PLSC 476: Empirical Legal Studies

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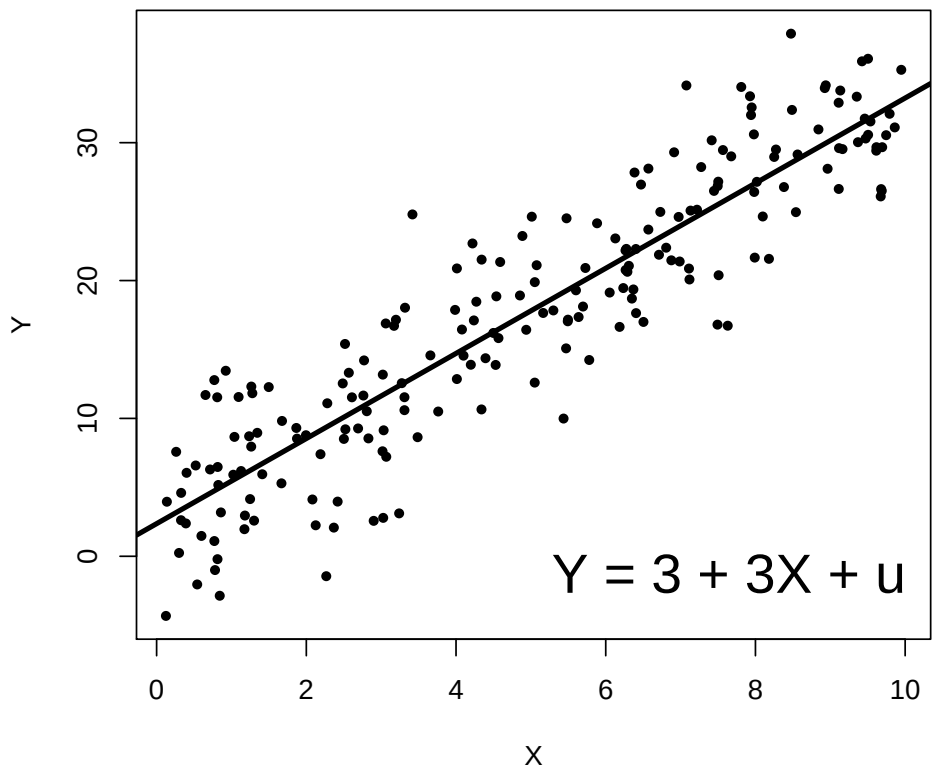
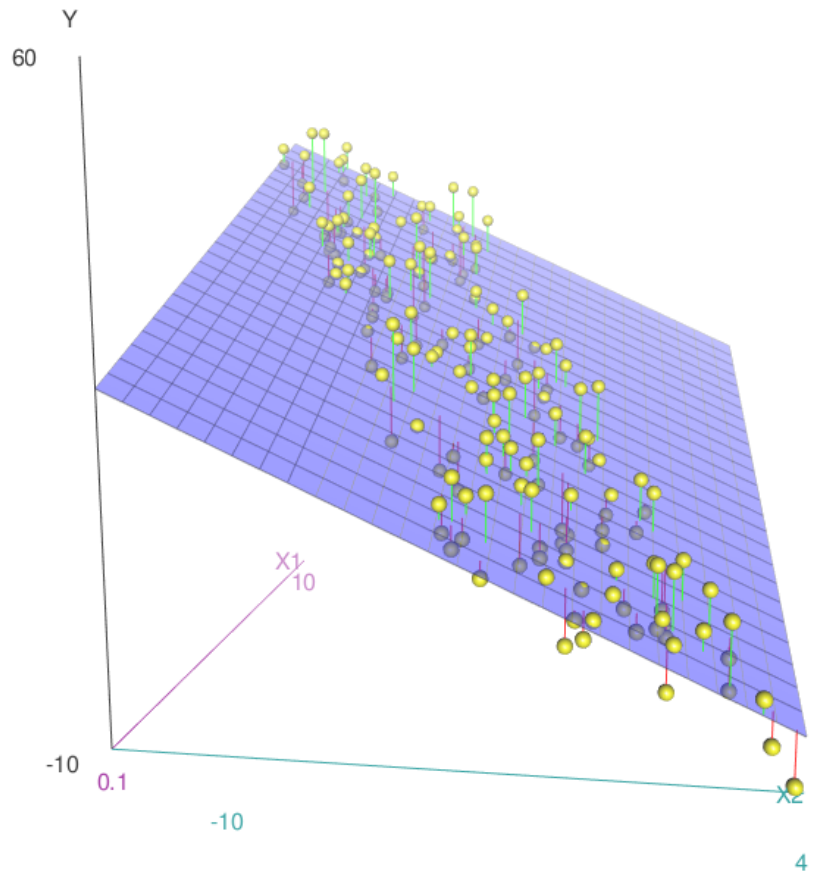
(Bivariate) Regression Redux

$$Y_i = \beta_0 + \beta_1 X_i + u_i$$



Multiple Regression

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + u_i$$



Multiple Regression

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + ... \beta_k X_{ki} + u_i$$

Interpretation

- $\beta_k > 0$: *positive marginal association* between X_k and Y
- $\beta_k < 0$: *negative marginal association* between X_k and Y
- *Value* of β_k: "All else equal, a one-unit change in X_k is associated with an expected β_k-unit difference in Y."
- When X_k is dichotomous (0 or 1): "All else equal, the presence of X_k changes the expected value of Y by β_k units."

Some Details

Assumptions:

- *Linearity*
- *Additivity*
- Other technical assumptions...

When $Y \in \{0, 1\}$ (*binary*):

- $\mathrm{E}(Y) = \mathrm{Prob}(Y = 1)$
- *Linear Probability Model*
- Changes in X are associated with changes in the *probability* that $Y = 1$

The Issue: *Habeas Corpus*

- Common law: "The Great Writ"
- What is it?
  - "A writ of habeas corpus is used to bring a prisoner or other detainee (e.g., institutionalized mental patient) before the court to determine if the person's imprisonment or detention is lawful. A habeas petition proceeds as a civil action against the State agent (usually a warden) who holds the defendant in custody." – *Legal Information Institute*
  - "The Privileges of the Writ of Habeas Corpus shall not be suspended unless when in Cases of Rebellion of Invasion the public Safety may require it." – *U.S. Constitution*, Article I, Section 9, Clause 2 (the "Suspension Clause")
- Requirements for federal habeas relief:
  1. Detainee must be in custody when filed
  2. Detainee must have exhausted all state remedies (where relevant) (see 28 U.S.C. §2241-2256)

Habeas Corpus, continued

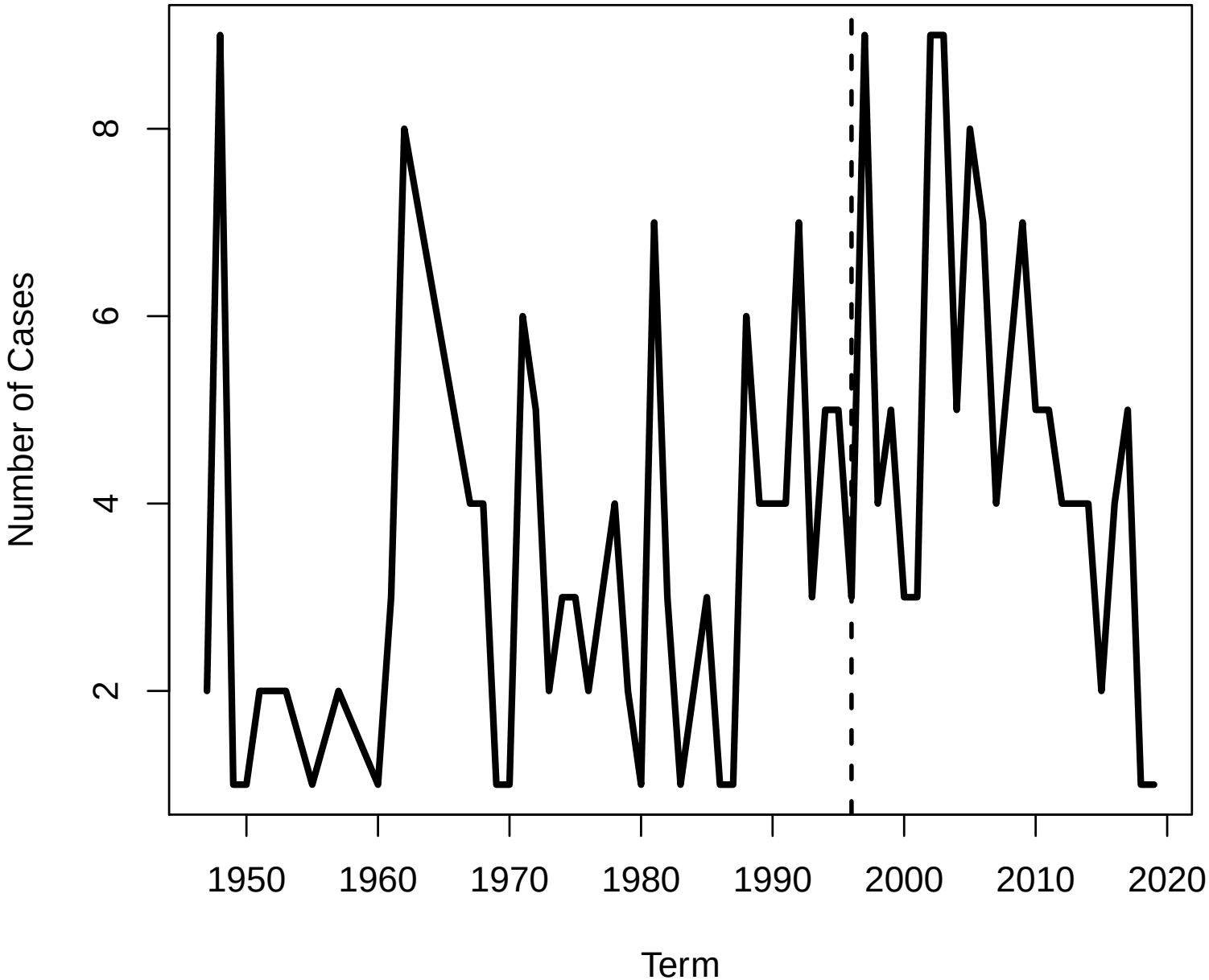
Some history:

- Federal habeas over state detainees established in 1867 (28 USC §2254)
- Suspended at various times...
- Anti-Terrorism and Effective Death Penalty Act (1996) limited federal habeas

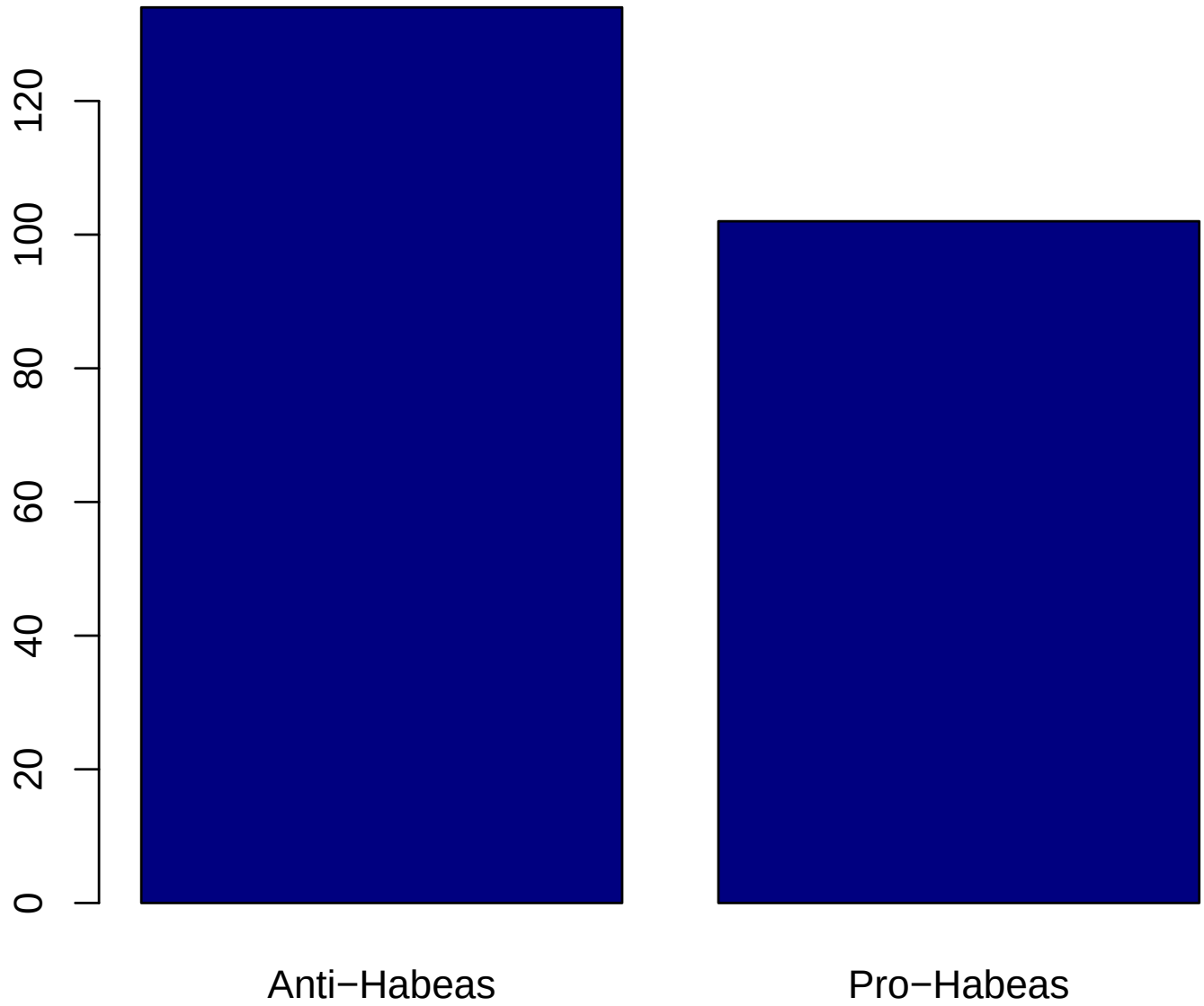
The data:

- Votes in SCOTUS cases addressing habeas corpus (`issue` = 10020), OT1946-2019 ($N = 237$)
- Coded: 1 = pro-habeas ("liberal"), 0 = anti-habeas ("conservative")

Habeas Corpus Cases Per Term, 1946-2014



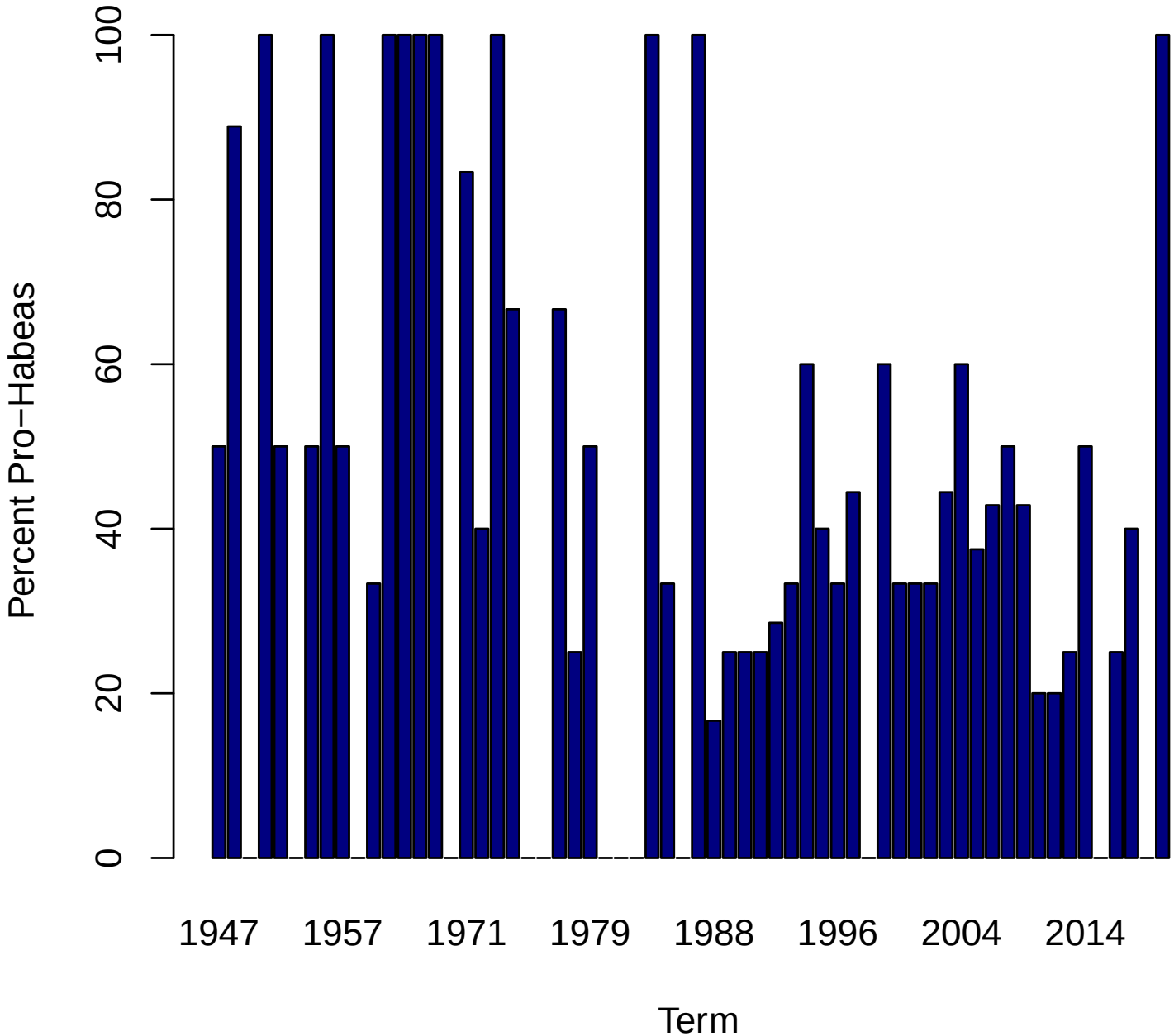
Habeas Corpus Case Outcomes, 1946-2014



Habeas Corpus: Influences

- Judge's Ideology (expectation: positive)
- Prisoner petition (expectation: negative)
- Involve the application of a federal habeas corpus statute? (expectation: positive)
- Lower Court Disagreement (expectation: positive)
- AEDPA (1996) (expectation: negative)

Habeas Corpus Case Outcomes By Term



Number of Habeas Cases by `lawSupp`

```
> table(HCases$lawSupp)

121 207 230 231 314 341 377 400 509 600 900
  1   1   6   1   2 127   1   5   1  19   4
```

Law	Frequency
Suspension of habeas	1
Fifth Amendment	1
Due Process	6
Equal Protection	1
§1983	2
Federal habeas statutes	127
UMCJ	1
FRAP	5
Treaty law	1
"Infrequently litigated statutes"	19
No legal provision	4

Data Work

```
# Pro-habeas vote:

Habeas$ProVote<-Habeas$direction-1

# Prisoner or defendant is the petitioner:

Habeas$CrimPet<-ifelse(Habeas$petitioner==126,1,0)                # Prisoner
Habeas$CrimPet<-ifelse(Habeas$petitioner==215,1,Habeas$CrimPet) # Prisoner
Habeas$CrimPet<-ifelse(Habeas$petitioner==100,1,Habeas$CrimPet) # Defendant

# Federal habeas law applicability:

Habeas$HabLaw<-ifelse(Habeas$lawSupp==341,1,0)

# Lower court disagreement:

Habeas$Disagree<-Habeas$lcDisagreement

# AEDPA:

Habeas$AEDPA<-ifelse(Habeas$term>1996,1,0)
```

Summary Statistics

```
> Vars<-with(Habeas, data.frame(ProVote,Ideology,CrimPet,
+                               HabLaw,Disagree,AEDPA))
> summary(Vars)
    ProVote         Ideology        CrimPet          HabLaw
 Min.   :0.00   Min.   :0.00   Min.   :0.00   Min.   :0.00
 1st Qu.:0.00   1st Qu.:0.12   1st Qu.:0.00   1st Qu.:1.00
 Median :0.00   Median :0.42   Median :0.00   Median :1.00
 Mean   :0.45   Mean   :0.44   Mean   :0.47   Mean   :0.76
 3rd Qu.:1.00   3rd Qu.:0.73   3rd Qu.:1.00   3rd Qu.:1.00
 Max.   :1.00   Max.   :1.00   Max.   :1.00   Max.   :1.00
 NA's   :624    NA's   :715    NA's   :584    NA's   :1195

    Disagree         AEDPA
 Min.   :0.00   Min.   :0.00
 1st Qu.:0.00   1st Qu.:0.00
 Median :0.00   Median :0.00
 Mean   :0.27   Mean   :0.44
 3rd Qu.:1.00   3rd Qu.:1.00
 Max.   :1.00   Max.   :1.00
 NA's   :584    NA's   :584
```

Correlations

```
> options(digits=2)
> Vars<-with(Habeas, data.frame(ProVote,Ideology,CrimPet,
+                               HabLaw,Disagree,AEDPA))

> cor(Vars,use="complete.obs")
          ProVote Ideology CrimPet  HabLaw Disagree  AEDPA
ProVote    1.0000    0.303   0.298 -0.0073  -0.0373 -0.051
Ideology   0.3032    1.000  -0.013 -0.0458  -0.0232 -0.272
CrimPet    0.2983   -0.013   1.000  0.1219  -0.1381 -0.021
HabLaw    -0.0073   -0.046   0.122  1.0000  -0.0047  0.065
Disagree -0.0373   -0.023  -0.138 -0.0047   1.0000  0.137
AEDPA     -0.0511   -0.272  -0.021  0.0647   0.1370  1.000
```

Regression Model

$$
\begin{aligned}
\text{Pro-Habeas Vote}_{ij} \quad = \quad & \beta_0 + \beta_1(\text{Justice Liberalism})_j + \\
& \beta_2(\text{Detainee Petitioner})_i + \\
& \beta_3(\text{Habeas Law Applicability})_i + \\
& \beta_4(\text{Lower Court Disagreement})_i + \\
& \beta_5(\text{AEDPA})_i + u_{it}
\end{aligned}
$$

Regression Results

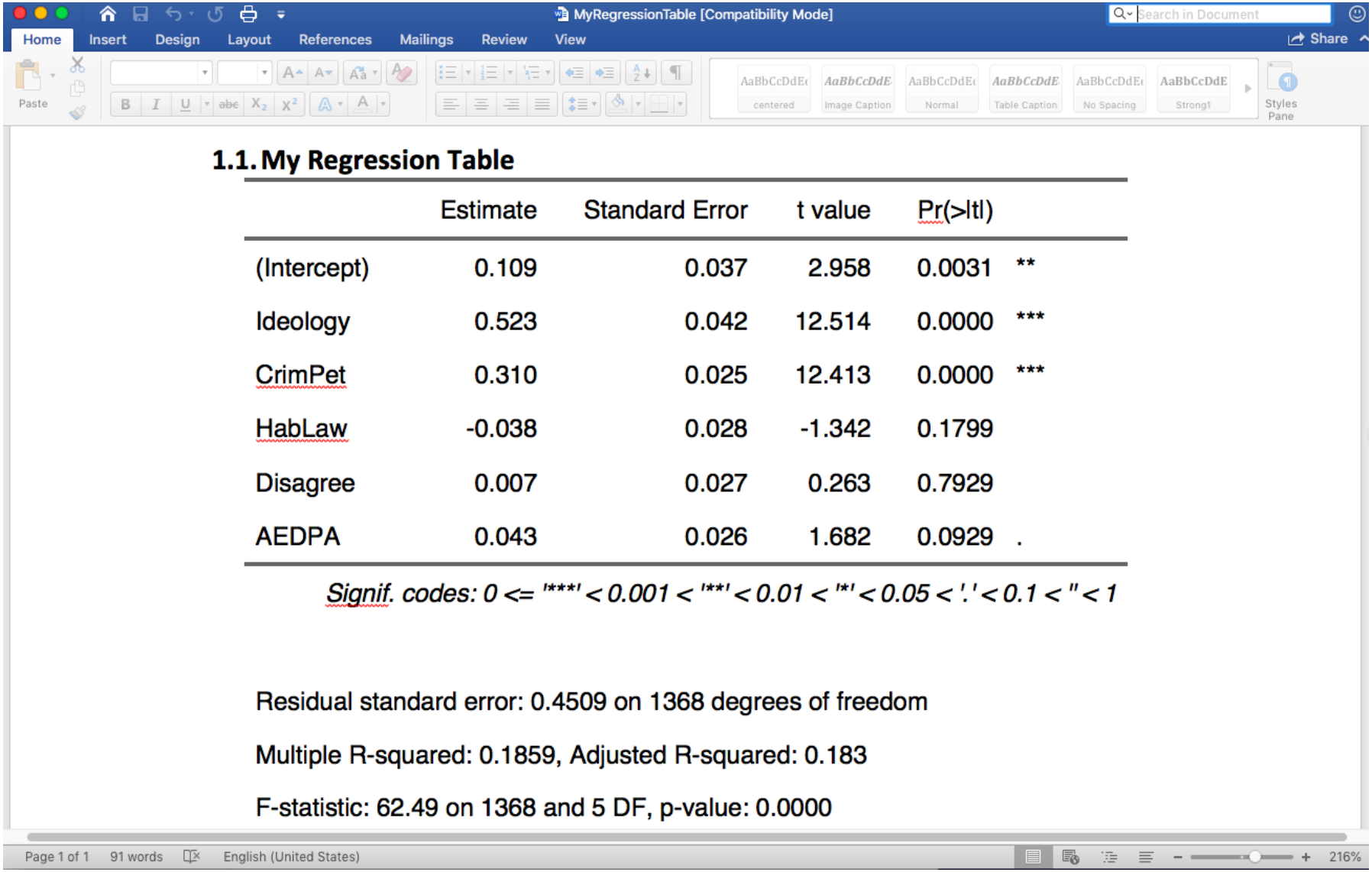
```
> Regression <- with(Habeas, lm(ProVote~ideology+CrimPet+
                      HabLaw+Disagree+AEDPA))
> summary(Regression)

Call:
lm(formula = ProVote ~ Ideology + CrimPet + HabLaw + Disagree +
    AEDPA)

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   0.1091     0.0369    2.96   0.0031 **
Ideology      0.5230     0.0418   12.51   <2e-16 ***
CrimPet       0.3095     0.0249   12.41   <2e-16 ***
HabLaw       -0.0382     0.0284   -1.34   0.1799
Disagree      0.0070     0.0267    0.26   0.7929
AEDPA         0.0431     0.0256    1.68   0.0929 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.451 on 1368 degrees of freedom
  (1324 observations deleted due to missingness)
Multiple R-squared:  0.186,Adjusted R-squared:  0.183
F-statistic: 62.5 on 5 and 1368 DF,  p-value: <2e-16
```

Regression Table (MS-Word Version)



1.1. My Regression Table

	Estimate	Standard Error	t value	Pr(>|t|)	
(Intercept)	0.109	0.037	2.958	0.0031	**
Ideology	0.523	0.042	12.514	0.0000	***
CrimPet	0.310	0.025	12.413	0.0000	***
HabLaw	-0.038	0.028	-1.342	0.1799	
Disagree	0.007	0.027	0.263	0.7929	
AEDPA	0.043	0.026	1.682	0.0929	.

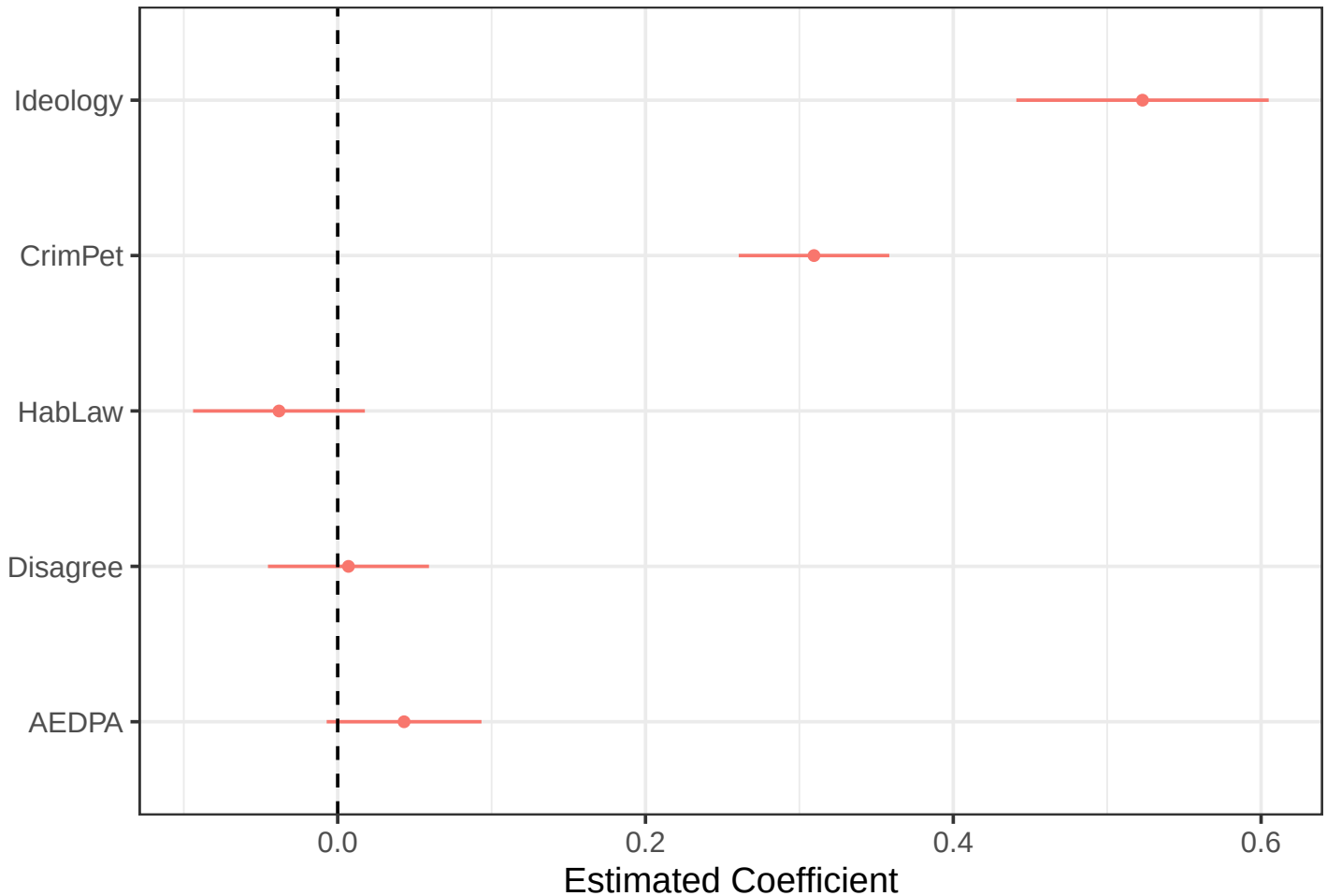
*Signif. codes: 0 <= '***' < 0.001 < '**' < 0.01 < '*' < 0.05 < '.' < 0.1 < ' ' < 1*

Residual standard error: 0.4509 on 1368 degrees of freedom

Multiple R-squared: 0.1859, Adjusted R-squared: 0.183

F-statistic: 62.49 on 1368 and 5 DF, p-value: 0.0000

Regression Results: Dotplot



Habeas Corpus Findings

- More liberal justices are substantially more likely to vote in a pro-habeas direction than are conservatives.
    - For example: an 0.5-unit increase in a justice's Segal-Cover score (roughly the equivalent of going from Neil Gorsuch to Ruth Bader Ginsburg) corresponds to an expected ($0.50 \times 0.523 =$) 0.262 increase in the probability of a pro-habeas vote.
- Justices are also more likely to vote in a pro-habeas direction in cases where the detainee is bringing the petition. Such cases have a 0.31 higher probability of a pro-habeas vote, as compared to those in which the state brings the petition.
- Justices are also (all else equal) slightly *more* likely to vote in a pro-habeas direction in cases decided after the passage of the AEDPA in 1996.
- We find no conditional association between pro-habeas votes and either cases involving a question of the applicability of federal habeas law, or where there was lower court disagreement.