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Worth a Try: A Statistical Analysis of Brian O'Driscoll's Contribution to the Irish Rugby Team

Pete Lunn and David Duffy[1]

Abstract: The unique characteristics of Brian O'Driscoll's international rugby career provide a rare opportunity to obtain a measure of the impact of an individual player on the outcome of a team game. Generally, small samples and selection bias make such estimates unreliable. O'Driscoll, however, was an automatic selection for games against frontline opposition for 15 years, during which he missed a proportion of matches through injury. We model his impact on Ireland's results, treating injury as a random event and controlling for home advantage and the strength of the opposition. We find that O'Driscoll's presence was worth 6-7 points per game. We also find that he was particularly influential in close games, increasing the probability of victory by more than home advantage, both during the earlier and later parts of his career. Our models suggest that no other Irish player during the period made such a contribution, although they do indicate that some half-backs were similarly influential in close games.

Corresponding Author: David.Duffy@esri.ie

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[1] This paper is unfunded work carried out by the authors in their spare time. Since one author is a Dublin-based Englishman who has adopted Leinster, and the other is an Irishman and Munster fan, any conflicts of interest have been internalised.

Worth a Try: A Statistical Analysis of Brian O'Driscoll's Contribution to the Irish Rugby Team

By common consent, Brian O'Driscoll is one of Ireland's sporting greats. Measured in terms of caps, tries or trophies, his playing record is unsurpassed in the era of professional rugby. At the time of his retirement, O'Driscoll holds the international record number of caps, has scored the highest number tries for Ireland, and has scored more tries than any other centre in world rugby. O'Driscoll's talents and performances have earned him respect and admiration throughout the rugby world. This much is obvious, even to those who rarely take an interest in the game.

In all sports, when a great of the game retires, experts and fans look back over the player's overall career and consider just how good they were, in a historical and global context. Among many Ireland fans, Brian O'Driscoll has been simply the greatest Irish rugby player of all time and on a par with any other international figure. Among rugby fans whose loyalties lie elsewhere, although not disputing that O'Driscoll has proved a great player, many think that Ireland fans are prone to exaggeration in such matters. This paper seeks a more objective measure.

Great scores, footwork and offloads, although replayed endlessly from the television archives and immortalised on the internet, do not necessarily determine the outcome that matters: scoring more than the opposition. Yet accurate assessments of the contribution of individual players' to their teams' results generally elude academic researchers who take an interest, because it is extremely difficult to quantify the contribution of a single player to the outcome. An ideal test would compare the outcomes of games, on average, when the individual player was in the team, with the outcomes when the specific individual was not in the team. This would indicate the impact of the player on results, at least compared to whatever alternative player was available to fill their boots. Unfortunately, however, simply comparing results when the player plays and when the player does not is likely to give us an inaccurate estimate of their contribution. Even if we use statistical techniques to control for other factors likely to influence the result (whether the game is home or away, who the opposition are, when it is played, and so on), whether the player is selected for the team in the first place depends on the decision of the coach (or manager). Players are sometimes rested or rotated. Players are less likely to be selected early in their career, when trying to establish themselves, and later in their career, as their athletic abilities decline. Selection depends on form – both of the player and others competing for the same shirt. Thus, any difference between average outcomes when the player is and is not in the team, will depend not only on the contribution of the individual player, but also on the coach's selection decisions.

Yet, in this context, Brian O'Driscoll's career is truly remarkable. He was first selected to play for Ireland in 1999, as a 20 year-old with exceptional acceleration. He played his last international game in 2014, when his game had come to depend more on passing and defensive intelligence. Yet at all times throughout this long career, O'Driscoll was simply an

automatic choice. Although he was (controversially) dropped from the team for the last test of his final tour with the British and Irish Lions in 2013, O'Driscoll's selection for Ireland was a given for internationals against top opposition. Although sometimes rested against lower-ranked teams, if Ireland played in the Six Nations Championship, or against frontline opposition from the Southern Hemisphere, O'Driscoll was in the Ireland XV unless he was unfit to play. And, as the worriers among Irish fans came to know, there were injuries.

To a rugby fan who happens to be an economist, these properties of Brian O'Driscoll's career are nothing short of enticing. Injury is, effectively, a random event. On the assumption that injury can be treated as such, the conclusion is clear: it is possible to produce a relatively accurate assessment of Brian O'Driscoll's contribution to the outcome of Irish international rugby matches.

In section 2 we outline the data and models we have used to undertake the analysis. Section 3 sets out the results, while section 4 concludes with discussion.

Data & Methods

There is an expanding literature within sports economics looking at the contribution of an individual to team performance. This is primarily focused on US sports such as baseball, basketball and ice hockey, although there is now also a body of literature dealing with European Soccer. Frequently the focus is on the relationship between a "superstar" player, match attendance and team revenue. For instance, Scully (1974) determines a player's marginal revenue product in baseball and defines it at the ability or performance that he contributes to the team and the effect of that performance on gate receipts. He argues that ability contributes to team performance and victories raise gate receipts, though some players attract fans over and above their individual contribution to the team. Much of the literature examines sports for which there is an extensive set of information that isolates the role played by individual players. For example, goals scored and "assists" are used to examine the relationship between star players and match attendance.

We do not have equivalent data that identifies the specific role of players during a rugby match. It might in any case be of questionable value, because rugby arguably possesses a greater variety of specialised positions. Instead, our analysis concentrates on the ultimate outcome: whether the team wins or loses and by how much. There are some similar studies in ice hockey and basketball that measure how point differentials change when a particular player is in the game versus when the player is not (Rosenbaum, 2004), but rugby does not have equivalent player rotation within the match. It is only because O'Driscolls's career is long and dotted with injuries that our approach is possible.

We are not aware of any rigorous academic studies that examine the contribution of a player to team performance within Rugby Union. Owen and Weatherspoon (2004) model attendances at rugby matches in New Zealand. They include a variable for the presence of a star player, defined as an All Black, in the home or away team, and a specific variable for the presence of Jonah Lomu. They find that the presence of an All Black has a statistically significant positive effect on attendance even after controlling for the home teams' success

rate. They also conclude that Jonah Lomu added 20 per cent to match attendances during the period.

Our basic method is to regress the outcome of Ireland's international matches between 1999 and 2014 against a dummy variable for whether Brian O'Driscoll was playing, while controlling for other key variables, always including the opposition and the location of the match (home, away, World Cup). We model three different outcome variables: points difference, win-loss and a categorical variable for the broad outcome in terms of the scale of the win or loss (e.g., whether it was a one-score game or a greater margin).

Our dataset is based on player information provided on the IRFU website (www.irishrugby.ie) and www.espnscrum.com to produce a list of the fixtures for the Irish national rugby team for the period of Brian O'Driscoll's career. Our first observation is from February 6th 1999, the start of the Six nations campaign that year and our final observation is March 15th, 2014 – O'Driscoll's final appearance in an Ireland jersey. We include matches from the Six Nations tournament, the Rugby World Cup, Summer Tours and the Autumn Internationals over this period.

Of the 173 Irish internationals played in the period 1999-2014, Brian O'Driscoll was in the starting XV for 132 (he has one cap against Romania as a substitute in 1999). O'Drsicoll's absences through injury were spread across his career, with his two longest spells on the sidelines in 2005 and 2012. As a result of injury he missed at least one international against all "frontline" opposition teams, which we define as the Six Nations teams (England, France, Italy, Scotland, Wales) and the four Southern Hemisphere teams that compete in the Rugby Championship (Argentina, Australia, New Zealand, South Africa). These two properties both assist in estimating his contribution. More problematic is that he played every World Cup match against frontline opposition, so Ireland's performances specifically in World Cups are somewhat harder to disentangle from O'Driscoll's personal contribution. The results we report are not sensitive to how these games are categorised, nor to the inclusion or exclusion of specific matches near the start or end of the period.

One minor difficulty in the data, given the need to control for the effect on the outcome of the quality of the opposition, is that Ireland played only a single game during the period against Tonga and also a single game against a combined Pacific Islands team. We deal with this by combining Fiji, Samoa, Tonga and the Pacific Islands into a single opposition category. The results are not sensitive to this approximation.

Results

The mean points difference against all opposition from 1999-2014 was 6.3 points in Ireland's favour (sd. 22.6). Table 1 presents initial results where the dependent variable is the points difference in all Ireland internationals. This is not the most accurate way to assess Brian O'Driscoll's contribution, as he was rested for some games against lower ranked teams, but it serves as a first estimate and helps to highlight key aspects of Ireland's overall performance.

Table 1: Determinants of points difference, Ireland versus all opposition, 1999-2014

	(1)	(2)	(3)
Location (Ref=Away)			
World Cup	1.515		
	(4.385)		
Home	12.574***	11.777***	11.874***
	(2.490)	(2.364)	(2.391)
Opposition (Ref=Scotland)			
New Zealand	-28.584***	-29.437***	-29.258***
	(5.255)	(5.204)	(5.266)
South Africa	-13.952**	-14.183**	-13.871**
	(6.338)	(6.254)	(6.336)
Australia	-16.837***	-16.954***	-17.122***
	(5.330)	(5.192)	(5.238)
England	-15.855***	-15.625***	-15.569***
	(4.986)	(4.922)	(4.957)
France	-15.981***	-15.579***	-15.514***
	(4.800)	(4.718)	(4.752)
Argentina	-7.354	-6.203	-6.464
	(5.621)	(5.444)	(5.500)
Wales	0.611	0.224	0.194
	(4.931)	(4.850)	(4.885)
Italy	9.830**	10.035**	10.020**
	(4.865)	(4.791)	(4.824)
Pacific	17.673***	18.163***	17.785***
	(6.338)	(6.256)	(6.320)
Canada	18.835**	21.812***	22.185***
	(8.214)	(8.244)	(8.359)
USA	28.711***	30.684***	30.758***
	(7.124)	(6.961)	(7.019)
Georgia	16.434	16.039	15.466
	(11.313)	(10.961)	(11.085)
Japan	36.120***	38.683***	38.480***
	(9.267)	(9.236)	(9.378)
Romania	22.143***	24.980***	23.897***
	(7.694)	(7.481)	(7.644)
Russia	37.221***	39.314***	39.283***
	(11.289)	(11.011)	(11.145)
Namibia	31.464***	31.428***	30.903***
	(11.853)	(11.011)	(11.127)
O'Driscoll		5.771**	5.837**
		(2.841)	(2.908)
Period (Ref=1999-2003)			
2003-2007			-1.862
			(3.034)
2007-2011			-2.785
			(3.024)
2011-2014			-1.646
			(3.684)
Constant	3.022	-1.199	0.191
	(3.578)	(4.114)	(4.507)
R-Squared	0.609	0.619	0.621
Observations	173	173	173

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

The base model (Column 1) shows that Ireland's points difference is 12-13 points better when playing at home. Performance in World Cup matches, however, is no better than in away matches, supporting the perception that Ireland has tended to underperform in World Cups. Since a World Cup encounter is (usually) not a home fixture for either side, the coefficient associated with these games ought to be more positive compared to the reference category of away games.

As one might anticipate, there are very large differences associated with different opposition. The reference category in all models is playing against Scotland,[2] which corresponds to an estimated 3-point advantage (the constant at the bottom of Table 1), or 15-16 points when the coefficient for a home game is factored in. Playing against South Africa, Australia, England or France during this period produced a 13-17 point disadvantage relative to playing against Scotland. Thus, adding these coefficients to the constant and home game coefficients, we estimate that Ireland experienced near parity in home fixtures against these four sides, but a distinct disadvantage away from home. The effect of playing New Zealand, at minus 29 points, stands apart. Similarly, the model suggests that against Argentina and Wales, Ireland had a clear advantage at home, but had fairly even games when playing away. Against all lower-ranked opposition, Ireland had a clear points advantage.

Column (2) introduces a variable for whether Brian O'Driscoll was playing. Given that there is no differential relative to away games and the fact that O'Driscoll was not injured during a World Cup, these games are pooled with away games. The model estimates that against all opposition, O'Driscoll made a statistically significant impact of almost 6 points per game. The final model (Column 3) introduces a control variable for when matches were played, breaking 1999-2014 up into four periods bookended by three World Cups (2003, 2007, 2011). This shows no statistically significant variation in the performance of the Irish team between these periods. The other coefficients of the model are also unaffected by controlling for period.

Table 1 does not offer the most accurate picture of O'Driscoll's contribution, because he was not automatically selected (unless injured) against lower-ranked sides. This selection effect is likely to result in an underestimate of his contribution per game against all opposition. Table 2 instead limits the analysis to the 141 matches against frontline opposition only. Because in this case O'Driscoll was an automatic pick, except when injured, this provides a better estimate of his impact per game, albeit a different one, because it is probably easier to make a larger impact on the points difference when playing against lower-ranked sides. That is, the estimate is more accurate, but corresponds to a measure of the player's impact *when playing against frontline teams*. Column 1 of Table 2 re-affirms the effects of home advantage and opposition discussed above. Column 2 indicates that O'Driscoll was worth 6.6 points per game against frontline opposition. One simple way to think of this, given the

[2] The choice of reference category does not alter the results, only ease of interpretation. Scotland was chosen because it produces the smallest constant term in the model, making it easier to interpret the coefficients for other countries.

probability of a successful conversion kick, is that against the best teams in the world, Brian O'Driscoll was effectively worth one try per game.

Table 2: Determinants of points difference against frontline opposition, 1999-2014

	(1)	(2)	(3)	(4)
Home	11.157***	11.142***	11.167***	11.182***
	(2.431)	(2.397)	(2.410)	(2.389)
Opposition (Ref=Scotland)				
New Zealand	-28.674***	-29.594***	-28.997***	-29.344***
	(4.982)	(4.930)	(4.977)	(4.916)
South Africa	-13.486**	-14.046**	-14.540**	-14.505**
	(6.011)	(5.933)	(5.960)	(5.922)
Australia	-16.603***	-17.051***	-16.552***	-17.089***
	(4.982)	(4.916)	(4.945)	(4.899)
England	-15.701***	-15.536***	-15.931***	-15.940***
	(4.727)	(4.661)	(4.682)	(4.654)
France	-15.789***	-15.528***	-15.322***	-15.811***
	(4.529)	(4.468)	(4.480)	(4.457)
Argentina	-6.863	-6.051	-5.759	-5.671
	(5.216)	(5.157)	(5.190)	(5.146)
Wales	0.812	0.156	0.260	-0.420
	(4.650)	(4.595)	(4.605)	(4.598)
Italy	10.133**	10.136**	10.533**	10.305**
	(4.602)	(4.538)	(4.559)	(4.524)
O'Driscoll		6.607**	2.086	5.910*
		(3.035)	(4.778)	(3.067)
Pre-2007			-6.138	
			(5.592)	
Pre-2007*O'Driscoll			7.636	
			(6.225)	
O'Connell				3.338
				(2.419)
Constant	3.618	-1.591	1.903	-2.639
	(3.401)	(4.120)	(5.244)	(4.175)
R-Squared	0.478	0.496	0.502	0.504
Observations	141	141	141	141

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

It is often argued that O'Driscoll's impact declined with age, as his game changed. Column 3 tests this. The O'Driscoll coefficient is interacted with a dummy variable for whether the match was prior to the end of the 2007 World Cup. The size of the O'Driscoll coefficient is smaller for later in his career, but the interaction is not statistically significant. Given this, this model does not resolve the issue either way.

We also tested to see whether conducting this same analysis for other prominent Irish players during the period produced the same results. This is not an entirely fair test, since they were not automatic selections. To the extent that they were more likely to be picked during periods of good form, the selection effect is most likely to bias the coefficient for other players upwards relative to the estimate for O'Driscoll, which is based on times when he was on both better and worse form, by his standards. We tested all Irish players who had been selected for the British and Irish Lions during the period, provided they also had more than 40 Ireland caps, and all those never picked for the Lions who had more than 70 caps.[3] No other Irish player had a statistically significant effect on points difference. Example output is given in Column 4 for Paul O'Connell, the other player closest to an automatic selection for frontline games during this period, unless injured. Our best estimate is that O'Connell was worth around 3 points per game, but the effect is not statistically significant. Furthermore, in general, the addition of other top players from the period to our model does not alter the coefficient on O'Driscoll substantively.

Points difference is only one outcome variable of potential interest. Arguably more important is whether the team wins. Table 3 presents a similar analysis to that carried out in Table 2, except that the results derive from probit models for whether Ireland won the match, against frontline opposition only. New Zealand unfortunately has to be excluded from the analysis because Ireland did not beat them at all. Column 1 reports similar effects of home advantage and opposition seen above. The introduction of the O'Driscoll variable, however, leads to a different and striking result. O'Driscoll not only made a highly statistically significant contribution to the probability that Ireland won. The contribution is estimated to be greater than home advantage. Further calculations based on the coefficients in column (2) indicate that home advantage increased the chance of Ireland winning by 8-32 percentage points, depending on the opposition, but that the presence of Brian O'Driscoll in the starting line-up increased it by 13-40 percentage points. Given that he is just one player among 30 on the pitch, this is a remarkable finding.[4]

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[3] The players tested were: Paul O'Connell, John Hayes, Peter Stringer, Ronan O'Gara, Shane Horgan, Denis Hickie, Gordon D'Arcy, Jonathan Sexton, David Wallace, Rory Best, Donncha O'Callaghan, Tommy Bowe, Cian Healy, Girvan Dempsey, Malcolm O'Kelly, Keith Wood, Kevin Maggs, David Humphreys, Geordan Murphy, Simon Easterby and Rob Kearney.

[4] The ranges arise because the impact is largest for games that are closest to a 50 per cent chance of victory. For games where Ireland are, say, 80 per cent likely to win in any case, the increase in the probability of winning due to home advantage or to O'Driscoll is bound to be smaller. One consequence of this is that the O'Drsicoll effect is estimated to be largest, at 40 percentage points, when playing England at home.

Table 3: Probit regressions for the determinants of victory against frontline opposition, 1999-2014

	(1)	(2)	(3)	(4)
Home	0.809***	0.822***	0.884***	0.785***
	(0.262)	(0.270)	(0.279)	(0.288)
Opposition (Ref=Scotland)				
South Africa	-1.153**	-1.291**	-1.358**	-1.703***
	(0.577)	(0.594)	(0.602)	(0.627)
Australia	-1.331***	-1.473***	-1.494***	-1.543***
	(0.502)	(0.518)	(0.522)	(0.546)
England	-0.694	-0.728	-0.751	-0.800
	(0.443)	(0.462)	(0.469)	(0.503)
France	-1.268***	-1.346***	-1.360***	-1.431***
	(0.444)	(0.464)	(0.468)	(0.497)
Argentina	-0.343	-0.227	-0.305	-0.013
	(0.501)	(0.531)	(0.532)	(0.597)
Wales	-0.104	-0.207	-0.207	-0.247
	(0.437)	(0.448)	(0.453)	(0.477)
Scotland	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Italy	1.124*	1.135*	1.175*	1.347**
	(0.599)	(0.600)	(0.617)	(0.682)
O'Driscoll		1.055***	1.034*	0.902**
		(0.355)	(0.562)	(0.384)
Pre-2007			0.332	
			(0.661)	
Pre-2007*O'Driscoll			0.056	
			(0.722)	
Stringer				1.085***
				(0.339)
O'Gara				0.448
				(0.359)
Sexton				0.981**
				(0.459)
Constant	0.187	-0.629	-0.839	-1.379**
	(0.323)	(0.432)	(0.597)	(0.549)
Pseudo R-Squared	0.247	0.302	0.313	0.379
Observations	127	127	127	127

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Furthermore, when we test for whether O'Driscoll's impact was affected by the stage in his career, we find this time that there is almost no change at all in the estimated coefficient. Put simply, while it is possible from the earlier results that O'Driscoll had a reduced influence on the points difference in games later in his career, we see effectively no change at all on his seemingly larger contribution to whether Ireland won the match (at least in comparison

with home advantage). He appears, therefore, to have been most effective in close games and to have remained so throughout his career.[5]

On the other hand, this analysis does reveal significant effects associated with two other players whose careers overlap with O'Driscoll's: Peter Stringer and Jonathan Sexton. Both players produce statistically significant coefficients of similar magnitudes to O'Driscoll. In Sexton's case, the effect is statistically significant only relative to fly halves other than Ronan O'Gara, who is included in the model because he accounts for so many games in which Sexton did not play. It should be borne in mind that these coefficients may be biased upwards somewhat by selection effects, as neither player was selected for long durations of the period covered, so the coefficient is likely to relate to times when they were playing at a higher standard than at other periods during their careers. Furthermore, that two half-backs emerge as significant is unlikely to be a coincidence. It is in keeping with the prevailing wisdom in rugby that these two positions probably matter more than other positions. The coefficients may therefore partly reflect the importance of being able to select your first choice half-backs, as much as how the individuals compare with others competing for the shirt. Alternatively, it may be that the qualities of these two players in tight games have been perhaps underappreciated. Given the available data, there is no way to test this.

It is unfortunate that the analysis in Table 3 must exclude 14 matches against New Zealand. Consequently, we conducted a final set of regressions where the outcome variable had four categories: lost by more than one score (7 points), lost by less than one score (or drew), won by less than one score, won by more than one score. This means that performance in close matches counts and that performance against consistently the best team in the world counts too, as Ireland ran them close more than once. The results of ordered probit regressions are given in Table 4. The coefficients are broadly similar to those above. The O'Drsicoll effect is similar to home advantage and is not significantly reduced across his career. Stringer and Sexton are again the only other players to have a statistically significant impact, albeit that the coefficient on Stringer is now somewhat reduced. In this model, Jonathan Sexton's impact is statistically significantly above that of all other fly halves.

[5] This interaction between the O'Driscoll variable and the stage in his career is robust to alternative model specifications. For instance, a similar result is obtained if the comparison is made between matches played pre- and post-2010, or if a continuous time variable is employed.

Table 4: Ordered probit regressions for the determinants of broad outcome against frontline opposition, 1999-2014

	(1)	(2)	(3)	(4)
Home	0.940***	0.962***	0.958***	0.906***
	(0.209)	(0.210)	(0.211)	(0.214)
Opposition (Ref=Scotland)				
New Zealand	-2.491***	-2.649***	-2.633***	-2.927***
	(0.512)	(0.518)	(0.524)	(0.544)
South Africa	-1.320***	-1.398***	-1.431***	-1.699***
	(0.486)	(0.487)	(0.489)	(0.498)
Australia	-1.012**	-1.111***	-1.080***	-1.142***
	(0.402)	(0.407)	(0.409)	(0.412)
England	-1.042***	-1.081***	-1.099***	-1.157***
	(0.379)	(0.383)	(0.383)	(0.391)
France	-1.107***	-1.099***	-1.093***	-1.098***
	(0.364)	(0.365)	(0.366)	(0.369)
Argentina	-0.343	-0.261	-0.216	-0.101
	(0.422)	(0.427)	(0.434)	(0.442)
Wales	0.036	-0.019	-0.015	-0.001
	(0.375)	(0.378)	(0.378)	(0.383)
Scotland	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Italy	0.908**	0.944**	0.992**	1.049**
	(0.417)	(0.420)	(0.426)	(0.426)
O'Driscoll		0.748***	0.451	0.902**
		(0.261)	(0.398)	(0.384)
Pre-2007			-0.532	
			(0.473)	
Pre-2007*O'Driscoll			0.521	
			(0.528)	
Stringer				0.599**
				(0.245)
O'Gara				0.236
				(0.259)
Sexton				1.038***
				(0.332)
Observations	141	141	141	141

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Discussion

Part of our motivation to do this analysis came from two different sources: the retirement of Brian O'Driscoll and an *Irish Times* article by its rugby correspondent, Gerry Thornley. Writing in 2011, Thornley pointed out that Brian O'Driscoll had played 117 of the previous 146 Ireland text matches and that the winning proportion when he played was 63.7 per cent, versus 52 per cent when he was absent. For the previous 81 competitive matches

(World Cup and Six Nations), the respective proportions were 70.7 and 50 per cent.[6] Statistics such as these are certainly suggestive, but do not control for whether games are home or away, for the opposition, or for who else is playing alongside. Given the unusual nature of Brian O'Driscoll's career, we set out to quantify the impact more conclusively across his entire international career.

Initially our measure is narrow – the scoreline. Here our statistical models show that O'Driscoll was effectively worth a try per game to Ireland. Given that more than one-third of Ireland's matches against frontline opposition from 1999-2014 were won or lost by less than 7 points, this is an immense contribution. However, the contribution of any player is not simply the number of points, because points are worth more when they are to win the match than when they are merely to add icing on the cake of a comfortable victory. We therefore also model the likelihood that Ireland won the match when O'Driscoll was playing – perhaps the ultimate impact of his presence on the pitch. We find this presence to be of greater benefit than home advantage.

It should be noted that the comparison measured by our models is between games when O'Driscoll was in the starting XV and games when he was not; in other words, it is a comparison between O'Driscoll and whichever player wore the Number 13 shirt in his absence. It could therefore be argued that the result is partly indicative of the quality of alternative outside centres, or even that his automatic selection in the Ireland team prevented other players from gaining experience. However, most of the players who wore the Number 13 shirt in O'Driscoll's absence were established internationals who had played in multiple positions in Ireland's back line. It seems unlikely that their performance in this one position would be poor enough to explain the large effects on match outcomes we report, though we cannot conclusively rule it out with the present data.

Although our analysis is limited by the available data, it provides clear quantitative evidence of the huge contribution that Brian O'Driscoll has made to the success of Ireland's rugby team since he debuted in 1999. There may be some who will argue that sporting greatness is, and always will be, a subjective concept, that statistics cannot capture whatever extra special something sets truly great players apart. Perhaps not, but there is merit in objective analysis that compares perception and judgement with statistical reality. Perceptions are not infallible and subjective bias is not uncommon. In sport, it is easier to appear a great player when playing in a winning team, and easier to produce moments of brilliance when the game is not in the balance. In this case, the quantitative analysis we offer suggests the conclusion that Brian O'Driscoll stands out among his peers is well warranted.

[6] "No real obvious back-up to number 13", Irish Times, November 8, 2011

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