

Question 1.1

A) The preferences in sports they like to watch is different, hence they derive different utility from different sports and the leagues. Also, the level of competitiveness differs from sports to sports. For example, the Capitals could be a playoff team, driving their average ticket prices up compared to the Wizard/Nationals who might not be a playoff team (competitive level/their popularity causing avg. ticket prices for each venues to vary) Also, the prices for concessions might vary between venues, causing FCI to differ across teams.

Question 1.2 $\pi = \text{Profit}$.

A) Profit Max

$$\text{Marginal Revenue} = \text{Marginal Cost}$$

$$\max \pi_{it} = \max(R_{it} - C_{it})$$

$$MR = 10 - 2t$$

$$MC = 2$$

$$10 - 2t = 2$$

$$t = 4$$

$$\pi = 10(4) - 4^2 - 2(4) = 16$$

B) Revenue Max

$$\max R_{it} \text{ or } MR = 0$$

$$MR = 10 - 2t = 0$$

$$t = 5$$

$$\pi = 10(5) - 5^2 - 2(5) = 15$$

C) Win Max

Max WP_{it} subject to: $(R_{it} - C_{it}) > 0$
 $\hookrightarrow R = C$

$$R = 10t - t^2$$

$$C = 2t$$

$$10t - t^2 = 2t$$

$$t^2 = 8t$$

$$t = 8$$

$$\pi = 10(8) - 8^2 - 2(8) = 0$$

D) Combination

$$8t - t^2 + 3t = 0$$

\downarrow \downarrow
 Max π_{it} Max WP_{it}

$$8t - t^2 + 3t = 0$$

$$8 + 2t - 3 = 0$$

$$11 + 2t = 0$$

$$t = 5.5$$

$$\pi = 10(5.5) - (5.5)^2 + 3(5.5) = 13.75$$

A) Stronger Union Representation

- Cost for the team will increase due to possible increase in wages/benefits for players as they gain greater bargain power. Also, it could lead to decrease in revenues if players want to cut number of games.
- NBA players have been talking about how there are way too many games in a season.

B) Pandemic

- Decrease in revenue due to decrease in viewership in person (\downarrow ticket sales, concession, team goods)

However, it depends on the contact \$, but if the league were to sign a TV deal, for the pandemic season, it might make up for the lost revenue (highly unlikely)

Question 1.3

A) Noll-Scully (50 games)

$$\text{Std for league} = 0.1554563 \dots$$

$$\text{ideal std} = \frac{\text{mean winning \%}}{\sqrt{\text{number of games}}}$$

$$= \frac{.5}{\sqrt{50}} = 0.0707$$

$$\text{Noll-Scully} = \frac{0.1554563}{0.0707} = 2.1984$$

B) Noll-Scully (200 games)

$$\text{Std for league} =$$

$$\text{ideal std} = \frac{.5}{\sqrt{200}} = 0.035355 \dots$$

$$\text{Noll-Scully} = \frac{0.1554563}{\text{ideal std}} = 4.3969$$

C) Why are they different?

- Because the denominator, # of games changed. The actual and ideal standard deviation decreases as the number of games increases.

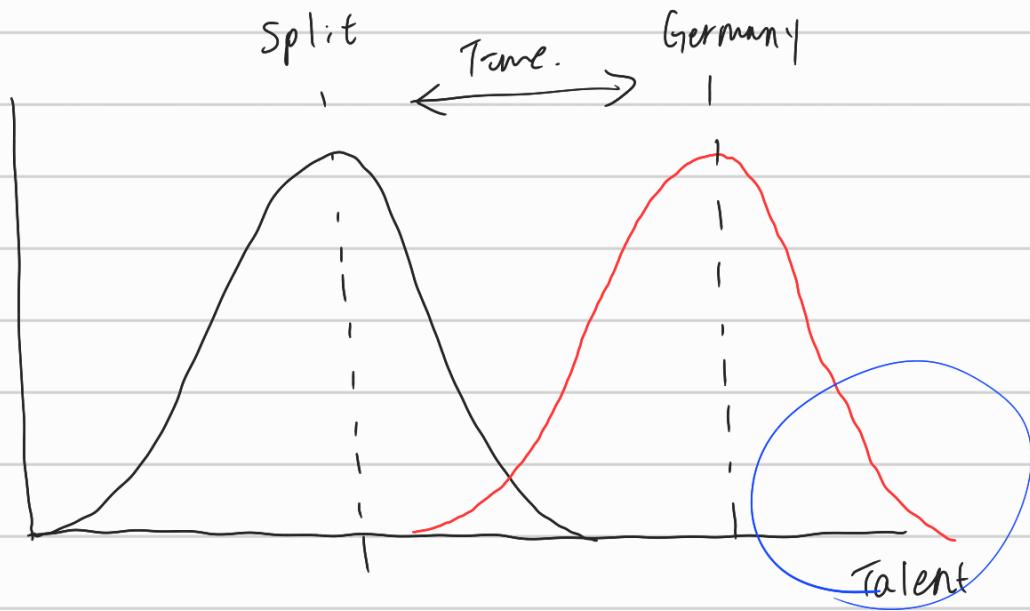
D) Add team by 1

- Addition of 1 team will decrease the actual std, since we are dividing by the number of teams. Plus, Noll Scully will decrease = Increase in comp. balance.

Question 1.4

A) Beckenbauer's statement

- With the unification of Germany, there are more players to choose from. Which allows Germany to take talents from the best of the best (Right hand fail)



Also, there is shift in the level of talent.

B) NFL Tv

- Considering that the optimal level of competitive balance depends on the preferences of supporters of the large / small market teams on the relative size of the markets of the two clubs ; # of neutral spectators. Therefore, according to the context provided, we do not know because we do not know how much small / large teams value winning and neutral spectators do not care.

BUT, the winning percentage for a team cannot be larger than 0.67.

Question 1.6 Tech

Tech \uparrow = better talent + maximizing potential.
variance of player talent will be reduced.
However, it might also increase the variance
if not all athletes have access to the tech
(Ex) steroids).

Question 1.7

$$\text{Max } U = U(Q_{aa}, Q_y)$$

The athletic achievement and composite good for foot ball out weighed the Q_{aa} , Q_y for baseball. Therefore, we can say the marginal utility Murray has for Football is greater than that of baseball. Also, returns are higher for football compared to baseball.