Finance 5330 - Financial Econometrics

Introduction to Time Series Analysis

Tyler J. Brough

Department of Finance and Economics

UtahState University

Sheena Easton and Game Theory

Sheena Easton describes the following scenario for her baby:

1. Takes the morning train
2. Works from nine 'til five
3. Takes another train home again
4. Finds Sheena Easton waiting for him

Sheena Easton and her baby are playing a **zero-sum (total conflict) game**.

- Akin to Holmes-Moriarty game (see: von Neumann and Morgenstern)
- Solution: **mixed strategy**

Rick Astley's Re-election Platform

Rick Astley's campaign promises:

- Never gonna give you up.
- Never gonna let you down.
- Never gonna run around and desert you.
- Never gonna make you cry.
- Never gonna say goodbye.
- Never gonna tell a lie and hurt you.

Whereas these pledges conform to the preferences of the **median voter**, we expect Congressman Astley to secure re-election.

Caribbean Queen and Operation Urgent Fury

Billy Ocean released "Caribbean Queen" in 1984.

- Emphasized sharing the same dream
- Hearts beating as one

"Caribbean Queen" is about the poor execution of Operation Urgent Fury.

- Echoed JCS chairman David Jones' frustrations with military establishment.

Billy Ocean is advocating for what became the Goldwater-Nichols Act.

- Wanted to take advantage of **economies of scale**, resolve **coordination problems** in U.S. military.

The Good Day Hypothesis

We know the following about Ice Cube's day.

1. The Lakers beat the Supersonics.
2. No helicopter looked for a murder.
3. Consumed Fatburger at 2 a.m.
4. Goodyear blimp: "Ice Cube's a pimp."

This leads to two different hypotheses:

- H_0: Ice Cube's day is statistically indistinguishable from a typical day.
- H_1: Ice Cube is having a good (i.e. greater than average) day.

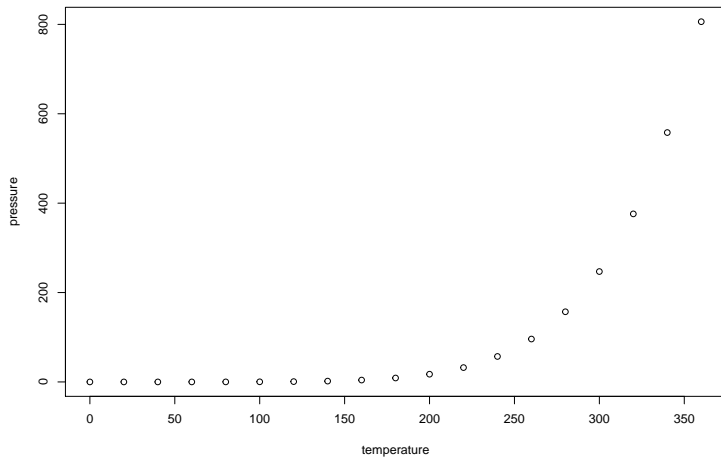These hypotheses are tested using archival data of Ice Cube's life.

Example R stuff

```
summary(cars)
```

```
##     speed          dist
## Min.   : 4.0   Min.   :  2.00
## 1st Qu.:12.0   1st Qu.: 26.00
## Median :15.0   Median : 36.00
## Mean   :15.4   Mean   : 42.98
## 3rd Qu.:19.0   3rd Qu.: 56.00
## Max.   :25.0   Max.   :120.00
```
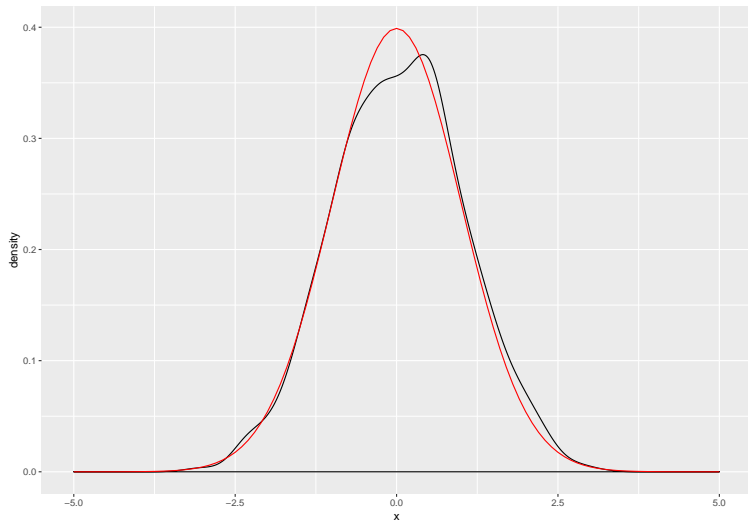
Slide with Plot

```
plot(pressure)
```

ggplot code

```
df <- data.frame(x = rnorm(1000))
x <- df$x
base <- ggplot(df, aes(x)) + geom_density()  + scale_x_continuous(limit
base + stat_function(fun = dnorm, colour = "red")
```

Another Plot

Python and R Code

- Some Python code:

```python
print("Hello, World!")
```

```
## Hello, World!
```

- Some R code:

```r
print(paste("Hello, ", "World!", sep=""))
```

```
## [1] "Hello, World!"
```

Table of Contents