

## 1988 Graphics Section Poster Session

### Displaying Analysis of Baseball Salaries

The Statistical Graphics Section of the American Statistical Association is sponsoring a special poster session titled "Why They Make What They Make An Analysis of Major League Baseball Salaries." The session will be held in August 1988 at the meetings in New Orleans and is intended to allow members to compare techniques for analyzing and displaying data. The session provides a forum for both old and new graphical techniques to describe and summarize the data.

The results of each analysis will be displayed during the poster session. Each participant will be given a space to display his/her results and other conference attendees will be encouraged to discuss them with you. There will not be any formal discussion or comparison of results. Rather, the opportunity is provided for informal comparison among ourselves.

Since this session is treated as an organized contributed paper session, you must submit a contributed paper abstract to the ASA office. The abstract must be postmarked not later than February 15, 1988 AND identified as a contribution to the special Statistical Graphics Exposition. The forms can be found in future issues of AMSTAT News. The abstract can be very general. A sample which will suffice is provided below. Variations might include the software, hardware and techniques you plan to use. You have until August to work on the analysis. After the meetings you will be given an opportunity to include a short paper describing your analysis in the 1988 Proceedings of the Statistical Graphics Section.

#### SAMPLE ABSTRACT

##### Analysis of Baseball Salary Data \*

This analysis describes and summarizes the relationships between 1987 salaries of major league baseball players and the player's performance. We use graphical methods to show relationships between a player's salary to his 1986 and career performance statistics and the player's team.

\*Contribution to special Statistical Graphics Exposition

September 2, 1987

## Description of the 1988 Graphics Section Data Set

The data consist of three files consisting of data on the regular and leading substitute hitters in 1986, the regular pitchers in 1986 and the team statistics. The salary data were taken from Sports Illustrated, April 20, 1987. The salary of any player not included in that article is listed as an NA. The 1986 and career statistics were taken from The 1987 Baseball Encyclopedia Update published by Collier Books, Macmillan Publishing Company, New York. The team attendance figures were obtained from the Elias Sports Bureau, personal conversation.

The goal is to use graphical methods to attempt to explain differences in the salaries of major league baseball players and to answer the question "Are players paid according to their performance?".

### The Hitter File

There is one line per hitter. Each data item is separated by a tab character. The variables are

- hitter's name,
- number of times at bat in 1986,
- number of hits in 1986,
- number of home runs in 1986,
- number of runs in 1986,
- number of runs batted in in 1986,
- number of walks in 1986,
- number of years in the major leagues,
- number of times at bat during his career,
- number of hits during his career,
- number of home runs during his career,
- number of runs during his career,
- number of runs batted in during his career,
- number of walks during his career,
- player's league at the end of 1986,
- player's division at the end of 1986,

player's team at the end of 1986,  
player's position(s) in 1986,  
number of put outs in 1986,  
number of assists in 1986,  
number of errors in 1986,  
1987 annual salary on opening day in thousands of dollars,  
player's league at the beginning of 1987,  
player's team at the beginning of 1987.

### **The Pitcher File**

There is one line per pitcher. Each data item is separated by a tab character. The variables are

pitcher's name,  
player's team at the end of in 1986,  
player's league at the end of 1986,  
number of wins in 1986,  
number of losses in 1986,  
earned run average in 1986,  
number of games in 1986,  
number of innings pitched in 1986,  
number of saves in 1986,  
number of years in the major leagues,  
number of wins during his career,  
number of losses during his career,  
earned run average during his career,  
number of games during his career,

number of innings pitched during his career,  
number of saves during his career,  
1987 annual salary on opening day in thousands of dol  
lars,  
player's league at the beginning of 1987,  
player's team at the beginning of 1987.

### **The Team File**

There is one line per team. Each data item is separated by a tab character. The variables are

league,  
division,  
position in final league standings in 1986,  
team,  
number of wins in 1986,  
number of losses in 1986,  
attendance for home games in 1986,  
attendance for away games in 1986,  
1987 average salary.

### **Coding for some of the Variables**

Team Names:

N.Y. New York

Phi. Philadelphia

St.L. St. Louis

Mon. Montreal

Chi. Chicago

Pit. Pittsburgh

Hou. Houston

Cin. Cincinnati

S.F. San Francisco

S.D. San Diego

L.A. Los Angeles

Atl. Atlanta

Bos. Boston

Det. Detroit

Tor. Toronto

Cle. Cleveland

Mil. Milwaukee

Bal. Baltimore

Cal. California

Tex. Texas

K.C. Kansas City

Oak. Oakland

Min. Minnesota

Sea. Seattle

Leagues:

N National

A American

Division:

W West

E East

**Player's position(s):**

If a substitute played 70% of his games at one position, that is the only position listed for him. If he did not play 70% of his games at one position, but played 90% of his games at two positions, he is listed with a combination position, such as "S2" for shortstop and second base, or "CO" for catcher and outfield. If a player failed to meet either the 70% or 90% requirement listed above, he is listed as a utility player ("UT").

1B First Base

2B Second Base

SS Short Stop

3B Third Base

RF Right Field

CF Center Field

LF Left Field

C Catcher

DH Designated Hitter

OF Outfield

UT Utility

OS Outfield and Short Stop

3S Third Base and Short Stop

13 First and Third Base

3O Third Base and Outfield

O1 Outfield and First Base

S3 Short Stop and Third Base

32 Third and Second Base

DO Designated Hitter and Outfield

OD Outfield and Designated Hitter

CD Catcher and Designated Hitter

CS Catcher and Short Stop

23 Second and Third Base

10 First Base and Outfield

2S Second Base and Short Stop