

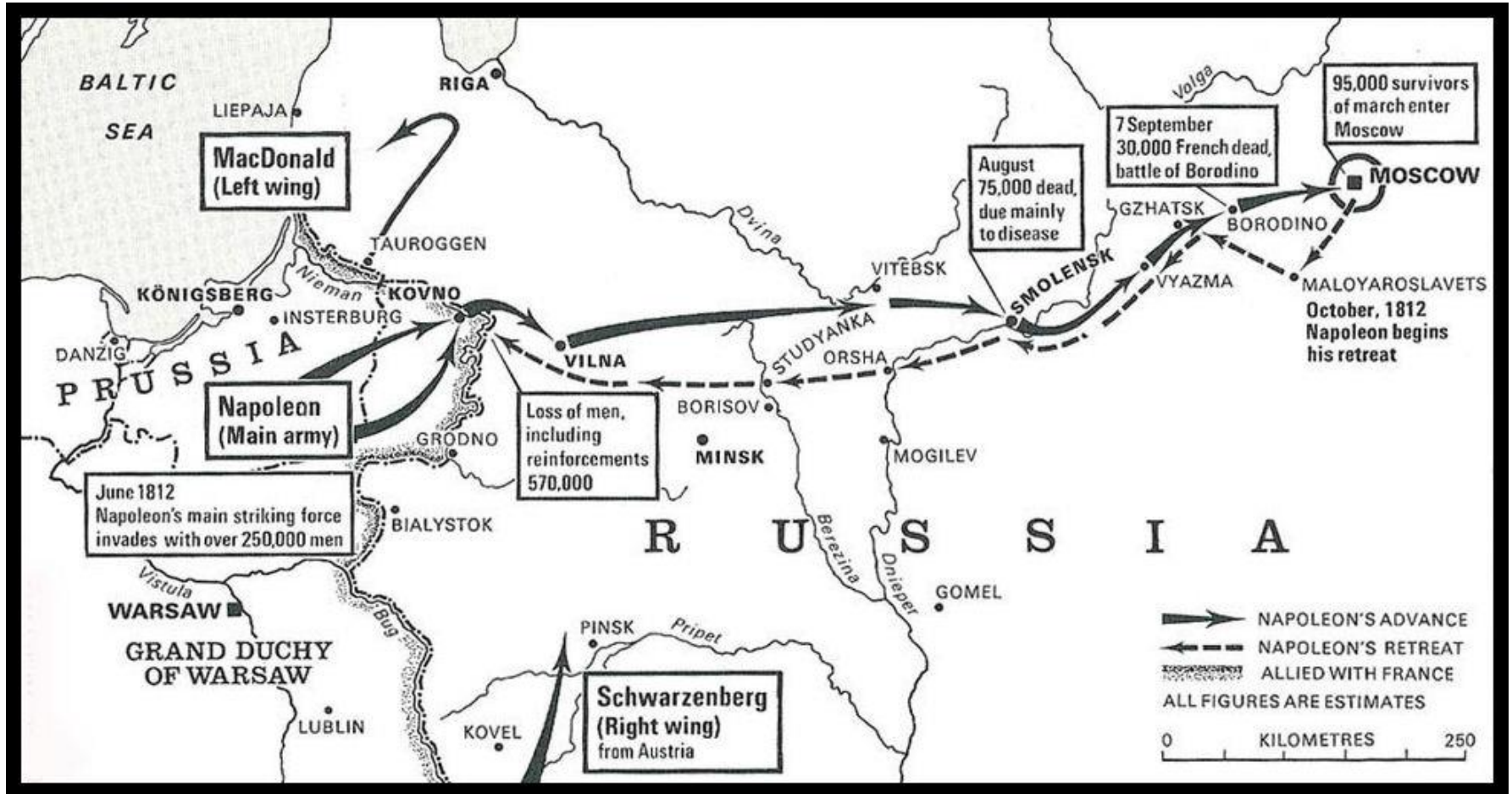
1.4 통계 자료를 이용한 예시

- 1) Napoleon Army's Russian Invasion in 1812
- 2) 야구통계: MLB 심판진의 인종편견
- 3) 실시간 선거개표: 2012년 한국 대통령 선거

1) Napoleon Army's Russian Invasion in 1812

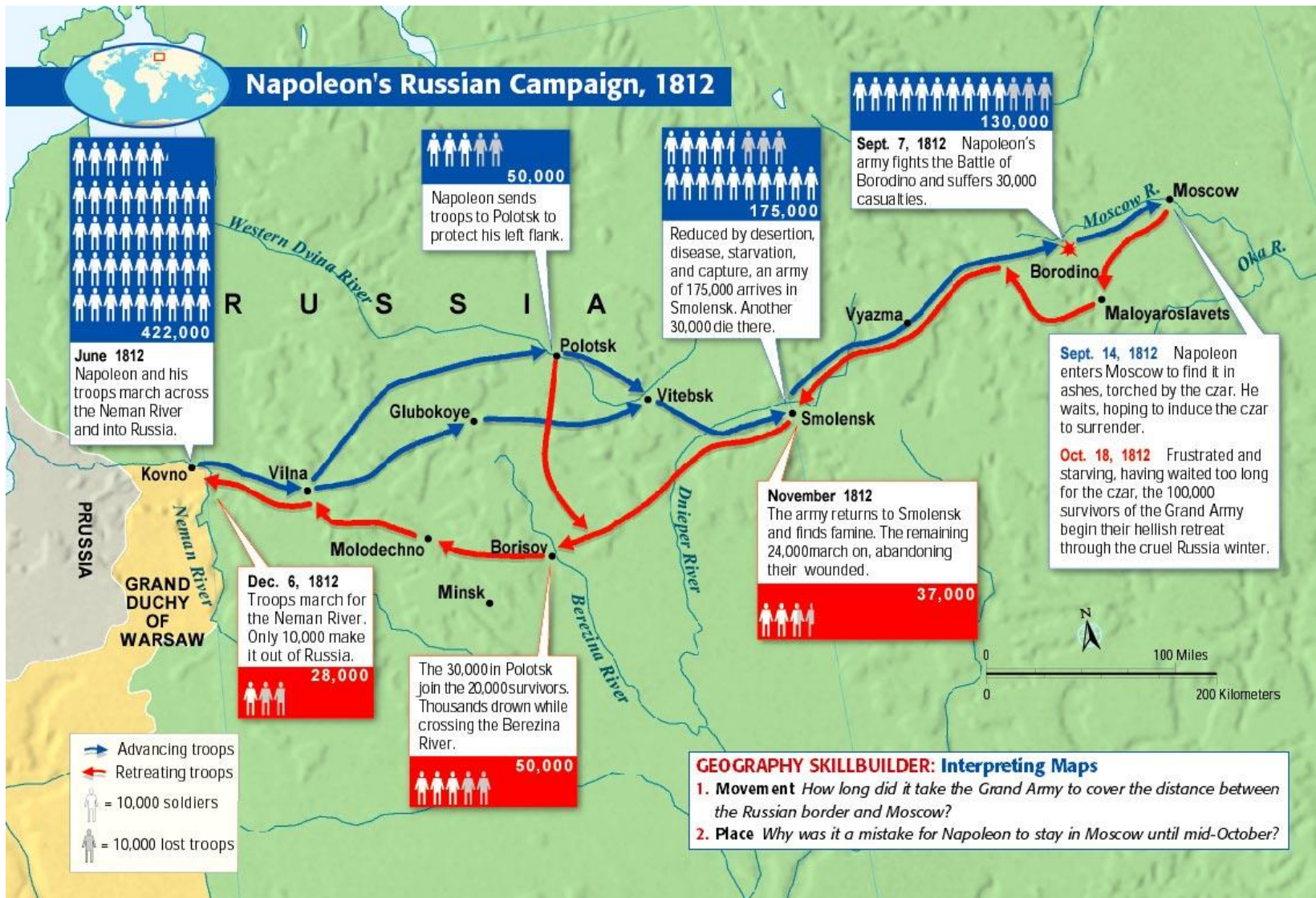


1) Napoleon Army's Russian Invasion in 1812



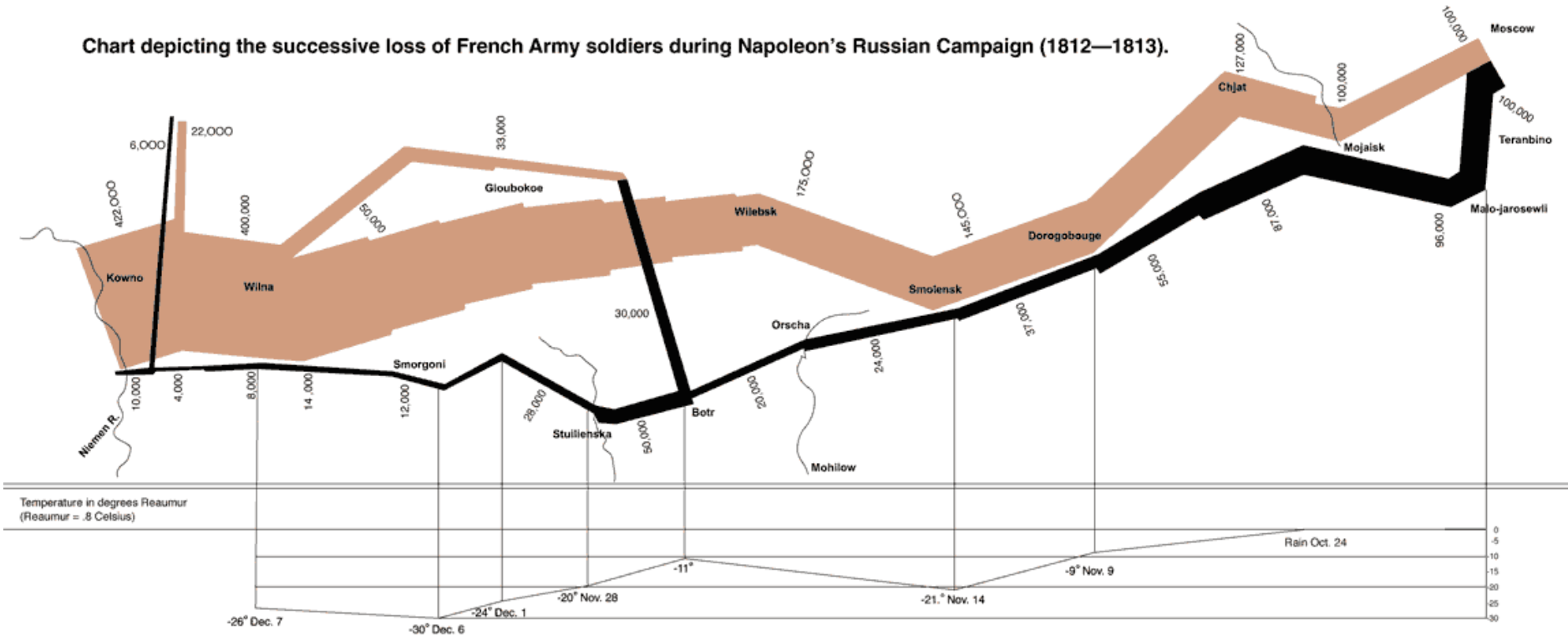
The armies of Napoleon Bonaparte concentrated where it is
<http://mathiasimon1829.blogspot.kr/2013/03/simon-nas-americas.html>

1) Napoleon Army's Russian Invasion in 1812



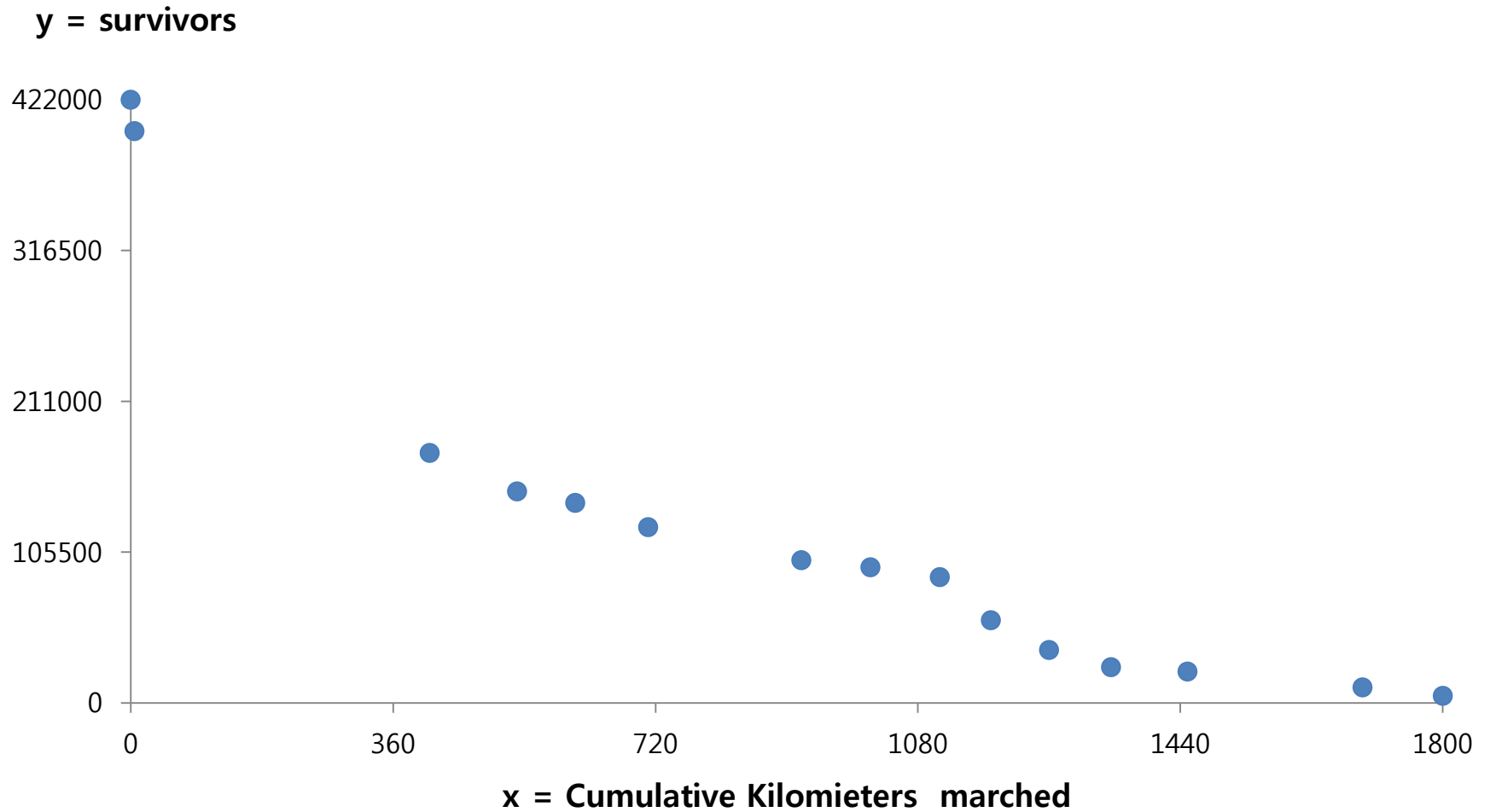
1) Napoleon Army's Russian Invasion in 1812

Chart depicting the successive loss of French Army soldiers during Napoleon's Russian Campaign (1812—1813).



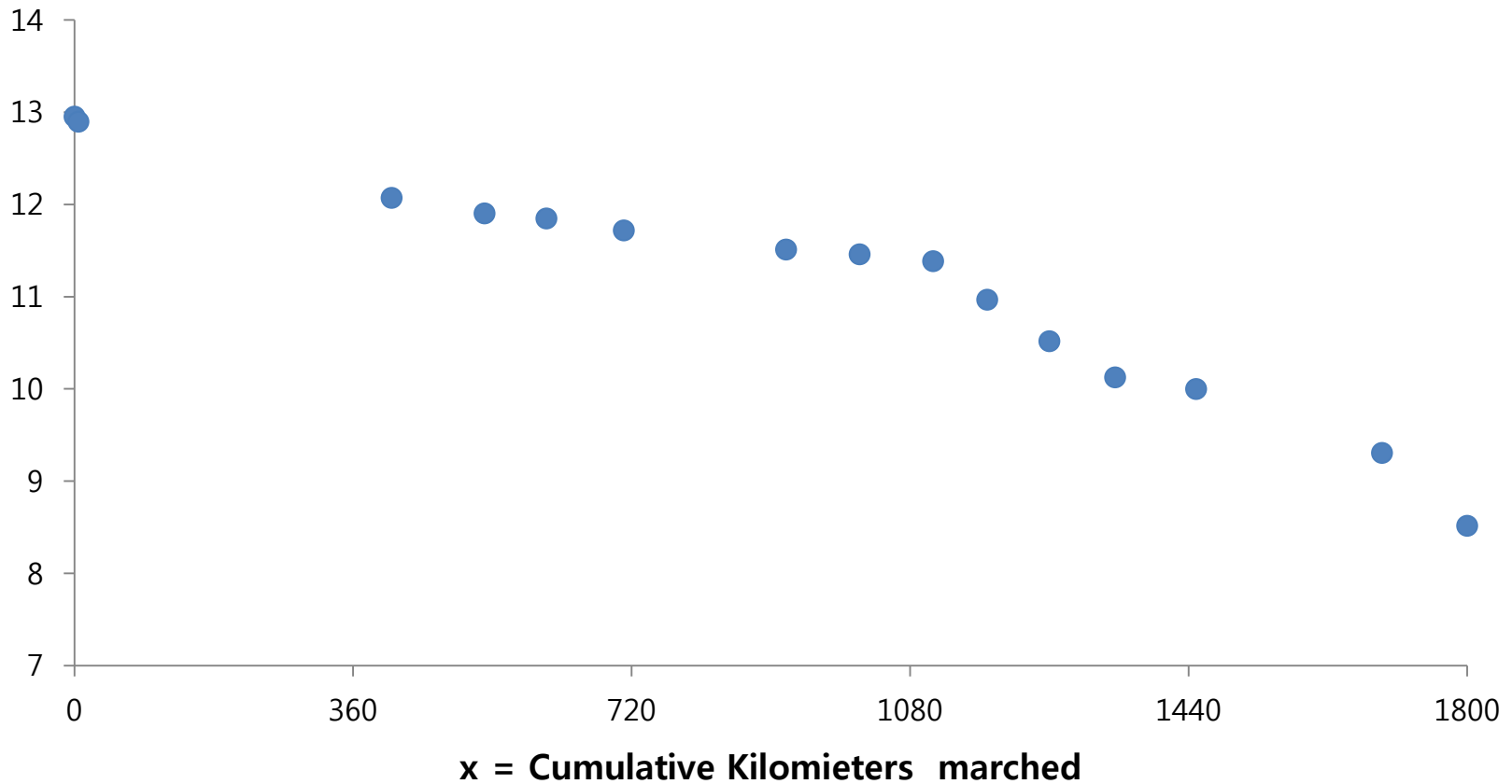
Russian Winter(Napoleon Army's Russian Invasion in 1812).
https://en.wikipedia.org/wiki/Russian_Winter

1) Napoleon Army's Russian Invasion in 1812



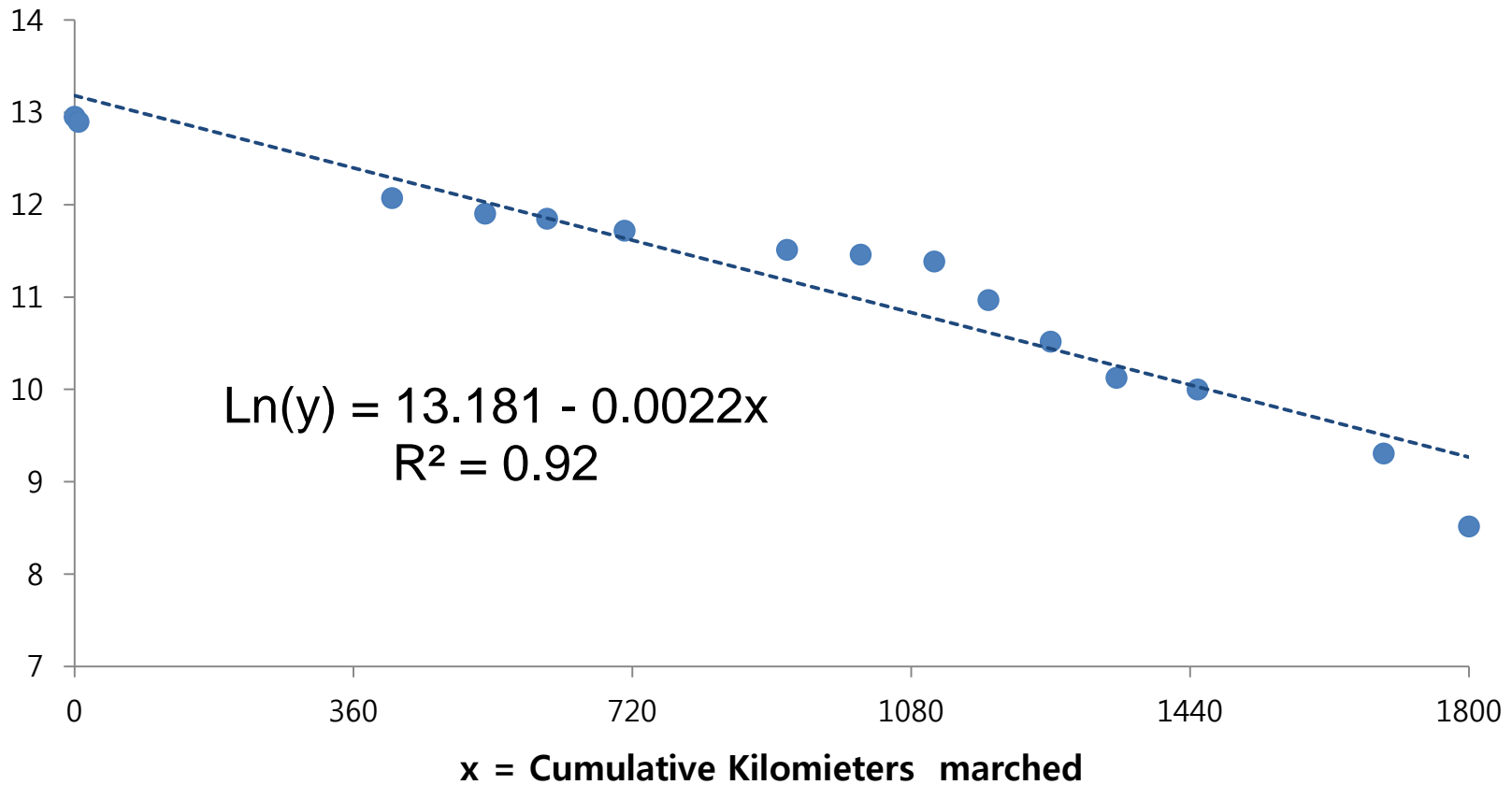
1) Napoleon Army's Russian Invasion in 1812

$y = \ln(\text{survivors})$

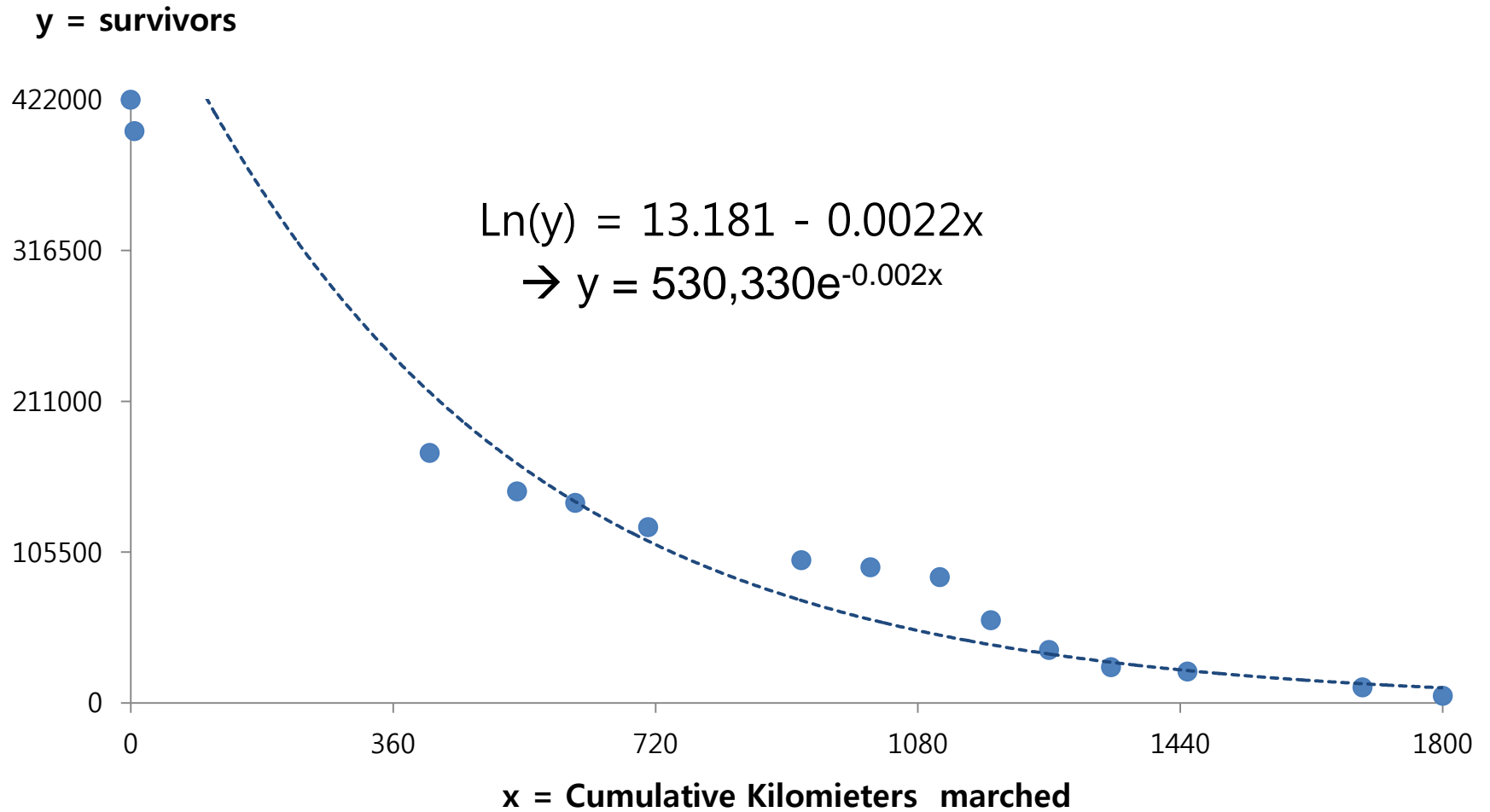


1) Napoleon Army's Russian Invasion in 1812

$y = \ln(\text{survivors})$

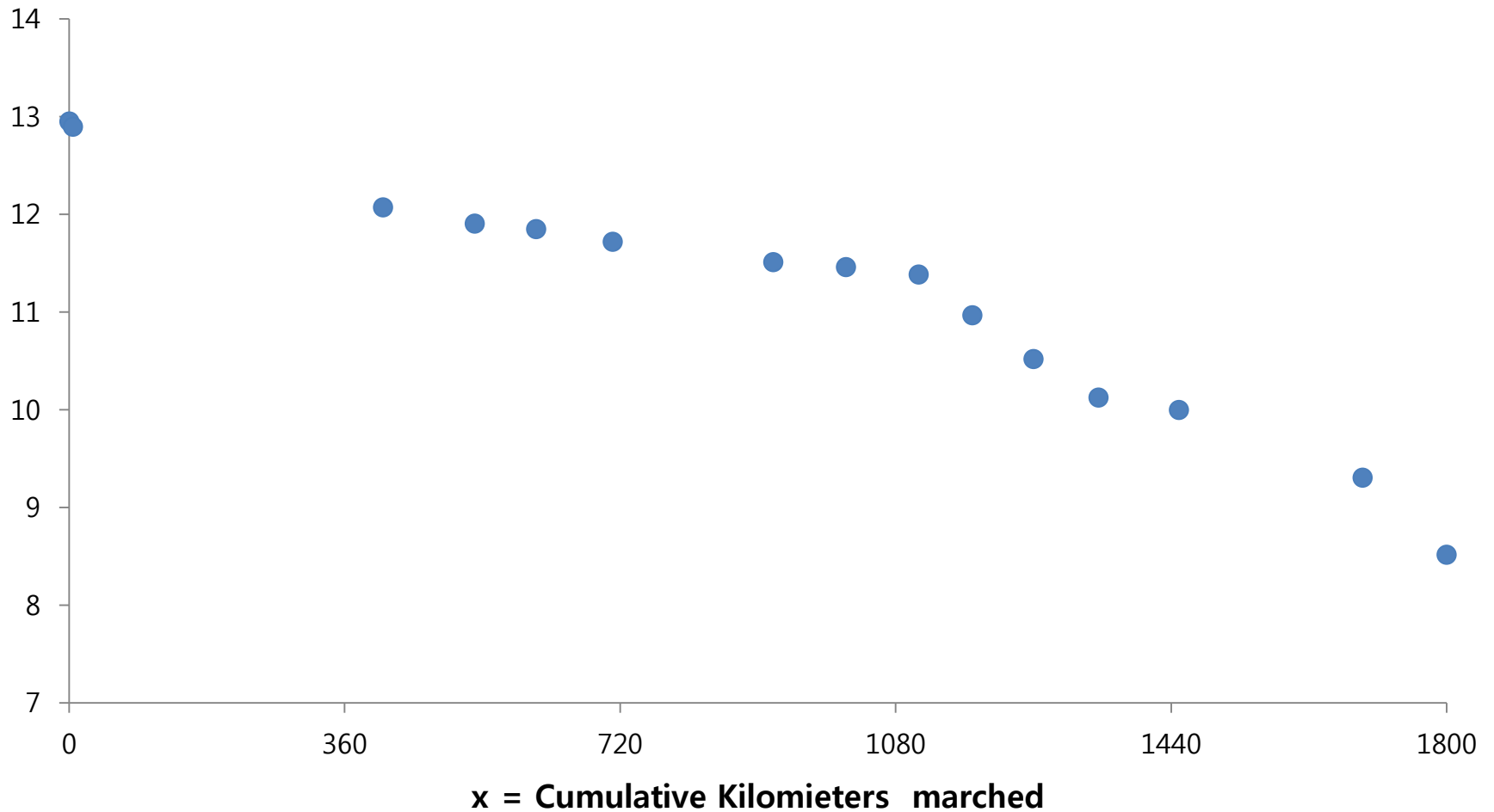


1) Napoleon Army's Russian Invasion in 1812



1) Napoleon Army's Russian Invasion in 1812

$y = \ln(\text{survivors})$

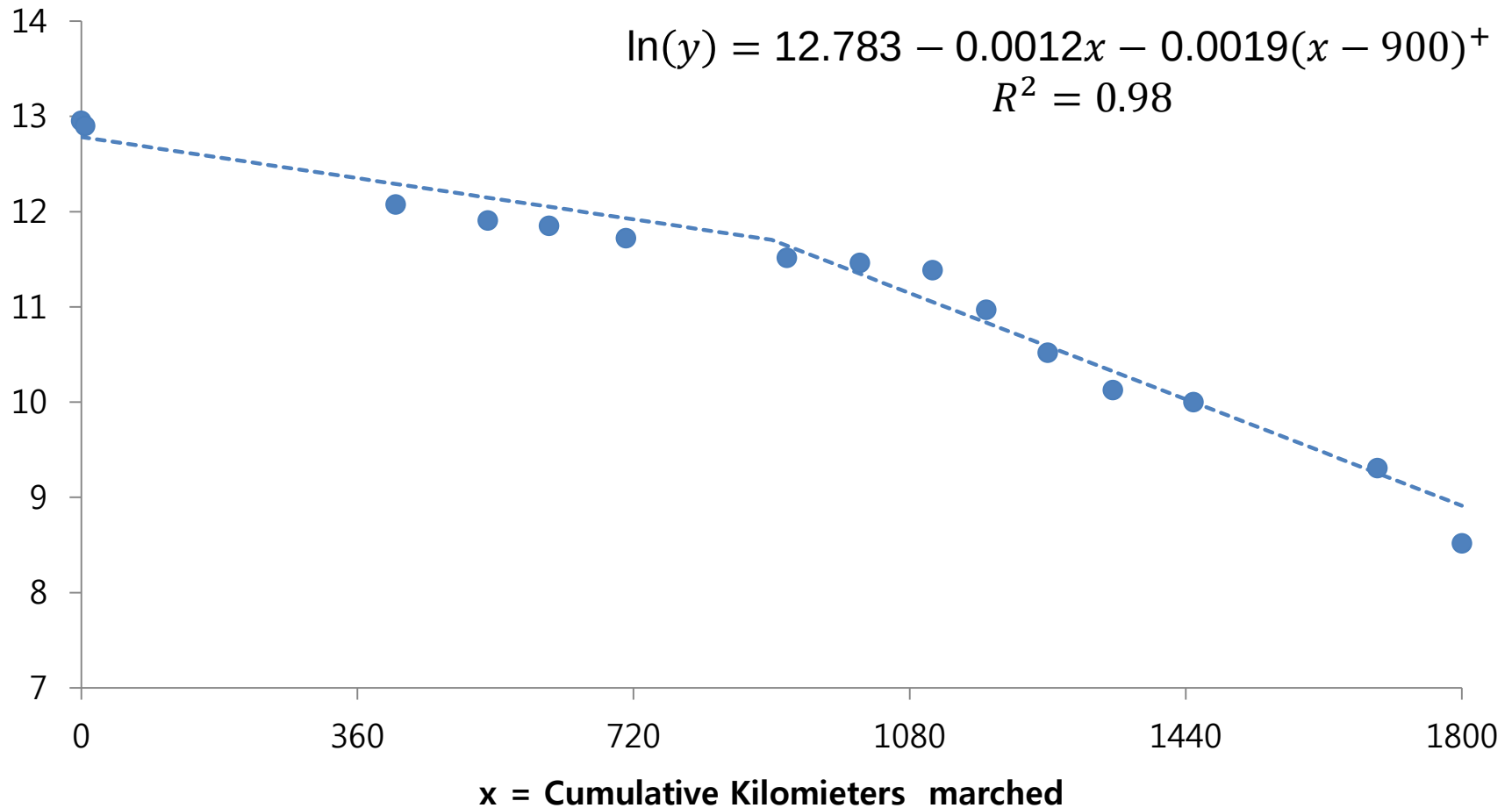


1) Napoleon Army's Russian Invasion in 1812

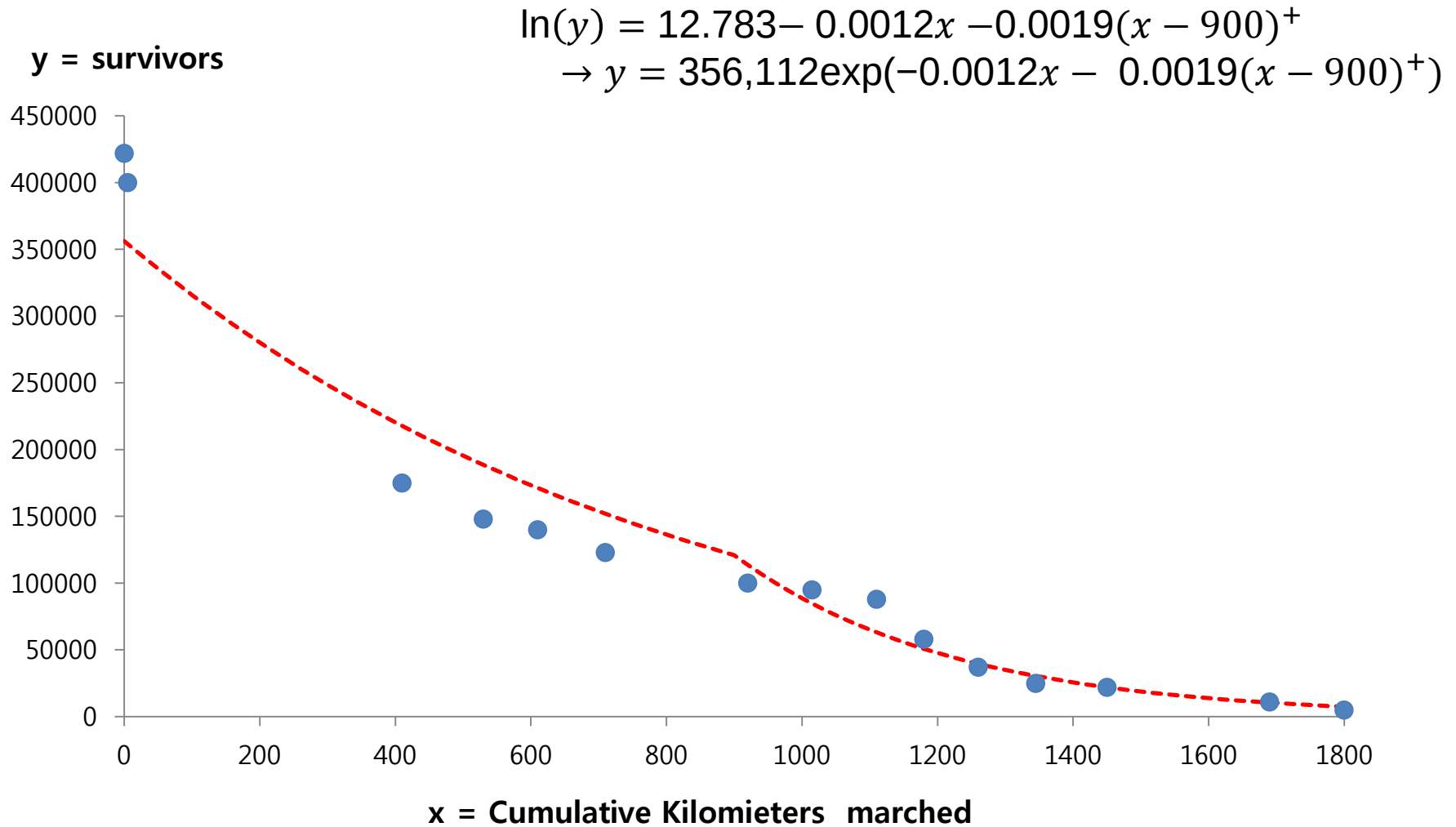
$y = \ln(\text{survivors})$

Linear spline regression of $\ln(y)$:

$$\ln(y) = 12.783 - 0.0012x - 0.0019(x - 900)^+ \\ R^2 = 0.98$$



1) Napoleon Army's Russian Invasion in 1812



1) Napoleon Army's Russian Invasion in 1812



트렌턴 전투, 1975년 작, 찰스 맥배런

https://ko.wikipedia.org/wiki/%ED%8A%B8%EB%A0%8C%ED%84%B4_%EC%A0%84%ED%88%AC

1) Napoleon Army's Russian Invasion in 1812



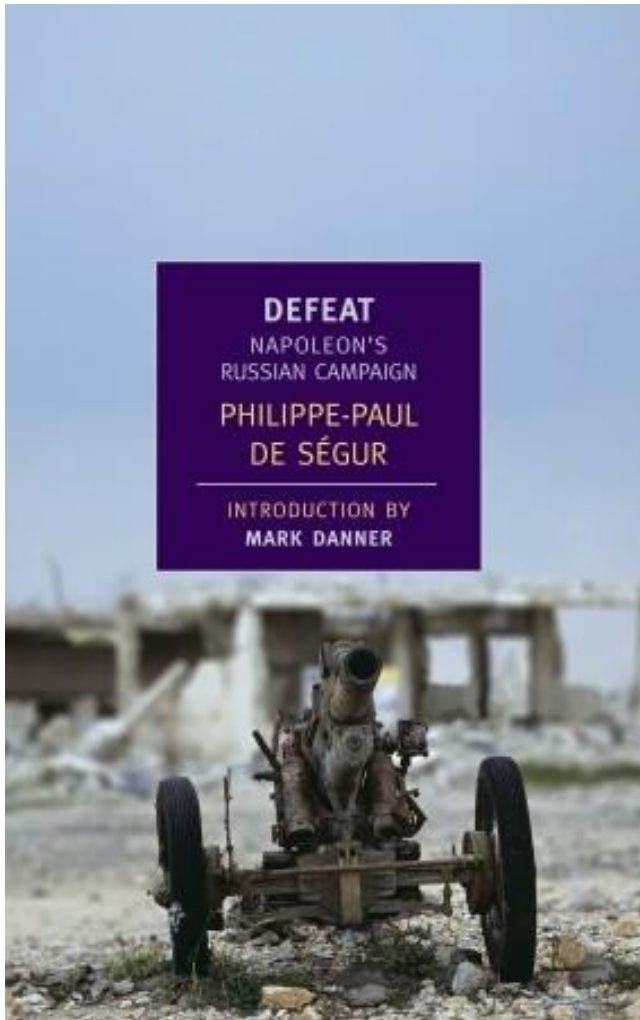
Retreat from Russia scene iii
<https://napoleon1812.wordpress.com/>

1) Napoleon Army's Russian Invasion in 1812



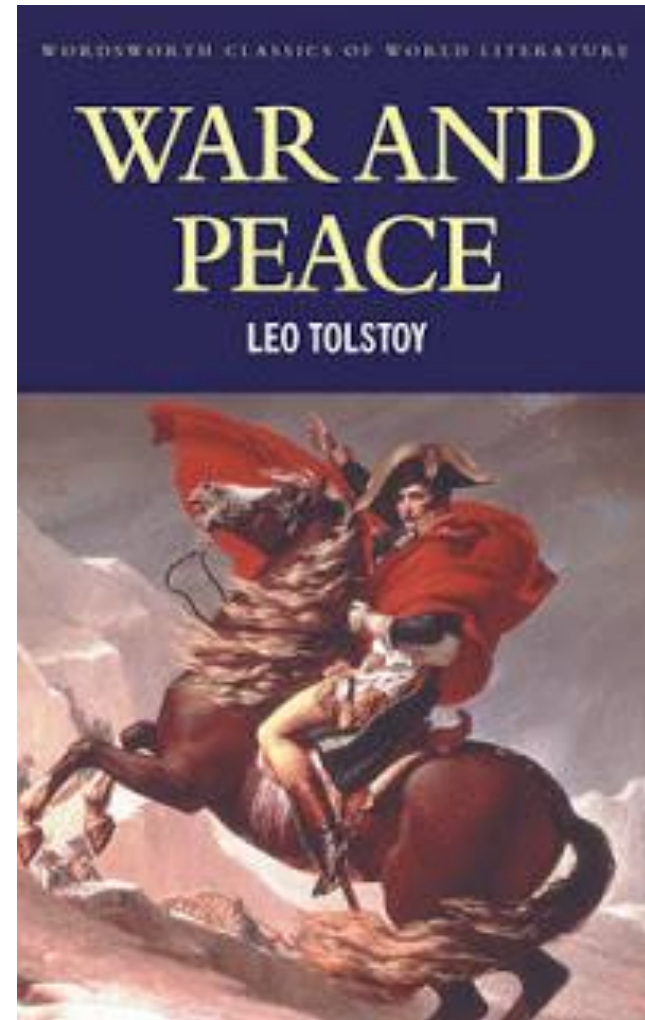
Napoleon In Russia 2
<http://www.alamy.com/stock-photo/napoleon-russia-1812.html>

1) Napoleon Army's Russian Invasion in 1812



Defeat

<http://www.nyrb.com/products/defeat?variant=1094929449>



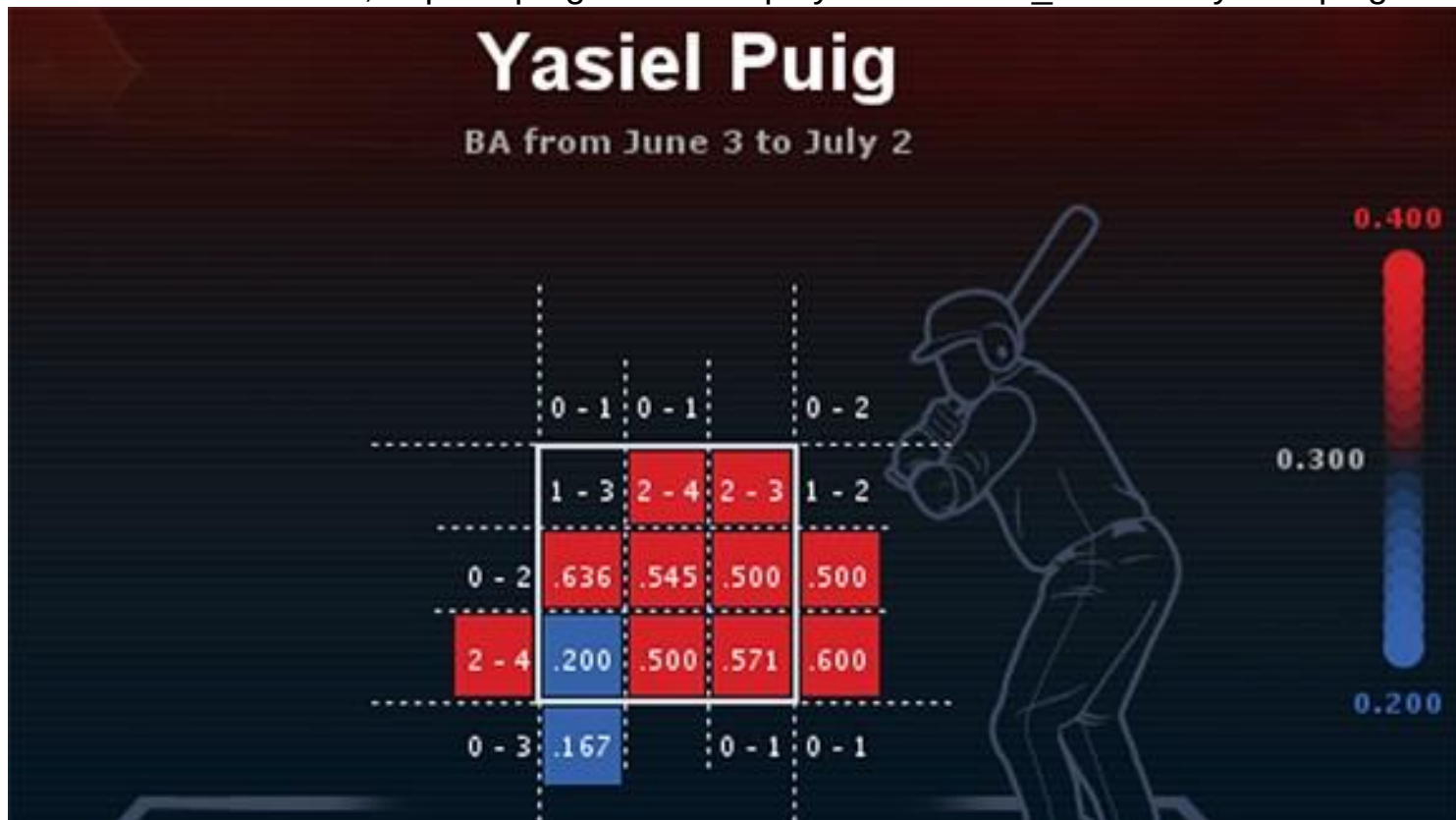
WAR AND PEACE

<http://www.abebooks.co.uk/9781840225556/Peace-Wordsworth-Classics-World-Literature-1840225556/plp>

5. 야구 통계: Y. Puig 2013, LA Dodgers

The Explosive Start: June 3–July 2 (27 경기: 타율=.443, 출루율=.473)

출처 : ESPN, http://espn.go.com/mlb/player/hotzones/_/id/32574/yasiel-puig

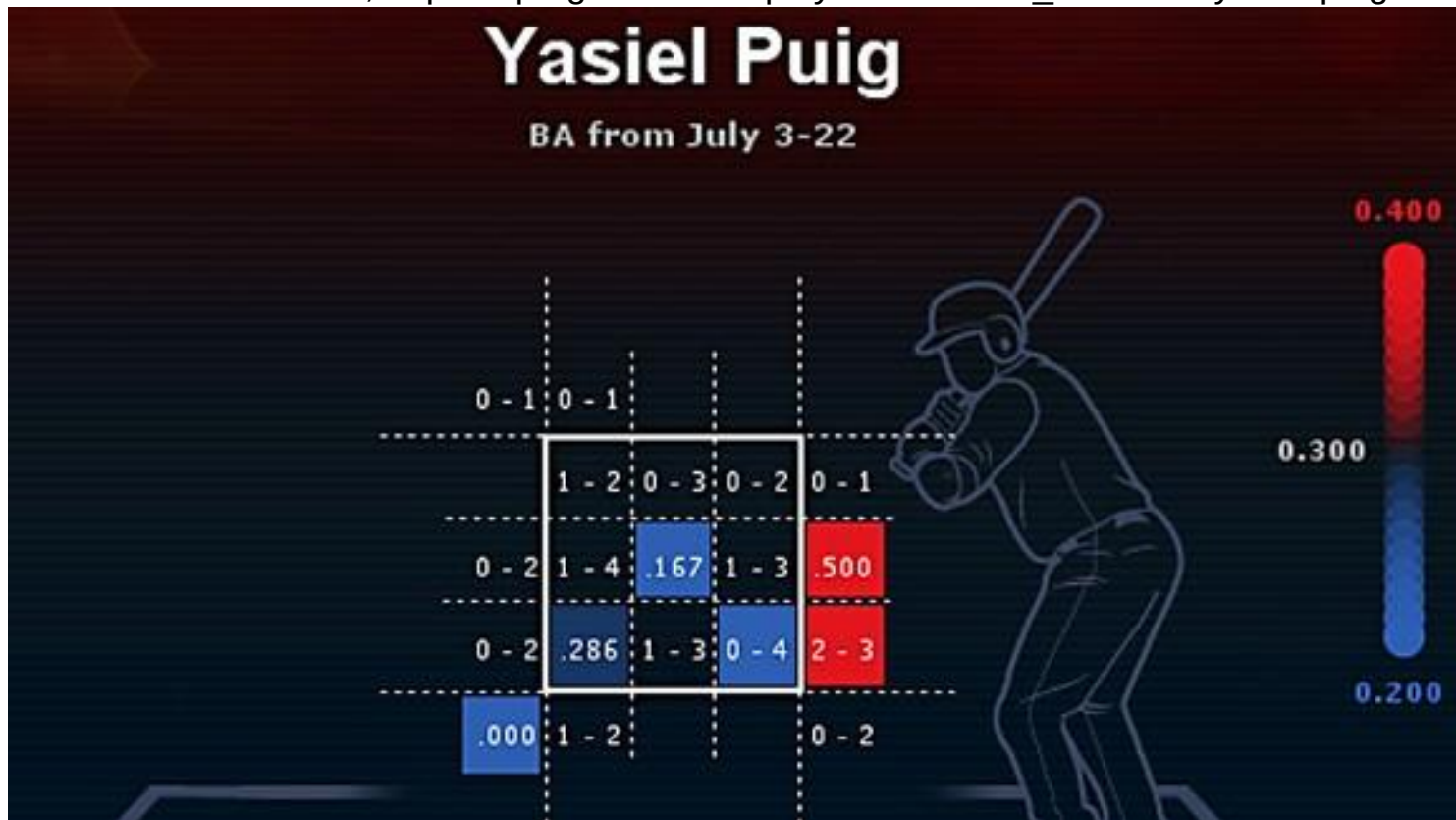


*타율=H/AB, 출루율=(H+BB+HBP)/(AB+BB+HBP+SF)

5. 야구 통계: Y. Puig 2013, LA Dodgers

The Slump: July 3–July 22 (15 경기: 타율=.220, 출루율=.266)

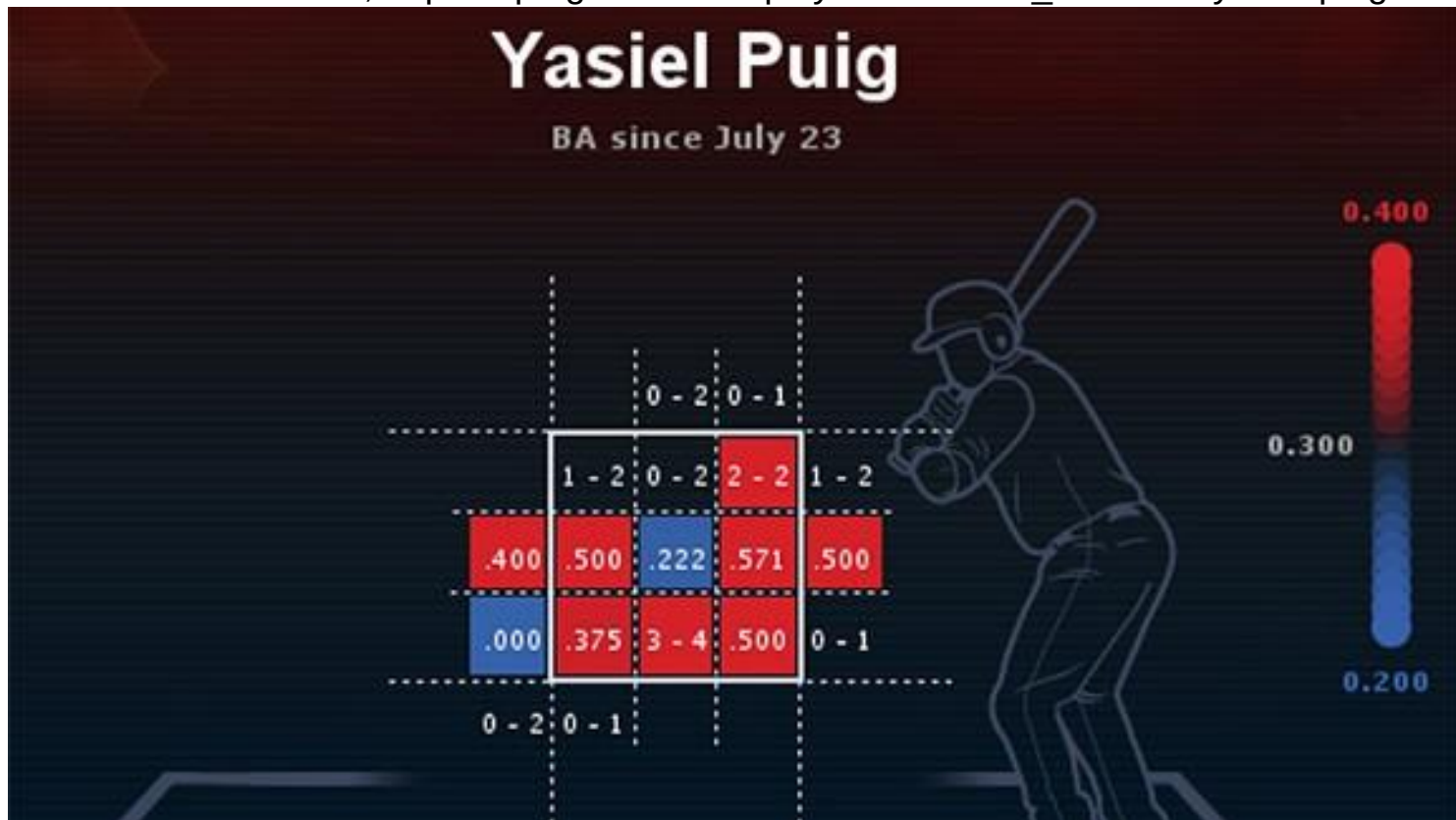
출처 : ESPN, http://espn.go.com/mlb/player/hotzones/_/id/32574/yasiel-puig



5. 야구 통계: Y. Puig 2013, LA Dodgers

The Adjustments: July 23~Aug. 18 (21 경기: 타율=.377, 출루율=.490)

출처 : ESPN, http://espn.go.com/mlb/player/hotzones/_/id/32574/yasiel-puig



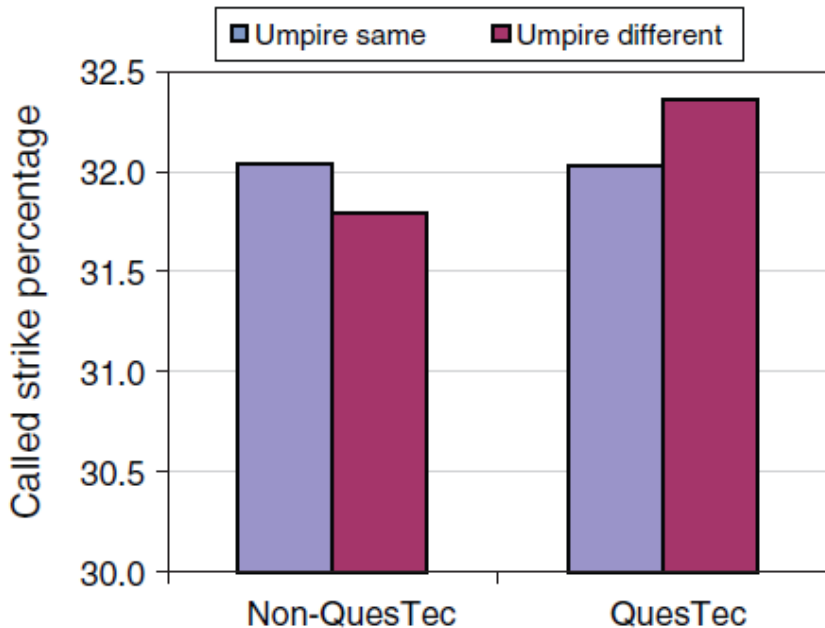
2) 야구통계: MLB 심판진의 인종편견

Discrimination in Baseball: MLB Umpires, Racial Bias and Calling Strikes

- C. Parsons, J. Sulaeman, M. Yates, and D. Hamermesh (2011), “Strike Three: Discrimination, Incentives, and Evaluation,” *American Economic Review*, 101, 1410–1435
- Monitoring:
 1. QuesTec, a computerized monitoring system intended to evaluate the accuracy and consistency of home-plate umpires’ judgments. From 2004–2008, QuesTec had been installed in 11 of MLB’s 30 ballparks (see Fig 1 A, B)
 2. Attendance (see Fig 2 A, B)

2) 야구통계: MLB 심판진의 인종편견

A. White pitchers



B. Minority pitchers

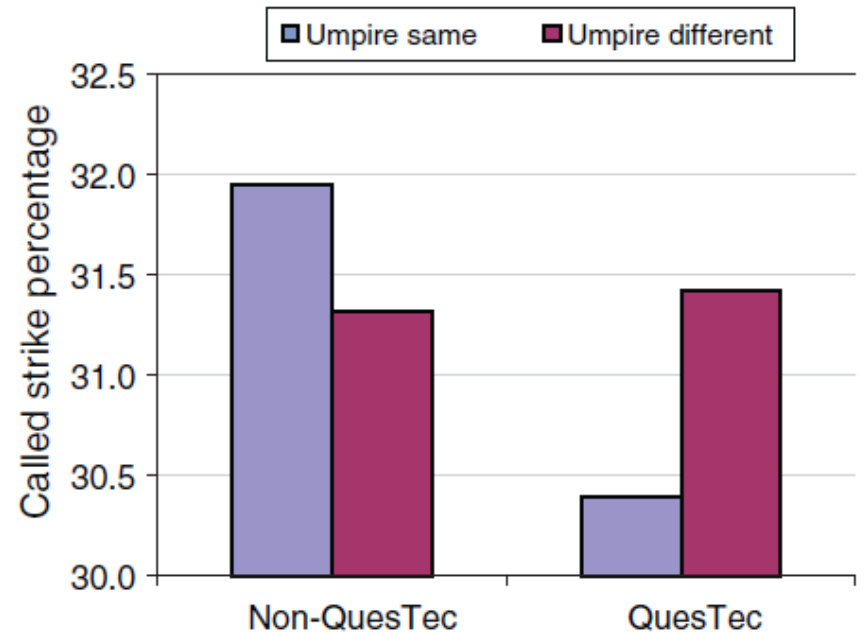
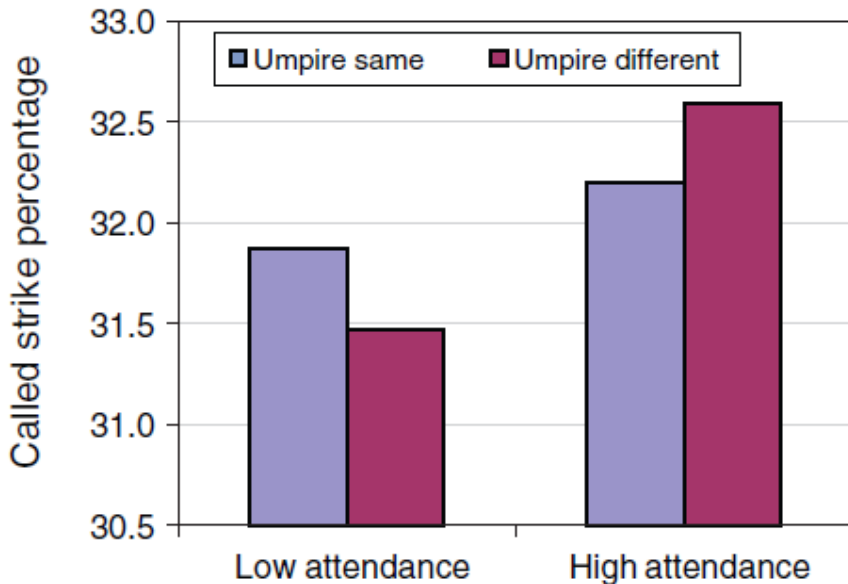


FIGURE 1. RACE AND CALLED STRIKE PERCENTAGES IN QUESTEC AND NON-QUESTEC BALLPARKS

출처 : C. Parsons, J. Sulaeman, M. Yates, and D. Hamermesh(2011), "Strike Three: Discrimination, Incentives, and Evaluation," American Economic Review, 101, 1410–1435

2) 야구통계: MLB 심판진의 인종편견

A. White pitchers



B. Minority pitchers

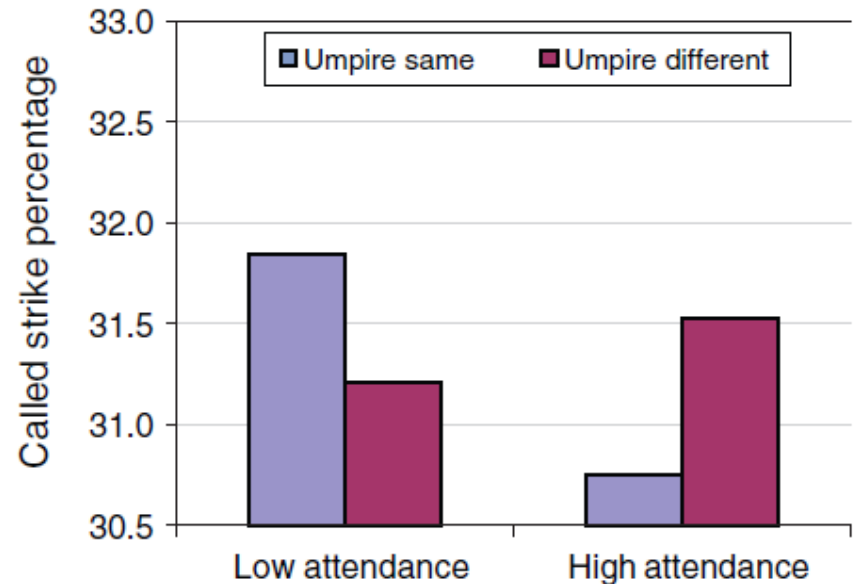
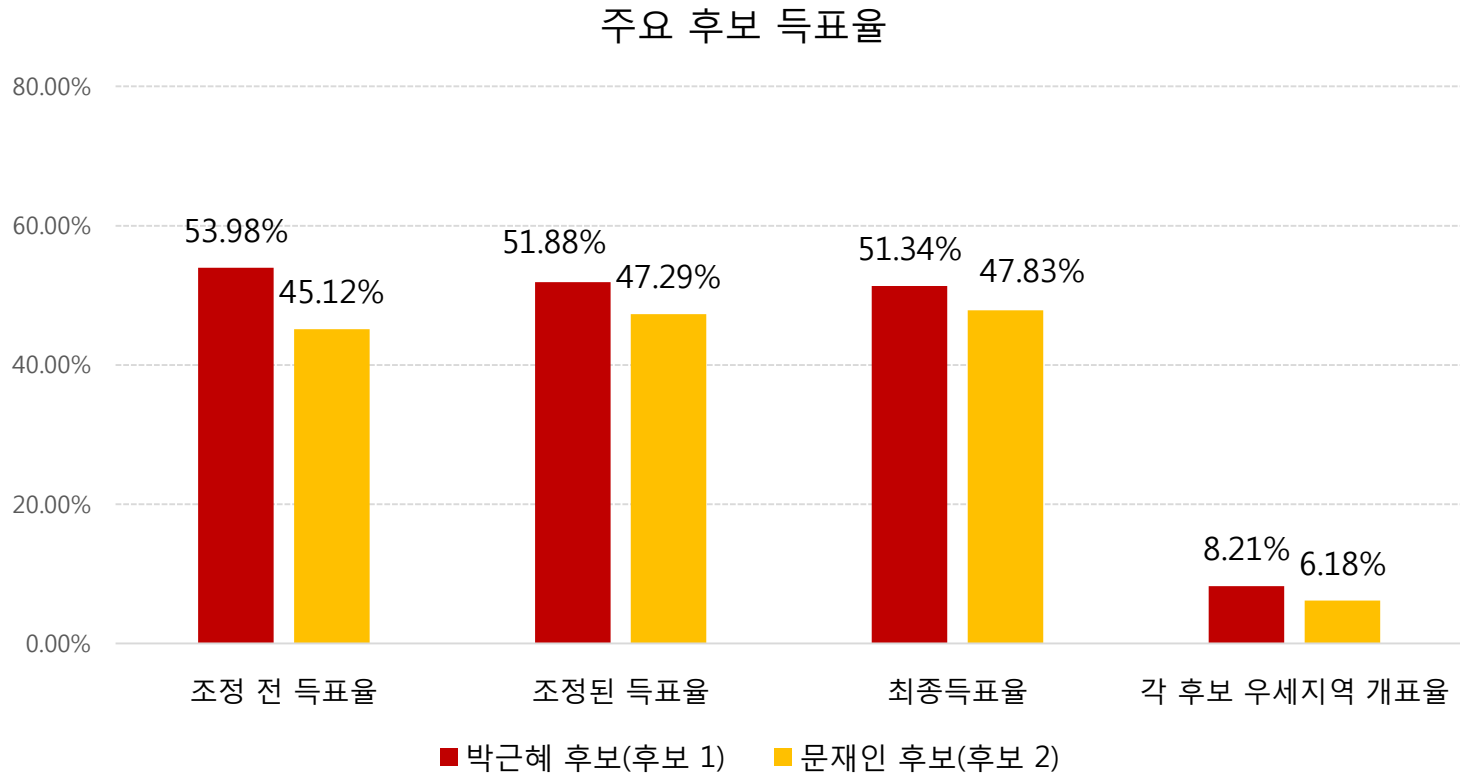


FIGURE 2. RACE AND CALLED STRIKE PERCENTAGES BY GAME ATTENDANCE

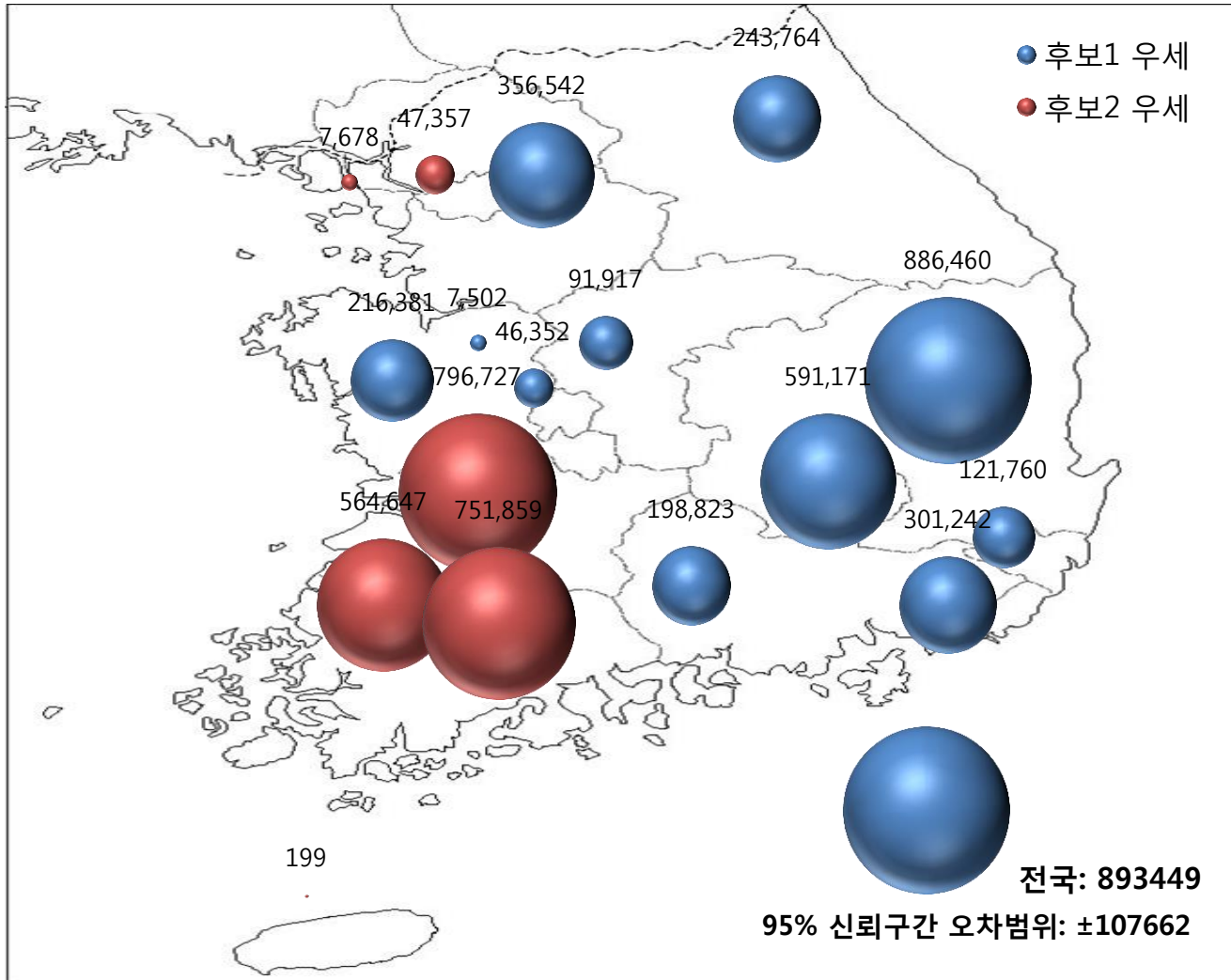
Note: Low (high) attendance games are those with percentage attendance below (above) the median.

출처 : C. Parsons, J. Sulaeman, M. Yates, and D. Hamermesh(2011), "Strike Three: Discrimination, Incentives, and Evaluation," American Economic Review, 101, 1410–1435

3) 선거개표: 2012년 한국 대선 오후 7:50



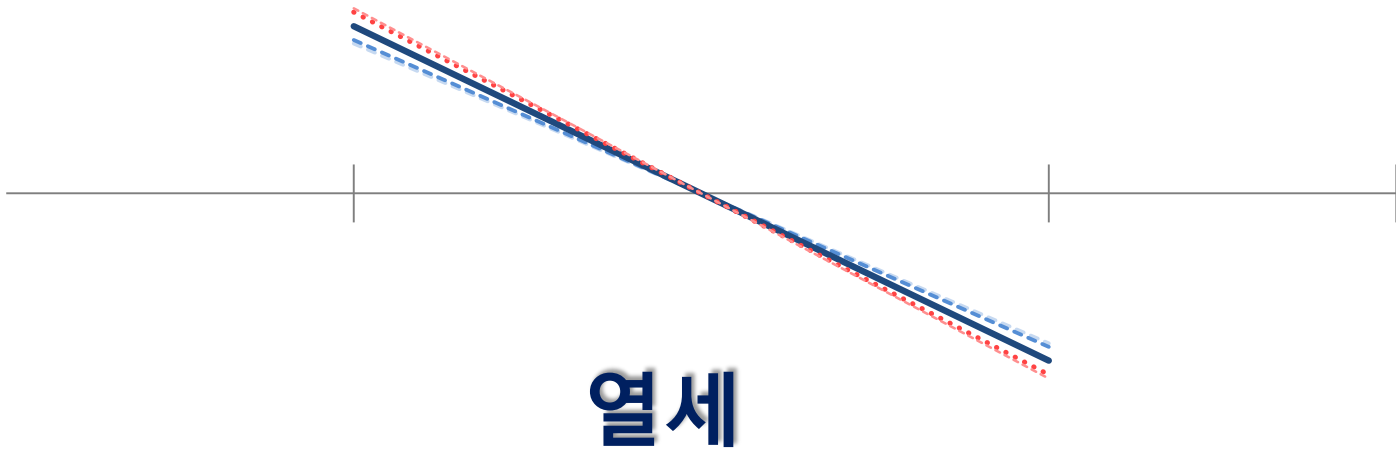
3) 선거개표: 2012년 한국 대선 오후 7:50



3) 선거개표: 2012년 한국 대선 오후 7:50

박근혜(후보 1)

우세



문재인(후보 2)