Topic #6

QUASI-EXPERIMENTAL DESIGNS

Again, central issue is one of research validity.

Quasi-experimental designs are research studies in which participants are selected for different conditions from **pre-existing groups**.

May also entail **self-selection into groups**.

They are studies in which levels of the IV are selected from pre-existing values and not created through manipulation by the researcher.

In true experimental designs, participants are randomly assigned to experimental and control groups; whereas with quasi-experimental designs, they are NOT.

A quasi-experimental design DOES NOT permit the researcher to control the assignment of participants to conditions or groups.

RANDOM ASSIGNMENT TO GROUPS IS THE BASIC DIFFERENCE BETWEEN TRUE AND QUASI-EXPERIMENTAL DESIGNS.

Quasi-experimental designs are characterized by **lower levels of control** over the WHO, WHAT, WHEN, WHERE and HOW of the study.

Although the presence of uncontrolled or confounded variables reduces the internal validity of quasi-experimental designs, they do not necessarily render them invalid.

Basically, the likelihood that confounding variables are responsible for the study outcome must be evaluated.

Types Of Quasi-Experimental Designs

1. **Nonequivalent Control Group Designs**—research designs having both experimental and control groups but the participants are NOT randomly assigned to these groups.

    - This is the most common type of quasi-experimental design.

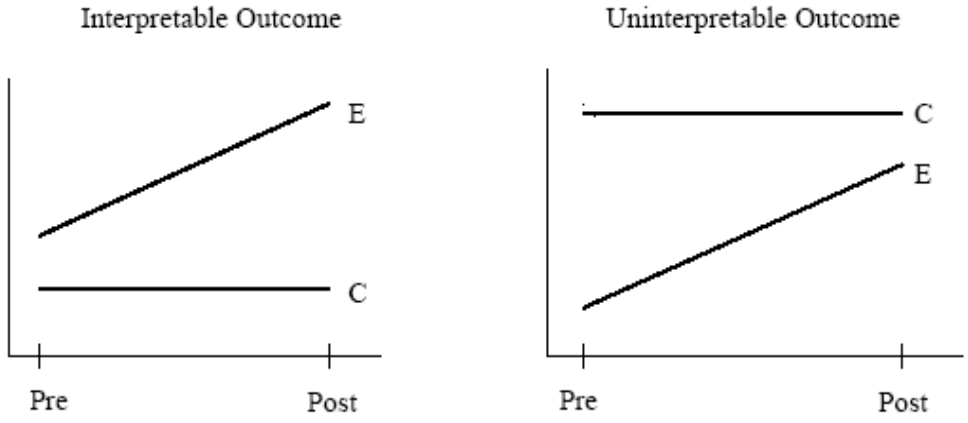
    - Problems with this type of design have to do with how to compare the results between groups when they are not equivalent to begin with.

EXAMPLE ➜ EFFECT OF WORK SCHEDULES ON PRODUCTIVITY

	ALLOCATION TO GROUPS	PRETEST	TREATMENT	POSTTEST
GROUP I	ANY NONRANDOM METHOD	YES	YES	YES
GROUP II		YES	NO	YES

- Quasi-experimental designs that employ nonequivalent control groups with pre- and posttest may or may not be interpretable.

- Interpretability depends on whether the pattern of results obtained can be accounted for by possible differences between the groups or by something else in the study.



- ceiling effects
- floor effects

- We can further enhance or improve the interpretability of these designs by deploying a number of control procedures:

  1. matching
  2. identifying and building extraneous variables into the design or study as moderator variables
  3. pretesting—empirically documenting the degree of nonequivalence
  4. if nonequivalent, as per pretest data, then can use a number of statistical control procedures (as previously discussed) to covary out or control for preexisting differences

- Examples of nonequivalent control group designs

  (a) **Delayed Control Group Designs**—nonequivalent control group design in which the testing of one group is deferred.

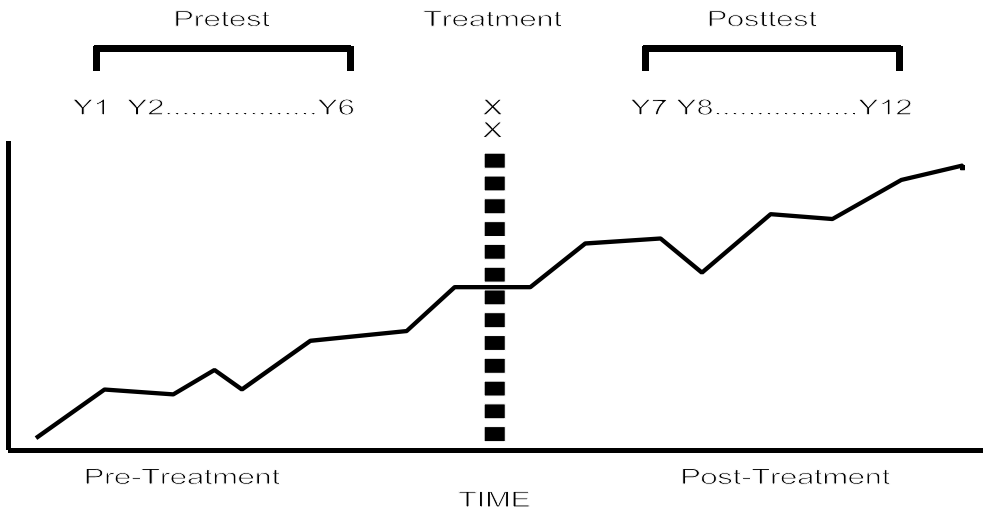
  - i.e., the two groups are tested **sequentially** with an appreciable time interval between them

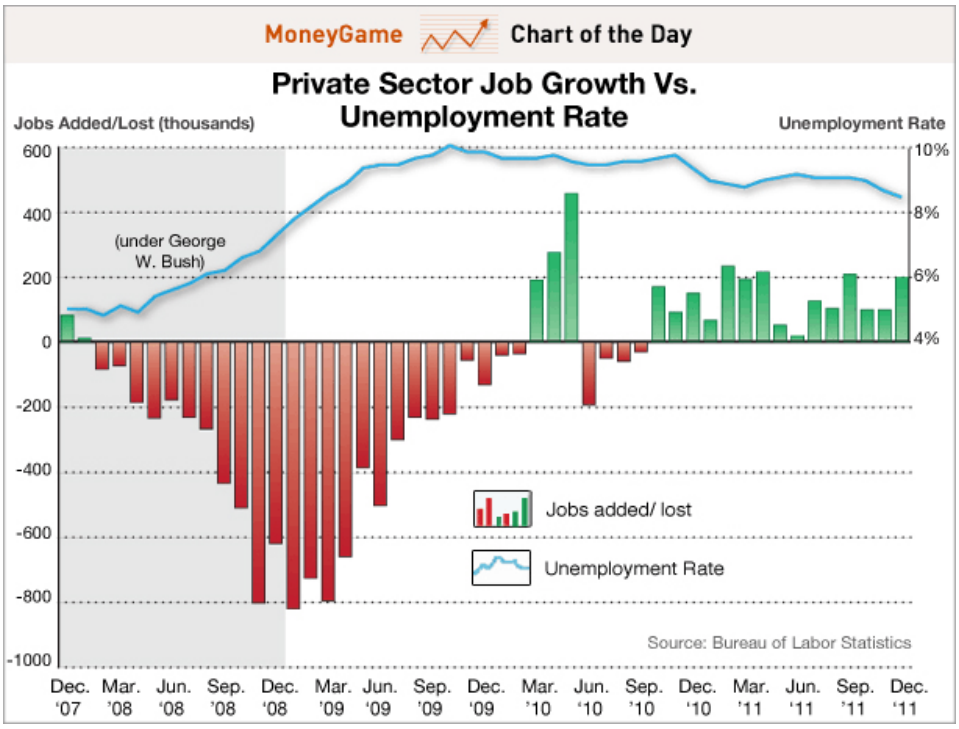
  (b) **Mixed Factorial Designs**—have one between-subjects variable and one within-subjects variable (e.g., study of trait [between] and state anxiety [within] and impact on test performance). Between-subjects variable = preexisting.

		State Anxiety	
		Low	High
Trait Anxiety	Low	S1	S1
		S2	S2
		.	.
		.	.
		S20	S20
	High	S1	S1
		S2	S2
		.	.
		.	.
		S20	S20

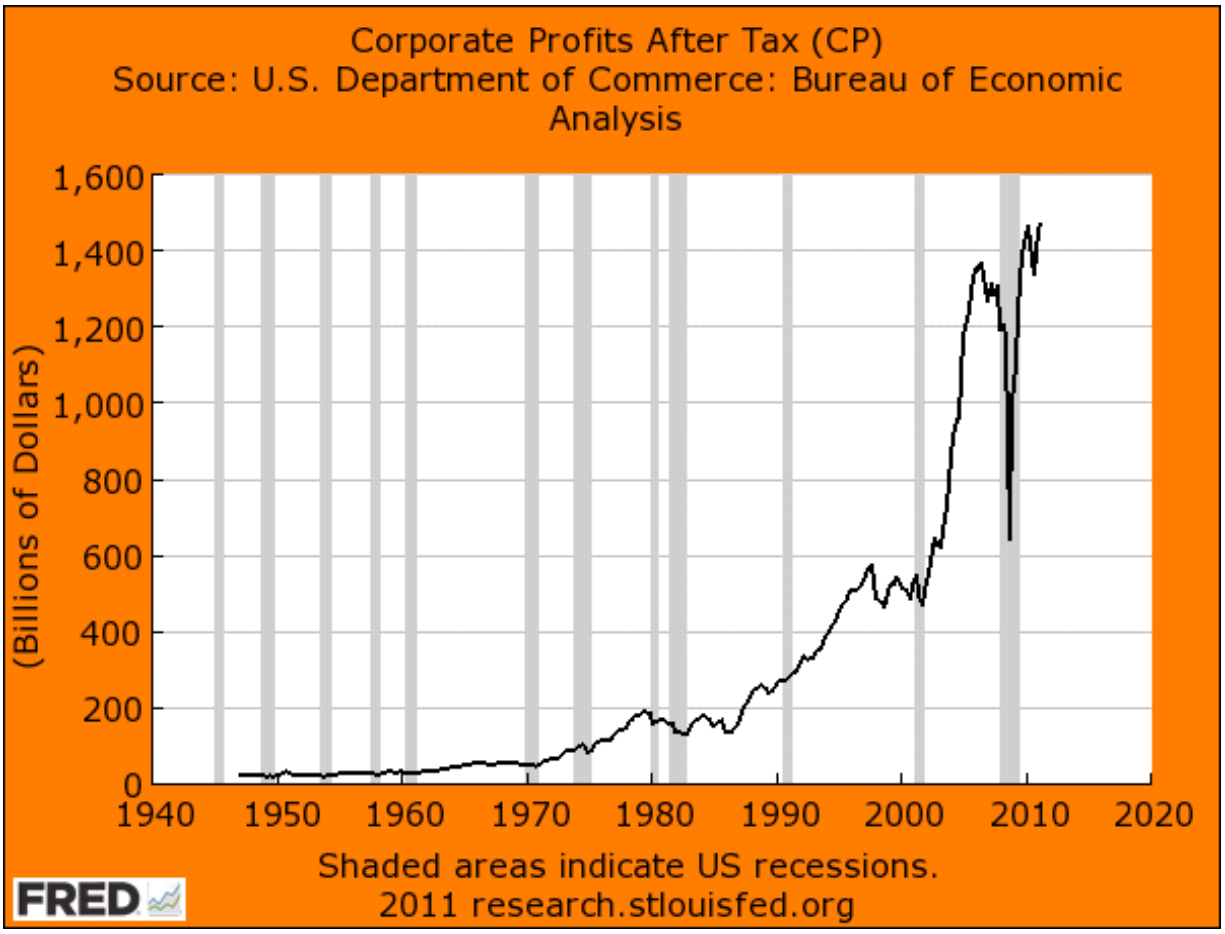
2. Designs Without Control Groups

A. **Interrupted Time-Series Designs**—these designs allow the same group to be compared over time by considering the trend of the data before and after the treatment.

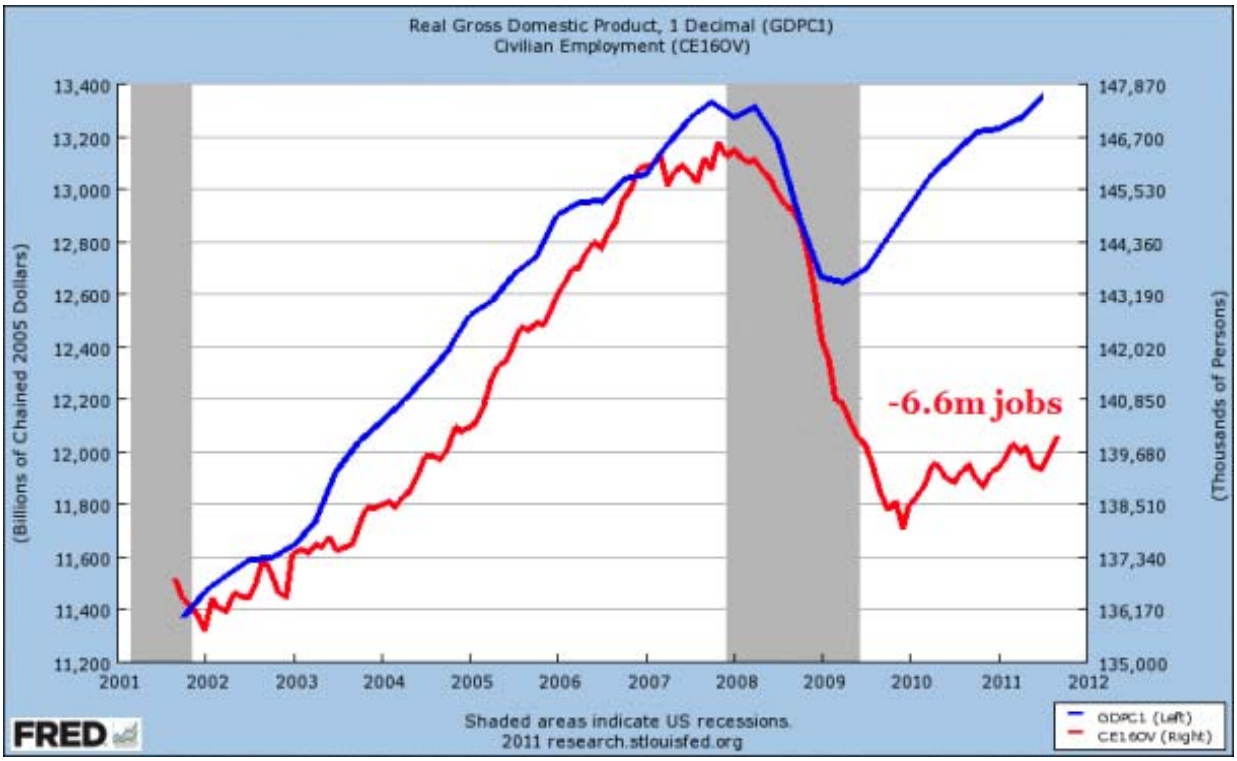




Source: Business Insider
http://articles.businessinsider.com/2012-01-06/markets/30596538_1_job-creation-chart-jobs-number



Source: Business Insider,
http://articles.businessinsider.com/2011-11-05/news/30363121_1_political-strife-chart-fewer-workers



Source: Business Insider,
http://articles.businessinsider.com/2011-11-05/news/30363121_1_political-strife-chart-fewer-workers

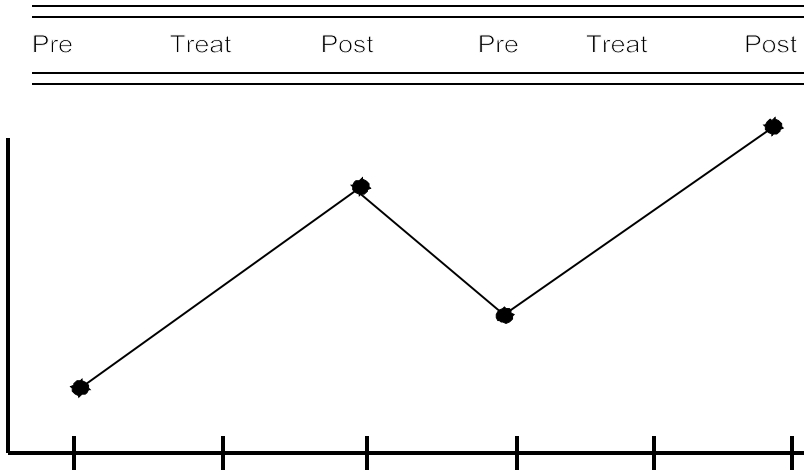
- A variation of interrupted time-series design, which is really NOT a design without a control group, is the **Multiple Time-Series Design**. This is a time-series design in which a control and experimental group are included to rule out HISTORY as a rival hypothesis.

Experimental Group	Y1	Y2.....Y6	X	Y7	Y8.....Y12
Control Group	Y1	Y2.....Y6		Y7	Y8.....Y12

Life satisfaction and marriage

Fig. 2. Trajectories of life satisfaction before and after marriage for individuals who remain married and those who eventually divorce. Adapted from Lucas (2005).

B. **Repeated Treatment Designs**—this research design allows the same group to be compared by measuring participants' responses before and after repeated treatments.



QUESTIONS

- Can we make causal inferences based on quasi-experimental designs?
- How strong will these inferences be?