Course 3 - Superstars in Music, Sports, and Entertainment

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Introduction

Rosen [1981] writes:

> Performers of first rank comprise a limited handful out of these small totals and have very large incomes. There are also known to be substantial differences in income between them and those in the second rank, even though most consumers would have difficulty detecting more than minor differences in a "blind" hearing.

What Sherwin Rosen says is that there are very few differences in talents at the very top.

> The elusive quality of "box office appeal," the ability to attract an audience and generate a large volume of transactions, is the issue that must be confronted. Recognition that one's personal market scale is important, in the theory of income distribution has a long history, but the idea has not been developed very extensively in the literature.
>
> Rest assured that prospective impresarios will receive no guidance here on what makes for box office appeal, sometimes said to involve a combination of talent and charisma in uncertain proportions. In the formal model all that is taken for granted and represented by a single factor rather than by two, an index q labeled talent or quality.
>
> Albert Rees is a good introduction to the size distribution of income. The selectivity effects of differential talent and comparative advantage on the skew in income distributions are spelled out in my 1978 article, also see the references there. Melvin Reder's survey touches some of the issues raised here.

Of course social scientists and statisticians have had a long standing fascination with rank-size relationships, as perusal of the many entries in the Encyclopedia of the Social Sciences will attest.

1 Pareto Distributions

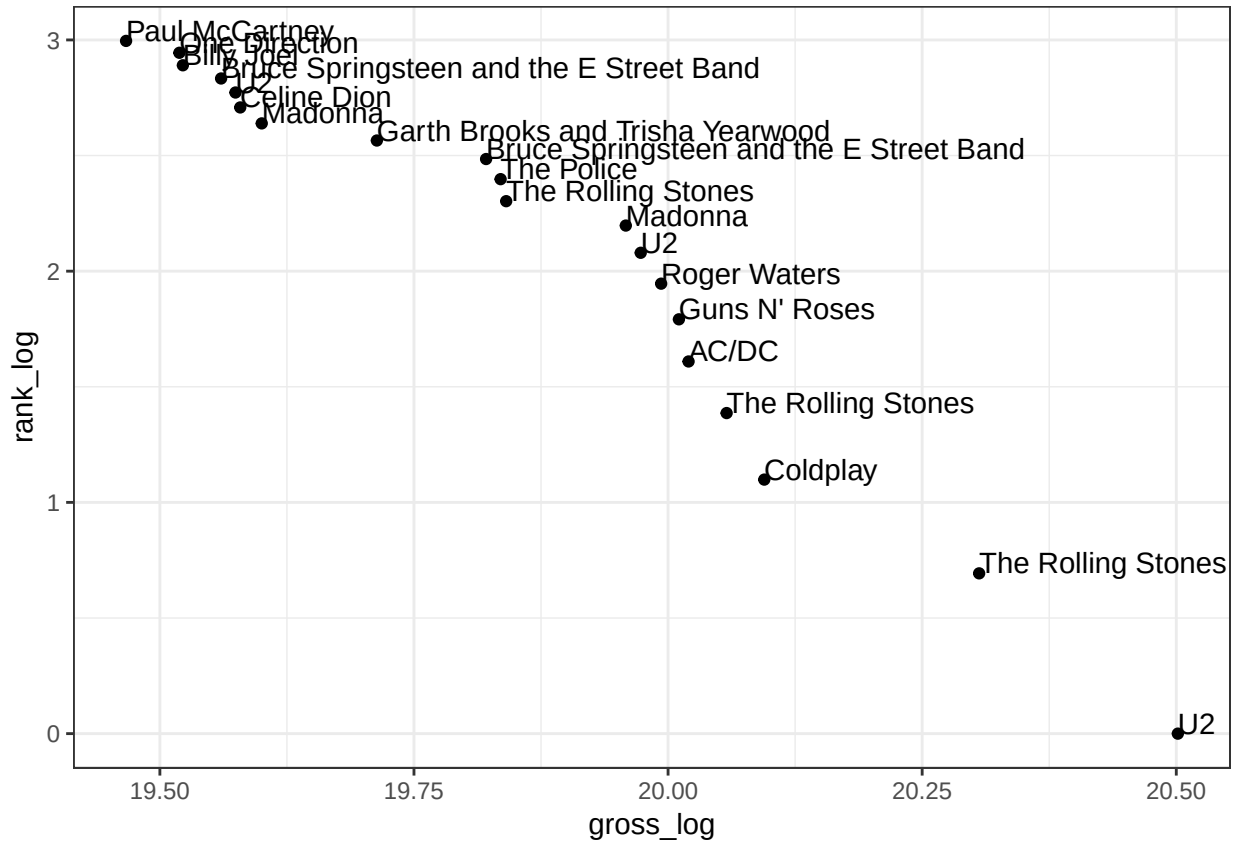
1.1 List of highest grossing concert tours

```
data.tours <- "https://en.wikipedia.org/wiki/List_of_highest-grossing_concert_tours" %>%
  read_html %>%
  html_table(header = TRUE, fill = TRUE)

data.tours[[1]][, c(1, 2, 3, 4)] %>%
  as.tibble
```

```
## # A tibble: 20 x 4
##     Rank `Actual gross` `Gross adjusted for inflat~ Artist
##    <int> <chr>          <chr>                      <chr>
##  1     1 $736,421,584   $801,130,818               U2
##  2     2 $558,255,524   $658,868,741               The Rolling Stones
##  3     3 $523,033,675   $533,331,898               Coldplay
##  4     4 $480,900,000   $490,368,636               Guns N' Roses
##  5     5 $458,673,798   $481,869,587               Roger Waters
##  6     6 $441,121,000   $495,041,025               AC/DC
##  7     7 $408,000,000   $465,399,721               Madonna
##  8     8 $389,047,636   $472,277,371               U2
##  9     9 $364,300,000   $364,300,000               Garth Brooks and Tris~
## 10    10 $362,000,000   $411,460,278               The Police
## 11    11 $355,600,000   $405,627,796               Bruce Springsteen and~
## 12    12 $320,000,000   $513,928,805               The Rolling Stones
## 13    13 $316,990,940   $316,990,940               U2
## 14    14 $311,000,000   $413,729,016               The Rolling Stones
## 15    15 $306,500,000   $312,534,803               Bruce Springsteen and~
## 16    16 $305,158,363   $325,284,041               Madonna
## 17    17 $301,000,000   $301,000,000               Billy Joel
## 18    18 $290,178,452   $299,967,998               One Direction
## 19    19 $279,200,000   $318,479,417               Celine Dion
## 20    20 $275,700,000   $284,640,994               Paul McCartney
```

```
data.tours[[1]][, c(1, 2, 3, 4)] %>%
  as.tibble %>%
  select(gross = "Gross adjusted for inflation(2018 $)", "Artist") %>%
  mutate(gross = gross %>% substr(2, 13) %>% gsub(",", "", .) %>% as.numeric) %>%
  arrange(-gross) %>%
  mutate(rank = 1:n()) %>%
  mutate(rank_log = log(rank),
         gross_log =log(gross)) %>%
  ggplot(aes(x = gross_log, y = rank_log, label = Artist)) + geom_point() + theme_bw() +
  geom_text(aes(label = Artist), hjust = 0, vjust = 0)
```



2 Data on the number of downloads on the Apple Store?

3 Data on the Number of listens on Spotify?

4 Highest Grossing tours

4.1 Data

More and more music revenue for highest grossing tours?

5 Plot

5.1 Salaries at the University of California (UC)

https://raw.githubusercontent.com/raleighlittles/UC-Employee-Salaries/master/UCOP%20Database_2017.txt

These salaries are public

```
ucop.2015 <- read.csv("https://raw.githubusercontent.com/raleighlittles/UC-Employee-Salaries/master/UCO
```

6 Market for Executive Officers in large firms

Again, from Sherwin Rosen:

> Such considerations are important for understanding the market for executive officers in large firms. Unusually good information on executive compensation is available from public proxy statements circulated to stockholders by requirement of the Securities and Exchange Commission. Examination of these statements is instructive. They reveal Superstar-scale rewards that are highly concentrated among the top half-dozen executives in these firms. More detailed study indicates that the top incomes vary systematically with the size of the organization. Large firms pay executives more than smaller firms do. Even the occasional, well-publicized dollar-a-year man falls in line once stock options, pensions, and other forms of deferred compensation are properly accounted. The value to the organization of good top-level decisions and avoidance of bad decisions is abundantly clear once the nature of control of resources on such a vast scale is considered.
>
> Common use of the term Officer for corporate executives Suggests certain parallels with the military. A good or bad decision by a platoon leader does not have much effect on the overall fortunes of war, but the same cannot be said of decisions made by the chief strategists. The value of extra talent is much larger at the top of the organizational hierarchy than at the bottom because those decisions percolate through the enterprise, and they have much further to travel in a larger enterprise than in a smaller one.

7 Ed Sheeran's advice

On Charlie Rose:

https://www.youtube.com/watch?v=DIJs8091ipY

References

Sherwin Rosen. The Economics of Superstars. *The American Economic Review*, 71(5):845–858, 1981. ISSN 0002-8282. URL http://www.jstor.org/stable/1803469.