Homework #5: Answer Key

Economics of Sports 229 Assistant Professor: Victor Matheson

1. a. Compare 600,000 to $700,000/(1+r)^1 = 700,000/(1.07)^1 = 654,206$. The player should stay in college for one more season.
   b. There are many possible changes that could be made to the analysis. Would he risk injury staying in college? Might he get better or worse his next year in college raising or lowering his value? Does staying in college affect his salary in years besides his first in the league? Does staying in college affect the length of his pro career? There may be others.
   c. Compare 400,000 to the expected NPV of staying for a senior year.
   NPV = [.30(0) + .40(700,000) + .30(1,000,000)] / (1.07) = $580,000 / 1.07 = $542,056. The player should leave early.
   d. Obviously there is no one correct answer here. For some players, it is hard to argue that college would increase their lifetime earnings or life-time happiness. For others, a few extra years of college would certainly have increased their earnings both as a basketball player and in their jobs after basketball. As an aside, those who criticize athletes who leave school early to make millions rarely criticize people like Bill Gates (Microsoft), Michael Dell (Dell Computers), and Larry Page and Sergey Brin (Google) who also left college early to make millions.

2. Obviously, you can argue either way here. Considering the court decided in Smith v. NFL that the draft violated the rule of reason, it probably wouldn't survive here either. A league-wide salary cap is certainly a restriction in competition. The right of last refusal is probably the rule most likely to survive since this does not directly reduce player salaries.

3. First of all, there is always a question about whether one should discount the first year of a contract or not. Since the question states that he signed a contract in 2000 and the first year of the contract is 2001, it makes sense to discount the first year. Full credit was awarded, however, for either way. The answers for not discounting in the first year are shown in parentheses after each answer.

   a. $NPV = 18/(1.0641)^1 + 19/(1.0641)^2 + 20/(1.0641)^3 + 20/(1.0641)^4 + 23/(1.0641)^5 + 21/(1.0641)^6 + 23/(1.0641)^7 + 24/(1.0641)^8 + 24/(1.0641)^9 + 24/(1.0641)^{10} + 6.72/(1.0641)^{11} + 5.38/(1.0641)^{12} + 4.03/(1.0641)^{13} + 4.03/(1.0641)^{14} + 5.38/(1.0641)^{15} + 5.38/(1.0641)^{16} + 5.38/(1.0641)^{17} + 4.03/(1.0641)^{18} + 4.03/(1.0641)^{19} + 4.03/(1.0641)^{20} = \$172.45$ (or $183.5)

   b. $NPV = 18/(1.0871)^1 + 19/(1.0871)^2 + 20/(1.0871)^3 + 20/(1.0871)^4 + 23/(1.0871)^5 + 21/(1.0871)^6 + 23/(1.0871)^7 + 24/(1.0871)^8 + 24/(1.0871)^9 + 24/(1.0871)^{10} + 6.72/(1.0871)^{11} + 5.38/(1.0871)^{12} + 4.03/(1.0871)^{13} + 4.03/(1.0871)^{14} + 5.38/(1.0871)^{15} + 5.38/(1.0871)^{16} + 5.38/(1.0871)^{17} + 4.03/(1.0871)^{18} + 4.03/(1.0871)^{19} + 4.03/(1.0871)^{20} = \$151.25$ (or $164.4)

   c. $NPV = 18/(1.1712)^1 + 19/(1.1712)^2 + 20/(1.1712)^3 + 20/(1.1712)^4 + 23/(1.1712)^5 + 21/(1.1712)^6 + 23/(1.1712)^7 + 24/(1.1712)^8 + 24/(1.1712)^9 + 24/(1.1712)^{10} + 6.72/(1.1712)^{11} + 5.38/(1.1712)^{12} + 4.03/(1.1712)^{13} + 4.03/(1.1712)^{14} + 5.38/(1.1712)^{15} + 5.38/(1.1712)^{16} + 5.38/(1.1712)^{17} + 4.03/(1.1712)^{18} + 4.03/(1.1712)^{19} + 4.03/(1.1712)^{20} = \$100.84$ (or $118.1)

Answer Key #5: Page 2

d. Obviously, a team would always rather pay money later rather than earlier simply due to discount effects. Furthermore, there may be either salary cap or revenue sharing/luxury tax implications that make it beneficial to spread out payments over a longer period.

e. A-Rod is overpaid if his earnings exceed what he brings to the team in terms of revenue, in other words if his earnings exceed his marginal revenue product. To answer this one would need to know how good A-Rod is and how responsive fans are to a player of his quality. It is not enough to simply compare him to other equally talented players because those players may be over- or under-paid as well.