NCAA Football and the Invariance Proposition

Steven Salaga, University of Michigan
Rodney Fort, University of Michigan

Abstract 2011-036 Thursday, June 2, 2011 20-minute oral presentation
1:20 PM (Room 35)

Simon Rottenberg’s (1956) seminal piece, “The Baseball Players’ Labor Market” is arguably the most influential article in the sports economics literature (Fort, 2005). Among a host of important contributions, the work produces the Invariance Proposition (IP). The IP states that competitive balance in a league will remain unchanged despite alterations in the institutional configuration of that league, as playing talent will continue to be put to its most efficient use. Empirical tests of the IP have been a mainstay in the sports economic literature, but their application has been restricted to the context of professional team sports leagues.

Competitive balance is a key issue not only in professional sports, but also in National Collegiate Athletic Association (NCAA) revenue generating sports. As Rottenberg (1956) originally stated, a degree of uncertainty of outcome must be achieved in order to maintain consumer interest. Hence, competitive balance is also important to the bottom line of NCAA athletic departments. Past research has measured various forms of competitive balance in NCAA football in response to television deregulation (Bennett and Fizel, 1995), changes in scholarship limits (Sutter and Winkler, 2003), conference realignment (Quirk, 2004), and NCAA rules enforcement (Eckard, 1998; Depken II and Wilson, 2006). Despite these contributions, several significant events which have played a crucial role in shaping college football have not yet been analyzed to determine their effects on competitive balance. This work will identify important policy changes at both the NCAA level and the individual conference level and measure their impacts on competitive balance through tests of the IP.

Perhaps the most influential event affecting the access to playing talent throughout the NCAA was the enactment of the G.I. Bill. World War II caused an exodus of playing talent out of college football in the early 1940’s. Following the end of the War, several years of G.I. Bill veterans and a class of high school talent all flocked to college football in a single year, 1946. The G.I. Bill was impactful in that almost no restrictions were set on where Bill recipients could enroll. This decision, along with advances in air travel, caused a shift in the nature of college football recruiting away from a regional activity into a nationwide practice where recruits were able to peddle their services to the highest bidder (Reimann, 2004).

Alterations in student-athlete “pay” would also suffice as appropriate for testing of the IP. The turning point in the regulation of NCAA athlete compensation occurred in 1957, with the formal adoption of athletic grant-in-aid (Britannica, 2010). This ruling established guidelines for student athlete compensation across the NCAA and ended a roughly 30-year period of non-regulated athlete subsidization where significant variation in compensation was the norm.

Changes in league revenue sharing arrangements have also been used as tests of the IP in the professional sports league literature. An important parallel occurred in the NCAA in the mid 1990’s with a significant change in the way television broadcast revenue was collected. This shift transpired following the 1995 season with the conclusion of the now defunct College Football Association’s (CFA) national television contract. Despite the 1984 Supreme Court ruling which granted institutions the right to negotiate individual television deals, the event that marked a significant change in revenue distribution among NCAA institutions was the 1995 dissipation of the CFA. Following this event, the television broadcasting model shifted from a single contract dominated by the CFA to the current characterization where each individual conference negotiates their own deals and shares those revenues with each member institution.

In order to measure the effects of the aforementioned institutional changes on competitive balance, this study will utilize within-game, within-season, across-season, and championship balance metrics. To control for between team differences in out-of-conference scheduling, we will focus only on within-conference matchups, at the suggestion of Bennett and Fizel (1995). The time period of examination will be ten years pre- and ten years post- each institutional change. By evaluating balance over an extended period of time, long-run balance will be measured and any potential short-run anomalies will be avoided. This analysis will focus on the major NCAA Division I-A conferences (now the Football Bowl Subdivision) of the era specified.

Margin of victory, which allows for a measurement of closeness of contests, will be used to measure within-game balance in the pre- and post-periods. To measure within-season balance, the widely utilized ratio of standard deviations of win percentages (RSD) will be used (Noll, 1988; Scully, 1989; Quirk & Fort, 1992). This metric measures the actual standard deviation of win percentages in a league against the idealized standard deviation of win percentages in a perfectly balanced league. Across-season balance will be measured by evaluating yearly turnover in conference standings. This will gauge the variation in the stability of conference standings to determine whether the same teams dominate a conference over an extended period of time. T-tests will
be used to determine statistical significance based on the pre- and post- measurement periods for each balance measure. Additionally, for the RSD metric, time series techniques will be used to determine if the data are stationary and whether break points corresponding to these institutional changes exist in the data. Lastly, in order to assess championship balance, concentration of conference titles and access to post-season bowl games will be measured. This will allow for a determination of whether or not the same institutions in a given conference have controlled post-season appearances, which is a vital component to both national exposure and access to supplementary revenues.

This study will examine several important institutional changes occurring over the history of NCAA football and their impacts on competitive balance. A determination will be made of whether the IP holds in response to alterations in the access to talent, athlete compensation, and revenue distribution – each of which are parallels to traditional empirical testing points for the IP in professional sports. This study is unique in that it is the first to formally test the IP in the context of NCAA sports. The results are of interest in that they will shed light on the impact of historical changes in the business structure of the NCAA and the subsequent influence on competitive balance.