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Using Match Attractiveness Measures to Evaluate the Structure of the Currie Cup

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ABSTRACT

Recent remarks in the media suggest that the Currie Cup competition, the premier rugby union competition in South Africa, is in need of a revamp. This is not a new inclination; the structure of the Currie Cup has had numerous alterations over the preceding two decades. But why has the Currie Cup suddenly lost its glamour? Existing measures of competitive balance used in the economics of sports literature are found to be unsatisfactory for rugby union competitions. Using a new measure of match attractiveness, this paper shows that the existing Currie Cup performs poorly compared to the top rugby union competitions across the world. 21 years of Currie Cup rugby are assessed to determine which structure yields the most attractive rugby. It is found that it is not the number of matches or the format of the competition that determines the "attractiveness", but rather how many teams participate. A structure where only the five Super 14 franchises compete yields the most attractive outcomes. Yet, even a competition of "five plus one" will be relatively more attractive than most current rugby union competitions, while also contributing to broadening participation and representation in South African rugby. A format is proposed where the five Super 14 franchises and one team open to promotion/relegation compete. The existing Vodacom Cup excluding the five Super 14-unions can be used as qualification tournament for the sixth team. Promotion for the sixth team should be determined on the highest league log points at the end of the tournament (Vodacom Cup) and not in a play-off match.

Keywords: Economics of sport leagues, Competitive balance, Match attractiveness, Rugby union, Currie Cup
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1. INTRODUCTION

The 116-year old Currie Cup competition has a venerable history as the premier domestic rugby league in South Africa. Public interest in Currie Cup rugby peaked during the years of South Africa's isolation from international sporting competition, when matches between top provincial unions in the eyes of many assumed the character and intensity of test matches. However, the status of and public interest in Currie Cup rugby have been diminished by South Africa's return to test match rugby in 1992 and the launch of Super rugby (an annual competition involving teams from South Africa, Australia and New Zealand) in 1993. Particularly poor attendances at Currie Cup matches in 2006 and 2007 – two seasons during which international commitments prevented current members of the national team (the Springboks) from playing regularly in the competition – strengthened the perception that the competition is in decline and prompted calls for its restructuring. A radical example of such a call came from Dr Steve Booysen, the chief executive of the financial services group that currently sponsors Currie Cup rugby. Addressing the rugby fraternity at the Player of the Year awards function on 7 November 2007, Dr Booysen suggested that the status of the Currie Cup competition should be downgraded to that of a feeder tournament for a proposed elite five-team competition involving all the best players in the country (Del Carme, 2007).

Any attempt to tamper with the Currie Cup's iconic status as the premier prize in South African domestic rugby is likely to encounter stiff opposition. The idea that public interest in South African domestic rugby would be boosted by the establishment of an elite competition consisting of the best teams and involving all the best players nonetheless has considerable intuitive appeal. All other things equal, one would expect rugby fans to prefer close matches between star-studded sides to one-sided ones involving large numbers of less gifted players. This conjecture could be formulated as a hypothesis: restricting participation in the premier domestic rugby competition in South Africa to a small number of evenly-matched teams would result in more attractive matches and raise public interest in the tournament.

This paper explores the first of the two links postulated in this hypothesis using quantitative measures based on Newton's gravity equation. The administrators of Currie Cup rugby have frequently changed the format of the competition over the years – De Koning (2004) once remarked pithily that "[i]f there is one 'invariable' in South African rugby then it is that officials will tamper with the Currie Cup format" – and this makes it possible to estimate how the attractiveness of Currie Cup rugby varied with the number of participating teams. Using new measures to quantify the attractiveness of rugby matches, the first part of the paper suggests that the system used in 2006 and 2007 has generated rather unattractive rugby, both by historical standards and relative to that in other rugby leagues. Secondly, we show that the historical data and a counterfactual experiment tentatively support the notion that restricting participating to the best teams increases the attractiveness of Currie Cup matches. These findings imply that serious consideration should be given to Dr Booysen's proposal for the restructuring of top-class domestic rugby in South Africa, and that the development of mechanisms to overcome resistance to its implementation should be a top priority for the administrators of South African rugby.

2. MEASURING THE ATTRACTIVENESS OF RUGBY UNION MATCHES

The literature suggests that sports leagues may pursue various objectives, including profit maximisation, revenue maximisation and utility maximisation (a catch-all term that includes objectives such as financial survival, international playing success and the maintenance of tradition) (Cairns, Jennett and Sloane, 1986: pp. 7-10; Schofield 1982: p. 339). Leagues interested in maximising revenues or profits are likely to put a much higher premium on achieving and maintaining close competition than leagues motivated primarily by utility maximisation. In utility-maximising leagues,

competitive balance may take a back seat to objectives such as preserving the league status of weak but long-established teams, allowing the emergence of dominant teams that form the nucleus of successful national sides, *et cetera*. Grundlingh (2008), in a history of the rugby professionalisation in South African rugby, discusses the trade-offs between financial and transformation objectives. "In other rugby playing countries formal national politics may have impinged tangentially on the game, but in South Africa as a country constantly in the throes of transition political pressures weighed for more heavily" (Grundling 2008: 4-5). Viewed in these terms, the Currie Cup is a utility-maximising (as opposed to a revenue-maximising) league.

Yet, it obviously is very important for professional sports leagues to maintain a high demand for their major outputs: games between specific teams and championship races involving all participating teams. As was pointed out by Borland and MacDonald (2003, p. 479), the essence of the demand for sports contests is fan interest. Sports fans derive utility from two aspects of sports contests: (i) identification with specific teams, and (ii) the quality of contests, which depends on uncertainty of outcome and demonstration of the physical and mental skills required to excel at the game (Borland & McDonald, 2003, p. 479).[2] The plausible assumption that high-quality matches appeal to spectators suggests that measures of the attractiveness of rugby games should incorporate proxies for these two dimensions of quality.

The notion that fan interest in a sports contest is linked to the predictability of the result is one of the basic building-blocks of economic analysis of sports leagues. Fourie and Siebrits (2008: 4) explained this proposition as follows: "... uncertainty about the outcome of matches and championships enhances their appeal because spectators prefer close games and tight championship races to predictable or one-sided ones, *ceteris paribus*. This hypothesis implies that approximate equality in the playing strengths of the participating teams should stimulate spectator interest in matches and championships". Empirical studies have approached the relationship between the demand for sport contests and the predictability of the result from three angles, namely uncertainty about the outcomes of specific matches, championships in specific seasons, and championship races over time (*i.e.* the absence or otherwise of long-term dominance of leagues by one or a small number of teams) (Szymansky, 2003, pp. 1155-1156).[3] The angle that is of interest for estimation is the uncertainty of outcome of specific contests.

Demand studies focus on the expected (or *ex ante*) unpredictability of matches and championships. The reason for this focus is simple: decisions to see games (either live or on television) is influenced by potential spectators' prior assessment of how closely the teams would be matched on the day. The indicators of uncertainty of outcome in such studies have included the difference between the log positions or the winning percentages of the two teams on the day of play and various betting odds (Cairns, Jennett, & Sloane, 1986, pp. 17-19; Szymansky, 2003: p. 1156). Owen and Weatherston (2004a; 2004b), for example, used New Zealand Totalisator Agency Board (TAB) odds on home-win probabilities as an indicator of match uncertainty in studies of the determinants of attendance of New Zealand National Provincial Championship and Super 12 rugby games.[4]

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[2] Various other factors also contribute to or detract from the overall experience of watching a sports contest. This is confirmed by empirical studies of the demand for attendance of sports contests, which include variables such as habit, team loyalty, admission prices, the opportunity cost of attendance, the size and income of the population of potential spectators, the availability and prices of alternative forms of entertainment, the facilities at and timing of contests, the quality of the contest, and the capacity of stadiums (Borland & McDonald, 2003: pp. 481-483). This paper ignores these factors, because its focus is the attractiveness of the play itself, not that of the experience of attending it.

[3] The evidence is reviewed in Cairns, Jennett and Sloane (1986: pp. 17-21), Downward and Dawson (1999: pp. 9-13), Borland and McDonald (2003: pp. 485-487) and Symansky (2003: pp. 1155-1156).

[4] The Super 12 (since renamed the Super 14 following the inclusion of two more teams) is a competition involving regional teams from Australia, New Zealand and South Africa.

The notion of match attractiveness, however, has to do with the actual (as opposed to the expected) spectator appeal of matches. The relevant dimension of uncertainty of outcome then is the closeness of the match itself: the drama of a sports contest is enhanced when its outcome remains in the balance until the final whistle, and measures of the actual appeal of matches should capture this aspect of sporting competition. The margin of victory (*i.e.* the difference between the numbers of points scored by the two teams) is an obvious quantitative measure of this dimension of the attractiveness of rugby matches.

Rottenberg (2000: p. 11) summarised the second dimension of high-quality sports contests in the following statement: "The quality of a game is higher, the more grace and skill with which it is produced [and] the larger the number of instances of extraordinary physical achievement that appear in it." The task of quantifying this aspect of high-quality sports contests could be approached in two ways. The first would be to compile a comprehensive composite measure of the demonstration of pysical and mental skills for the sports code in question. This is likely to be a daunting task, however, especially for sports such as rugby union where a wide range of skills are on display.[5] Moreover, such an approach would give raise to difficult aggregation and weighting questions, not to mention the constraints of data availability. Hence, this paper adopts the alternative approach of employing a simple proxy for demonstration of skills. This proxy is the total number of points scored in a match, based on the assumption that skillful play creates opportunities for scoring points (such opportunities include winning penalties: teams often concede penalties when skillful play by the opposition creates sustained pressure, and good kicking skills are required to convert penalties into points.)

The argument advanced in this section therefore is that attractive rugby union matches combine the drama and tension of a close contest with the excitement of skillful play that yield high scores. In Fourie and Siebrits (2008), we proposed three indicators that reflect this conceptualisation of the attractiveness of rugby matches. These measures, which correspond to Newton's famous gravity equation, are:

$$(1) \quad A_{ij} = \frac{T_i + T_j}{M_{ij}} \qquad (2) \quad A_{ij} = \frac{(T_i + T_j)^2}{M_{ij}} \qquad (3) \quad A_{ij} = G\frac{T_i + T_j}{M_{ij}^2}$$

where A_{ij} is defined as the attractiveness of matches in a particular league or competition, T_i and T_j are the scores of Team i and Team j in each match, M_{ij} is the difference between the team scores calculated as the absolute margin and G is a constant. Whereas equation (1) weights the total match score and the points margin evenly, equation (2) gives greater weight to the total match score (*i.e.* the demonstration-of-skills aspect of attractive matches) while equation (3) is biased towards the points margin (*i.e.* the close-contest aspect of attractive matches). The measures are not calculated for each individual match; instead, they are calculated after summing the scores and points margins of a league, competition or season. This is done to avoid the exclusion of drawn matches. The squared margin (M_{ij}^2), however, is calculated for each match and then summed across all matches. For all three measures, higher values indicate more attractive matches.

The indicators are simple to calculate and interpret – the only data required to compute their values are the results of matches – and their usefulness for comparative purposes is not affected by aspects of the structure of competitions (*e.g.* the number of participating teams and the number of matches played by each team). Hence, they should be useful for various purposes, including analyses of the

[5] These skills include elusive running, solid defensive tackling, accurate goal and field kicking, lineout jumping, strong scrumming and good handling and passing of the ball.

attractiveness of matches in specific competitions over time, comparisons of the attractiveness of matches in different competitions, and studies of the effects of rule changes on the attractiveness of rugby matches.

3. A COMPARISON OF COMPETITIONS

This section uses the new measures to compare the attractiveness of the Currie Cup to that of other major rugby competitions in South Africa and internationally. The comparison involves the Currie Cup and eleven other competitions, and is based on the results of the three most recent seasons. In cases where the 2008 season was not yet completed, only the results of the two previous seasons are used. The results of the Varsity Cup, first contested in 2008, are for one season only. The data were obtained from the official websites of the various competitions.

Table 1 contains the results of the comparison. The first two columns show that both the average number of points scored per match and the average victory margin in the Currie Cup exceed those of all the other competitions. According to equations (1) and (3), the Currie Cup is the second-least attractive of the premier rugby leagues; only the European Challenge Cup fares worse. The most attractive competitions in terms of these measures are the Guinness Premiership, the Tri-Nations, the Magners League and the Super 14. The Guinness Premiership also takes the top spot in the comparison based on equation (2), followed by the Varsity Cup and the Vodacom Cup. The Currie Cup performs better in this comparison, obtaining the sixth place among the twelve competitions. Still, of all the competitions South African teams participate in, the Currie Cup is the least attractive in terms of all three measures. In international terms, the Currie Cup clearly has not been an attractive competition of late, at least not as defined in this paper.

TABLE 1: MATCH ATTRACTIVENESS SCORES IN TWELVE COMPETITIONS, 2006-2008

	Average total score	*Average margin*	*Equation (1)*	*Equation (2)*	*Equation (3)*	*Seasons*
Air New Zealand Cup	46.14	16.07	2.87	132	11.0	2
Currie Cup	57.88	22.96	2.52	146	6.3	2
EDF Energy Cup	45.15	15.16	2.99	135	13.6	3
European Challenge Cup	50.29	23.10	2.18	110	5.3	3
French Top 14	42.01	14.61	2.89	121	11.4	2
Guinness Premiership	41.70	10.38	4.05	169	21.8	3
Heineken Cup	45.24	16.14	2.81	127	10.9	3
Magners League	39.34	12.06	3.27	129	16.4	3
Super 14	44.71	13.00	3.46	155	15.1	3
Tri-Nations	43.39	12.28	3.58	155	17.3	2
Varsity Cup	55.86	18.64	3.00	167	9.7	1
Vodacom Cup	55.18	18.77	2.94	162	9.4	2

What is clear from Table 1 is that there is little indication that a bias exists in terms of geographic region or structure of the tournament. Northern hemisphere rugby is typically a forwards-dominated approach, played on heavy fields and frequently in unfavourable weather conditions. On the other hand, southern hemisphere rugby is usually more expansive, running rugby played on harder fields in better weather conditions. One would thus predict close, low scoring matches for northern hemisphere matches, while southern hemisphere rugby would tend to have high total scores with larger margins. While this is indeed the case, there does not seem to be a bias for northern hemisphere competitions over their southern rivals. In fact, the most and least attractive competition are in the northern hemisphere, while the second most attractive and second least attractive competitions are in the southern hemisphere.

4. MATCH ATTRACTIVENESS IN THE CURRIE CUP, 1986-2007

As was indicated earlier, the Currie Cup is South Africa's premier domestic rugby union competition. The first Currie Cup tournament took place in Kimberley in 1892, and since 1968 competition for the Cup has taken the form of an annual tournament culminating in a final. The format of the competition has changed often, especially since the advent of professional rugby in the 1990s.

Table 2 shows the three match attractiveness measures for the Currie Cup for the period 1986 to 2007. From 1986 to 1995, the Currie Cup was contested on a strength-versus-strength basis with the provincial unions grouped into sections according to playing strength. Two sub-periods can be distinguished during which the strength-versus-strength system was applied differently. During the first sub-period (1986-1990), end-of-season promotion-relegation matches between the last-placed union in each section and the winner of the next season ensured that all unions could over time advance to a section where the Currie Cup itself was at stake. The number of teams in the premier division increased gradually from six in 1986 to seven in 1987 and 1988 and eight in 1989 and 1990. The second sub-period started when promotion to and relegation from the premier division was abolished in 1990. This step entrenched the premier-division status of what was at the time known as the "test unions" (Eastern Province, Natal, Northern Transvaal, the Orange Free State, Transvaal and Western Province), and from 1991 to 1995 only these unions competed for the Currie Cup itself. *A priori*, one would therefore expect that the second sub-period would have generated more attractive rugby than the first, because the reduction of the number of teams in the premier division in the former period meant that more matches were played between teams of comparable strength.

TABLE 2: MATCH ATTRACTIVENESS INDICATORS, CURRIE CUP 1986-2007

	Average total score	*Average margin*	*Equation (1)*	*Equation (2)*	*Equation (3)*	*Number of teams*
1986	45.58	14.17	3.22	147	12.5	6
1987	43.60	14.17	3.08	134	13.9	7
1988	49.21	17.45	2.82	139	10.5	7
1989	54.86	21.82	2.51	138	7.1	8
1990	49.82	16.82	2.96	148	10.3	8
1991	46.37	14.37	3.23	150	14.3	6
1992	48.47	11.13	4.35	211	23.7	6
1993	50.17	15.03	3.34	167	15.1	6
1994	51.33	13.60	3.77	194	14.2	6
1995	47.97	13.37	3.59	172	16.3	6
1996	64.09	28.02	2.29	147	4.5	14
1997	64.68	23.58	2.74	177	7.1	14
1998	55.66	20.52	2.71	151	7.3	14
1999	58.68	19.54	3.00	176	8.1	14
2000	67.14	17.64	3.81	256	14.3	8
2001	62.14	17.36	3.58	222	13.0	8
2002	63.68	19.11	3.33	212	9.3	8
2003	68.21	17.57	3.88	265	11.8	8
2004	60.63	17.16	3.53	214	10.9	8
2005	59.97	19.59	3.06	184	5.1	8
2006	60.65	23.15	2.62	159	6.2	8
2007	55.11	22.75	2.42	133	6.4	8

A useful rule-of-thumb for interpreting scores calculated with the aid of equation 1 is that values above three indicate relatively attractive matches. The results for the seasons from 1986 to 1990 therefore suggest that the competition was relatively unattractive. On balance, the attractiveness of matches in the premier division decreased as the number of teams increased. By contrast, the six-team competition staged from 1991 until 1995 was significantly more attractive, which corroborates the *a priori* expectation.

It was believed widely that the strength-versus-strength system safeguarded the standard of South African rugby during the isolation period and contributed to the Springboks' victory in the 1995 Rugby World Cup. However, the structure of the Currie Cup competition had to be revisited in view of the complex new challenges of the mid-1990s: the financial and managerial demands resulting from the full professionalisation of the game, fierce competition for spectator interest from a rapidly expanding menu of local and international sport, and the imperative of making provincial and national teams more representative of the composition of the South African population. The result was a comprehensive overhaul of the competition in 1996. The number of provincial unions was reduced from 22 to 14, and the various sections were collapsed into a single 14-team league. At the time, the South African Rugby Football Union (SARFU) argued that these steps would reduce administrative costs, establish a more compact structure and give more players the opportunity to be involved in matches for the Currie Cup itself (Van Rooyen, 1995c: p. 18). Concern about the financial survival of rural unions in the professional era apparently was another major consideration (*cf.* Van Rooyen, 1995a: p. 18; Van Rooyen, 1995b: p. 16). Furthermore, the then managing director of SA Rugby (Pty) Ltd Rian Oberholzer's much later comment that "I still believe the 14 team Currie Cup was necessary to speed up the development process" (Rich, 2002a: 1) suggests that the need to accelerate the development of players of colour also influenced the restructuring decision. The dual objectives of the Currie Cup are distinctly drawn here: the trade-off between financial security in an age of commercialisation and transformation in a new democracy (Grundlingh 2008).

The 1996 season was characterised by several extremely one-sided matches, and the *South African rugby writers' yearbook* (Van Rooyen, 1997: p. 127) commented on the unhealthy gap between the playing strengths of the larger and weaker unions and the extent to which it had been exacerbated by the advent of professional rugby. Measured in terms of equations (1) and (2), matches in the 1996 season were, on balance, less attractive than in any of the other seasons during the period under review. Matters improved in 1997, and the *South African rugby annual* (Colquhoun, 1999: 209) noted that "the second year of a 14-province Currie Cup was a huge improvement as the mismatches of 1996 gave way to a series of upsets that shook some of the major provinces to their very foundations." The modest improvements in the values of the attractiveness measures from 1997 to 1999 point in the same direction; viewed from a longer-term perspective, however, the competition remained relatively unattractive.

Lingering doubts about the viability of a 14-team Currie Cup competition were allayed only partially by the introduction in 2000 of a two-phase Currie Cup competition with a strength-versus-strength element. In this system, which was maintained for three seasons, the first part of the season served to sort the teams into an eight-team upper division that competed for the Currie Cup itself and a six-team lower division that competed for the Bankfin Cup. Only the matches in the upper division were used to calculate the attractiveness measures reported in Table 2. The results for the three seasons suggest that the smaller upper division was a significantly more attractive competition than the 14-team format, although the values of all three indicators decreased from 2000 until 2002.

The poor performance of South Africa's Super Twelve teams and the Springboks in 2000 and 2001 gave further impetus to the debate about the format of the Currie Cup competition. Former Springbok coaches Nick Mallett (2001) and Harry Viljoen (Gilbert, 2001), journalist Gavin Rich (2002b) and former Springbok lock forward Krynauw Otto (Del Carme, 2002) all commented on the

poor quality of South African provincial rugby and directly and indirectly called for a restructured Currie Cup competition with fewer but stronger teams. The debate focused mostly on the link between the 14-team Currie Cup competition and the strength of the national team. However, some participants pointed out that the weak provincial competition was becoming a financial liability as well, although only to the stronger unions. In May 2002, newspapers reported that the Western Province Rugby Union planned to propose to SA Rugby Ltd that the Currie Cup competition be split into a top and a second division. Explaining the motivation behind the envisaged proposal, Western Province Rugby Ltd managing director Rob Wagner hinted that crowds had dwindled at matches against weaker teams: "Our customers have voted with their feet in recent years and have come in big numbers when the Top Eights stage of the Currie Cup starts" (Momberg, 2002). In addition, some looked ahead to the 2005 review of News Corporation's television sponsorship of southern hemisphere rugby, fearing that the poor performances of South African Super Twelve teams and the Springboks threatened SA Rugby's cut of the multi-million rand contract (Bruce, 2002).

It was against this background that SA Rugby (Pty) Ltd appointed consultancy company Accenture in February 2002 to investigate and make proposals with regard to various aspects of South African rugby, including the structures of domestic competitions. Accenture's proposals, which were accepted by SA Rugby (Pty) Ltd in June 2002, included a six-team Currie Cup competition and an eight-team second division. SA Rugby (Pty) Ltd managing director Rian Oberholzer stated that the return to a strength-versus-strength system was necessary to restore the Springboks to the top position in world rugby (Rich, 2002a). Hence, it seems that the proposals were motivated by considerations of the playing strength of the national team, rather than financial issues. Be that as it may, the proposals were never implemented, mainly because the smaller unions were unwilling to accept what for most of them would have amounted to permanent exclusion from the premier division (Colquhoun, 2003: pp. 13-14). The compromise reached was that the eight second-division teams (the Bulldogs, Cavaliers, Eagles, Elephants, Falcons, Griffons, Griquas and Leopards) had to play a preliminary competition at the start of the 2003 Currie Cup season to determine the two sides which were to join the five traditional powerhouse teams (the Blue Bulls, Cheetahs, Lions, Sharks and Western Province) and the Pumas in the Currie Cup proper. The plan was to maintain this system for two seasons, after which two seven-team leagues with annual promotion-relegation matches between the bottom team in the premier division and the winner of the second division from 2005 onwards were envisaged. This plan, too, was not implemented fully and eight teams continued to contest the Currie Cup until the end of the 2007 season. Promotion-relegation matches, however, were instituted.

Somewhat surprisingly against the backdrop of the mood at the time, all the indicators presented in Table 2 show that the eight-team upper division of the Currie Cup was one of the most attractive competitions in world rugby from 2000 to 2004. On balance, however, the attractiveness of premier-division matches deteriorated rather dramatically from the 2005 season onwards. In fact, the 2007 season was the most unattractive season on record measured by equations (1) and (2). This deterioration took place despite at least two developments that could have made the competition more closely contested. First, the five strongest teams lost a substantial number of players to European and even Japanese clubs that offer much more lucrative contracts than those available in South Africa. Second, international commitments severely limited Currie Cup appearances by the star Springbok players of these five teams; in fact, members of the national side selected for the 2007 World Cup tournament were not allowed to play Currie Cup rugby at all in 2007.

It appears as if a growing concentration of financial and player resources overshadowed these pressures for more attractive Currie Cup rugby, especially by making the eight-team competition increasingly unequal. The drift of top players to the richer metropolitan area-based teams, which was set in motion when the professional area began, was boosted by the reality that the five strongest teams also host the five South African franchises in the Super 14 competition: the Cheetahs, Lions,

Sharks, Bulls and Stormers (the latter two team contest the Currie Cup as the Blue Bulls and Western Province, respectively). Participation in the Super 14 competition strengthened the financial resources of these unions and the exposure of their players, which enabled them to contract the top players, coaching staff and administrators from around the country. In 2003, a SARFU task team reported that the salary bills of the five strongest unions averaged R16.3 million (R471 963 per senior player), compared to R3.9 million (R130 285 per senior player) for the other nine unions (Cronjé, 2003: p.24). If anything, these discrepancies would have worsened since then. Hence, it should come as no surprise that not one of the 32-man squad that represented South Africa at the 2007 Rugby World Cup played their rugby for one of the smaller unions.

During the first part of each season, the strongest unions effectively participate in two concurrent competitions: the Super 14 (with domestic teams from Australia and New Zealand) and the Vodacom Cup (a domestic competition involving all 14 unions). Their financial resources enable them to maintain sufficiently large player bases to ensure depth in all positions for what is essentially two different teams, the best team competing in the Super 14 and the B-team in the Vodacom Cup. This means that they are not as hard hit by injuries during the Currie Cup phase of each season, while the smaller unions seldom have adequate depth in key positions. Of late, some of the richer unions even have resorted to contracting foreign players when local talent was not available to plug gaps left by injuries or departures of key players. When it comes to participating in the Currie Cup, the playing field for non-Super 14 teams is definitely not even.

5. THE COUNTERFACTUAL

As was pointed out earlier, poor attendances at Currie Cup matches during 2006 and 2007 – which probably reflected a large number of relatively unattractive matches – have prompted calls for the restructuring of the competition. Especially two proposals have been mooted. The first provides for a premier division involving only the five Super 14-unions, a final to decide the winner, no other play-off matches, and no promotion/relegation system either. We will call this proposal "Top 5". The second suggestion ("Top 5+1") involves a return to a six-team league system akin to that used from 1991 to 1995. This proposal acknowledges that a strength-versus-strength system is vital for ensuring a close competition that should stimulate attendance in the longer run. It argues, however, that pleasing the crowds is not the only objective of Currie Cup rugby. Broadening participation in Currie Cup rugby, specifically by providing more opportunities for black players, is also a worthy objective that can be met only by introducing an additional team. Whether the sixth spot in the Currie Cup competition should be given to a specific team once and for all or determined annually by means of promotion/relegation matches is a matter of debate. Valid arguments could be provided for both options. A permanent spot in the Currie Cup would enable the sixth team to attract long-term sponsorships and to offer long-term contracts to potential players, which could help it to overcome the resource gaps referred to earlier. Talk of expansion of the Super 14 to include another South African team has given impetus to this argument. In contrast, a promotion/relegation system would ensure that the best team apart from the "big five" competes in the Currie Cup. Moreover, it would contribute to equality of opportunity in the sense that every team, whether strong or weak at this stage, would remain eligible to participate in and to win the Currie Cup competition.

The data offer some guidelines for deciding between these difficult choices. A counterfactual is calculated for each season to determine what the attractiveness measures would have been had the two proposed structures been implemented since 1986. Table 3 shows the results. All five Super 14-unions are included in all years, except the two seasons during which one of these unions failed to reach the premier division of the Currie Cup (Natal (now the Sharks) in 1986 and the Blue Bulls in 2000). The equation (1) attractiveness measures for matches played between the five Super 14-unions are calculated and shown in the column "Top 5". The results are highly suggestive. Had only the five Super 14-unions competed, the Currie Cup would have been an exceptionally attractive competition.

Note that the average attractiveness score of 4.28 calculated over all 21 seasons is higher than the 2006 to 2008 scores of all the competitions reported in Table 1. Compare, for example, the 2004 season measure for all teams with that of the Top 5. The actual score for the eight-team competition of 3.53 suggests a relatively attractive competition. However, the score of 7.68 for the "Top 5" is nothing less than remarkable: it implies that, on average, the total score per match was seven times more than the margin of victory. Had only the five Super-14 teams played in the Currie Cup that year, it may well have been written in the history books as the "perfect season".

TABLE 3: COUNTERFACTUAL OUTCOMES, CURRIE CUP 1986-2007

Season	*All*	*Top 5*	*Top 5+1*	*Included*	*Excluded*
1986	3.22	4.18	3.22	Eastern Province, Northern Orange Free State	Natal
1987	3.08	3.44	3.15	Eastern Province	
1988	2.82	2.43	2.89	South West Africa	
1989	2.51	3.58	2.69	Eastern Province	
1990	2.96	4.13	4.30	Eastern Province	
1991	3.23	3.70	3.23	Eastern Province	
1992	4.35	4.89	4.35	Eastern Province	
1993	3.34	3.91	3.34	Eastern Province	
1994	3.77	4.47	3.77	Eastern Province	
1995	3.59	4.85	3.59	Eastern Province	
1996	2.29	4.11	3.23	Griquas	
1997	2.74	3.40	3.56	Griquas	
1998	2.71	4.72	4.73	Griquas	
1999	3.00	4.22	4.07	Eagles	
2000	3.81	5.33	4.75	Cavaliers	Blue Bulls
2001	3.58	3.64	3.88	Falcons	
2002	3.33	4.75	4.41	Pumas	
2003	3.88	4.98	5.11	Pumas	
2004	3.53	7.68	5.05	Griquas	
2005	3.06	3.45	3.23	Cavaliers	
2006	2.62	4.87	3.90	Griquas	
2007	2.42	3.36	2.88	Griquas	
Average	3.18	4.28	3.79		

The implications of the second proposal can be proxied by including the best-performing team apart from the five best sides when calculating the attractiveness measures for each season. Of course, this approach assumes that the best non-Super 14 union could have been identified before the start of the competition, which is a strong assumption if promotion/relegation matches were played or if the winner was determined in a single play-off match. If a qualifying tournament took place and the team with the most league points was included in the premier division of the Currie Cup, however, the assumption that the best team had advanced is plausible.

It transpires that the "Top 5+1" would have been a less attractive competition than the "Top 5" counterfactual. Its average score of 3.79 over the 21 seasons nonetheless would have made it highly attractive and a worthwhile alternative to the "Top 5" format, given the representation considerations referred to above.

6. WHAT STRUCTURE FOR THE CURRIE CUP?

The results of the counterfactual exercise suggest a straightforward solution to the problem of structuring the Currie Cup: participation should be restricted to the five Super 14-unions. There are two caveats to this solution, however: as was noted earlier, our measures of attractiveness do not capture all the dimensions of attractive rugby union matches. Spectators might assess the attractiveness of matches in terms of other criteria as well, such as the number of national players playing for the two teams. There is no obvious way to incorporate such considerations in quantitative measures of match attractiveness. Our assumption that the attractiveness of rugby matches depends on the number of points scored and the margin of victory remains a *ceteris paribus* construct. The second caveat, which is of greater concern, is that the objective function of the Currie Cup competition extends beyond attractiveness to also include concerns such as maintaining participation by some of the smaller unions and broadening participation to create a larger pool of rugby players and more opportunities for black players (Grundlingh 2008). There are strong indications that such concerns have contributed to the introduction of the existing eight-team Currie Cup.

Our solution to the twin objectives of making Currie Cup rugby more attractive and more participatory is to reduce the number of participating teams to six. As was mentioned before, there are two options for choosing the sixth team: a once-and-for-all decision and an annual qualifying tournament. The inter-temporal arguments for a permanent team are strong, but the option is unlikely to be acceptable to the smaller unions. Hence, we propose that the Currie Cup be contested by the five Super 14-unions and a sixth team determined annually.

The existing Vodacom Cup could be used as a qualifying tournament, with admission to the Currie Cup proper granted to the team with the highest number of log points. This method would raise the intensity of competition in the qualifying tournament, and avoid perverse incentives for artificial strengthening of teams in play-off matches. To further improve the competitiveness of this tournament, it is advised that the five Super 14-unions should not participate. This will enable smaller unions to retain their better players for longer, increasing competitiveness (and thus attractiveness) in both the Currie Cup and the qualifying tournament.

6. CONCLUSIONS

Quantitative analysis based on new measures of the attractiveness of rugby matches shows that the Currie Cup has become one of the least attractive major competitions in the rugby-playing world. This was not always the case. An analysis of the Currie Cup tournaments since 1986 suggests that the structure of the tournament has an important impact on the *ex post* attractiveness of matches within a season. These quantitative results are substantiated by recent calls for a change to the existing Currie Cup structure. Such calls have centered around two proposed structures: 1) a competition with only the five Super 14-unions ("Top 5"), and 2) a competition with the five Super 14-unions and one additional team ("Top 5+1"). This paper compares the attractiveness of these two structures using counterfactual results of previous Currie Cup competitions.

A competition involving only the five Super 14 franchises yields the most attractive outcomes. Even a six-team competition, however, would be more attractive than most current rugby union competitions, and would also make it possible to broaden participation in South African rugby. Hence, this paper proposes a Currie Cup competition involving the five Super 14 franchises and an additional team determined by means of a promotion/relegation system. The existing Vodacom Cup excluding the five Super 14-unions could be used as qualifying tournament to determine the sixth team. This team should be chosen on the basis of the highest league log points at the end of the qualifying, and not by means of a play-off match.

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