$\hat{p}_1 = \hat{p}_{t_{2001}} = 0.59 \qquad n_1 = 3181$

$\hat{p}_2 = \hat{p}_{2013} = 0.43 \qquad n_2 = 3001$

$$\text{error} = \sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}} = 0.01256$$

$z_{0.025} = 1.96$ (Using table)

$$\text{interval} = (\hat{p}_2 - \hat{p}_1 - z^* \text{error},\ \hat{p}_2 - \hat{p}_1 + z^* \text{error})$$

$$\text{lower} \Rightarrow (\hat{p}_2 - \hat{p}_1) - z \cdot \text{error} = -0.16 - 0.0246$$
$$= \boxed{-0.1846}$$

$$\text{higher} \Rightarrow (\hat{p}_2 - \hat{p}_1) + z \cdot \text{error} = -0.16 + 0.0246$$
$$= \boxed{-0.1354}$$

∴ The 95% confidence interval for $p_{2013} - p_{2001}$ is $(-0.1846, -0.1354)$

| Beer | Alpha | Power |
|---|---|---|
| Daisy Cutter Pale Ale | 0.069 | 0.232 |
| Sonora White | 0.037 | 0.145 |
| Blackberry Goose | 0.018 | 0.082 |
| Crooked Light Lager | 0.00 | 0.008 |
| Harvest Diem | 0.00 | 0.00 |