Making Policy with Data
An Introductory Course on Policy Evaluation

Policy Briefing

Instructor: Prof Yiqing Xu
May 16

Materials from Josh Angrist's MIT Course 14.387

Volunteer for America!

Volunteer for America!

- The volunteer military is the largest single employer of young men and women in the United States

- Between 1989 and 1992, enlistments by men and women without prior military service fell by 27 percent

- Enlistments by white men declined by 25 percent while enlistments by black men, the group hardest hit by military downsizing, declined by 47 percent

Volunteer for America!

- Research question: What is the effect of enlistment on future earnings?

- Selection bias makes comparisons by veteran status misleading (Seltzer and Jablon, 1974)

- Findings:

  - White veterans earn more than nonveterans, but this effect becomes **negative** once covariates are matched away

  - Non-white veterans earn a lot more than nonveterans, but controlling for covariates reduces this considerably

Selection on Observables!

- Angrist (1998) — Matching

  - Compare veteran and nonveteran applicants (only half of qualified applicants serve)

  - Control for **the characteristics the military uses to screen soldiers**

Voluntary Military Service on Earnings

TABLE 3.3.1
Uncontrolled, matching, and regression estimates of the effects of voluntary military service on earnings

Race	Average Earnings in 1988–1991 (1)	Differences in Means by Veteran Status (2)	Matching Estimates (3)	Regression Estimates (4)	Regression Minus Matching (5)
Whites	14,537	1,233.4 (60.3)	−197.2 (70.5)	−88.8 (62.5)	108.4 (28.5)
Non-whites	11,664	2,449.1 (47.4)	839.7 (62.7)	1,074.4 (50.7)	234.7 (32.5)

Notes: Adapted from Angrist (1998, tables II and V). Standard errors are reported in parentheses. The table shows estimates of the effect of voluntary military service on the 1988–91 Social Security–taxable earnings of men who applied to enter the armed forces between 1979 and 1982. The matching and regression estimates control for applicants' year of birth, education at the time of application, and AFQT score. There are 128,968 whites and 175,262 nonwhites in the sample.
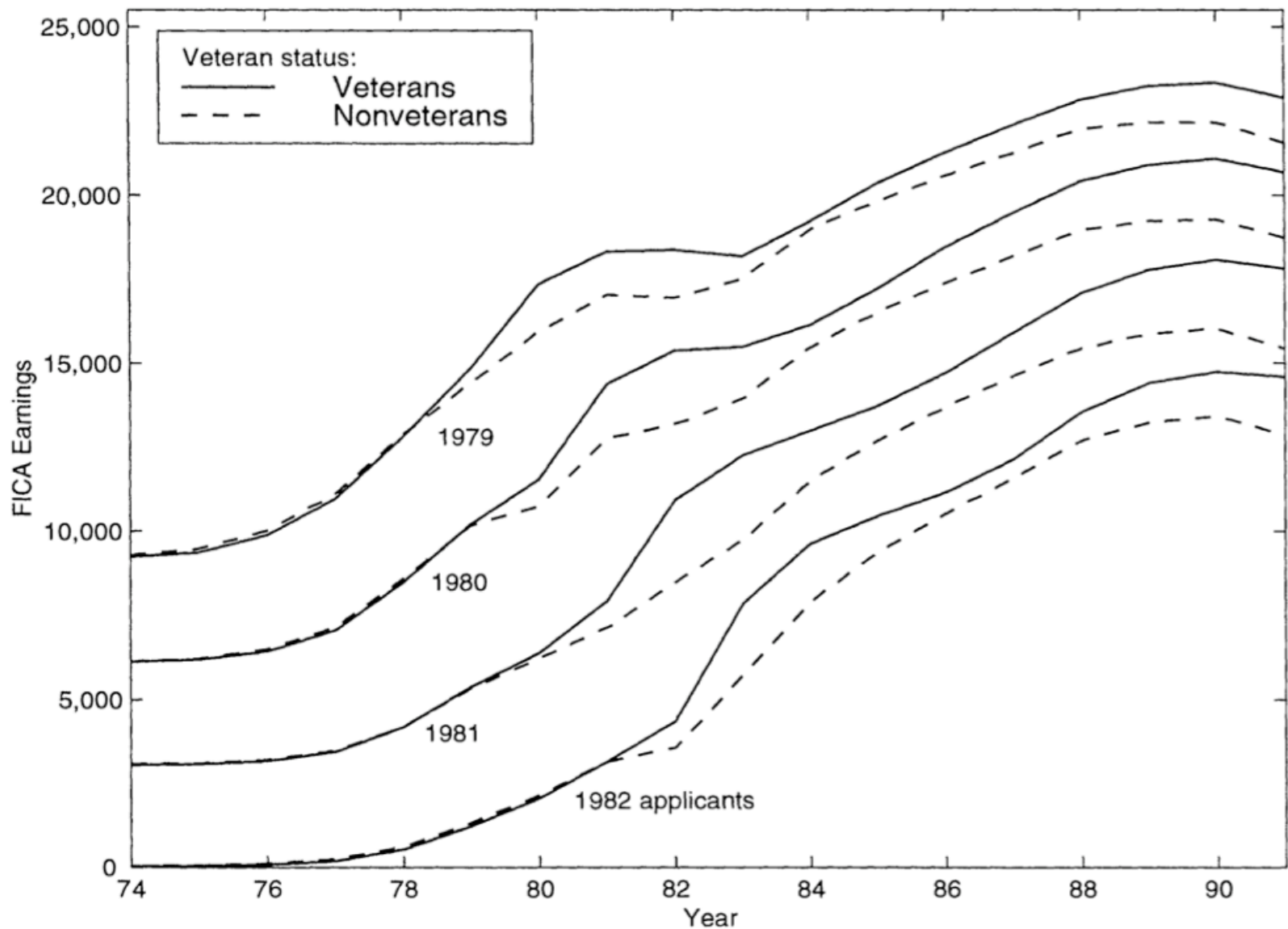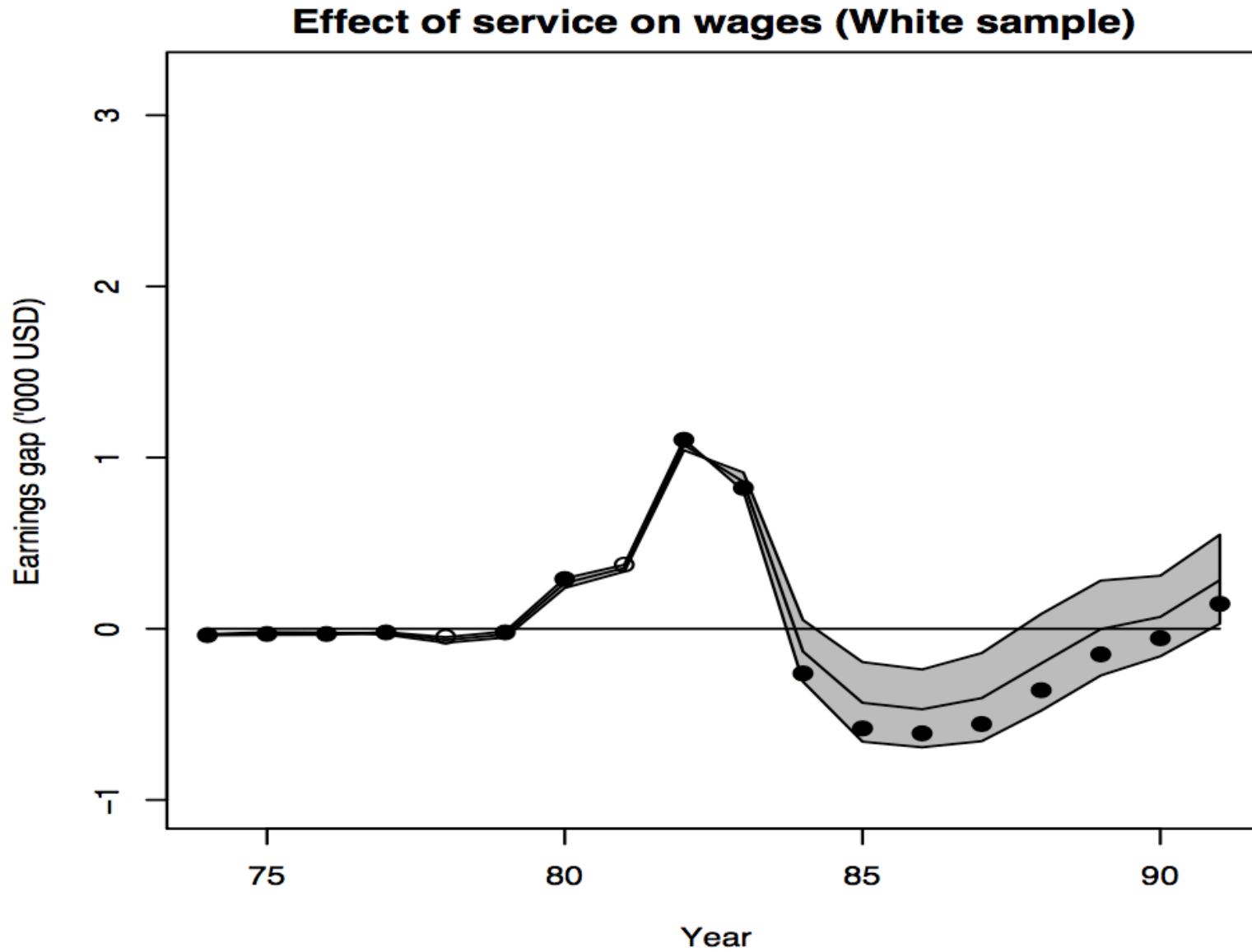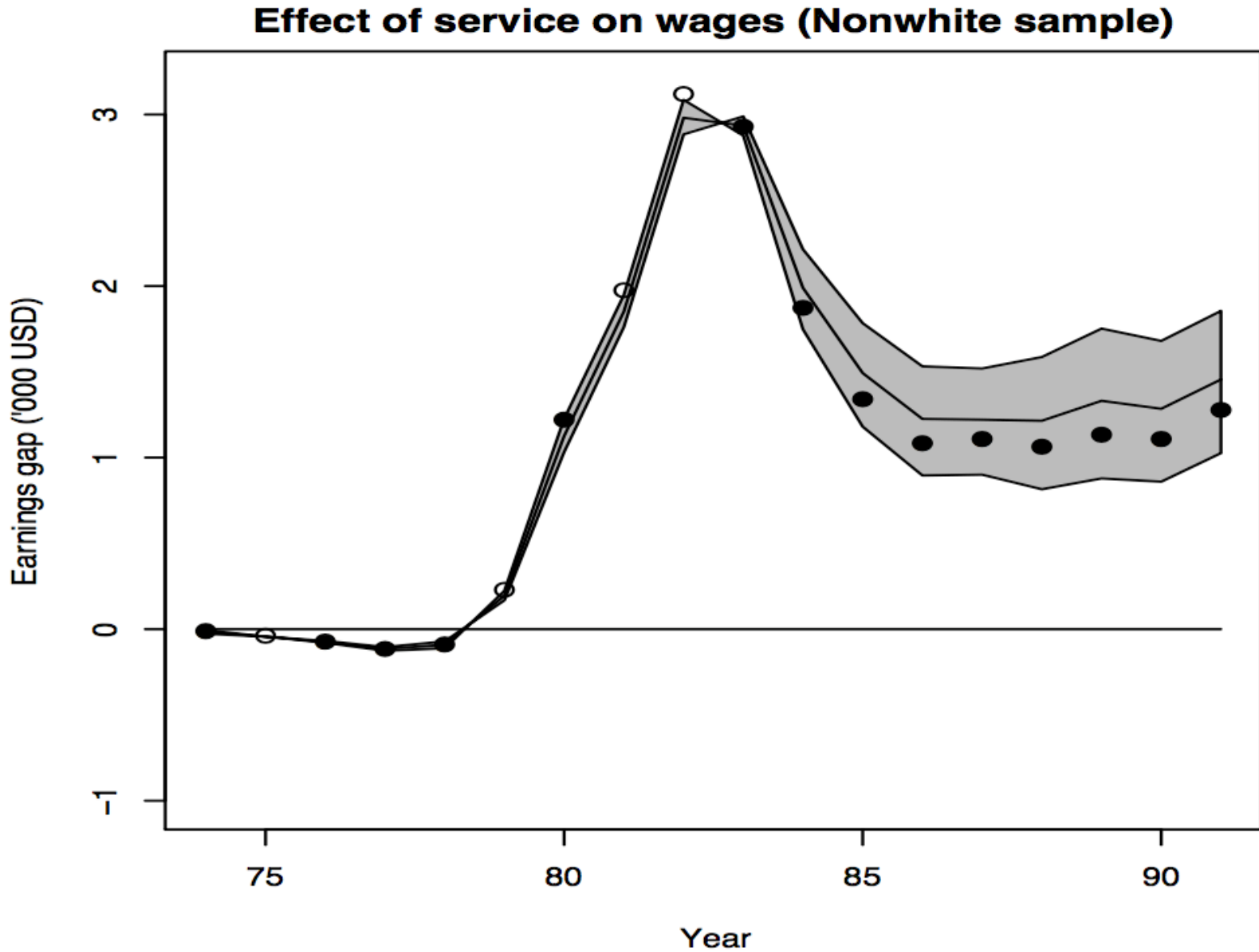
FIGURE 2.—Earnings profiles by veteran status and application year for men who applied 1979–82, with AFQT scores in categories III and IV. The plot shows the actual earnings of men who applied in 1982, earnings + $3,000 for men who applied in 1981, earnings + $6,000 for men who applied in 1980, and earnings + $9,000 for men who applied in 1979.

Voluntary Military Service on Earnings

Effect of service on wages (White sample)

Voluntary Military Service on Earnings

Effect of service on wages (Nonwhite sample)
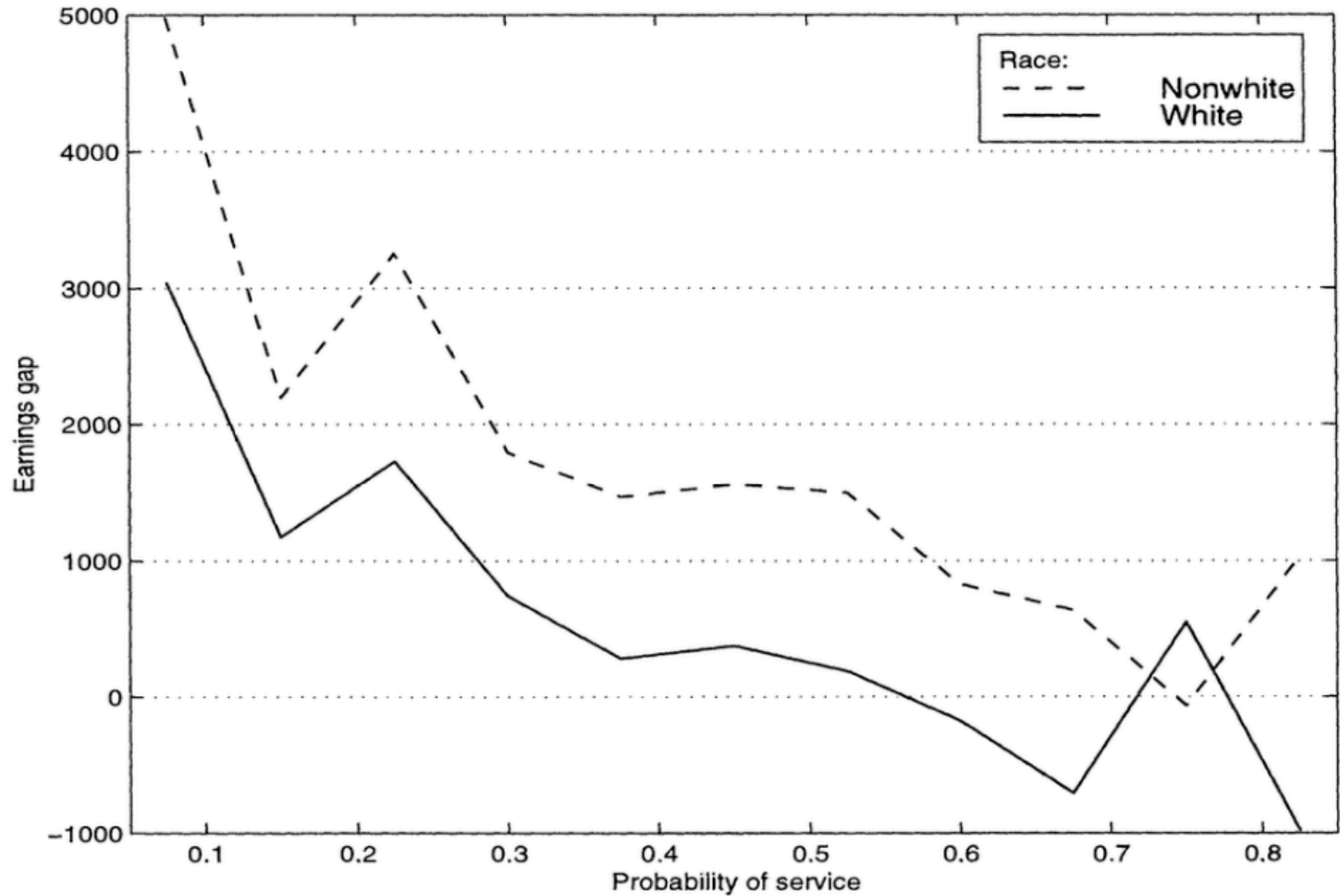
Earning Gaps Mostly Explained by Selections

FIGURE 4.—Controlled contrasts by race and probability of service. These estimates are for pooled 1988–91 earnings.
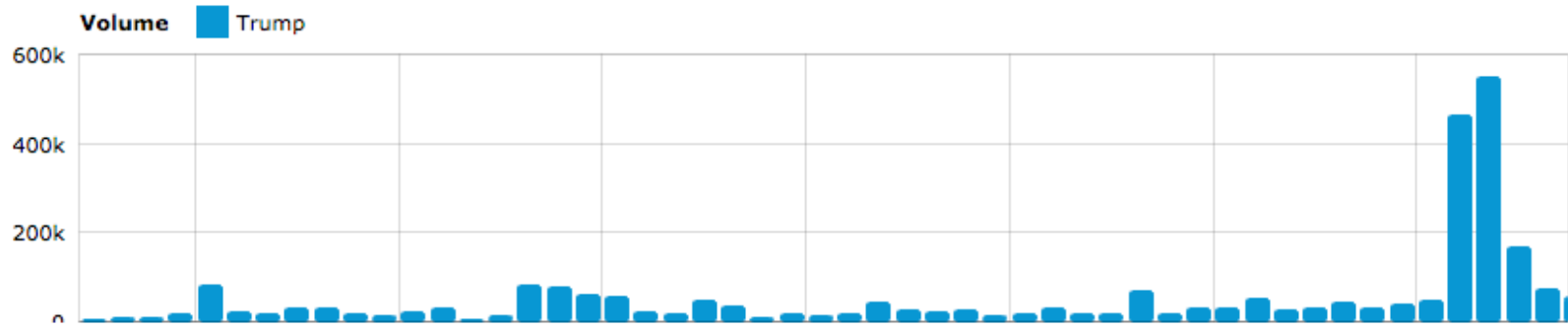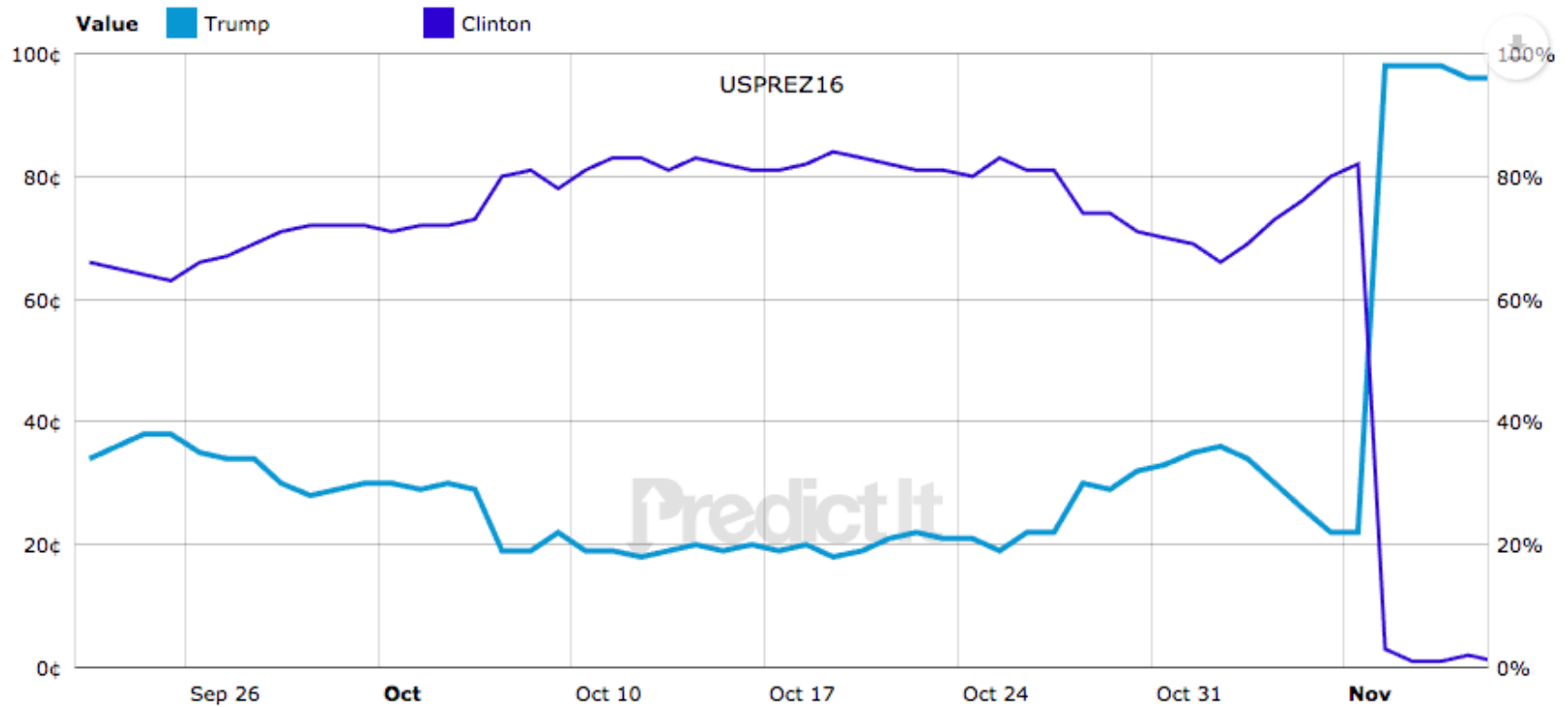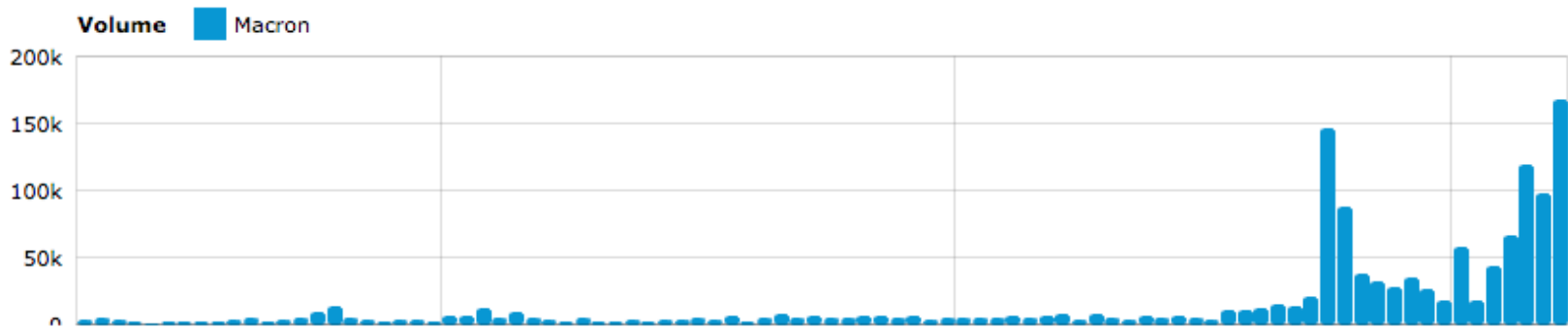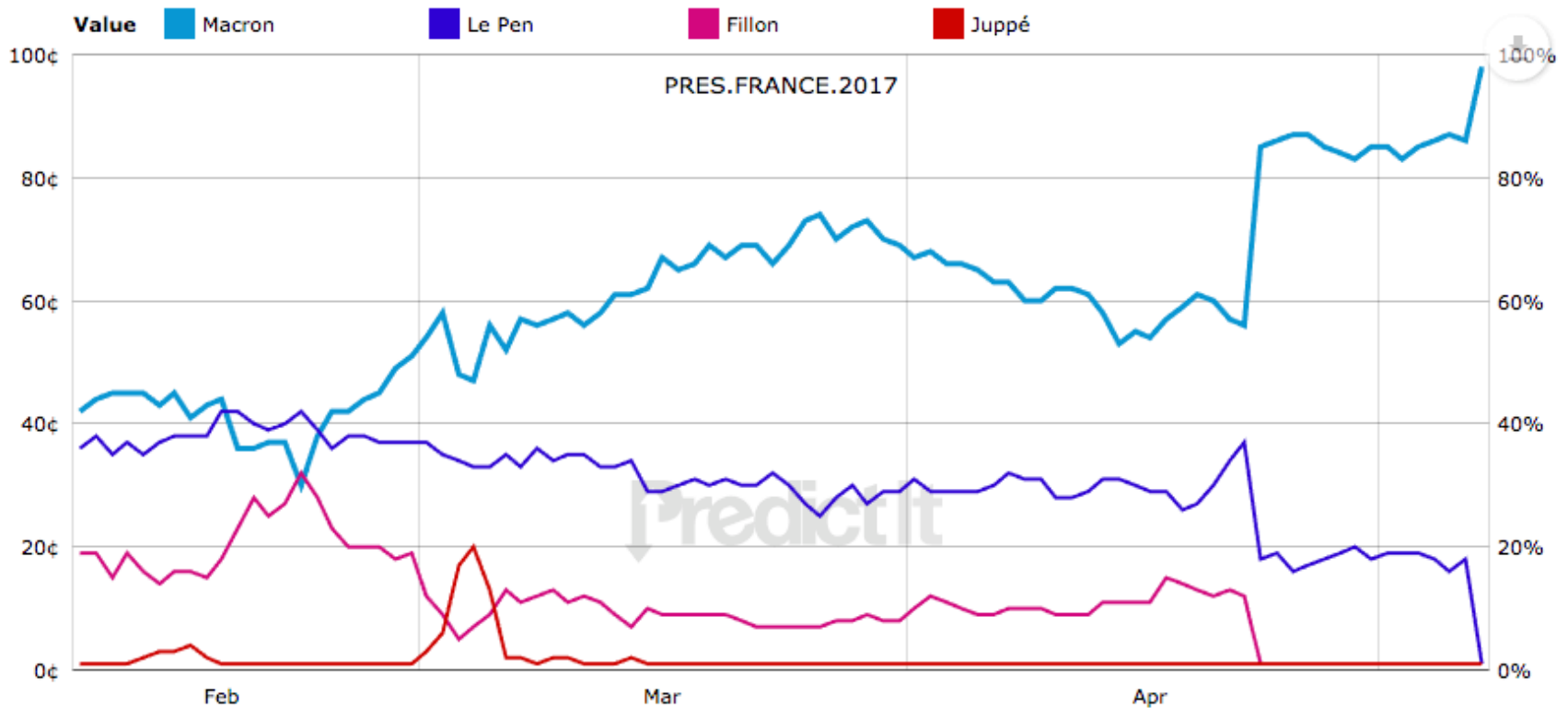
Buzzword:

Prediction Market

Prediction Market

- Real-money market trading the outcome of events

- The market prices indicate what participants a whole thinks the probability of the event is

- Advantage: **The Wisdom of Crowds** — aggregating information dispersedly distributed in the society; also capturing intensity of beliefs (Friedrich von Hayek)

- More precise than early-day polls

- Warning: In essence, betting in prediction markets is a type of gambling!

Prediction Market: 2016 US Presidential Election

Prediction Market: French Presidential Election

Prediction Market

## Most Predicted

Will Trump be president at year-end 2017?

Current Market	4130 Comments
Yes	76¢ ↑1¢
No	24¢ ↓1¢

Who will win GA-06 special election?

Top Predictions	9784 Comments
Handel 💬16	59¢ ↑3¢
Ossoff 💬87	44¢ ↑1¢

@realDonaldTrump tweets noon 5/10 - noon 5/17?

Top Predictions	1770 Comments
25 - 29	42¢ ↑20¢
30 - 34	32¢ ↓3¢

FBI Director on 6/30?

Top Predictions	3151 Comments
Rogers 💬2	11¢ ↓3¢
Gowdy 💬1	10¢ NC

@vp tweets noon 5/9 - noon 5/16?

Top Predictions	1305 Comments
54-	82¢ ↓5¢
55 - 59	20¢ ↑9¢

Will Trump be impeached in 2017?

Current Market	779 Comments
Yes	19¢ ↑3¢
No	81¢ ↓3¢

Who will be elected German chancellor in 2017?

Top Predictions	1366 Comments
Merkel 💬25	84¢ ↑1¢
Schulz 💬1	15¢ NC

@potus tweets noon 5/9 - noon 5/16?

Top Predictions	517 Comments
20 - 24	57¢ ↑12¢
25 - 29	39¢ ↓8¢

Trump's one-year impact on national debt?

Top Predictions	380 Comments
+750B-1T	24¢ NC
+500-750B	20¢ NC

Which party will win the White House in 2020?

Top Predictions	1162 Comments
Democratic 💬35	54¢ ↑2¢
Republican 💬21	47¢ NC

Who will be the next justice to leave the Supreme Court?

Top Predictions	577 Comments
Kennedy 💬9	69¢ ↑2¢
Ginsburg 💬2	21¢ ↑4¢

Most trending Dem 2020 hopeful 5/15?

Top Predictions	1489 Comments
Biden 2020	60¢ ↑44¢
Sanders 2020	37¢ ↓21¢

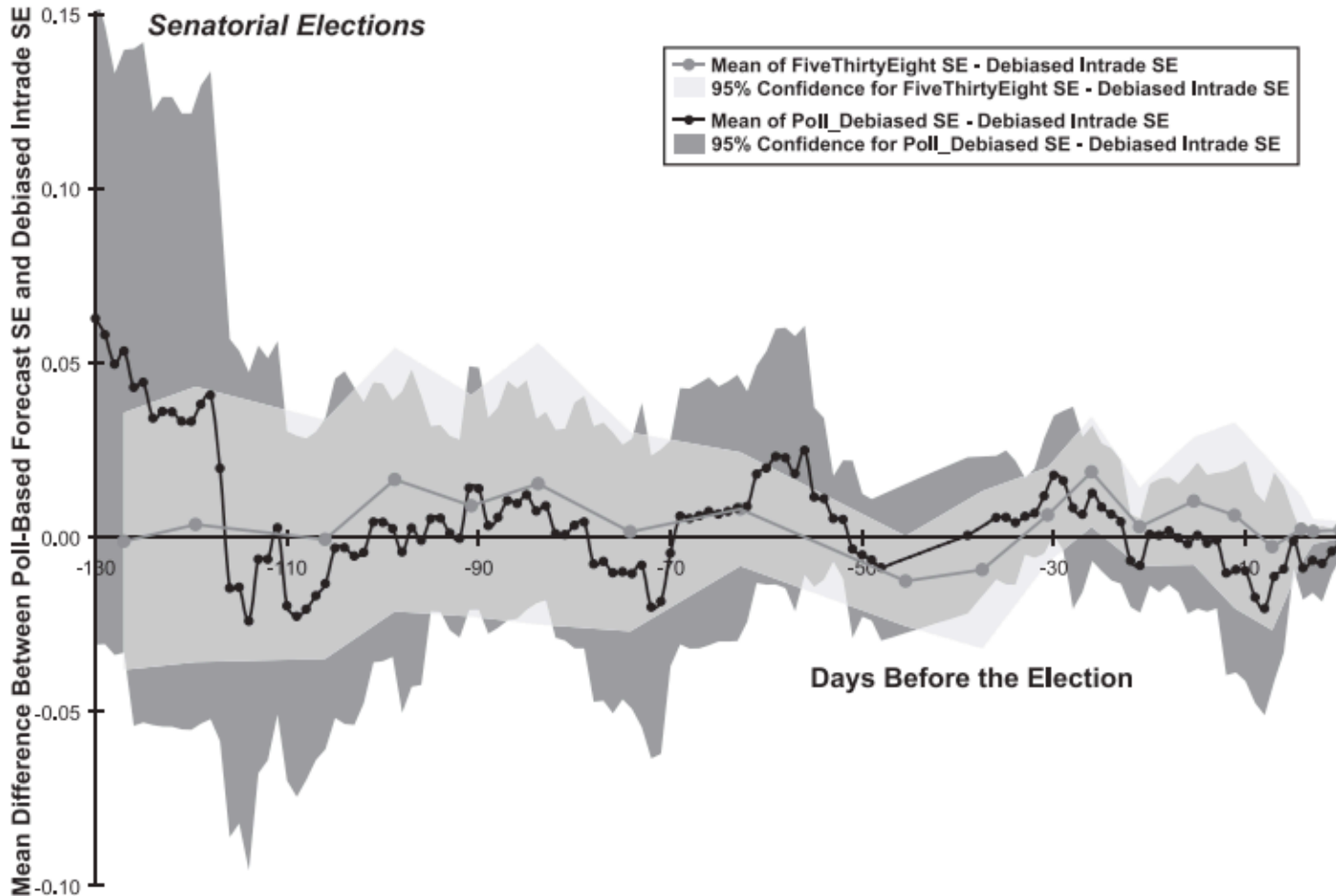# Prediction Market Often Performs Better Than Polling

Figure 5. Mean of Poll-Based Forecast's Square Error–Debiased Intrade's Square Error with 95 percent Confidence Interval.

NOTE.—Each point plots the difference in MSE arising from the forecasts issued at that point in time for the twenty-four Senatorial elections in the sample.

Rothschild (2009) *POQ*