



Should Salary Caps be Implemented in the European Football Leagues?

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Overview

Research Question: Effect of salary cap on quality of competition and on social welfare

Method: 2-stage, game-theoretic model

Result: Under certain conditions a salary cap can increase quality of competition and social welfare

Related Literature

Quirk/Fort (1992, 1995)

Vrooman (1995, 2000)

Staudohar (1998, 1999)

Késenne (2000, 2003)

Dietl/Franck/Nüesch (2006)

Dietl/Lang/Rathke (2007)

European Setting

- Win-maximizing (instead of profit-maximizing) clubs
 - Members' clubs/registered associations
 - Democratically governed
 - No residual claimants/no distribution of assets
- Flexible supply of talent
 - International transfer of players between competing leagues
- Percentage-of-revenue-cap
 - Heterogeneity of clubs
- Stakeholder/Association model
 - No CBA

Model

- League consisting of large- and small-market teams
- Total league revenue is a function of
 - Quality
 - Price
- League quality depends on two factors
 - Aggregate talent
 - Competitive balance
- One unit of money buys one unit of talent (flexible supply)

Timing

Stage 1: League governing body sets percentage-of-revenue cap

Stage 2: Clubs invest in talent

- Investments in talent determine league quality and league revenues
- Large clubs receive a share m_L , small clubs a share m_s of total league revenue

League quality

League quality – θ aggregate talent + competitive balance

$$\text{Aggregate talent} = \sum_{j=1}^n x_j$$

with $x_j =$ salary payments (payroll) of club j

$$\text{Competitive Balance} = -\frac{1}{n} \sum_{j=1}^n (x_j - \bar{x})^2$$

$$\text{with } \bar{x} = \frac{1}{n} \sum_{j=1}^n x_j$$

Decision of the Clubs (Stage 2)

Clubs maximize salary payments (talent investments) subject to the salary cap constraint

After solving the Lagrange problem, equilibrium league quality can be written as a function of the salary cap δ , the relative preference of fans for aggregate talent θ , and m_L and m_S

$$q^* = \frac{4n^2(\theta\delta - 4)}{\delta^2[(m_L - m_S)^2]}$$

Effect on League quality

Trade off

A more restrictive cap decreases salary payments and therefore aggregate talent, but increases competitive balance

Results

If fans have a relatively low preference for competitive balance/
high preference for aggregate talent, a salary cap increases league
quality

$$\delta^* = \frac{8}{\theta}$$

If fans have a relatively high preference for competitive balance/
low preference for aggregate talent, a salary cap decreases league
quality

$$\delta^* = 1$$

Decision of League Governing Body (Stage 1)

Welfare = γ club profits + $(1-\gamma)$ [Consumer surplus + player salaries]

Given the optimal decision of clubs at stage 2, equilibrium welfare can be computed as a function of the salary cap δ , γ , θ , m_L and m_S :

$$W^* = \frac{n^2 (1 + \gamma + (1 - 2\gamma)2\delta)(\theta\delta - 4)}{2\delta^2 (m_L - m_S)^2}$$

Effect on Welfare

Additional trade off

Salary cap increases financial stability (club profits), but decreases players salaries

Results

If γ is sufficiently large, the introduction of a salary cap will always increase welfare (regardless of θ)

If θ is sufficiently large, the introduction of a salary cap will always increase welfare (regardless of γ)

Summary: Effect of Salary Cap on Welfare

	$\theta < \theta'$	$\theta > \theta'$
$\gamma < \gamma'$	-	+
$\gamma > \gamma'$	+	+

θ : relative preference of fans for aggregate talent

γ : weight on financial stability (club profits)