Competitive Balance in Italien Soccer: 1929-2007

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Abstract

Research Question and Aim of the Paper

What is the relationship between seasonal competitive balance and historical sporting results in Italian soccer? Once we derive the nature of the relationship we can answer a closely related question: is there space for a policy on seasonal competitive balance that affect future historical competitive balance?

Theoretical Background

Our paper is based on well known and consolidated theories on competitive balance (Dobson and Goddard, 2006: par. 3.1). We rely on Michie and Oughton (2004) and Haliciolgu (2006) for competitive balance measurement issues.

Methodology and Research Design

We present a vector error correction model (VECM) of the relationship between historical and seasonal competitive balance by analysing 75 seasons played as a single round robin from 1929-30 to 2006-07 for *Serie A*, excluding the only season (1945-46) in which the championship was not played that way. We develop an original data set composed of two normalized (in the interval [0,1]) Herfindal indices to account for seasonal (*S*) and historical (*H*) competitive balance. Seasonal is calculated on the basis of final points and historical is calculated on the cumulated final positions gained at the end of each season and then summed to the value of the variable at the beginning of the season. A higher *S*, or a higher *H* means lower competitive balance: $S=(seacv)^2/(n-1)$, and $H=(histcv)^2/(n-1)$, where *seacv* and *histor* are coefficients of variation calculated for season and history variables, and *n* is the number of teams in each season.

Results

Visual inspection of the graph and the correlogram suggested us to run unit root tests. We followed Dolado, Jenkinson, Sosvilla-Rivero (see Enders, 2004: 213). Results of Augmented Dickey Fuller tests, DF-GLS test, and KPSS test (see Greene, 2008: ch. 22) show unit roots: H is I(1) and AR(2), and S is I(1) and AR(7). For *H* we run an ARCH(1) regression (z-statistics in parenthesis) that gives the following results for the conditional mean and the conditional variance of H, η :

 $\Delta H_{t}^{\Lambda} = -.423973 \Delta H_{t-1}$ (-3.157573) $\eta_{t}^{\Lambda} = .0000318 + .478957 e_{t-1}^{2}$ (3.4727246) (1.944369) and for S we estimate: $\Delta S_{t}^{\Lambda} = -.961586 \Delta S_{t-1} - .668584 \Delta S_{t-2} - .402964 \Delta S_{t-3} + .185509 \Delta S_{t-6}.$ (-8.592951) (-4.689089) (-3.345865) (2.012003)

We check for cointegration between the variables, using an Engle-Granger and a Johansen procedure (Enders, 2004: ch. 6). The following is the VECM (t-statistics in parenthesis):

 $\Delta S_t^{A} = -.411021(S_{t-1} - .107132H_{t-1}) - .455473\Delta S_{t-1} - .008125\Delta H_{t-1} \\ (-3.34389) (-19.1620) (-4.35940) (-.48355) \\ \Delta H_t^{A} = 1.862653(S_{t-1} - .107132H_{t-1}) - 2.86298\Delta S_{t-1} - .308986\Delta H_{t-1} \\ (2.20827) (-19.1620) (-3.18882) (-2.67984) \\ \text{where } S_{t-1} = .107132H_{t-1} \text{ is the cointegrating equation.}$

Discussion

The coefficient of ΔH_{t-1} in the first equation is not significantly different from zero: once the long run relationship is accounted for, seasonal competitive balance is not influenced by variations in *H*. A variation in S is influenced by the adjustment to long term equilibrium, whose speed is .41, and is negatively influenced by the variation in seasonal competitive balance in the preceding two seasons.

The negative impact of a rise in *S* on *H* means a team which had always fared in midrank can abruptly run for the title or at least for higher ranking positions, head-to-head with the ever-winning teams. The fact that ΔS_{t-1} has significative and negative impact on ΔH_t is a sign that seasonal balance influences changes in teams élite. This means that uncertainty for the season is high and renovates frequently, and that innovation in the season is transferred to long term.

In terms of policy variations in the short term, seasonal balance impacts on variations in the élites, and reverts with a lower impact the following season. It seems that the relationship works as the innovation in the long term in the economy, as if competitive balance is guided by the supply side of the market. This means that we look at a rate of innovation in *Serie A* which is guided by factors that are outside the reach of the League, factors it cannot manage. We suspect that more profound economic factors – not connected to a redistribution of the revenues from television – act as drivers, such as the per-capita GDP of the cities.

References

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