall, Delhi 2010 Bronze medallist (Shooting, 50m rifle prone).

¹ Sports Council for Northern Ireland (2004) The performance of Northern Ireland in the Commonwealth Games 1950 - 2002, Sports Council for Northern Ireland, Belfast.

2. Aim and Objectives

The aim of this research is to provide a comprehensive analysis of Northern Ireland's performance at the Commonwealth Games in Delhi 2010. The research provides comparisons over time (1950-2010) between:

- Northern Ireland, other Commonwealth countries and specifically the home countries (England, Wales and Scotland);
- Athletes representing Northern Ireland in different types of events including men, women and men and women combined (mixed) events; and
- Different sports or disciplines in which Northern Ireland's athletes competed.

The research specifically includes:

- An overview of all Commonwealth Games held since 1950, covering the number of sports, the number of events, the number of athletes and the number of nations;
- The number of nations winning a gold medal or any medal between 1950 and 2010, overall and by gender;
- Northern Ireland's points through medals between 1950 and 2010 where a gold medal equals three points, a silver two points and a bronze one point;

- Northern Ireland's overall market share between 1950 and 2010 (where market share is defined as the percentage of points won expressed as a proportion of the total points available) and market share by gender;
- Detailed analysis of Northern Ireland's performance in 2010 compared with that of 2006 and 2002;
- Detailed analysis of the other home nations' performance in 2010 compared with 2006 and 2002;
- Regression analysis to determine how Northern Ireland performs relative to other medal winning nations on the basis of its macro-level economic resources such as population and Gross Domestic Product;
- Time series performance analysis of Northern Ireland compared with the other home nations;
- Comparison of the sports Northern Ireland has medalled in and those of selected other nations;
- Breakdown of the number and proportion of medals won by gender for Northern Ireland and the comparator nations;
- Breakdown of the number and proportion of medals won by type (gold, silver, bronze) for Northern Ireland and the comparator nations; and
- Analysis of expected performance for the Commonwealth Games in 2014.



Jeremy Henry, Manchester 2002 Silver medallist (Lawn Bowls).

3. Methodology

The method used to compile this report was desk research, whereby a programme of secondary analysis was conducted on the results' database of the Commonwealth Games from 1950 to 2010. The Commonwealth Games takes place every four years and thus the results are based on 16 editions of the event. This report updates our previous work for Sport Northern Ireland and we have added the results of Delhi 2010 to our existing databases. The prime sources for our data were:

- the official website of the Commonwealth Games (www.thecgf.com);
- the official website of the Delhi 2010 Games (www.cwgdelhi2010.com); and
- the official website of the Glasgow 2014 Games (www.glasgow2014.com).

For each edition of the Commonwealth Games 1950-2010 we have reanalysed the overall final medal table into subsidiary tables so that it is also possible to view:

- overall performance by gender including mixed events;
- overall performance in specific sports or disciplines; and

- performance in specific sports or disciplines by gender, where this is possible.

The data broken down by gender and sport has been fully reconciled back to the overall data and, as such, this report and the data it is based on supersedes all previous versions and derivatives.



Eamonn O'Kane, Delhi 2010 Gold medallist (Boxing).

4. Results



Jonathan Cowan, Melbourne 2006 (Table Tennis).

4.1 The Commonwealth Games in context

The substantive part of the context has been described in previous reports, of which this report is an update. Therefore, only new data is included in this deliberately

brief scene setting. In 2010, the Commonwealth was an alliance of 71 nations, crown dependencies and protectorates. Between 2006 and 2010, Fiji withdrew from the Commonwealth, whilst Rwanda joined the Commonwealth, sending its first ever team of some 22

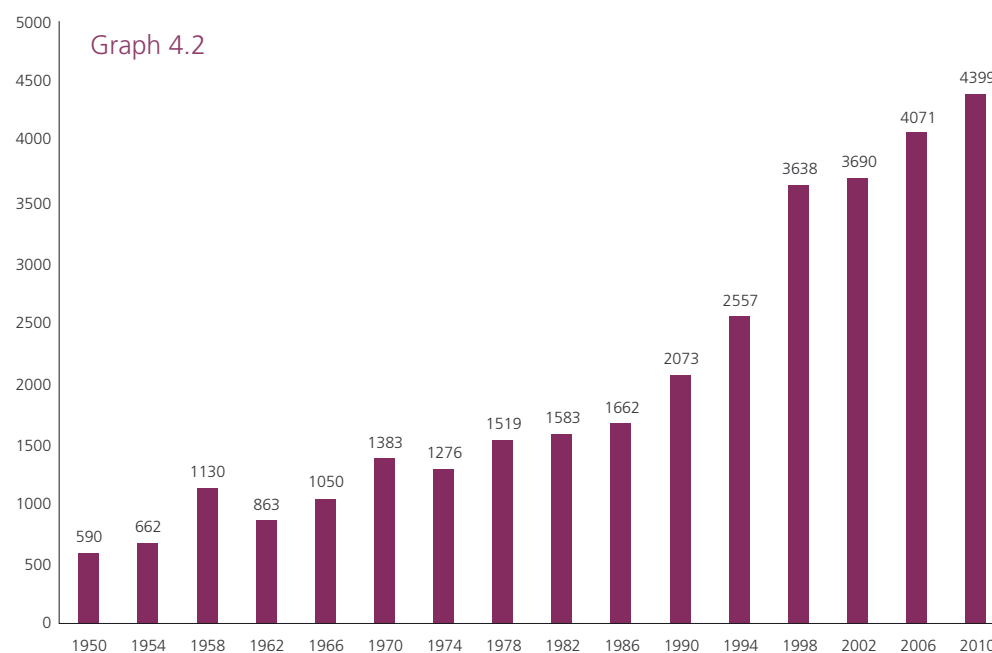
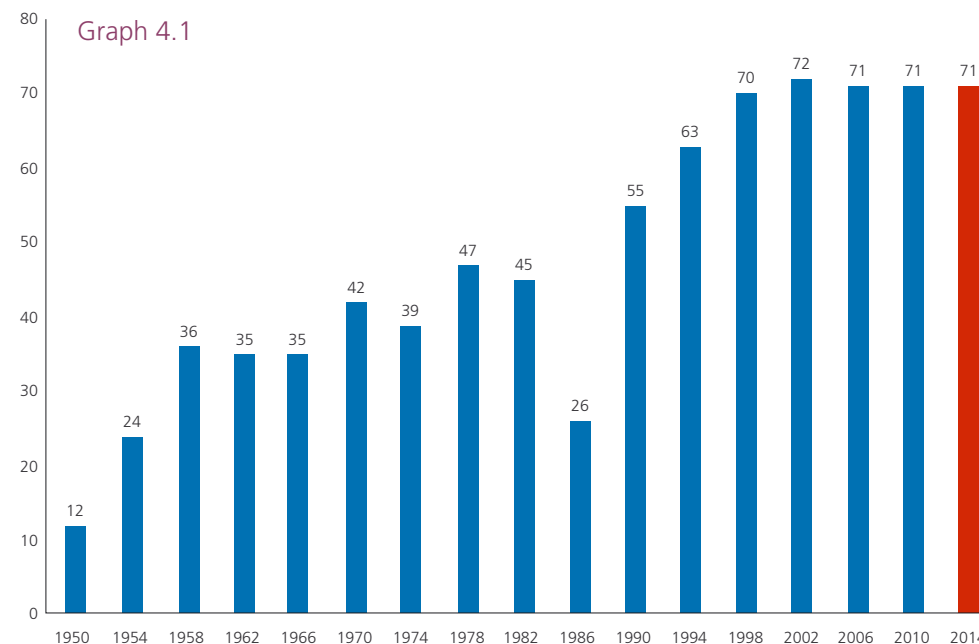
athletes. One of the ways in which the alliance expresses itself is via a quadrennial Commonwealth Games. (In 2010, all 71 nations took part in the event as shown in Graph 4.1 and Glasgow is targeting full attendance in 2014.)

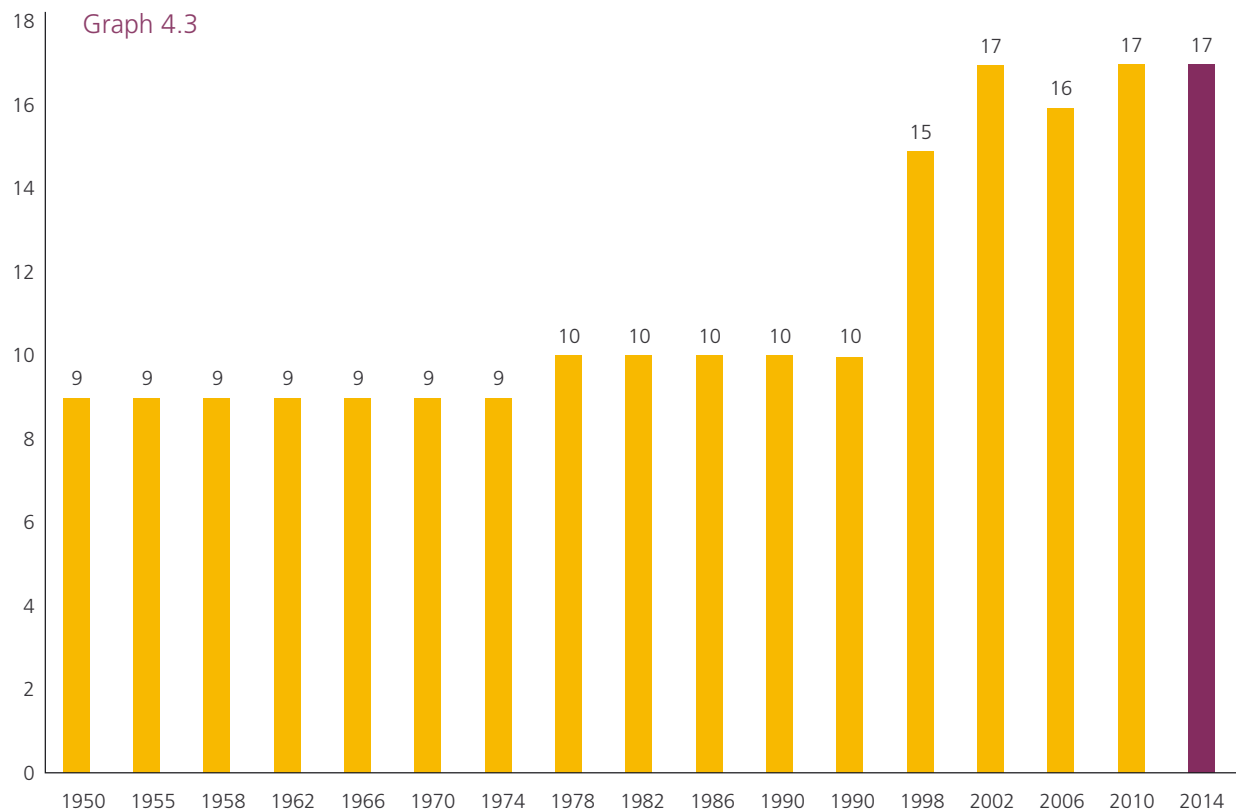
Graph 4.1: The number of nations taking part in the Commonwealth Games

In the same way that the number of nations taking part in the Commonwealth Games has increased, so too has the number of athletes. In Delhi 2010 a record breaking 4,399 athletes took part in the event, which was the highest number of athletes ever to compete in the Commonwealth Games (see Graph 4.2). Organisers of Glasgow 2014 are planning for an influx of 4,500 athletes and 2,000 support staff to the athletes' village.

Graph 4.2: The number of athletes taking part in the Commonwealth Games

The number of sports contested at each edition of the Commonwealth Games since 1950 is shown in Graph 4.3 and shows considerable expansion from ten in 1994 to the maximum 17 in 2010. Glasgow 2014 has agreed and published its schedule of sports relatively early compared with previous hosts. There will be 17 sports contested in Glasgow 2014.





Graph 4.3: The number of sports contested at the Commonwealth Games

The choice of sports contested at each Commonwealth Games is set by the host city subject to a degree of constrained choice from a predetermined list of ten 'core' and a maximum of seven additional 'approved' sports. The precise rules for the composition of the sport programme are contained within Article 21 of the Commonwealth Games Federation's constitution and an edited extract is reproduced opposite.

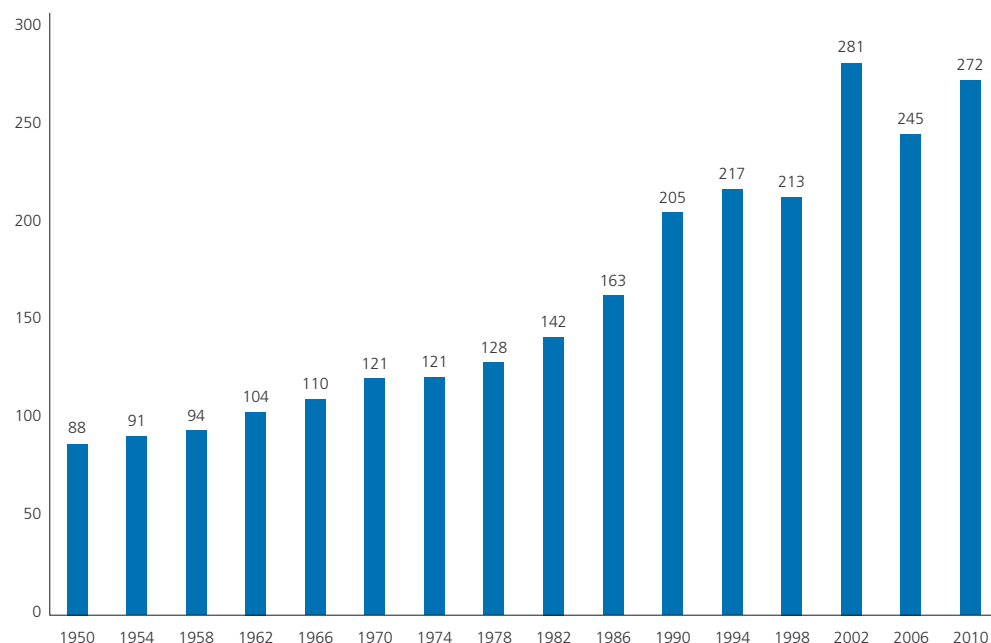
In Glasgow 2014 the seven optional sports will be: cycling, gymnastics, judo, shooting, table tennis, triathlon and wrestling.

In addition to the increase in the number of sports contested at the Commonwealth Games there has also been an increase in the number of events, which peaked at 281 in Manchester 2002 and, after falling to 245 in Melbourne 2006, rose to 272 in Delhi 2010 (see Graph 4.4). The total of 272 events contested in Delhi was the second highest number of events ever featured in a Commonwealth Games programme. The number of events to be contested in 2014 is unclear at present, but will be at least 244.

1. The programme of the Commonwealth Games shall consist of a minimum of ten sports and a maximum of 17 with no more than four team sports.
2. Ten sports shall be obligatory – Athletics, Swimming, Badminton, Boxing, Hockey, Lawn Bowls, Netball, Squash, Rugby Sevens and Weightlifting.
3. A Candidate City/OC may select up to a further seven sports from those listed below:

Archery, Basketball, Canoeing, Cycling (Road and/or Mountain Bike and/or Track), Diving, Gymnastics, Judo, Rowing, Sailing, Shooting, Softball, Table Tennis, Tennis, Tenpin Bowling, Taekwondo, Triathlon and Wrestling.
4. The maximum number of events for Para Sport Athletes under clauses five and six below shall not exceed fifteen.
5. Para Sport events in each of the following four core sports shall be obligatory – Athletics, Swimming, Lawn Bowls and Powerlifting as directed by the Federation.
6. A Candidate City/OC may select additional Para Sport events from the sports listed: Cycling (Track), Table Tennis and Wheelchair Basketball

Graph 4.4



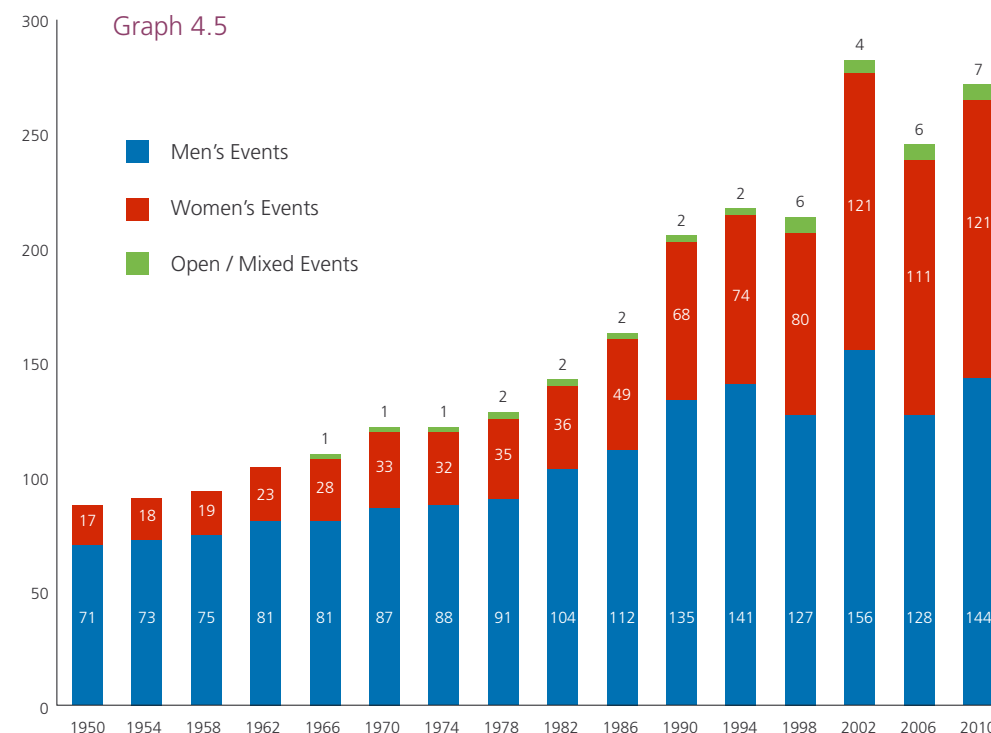
Graph 4.4: The number of events contested at each Commonwealth Games

As was the case in the Olympic Games, early editions of the Commonwealth Games were dominated by events for men and only a minority of events were available for women. However, in recent times much of the expansion of the Commonwealth Games programme has been driven by an increase in the number of events contested by women. To illustrate this point, Graph 4.5 analyses the number of events contested by men, women, and men and women (mixed events) between 1950 and 2010.

Graph 4.5: The number of events by gender

Although Graph 4.5 shows that the majority of events in the Commonwealth Games are still for men, much of

Graph 4.5



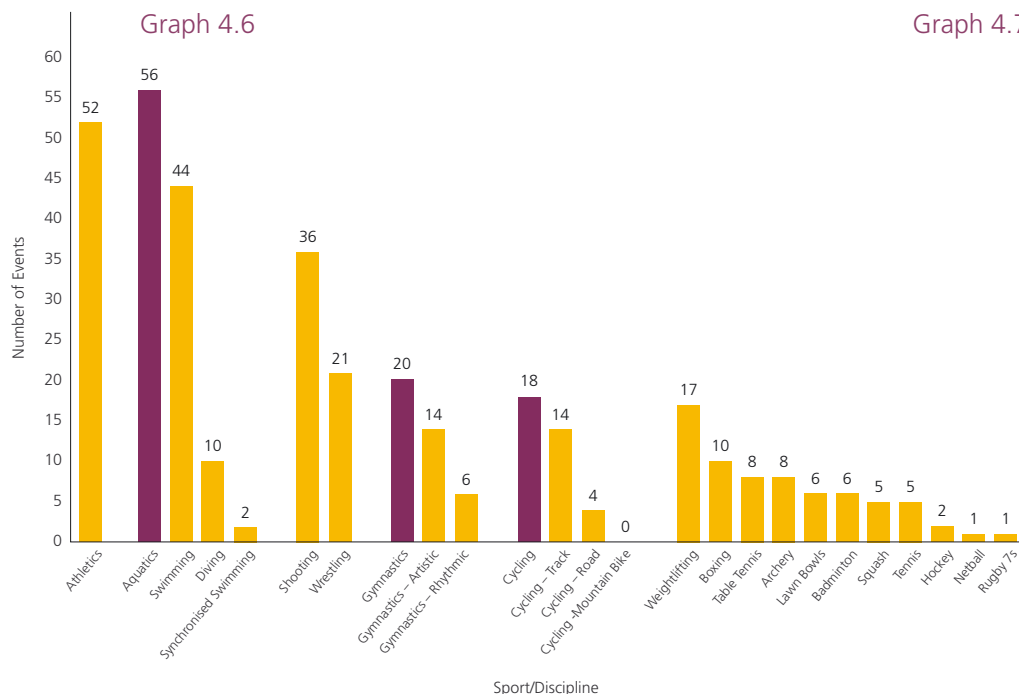
the growth in the number of events contested overall has been driven by an increase in the number of events for women. In 1950, 81% of the 88 events were contested by men and 19% were contested by women. Over time, the proportion of male events as a function of total events has steadily reduced to the extent that, in 2010, 53% of events were contested by men, 44% were contested by women and 3% were contested by men and women on equal terms (mixed events).

The number of events contested by women grew from 17 to 121 (612%) between 1950 and 2010 whereas, during the same period, the corresponding figures for men were an increase from 71 events to 144 (103%). As will be shown later in the report, the most successful nations in the Commonwealth Games are those which have realised

and capitalised on the growing importance of women's sport as a key driver of overall medal table success.

To complete the contextual analysis, we examine the sports contested in Delhi 2010 and the number of events contested in each sport. It is worth noting that the events in three sports (aquatics, cycling and gymnastics) were contested in 'disciplines' as indicated below:

- Aquatics - swimming, diving and synchronised swimming;
- Cycling - track cycling and road cycling; and
- Gymnastics - artistic gymnastics and rhythmic gymnastics.



Graph 4.6: Sports, disciplines and the number of events contested in Delhi 2010

The key point of note from Graph 4.6 is that the ten core sports accounted for 53% of the total events in Delhi 2010, with optional sports accounting for the remaining 47%. Integrated within the programme were fifteen events for Elite Athletes with a Disability in: athletics (six), swimming (six), weightlifting (two) and table tennis (one). Finally, we examine in Graph 4.7 how the number of events contested in Delhi 2010 differs from the total events contested in the previous edition of the Games, Melbourne 2006.

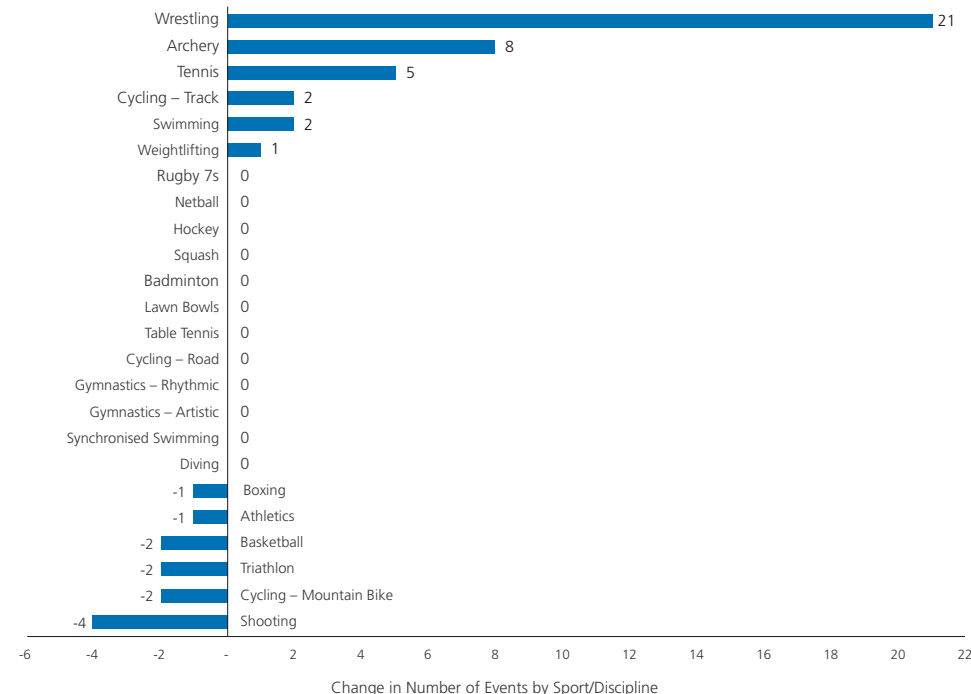
Graph 4.7: The change in the number of events contested in 2010 v 2006

The changes in the number of events are explained by four factors. First, two sports and one cycling discipline (basketball, -2 events; triathlon, -2 events;

and cycling (mountain bike) -2 events) were contested in Melbourne 2006 but were eliminated from the Delhi 2010 programme. Second, three sports (archery, eight events; tennis five events; and wrestling 21 events) were included in the Delhi 2010 programme and were not contested in Melbourne 2006. Third, three sports (athletics, -1 event; shooting -4 events; and boxing -1 event) were scaled down compared with Melbourne 2006. Fourth, two sports (weightlifting, 1 event; and swimming, 2 events) were scaled up in Delhi 2010 relative to Melbourne 2006.

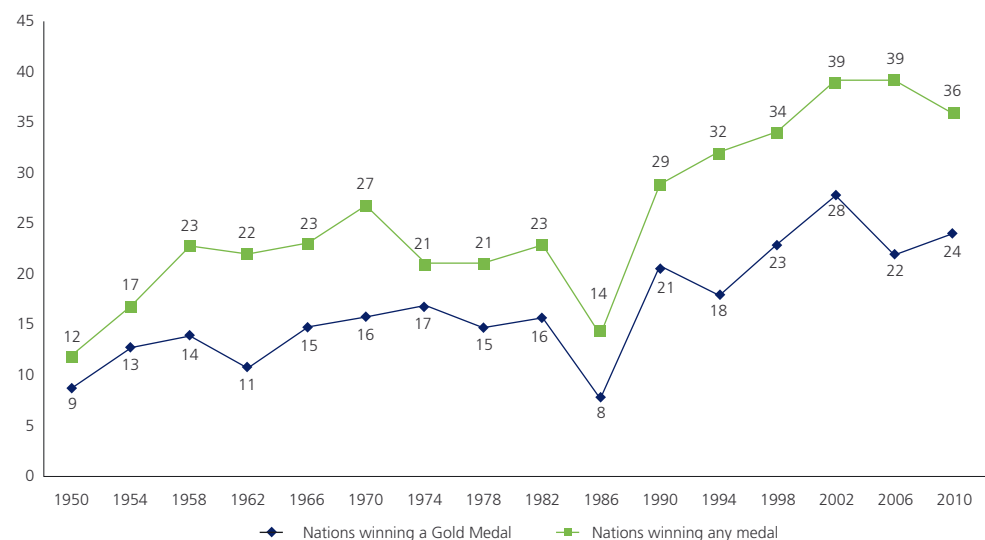
Key points

- The number of nations contesting the Commonwealth Games has increased from twelve in 1950 to full representation of all 71 nations in 2010.
- The number of athletes contesting the Commonwealth Games has increased from 590 in 1950 to a record-breaking 4,399 in 2010.



- The number of sports has increased from nine in 1950 to 17 in 2010. It is already confirmed that 17 sports will be contested in Glasgow 2014.
- The number of events contested has increased from 88 in 1950 to 272 in 2010.
- Ten core sports that are obliged to be staged accounted for 53% of the total events in 2010, with seven optional sports making up the remaining 47%.
- The number of events contested by women increased from 17 (19%) in 1950 to 121 (44%) in 2010.
- Changes in the optional sports selected, along with variations in the number of events contested in both core and optional sports, explain the increase in total events in Delhi 2010 compared with Melbourne 2006.

Graph 4.8



4.2 Evidence of increasing competition for medals

The contextual material above suggests that competition for medals may have increased over time, by virtue of more nations and more athletes taking part in the Commonwealth Games. One way of quantifying evidence of increasing competition is to analyse the number of nations that have developed medal winning capability over time. Graph 4.8 presents a time series analysis of the number of nations winning a gold medal and a medal of any colour (ie, gold, silver or bronze).

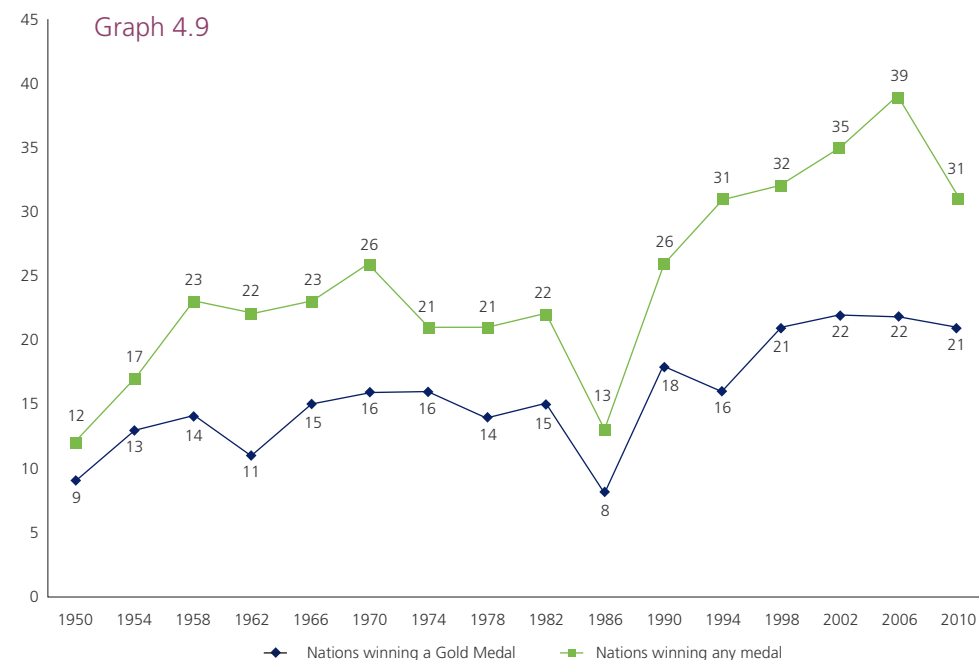
Graph 4.8: The number of nations winning a gold medal and any medal

In 1950, nine nations won a gold medal and all twelve of the participating nations won a medal of any colour.

In 2010, 24 of the 71 nations taking part won at least one gold medal and 36 won at least one medal of any colour. The number of nations winning a gold medal has increased from 22 in 2006 to 24 in 2010 as the dominance of the top five nations reduced from winning 74% of all gold medals to 70% during this period. The number of nations winning any medal in 2010 has fallen slightly to 36 from its all-time high of 39 in 2002 and 2006. Just over half 36/71 (51%) of nations taking part in Delhi 2010 won at least one medal and this finding compares favourably with the 2008 Olympic Games, in which the corresponding score was 43%.

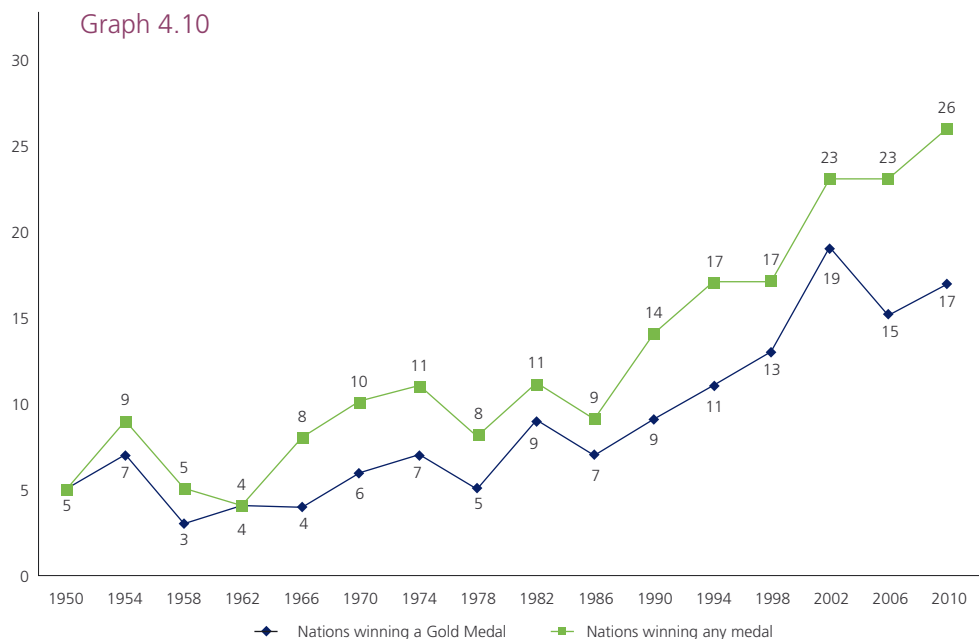
To identify potential trends of increasing competition at a disaggregated level, we have replicated the analysis shown in Graph 4.8 by gender to see if there are any differences from the overall picture.

Graph 4.9



Graph 4.9: The number of nations winning a gold medal and any medal: men

Graph 4.9 reveals that for men's events in Delhi 2010 there was a reduction in the number of nations winning a gold medal (-1) and any medal (-8) relative to Melbourne 2006. This finding suggests that the top performing nations have become more dominant in men's events than in the past. It follows that, if overall, the number of nations winning a gold medal has increased, and the number of nations winning a gold medal in men's events has decreased, then the number of nations winning a gold medal in women's events must have increased. Similarly, if the number of nations winning any medal has fallen by three overall, and in men's events this fall was eight, it also follows that the number of nations winning any medal in women's events must have increased. These points are confirmed in Graph 4.10.



Graph 4.10: The number of nations winning a gold medal and any medal: women

The number of nations winning a gold medal in women's events increased to 17 in Delhi 2010; the second highest score ever. The number of nations winning any medal reached a record high of 26 in Delhi and continues a consistent upward trend from 1986. Taken as a whole, the data suggests that between 2006 and 2010 there has been an increase in dominance of some nations in men's events, whereas for women's events the opposite is true. This latter point is well illustrated by the Cayman Islands winning its first ever gold in the women's 200m (athletics).

Key points

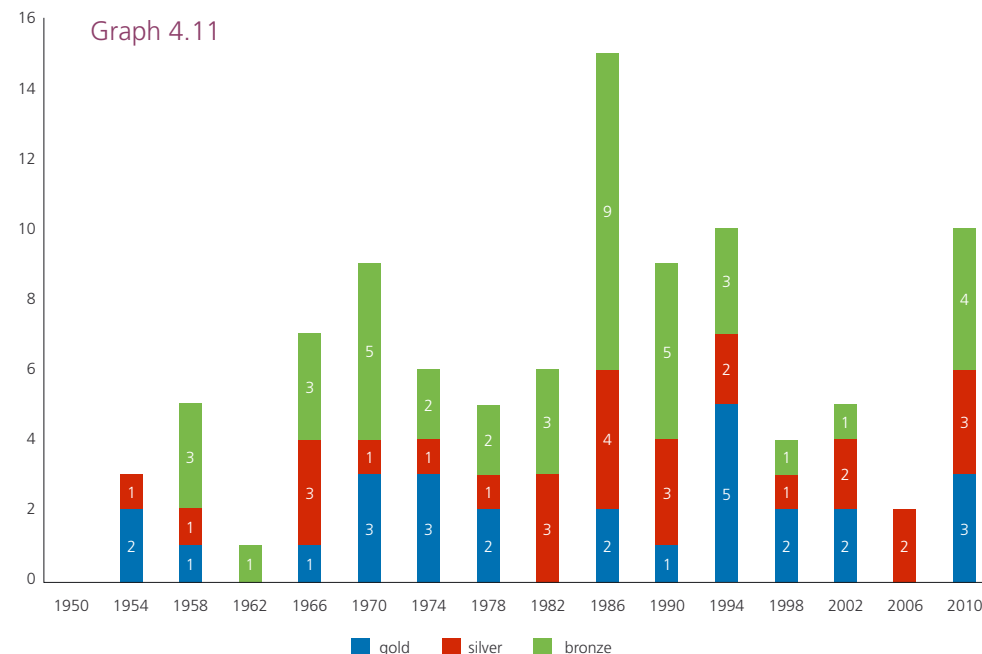
- Competition, defined by the number of nations capable of winning medals, has increased for gold medals and decreased for medals of any colour.

However, there is a marked difference in the number of nations winning medals when analysed by gender.

- In men's events, the number of nations winning a gold medal in 2010 reduced by one and there was also a decrease in the number of nations winning any medal.
- In women's events, the number of nations winning a gold medal in 2010 increased by two and the number of nations winning any medal reached a new record high of 26.

4.3 Northern Ireland's performance in the Commonwealth Games

Northern Ireland's overall performance in the Commonwealth Games between 1950 and 2010 is shown in Graph 4.11. Northern Ireland has taken part in every edition of the event, bar 1950, and has won at least one medal at each edition that it has contested.



Graph 4.11: Northern Ireland's medal-winning performance by edition

In absolute terms, Northern Ireland is identified as having had a successful Commonwealth Games in 2010, with the three gold medals won matching its second highest level of achievement to date. The total of ten medals won was also Northern Ireland's second best ever performance, surpassed only in 1986 (fifteen medals). Note that the medal target in 2010 was five, which means that Northern Ireland over achieved relative to expectations. Compared with recent editions (1998-2006), Northern Ireland has improved its performance in terms of both quantity and quality of medals won. Melbourne 2006 was widely viewed as being a 'disappointing' Commonwealth Games for Northern Ireland, with the country winning only two silver medals. The positive change in 2010 coincides with significant levels of capital and revenue funding available to elite sport in recent years and the development of the Sports Institute of Northern Ireland.

Northern Ireland's recovery in the quality of medals won in 2010 is illustrated to good effect when the medals won are converted into a points score where gold = 3, silver = 2 and bronze = 1 as shown in Graph 4.12.

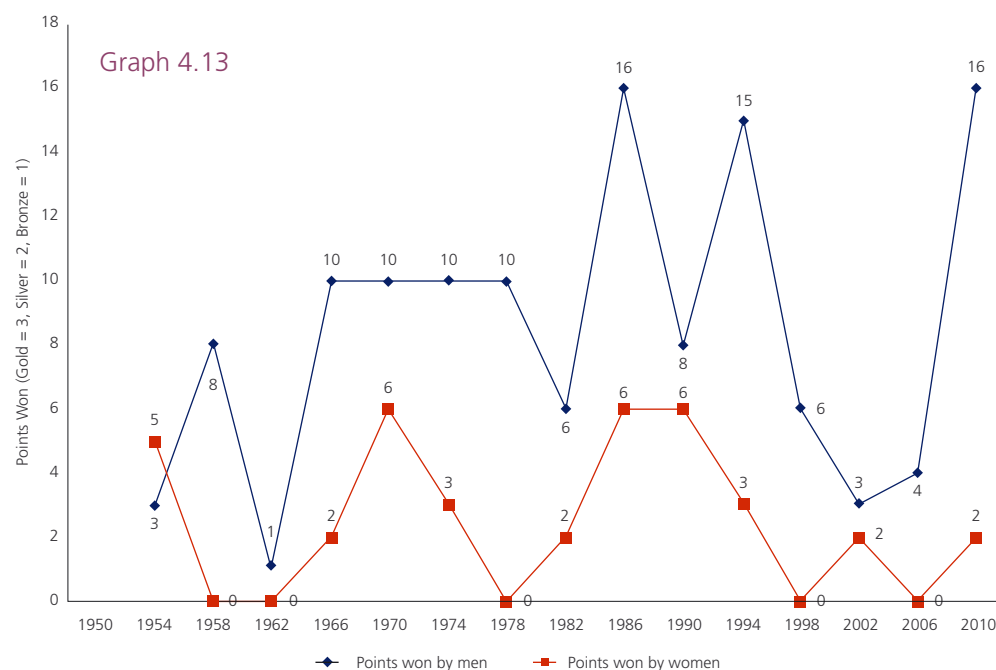
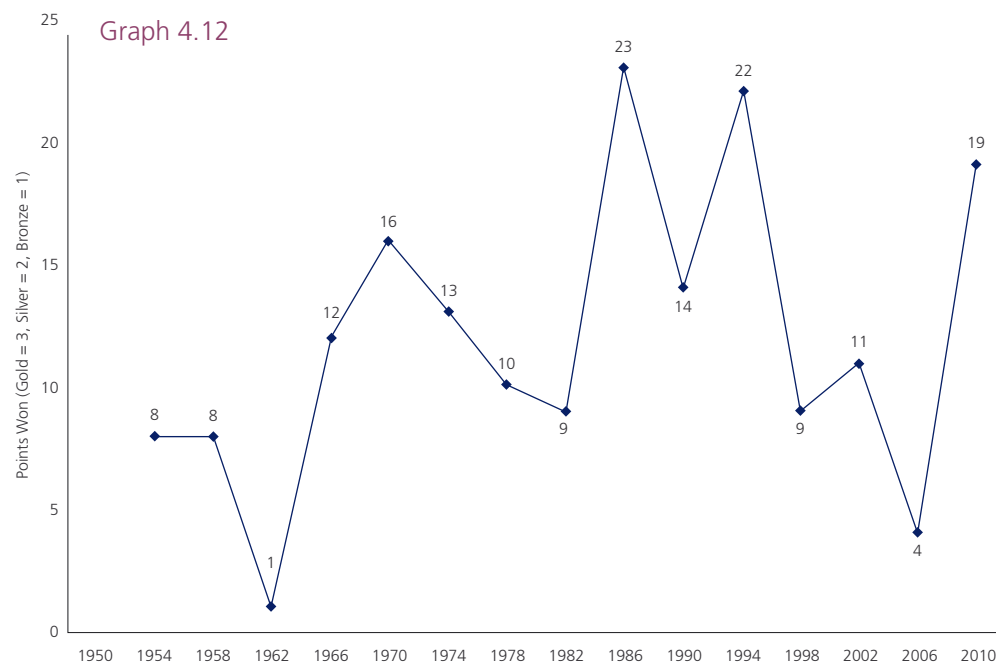
Graph 4.12: Northern Ireland's points 1950-2010

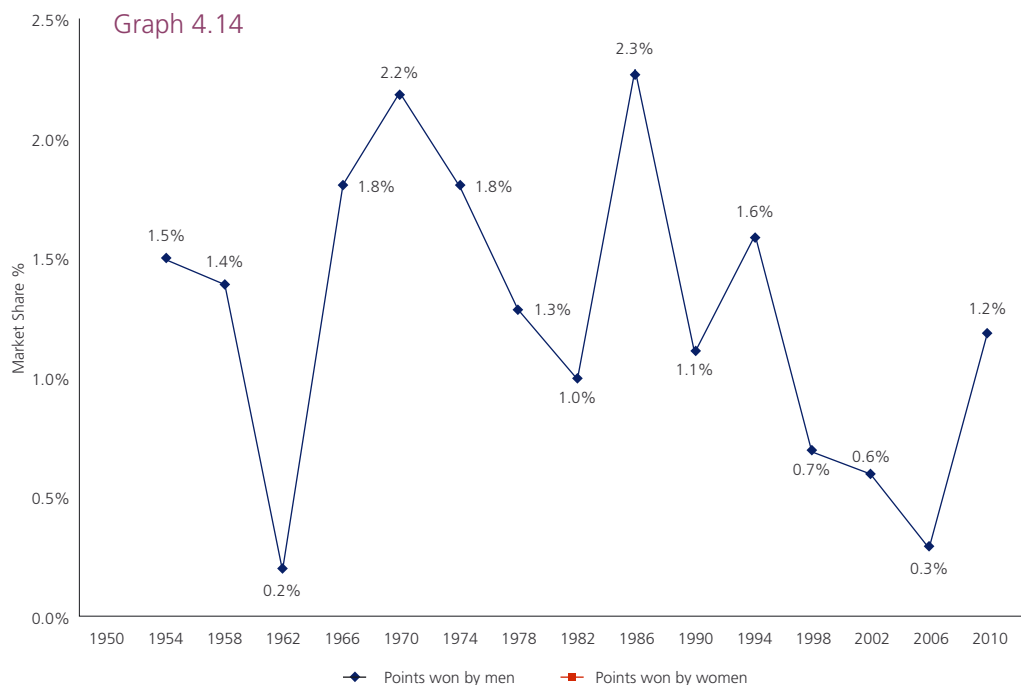
Graph 4.12 illustrates that when medals are converted to points, 2010 was Northern Ireland's third best performance in the Commonwealth Games after 1986 and 1994. However, sub analysis by gender reveals some interesting differences between the performance of Northern Ireland's male and female athletes (see Graph 4.13).

Graph 4.13: Northern Ireland's points sub analysed by gender from 1950 to 2010

Note in Graph 4.13 that the points total shown for Northern Ireland's men (16) and women (2) does not equal the overall total of 19 shown in Graph 4.12. This is because Graph 4.13 excludes points won in mixed events where men and women compete together (mixed doubles in tennis), or on equal terms (Queen's Full Bore Rifle). In 2010, Northern Ireland scored a solitary point in the mixed events which then brings the total to 19 ($16+2+1 = 19$). This point helps to reconcile Northern Ireland's performance between 2006 and 2010. Overall, there was a gain of 15 points; men gained twelve points; women gained two points; and one point was gained in mixed events.

Examining points won in isolation is of limited value because the number of events has been different in fifteen of the 16 editions of the Commonwealth Games since 1950. Thus it would be unwise to assume that the points won in one edition is a greater achievement than the points won in another edition without taking into account the number of points available. The relationship between points won and points available is called 'market share' and is the only measure of performance which enables time series comparisons to be made on a like-for-like basis. Northern Ireland's market share for the period 1950 to 2010 is shown in Graph 4.14.





Graph 4.14: Northern Ireland's market share 1950 - 2010

The market share trend line confirms that, in standardised terms, 2010 was a year of improvement in performance compared with 2006, 2002 and 1998. Furthermore, as all of the points in Graph 4.14 are comparable on a like-for-like basis, it can be seen that 2010 is actually Northern Ireland's ninth best performance since 1954. Any recovery that is taking place is to levels that were attained prior to 1994. The increase in nations taking part in the Commonwealth Games and the increasing number that are taking a state-sponsored strategic approach to elite sport development, have created conditions whereby medals are increasingly harder to win than in the past. It is also likely to be the case that there are diminishing returns to scale, that is, the price of success is increasing at a greater rate than any increase in medal winning capability. This means that even more resources must be

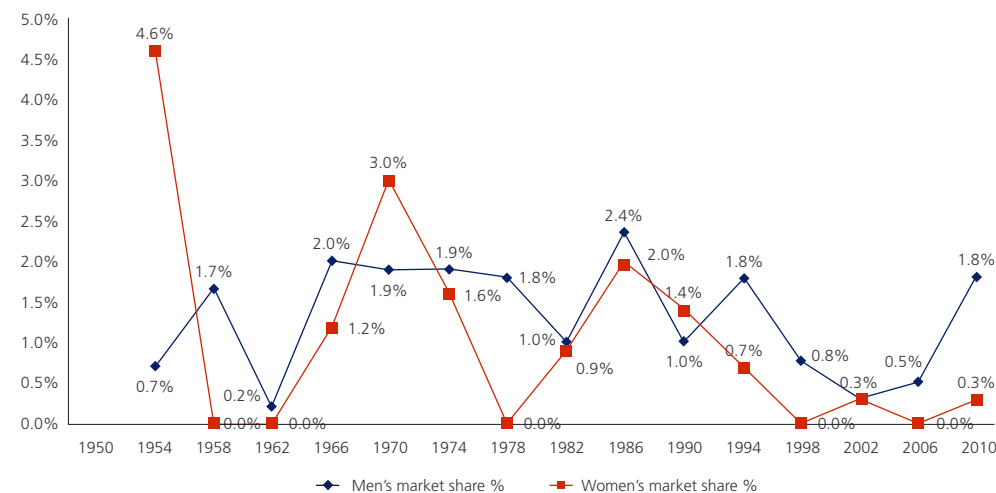
invested in order for a nation to retain its medal winning capability.

At an overall level, market share masks the difference in achievement between men and women. Graph 4.15 addresses this issue by showing time series analysis of market share sub-analysed by gender and edition.

Graph 4.15: Northern Ireland's market share by gender

Graph 4.15 illustrates market share for Northern Ireland's male and female athletes between 1950 and 2010. The main finding is that men have out-performed women on 11/15 times and women have out-performed men on 3/15 times (1954, 1970 and 1990). The market share performance of men and women was equal in 2002 (0.3%). The gradient of the trend line between 2006 and 2010 is steeper for men than women, which means that Northern Ireland's improvement between 2006 and 2010 was primarily caused by male athletes building on their previous levels of performance.

Graph 4.15



Key points

- Northern Ireland won its second highest ever total of gold medals (three) in the Delhi 2010 Commonwealth Games.
- The ten medals won by Northern Ireland in 2010 equate to its third highest ever 'points' total of 19.
- On a standardised basis, Northern Ireland's market share for 2010 is 1.2%, which is higher than the last three editions (1998-2006).
- Historically, male athletes representing Northern Ireland have consistently out-performed their female counterparts and this trend is repeated in 2010. Northern Ireland's increase in success in 2010, compared with that of 2006, is identified as being largely attributable to male athletes.

4.4 Detailed analysis of Northern Ireland's performance in 2010 compared with 2006

In this section we analyse in detail Northern Ireland's performance over the period 2006 to 2010. A useful starting point is to consider how the top nations and selected others performed according to four separate measures of performance, namely: final position in the overall medal table; total medals won; points value of medals; and market share percentage. Table 4.1 summarises these four measures and the direction of their change between 2006 and 2010.

Table 4.1: The top nations in 2010 using four different performance measures

Table 4.1 illustrates that, in terms of medals' table ranking, there were some notable changes in Delhi 2010 compared with Melbourne 2006. Although Australia topped the table again, its dominance was significantly reduced without the benefit of home advantage. India enjoyed its best ever Commonwealth Games, achieving second place in the medals' table and improving on all measures of performance. India's success in the medals' table came at the expense of England and Canada who both slipped a place. However, England improved on all other indicators whilst for Canada, 2010 was a relatively poor Commonwealth Games, with all other indicators showing deteriorating performance.

For Northern Ireland, all four measures of performance reveal that 2010 was a more successful year than 2006. This finding is encouraging in its own right and is perhaps testament to the increased focus on elite sport development in Northern Ireland since 2006. However, as will be demonstrated later in this report, Northern Ireland is still under-performing relative to what its population and wealth (Gross Domestic Product) would otherwise predict.

As a development to our previous report, we now examine Northern Ireland's performance relative to the

other home nations as well as broken down by gender and mixed events. Table 4.2 shows overall performance of the four home nations.

Table 4.2: The performance of the four home nations 2010 v 2006 - Overall

At an overall level, Northern Ireland is the only home country to have improved on all four measures of performance and Scotland is the only nation whose performance is worse on all four indicators. It should be noted that Northern Ireland's improvement was from a very low base, and its 2010 performance is still inferior to the other home nations on all indicators. England, as

discussed above, fell by one place in the medals' table ranking despite improvements on all other indicators. Wales is an interesting case, as it won the same number of medals and achieved the same number of points, but also recorded a lower ranking and a lower market share than in 2006. Despite winning the same number of medals and points as in 2006, Wales' market share fell because there were more events and medal-winning opportunities in 2010 compared with 2006. Thus Wales failed to maintain its share of an increased volume of medal-winning opportunities. A similar position to Table 4.2 is revealed when the data is broken down by gender as shown in Table 4.3.

Table 4.1

Nation	Medals' Table (2010, 2006)	Total Medals (2010, 2006)	Points (2010, 2006)	Market Share (2010, 2006)
Australia	Same (1st, 1st)	Worse (177,222)	Worse (380, 458)	Worse (23.1%, 31.1%)
India	Better (2nd, 4th)	Better (101, 50)	Better (204, 111)	Better (12.4%, 7.5%)
England	Worse (3rd 2nd)	Better (142, 110)	Better (275, 222)	Better (16.7%, 15.0%)
Canada	Worse (4th, 3rd)	Worse (75, 86)	Worse (144, 167)	Worse (8.7%, 11.3%)
South Africa	Same (5th, 5th)	Worse (33, 38)	Worse (68, 75)	Worse (4.1%, 5.1%)
Kenya	Better (6th,10th)	Better (32, 18)	Better (67, 35)	Better (4.1%, 2.4%)
Malaysia	Better (7th, 8th)	Better (35, 29)	Better (69, 55)	Better (4.2%, 3.7%)
Singapore	Better (8th, 11th)	Better (31, 18)	Better (64, 34)	Better (3.9% 2.3%)
Nigeria	Better (9th, 12th)	Better (35,17)	Better (67, 31)	Better (4.1%, 2.1%)
Scotland	Worse (10th, 6th,)	Worse (26, 29)	Worse (54, 58)	Worse (3.3%, 3.9%)
New Zealand	Worse (11th 9th)	Better (36, 31)	Better (70, 55)	Better (4.3% 3.7%)
Northern Ireland	Better (13th, 25th)	Better (10, 2)	Better (19, 4)	Better (1.2%, 0.3%)
Wales	Worse (15th, 13th)	Same (19, 19)	Same (30, 30)	Worse (1.8%, 2.0%)

Table 4.2

Nation	Medals' Table (2010, 2006)	Total Medals (2010, 2006)	Points (2010, 2006)	Market Share (2010, 2006)
England	Worse (3rd, 2nd)	Better (142, 110)	Better (276, 225)	Better (16.8%, 15.2%)
Scotland	Worse (10th, 6th)	Worse (26, 29)	Worse (54, 58)	Worse (3.3%, 3.9%)
N. Ireland	Better (13th, 25th)	Better (10, 2)	Better (19, 4)	Better (1.2%, 0.3%)
Wales	Worse (15th, 13th)	Same (19, 19)	Same (30, 30)	Worse (1.8% 2.0%)

Table 4.3: The performance of the four home nations 2010 v 2006 - Men

The main finding in Table 4.3 is the relatively poor performance of Wales' male athletes between 2006 and 2010. Wales maintained twelfth place in the men's medal table by virtue of winning two gold medals as in 2006. However, in overall terms the number of medals won was five fewer which, in turn, caused a 44% fall in market share, from 2.4% in 2006 to 1.4% in 2010. Northern Ireland's men show consistently better performance in 2010 compared with 2006 on all four counts. Moreover, in 2010, Northern Ireland's men out-performed their Welsh counterparts in terms of total medals won, points and market share. When repeating the analysis for female athletes in Table 4.4, the findings help to clarify Tables 4.2 and 4.3.

Table 4.4: The performance of the four home nations 2010 v 2006 - Women

England's female athletes maintained third place in the medals' table and improved on all other indicators. Scotland's female athletes followed the nation's overall trend of performing worse on all indicators, whereas for Northern Ireland there was improvement on all indicators from a zero base in 2006. Wendy Houvenaghel secured a silver medal in track cycling (women's 3000m individual pursuit), which was the only medal won by Northern Ireland in women only events in 2010. Although Wales' female athletes did not win a gold medal as they had in 2006, (which in turn explains their fall of five places in the medal table), they did win five more medals in total than in 2006, which caused an increase in market share. Whilst at an overall level Wales appears to have delivered a performance in Delhi comparable to that in Melbourne, this diagnosis masks a notable decline in the performance of male athletes and a compensating improvement in the performance of female athletes. To complete the analysis, Table 4.5 shows the performance of the home nations in the seven mixed events in 2010 compared with that of 2006.

Table 4.5: The performance of the four home nations 2010 v 2006 - Mixed

Table 4.5 confirms how Northern Ireland's improvement in both men's events and women's events in 2010 was supplemented by a small gain in mixed events. David Calvert won a bronze medal for Northern Ireland in an open shooting event. This gain is from a zero base in

2006, and as is the case with Scotland, this is shown as improvement on all four performance measures.

An alternative way of looking for improving and deteriorating nations is to plot the change in gold medals won against the change in total medals won, as shown in Table 4.6.

Table 4.3

Nation	Medals' Table (2010, 2006)	Total Medals (2010, 2006)	Points (2010, 2006)	Market Share (2010, 2006)
England	Worse (3rd, 2nd)	Better (79, 59)	Better (160, 129)	Better (18.3%, 16.6%)
Scotland	Worse (9th, 5th)	Worse (15, 19)	Worse (31, 38)	Worse (3.5%, 4.9%)
N. Ireland	Better (11th, 24th)	Better (8, 2)	Better (16, 4)	Better (1.8%, 0.5%)
Wales	Same (12th, 12th)	Worse (7, 12)	Worse (12, 19)	Worse (1.4%, 2.4%)

Table 4.4

Nation	Medals' Table (2010, 2006)	Total Medals (2010, 2006)	Points (2010, 2006)	Market Share (2010, 2006)
England	Same (3rd, 3rd)	Better (57, 46)	Better (107, 84)	Better (14.7%, 12.6%)
Scotland	Worse (11th, 7th)	Worse (9, 10)	Worse (18, 20)	Worse (2.5%, 3.0%)
N. Ireland	Better (22nd, N/A)	Better (1, 0)	Better (2, 0)	Better (0.3%, 0.0%)
Wales	Worse (18th, 13th)	Better (12, 7)	Better (18, 11)	Better (2.5%, 1.6%)

Table 4.5

Nation	Medals' Table (2010, 2006)	Total Medals (2010, 2006)	Points (2010, 2006)	Market Share (2010, 2006)
England	Worse (3rd, 1st)	Better (6, 5)	Worse (9, 12)	Worse (21.4%, 33.3%)
Scotland	Better (5th, N/A)	Better (2, 0)	Better (5, 0)	Better (11.9%, 0.0%)
Northern Ireland	Better (5th, N/A)	Better (1, 0)	Better (1, 0)	Better (2.4%, 0.0%)
Wales	N/A	N/A	N/A	N/A

Table 4.6: Change in gold medals against change in total medals 2006-2010

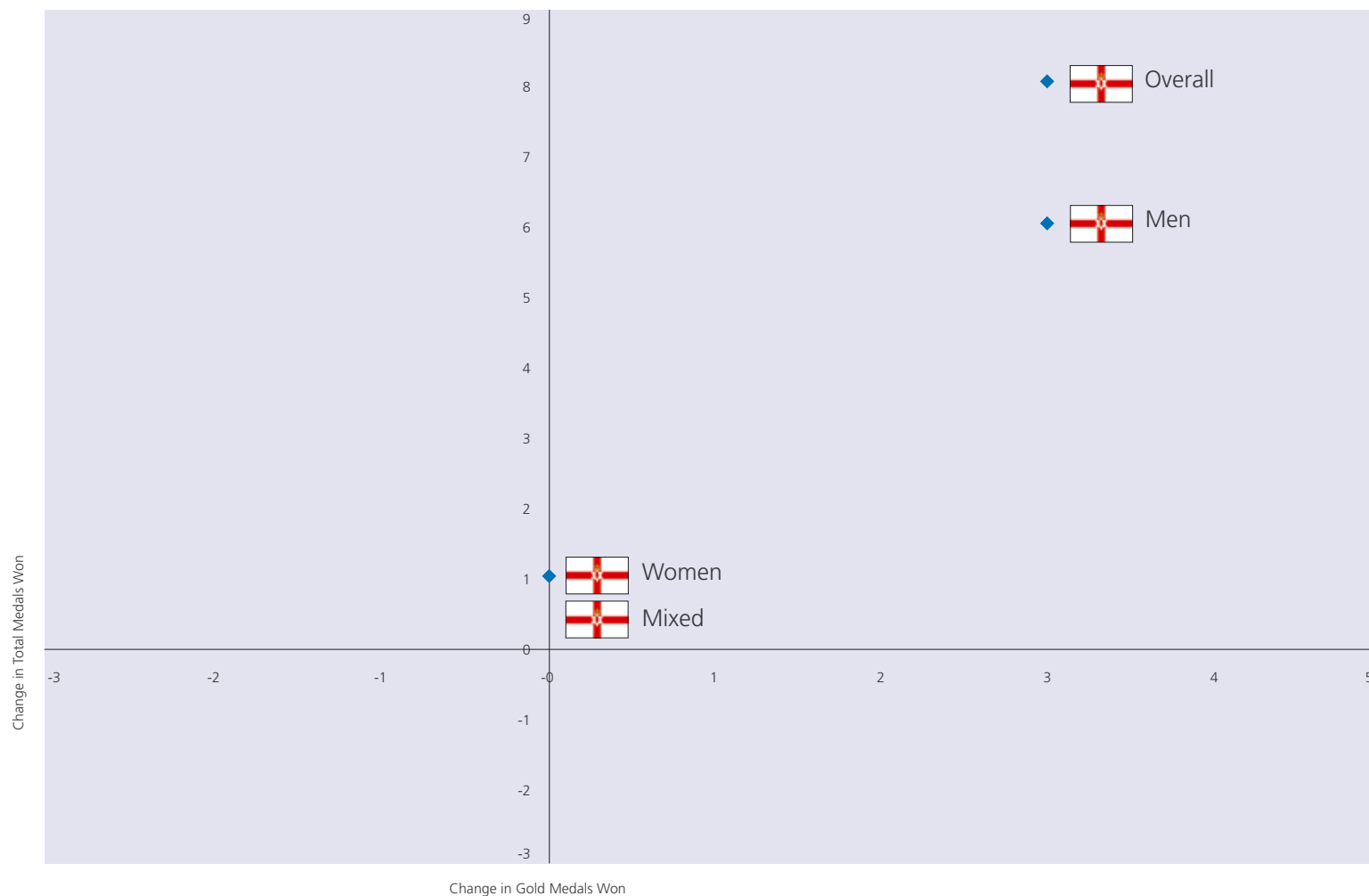
In Table 4.6 India is identified as the most improved nation as a result of increasing its gold medals won by 17 and total medals by 52. Other improving nations are Nigeria, Kenya, Singapore and Malaysia. Northern Ireland is the sixth most improved nation overall and the most improved home nation, winning three more gold medals than it did in Melbourne 2006. England is also an improving nation with one more gold medal than 2006 and 29 more medals overall. Scotland is in the bottom left quadrant, confirming the loss of two gold medals and three medals overall. Wales, whilst maintaining its total number of medals, lost one gold medal relative to 2006 and finds itself on the axis of the same quadrant as Scotland. The greatest medal losers were Australia and Jamaica. Australia's performance can be explained by the inevitable impact of not being the host nation. By contrast, Jamaica failed to maintain its domination of the track and field sprint events.

In the same way that the data in Table 4.6 can be used to diagnose overall performance, it can also be used to identify relative performance by gender and by sport/discipline. In Graph 4.16 Northern Ireland's performance in events for men, women and mixed/open categories is plotted.

Table 4.6

Cluster	Nations	Change in Medals Won	
		Gold	Total
Cluster 1: ↑ medals won - gold & total (x11)	India	17	52
	Nigeria	7	16
	Kenya	6	14
	Singapore	5	12
	Malaysia	5	7
	Northern Ireland	3	8
	Samoa	3	3
	England	1	29
	Cyprus	1	5
	Bahamas	1	4
	Botswana	1	2
Cluster 2: ↑ medals won - gold only (x2)	Pakistan	1	0
	Nauru	1	0
Cluster 3: ↑ medals won - total only (x4)	New Zealand	0	4
	Trinidad and Tobago	0	3
	Cameroon	0	3
	Sri Lanka	0	2
Cluster 4: No change / mixed performance (x3)	Bangladesh	0	0
	Namibia	-1	1
	Ghana	-2	1
Cluster 5: ↓ medals won - total only (x6)	Uganda	0	-1
	Seychelles	0	-1
	Mauritius	0	-1
	South Africa	0	-5
	Canada	0	-11
	Papua New Guinea	-1	-1
Cluster 6: ↓ in medals won - gold only (x2)	Wales	-1	0
	Isle of Man	-1	0
Cluster 7: ↓ medals won- gold & total (x3)	Scotland	-2	-3
	Jamaica	-8	-15
	Australia	-10	-43

Graph 4.16



Graph 4.16: Northern Ireland's change in gold medals won against change in total medals by gender 2006 - 2010

Graph 4.16 is a succinct visual confirmation that Northern Ireland's overall performance in Delhi contained

variations by gender. Three gold medals were gained in events for men only, whereas Northern Ireland did not win any gold medals in 2006 and 2010 in the women only and mixed events. Similarly, in events for men only (+6), women only (+1) and men and women combined

(+1), eight medals in total were gained (from 2 in 2006 to 10 in 2010).

Replicating the analysis in Graph 4.16 for the four home nations produces the data shown in Graph 4.17.

Graph 4.17

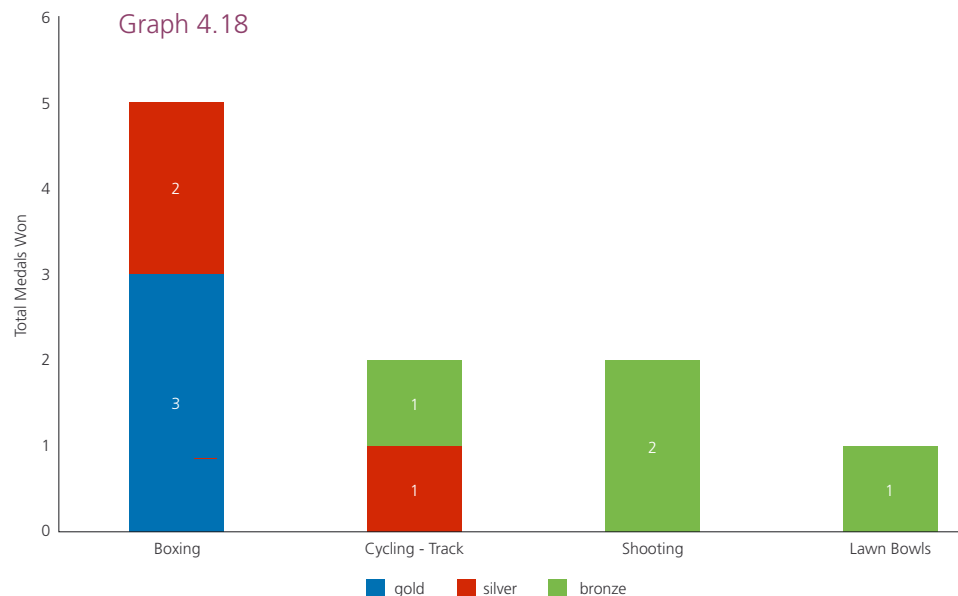


Graph 4.17: Home nations' changes in gold medals won against change in total medals by gender 2006 - 2010

Northern Ireland is identified as the most improved home nation in terms of increased gold medals won overall. These gold medals were all won by men in boxing and were from a zero base. England's women athletes were the most improved in terms of gold medals and total

medals won. By contrast, England's male athletes lost one gold medal relative to 2006, but were the most improved in terms of total medals won. Scotland's men lost two gold medals in 2010 and also lost four medals in total. The success of Wales' female athletes in terms of total medals won is clearly shown as is the variation by gender for Northern Ireland shown on its own in Graph 4.16 above.

In the same way that it is possible to highlight changes in medal-winning performance by gender, it is also possible to drill down to sport-specific level. To put our sport-specific analysis into context, we start with a graph showing the number of medals won by type for each sport.



Graph 4.18 Northern Ireland's performance in 2010 by sport

Graph 4.18 illustrates that all three of the gold medals won by Northern Ireland in 2010 were achieved in boxing, as were half of its total medals (5/10). Other sports in which Northern Ireland medalled in 2010 were track cycling (one silver and one bronze), shooting (two bronze) and lawn bowls (one bronze). The change in medals won by sport between 2006 and 2010 is shown in Graph 4.19.

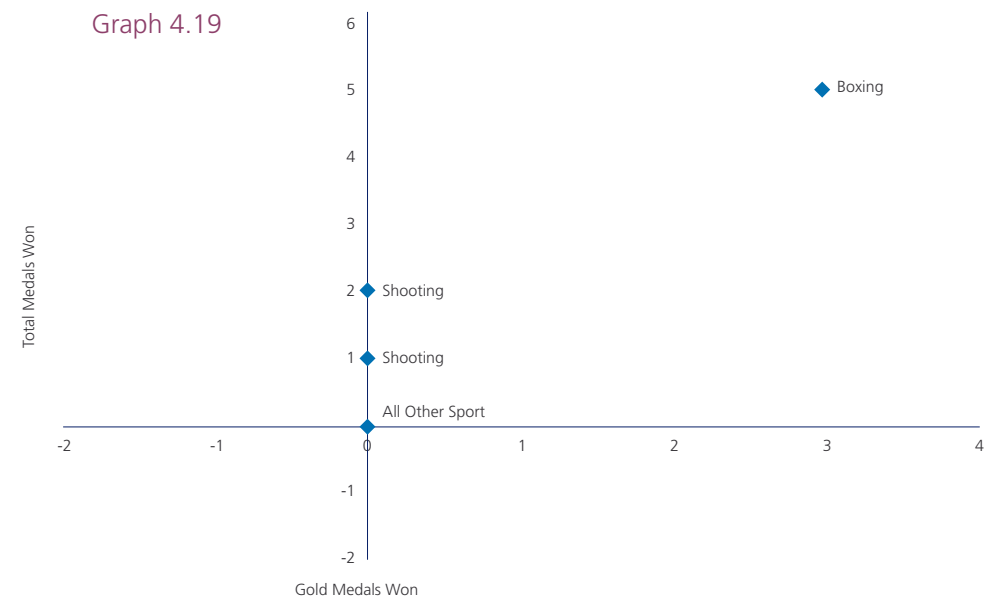
Graph 4.19 Northern Ireland's change in gold medals won against change in total medals won by sport 2006 - 2010

When analysing changes in performance by sport, as shown in Graph 4.19, it can be seen that there are two clusters of performance. First, boxing is in the top right-hand quadrant, meaning Northern Ireland increased both gold medals won and total medals won in this sport. In the absence of formal performance targets,

being located in the top right-hand quadrant should be taken as a sign of success.

Second, there are two sports which find themselves located above the 'x' axis but on the 'y' axis, which means that gold medals won did not change but total medals won increased. These sports are cycling (track) and shooting. The total medals won in cycling increased by two in 2010 (from a zero base in 2006), whereas one additional medal was won in shooting compared with 2006.

All other sports contested by Northern Ireland in Delhi 2010 are located at the intersection of the x axis and y axis which means that performance in these sports was unchanged between 2006 and 2010. These include: archery, athletics, badminton, cycling (road), gymnastics (artistic), lawn bowls, squash, swimming, table tennis and wrestling (freestyle and Greco-Roman). It is relevant to note that Northern Ireland did not lose any medals in the sports that it contested in both Melbourne and Delhi.



Key points

- Northern Ireland's performance in Delhi 2010 was better on all four measures of performance used in this research than in Melbourne 2006.
- Northern Ireland's performance sub analysed by gender reveals that performance in events for men only and women only, as well as in open events was better in 2010 than in 2006. Performance in women only and open events improved from a zero base in 2006.
- At a sport-specific level, Northern Ireland performed particularly well in boxing, with a gain of three gold medals and five medals in total. Performance in cycling improved by two medals and by one medal in shooting.

4.5 How does Northern Ireland perform relative to how it might be expected to perform?

In section 4.4 it was shown that 2010 was a year of improvement for Northern Ireland; from the low of only two silver medals and finishing outside the top 20 in the medals' table in 2006. However, a key question to answer is how does Northern Ireland perform relative to how it might be expected to perform? We have tackled this question in two ways.

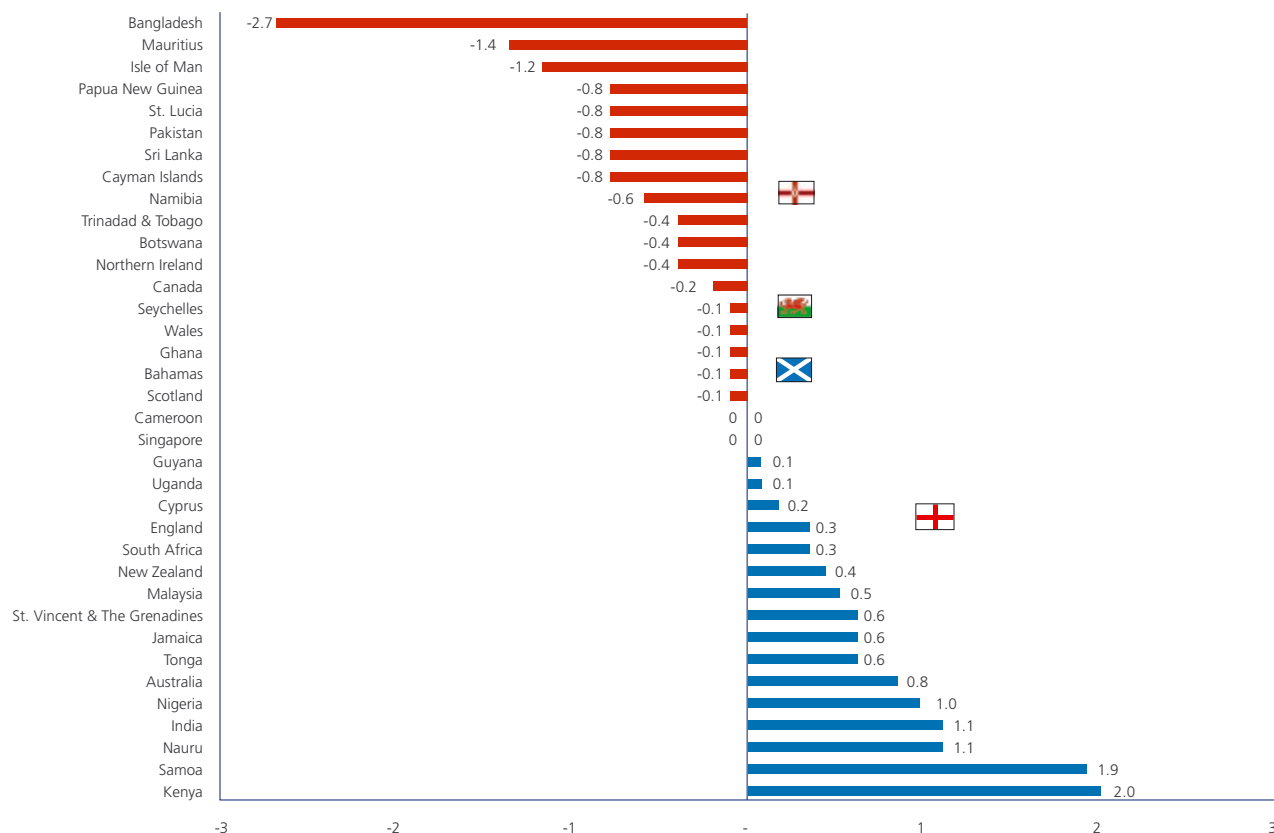
First using regression analysis on macroeconomic indicators such as population, Gross Domestic Product (GDP) and GDP per capita for all nations which won a medal in Delhi 2010, we have quantified the extent to which nations over or under-perform relative to their economic resources.

Second, for the four home nations of England, Scotland, Wales and Northern Ireland we have computed the relationship between actual and expected market share on the basis of each nation's population. This analysis enables us to identify if any home nation is relatively more efficient than any other in terms of producing medal-winning elite athletes.

In terms of the regression analysis we sourced the population and GDP data, where possible, from the CIA World Fact Book and, where there was missing data, it was found from official sources for the nations concerned. The basic finding from the regression analysis is that in 2010, 71% of nations' success as defined by market share can be predicted by the macroeconomic variables used in the regression analysis. Some nations perform better than their macroeconomic resources might predict and others perform worse. The difference between a nation's actual score and expected score is termed its 'residual' score. The residual scores for all 36 medal winning nations in Delhi 2010 are shown in Graph 4.20.

Graph 4.20: The residual scores for medal winning nations in Delhi 2010

Graph 4.20



Northern Ireland has a residual score of -0.4 which means that its performance in 2010 was below what would have been expected on the basis of population and wealth. However, this is still an improvement on 2006, when the corresponding score for Northern Ireland was -1.28. Despite a relative decline in performance in 2010, Scotland is seen to be performing almost in line with what its macroeconomic weight would suggest, with a residual score of -0.1 (the same as Wales). England is the only home nation that achieved above expectations in 2010 with a residual score of 0.3.

Kenya had a particularly good Commonwealth Games, increasing its gold medals won by six and total medals

won by fourteen. This level of achievement is considerably above what its resources would predict as demonstrated by the highest residual score of 2.0. Kenya performed particularly well in athletics with eleven of its twelve gold medals won in this sport. By contrast, Bangladesh's return of a solitary bronze medal in shooting is seen as a poor achievement from a nation with a population of 160 million and this is why it has the lowest residual score of -2.7.

The ability to produce greater sporting success than macroeconomic resources predict, usually points to an efficient elite sport development system. It is relevant to note that Northern Ireland's success in Delhi 2010 was

in sports in which significant progress is being made in developing an elite sporting system, notably boxing and cycling.

The host nation, India, performed above expectations as revealed by a positive residual score of 1.1. It could be argued that India chose sports from the list of optional sports in which it had relatively high chances of success, notably shooting and wrestling in which it won fourteen and ten gold medals respectively, or 62% of its total gold medals.

As an alternative way of examining relative performance of nations, we have compiled a time series analysis of the market share achieved by the four home nations over the period 1950 to 2010 relative to their respective populations. To illustrate how the calculation has been made, Table 4.6 shows the relevant data for 2010.

Table 4.7: Index of market share achieved relative to population

If the four home nations win market share in proportion to their populations, then each nation would receive an index score of 100. However, in Table 4.7 it can be seen that England under-achieved in 2010. In the case of Northern Ireland, the change in performance was sufficient to move from under achieving in 2006 to over achieving in 2010. Scotland and Wales both over-achieved on this measure, but to a lesser extent than in 2006, reflecting their reductions in medals won. A full-time series analysis of this indicator is shown in Graph 4.21.

Graph 4.21: Time series analysis of market share relative to population

Key points

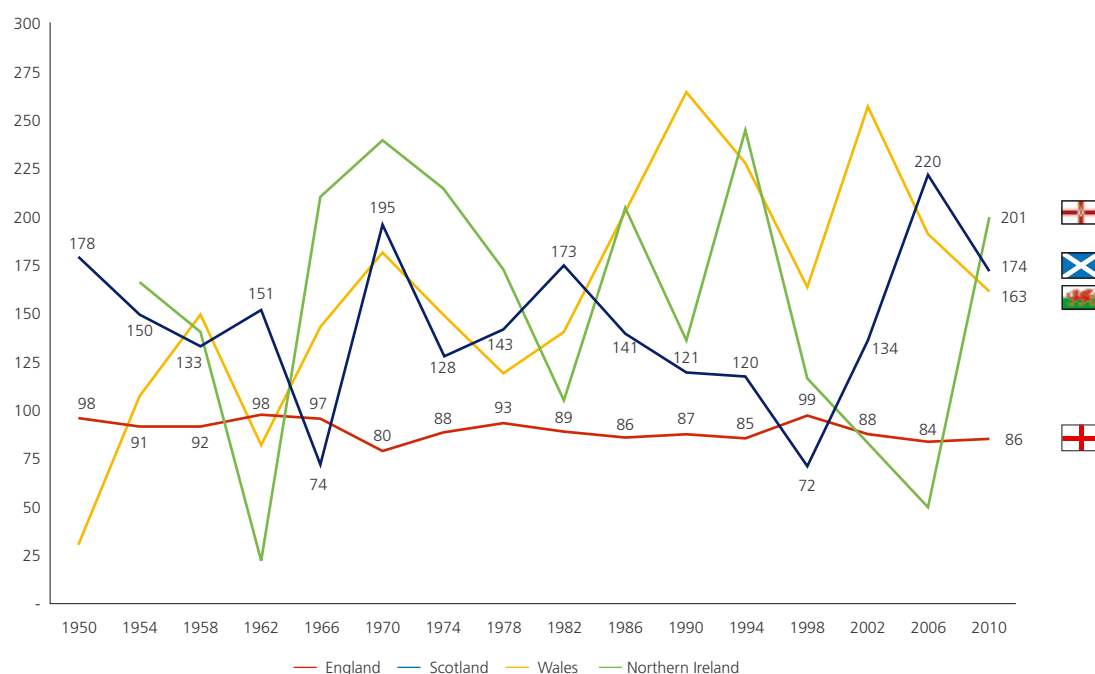
- In 2010 Northern Ireland under-achieved compared with how its macroeconomic resources predicted, although this indicator has improved since 2006.
- Relative to the other home nations, Northern Ireland

Table 4.7

2010	Population	% of Pop.	Market Share %	% of M/S	Market Share % to Population % Index
England	51.4m	84.3%	16.8%	72.4%	86
Scotland	5.0m	8.2%	3.3%	14.2%	174
Wales	2.9m	4.8%	1.8%	7.8%	163
N. Ireland	1.7m	2.8%	1.3%	5.6%	201
Totals	61.0m	100%	23.2%	100%	100

Market Share % to Population % Index for England = $((72.4/84.3) \times 100) = 86$

Graph 4.21



was the best performing nation when linking market share to population.

4.6 Analysis of the sports in which Northern Ireland has won medals

In this section we examine Northern Ireland's

performance in the Commonwealth Games by sport to identify the most successful sports and to provide benchmarks for comparison with other nations. The ten medals won by Northern Ireland in 2010 increases its total medals won to 97 as shown in Table 4.7.

Table 4.8: Northern Ireland's overall performance by sport 1950 - 2010

Boxing has historically been Northern Ireland's most successful sport, accounting for 43% of total medals won between 1950 and 2010. Athletics (18%), lawn bowls (18%), shooting (12%), cycling (4%), judo (3%), archery (1%) and wrestling (1%) are the other sports in which Northern Ireland has medalled in during this period. However, medal success in more recent editions (since 2002) has been limited to five sports: boxing, shooting, lawn bowls, cycling and judo. These sports account for the 17 medals in total won by Northern Ireland between 2002 and 2010. All five gold medals during this period were won in boxing and shooting.

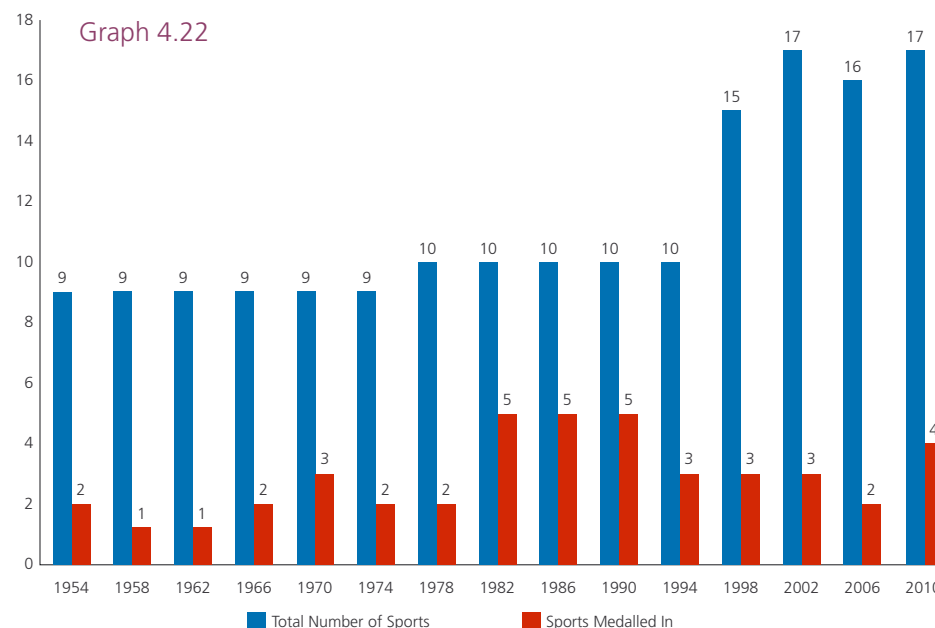
In addition to analysing medals won by sport, a useful indicator of a nation's all-round sporting prowess is the number of sports in which it wins medals in any given edition of the Commonwealth Games. In Graph 4.22 the number of sports in which Northern Ireland won at least one medal is plotted against the total number of sports contested at each Commonwealth Games.

Graph 4.22: The number of sports Northern Ireland has medalled in at each edition

As a general trend Northern Ireland tends to medal in a minority of the sports contested at each Commonwealth Games. Delhi 2010 represents only the fourth occasion since 1954 when Northern Ireland has medalled in more than three sports in any one edition. Shooting and lawn bowls are the two sports in which Northern Ireland has won a medal in every edition since 1994. In 2002, Northern Ireland also won a medal in women's judo. Boxing and cycling (track) are the sports in which Northern Ireland medalled in Delhi but not in Melbourne. These findings explain the increase from two to four sports medalled in over the period 2006 to 2010.

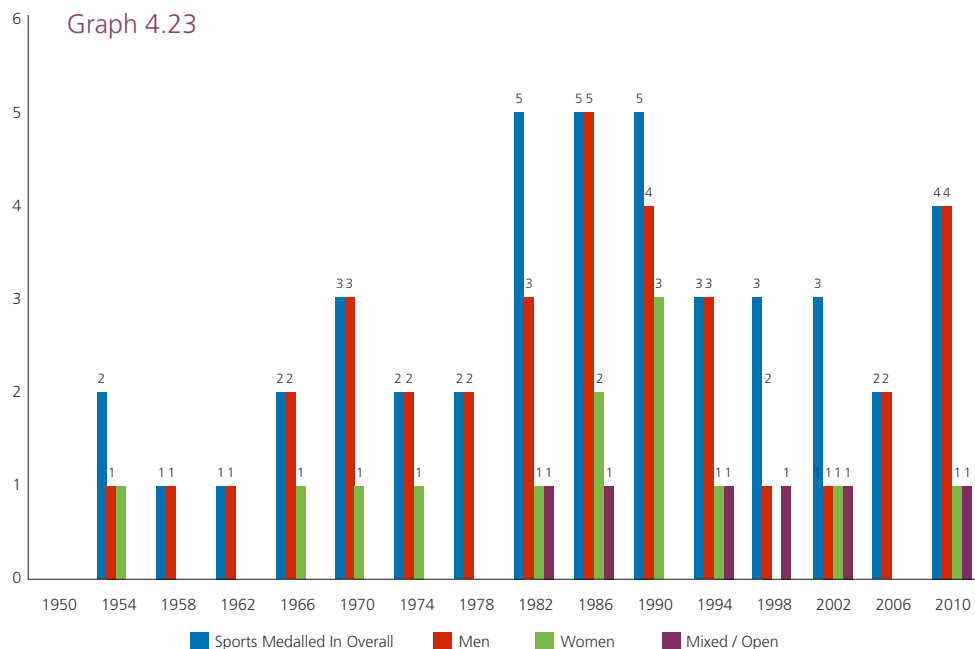
Table 4.8

Sport	Gold	Silver	Bronze	Total	%	Cumulative
Boxing	11	11	20	42	43%	43%
Athletics	7	9	1	17	18%	61%
Lawn Bowls	4	3	10	17	18%	78%
Shooting	5	2	5	12	12%	91%
Cycling	0	1	3	4	4%	95%
Judo	0	1	2	3	3%	98%
Archery	0	1	0	1	1%	99%
Wrestling	0	0	1	1	1%	100%
Total	27	28	42	97	100%	



More detailed analysis of the breadth of sporting prowess can be seen when analysed by gender - as shown in Graph 4.23. Northern Ireland's male athletes tend to win medals in more sports than its female athletes. This may well be because, historically, there have been more sports for men than women. Nonetheless, 2010 was a relatively

good year for Northern Ireland's male athletes who won medals in four sports (second only in comparison with 1986), which is three more than their female counterparts and represents the largest gap between the genders in the time series.

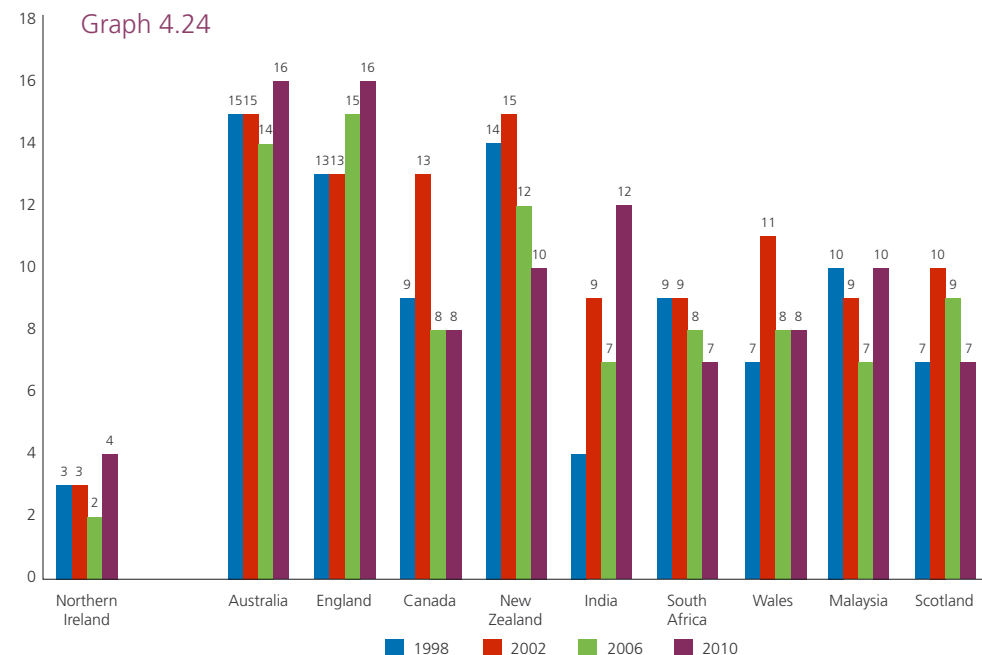


Graph 4.23: The number of sports Northern Ireland has medalled in by gender

A final way to examine the number of sports medalled in is to make comparisons with other nations. Graph 4.24 shows the number of sports medalled in at the last four Commonwealth Games by Northern Ireland and key comparator nations.

Graph 4.24: The number of sports medalled in by Northern Ireland and the comparator nations

Between 1998 and 2010 Northern Ireland has consistently won medals in fewer sports relative to the comparator nations shown in Graph 4.24. With the exception of Wales, all comparator nations won more gold medals than Northern Ireland in Delhi 2010 and were therefore placed higher in the final medals' table than Northern Ireland (who were ranked thirteenth).



It is also worth noting that Wales won more medals than Northern Ireland (19 v 10) and in more sports than Northern Ireland (8 v 4) in Delhi. Nonetheless, Northern Ireland finished ahead of Wales in the 2010 final medals' table by virtue of winning three gold medals compared with Wales' two. The key point of note here is the importance of focusing on the quality rather than quantity of medals won. Northern Ireland's gold medal percentage was 30%; Wales' by contrast, was 11%.

Wales' overall performance in 2010 is regarded as being broadly on par with 2006 and this is reflected by the fact that the number of sports in which Wales won medals remained the same between 2006 and 2010 (eight). Scotland experienced a relative decline in the number of gold medals and total medals won in 2010 and also won medals in two fewer sports than in 2006. England won medals in every sport except rugby sevens, in which it was placed fourth.

Key points

- Northern Ireland has won 97 medals in eight different sports over the period 1950 to 2010.
- Boxing has historically been the most successful sport. Along with boxing, shooting and lawn bowls are driving contemporary success.
- Northern Ireland tends to medal in a minority of the sports contested and, historically, men have performed better in this regard than women.
- Comparison with Wales highlights the importance of strategies which prioritise quality rather than quantity of medals won to improve ranking in the medals' table.

4.7 Benchmarking against other nations

This section of the report is concerned with benchmarking the performance of Northern Ireland against selected comparator nations for three key variables, namely: 'market concentration'; distribution of medals won by gender; and, the quality of medals won by type. To put Northern Ireland and the comparator nations into an historical context, Table 4.8 shows the overall medal-winning performance of the benchmark nations between 1950 and 2010. Historically, Northern Ireland has won 1% of all medals contested at the Commonwealth Games between 1950 and 2010. Of the nations ranked above Northern Ireland, in 2010 one of these (Wales) was ranked below Northern Ireland in the final medal table.

Table 4.9: The performance of the comparator nations 1950-2010

Table 4.9

	Gold	Silver	Bronze	Total	%
Australia	767	646	579	1,992	25%
England	542	555	566	1,663	21%
Canada	389	404	451	1,244	15%
All Other Nations	355	367	477	1,199	15%
New Zealand	121	178	228	527	7%
India	141	123	107	371	5%
Scotland	84	95	135	314	4%
South Africa	81	79	88	248	3%
Wales	49	70	103	222	3%
Malaysia	46	53	63	162	2%
Northern Ireland	27	28	42	97	1%
Totals	2,602	2,598	2,839	8,039	100%

The first benchmark is 'market concentration', which is used to describe the extent to which nations are reliant on a limited number of sports for overall medal-winning success. The extent to which Northern Ireland and the sample nations are reliant on their top three sports is shown in Table 4.10, which is based on all medals won per sport.

Table 4.10: The market concentration for Northern Ireland and the comparator nations

Table 4.10

	Most Successful	2nd Most Successful	3rd Most Successful	Total
Northern Ireland	43% Boxing	18% Athletics	18% Lawn Bowls	79%
India	28% Shooting	27% Weightlifting	20% Wrestling	75%
Malaysia	33% Badminton	19% Weightlifting	15% Shooting	67%
South Africa	26% Swimming	25% Athletics	10% Shooting	61%
Australia	30% Swimming	21% Athletics	9% Cycling	60%
Wales	23% Weightlifting	21% Athletics	12% Boxing	56%
England	27% Athletics	18% Swimming	9% Shooting	54%
Canada	24% Swimming	18% Athletics	9% Gymnastics	51%
Scotland	17% Swimming	17% Athletics	16% Boxing	50%
New Zealand	21% Athletics	15% Cycling	14% Swimming	50%

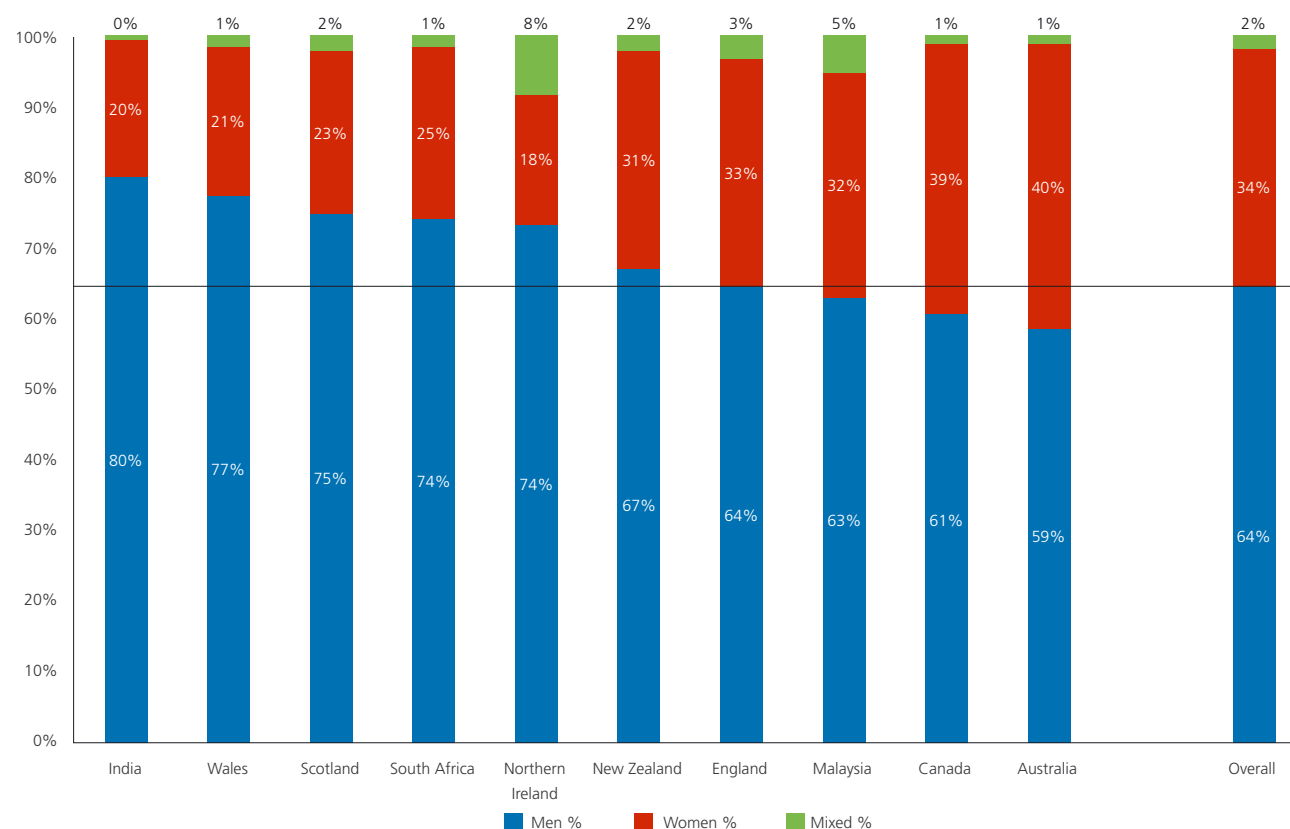
In Table 4.10 it can be seen that Northern Ireland is reliant on boxing (43%), athletics (18%) and lawn bowls (18%) for 79% of all medals it has won since 1954, when it first contested the Commonwealth Games. Northern Ireland's dependence on athletics for medals has diminished in recent editions (the last medal won in athletics was in 1990), replaced by a greater emphasis on shooting. In elite sport policy terms this would be regarded as being a specialisation policy, rather than a diversity policy. Similarly, shooting (28%), weightlifting (27%), and wrestling (20%) account for the bulk (75%) of all the medals won by India during this period.

Given the degree of influence that host nations have over the programme of events for the Commonwealth Games, it is perhaps no surprise that shooting, weightlifting and wrestling all featured in the Delhi 2010 programme. It is also relatively unsurprising that India enjoyed its most successful Commonwealth Games to date in 2010, as the programme was more in line with India's traditional

strengths. Around 56% of all medals won by India in 2010 were won in these three sports.

By way of contrast, New Zealand has the lowest market concentration for its top three sports (50%). Compared with Northern Ireland and India, New Zealand can be described as following diversity strategy. This point is

Graph 4.25



reinforced by referring to Graph 4.24 in which it can be seen that New Zealand has consistently won medals in more sports than all of the benchmark nations except Australia and England.

Relative to Northern Ireland and the other comparator nations, the other home nations all exhibit a relatively low three-sport market concentration (ranging between 51% and 56%). Therefore, England, Scotland and Wales appear to be following a strategy of sporting diversity rather than specialisation.

The second benchmark we consider is the proportion of medals won by gender. Previous research (UK Sport 2003²) has indicated that examining the overall success of a nation can mask considerable differences in performance by gender. In Melbourne 2006, Australia's increased success over 2002 was driven primarily by women athletes. In the case of Northern Ireland, we have already shown that in standardised terms (market share) men perform better than women, but in Graph 4.25 we can see the performance of the comparator nations alongside Northern Ireland in a standardised form.

Graph 4.25: The proportion of medals won by gender 1950-2010

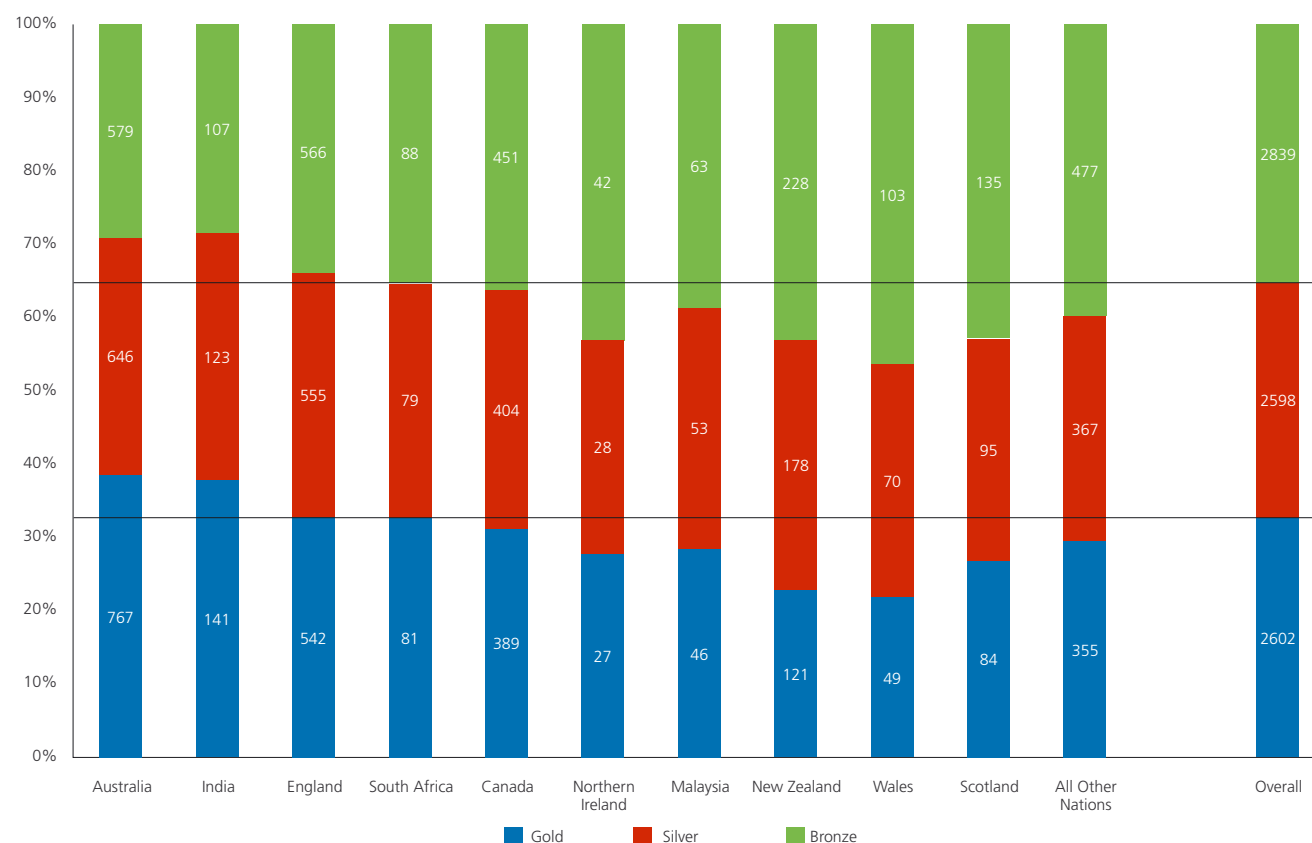
The reference line in Graph 4.25 is drawn at the break point between total medals contested by men and the two categories for women and mixed between 1950 and 2010. During this period 64% of all medals have been contested by men, 34% by women and 2% by mixed teams. Any nation with blue above the reference line has been over reliant on men for its medals; and any nation with red below the reference line is over reliant on women/mixed categories for its success. It can therefore be seen that India (80%), Wales (77%), Scotland (75%), South Africa (74%) Northern Ireland (74%) and New Zealand (67%) have a disproportionately high percentage of their medals won by men and, consequently, a relatively low percentage of their medals won by women.

Historically the most dominant nation, Australia, wins a disproportionately high percentage of its medals in women's sport. Canada and Malaysia are also disproportionately reliant on women for their success. Targeting success in women's sport is a classic sign of nations taking a strategic approach to elite sport development. England's success over time is directly in line with what might be expected proportionately.

The third benchmark we consider is the quality of medals won by Northern Ireland and the comparator nations. In the same way that it is possible to analyse the number and proportion of medals won by gender, it is also possible - and worthwhile - to look at the number and proportion of medals won by type. The relevant data is shown in Graph 4.26.

² UK Sport (2003) European sporting success: A study of the development of medal winning elites in 5 European countries, UK Sport, London.

Graph 4.26



Graph 4.26: The number and proportion of type of medals won

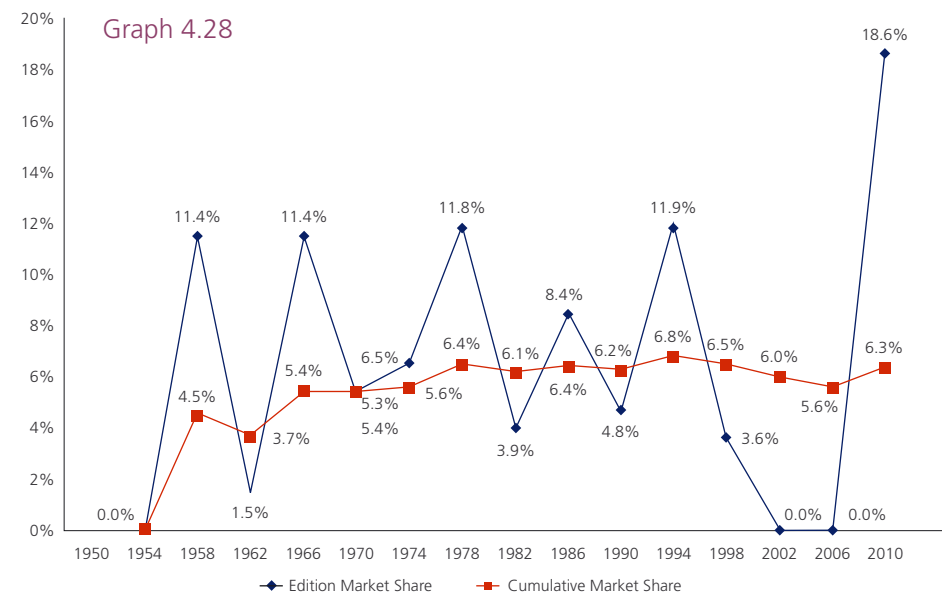
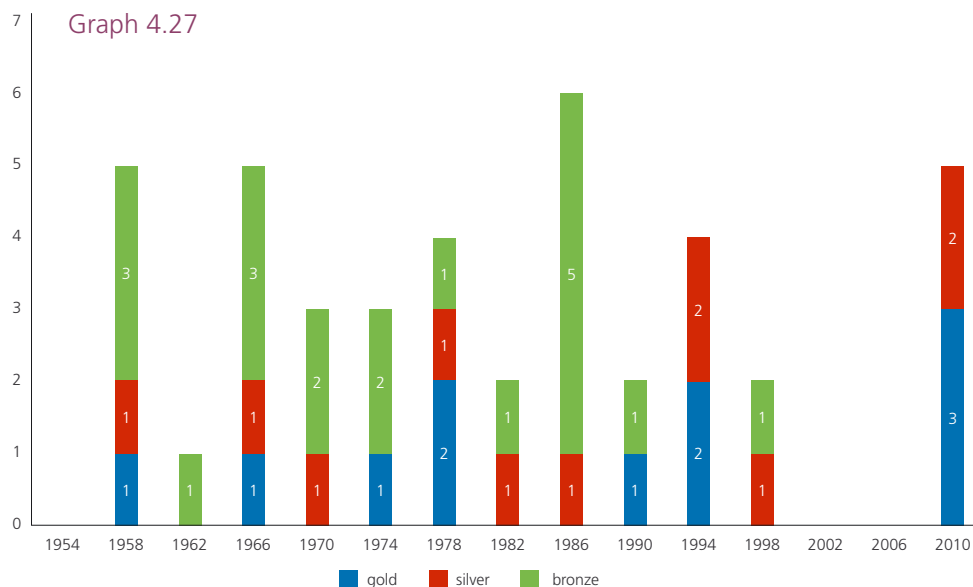
Since 1950, 8,039 medals have been contested, of which 32.4% have been gold, 32.3% silver and 35.3% bronze. The reason why there are more bronze medals contested than gold and silver is because of the practice of awarding two bronze medals in combat sports such as boxing and judo. The two reference lines are drawn at the points which equal the proportion of medals awarded by type between 1950 and 2010.

Australia and India both achieve a higher percentage of gold medals won relative to the percentage of gold medals awarded. Consequently, they also win a lower proportion of silver and bronze medals. By contrast, Scotland, Wales, New Zealand, Malaysia, Northern Ireland and Canada all win a relatively low proportion of gold medals and, consequently, a relatively high level of silver and bronze medals.

Northern Ireland has a below average gold medal percentage (28%) and also has one of the highest bronze medal percentages (43%) across the sample nations. Nearly half (20/42 or 48%) of the bronze medals won by Northern Ireland overall have been won in boxing in which two bronze medals are awarded in each event.

Key points

- Northern Ireland has won 1% of all medals won at the Commonwealth Games between 1950 and 2010, primarily in boxing.
- Northern Ireland's three-sport market concentration is very high at 79% (boxing 43%, athletics 18% and lawn bowls 18%). Boxing and lawn bowls are maintaining their importance to Northern Ireland's contemporary medal winning success, whilst success in athletics is more in the past.
- Northern Ireland is consistently over reliant on men for its medal-winning success. Longer-term improvements in performance could be developed by greater emphasis on achieving success in events for women.
- In terms of the quality of medals won, Northern Ireland wins relatively more silver and bronze medals (72%) than gold medals (28%). The proportion of gold medals to total medals won in 2010 (40%) counters the long-term trend.



4.8 Analysis of success by sport

We have already established that in 2010 Northern Ireland won medals in four sports overall and that the majority of these medals (5/10) were won in boxing. Further investigation of the data reveals that Northern Ireland contested 12/17 sports. We now develop our analysis from previous sections by taking a more detailed look at Northern Ireland's performance in selected sports.

4.8.1 Performance in boxing

The total number and type of medals won in boxing by Northern Ireland over the period 1950 to 2010 is shown in Graph 4.27.

Graph 4.27: Northern Ireland's absolute achievement in boxing

Following two consecutive editions without a medal in boxing, Northern Ireland won a record three gold

medals in the sport in Delhi 2010. The gold medals were achieved in the <49kg, 69kg and 75kg weight categories. Northern Ireland also won two silver medals (one each in the 81kg and 91kg events). In boxing, nations are permitted to enter one boxer per weight category and thus, although 40 medals are contested, nations can contest a maximum of ten medals. To win three gold and two silver medals is therefore a huge achievement, as it means that boxers representing Northern Ireland reached five of the ten finals. This level of performance is comparable to the dominant Cuban boxing teams in the Olympic Games of 2000. In terms of total medals, 2010 is the second best ever performance in boxing since 1954. Northern Ireland's success in boxing has been in decline since 1994 and therefore 2010 represents a step change in performance relative to the recent trend. This point is well illustrated in the time series trend lines shown in Graph 4.28.

Graph 4.28: Northern Ireland's market share in boxing

Northern Ireland's market share in boxing fell from a high of 11.9% in 1994 to an all-time low in 2002 and 2006 (0%) and then peaked at 18.6% in 2010. The significant increase in market share for 2010 was driven by an improvement in both the quantity and quality of medals won, combined with a reduction in the number of events contested in boxing (from twelve in 1994 to ten in 2010). Thus, market share increased in 2010 because Northern Ireland won an increased share of a declining market.

To contextualise Northern Ireland's performance in boxing and to identify the nations that are improving and declining, we have re-analysed the 2006 and 2010 medal tables for boxing and plotted the change in gold medals won against change in total medals won as shown in Graph 4.30.

Table 4.11

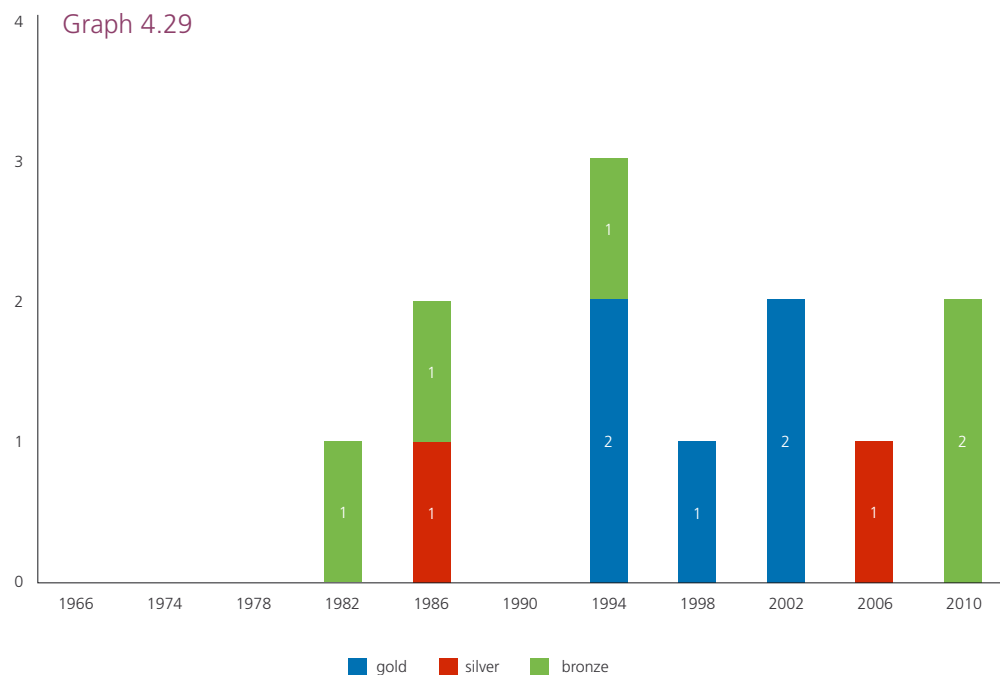
Cluster	Nations	Change in Medals Won	
		Gold	Total
Cluster 1: ↑ medals won - gold & total (x3)	Northern Ireland	3	5
	India	2	2
	Sri Lanka	1	1
Cluster 2: ↑ medals won - gold only (x0)	n/a	n/a	n/a
Cluster 3: ↑ medals won - total only (x7)	Scotland	0	2
	Bahamas	0	2
	Tonga	0	2
	Pakistan	0	1
	Botswana	0	1
	Trinidad and Tobago	0	1
	Cameroon	0	1
Cluster 4: No change in performance (x2)	Mauritius	0	0
	Ghana	0	0
Cluster 5: ↓ medals won -total only (x9)	Wales	0	-1
	Canada	0	-1
	Lesotho	0	-1
	Kenya	0	-1
	Barbados	0	-1
	Samoa	0	-1
	Swaziland	0	-1
	Uganda	0	-1
	Nigeria	0	-3
Cluster 6: ↓ medals won - gold only (x1)	Namibia	-1	0
Cluster 7: ↓ medals won- gold & total (x3)	South Africa	-1	-2
	Australia	-2	-6
	England	-3	-3

Table 4.11: The change in gold medals won vs change in total medals won for boxing

Northern Ireland was the most improved nation in boxing by virtue of winning three more gold medals and five more medals in total. India and Sri Lanka were the other two nations to have increased both gold medals won and total medals won in Delhi. Nations in decline include England, Australia and South Africa. Scotland has improved in terms of the quantity of total medals won in boxing, but not in terms of quality. Wales is grouped with seven other nations that lost one medal in boxing between 2006 and 2010.



Thomas McCarthy, Delhi 2010 Silver medallist (Boxing).



4.8.2 Performance in shooting

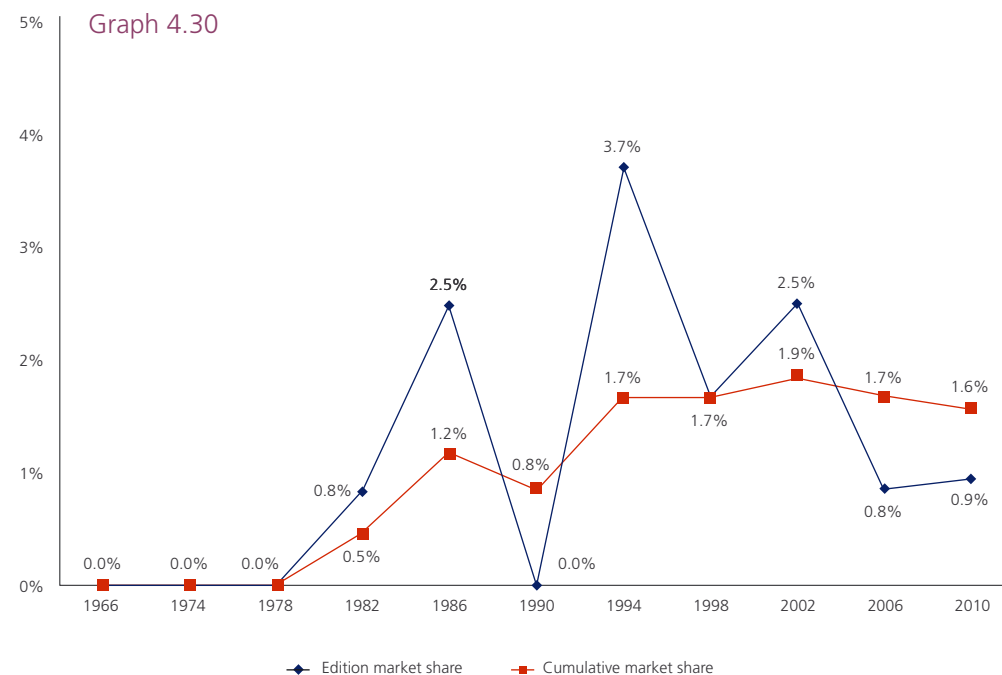
The total number and type of medals won in shooting by Northern Ireland over the period 1966 to 2010 is shown in Graph 4.29.

Shooting is one of two sports in which Northern Ireland has consistently won a medal in every edition since 1994. Five gold medals and twelve medals in total were secured between 1982 and 2010. Note that the majority of these medals (four gold and eight overall) have been due to the efforts of one athlete, David Calvert, who has the distinction of winning a medal in six different editions. The absolute number of medals won in Delhi (two) is comparable to 2002 and represents

an improvement of one medal over 2006, albeit in 2002 the quality of medals was better than in both 2006 and 2010. The two bronze medals in Delhi were achieved in the 50m Rifle Prone for men by Matthew Hall and in the 'open' Full-bore Rifle Queen's Prize by David Calvert.

Graph 4.29: Northern Ireland's absolute achievement in shooting

The shooting programme in 2010 was decreased by four events from 2006 and thus Northern Ireland would be expected to increase its market share as a result of winning more medals from a decreased number of events. This and Northern Ireland's long-term market share trends are shown in Graph 4.30.



Graph 4.30: Northern Ireland's market share in shooting

Graph 4.30 confirms that there was a marginal improvement (0.1%) in Northern Ireland's market share in shooting between 2006 and 2010. Despite this small increase, the cumulative market share trend line is now at its lowest point (1.6%) since 1994 and has been in decline since 2002. If performance in shooting is to be improved, then Northern Ireland must look to produce more athletes with genuine medal-winning capability in the sport. Graph 4.33 plots the change in gold medals won against total medals won by Northern Ireland and other nations in shooting between 2006 and 2010.

Table 4.12

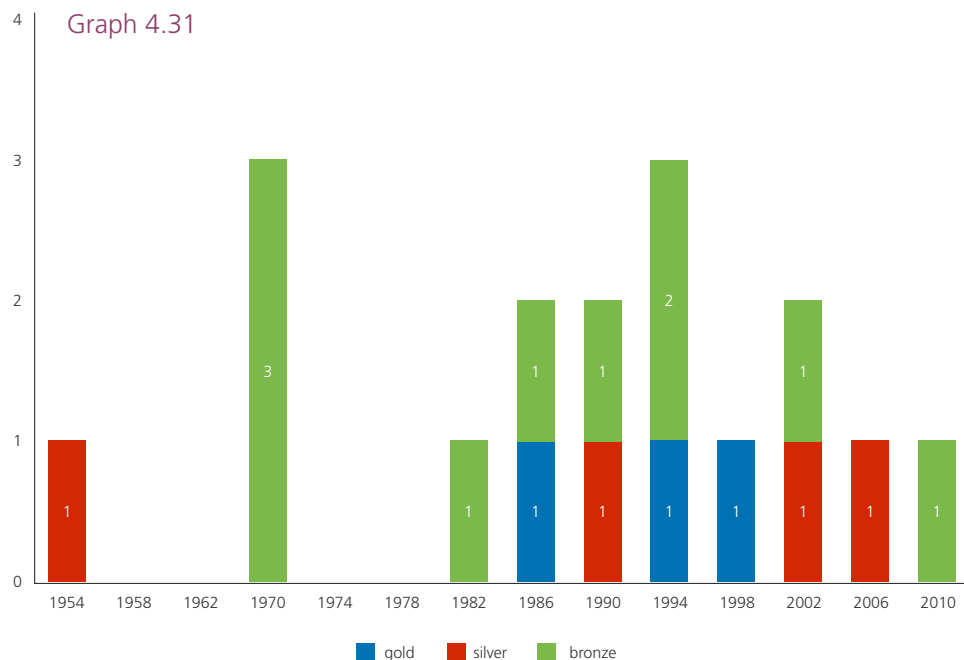
Cluster	Nations	Change in Medals Won	
		Gold	Total
Cluster 1: ↑ medals won - gold & total (x3)	Singapore	4	8
	Scotland	2	6
	Malaysia	2	3
Cluster 2: ↑ medals won - gold only (x0)	n/a	n/a	n/a
Cluster 3: ↑ medals won - total only (x2)	Northern Ireland	0	1
	Trinidad and Tobago	0	1
Cluster 4: No change / mixed performance (x5)	England	0	0
	Bangladesh	0	0
	Isle of Man	0	0
	Namibia	0	0
	India	-2	3
Cluster 5: ↓ medals won -total only (x4)	Pakistan	0	-1
	New Zealand	0	-2
	Malta	0	-2
	Canada	0	-7
Cluster 6: ↓ medals won - gold only (x0)	n/a	n/a	n/a
Cluster 7: ↓ medals won- gold & total (x4)	Wales	-1	-2
	South Africa	-1	-5
	Cyprus	-2	-1
	Australia	-6	-10

Table 4.12: The change in gold medals won vs change in total medals won for shooting

Table 5.1 shows that Singapore, who won four more gold medals and eight more medals in total than in 2006, was the most improved nation in shooting. Scotland and Malaysia were the other nations to improve in terms of both gold medals and total medals won. By virtue of gaining one additional medal in 2010, Northern Ireland was the fourth most improved nation, along with Trinidad and Tobago. By contrast, England's performance in shooting remained unchanged between 2006 and 2010, whereas Wales lost one gold medal and two medals overall.



Matthew Hall, Delhi 2010 Bronze medallist (Shooting, 50m rifle prone).



4.8.3 Performance in lawn bowls

The total number and type of medals won in lawn bowls by Northern Ireland over the period 1950 to 2010 is shown in Graph 4.31.

Lawn bowls is the only sport in which Northern Ireland has won a medal in every edition since 1982, although the last gold medal dates back to 1998. In 2010, one medal (bronze) was won in lawn bowls (Gary Kelly in the men's singles), the same number as in 2006 (one silver) but one less than 2002 (one silver, one bronze). Between 1994 and 2010, there has been a decline in both the number and quality of medals won. It should be noted that, relative to sports like athletics, swimming and shooting, limited events are contested in lawn bowls (six in 2010). Moreover, because only one athlete per nation is allowed to contest each event in lawn bowls, there

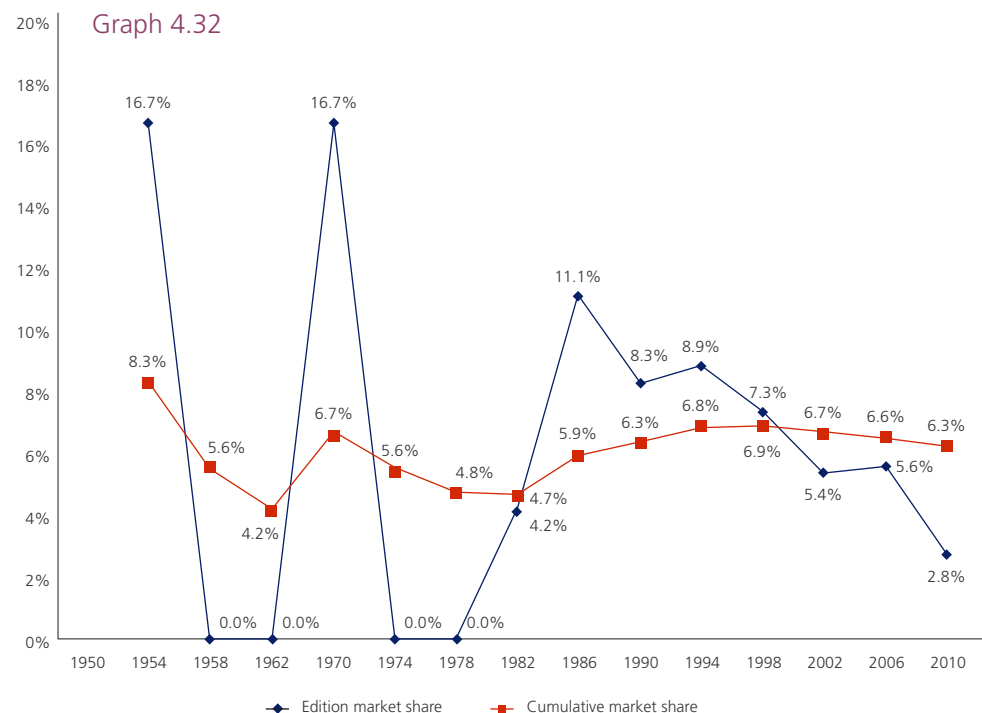
are significantly fewer medal-winning opportunities than there are in athletics, swimming and shooting.

Graph 4.31: Northern Ireland's absolute achievement in lawn bowls

The lawn bowls programme in Delhi was unchanged from Melbourne and so Northern Ireland has a declining market share by virtue of winning one bronze medal in 2010, compared with one silver medal 2006 from the same number of events. This and Northern Ireland's long-term market share trends are shown in Graph 4.32.

Graph 4.32: Northern Ireland's market share in lawn bowls

Graph 4.32 illustrates how Northern Ireland's best performances in lawn bowls were achieved pre 1974.



Note that cumulative market share in 1954 is less than the edition market share. This anomaly can be explained by the fact that Northern Ireland did not take part in the 1950 Commonwealth Games, which included three events in lawn bowls. Market share success in lawn bowls has almost continuously fallen in every edition since 1986 to the point that this indicator now stands at 2.8%, the worst performance since 1982. The cumulative market share trend line has also been declining from 1998 onwards, albeit at a slower rate.

As previously noted, Northern Ireland won one silver medal and one bronze in lawn bowls in 2006 and 2010 respectively. Therefore, in terms of gold medals and total medals, there is no change in the performance of Northern Ireland's athletes during this period.

4.8.4 Performance in other sports

The three sports reviewed in detail above (boxing, shooting and lawn bowls) account for 3/3 (or 100%) of all gold medals won and 8/10 (or 80%) of total medals won by Northern Ireland in Delhi 2010. The remaining two medals were won in track cycling - one silver by Wendy Houvenaghel in the women's 3000m individual pursuit and one bronze in the men's 4000m team pursuit.

Key Points

- Historically, boxing has been Northern Ireland's most successful sport in the Commonwealth Games. Following two consecutive editions without a medal (2002 and 2006), performance in boxing in 2010 has recovered to previously unprecedented levels. All three gold medals won in Delhi, and five out of the ten medals won in total, were in boxing.
- Northern Ireland has won a medal in shooting in every edition since 1994. However, success in this sport is in relative decline between 1994 and 2010, particularly in terms of the quality of medals won.
- Northern Ireland's performance in lawn bowls is also on a declining trend. Only two out of the 17 medals won in lawn bowls have been since 2006, and the last gold medal in the sport dates back to 1998. The potential to improve performance in lawn bowls is quite limited given that relatively few events are contested and that there are restrictions on the number of athletes that can represent each nation.
- Northern Ireland won two medals (one silver and one bronze medal) in cycling events in Delhi 2010 to complement the eight medals won in boxing, shooting and lawn bowls.



Barry McGuigan, Edmonton 1978 Gold medallist (Boxing).

5. Planning for Glasgow 2014

In section 4.5, it was shown that, despite a significant improvement in performance in 2010 relative to 2006, Northern Ireland still performs below what would be expected on the basis of population and wealth. This point is developed further in Table 5.1 in order to calculate how many medals Northern Ireland would need to win in order to 'punch its weight' relative to its population and wealth in Glasgow 2014.

It is already confirmed that the Glasgow 2014 programme will be made up of 17 sports, including ten core and seven optional/selected sports. However, there is still some uncertainty over the actual number of events to be contested and therefore the number of gold medals and total medals that will be available in 2014. Based on analysis of the Candidate City File³ and the official website of the Glasgow 2014 Games, the total number of events in 2014 is estimated at 244, as shown in Table 5.1.



Joanna Mills, Delhi 2010 (Athletics, 400m).

³ <http://thecgf.com/games/future/glasgow2014.asp?yr=2014>

Table 5.1: Sports and events 2010-14

If we assume that there will be three medals awarded for each event and that two bronze medals will be available for the two combat sports (boxing and judo), then the total number of gold medals and total medals on offer in 2014 would be 244 and 756 respectively.

In 2010, Northern Ireland's points total was 19 and its overall market share was 1.2%. Our analysis indicates that for Northern Ireland to have performed exactly in line with its macro-economic resources, its market share should have been 1.6% (or 27 points). In other words, Northern Ireland under performed by 30%. For Northern Ireland to achieve a market share of 1.6% in 2014, it will have to improve on the number and/or type of medals that it won in 2010, not least because of the assumption that there will be 28 fewer events contested in Glasgow compared with Delhi. The total number of points available in 2014 is estimated at 1,488 (1,646 in 2010). Therefore, a market share of 1.6% in 2014 equates to 24 points.

Historically, the 179 points won by Northern Ireland between 1950 and 2010 have primarily been through gold medals (81/179 points, 45%), followed by silver (56/179 points, 31%) and then bronze (42/179 points, 24%), as shown in Graph 5.1. On the basis of this analysis, the total number of medals that Northern Ireland should win in 2014 is estimated at twelve to fourteen (3-4 gold, 3-4 silver and 6 bronze). This estimate should be regarded as a 'par' score based on Northern Ireland's historical record and its macro-economic weight, rather than a forecast of how many medals we think Northern Ireland will win.

Table 5.1

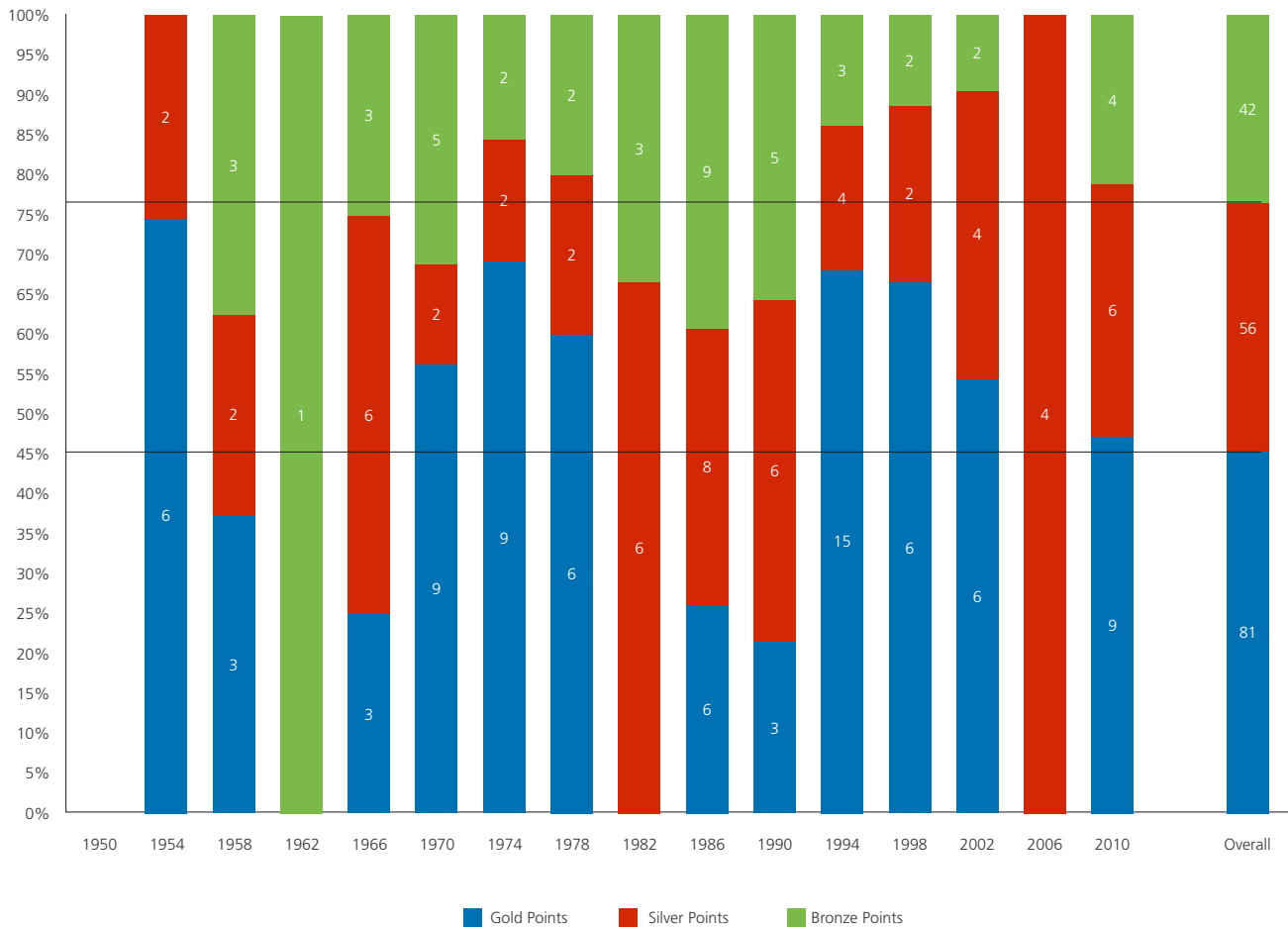
Sport	Type	Events	
		Delhi 2010	Glasgow 2014
Athletics	Core	52	44
Badminton	Core	6	6
Boxing	Core	10	10
Hockey	Core	2	2
Lawn Bowls	Core	6	8
Netball	Core	1	1
Rugby 7s	Core	1	1
Squash	Core	5	5
Swimming	Core	46	40
Weightlifting	Core	17	15
Sub - Total	Core	146	132
Archery	Optional	8	0
Cycling	Optional	18	19
Diving	Optional	10	10
Gymnastics	Optional	20	20
Judo	Optional	0	14
Shooting	Optional	36	20
Table Tennis	Optional	8	6
Triathlon	Optional	0	2
Tennis	Optional	5	0
Wrestling	Optional	21	21
Sub - Total	Optional	126	112
Total		272	244

Graph 5.1: Northern Ireland's points by type of medals won 1950-2010

Key points

- Relative to its population and gross domestic product, Northern Ireland was expected to win 1.6% of the market share in 2010.
- In order to attain this level of performance in 2014, Northern Ireland would need to win 24 medal points (assuming 244 events as per Table 5.1).
- A 'par' estimate for 2014 of between 12-14 total medals is derived, which includes 3-4 gold medals, 3-4 silver medals and 6 bronze medals.

Graph 5.1



6. Concluding Remarks

The information presented in this report serves two purposes. First, it provides a comprehensive historical review of how Northern Ireland has performed in the Commonwealth Games. Using trend analysis it is possible to examine Northern Ireland's performance over time so that recent achievements can be put into a wider context. Second, and arguably most importantly, this report should be used to inform future planning.

According to the report, the level of success Northern Ireland should be aiming for to be performing in line with its macro-economic resource (GDP and population) is 3-4 gold medals and a total of 12-14 medals. However, this calculation does not take into consideration the scale and stage of development of some Commonwealth Games sports in Northern Ireland, or the interest of the population in many sports that do not feature on the Commonwealth Games Programme. Therefore, it should be treated with caution and realism.

More poignantly, the statistics indicate that improved performance in one edition of the Games tends to be followed by a decline in Northern Ireland's performance in the subsequent edition. The challenge is therefore to ensure that Northern Ireland at least sustains its current medal table position in Glasgow. This will only be possible by building further on the partnership approach to

preparation adopted by the NI Commonwealth Games Council, Sports Institute Northern Ireland, Sport Northern Ireland and governing bodies of sport, and by the development of an integrated strategy for the 2014 Games that maximises Northern Ireland's medal winning opportunities and targets a wider range of sports and events than achieved in recent years.





Phil Beattie, Edinburgh 1986 Gold Medalist (Athletics, 400m hurdles).

Notes



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