Paul Lazardsfeld's Criteria for inferring causal relations

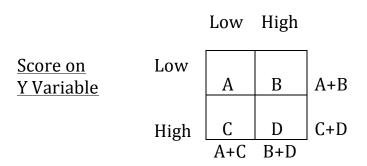
- 1. There must be Association, e.g., $X \leftarrow \rightarrow Y$; $\sim X \leftarrow \rightarrow \sim Y$;
- 2. Time order must be considered, ie, the presumed cause should precede the presumed effect.
- 3. We must rule out plausible rival explanations.

Rules for setting up a crosstabulation.

- Rule 1. Make the independent variable define the columns and the dependent variable define the rows of the table;
- Rule 2. Always percentage down within categories of the independent variable.
- Rule 3. Interpret the relationship by comparing across columns, within rows of the table.

Support for Y Variable by Support for X Variable

Score/Answer on X variable



Support for Y Variable by Support for X Variable

Score/Answer on X variable

0%

| Low | High |
|-----|------|
| | |

Low 100%

High 0 100

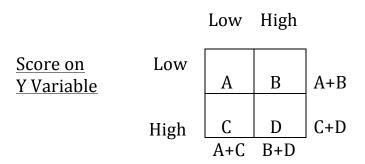
$$X_1 \leftarrow \rightarrow Y$$

and

$$X_2 \leftarrow \rightarrow Y$$

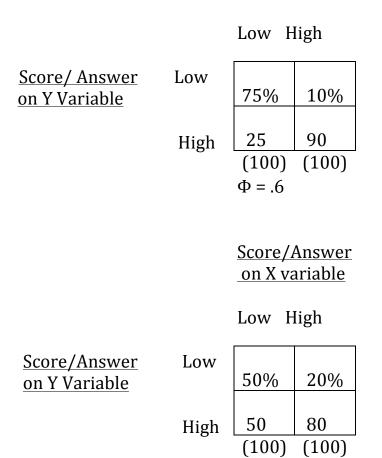
Support for Y Variable by Support for X Variable

Score/Answer on X variable



$$\Phi = \frac{AD - BC}{\sqrt{(A+B)(C+D)(A+C)(B+D)}}$$

Score/Answer on X variable



 $\Phi = .2$

missing values q21 (8,9). crosstabs /tables=q21 BY gender, language /cells=column count /statistics = phi.

Intended Vote on Marijuana Initiative by Gender

| | | Gender | | |
|---------------------------------------|-----|-------------|-------|--|
| | | Male Female | | |
| Intended Vote on Marijuana Initiative | Yes | 62.1% | 48.3% | |
| | No | 37.9% | 51.7% | |
| Total | | 654 | 633 | |

Phi = .138

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Intended Vote on Marijuana Initiative by Language of Interview

| | | Lang | Language | | |
|-------|-----|---------|----------|--|--|
| | | English | Spanish | | |
| | Yes | 59.1% | 16.7% | | |
| | No | 40.9% | 83.3% | | |
| Total | | 1173 | 114 | | |

Phi = .242

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```
*recode MJ measure into 0-1 values*. recode q21 (1=1) (2=0) (8 =.5) into MJprop. value labels MJprop 1 'yes' .5 'dk' 0 'no'.
```

```
*pure pid-wo leaners*.

if (q40c = 1) and (q40e = 1) ppid = 1.

if (q40c = 1) and (q40e = 2) ppid = 2.

if (q40c = 3) ppid = 3.

if (q40c = 2) and (q40d = 2) ppid = 4.

if (q40c = 2) and (q40d = 1) ppid = 5.

value labels ppid 1 'strRep' 2 'Rep' 3 'Indep' 4 'Dem' 5 'strDem'.
```

missing values q21 (8,9).

crosstabs tables = MJpropD by ppid

/cells = column count

/statistics = phi ctau d chisq.

Support for MJ Initiative by Partisanship

| | | strRep | Rep | Indep | Dem | strDem |
|-----------|-----|--------|-------|-------|-------|--------|
| Vote | No | 68.9% | 62.2% | 38.9% | 46.1% | 34.2% |
| Intention | Yes | 31.1% | 37.8% | 61.1% | 53.9% | 65.8% |
| Total | | 177 | 98 | 427 | 152 | 386 |

Cramer's V = .250

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Support for X Low Med High Support for Y Low Med High High

Gamma
$$(\gamma) = \frac{P - Q}{P + Q}$$

$$\frac{P-Q}{P+Q} = \frac{P}{P+Q} - \frac{Q}{P+Q}$$

$$Tau_{b} = \frac{P - Q}{\sqrt{(P+Q+X)(P+Q+Y)}}$$

Income by Education

| | | Some HS | HS grad | | | |
|-------|-------------|---------|---------|----------|----------|-----------|
| | | Some HS | HS grad | Some Col | Col Grad | Post Grad |
| | >\$20k | 49.3% | 31.8% | 16.9% | 8.7% | 3.1% |
| | \$20-39 | 27.9% | 29.5% | 23.6% | 13.7% | 9.0% |
| | \$40-59 | 14.4% | 11.0% | 18.9% | 15.5% | 13.7% |
| | \$60-79 | 5.6% | 7.9% | 12.5% | 11.5% | 10.5% |
| | \$80-100 | 0.9% | 12.3% | 11.4% | 18.2% | 15.6% |
| | \$\$100-200 | 0.9% | 5.8% | 11.1% | 21.2% | 27.0% |
| | \$200+ | 0.9% | 1.7% | 5.6% | 11.2% | 21.1% |
| Total | | 215 | 292 | 360 | 401 | 256 |

Kendall's tauc = .421; Somer's d = .426

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Intended Vote for MJ initiative by Selected Predictors

| | tauc |
|--------------|------|
| Educ | .171 |
| Income | .095 |
| Pol interest | 058 |
| Vote Freq | .045 |
| Democrat | .225 |

PPIC Oct 2016 Statewide Survey

Q21. Proposition 64 is called the 'Marijuana Legalization. Initiative Statute.' If the election were held today, would you vote yes or no on Proposition 64? * ethn Crosstabulation

| | | | ethn | | | |
|--------------------------|-----|----------|--------|--------|--------|--------|
| | | | Hisp | White | other | Total |
| Q21. Proposition 64 | yes | Count | 162 | 382 | 168 | 712 |
| is called the | | % within | 47.0% | 56.9% | 62.0% | 55.3% |
| 'Marijuana | | ethn | | | | |
| Legalization. Initiative | no | Count | 183 | 289 | 103 | 575 |
| Statute.' If the | | % within | 53.0% | 43.1% | 38.0% | 44.7% |
| election were held | | ethn | | | | |
| today, would you vote | | | | | | |
| yes or no on | | | | | | |
| Proposition 64? | | | | | | |
| Total | | Count | 345 | 671 | 271 | 1287 |
| | | % within | 100.0% | 100.0% | 100.0% | 100.0% |
| | | ethn | | | | |

Symmetric Measures

| | | | Approximat |
|------------------|----------|-------|--------------|
| | | | е |
| | | Value | Significance |
| Nominal by | Phi | .109 | .000 |
| Nominal | Cramer's | .109 | .000 |
| | V | | |
| N of Valid Cases | | 1287 | |

Intended Vote on Marijuana Initiative by reported ethnicity

| | | | ethnicity | | |
|---------------|-----|-------|-----------|-------|--|
| | | Hisp | White | other | |
| Intended Vote | yes | 47.0% | 56.9% | 62.0% | |
| | no | 53.0% | 43.1% | 38.0% | |
| Total | | 345 | 671 | 271 | |

Cramer's V = .109

Source: PPIC October 2016 Statewide Survey