THE YANKEES EFFECT: THE IMPACT OF INTERLEAGUE PLAY AND THE UNBALANCED SCHEDULE ON MAJOR LEAGUE BASEBALL ATTENDANCE

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ABSTRACT

Major League Baseball introduced interleague play in 1997 and an unbalanced schedule between division and non-division opponents in 2001. These changes were designed to lower costs to organizations within the league and boost attendance. A game-to-game attendance model is specified for the Major League Baseball teams for 2001. We find that interleague play significantly increases attendance in National League cities only, while the unbalanced schedule has positive but insignificant attendance effects in American League cities. Working from these results, the model was re-specified to include the dominant team of this era, the New York Yankees, as a separate determinant for both interleague and divisional games. It was found that the Yankees have a large and significant effect on interleague attendance, while the impact of the other teams is not found to be significant. The same impact, to a lesser extent, is found for the divisional opponents of the Yankees under the unbalanced schedule.

Major League Baseball has made two major scheduling innovations in recent years. In 1997, interleague play was introduced with National League (NL) teams playing American League (AL) teams for the first time in the regular season. In 2001, an unbalanced schedule was introduced in each league. The number of games against divisional opponents was increased, while games against non-divisional foes were reduced. Both changes were aimed at improving the profitability of major league clubs by simultaneously reducing travel costs and increasing revenues by filling more seats at the stadiums. Interleague play was intended to lower travel costs and increase attendance. While there is little doubt that a series between the New York Mets and the New York Yankees or the Chicago Cubs and the Chicago White Sox would be very popular, others questioned the interleague concept for teams without natural interleague geographic rivals. Bud Selig, the commissioner of Major League baseball, believes

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that interleague play has boosted attendance; he has been quoted as saying "...the attendance figures show it (interleague play) has been a success."

The savings in travel costs are assumed to be positive and are not the object of this study. The aim of this paper is to see if interleague play and the unbalanced schedule have had any impact on individual team attendance in the 2001 season. A regression model, with game-by-game individual team attendance as the dependent variable is specified and tested. Common independent variables in the baseball literature are included in the model in addition to variables for divisional games and interleague games.

For all of major league baseball, interleague games appear to increase attendance slightly, but these increases are not statistically significant. In examining each league individually, interleague games lead to a decrease in attendance, although not significant, in the American League, but a highly significant increase in the National League. Examining the National League more closely, it appears that most of the increase in attendance comes from the teams that played the New York Yankees, the premier team in baseball at this time, during interleague play. Separating the interleague variable into interleague Yankee games and interleague non-Yankee games led to a positive and highly significant increase in attendance for the Yankees variable, but a much smaller, and insignificant, increase for non-Yankee interleague games.

For the unbalanced schedule, the result is similar. For the league as a whole, divisional opponents appear to attract slightly more fans, although the effect is not significant. Examining each league separately, however, reveals that the effect is positive for the American League, the league with the Yankees, and negative for the National League. Separating the divisional opponent variable into Yankees and non-Yankees for the AL reveals that the Yankee games had a positive and significant effect on attendance, while other divisional rival games led to a negative, although insignificant, impact on attendance.

The paper is organized as follows. Section II presents a model of game-by-game baseball attendance and shows empirical results for the model, including interleague and division rival games, for major league baseball as a whole, the American League, and the National League. Section III examines the effect of playing the Yankees individually for the National League in interleague play and for the American League in divisional play. Section IV discusses the findings and concludes the paper.

II. MODEL OF GAME-BY-GAME BASEBALL ATTENDANCE

Studying the factors that determine Major League Baseball attendance has been a popular activity for economists because the market is large and statistical data are readily available. Independent variables included in existing models of baseball attendance include population, income per capita, star players, and recent success (Noll, 1974), televised games, quality of the team, and availability of substitutes (Demmert, 1973), expected probabilities of winning a championship (Whitney, 1988), salary

structure (Richards and Guell, 1998), turnover in team rosters (Kahane and Shmanske, 1997), and earlier impacts of interleague play (Butler, 2002).

All of the models of Major League Baseball attendance are slightly different, but for the purpose of studying the effect of interleague and divisional games, the dependent variable in this study is the attendance of each game. The independent variables are intended to specifically account for game-to-game differences that can occur in attendance over the course of a season. The attendance model is as follows.

$$\text{Attn}_t = \alpha_1 + (\alpha_2 \text{ Opday}_t + \alpha_3 \text{ April}_t + \alpha_4 \text{ May}_t + \alpha_5 \text{ June}_t + \alpha_6 \text{ Aug}_t + \tag{1}$$
$$\alpha_7 \text{ Sept}_t + \alpha_8 \text{ Oct}_t) + (\alpha_9 \text{ Mon}_t + \alpha_{10} \text{ Tue}_t + \alpha_{11} \text{ Thu}_t + \alpha_{12} \text{ Fri}_t +$$
$$\alpha_{13} \text{ Sat}_t + \alpha_{14} \text{ Sun}_t) + (\alpha_{15} \text{ Rfpg}_{t-1} + \alpha_{16} \text{ Rapg}_{t-1}) + (\alpha_{17} \text{ Inc}_t +$$
$$\alpha_{18} \text{ Pop}_t + \alpha_{19} \text{ Foot}_t + \alpha_{20} \text{ Bask}_t + \alpha_{21} \text{ Hock}_t + \alpha_{22} \text{ AL}_t +$$
$$\alpha_{23} \text{ Newstad}_t + \alpha_{24} \text{ Payroll} + \alpha_{25} \text{ Price}) + (\alpha_{24} \text{ Vrfpg}_{t-1} +$$
$$\alpha_{25} \text{ Vrapg}_{t-1} + \alpha_{26} \text{ Div}_t + \alpha_{27} \text{ Intleague}_t) + \varepsilon_t.$$

The variables are listed below. All data comes from espn.com, except for population and income per capita, which comes from the U.S. Statistical Abstract and Statistics Canada, payroll, which comes from Slam Sports on canoe.ca, and average ticket price, which is from www.teammarketing.com.

The dependent variable, Attendance (ATTN), is per-game attendance for each home game of the season for each team. The attendance figures given in this paper are the paid attendance figures presented by Major League Baseball. These figures do not present the fans that actually walk through the gate and enter the stadium. Therefore, season-ticket figures may be important to distinguish between these two groups. Teams who sell a large number of season tickets and perform poorly during the season may have a considerable drop-off in actual number of fans in the seats later in the season, which the dependent variable in this model may not capture. We do not have these figures, but a future study using that data would serve as an interesting comparison.

The independent variables start with an intercept. The remaining independent variables are grouped into categories based on the factors underlying their impact on attendance. The first category of independent variables is dummies for the months of the year, with July the excluded dummy. The first variable included is for opening day (OPDAY). Baseball teams often have festivities or promotions such as fireworks associated with opening day at their ballpark and traditionally are very good draws, regardless of opponent. A separate dummy variable is included to account for this effect.

Baseball attendance is likely determined by the weather and by the pennant race. Early in the season (April and May) the weather is likely to be cold, especially in northern cities, and the divisional races are not yet important in the minds of the average fans. Weather improves during the summer months. In the fall the playoff races intensify, but the weather may again be troublesome. For 2001, the months of September and October will likely show the effects of the events of September 11th. Therefore, it is expected that the summer months will have the largest coefficients and the early month and late months will probably have the lowest attendance.

The second category includes the days of the week dummies, with Wednesday excluded. Attendance will depend upon the opportunity cost of fans' time, which will likely be greater during the week due to work and family commitments. Therefore, the weekend days are expected to have the largest coefficients.

The third category is on-field characteristics of the home team. The variables include average runs scored by the home team going into the game (RFPG) and the average runs given up by the home team going into the game (RAPG). These variables represent runs scored per game that the fans would expect to see, but also serve as a proxy for the home team winning. Due to possible multicollinearity, winning percentage and runs-for per game and runs-against per game were not simultaneously introduced into the model. Most of the variation in win percentage can be explained by how many runs a team scores and gives up on the average. Therefore, runs-for per game and runs-against per game were included in the model and win percentage was not[1]. In addition, team payroll, which we will explain later, also serves as a proxy for win percentage. RFPG is expected to be positive and significant and RAPG is expected to be negative and significant.

The fourth category includes characteristics of the home city. Income per capita (INC), the population of the metro area (POP), the existence of other sports teams (FOOT for football, BASK for Basketball, and HOCK for hockey), which league the team is in (AL dummy for AL teams), if the team is in a new stadium for this year (Pittsburgh and Milwaukee for 2001), team payroll for the season (PAYROLL), and average ticket price for a game (PRICE) are all included in this category. The income per capita variable has had contradictory results in the literature, but recent studies have shown baseball games to be a normal good (Kahane and Shmanske, 1997). A larger population would mean more fans, which should lead to a positive coefficient. Other sports teams in the city are included to determine if these sports are substitutes or complements to baseball. If there is a difference in league attendance, a dummy variable for AL teams is included. New stadiums can generate interest that is independent of the other factors mentioned. People may attend the game to experience the new stadium. If a new stadium creates this kind of interest, the sign on this dummy variable should be positive.

Team payroll is included in the regression to determine if fans are swayed by ownership spending beyond the impact that payroll has on winning and scoring. Payroll has been shown to influence the win percentage of a team (Zimbalist, 2003). Causality between payroll and win percentage has been shown to run in both directions (Zimbalist, 2003). Payroll also serves as a proxy for "star players" as the higher salary teams have more superstars, but it could also serve as a proxy for high-priced mistakes by teams. Average ticket price is included in the model to examine differences in prices across teams. Although it is assumed that tickets are priced in order to maximize total revenues, prices are set prior to the start of the season. Since ticket prices are based on expectations of team performance, rather than actual performance, a deviation from expected performance may result in suboptimal (ex-post) prices[2].

Visiting team characteristics are the main focus of this paper, with the impact of divisional rivalries and interleague play being the main concerns. Before addressing these issues, the same team attributes are included for the visiting team as for the home team. Visiting team runs for per game (VRFPG) and visiting runs against per game (VRAPG) are included as an average values going into the game. As with the home team, these variables serve as a proxy for the quality of the opponent and for number of runs scored the fans can expect to see.

Interleague play was introduced in 1997 to increase revenues and lower costs. Teams in the same geographic areas belonging to different leagues would now play each other. The innovation was judged as a success by the offices of Major League Baseball (Neft, Cohen, and Neft, 2000) and continues today. If interleague play still generates fan interest, the sign on the coefficient should be positive.

In 2001, baseball moved to an unbalanced schedule where teams would play division rivals more often. Games against division rivals rose to nine or ten home games a year. Games against non-divisional opponents were reduced. If playing divisional rivals increases fan interest, the sign on the dummy variable for divisional opponents should be positive.

Table I presents regression results for the entire major league baseball sample and for each league individually. The regression is run using White's heteroskedasticity-consistent standard errors and covariance.

Dummies for the days of the week and months of the year yielded the expected results. Weekends are more popular days at the stadium, with Saturday having the largest attendance and Friday having the second largest, all other factors being equal. The summer months have the highest levels of attendance. There was a large decline in Major League Baseball attendance in September and October, likely resulting from the events occurring on September 11th, which may have nullified any positive influences pennant races may have had on attendance in 2001.

Fans appear to respond to home teams that score runs and win games. Runs for per game, which includes the direct impact of the scoring of the home team and serves as a proxy for winning, was found to be positive and significant at the one percent level in both leagues and for baseball as a whole. Runs against per game was found to be negative in all specifications and significant for Major League Baseball as a whole and in the American League. Giving up more runs per game leads to a higher likelihood of losing and therefore lowers attendance.

The effects of income per capita and population are significant across regressions as baseball appears to be a normal good to fans, but population has a very small negative effect on attendance. It could be that larger cities have more substitutable leisure activities that lead to slightly lower attendance. Dummies for the American League (AL) in the Major League Baseball regression and a new stadium (NEWSTAD) in the MLB and NL (as Pittsburgh and Milwaukee, both NL teams, had new stadiums in 2001) regressions were found to be significant. The AL attendance was lower than the NL, which is the opposite result found in Kahane and Shmanske (1997), where the NL had lower attendance. New teams, such as Colorado, and new stadiums, such as San Francisco and Atlanta, may account for this

Table I:
Baseball Attendance Regression for all of Major League Baseball,
National League, and American League

	MLB	AL	NL
Variable	Coefficient (T-stat)	Coefficient (T-stat)	Coefficient (T-stat)
Constant	-6715.981*** (-3.1977)	7329.656** (1.9952)	-21358.07*** (-7.4131)
OPDAY	30703.36*** (10.8882)	18119.22*** (6.1800)	31916.75*** (8.8355)
APRIL	-5970.974*** (-10.7189)	-6641.414*** (-8.2451)	-5548.732*** (-7.8536)
MAY	-4307.018*** (-8.3174)	-4644.354*** (-5.7550)	-3995.180*** (-6.6853)
JUNE	-1332.319*** (-2.6585)	-2147.514*** (-2.9333)	-526.4122 (-0.8701)
AUG	-1844.495*** (-3.5290)	-1685.235** (-2.1297)	-1939.367*** (-3.0629)
SEPT	-4057.489*** (-7.2385)	-5175.143*** (-6.1264)	-2615.298*** (-3.7978)
OCT	-6325.073*** (-5.4816)	-7380.613*** (-5.2347)	-6154.061*** (-3.5352)
MON	568.3748 (0.8640)	1039.462 (1.0719)	-235.5083 (-0.2789)
TUE	-704.3083 (-1.4465)	-1100.966 (-1.5957)	-340.6931 (-0.5308)
THUR	493.8769 (0.9904)	645.7989 (0.89030)	209.8090 (0.3280)
FRI	4665.089*** (8.9811)	5228.609*** (6.8978)	4051.347*** (6.2069)
SAT	8272.874*** (15.9773)	8099.887*** (11.0111)	8352.827*** (12.3186)
SUN	5306.086*** (10.2508)	5261.770*** (6.8351)	5193.414*** (7.9009)
RFPG	2359.266*** (9.1055)	1315.158*** (3.8397)	4071.193*** (8.3687)
RAPG	-339.7111* (-1.7244)	-758.8901*** (-2.5841)	-324.5890 (-1.0097)
INC	0.6970*** (27.9559)	0.5874*** (13.6995)	0.5814*** (11.9827)
POP	-0.0004*** (-4.8320)	-0.0006*** (-4.9908)	-0.0002 (-1.4413)
AVEPRICE	-388.8761*** (-8.2342)	-718.5565*** (-10.0539)	292.5191*** (2.8168)
PAYROLL	286.9544*** (28.2685)	329.6111*** (18.1735)	237.2016*** (17.3433)
FOOT	1845.632*** (2.6046)	-1927.810* (-1.9591)	3804.616*** (3.3333)
BASK	-1465.757*** (-3.1885)	2133.747*** (3.3299)	-2397.164*** (-3.0752)
HOCK	-2820.045*** (-7.0511)	-5134.821*** (-7.6895)	-1929.168*** (-3.4871)
AL	-2563.656*** (-7.5106)		

NEWSTAD	6058.387*** (10.9689)		4922.456*** (7.6198)
VRFPG	633.6051*** (3.0248)	586.8868** (2.0053)	1055.638*** .(3.4131)
VRAPG	-1424.382*** (-7.4491)	-1038.318*** (-4.0389)	-2086.422*** (-6.8573)
DIV	318.1355 (0.9784)	667.5239 (1.3977)	-141.3857 (0.7406)
INTLEAGUE	820.6859 (1.3034)	-207.3719 (-0.2408)	2259.275*** (2.7141)
R^2	0.6278	0.6380	0.6763
Adj. R^2	0.6234	0.6295	0.6694

T-stats are given in parentheses. *** Denotes significance at below 1%, ** denotes significance at below 5%, and * denotes significance at below 10%.

difference. The two new stadiums for 2001 contributed over 4000 new fans for each game and the dummy variable was found to be significant.

Payroll took the expected positive sign and was significant across all regressions. Additional salary dollars appear to have a larger impact on attendance in the American League than in the National League. Average ticket price was found to be significant and negative for all of major league baseball. For the individual league regressions, however, the sign on average ticket price for the National League was found to be positive. Similar results for the other variables were found when ticket price was not included in the regression. Ultimately, it was decided to leave average ticket price in the demand model even with this unexpected NL result.

Baseball fans also care about the opponent. Visiting runs for per game was found to be positive and significant and visiting runs against per game was found to be negative and significant. Using visiting runs scored as a proxy for quality of the opponent, this suggests that fans prefer to see good teams, those that score more often and give up fewer runs, to bad teams. Other factors that matter about the opponent are the main focus of this paper. The impact of interleague play and the unbalanced schedule are addressed in the next section.

III. INTERLEAGUE PLAY, THE UNBALANCED SCHEDULE, AND THE YANKEES EFFECT

The Major League Baseball regression in Table I shows that both the interleague game dummy and the divisional game dummy have positive coefficients. Both, however, are statistically insignificant. Taken alone, this could suggest that the cost-saving nature of these scheduling policies is enough to make these changes beneficial to baseball. In looking at the leagues individually, however, other implications arise.

For the interleague dummy, in the American League regression, the coefficient was found to be negative (-207.37), but not significant. On the other hand, for the National League, the interleague

dummy has a much larger positive coefficient (2,259.27) and is significant at the one percent level. The question arises as to why interleague games are a positive for National League team fans and a negative for American League team fans? To answer this question, we broke the sample into American and National League regressions and the interleague and division dummies were created to allow the Yankees to have a separate effect. In recent years, the Yankees have been the dominant team and historically have won the most championships. There are large numbers of Yankee fans across the country and some teams, for example San Diego, have started raising ticket prices for games against the Yankees.

To illustrate the effect that the New York Yankees had on National League attendance, the interleague dummy was broken into two parts. One variable represents interleague games where NL teams played the Yankees (INTNYY) and the other variable represents NL interleague games versus all other AL teams (INTOTHER). The results are reported below in Table II.

The dominant effect on interleague game attendance in the National League comes from the NL teams who played the Yankees. Overall, within the 2001 sample, the Yankees games increased home attendance by over 17,000 fans. This increase is significant at the one percent level. The other interleague games still had a positive effect on attendance, but it was much smaller (less than 1,100 fans), and was not significant. Coupled with the previous results for the American League, where interleague games decreased attendance, albeit not significantly, it appears that the major gains from interleague play are associated with a very small subset of games, specifically, games against the Yankees.

The effect of the unbalanced schedule is also dependent upon the Yankees. Table I shows that divisional games barely increase attendance for Major League Baseball as a whole. In the National League, the effect is negative and insignificant, while in the American League it is positive and insignificant. Applying the same rationale as interleague play, the AL regression was run with two separate variables for divisional games. One was the New York Yankee divisional games (DIVNYY) and the other was all other divisional games in the AL (DIVOTHER). The results are reported in Table III.

Divisional games appeared to help only the teams in the AL East. The New York Yankee divisional games are found to have a positive and significant effect on attendance. Each Yankee game brought in more than 6,000 additional fans to other AL east teams. Other divisional games are found to have an insignificant effect on attendance.

IV. CONCLUSIONS AND DISCUSSION

The offices of Major League Baseball made two major changes to their schedule in recent years. In 1997, interleague play was started and in 2001, an unbalanced schedule was introduced. Both policies were introduced for specific goals, one on the cost-side and the other on the demand-side. Both changes

Table II:
National League Regression with Separate Yankees Interleague Term

Variable	Coefficient (T-stat)
Constant	-21291*** (-7.4433)
OPDAY	31936.26*** (8.8800)
APRIL	-5451.704*** (-7.8449)
MAY	-3892.091*** (-6.6282)
JUNE	-355.6535 (-0.6238)
AUG	-1857.024*** (-2.9612)
SEPT	-2492.935*** (-3.6737)
OCT	-6107.041*** (-3.5078)
MON	-280.87 (-0.3391)
TUE	-343.7825 (-0.5420)
THUR	209.1054 (0.3291)
FRI	4023.264*** (6.2265)
SAT	8325.413*** (12.3393)
SUN	5172.589*** (7.9798)
RFPG	4020.683*** (8.2338)
RAPG	-351.8842 (-1.1062)
INC	0.5880*** (12.4821)
POP	-0.0002* (-1.7886)
AVEPRICE	285.1692*** (2.7579)
PAYROLL	246.0599*** (18.8085)
FOOT	3423.105*** (3.0697)
BASK	-2546.736*** (-3.2916)
HOCK	-2162.182*** (-4.0302)
NEWSTAD	4973.241*** (7.6733)
VRFPG	964.7248*** (3.1373)

Variable	Coefficient
VRAPG	-1914.535***
	(-6..4793)
DIV	-146.6900
	(-0.3430)
INTNYY	17011.32***
	(6.8413)
INTOTH	1077.968
	(1.4087)
R^2	0.6884
Adj. R^2	0.6815

T-stats are given in parentheses. *** denotes significance at below 1%, ** denotes significance at below 5%, and * denotes significance at below 10%

Table III:
American League Regression with Separate Yankees Divisional Term

Variable	Coefficient
	(T-stat)
Constant	6379.895*
	(1.7609)
OPDAY	18620.51***
	(6.3810)
APRIL	-6669.107***
	(-8.4178)
MAY	-4814.120***
	(-6.1841)
JUNE	-2112.906***
	(-2.9423)
AUG	-1715.111**
	(-2.2361)
SEPT	-5269.054***
	(-6.3755)
OCT	-7429.391***
	(-5.2861)
MON	932.1251
	(0.9846)
TUE	-1063.622
	(-1.5701)
THUR	738.5736
	(1.0410)
FRI	5261.450***
	(7.0710)
SAT	8155.316***
	(11.3124)
SUN	5313.431***
	(7.0891)
RFPG	1331.551***
	(3.9457)
RAPG	-657.9120**
	(-2.2528)

INC	0.6101***
	(14.4414)
POP	-0.0006***
	(-4.7118)
AVEPRICE	-738.9245***
	(-10.3647)
PAYROLL	332.4359***
	(18.5295)
FOOT	-2252.308**
	(-2.3662)
BASK	2137.660***
	(3.4059)
HOCK	-5196.548***
	(-7.9770)
VRFPG	-297.9393
	(-0.9931)
VRAPG	-820.7146***
	(-3.1637)
DIVNYY	6267.063***
	(7.0126)
DIVOTHER	646.5484
	(1.3258)
INT	94.5322
	(0.1098)
R^2	0.6527
Adj. R^2	0.6442

T-stats are given in parentheses. *** denotes significance at below 1%, ** denotes significance at below 5%, and * denotes significance at below 10%

could reduce travel costs by playing more games in the same geographic region. Interleague play would allow for teams in the same area, but different leagues, to play each other. This would likely generate fan interest in cities with two teams, such as New York and Chicago, but the bigger question is whether interleague play would interest the fans of teams without natural interleague rivals. The unbalanced schedule was intended to increase attendance by scheduling more games against division rivals. Attendance might increase for these games, regardless of record, because fans know more about the players and the history of these common opponents. If fans grow tired of seeing the same teams all the time, this policy could have the reverse effect.

A demand regression was specified for game-to-game attendance in Major League Baseball. A variety of explanatory variables are included to account for a large number of factors that have an impact on the attendance for any given game. The results are as expected for most variables. Weekend days, summer months, runs scored, income per capita, and team payroll all had positive impacts on attendance.

Dummy variables are included in the regression for interleague games and for divisional games. Regressions were run for all of Major League Baseball and for the American League and National League

individually. For all of baseball, these variables are found to be insignificant, which suggests that the cost-reductions of these policies may be enough to justify them. Upon examination of the individual leagues, however, what is driving the impact on attendance becomes much clearer.

In the National League, interleague games have a large positive and significant effect, while divisional games have a negative, but insignificant, effect. In the American League, divisional games have a positive effect and interleague games have a negative impact on attendance, although both are insignificant.

The common element to the positive effect on attendance for interleague games in the NL and divisional games in the AL is the New York Yankees. Going into the 2001 season, the Yankees had won three of the four previous World Series championships, led in merchandise sales, and had fans all around the country. The regressions were run again, this time separating the Yankees games from the non-Yankees games for interleague games in the National League and divisional games in the American League. In both instances, attendance increases are found to be positive and significant for Yankees games and insignificant for the other games. Interleague play with the Yankees led NL teams to see an increase in attendance of over 17,000 fans, while divisional games for the AL East teams against the Yankees led to over 6,000 more fans. It appears the change in scheduling did not create an increase in demand for major league baseball in 2001, but having the Yankees as your opponent did lead to increased attendance and revenues.

ENDNOTES

1. Models were specified with both win percentage and RFPG and RAPG and also win percentage by itself. The main conclusions of this paper remain the same under these specifications as the levels of significance of the variables of interest do not change and the coefficients change only slightly under any of these specifications. To view these results, please contact the authors.

2. The model was also run assuming that price is endogenous in the system. A seemingly unrelated regression model in the form of Jones, Ferguson, and Stewart (1988) was run for baseball. The results are similar to the results found here for all of the independent variables.

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