



The Economic and Demographic Determinants of Oregon Lottery Sales

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I. Abstract

Understanding the determinants of Oregon lottery sales is important, as lottery revenues fund a variety of government programs. Our research uses Oregon county level per capita income data collected from the Bureau of Economic Analysis, and county level demographic data collected from GeoFred, the Bureau of Economic Analysis, and Portland State Population Demographics to estimate how economic and demographic factors impact lottery sales in Oregon. The results indicate that the income elasticity of demand for the Oregon lottery is 1, implying that lottery sales represent a constant share of Oregonians' incomes. Additionally, we find that lottery sales vary as a function of gender, age and education levels.

II. Empirical Model and Variables

$$LS_{it} = f(YREAL_{it}, GEN_{it}, AGE1839_{it}, AGE4064_{it}, AGE65_{it}, EDU_{it}, U_{it})$$

- LS_{it} is the log of lottery sales per capita of Oregon counties.
- $YREAL_{it}$ is the log of Oregon county level per capita income
- GEN_{it} is the percentage of the population in each Oregon county that is male.
- $AGE1839_{it}$ is the percentage of the population in each Oregon county that is between the ages of 18-39.
- $AGE4064_{it}$ is the percentage of the population in each Oregon county that is between the ages of 40-64.
- $AGE65_{it}$ is the percentage of the population in each Oregon county that is aged 65 or older.
- EDU_{it} is the percentage of the population in each Oregon county that has a bachelor's degree or higher.
- U_{it} is the unemployment rate in each Oregon county.

III. Theory and Hypotheses

- $YREAL_{it}$ is hypothesized to have a positive relationship with LS_{it} because we expect lottery sales to be a normal good.
- GEN_{it} is hypothesized to have a positive relationship with LS_{it} because we expect males to exhibit a stronger preference for betting in the Oregon lottery.
- EDU_{it} is hypothesized to have a negative relationship with LS_{it} because we expect people with higher education levels to exhibit a weaker preference for betting in the Oregon lottery.
- $AGE1839_{it}$, $AGE4064_{it}$, and $AGE65_{it}$ may have either a positive or negative relationship with LS_{it} depending on the affect of age on preferences for betting in the Oregon lottery.
- U_{it} is expected to have a negative relationship with LS_{it} because we expect higher levels of unemployment to negatively impact lottery betting.

IV. Data

- Panel Data was collected for all 36 Oregon counties for a five year time period from 2011-2015.
- Data sources:
 - Bureau of Economic Analysis (<https://www.bea.gov/>)
 - GeoFRED (<https://geofred.stlouisfed.org/>)
 - Portland State Population Demographics (<https://www.pdx.edu/prc/population-reports-estimates>)

V. Empirical Results

	Version 1	Version 2
C (Constant)	-7.8229** (-2.41)	-7.9397*** (-3.14)
YREAL	1.0798*** (4.21)	1.1691*** (5.50)
GEN	-4.2904** (-1.71)	-3.6361* (-1.52)
AGE1839	8.4918*** (3.71)	6.5688*** (5.022)
AGE4064	8.5362*** (3.34)	6.4637*** (3.32)
AGE65	1.0283 (.82)	-
EDU	-.0449*** (-5.87)	-.0401*** (-6.18)
U	-.0159 (-.89)	-
R-Squared (Adjusted)	.2319	.2337

T-statistics shown in parentheses. *indicates significance at 10% level. **indicates significance at 5% level. ***indicates significance at 1% level. All two tailed tests.

VI. Conclusion

- Our results indicate that Oregonians tend to spend a constant share of their income on lottery items; men tend to spend less than women; younger and middle aged people tend to spend more; people with bachelor's degrees tend to spend less.
- Since lottery revenues fund economic development, public education and natural resource programs, Oregon policy makers could use our results to forecast the flow of funding available for these programs.