

ISSN 0111-1760

University of Otago
Economics Discussion Papers
No. 0214

December 2002

Professionalization of New Zealand Rugby Union: Historical Background, Structural Changes and Competitive Balance*

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Abstract

The transformation of rugby union from an amateur to a professional sport since 1995 has led to significant changes in the structure of the game. This paper documents the changes in the organizational structures that have occurred since professionalization, with a particular focus on New Zealand. We provide a brief historical overview of the development of rugby union in New Zealand, including a discussion of the forces that led to professionalization. We outline the changes that have occurred in the labour market and to the organization of competitions, including the new cross-national franchise-based Super 12 and Tri-Nations competitions and their relationship to the more traditional National Provincial Championship (NPC). The roles and objectives of the various national and cross-national organizing bodies are examined. The main focus is on the degree of competitive balance in the different competitions under the current organizational structure and any effects this has had on the overall performance of New Zealand's national team, the All Blacks. Current issues of relevance to administrators of rugby in New Zealand (such as financial and competitive balance in the NPC and possible reconfiguration of the Super 12 competition) are also discussed.

Key Words: competitive balance, New Zealand rugby union, professional team sports

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* We are grateful to Steve Dobson, John Howells, Stephen Knowles, Martin Richardson and Niven Winchester for helpful discussions, comments and/or suggestions, and to Helen Quirke (from the TAB) and Amanda Temperton (from the NZRFU) for providing data. The views expressed in this paper are those of the authors and do not necessarily reflect the views of the New Zealand Treasury. The Treasury takes no responsibility for any error or omission in, or the correctness of, the information contained in this article.

Rugby football ... the best of all our pleasures: ... religion and desire and fulfilment all in one (John Mulgan, 1947, p.7)

... the need for balance, of playing the game and running the business, of respecting our traditions and shaping the future ... achieving local touch in New Zealand while achieving global reach with the game (Murray McCaw, Chairman, NZRFU, Report to AGM, 2001)

1 Introduction

After over a century as an amateur sport, the International Rugby Board (IRB), the world governing body for rugby union, declared in August 1995 that players could be paid for playing rugby union, opening the door for players to be full-time professionals. The transformation from an amateur to a professional sport has led to significant changes in the structure of rugby union in the Southern Hemisphere. This has had particular implications for New Zealand, where rugby is more than just the national sport; as reflected in the quote from Mulgan, it borders on the status of a *de facto* religion and is an important part of the nation's sense of identity (Fougere, 1989). The national team, the All Blacks, provides many New Zealanders with an immense sense of pride, although, as a corollary, it can also be a source of intense disappointment as illustrated by the public's reaction to the unexpected semi-final loss to France in the 1999 Rugby World Cup.¹

The change to 'pay for play' (in contrast to what was labeled 'shamateurism', the under-the-table rewards indirectly afforded players prior to professionalism) has brought to rugby a much greater business orientation; this has changed the relationships between the players, the teams and the administration in New Zealand rugby, although traditions from the amateur era remain strong. As broadcasting rights and sponsorship have become the dominant sources of revenue, the importance of winning, to preserve the elite All Blacks 'brand' and retain the interest of broadcasters, sponsors and the public, has not been underestimated by New Zealand rugby administrators. The aim of this paper is to examine the changes in the organizational structures that have occurred since professionalization in Southern Hemisphere rugby, with particular emphasis on New Zealand. As will be seen, aspects of the highly centralized system of contracting labour and the importance of the performance of the national team appear to be unique, yet the organization of the competitions and other aspects of the labour market have elements in common with other professional sports.

We examine the nature of the different rugby competitions in which New Zealand teams are involved (including the new cross-national franchise-based Super 12 and the Tri-Nations competitions and their relationship to the more traditional competitions that pre-date professionalism), as well as the objectives and activities of the national and cross-national organizing bodies (including provincial unions, the New Zealand Rugby Football Union (NZRFU), and SANZAR (made up of the three national organizing bodies: the Australian Rugby Union (ARU), the NZRFU and the South African Rugby Football Union (SARFU)). We consider the motivation for the central contracting system adopted in the market for players in New Zealand and the implications of the draft system, salary caps, transfer restrictions, migration overseas and competition

¹ It has also been suggested that "the All Blacks is the closest New Zealand has got to a true international brand" (David McKewen, Managing Director of the New Zealand knitwear manufacturer Tamahine, from Deborah Hill Cone, "Hot fashion in a cold climate", *National Business Review*, May 31, 2002).

policy for the market for players in New Zealand and the Southern Hemisphere. Our main focus is on the extent of competitive balance in the different competitions under the current organizational structure and any effect this has on the overall performance of the All Blacks.

In Section 2 we provide a brief historical overview of the development of rugby union in New Zealand in the more than a century of the development of the sport under amateurism until 1995, including a discussion of the forces, in the Southern Hemisphere in particular, that led to professionalization. In Section 3 we outline the changes that have occurred to the organization of competitions and the labour market in rugby union since professionalization and examine the role of the central organizing body, the NZRFU. In Section 4 we examine the degree of competitive balance in the main rugby competitions in New Zealand and discuss some current issues of concern (relating to competitive balance in the domestic provincial competition and proposals for expansion of the Super 12 competition). In Section 5 we tentatively examine whether professionalization and/or changes in competitive balance have affected the performance of the All Blacks. Section 6 contains some concluding comments.

2 Rugby Union in New Zealand: Historical Background (1870-1995)

Rugby union is an extremely physical, contact sport played between two teams each consisting of 15 players (with substitutions allowed), using an oval-shaped ball. Matches are made up of two halves of 40 minutes each and take place on a rectangular field, with maximum dimensions of 100 m × 70 m plus up to 22 m in each ‘in-goal’ area. The aim of the game is to accumulate more points than the opposing team by scoring tries (presently worth five points) and by kicking conversions (two points), penalties (three points) and drop goals (three points).² A try is scored if a player crosses the opposing team’s line and grounds the ball in the in-goal area. Players attack the opposing team’s line by running with the ball in hand, kicking the ball, and passing the ball (but not forwards) to another player in the team.

Antecedents of modern forms of football have a long history, dating from Roman times. Until about the early nineteenth century, football existed as an undisciplined pastime involving large numbers of participants, few rules and considerable damage to people and property (Palenski et al., 1998). The start of the process of codifying football into the different forms observable today (including association football and rugby union) is conventionally traced to the English public (i.e., upper-class, private) schools and universities. An often-quoted story identifies the birth of rugby union as occurring in 1823 at Rugby School in Warwickshire, England, when, according to a plaque in the school grounds, William Webb Ellis “with a fine disregard for the rules of football as played in his time, first took the ball in his arms and ran with it, thus originating the distinctive feature of the rugby game”.³

While the Rugbeian version of football allowed handling of the ball, the rival Etonian code restricted the use of the hands. These codes spread from educational institutions with the establishment of football clubs and, later, the formation of central

² The rules of the game are available at <URL:http://www.irb.com/laws_regs/laws/index.cfm>.

³ Source: <URL:<http://irb.org/archive/b5right.htm>>. There is considerable doubt over the historical accuracy of this tale, and, in particular, whether, even if Webb Ellis did pick up the ball and run with it, this was instrumental in the development of rugby as a separate code (Palenski et al., 1998). However, naming the trophy for the inaugural Rugby World Cup competition in 1987 as the Webb Ellis trophy further enhanced the story’s place in rugby folklore.

governing bodies to administer the different codes.⁴ By about the 1860s, rugby matches were generally contested by two teams of 20 players with points awarded for kicking goals. While a try is the highest scoring action in modern rugby union it did not, at that stage, count for any points, but entitled a team to 'try' to kick a goal, which, if successful, scored one point (Palenski et al., 1998).⁵

Charles John Munro, born in New Zealand but educated at an English public school, is credited with organizing the first match played in New Zealand under rugby rules between Nelson Football Club and Nelson College in 1870. By 1875, the game had spread through the regions of New Zealand, with the first provincial unions formed, in Canterbury and Wellington, in 1879. The NZRFU was subsequently established in 1892 to coordinate the unification of rules, scheduling of inter-provincial and international matches, and organizing refereeing (McMillan, 1997, p.93; Obel, 2001, p.37ff).

Matches involving a New Zealand team against overseas opposition were an early feature of rugby's development.⁶ In 1905/6, the 'Original' All Blacks toured Britain, Ireland, France and North America and won 34 of the 35 games played. (The solitary loss against Wales is still disputed to this day.)⁷ As well as the success of the national team, a key element in establishing rugby union as the dominant spectator sport in New Zealand was the development of domestic inter-provincial competitions, with teams selected from the best players in the provinces' local clubs, which, given the residency qualifications imposed, created a strong sense of local/regional identity and loyalty (which still underpins the current competitive structures). While competitions at the local (intra-provincial) club level were built around graded, competitive cup and league competitions, inter-provincial matches were predominantly 'friendlies' (played, at irregular intervals, outside a league/cup framework) or 'challenge' matches (Obel, 2001, pp.83-85).

By far the most prestigious example of the latter is the Ranfurly Shield competition, introduced in 1902, which achieved and maintained a dominant position in inter-provincial rugby until, at least, the 1980s. The Ranfurly Shield involved one-off challenge matches between the Shield holder and the challenging union, normally held at the holder's home ground. Shield challenge matches attracted large crowds, especially for games involving traditional rivalries between urban-dominated unions (e.g., 52,000 people for the Canterbury versus Auckland challenge in 1985).⁸ These were significant sources of revenue for home unions, which under Shield rules were guaranteed all the home gate receipts minus the challenging team's travelling expenses (Carman, 1960; Palenski et al., 1998). Despite its traditions and prestige, the Shield

⁴ The Football Association was formed in England in 1863 to administer association football, with the establishment of the Rugby Football Union (RFU) following in 1871.

⁵ The points value of a try has increased over time from one point in 1884 to two points in 1892, three points in 1894, four points in 1972 and five points in 1992 (Palenski et al., 1998, pp.16-18).

⁶ Teams from New South Wales toured New Zealand in 1882 and 1886, and a New Zealand team reciprocated in 1884. A British team toured New Zealand in 1888 and the 'New Zealand Native Team' was the first to tour Britain in 1888/1889 (Palenski et al., 1998).

⁷ According to another piece of rugby folklore, the name "All Blacks" for the New Zealand national rugby union team arose from a printer's error in adding an additional letter 'l' when a sports writer for the British newspaper *The Daily Mail* referred to the New Zealand team as "all backs", reflecting the ability of the team's forwards to pass and run as well as its backs. The generally held view, however, is that the name originates from the black jerseys, shorts and socks worn by the players (<URL:http://www.rugbymuseum.co.nz/asp/container_pages/normal_menu/rmABName.asp?IDID=121>).

⁸ Source: <URL:<http://www.nzrugby.com/history/ranfurly.asp>>.

challenge rules were designed with little regard to the criteria of maintaining uncertainty of outcome and competitive balance. The number of Shield challenges per year was limited and no union was guaranteed a challenge in any season. Strong unions (especially Auckland, Canterbury and Wellington) dominated and their financial position was reinforced by the lack of revenue sharing for Shield matches.⁹ Up to 1976, challenging teams won only 17% of Shield challenge matches, and, between 1976 and 1999, this percentage fell further to only 9% (Obel, 2001, p.110). Although challenge competitions have a different ethos from league competitions, this represents a distinct lack of uncertainty of outcome. Given this, the enduring interest in the Shield at its centenary says a great deal for the role of tradition in New Zealand rugby.

A significant step on the path to a professional-style league was the introduction of a domestic inter-provincial competition, the National Provincial Championship (NPC), in 1976, in response to concerns from the larger provincial unions over the lack of interest in matches other than Ranfurly Shield challenges, matches against touring teams, and when “country unions played against the stronger city unions” (Garland, 1997, pp.2-3). Teams were based on provincial units but were affiliated to a centrally organized league structure. This was a format that had proved successful in competitive leagues in other sports and one that shifted the balance of control gradually away from the provincial unions and towards the NZRFU (Obel, 2001, p.113).

The format of the NPC has changed several times.¹⁰ In 1985, the NPC was tiered into three divisions with promotion and relegation between divisions generally based on final league positions. After a tentative start, spectator interest in the NPC increased, especially after 1992 with the move to a centrally organized schedule of matches and the introduction of play-offs in each division, whereby the top four teams after the round-robin matches play semi-finals (first versus fourth and second versus third), and the winners of these contest the final. This enhanced uncertainty of outcome of the overall competition winner and increased spectator interest for teams still in contention for the top four positions in the later stages of the round robin. The NPC is popularly credited with having maintained the high standard of rugby in New Zealand.¹¹ Currently, there are 27 provincial unions, each selecting representative sides.¹² The current format (from 2002) is based on a First Division of ten teams, a Second Division of eight teams, and a Third Division of nine teams. Promotion to/relegation from the

⁹ For the smaller, financially weaker unions there was in fact a financial disincentive to challenge for the Shield compared to playing the holder in a non-Shield-challenge friendly because the latter involved sharing gate receipts whereas a Shield challenge match did not (Obel, 2001, p.87). The large unions’ ability to extract revenue from holding the Shield was also enhanced by the development of the facilities at the grounds of the larger unions for international matches, which thus provided greater capacity for Shield matches (Obel, 2001, p.91).

¹⁰ The original format had a First Division made up of seven North Island and four South Island teams and two separate North Island and South Island Second Divisions. Operation of promotion and relegation on a segregated geographical basis led to anomalous outcomes such as the relegation of Taranaki from the first division in 1979 despite having a higher league placing than three South Island teams. Source: <URL:http://www.nzrugby.com/history/history_npc.asp>.

¹¹ For example, see Alastair McMurrin, “NPC credited with keeping New Zealand rugby strong”, *Otago Daily Times*, August 8, 2002.

¹² From north to south the provincial unions are: Northland, North Harbour, Auckland, Counties/Manukau, Thames Valley, Waikato, Bay of Plenty, East Coast, Poverty Bay, Hawke's Bay, King Country, Taranaki, Manawatu, Wanganui, Wairarapa Bush, Horowhenua/Kapiti, Wellington, Nelson Bays, Marlborough, Buller, West Coast, Canterbury, Mid Canterbury, South Canterbury, North Otago, Otago and Southland. Source: <URL:http://www.nzrugby.com/history/history_npc.asp>.

First Division is based on a play-off between the bottom-placed team in the First Division and the champions of the Second Division (NZRFU, 2002a).¹³

In recent years, apart from a limited number of matches against teams from lower divisions, the Ranfurly Shield has been contested in home matches of the NPC round-robin competition. The Shield competition has effectively, therefore, been subsumed within the NPC; this has avoided imposing additional challenge matches on the successful teams (in an increasingly crowded fixture calendar) without losing the long history and traditions of Shield challenges, thus creating significant additional interest and atmosphere in these particular games.¹⁴

As can be seen from Table 1, in the 27 years of the NPC, Auckland, Wellington and Canterbury accounted for nearly 78% of the First Division championship titles. This imbalance was accentuated by the dominance of Auckland from the mid 1980s to the mid 1990s. From this perspective, it appears that there could be concerns about the degree of competitive balance in the NPC, although this is not a phenomenon that is new in the professional era. This issue is considered in more detail in Section 4.¹⁵

Concurrent with developments in the NPC, rugby union had begun to develop its appeal in the wider global context. Prior to the inaugural Rugby World Cup (RWC), held in 1987, international rugby competitions, apart from the Five Nations in Europe, were largely tours or one-off matches (e.g., the Bledisloe Cup matches between Australia and New Zealand, which commenced in 1931) rather than leagues or knock-out competitions. The RWC was the first time international teams were able to gauge their relative standing in a single competition, but, more importantly, it provided a vehicle to sell rugby to a wider global television audience (see Table 2).¹⁶ The IRB now promotes the RWC as “one of the world's top three sporting competitions”.¹⁷

Table 1: National Provincial Championship, First Division Winners

1976	Bay Of Plenty	1990	Auckland
1977	Canterbury	1991	Otago
1978	Wellington	1992	Waikato
1979	Counties-Manukau	1993	Auckland
1980	Manawatu	1994	Auckland
1981	Wellington	1995	Auckland
1982	Auckland	1996	Auckland
1983	Canterbury	1997	Canterbury
1984	Auckland	1998	Otago
1985	Auckland	1999	Auckland
1986	Wellington	2000	Wellington
1987	Auckland	2001	Canterbury
1988	Auckland	2002	Auckland
1989	Auckland		

Source: *New Zealand Rugby Almanacks*

¹³ Promotion (relegation) to (from) the Second Division is automatic for the champions of the Third Division (bottom-placed team in the Second Division).

¹⁴ From 2002, this format has been replicated for the Second and Third Divisions by creating additional Challenge Cups named after famous All Blacks Sir Brian Lochore and Colin Meads (NZRFU, 2002a).

¹⁵ If supporters' welfare weighted by population is a factor in assessing the extent to which such dominance departs from optimality, then it is important to note that Auckland, Wellington and Christchurch (the main centre of the Canterbury region) between them account for approximately 46% of the New Zealand population (as at June 2001; source: <URL:<http://www.stats.govt.nz>>).

¹⁶ See Hutchins and Phillips (1999) for a discussion of the commercialisation of the RWC.

¹⁷ Source: IRB website at: <URL:<http://www.irb.com/events/worldcup.cfm>>.

Table 2: Rugby World Cup Statistics

	Main host countries	Winners	TV audience (countries)	Total match attendances	Profit (US\$)
1987	New Zealand & Australia	New Zealand	300m (17)	0.6m	5.3m
1991	UK, Ireland & France	Australia	1.75b (103)	1.0m	37.7m
1995	South Africa	South Africa	2.6b (124)	1.2m	46m
1999	Wales	Australia	3.0b (140)	1.7m	110m

Source: RugbyWorldCupWeb.com (reprinted in New Zealand Institute of Economic Research, Update, May 2002).

Despite the increasing revenue raised from television rights, sponsorship and advertising, the IRB attempted to maintain the cherished principles of amateurism. However, the pressure to allow players to be paid openly for playing became too intense by the mid 1990s. The impetus for change came particularly from the Southern Hemisphere national unions as a result of a combination of factors involving competition between rugby union and professional rugby league for players, the deregulation of broadcasting in both Australia and New Zealand, and a struggle for television rights in both codes. This increased the demand for televised rugby competitions and the derived demand for rugby players. This put pressure on rugby union administrators to supply competitions in order both to meet the demand and to generate revenue to retain the involvement of key players.¹⁸

Deregulation of broadcasting brought an increased demand for the rights to broadcast popular sport, including league and union. Prior to 1989, Television New Zealand (TVNZ) had a monopoly on television sports coverage in New Zealand. However, the situation changed to one of multiple bidders with the establishment of TV3 (a privately owned terrestrial channel) in 1989 and, even more significantly, Sky Television (a pay-TV satellite provider) in 1990. In 1992, the NZRFU sold the broadcasting rights of the All Blacks' tour of South Africa to Sky Television; this deal provided the NZRFU with significant additional revenue, boosted significantly the number of Sky Television subscribers and ended the public broadcaster's monopoly on televising rugby union matches (Obel, 2001).

In Australia, deregulation of broadcasting in 1995 intensified competition for television rights, especially for league. This led to a split in rugby league in Australia into two competing professional competitions: the Australian Rugby League backed by Kerry Packer's Optus Vision and Super League with Rupert Murdoch's News Corporation. This put upward pressure on salaries of league players and increased the attraction of defection to league from still-amateur union players in Australia and New Zealand.¹⁹ In response to a potentially damaging drain of players to league and the market opportunity that existed for union competitions that would meet the increased demand for televised rugby union, the national organizing bodies, the NZRFU, the ARU and SARFU, combined to form SANZAR and agreed a contract worth US\$550m

¹⁸ Rivalry between rugby union and league has been intense since 1895 when 22 English clubs split away from the RFU and formed the Northern Union in order to be able to pay players. Although rugby league developed into a distinctively different game from union, it requires a sufficiently similar set of skills and characteristics to be a close substitute for union players.

¹⁹ New Zealand television audiences' interest in rugby league was increased in 1995 when the New Zealand-based Auckland Warriors (later re-branded the 'New Zealand Warriors') entered the Australian domestic rugby league competition.

over ten years with News Corporation. Before this came to fruition, the national unions had to fight a rearguard action to prevent the loss of key players to the World Rugby Corporation (WRC), a rival global professional rugby organization backed by Kerry Packer. For a variety of reasons (well documented in Obel, 2001), the WRC collapsed, but the threat posed by the WRC led to the introduction of professional contracts in order to retain key players. This left SANZAR in a dominant position, with commercial control over the most exciting and valuable competitions in Southern Hemisphere rugby. It was thus able to exert sufficient pressure on the IRB to renounce the amateur eligibility rules and hence legalize the Southern Hemisphere professional contracts.

The Super 12 competition is an annual trans-national competition involving 12 regional teams (three from Australia, four from South Africa and five from New Zealand) organized through the award of franchises by SANZAR. A franchise effectively guarantees a team a regional monopoly, similar to the territorial monopoly granted to team owners of franchises in North American baseball. There is a much greater degree of centralization in the construction of the Super 12 teams compared to the NPC. In New Zealand, provinces close together were brought together under regional banners with home games spread among different centres, but with a majority of matches at the main population centre. Each New Zealand-based franchise has associated with it a 'brand': the Blues, the Chiefs, the Crusaders, the Hurricanes and the Highlanders.²⁰ Initially the four South African sides were provincial but by 1998 they also became regionally based (the Bulls, the Cats, the Sharks and the Stormers). The three Australian teams are state teams: the Brumbies (ACT), the Reds (Queensland) and the Waratahs (New South Wales). Each team plays every other team once (home or away) in a round robin, with the top four qualifying for the semi-finals. The Super 12 format builds upon intense traditional rivalries both within New Zealand between the main urban-centre provinces, which are the core of each of the five New Zealand franchises, and, at the international level, between the three Southern Hemisphere countries that have, between them, won the four RWC competitions.^{21,22}

Both SANZAR and News Corporation are also involved in the annual Tri-Nations competition, which features the three countries' national teams: the All Blacks, the Springboks (South Africa) and the Wallabies (Australia). Each team plays home and away matches against its opponents in a season.²³ With the new competitions came performance awards to encourage try-scoring play. In addition to four competition points for a win, a bonus point is awarded if a team scores four or more tries in a game; a bonus point is also available to a team for losing by seven points or less. These

²⁰ The current coverage of the franchises (with provincial unions in parentheses) is, from north to south: Blues (Auckland, North Harbour, Northland), Chiefs (Waikato, Bay of Plenty, Counties Manukau, King Country, Thames Valley), Hurricanes (Wellington, Taranaki, Manawatu, Poverty Bay, East Coast, Hawke's Bay, Wanganui, Wairarapa Bush, Horowhenua-Kapiti), Crusaders (Canterbury, South Canterbury, Mid-Canterbury, Marlborough, Nelson Bays, West Coast, Buller) and Highlanders (Otago, Southland, North Otago).

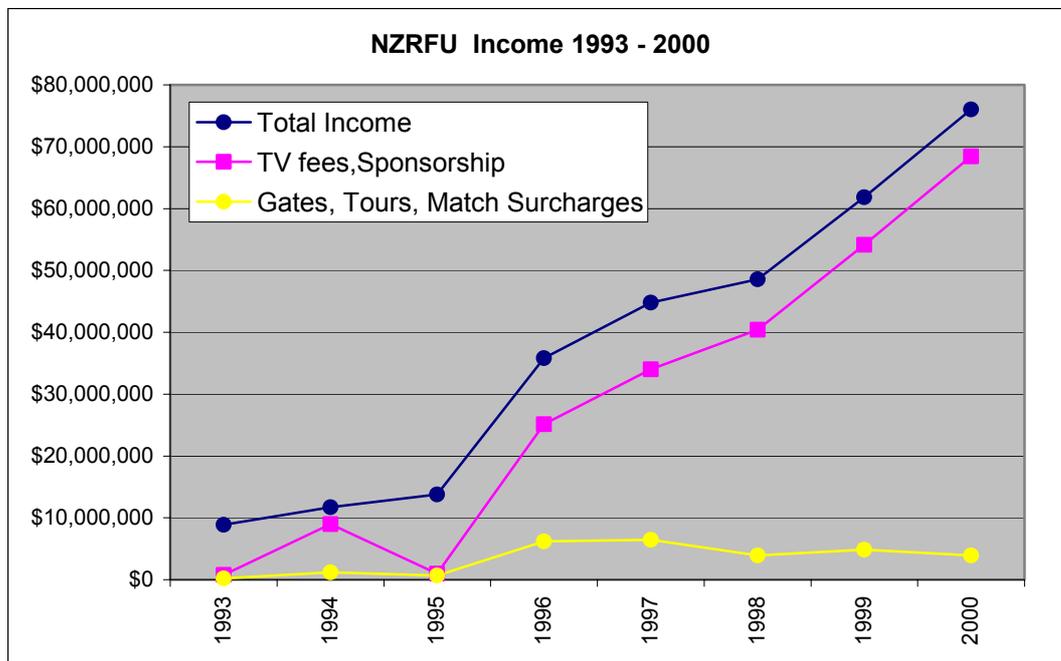
²¹ Unlike the NPC, the Super 12 has no hierarchical divisional structure and no promotion/relegation. There is currently considerable debate about the future structure of the competition, briefly discussed further in Section 4 below.

²² Earlier attempts to establish cross-national provincial-level competitions included the Super 10 competition, a forerunner to the Super 12, and the lower-profile CANZ competition, involving provincial teams from Canada, Argentina, New Zealand and Pacific Island nations.

²³ Bledisloe Cup matches between Australia and New Zealand have been subsumed within the Tri-Nations competition. This has reduced the uncertainty of outcome of the overall Bledisloe Cup series significantly because, with only two matches, the challenger needs to win both (or, at least, get a win and a draw) to reclaim the Cup.

provide incentives to aim for try-scoring plays over penalty opportunities and encourage teams to strive to score points, even if there is relatively little chance of overhauling their opponents.

Figure 1: The Financial Impact of Professionalism



Source: NZRFU *Annual Reports*, 1996-2001.

Even prior to 1995, media-generated income had replaced revenue from gate takings, tours and match surcharges as the NZRFU's main revenue source but the television-rights deal with News Corporation, plus commercial sponsorship of the All Blacks and the various competitions, represented a major structural shift in the NZRFU's revenue streams. As Figure 1 clearly demonstrates, the NZRFU gained control over substantial media-generated and sponsorship income, which quickly came to dwarf its revenue from gate takings.

The contract between News Corporation and SANZAR meant that the NZRFU lost control over which television channel could televise rugby union matches in New Zealand. Sky Television purchased the exclusive rights to all domestic and trans-national rugby union matches, outbidding TVNZ. This led to two classes of television rugby watchers in New Zealand (those with access to pay television and those with free-to-air channels only) and to considerable public debate about commercial reality versus what many regarded as the right of all New Zealanders to view a cultural icon.

While a highly dominant team can still maintain spectator interest from partisan traditional/core supporters, such an arrangement is less likely to be attractive to a television audience composed of neutrals interested in attractive competitive matches and close overall competitions. The huge growth in the importance of broadcast revenue for New Zealand rugby has the potential to have significant effects on the structure of competitions involving New Zealand rugby teams, and competitive balance may matter more in future media-led developments. Hence, a natural focus is the degree of, and changes in, outcome uncertainty and competitive balance of the various competitions, which are considered in more detail in Section 4.

3 Organizational Structure, Competitive Balance and the Labour Market for Rugby Players in New Zealand

The conventional view in the literature on the economics of professional sports is that “[s]ports leagues are in the business of selling competition on the playing field” (Fort and Quirk, 1995, p.1265). The “uncertainty of outcome hypothesis” (UOH) (Rottenberg, 1956) postulates that a positive relationship exists between spectator interest (and hence gate attendances, television audiences and other revenue sources) and the uncertainty of outcome of individual matches and of the overall competition.²⁴ Competitive balance matters because it ensures a degree of uncertainty of outcome. If teams end up with greater financial resources (due to larger or more committed fan bases, more lucrative sponsorship deals, etc), then, in a free market, they have the ability to hire better players, improve team performance and increase their dominance, which, in turn, undermines competitive balance and uncertainty of outcome. Restraints on trade and other policy interventions (including revenue redistribution, through sharing of gate and television revenue, and labour market policies such as the implementation of reserve option clauses, player drafts, salary caps/maximum wage) have often been justified as means to cross-subsidize teams, on the grounds that unfettered competition will not produce competitive balance.²⁵

However, the theoretical implications of free agency and specific policy restrictions for competitive balance depend on the assumptions made about, *inter alia*, the objectives of the teams and whether the stock of playing talent within the league is fixed. Analysis of North American sports leagues is usually based on the assumptions of profit maximization and a ‘closed’ league, in which the total stock of player talent is fixed, so that one team’s gain when attracting a star player is another’s loss. Under these assumptions, a key result is the invariance of competitive balance to different institutional arrangements in the labour market for players; interventions such as a maximum wage, a reserve clause and sharing gate revenue do not affect competitive balance relative to a free-market outcome, although they are likely to affect the distribution of revenues (Fort and Quirk, 1995).²⁶ Revenue sharing can, however, offset revenue imbalances due to the different sizes of local markets and ensure the viability of teams in markets that generate less revenue, although it reduces players’ salaries (Fort, 2000; Dobson and Goddard, 2001, pp. 138-140).²⁷

²⁴ As Dobson and Goddard (2001, pp. 125-6) emphasize, “[u]ncertainty of outcome is the lifeblood of any sporting event: take away the element of uncertainty and competitive sport degenerates into sterile exhibition”. However, empirical evidence on the UOH is mixed and some commentators have questioned its central role as an organizing principle in the analysis of professional team sports (Downward and Dawson, 2000).

²⁵ Fort and Quirk (1995), McMillan (1997), Downward and Dawson (2000) and Dobson and Goddard (2001) provide useful discussions of the different methods used to attempt to restore financial equality/balance.

²⁶ There are different views on the effects of salary caps; Fort and Quirk (1995) argue that a salary cap can improve competitive balance, but Vrooman (2000) argues that it can worsen it. Either way, enforcement is a major problem, as illustrated by the discovery in 2002 that the Bulldogs were breaching their salary cap in the National Rugby League (the Australian rugby league competition).

²⁷ A dissenting view to this conclusion is Szymanski (1998) and Hoehn and Szymanski (1999) who argue that, in a model with profit maximizing teams but diminishing marginal increases in win-ratios in response to increases in talent, gate-revenue sharing makes competition less balanced whereas sharing of television revenues can enhance competitive balance. However, under win-ratio maximizing, “all redistributed income would go into player investment and the disincentive effects of revenue sharing would disappear” (Hoehn and Szymanski, 1999, p.221).

An alternative assumption about teams' objectives is that, rather than maximize profits, teams aim to maximize win ratios. Under this assumption, revenue sharing does affect competitive balance (e.g., Késenne, 2000). Also, analyses of European football (e.g., Dobson and Goddard, 2001, Ch. 3) favour the use of an 'open' model, in which player talent can be traded with teams from outside the domestic league. For comparable objectives of teams, competition should be more balanced in open leagues than in closed leagues. Win-ratio maximizing teams (modelled as revenue maximizing subject to a minimum profit constraint) make for less balanced competition than profit maximizing teams, because of the latter's reluctance to over-spend on players (Dobson and Goddard, 2001, pp.140-146).

How do these models relate to the situation in New Zealand rugby union? In terms of the supply of player talent and the closed/open characterization, New Zealand rugby lies somewhere between the two extremes, but closer to the former. Player eligibility restrictions currently allow an NPC team to include only two players that are ineligible to play for New Zealand national teams (NZRFU, 2002b)²⁸ and eligibility for the Super 12 franchises is, in practice, more stringent given the role of Super 12 as preparation for All Blacks selection. However, the model is much more open in the other direction, in that New Zealand rugby players can switch to rugby league or play union in other countries (especially in Europe and Japan). Because of the somewhat controversial restriction imposed by the NZRFU that selection for the All Blacks requires a player to be playing in New Zealand, the attraction of playing overseas has been greater for players who are towards the end of their careers and/or who perceive themselves to be out of contention for selection for the All Blacks.²⁹ The current eligibility requirements might, therefore, be interpretable in terms of a partially closed model, in that, particularly in terms of elite players, teams are effectively competing for players from the domestic pool. However, the zero-sum characteristic, arising from reallocation of a fixed *stock* of player talent, of the closed model is an important driver of its predictions. An aspect of the New Zealand rugby scene (and other sports) that could possibly alter conclusions from such a model is the extent of the *flow* of new talent which comes through the network of school and club rugby and/or lower divisions; the allocation of this flow is unlikely to be independent of the existing distribution of financial resources as provinces with franchise bases in the Super 12 are attractive to the best new talent.³⁰

In addition, for the NPC, the Super 12 and for New Zealand rugby overall, the assumption that teams aim to maximize their win ratios subject to a financial constraint is likely to be more appropriate, at least at this stage of the development of professionalization, than the profit-maximizing assumption. However, if Fort's (2000) argument that profit-maximizing national structures dominate win-ratio-maximizing

²⁸ To play for New Zealand, players either have to be born there, or have one New Zealand-born parent or grandparent, or have lived in New Zealand for an unbroken period of three years and, if over 18, have never played for another country in an international fixture (NZRFU, 2002b). The aim of the player eligibility regulations is to encourage players keen to play in the NPC not to play for another country, which would later make them ineligible for selection for New Zealand national teams.

²⁹ There has been concern, however, that such an erosion in the depth of experienced quality players affects the development of new players and coaches (Laurie Mains, "Keeping players in New Zealand has to become a priority", *Otago Daily Times*, October 4, 2002) and could affect competitive balance, particularly in the NPC. In 2002, there are over 650 registered New Zealanders playing rugby professionally overseas (Paul Verdon, "Is our national game truly losing ground?", *National Business Review*, September 20, 2002).

³⁰ The importance of maintaining the flow is clearly recognised by the NZRFU (McCaw, 2001) and is especially crucial for what has developed, under professionalization, into a physically very demanding sport in which players' 'playing window' is likely to decrease.

structures is correct, then it will be of interest to monitor SANZAR's and the NZRFU's decisions over time as rugby moves further into the professional era.

Through its role in SANZAR and its discretionary control over significantly increased revenue flows (see Figure 1), the NZRFU has become much more powerful in terms of its potential to influence the future of rugby both locally and globally. Since its formation, as an alliance of provinces, the NZRFU has maintained a 'bottom up' control structure; the provincial unions are associations of autonomous clubs, and the Board of the NZRFU consists of representatives elected by the provincial unions.^{31, 32} As McMillan (1997) emphasizes, the key issue is finding the right degree of centralization that provides an optimal balance between control and incentives. By comparison with sports-governance models in other sports, the Boston Consulting Group (1994) report on New Zealand rugby characterizes the NZRFU model as a 'midway model' between the extremes of a high degree of control by teams (epitomized by English Premier League football) and a high degree of control by an independent body or commissioner (as in US football, basketball and baseball). However, in the last resort, the underlying objectives and the policy interventions enforced are of more relevance than the governance model *per se*.

The governance issue relates to the debate about the appropriate analogy for leagues and their constituent teams in terms of the characterizations of firms in microeconomic theory. The generally held view appears to be that sporting leagues are best represented as cartels (e.g., Sloane, 1971) rather than as monopoly firms (Neale, 1964). In the cartel model, clubs/teams correspond to firms which, while co-operating to a degree to provide on-field competition, have more freedom of action with respect to investment in players and stadia, pricing, merchandising, sponsorship, etc. In contrast to this received view, McMillan (1997, p.109) argues that a more appropriate analogy for the NZRFU (representing New Zealand rugby as a whole) is "not with a unitary firm but with a multidivisional firm whose divisions have considerable autonomy". This view is based on Coase's (1937) notion of a firm as an entity that internalises interdependencies that cannot be handled through market transactions, which McMillan argues include the shared provision of competitive balance and synergies in performance that arise among players.^{33,34}

One particularly distinctive feature of New Zealand rugby that is not represented in existing theoretical models in the literature on professional team sports is the importance of the international success of national teams (in this case, particularly, the

³¹ Currently, in 2002, the Board of the NZRFU is made up of six regional representatives (two each for three broad regions: 'Northern Zone', 'Central Zone' and 'Southern Zone') plus one Maori representative and two independent board members. All 27 unions vote, with the number of votes per union depending on the number of teams playing in a region (Alistair McMurrin, "Southern unions agree to disagree", *Otago Daily Times*, August 30, 2002).

³² The potential for sanction by the provincial unions of abuse of central control or perceived lack of competence on the part of the NZRFU is well illustrated by the reaction to the NZRFU's loss of sub-hosting rights, in April 2002, for the 2003 Rugby World Cup, and the subsequent independent review into the reasons for this loss (Eichelbaum, 2002). The provincial unions deemed that the resignation of the CEO and the Chairman of the Board constituted an inadequate response and forced the entire Board to stand down and seek re-election (*National Business Review*, "NZRFU board gets red card", August 6, 2002).

³³ The existence of synergies, whereby a new player can improve the whole team's performance by more than his own contribution, implies that, because there are increasing returns to player talent, players cannot be paid their marginal value product. However, this effect would also seem to apply in other areas of team production that do not receive such favourable anti-trust treatment.

³⁴ An alternative analogy is to regard the league as a joint venture (e.g., Flynn and Gilbert, 2001), an interpretation that seems to fit SANZAR's role with respect to the Super 12.

All Blacks), noted by McMillan (1997, p.98) as an important element of the justification for some degree of restriction on free-market outcomes in the case of New Zealand rugby. This objective is emphasized in two of the four 'key focus areas' identified by the NZRFU (2001b); these relate to "[e]nsuring the All Blacks are the best in the world" and "[t]aking a managed approach to the game nationally to build the basis of strong international teams".³⁵ In team sports there is a well-known externality whereby competition in leagues will not necessarily be forthcoming on the basis of incentives facing individual teams. In New Zealand rugby, there is also what could be described as the 'All Blacks externality'; if maximizing the performance of the national team is an important objective, then provinces maximizing their own objective functions in a free market will not necessarily achieve this.³⁶

The emphasis on All Blacks success has led to a player labour market with some unique features. Effectively, whatever its characterization in the output market, the NZRFU has monopsony power in terms of the labour market for professional rugby union players in New Zealand and has implemented payment structures, as well as regulations on mobility and eligibility, that, it would argue, are designed to strengthen the All Blacks team. Whatever their merits in that regard, they will also have the effect of depressing players' salaries relative to a free-agency situation. With the introduction of the Super 12 competition, the NZRFU initially contracted 150 players and five coaches to the five regionally based New Zealand franchises (Obel, 2001, p.149), but, due to the ongoing threat of overseas competition, the NZRFU expanded its contract base to include younger players ('Colts') and other emerging players. A distinctive aspect of the NZRFU's approach is a centralized contracting system in which Super 12 players and franchise coaches hold contracts with the NZRFU, not the franchises or the provincial unions. These contracts require a player to play (if selected) for up to five different teams (including Super 12, NPC, All Blacks and other national representative teams) (Obel, 2001, p.169).^{37,38} Tiered collective contracts agreed between the NZRFU and the Rugby Union Players Association currently cover the country's top 220 players and specify general terms and conditions and minimum levels of payment dependent on participation in various teams and competitions.³⁹ Players, however, are free to negotiate their own salaries and length of contract. Unlike the situation in some countries (e.g., Australia), rugby players' contracts in New Zealand do not entitle them to receive an agreed percentage of broadcasting and sponsorship revenue.

³⁵ The NZRFU (2001b) see "a strong All Blacks and other national teams being commercially valuable which, in turn, will see revenue reinvested into the local game which, also in turn, will ensure we continue to produce top players". Other national teams include the Black Ferns (the national women's team), New Zealand Maori, Sevens, Under 21 and Under 19 teams

³⁶ The experience of club versus country conflicts in English football and English rugby union, in which players' contracts are with individual clubs, suggests that there would be trade-offs in an unregulated system. The RFU has faced the situation where it could not demand players' release from club duties to participate in international matches.

³⁷ The requirement to participate in several competitions means that players contracted to the NZRFU are less likely to participate in 'grass roots' club rugby, which may have implications for the standard of play and reduce general interest in the lower levels of competition.

³⁸ Additional players, without Super 12 contracts, are directly contracted by their provincial unions to play in the NPC.

³⁹ Under contracts effective from the beginning of 2002 for three years, minimum levels of annual payment are: Super 12 NZ\$65,000, All Blacks NZ\$85,000. National Sevens representatives get a NZ\$20,000 retainer and NZ\$1800 per tournament. NPC players negotiate with their provincial unions. (NZPA, "New Zealand professional players sign collective contract", December 15, 2001, <URL:<http://www.rupa.com.au/>>).

Initially, Super 12 coaches select players from the provincial teams from their franchises. Players that are not selected for the Super 12 squad from their home franchise are placed into a pool of 'draft' players; Super 12 coaches can call on this pool to fill any 'deficient' positions in their squad.⁴⁰ Where a particular player is wanted by more than one franchise, the coaches discuss selection needs and the NZRFU may get involved in the process. In the interests of player welfare and continuity, if the player has been drafted to a franchise before, then that franchise is preferred. In some cases the NZRFU exerts some control over the composition of the Super 12 squads or the playing positions of particular players, sometimes against the wishes of the Super 12 coaches, in order to develop a wider set of players than would otherwise have occurred. Obel (2001, p.168) interprets this as the NZRFU aiming "not to create balance in the competitive strength of the teams ... but rather to strengthen the pool of players from which to select the All Blacks team *and* to ensure New Zealand success in the Super 12 competition".⁴¹ However, while the NZRFU may have multiple objectives with regard to the Super 12, the importance of the attractiveness of Super 12 to a worldwide television audience (in nearly 100 countries) and the presence of teams from Australia and South Africa are likely to offset any (probably marginal) effects this might have in lowering competitive balance.

In addition to the potentially high degree of central control that the NZRFU has to allocate players with Super 12 contracts to a particular franchise, a domestic transfer system was established with the aim of preventing richer unions from bidding away all the top players from smaller unions in the NPC. This caps at five the number of players a provincial union can 'buy in' in any year, including, at most, one current All Black and two former All Blacks or Super 12 players. Maximum transfer fees are also specified; these depend on the categorization of the player in a system of bands defined by experience and playing level (McMillan, 1987, pp.102-3; Obel, 2001, pp. 221-4). This restraint on player movement was approved by New Zealand's Commerce Commission and supported by a High Court ruling in response to an appeal by the Rugby Union Players' Association. The Court ruled that the restrictions would "promote evenness of competition, continued player development, and team stability" (*Rugby Union Players' Association Inc v Commerce Commission* (No 2), 1997, 305). However, the transfer system does not appear to have been a major barrier to the recruitment of top players by the unions with Super 12 bases; Obel (2001, p.223) presents data on transfers showing that NZRFU-contracted players have become increasingly more concentrated in Super 12-base unions (with only about 20% affiliated to non-Super 12-base unions in 2000). Data on players' salaries are not available, but it is likely that salaries have been depressed to some degree by the transfer system.

While the structure of the NPC was refined over time to enhance competitive balance (see the discussion in Section 2), the NZRFU initially took a hands-off

⁴⁰ In some sports, excessive player turnover has been found to alienate fans and reduce gate takings and television revenue; see Kahane and Shmanske's (1997) results for US Major League baseball. In their analysis of the determinants of Super 12 attendance, Owen and Weatherston (2002) include a variable measuring the number of players drafted into the squad from outside the home franchise, but the coefficient on this variable is not statistically significant.

⁴¹ While, to a significant degree, strengthening the All Blacks is well served by having eligible players playing in competitive competitions, a comment from John Hart (All Blacks' coach, 1996-1999) in an interview conducted in 1998 with Obel (2001, p.168) emphasizes that maximizing competitive balance in the Super 12 competition conflicts with the objectives of the NZRFU: "... what we want to achieve is to get five good sides but ensure that we have got two or three that are really competitive to win the final. Because there is no point in having five even sides, we are going to get beaten. The desire to even-out our five sides will only make our competitive strength weaker".

approach to revenue arrangements, particularly in comparison with revenue-sharing arrangements common in North American professional sports leagues. The allocation of gate receipts, whereby unions retain gate receipts from their home round-robin matches, favours the urban-based unions with larger population bases and creates significant financial inequality. The sharing of gate takings applies only to the play-off matches, for which the home union receives 40% of the net gate revenues, with the remaining 60% split equally between the visiting union and the NZRFU (McMillan, 1997). Increasing television coverage of First Division matches also enabled the larger unions to attract major sponsorship.⁴² For example, for the Canterbury Rugby Football Union (CRFU), home base for the Crusaders, sponsorship and signage income (over its three brands CRFU, Crusaders and 'Team Canterbury', a fund aimed at retaining and recruiting players) totalled approximately NZ\$3.5 million compared to combined gate revenue (for Canterbury and the Crusaders) of approximately NZ\$3.6 million in 2001; significantly, CRFU's sponsorship income increased every year from 1997 to 2001, whereas gate revenues are more cyclical (Canterbury Rugby Football Union, 2001).

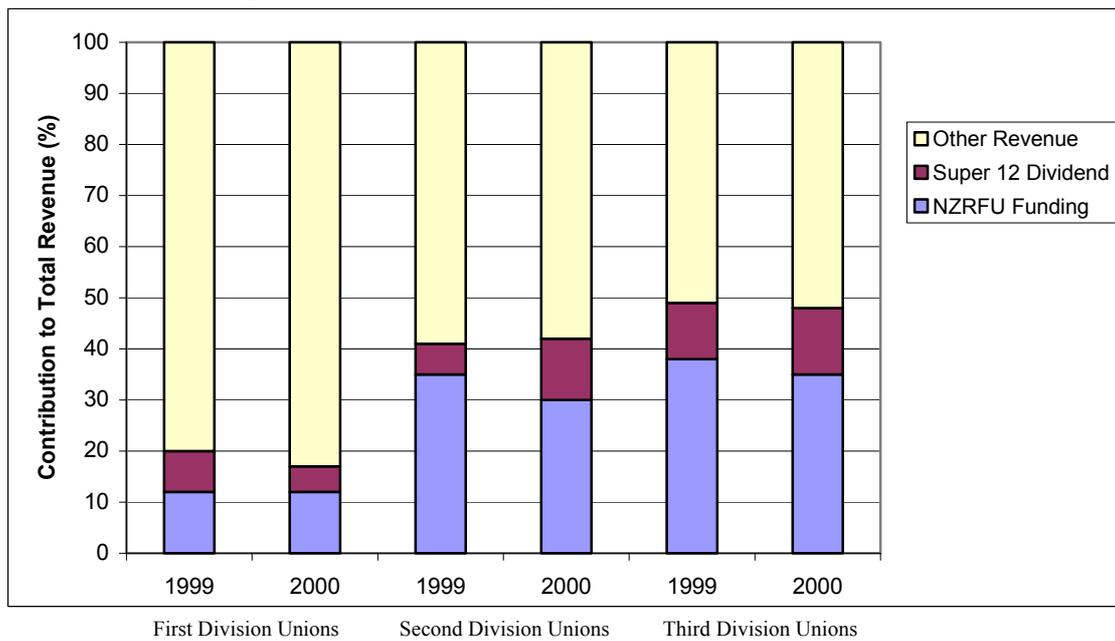
Initially, the five provincial unions selected to host the Super 12 teams received a fixed fee per match, with the NZRFU retaining the gate receipts from home games in the round robin, as well as television rights and income from Super 12 sponsorship. The NZRFU also provided grants to each franchise to aid in player development and marketing of the franchise brand. Since 1997, host unions are able to retain their home gate revenues in return for the fixed match fee. Crucially, as well as gate revenues, the host unions are able to use their allocation of a Super 12 team to generate further income through sponsorship, which, in turn, enables them to strengthen their NPC teams and attract more sponsors. Also, as well as superior financial resources, these unions have the advantage in attracting top emerging players to their union because of better prospects of obtaining Super 12 contracts and the opportunities to reap rewards (in terms of attracting the attention of the All Blacks selectors) from the synergies of playing with other top players in winning teams.

The growing financial inequality was partly addressed by an increasing degree of subsidy from the NZRFU, out of its media and sponsorship contracts, to the smaller unions (illustrated, in Figure 2, by the higher relative importance of NZRFU funding for unions in the Second and Third Divisions). In 2002, the NZRFU allocated NZ\$6.6 million to the NPC and moved further in the direction of improving the financial position of provincial unions that do not contain a main-centre base for a Super 12 franchise (Bay of Plenty, North Harbour, Northland, Taranaki and Southland in 2002). The subsidy to a provincial union for salaries depends on the number of players in its squad who do not have a Super 12 contract, with a minimum of NZ\$10,000 per non-Super 12 player in the squad. Also, each of the provinces that do not have a main-centre base for a Super 12 franchise receive an additional NZ\$110,000 to contribute to the fixed costs of comparable support structures, such as trainers, physiotherapists, video technology, etc. The NZRFU also allocates NZ\$8 million in annual grants to unions dependent on the number of registered players, with minimum grants of NZ\$150,000 to the smallest unions.⁴³ However, figures released in 2001 showed that

⁴² Obel (2001, Table 4.5) reports financial data for the Canterbury union from 1987 to 1995 that clearly shows, even before professionalization, the importance of sponsorship income relative to gate takings from provincial matches, with the former more stable and significantly greater than the latter in seven of the nine years reported.

⁴³ For 2002, the NZRFU's distribution of funds to provincial unions was based on registered player numbers and population, with weights of 75% and 25% respectively (NZRFU, 2001a).

Figure 2: Divisional Analysis of Revenue by Source



Source: NZRFU (2000).

“the smallest first division unions spent about \$250,000 on their teams, above their NZRFU funding, while the leading provinces were close to \$1 million”.⁴⁴ Fort (2000, p.447) emphasizes that “both competitive imbalance and spending imbalance follow revenue imbalance”. The small size of the population of New Zealand (approximately 3.8 million people) and its distribution (with approximately 54% of the population in the five main urban centres with Super 12 franchises, i.e., Auckland, Christchurch, Dunedin, Hamilton and Wellington) underlies the importance of ensuring the viability of teams from smaller population centres, so some degree of revenue sharing as a cross-subsidy is desirable. As noted above, predictions about whether this affects competitive balance depend on the structure of the labour market and the objectives of teams and of the NZRFU. By comparison with schemes used elsewhere, there is scope for further general revenue sharing if issues of competitive and financial balance are considered to be a problem that can be addressed by this approach.

4 Measurement of Competitive Balance in New Zealand Rugby Union

In this section, we examine the degree of competitive balance in the NPC and Super 12 competitions in the professional era post-1995, using a range of different measures: the variation in win ratios and competition points, championship-winning frequencies, variation in Totalizer Agency Board (TAB) odds-based probabilities of home-team wins and trends in relative attendance.

Competitive balance in a given season is conventionally measured by comparing the actual standard deviation of win ratios across the teams with the expected standard deviation in the case of teams of equal playing strength (Fort and Quirk, 1995; Downward and Dawson, 2000, Appendix 4.1) and the variation in this *ex post* measure

⁴⁴ The quote and all figures in this paragraph are from “NPC facing review of structure”, *Otago Daily Times*, September 6, 2002.

Table 3: Competition Points and Winning Percentages in Super 12

	1996	1997	1998	1999	2000	2001	2002
<i>Competition points</i>							
Mean	27.33	27.67	28.00	26.42	27.75	27.67	27.75
Standard Deviation	10.17	9.87	9.75	8.20	10.37	7.87	13.66
Coefficient of Variation	0.37	0.36	0.35	0.31	0.37	0.28	0.49
Range	28	33	28	29	36	29	47
Minimum	13	17	15	7	9	11	4
Maximum	41	50	43	36	45	40	51
<i>Winning percentages</i>							
Mean	49.24	46.97	49.24	47.73	48.48	50.00	50.00
Standard Deviation	21.04	18.52	20.31	19.43	22.71	15.75	27.82
Ratio (actual SD/ideal)	1.40	1.23	1.35	1.29	1.51	1.04	1.85
Coefficient of Variation	0.43	0.39	0.41	0.41	0.47	0.31	0.56
Range	63.64	63.64	63.64	63.64	72.73	54.55	100
Minimum	18.18	27.27	18.18	9.09	9.09	18.18	0
Maximum	81.82	90.91	81.82	72.73	81.82	72.73	100
Total Games	66	66	66	66	66	66	66
Teams	12	12	12	12	12	12	12

Table 4: Competition Points and Winning Percentages in NPC, First Division

	1996	1997	1998	1999	2000	2001	2002
<i>Competition points</i>							
Mean	20.00	20.44	22.60	22.80	22.60	24.55	23.10
Standard Deviation	9.51	8.65	10.15	9.75	10.31	11.75	10.83
Coefficient of Variation	0.48	0.42	0.45	0.43	0.46	0.48	0.47
Range	33	23	30	34	32	37	28
Minimum	0	9	5	4	6	7	9
Maximum	33	32	35	38	38	44	39
<i>Winning percentages</i>							
Mean	50.00	50.00	48.89	47.78	50.00	49.09	50.00
Standard Deviation	24.21	26.52	24.68	25.15	27.34	25.87	26.32
Ratio (actual SD/ideal)	1.37	1.50	1.48	1.51	1.64	1.64	1.58
Coefficient of Variation	0.48	0.53	0.50	0.53	0.55	0.53	0.53
Range	75.00	75.00	77.78	88.89	77.78	80.00	77.78
Minimum	0.00	12.50	0.00	0.00	11.11	10.00	11.11
Maximum	75.00	87.50	77.78	88.89	88.89	90.00	88.89
Total Games	36	36	45	45	45	55	45
Teams	9	9	10	10	10	11	10

can be tracked over time.⁴⁵ We follow this approach but also modify the underlying variable of interest. As noted in Section 2, there are potentially five competition points

⁴⁵ In the benchmark case, the probability of winning each match is usually taken to be 0.5 (ignoring draws, which are relatively rare in rugby union, and assuming that there is no home advantage). The standard deviation of winning percentages in this case is $50/(n^{1/2})$, where n is the number of games played by each team in a season. Comparison with this benchmark allows for the implication that the

to be gained from each game (four for a win plus a bonus point for scoring four or more tries); a bonus point is also available to a team for losing by seven points or less. We therefore also consider the variation in competition points. In Tables 3 and 4, we report relevant summary statistics for each season in the Super 12 and NPC respectively.⁴⁶

Focusing on the ratios of the actual to ‘ideal’ standard deviations of winning percentages and the coefficients of variation of competition points as measures of league-wide competitive balance, Tables 3 and 4 reveal a higher degree of competitive imbalance in the domestic NPC competition compared to the Super 12, except for 2002 when both measures increased markedly for the latter. The coefficients of variation suggest that there is relatively little evidence of the imbalance changing over this time period. However, these measures do not adjust for the effect on the standard deviations of the different numbers of games played. Examining the ratios of actual to ‘ideal’ standard deviations, there appears to have been an increase in competitive imbalance in the NPC in 2000 and 2001, but a slight decrease in 2002. A three-year moving average of this ratio (results not reported) shows increases every year for the NPC from 1998 to 2002. It remains to be seen whether the increasing degrees of additional funding allocated by the NZRFU will be sufficient to maintain the decrease in competitive imbalance observed in the NPC in 2002.

Table 5: Match Results For All Games in NPC, First Division, 1996 – 2002

Team	Played	Won	Drawn	Lost	% won
Canterbury	75	54	0	21	72.97%
Auckland	74	51	0	23	68.92%
Waikato	71	47	1	23	66.20%
Otago	71	41	1	29	57.75%
Wellington	69	37	1	31	53.62%
Taranaki	67	31	0	36	46.27%
North Harbour	67	30	1	36	44.78%
Counties	57	22	2	33	38.60%
Northland	49	15	0	34	30.61%
Southland	57	9	2	46	15.79%
Bay of Plenty	22	3	0	19	13.64%
King Country	8	0	0	8	0.00%

Source: *New Zealand Rugby Almanacks*, 1997 – 2002.

An alternative way to evaluate competitive balance is by looking at the frequency of championships across the different teams, with balanced competition more likely to be associated with different winners. Table 1 shows that, in the seven years of the professional era, four different unions have won the First Division championship. In contrast, although the variation in win ratios and points totals suggests that the Super 12 is usually a more balanced competition than the NPC, only three different teams have won the Super 12: the Crusaders four times (in the last five years), the Blues twice (in the first two years of the competition) and the Brumbies once. Focusing solely on championship winning frequencies, however, ignores other useful information. For example, over the duration of the Super 12, eleven teams have qualified for the semi-

dispersion of win ratios will be smaller the more games that are played (even if all teams are of equal strength). The greater the value of the ratio (> 1), the greater is the degree of competitive imbalance.

⁴⁶ We do not attempt to standardize the variation in competition points, because different allocations of competition points are consistent with even games, depending on whether they are high-scoring or low-scoring in terms of the number of tries.

finals. Over the corresponding period, eight provinces, out of a possible twelve, have been represented in the semi-finals in the NPC. The four non-semi-finalists essentially fill the bottom placings each year. Table 5, which reports the aggregated win ratios over the professional era in the NPC, shows these historically relatively poor-performing teams; Table 6 reports comparable data for the Super 12 illustrating the relatively narrower spread of win ratios historically.⁴⁷

Table 6: Match Results For All Games in Super 12, 1996 – 2002

Team	Played	Won	Drawn	Lost	% won
Blues	83	52	2	29	63%
Crusaders	85	53	3	29	62%
Brumbies	85	52	0	33	61%
Reds	80	46	2	32	58%
Highlanders	82	44	0	38	54%
Waratahs	78	37	2	39	47%
Sharks ¹	83	38	4	41	46%
Stormers ²	67	30	2	35	45%
Free State	11	5	0	6	45%
Chiefs	77	34	0	43	44%
Hurricanes	78	34	1	43	44%
Cats ³	79	29	1	49	37%
Bulls ⁴	78	18	5	55	23%

Source: *New Zealand Rugby Almanacks*, 1997 – 2002.

Notes: ¹ includes Natal, ² includes Western Province, ³ includes the Golden Lions, ⁴ includes Northern Transvaal.

The notion of outcome uncertainty that has traditionally been viewed as a key concept in analysing attendance demand (Neale, 1964; El-Hodiri and Quirk, 1971) is an *ex ante* concept. The use of *ex post* win ratios or competition points (as in Tables 3-6) is therefore not entirely consistent with the idea that it is the public's *expectation* of match uncertainty or *perception* of competitive balance that is important. Various studies of determinants of attendance at sporting events (Peel and Thomas, 1988, 1992; Knowles et al., 1992; Czarnitzki and Stadtmann, 2002; Owen and Weatherston, 2002) measure uncertainty of individual match outcomes by the probability of a home-team win, based on (some transformation of) betting odds published prior to each game. These measures are regarded as superior to “entirely backward-looking” measures (such as pre-match league standings or points differences) as *ex ante* proxies for individual match uncertainty (Downward and Dawson, 2000, p.134) because they take into account a wider set of information than such partial measures.

We, therefore, also examine variation across matches in a season of the individual-match uncertainty measured by the probability of a home-team win obtained from the opening odds of the New Zealand Totalizer Agency Board (TAB).⁴⁸ The use of TAB odds is theoretically more appropriate as the greater uncertainty is reflected *pre game* in the magnitude of the posted odds. If the TAB forecasting strategies are efficient then the opening odds should be an unbiased predictor of match outcome. Weatherston and

⁴⁷ For the first two years of the Super 12, the four South African teams were those that finished in the top four of their domestic competition. From 1998 onwards, all South African teams were regional teams, similar to the New Zealand system.

⁴⁸ The raw probabilities of each team winning, estimated from the opening odds taking into account the profit margin, are calculated as $100/(HTH(1+\pi))$, where *HTH* are the opening head-to-head TAB odds and π is an 8% profit margin.

Owen (2002) report results showing that TAB odds are an unbiased predictor of match outcome, that a significant proportion (although not 100%) of the variation in TAB odds-based probabilities can be explained by publicly available information, and that the TAB efficiently uses the backward-looking information it has at its disposal when making its forecast.⁴⁹ Using these probabilities is likely to give a better measure of perceived competitive balance for individual matches (compared to *ex post* win percentages, average number of points scored etc). In Table 7, we report summary statistics for the TAB odds-based probabilities of a home-team win for all matches in each season for which the odds data are available. The coefficients of variation show greater variation across individual match probabilities for both seasons of the domestic NPC competition (First Division) relative to the Super 12, consistent with relatively greater competitive imbalance in the NPC. Note that the higher average probabilities of a home win for the Super 12 indicate a greater (perceived) importance of home advantage in the Super 12 compared to the NPC, which is consistent with the greater distances/travel times between venues in the trans-national competition.

Table 7: TAB Odds-Based Home-Win Probabilities

	Super 12				NPC	
	1999	2000	2001	2002	2000	2001
Mean	58.42	59.13	58.84	58.98	54.19	55.42
Median	57.87	61.73	57.87	59.74	53.78	58.80
Standard Deviation	16.58	16.38	14.45	20.16	24.03	23.29
Coefficient of Variation	0.28	0.28	0.25	0.34	0.44	0.42
Range	68.11	69.32	64.98	78.43	77.55	74.47
Minimum	21.79	20.58	24.05	12.35	13.23	13.72
Maximum	89.90	89.90	89.03	90.78	90.78	88.18
Total Games	69	69	66	69	48	58

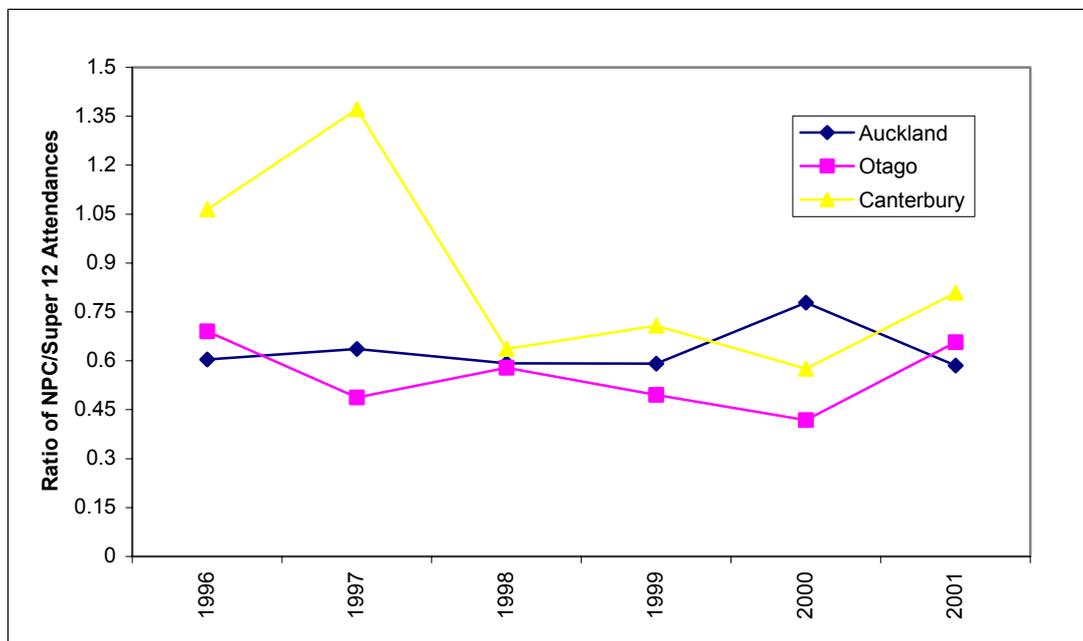
Source: New Zealand Totalizer Agency Board.

We also examine the relative trends in attendances in Super 12 matches (where teams are ‘manufactured’ to a greater extent) compared to NPC games (where teams who compete are more ‘unbalanced’) over the last five years. This approach is based on the assumption that if competitive balance has been declining in the NPC relative to the Super 12, we might expect to see a decline in average attendances at NPC matches relative to Super 12 matches; the presumption is that a reduction in competitive balance of the whole competition (caused by increasing financial imbalances) will be reflected in attendances of all individual matches in that competition, other things equal. This is motivated by the approach adopted by Szymanski (2001) for English football. On the assumption that increased income inequality erodes competitive balance, then the FA Cup, in which teams from different divisions can be drawn to play each other, would have become a less balanced competition than the league, because the extent of income inequality has increased much more across the different divisions of the league than within divisions. Szymanski attempts to control for the effects of other factors by

⁴⁹ There are concerns that these probability measures are unobservable (in that they are transformations of betting odds). Another disadvantage is that the TAB sets the opening odds approximately five days before the game. Closing odds (odds on the day of the game) are not available. It seems likely that the odds would be adjusted in response to betting decisions by a small proportion of the public and/or by a small number of large bets. As such, closing odds will not necessarily reflect the average public expectation of match uncertainty. It is also possible that the TAB will incorporate a strategic ‘correction’ for perceived market bias, which is difficult to quantify (personal communication, Helen Quirke, TAB, January 15, 2001).

creating a matched sample of attendances between teams that play both a league and an FA Cup match against each other in the same season. He finds that attendance at FA Cup matches relative to the corresponding league matches has fallen over the last twenty years.

Figure 3: Ratio of NPC Hosting Union to Super 12 Attendances, 1996 - 2001



Source of data: NZRFU.

We adopt a broadly similar approach by comparing attendances at home matches for three of the Super 12 franchise-base unions in the Super 12 and in the NPC in the same season. Figure 3 reveals a significant decline in relative attendance at NPC games over the 1997 to 2001 period only for the Canterbury province.⁵⁰ Other than that, and bearing in mind the short time period being considered, there is no evidence that the ratio of the averages of Super 12 and NPC attendances is changing over time. It should be emphasized, however, that the *ceteris paribus* assumption that Szymanski's 'natural experiment' attempts to capture is not well approximated in our comparison. These are not matched comparisons between the same teams; indeed, the composition of teams played at home (top teams, bottom teams) within any given season varies. All teams are played at home over two seasons so that observations two periods apart on this dimension are more comparable, although this would not change the overall picture.⁵¹ Also the matches under analysis are played at different times of the year (so weather conditions vary), there is a difference in the quality of players on show etc, factors that might otherwise be expected to affect attendance.

⁵⁰ Canterbury won the NPC in 1997, whereas in 1998 the Crusaders won the Super 12 but Canterbury had a poor NPC season, so this drop in relative attendance most likely reflects relative success in the two competitions.

⁵¹ This two-year cycle in scheduling can have a significant impact on gate takings. For example, Otago (and the Highlanders) have home games against Canterbury and Auckland (and the Crusaders and the Blues) in the same year. Owen and Weatherston's (2002) empirical estimates suggest that, for the Super 12 teams, such traditional rivalries can add, on average, at least a third to match attendance, other things equal. John Hornbrook (CEO, Otago Rugby Football Union) confirms that "[o]ur income in every second year is drastically affected. We tend to treat our income as a two-year cycle so it evens out" (Brent Edwards, "Famine year for ORFU finances", *Otago Daily Times*, August 30, 2002).

Tracking attendance as an indicator of competitive balance is based on the assumption that spectator interest will be higher when the competition is reasonably even. This is usually regarded to be as applicable to rugby union as to other team sports; former All Black Mike Brewer surmises that “[o]bviously to attract live, and television, audiences, and sponsors, the national competition must be competitive, with exciting, close games the norm, not the exception” (Gifford, 1995, p.182). There is an extensive literature on modelling the effects of competitive balance on attendance and, to a lesser extent, television audiences in other sports (see Downward and Dawson, 2000, Chs 5-6; Dobson and Goddard, 2001, Ch. 7), but there is very little published work on rugby union.⁵² Owen and Weatherston (2002) investigate the determinants of attendance at New Zealand matches in the Super 12 competition in the 1999 to 2001 seasons, with emphasis placed on testing the effects of within-season and match-specific uncertainty of outcome on demand. They formulate a general unrestricted model that includes potential economic and sporting determinants of demand, and apply a general-to-specific modelling approach, using Hendry and Krolzig’s (2001) automated procedures. Their results suggest that the factors with a statistically significant effect on attendance mainly reflect habit and tradition, such as lagged attendance, traditional rivalries and antipathy towards non-New Zealand teams, or are beyond the control of administrators, such as rainfall and team placings.⁵³ These results are supportive of the NZRFU’s decision to define the Super 12 franchises in a way that builds on the traditional centres of New Zealand rugby and accounts for the population distribution. However, there is very little evidence from the results in this study that individual-match uncertainty, as proxied by probabilities of a home-team win based on TAB odds, is a statistically significant factor in determining match attendances. Apart from the stage of the season itself, other, sharper, proxies for seasonal uncertainty also appear to have little relevance. Moreover, there is currently no published evidence on the effects of uncertainty of outcome and competitive balance measures on television-viewing ratings for rugby union. Given the increasing importance of media and sponsorship income in funding New Zealand rugby, this is clearly an area where further work is required. If major changes are to be made to the structure of competitions, the extent of cross-subsidization, and regulations on the market for players, with the aim of improving competitive balance in the NPC, then it is essential to have a clearer idea of the effects of differing degrees of competitive balance. Currently, there is very little hard evidence on the implications for any of the key variables of interest: gate attendances, television ratings of televised matches, sponsorship interest, flow-on effects to the Super 12 competition and the performance of the All Blacks.

On all the measures of competitive balance we examine above (other than championship frequencies) there is generally a higher degree of competitive imbalance in the NPC compared to the Super 12, and, until 2002, this appeared to be worsening over the professional era, although it must be emphasized that this is a relatively short period. Some commentators have expressed the view that “the professional game is pulling talent away from the provinces into the metropolitan unions that act as hosts to the Super 12 franchises” and that this trend will continue unless there is more drastic regulatory intervention (such as a cap on the number of professional players in any

⁵² Jones et al. (2000, p.1877, fn.1) attribute the lack of such studies to the “amateurish (deliberately?) reporting of attendance and financial data for this heretofore ‘amateur’ game”.

⁵³ Because of the lack of variation in the data available, Owen and Weatherston’s (2002) study provides little scope for assessing the effects on attendance of ticket prices or the televising of matches. Studies of other sports provide mixed results on the effects of the latter (Downward and Dawson, 2000, p.164-168).

NPC squad).⁵⁴ The NZRFU itself has expressed concern over the degree of competitive balance in the NPC: “[t]he points differential in Super 12 and NPC has highlighted the need to look at ways to bring some of the weaker sides up to the levels of the top sides” (NZRFU, 2001b). The additional NZRFU cross-subsidization of financially weaker unions, noted in Section 2, is a partial response to the perception that lack of financial equality has led to lack of competitive balance, as is the announcement of a major review of the NPC (see fn.44). However, Table 1 demonstrates that, in terms of championships, the domination of the main-centre unions is clearly not a recent phenomenon attributable solely to the professional era. In 27 years, there have been only three championship winners from outside the ‘big five’ unions (Auckland, Canterbury, Otago, Waikato and Wellington).⁵⁵ Despite this dominance, even in recent years, unions outside the big five have made the semi-finals of the NPC (Taranaki in 1998 and 2000, and North Harbour in 1999 and 2001).

Differences in willingness to pay when there are large-revenue-market and small-revenue-market teams make equal competitive balance outcomes inefficient (Fort, 2000). Also, as Szymanski (2001) emphasizes, successful teams with large fan bases yield greater total utility than successful teams with smaller fan bases. In a model that distinguishes between committed fans (whose utility depends on the playing success of their team) and ‘uncommitted’ fans (whose utility depends on competitive balance), he shows that an equally balanced competition is socially optimal “only if either the intensity of support for each team were equal or the weight attached to utility of the uncommitted fans dominated completely” (p.F73), neither of which appears to be realistic in the New Zealand context.

The optimal degree of competitive balance in the case of rugby union in New Zealand is unclear on *a priori* grounds. For example, if we consider the higher objective of All Blacks’ success, it is not obvious that more competition (in terms of a higher degree of competitive balance in the NPC) is necessarily better competition (in terms of developing a successful All Blacks’ squad). It has been argued that the current format and structure of the NPC works well as a ‘breeding ground’ for Super 12 and international players and that, for example, forced amalgamation or other attempts to reduce the number of teams in the First Division and/or divisions in the NPC would narrow the base of players from which international players are developed.⁵⁶ If the aim is to reduce competitive imbalance, the ideal would be to do so by raising the performance of the lowest teams. However, any enhancement of competitive balance that reduces the playing strength of the top teams (through, for example, a cap on the number of professional players per squad) could have adverse effects on the quality of play in the league as a whole, which is likely to compromise the objective of

⁵⁴ The quote and suggested intervention is from former All Black Chris Laidlaw “A dirty word may be the key to the future health of the NPC”, *Otago Daily Times*, August 16, 2002 (the ‘dirty word’ being ‘regulation’). See also Chris Laidlaw, “NPC mismatches threat to rugby in the heartland”, *Otago Daily Times*, September 27, 2002. It is important to note that, despite professionalization, many of the players in the First Division are not fully professional; e.g., Southland and Bay of Plenty have only two and three players, respectively, with Super 12 contracts in their squads in 2002. Also, movement of talent from the provinces to metropolitan centres was common before professionalization.

⁵⁵ Indeed, Downward and Dawson (2000) argue that long-term dominance is the ‘natural order’ in sports leagues, although television revenues can cause changes in the structures of leagues and, hence competitive balance, to occur more rapidly, which, somewhat paradoxically, may increase the importance of competitive balance.

⁵⁶ This is a view expressed by Laurie Mains (ex-All Blacks coach), “If it ain’t broke, don’t fix it’ – does the NPC need changing?”, *Otago Daily Times*, September 13, 2002.

maximizing the All Blacks' win ratio.⁵⁷ The mechanisms usually considered are not necessarily well suited to improve competitive balance and, simultaneously, maintain or improve the overall quality of play. For example, given the partially open/partially closed nature of the player market in New Zealand, a local salary cap, even if it were to improve competitive balance (which is disputed; see fn. 26), is likely to increase the flow of players going overseas and reduce the available pool of players and overall quality to some degree.

The data reported in Tables 3 and 6 are also relevant to the debate, at times acrimonious, among the SANZAR partners about the future configuration of the Super 12, which is due for re-negotiation in 2005. The ARU has pushed strongly for an additional franchise, on the grounds that it has sufficient depth to field a competitive fourth team and is losing players overseas because of the constraints imposed on the number of professional contracts as a result of having only three franchises. Various possibilities have been suggested including an Australian – South African proposal for a 'Super 14' (with an additional team from each of Australia and South Africa), or a re-balancing of the Super 12 with four teams from each country (apparently favoured by News Corporation) or even an ARU proposal for a Super 20 (including teams from Argentina, Canada, the US and the Pacific).⁵⁸ Against expansion are the problems of player 'burn out' and fixture congestion (both of which are worse for New Zealand because of the NPC competition, which has no Australian equivalent), especially in the broader context of a desire to organize a 'global' rugby season. Also, in terms of competitive balance, there is very little justification, on the basis of past records, for the addition of an extra South African franchise. Table 6 shows that, on the basis of win ratios, the Bulls are significantly weaker than the other current franchises; they ranked in the bottom two placings after the round robin in five out of seven seasons from 1996 to 2002, and accumulated only 15 competition points over the 2001 and 2002 seasons combined. Also, although there has been at least one South African franchise in the semi-finals in every year except 2002, no South African team has yet won the competition. There is, however, a much stronger case for a fourth Australian team; Australian franchises have won the competition once, been runners up three times and have never been placed in the bottom two positions in the round robin.⁵⁹

A Super 12 competition with a four-four-four allocation of franchises is, not surprisingly, strongly resisted by the NZRFU as this would reduce the number of New Zealand players exposed to Super 12 rugby, and a contraction in the player base at this level is likely to have negative effects on the All Blacks' performance. If the four-franchises-per-country model were to be adopted, the choice of which New Zealand franchise to drop and the ensuing amalgamations would be controversial. In terms of competitive balance based on past playing records, the Chiefs or the Hurricanes would be the obvious contenders. The Chiefs are the only team in the competition not to have made the semi-finals from 1996 to 2002. The Hurricanes have only one top-four placing in the round robin. On revenue grounds however, there would be pressures to retain the Hurricanes franchise (which has a new centrally located stadium in the capital city of Wellington and attracts good crowds), while the Chiefs are based in a region

⁵⁷ As Vrooman (2000, p.374-5) observes, "a blind pursuit of competitive balance *per se* may result in an inferior league product of equally bad teams beating one another".

⁵⁸ Some of the options are noted in "Australia bitter over 'act of treachery' by New Zealand", *Otago Daily Times*, February 18, 2002, and "NZ may lose Super 12 team", *Otago Daily Times*, April 19, 2002.

⁵⁹ This discussion draws on some useful data and commentary on the playing records of the Super 12 franchises compiled by John Howells.

with a higher than average population growth rate unlike, for example, the Highlanders. However, although the Highlanders have a lower population and player base than either the Chiefs or the Hurricanes, the Highlanders' playing record would rank them at least third among the New Zealand franchises over the period 1996-2002, and second over the last five seasons, when they had four semi-final appearances. Also, as the Crusaders and Highlanders are the only South Island franchises, creating a single South Island franchise, by combining the top two teams in recent years, would risk seriously unbalancing the competition as, on their own, the Crusaders have won the competition in four of the last five seasons.

An alternative possibility would be to introduce a second-tier Super 10 or 12 competition, including other Australian, South African and New Zealand franchises plus other regional teams from the Pacific Islands (including Fiji and Western Samoa) and other Pacific Rim countries, such as Japan, with promotion and relegation to the existing Super 12 or to a truncated Super 10.⁶⁰ This would enhance competitive balance in the Super 12, provide access to the premier competition on merit, include emerging Pacific Island teams that have been marginalized, to some degree, by professionalization in the stronger Southern Hemisphere playing nations, and develop a different market in terms of broadcasting rights. Overall, the decisions taken by SANZAR will be a useful indicator of how objectives, priorities and bargaining strengths are developing in the new era of professionalization.

5 Performance of the All Blacks in the Professional Era

At the beginning of the 21st Century the All Blacks had the highest percentage win ratio over the previous 100 years of any country playing international rugby union. Its 71.6% win ratio clearly places New Zealand as the most internationally successful rugby union nation, well ahead of arch-rivals, the Springboks (65%), England (50%) and Australia (47.5%).⁶¹ A key issue for New Zealand fans, coaches and administrators is whether such relative dominance can continue in the new professional era or whether it will be eroded. At a time when the standard of rugby union in other countries is generally rising in response to the effects of professionalism in improving players, coaches and managers, and there are greater flows of resources into the game in larger countries, New Zealand's dominant position in the new global game, a key goal of the NZRFU because of its importance to commercial and sporting interest in New Zealand rugby, is not necessarily guaranteed.

Figure 4 presents percentage win ratios by decade over the 20th Century against all-comers (including regional and invitation sides as well as tests) and against the other top-four rugby-playing nations. For example, from 1901-1910 the All Blacks played 76 matches with an 88% success rate. In those matches against Australia, South Africa, England and France, the All Blacks' win ratio was 80%. Figure 4 shows significant cyclical fluctuations in the All Blacks' decadal win ratios, with success rates against the other top four teams ranging from a decadal low of 40% to a high of over 80%.

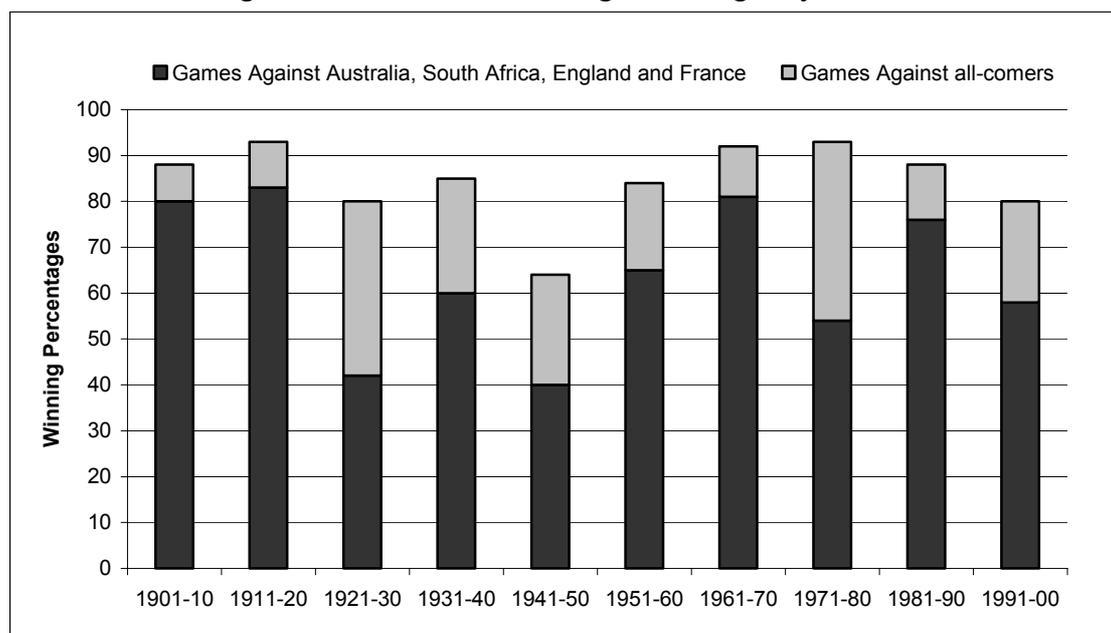
The record of the All Blacks against these teams in more recent times is reflected in Table 8, in which the team in a given row has the reported winning percentage against the team in the selected column; for example New Zealand won 60% of its matches

⁶⁰ Such a format has been supported by ex-Wallaby captain, Nick Farr-Jones (Radio New Zealand, September 1, 2002).

⁶¹ The data are from Paul Verdon, "The job that's lonelier than being the Prime Minister", *National Business Review*, June 28, 2002.

against France over the period 1996 to 2001, implying a 40% success rate on the part of the French against New Zealand. Over the period 1986 to 1995 the corresponding ratios were 63.64% and 36.36%. Recent performance figures for the All Blacks in the professional era show no significant deviation from historical averages, with only the win ratio against the Wallabies showing a notable drop in the post-1996 era to 2001. However, the All Blacks have won the Tri-Nations competition four times in the seven years between 1996 and 2002 (against twice for the Wallabies and only once for the Springboks).

Figure 4: All Blacks' Winning Percentages by Decade



Source: NZRFU Annual Report 2000 (with source data from *New Zealand Rugby Almanacks*, IRB website, *Rothmans Rugby Yearbook* 1999-2000).

Note: Games played in each decade in parentheses: 1901-10 (76), 1911-20 (41), 1921-30 (112), 1931-40 (66), 1941-50 (42), 1951-60 (111), 1961-70 (126), 1971-80 (184), 1981-90 (132), 1991-00 (140).

Table 8: Win Percentage Matrix of Top Five Teams, 1996 – 2001 (1986 – 1995)

	NZ	AUS	SA	FRA	ENG
NZ	*****	50.00 (57.14)	68.75 (60.00)	60.00 (63.64)	80.00 (66.67)
AUS	50.00 (38.10)	*****	50.00 (60.00)	83.33 (55.56)	57.14 (71.43)
SA	31.25 (20.00)	42.86 (40.00)	*****	71.43 (40.00)	50.00 (50.00)
FRA	40.00 (36.36)	16.67 (44.44)	28.57 (40.00)	*****	50.00 (33.33)
ENG	0.00 (33.33)	28.57 (28.57)	50.00 (50.00)	50.00 (66.67)	*****

Notes: The team in the leftmost column has the given winning percentage against the team in the column. Corresponding off-diagonal elements do not sum to unity when there has been a draw between the two sides. Percentages are based, for different pairings on between five and 16 matches played. South Africa was in exile until 1992 and their ratios are based on between three and 21 matches played.

There does not appear to be a simple contemporaneous within-season relationship between the performance of New Zealand teams in the Super 12 and the performance of the All Blacks; this is perhaps not surprising when comparing the results of a handful of games involving relatively evenly matched teams. For example, in 1998 New Zealand teams filled three of the four semi-finals positions in the Super 12, yet the All Blacks lost all five of their test matches against Australia and South Africa. However,

whether strong performances in the Super 12 translate into a winning All Blacks team is better investigated on a long-run basis, when longer runs of data become available. An interesting test of the link between the performances of New Zealand teams in the Super 12 and the performance of the All Blacks is currently underway, as players from the Crusaders, the outstanding Super 12 team in recent years, have dominated team selections for the All Blacks in 2002. It will be interesting to see if the All Blacks' performance in the 2003 Rugby World Cup will be a repeat of the experience of the 1980s when a very strong Auckland provincial team translated into a strongly performing All Blacks team. If this is a successful strategy, it will raise further questions about whether attempting to maximize competitive balance in the NPC and between New Zealand teams in the Super 12 is optimal in terms of the NZRFU's aspirations for the All Blacks.

6 Concluding Comments

As a result of the move from amateurism to professionalism since 1995, rugby union in New Zealand has experienced major changes in the structure of its competitions, including new trans-national ventures (Super 12 and Tri-Nations), and in the relationships between players, local provincial unions and the NZRFU. Over the 20th Century, the emphasis had shifted from a 'player-centred' form of pure amateurism to a more 'spectator-oriented' focus (Obel, 2001, p.99). Since professionalization, rugby has become 'media-centred' due to the increasingly important role of television and sponsorship revenue relative to gate revenue. Tensions have emerged in fitting both the new and the more traditional competitions, such as the NPC, into the lengthening rugby season. The media influence is pervasive and extends, for example, to the scheduling of more evening matches, even when, due to less comfortable weather conditions, these can have adverse effects on playing standards and match attendances.

The NZRFU is aware that "[g]lobal sporting trends present both an opportunity for and a threat to New Zealand rugby" (NZRFU Annual Report 2000, p.5). With the increasing global interest in rugby union, especially from television audiences, and the need to maintain the flow of media income into New Zealand rugby, the success of its international teams, particularly the All Blacks, is an important objective for the NZRFU, supplementing the traditional motivation of national pride.⁶² The primacy of this objective has been used as a justification for the high degree of central control over the market for professional rugby players in New Zealand, which exhibits some unique contracting features that limit players' payments, eligibility and movement. It also underpins the emphasis placed on maintaining the breadth and depth of (still largely amateur) club and provincial rugby, and, in particular, the NPC as a conduit for the development of players for the Super 12 and national teams.

The current state of Southern Hemisphere rugby is not necessarily stable. The future structure of the Super 12 and Tri-Nations is due for renegotiation in 2005 and future changes will be an important litmus test of the strength of different objectives (e.g., on-field performance and competitive balance versus market coverage and revenue or profit maximization) as well as the distribution of bargaining power within

⁶² A source of contention is that when the All Blacks play in front of large crowds overseas, the NZRFU does not receive a share of the gate revenues, but this lack of gate-revenue sharing is not balanced by revenue from home games in New Zealand because of its lower population base and smaller venues. This is an issue that has formed part of the bargaining over future changes to the SANZAR competitions, but is ultimately an issue over international gate-revenue sharing for the IRB.

SANZAR, and between SANZAR and News Corporation. From New Zealand's perspective, similar trade-offs will be relevant if, for example, New Zealand is forced to drop one of its franchises. The alternative of Super 12 expansion would involve issues relating to player burn-out and conflicts with the scheduling of the NPC. A two-tier competition involving franchises from other Pacific nations and promotion/relegation may, however, be a viable compromise.

There is clear evidence of a persistent lack of competitive balance in the First Division of New Zealand's domestic provincial competition, relative to the Super 12, and there is some empirical support for the view that the provincial unions that host the five Super 12 franchises are becoming more dominant, both financially and in terms of playing strength. However, a degree of competitive imbalance in the NPC is not a phenomenon that is new to professionalization and the pattern of imbalance largely reflects the distribution of the population, which is relatively highly concentrated in a small number of urban centres. Under such circumstances, perfect competitive balance is unlikely to be efficient or welfare maximizing. The optimal degree of competitive balance for New Zealand rugby, taking into account the objective of maximizing the All Blacks' success, is also not clear on *a priori* grounds. Whether New Zealand and Southern Hemisphere rugby will converge to North American models of professional sports leagues, and, if so, at what speed, is an open question. However, in the current state of the development of the game, more work is required to establish, for example, the importance of competitive balance for match attendance, television-viewing patterns (both domestically and for an international audience) and the linkages, if any, to the success of the All Blacks. If it is decided that a higher degree of competitive balance in domestic competitions is desirable, then a careful analysis of the costs, benefits and distributional implications of any further interventions is required, and more transparent information on the financial situation of franchises and unions would be useful for such an undertaking. Given the partially open structure of rugby in New Zealand and other Southern Hemisphere countries, restrictions such as salary caps or player quotas are likely to have more adverse side-effects than revenue sharing as instruments to enhance competitive balance. Also, Super 12 franchise bases are always likely to maintain some of their historical advantages for top players (as a route to the All Blacks and as environments offering complementary educational and other opportunities).

Rugby union in New Zealand is at a crucial stage of its development, with major changes having taken place in a relatively short period of time, but still with strong links with the traditions and values of the amateur era. Difficult decisions on the structure of competitions, policies on competitive balance, and renegotiation of future media contracts are imminent. A modelling framework that informs such decisions would be very useful. However, there is a lack of analytical and empirical work in the area of sports economics that is specific to the structures and objectives of New Zealand rugby.

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