

Detailed Linear Regression Results

This file contains the detailed regression output for:

Michael J. Armstrong, “Relationships between increases in Canadian cannabis stores, sales, and prevalence”. *Drug and Alcohol Dependence*, 2021, 109071.
<https://doi.org/10.1016/j.drugalcdep.2021.109071>

The results reported in the paper were obtained in SPSS 26 statistical software via its Linear Regression feature (for ordinary standard errors) and the General Linear Model feature (for HC3 heteroskedasticity-corrected robust standard errors). Both features calculated ordinary least squares regression on the first differences of the observations, i.e., the changes from one time point to the next, for all 10 provinces pooled together.

Sales v. Stores**N = 60 provincial quarterly differences**

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant	2.598	.715	-	3.632	.001	1.167	4.030	-	-
Stores	.332	.048	.672	6.920	.000	.236	.428	1.000	1.000

R² = .452

outlier #2 @ 3.42, good normality, possible skew & heteroskedasticity

Bayes factor 2,965,115 evidence for

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	2.598	.620	4.193	.000	1.358 3.839	.233
Stores	.332	.055	5.996	.000	.221 .443	.383

White p = .098 Mod Breusch-Pagen p = .166

Omit outlier case 2 so N = 59

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant	2.517	.641	-	3.924	.000	1.232	3.801	-	-
Stores	.305	.044	.680	7.005	.000	.218	.393	1.000	1.000

R² = .463

outlier #3 @ 3.13, good normality, possible skew & heteroskedasticity

Bayes factor 3,787,348 evidence for

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	2.517	.611	4.116	.000	1.292 3.741	.229
Stores	.305	.048	6.299	.000	.208 .402	.410

White p = .519 Mod Breusch-Pagen p = .534

N = 20 provincial annual differences

LinReg	B	SE	Beta	t	p	Lo95	Up95
Constant	6.720	1.154	-	5.823	.000	4.296	9.145
Stores	.194	.044	.720	4.399	.000	.101	.287

R² = .518

Probability plot looks ok, residuals look random

JZS Bayes factor 94.94 very strong evidence for

GLM	B	p	HC3 95%CI	PtEta2
Intercept	6.720	.000	4.125 9.315	.622
Stores	0.194	.025	0.028 0.361	.250

Mod Breusch-Pagen p = .604 White p = .856

Users v. Stores**N = 60 provincial quarterly differences**

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant)	2.608	5.257		.496	.622	-7.914	13.130		
Stores	.604	.353	.219	1.711	.092	-.103	1.310	1.000	1.000

R² = .042

outlier #32 @ 3.394, good normality, some heteroskedasticity

Bayes factor 0.414 anecdotal evidence against

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	2.608	5.805	.449	.655	-9.011 14.227	.003
Stores	.604	.311	1.940	.057	-.019 1.227	.061

White p = .220 Mod Breusch-Pagen p = .171

Omit outlier case 32 so N = 59

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant	-.122	4.787	-	-.025	.980	-9.708	9.464	-	-
Stores	.696	.319	.278	2.185	.033	.058	1.334	1.000	1.000

R² = .077

no outliers, good normality, possible heteroskedasticity

Bayes factor 0.978 anecdotal evidence against

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	-.122	5.196	-.023	.981	-10.526 10.283	.000
Stores	.696	.294	2.364	.022	.106 1.286	.089

White p = .230 Mod Breusch-Pagen p = .172

N = 20 provincial annual differences

	B	SE	Beta	t	p	Lo95	Up95
Constant	10.297	9.270	-	1.111	.281	-9.179	29.772
Stores	.418	.355	.268	1.178	.254	-.327	1.163

R² = .072

Probability plot looks ok, residuals look random

JZS Bayes factor = 0.179 moderate evidence against

Mod Breusch-Pagen p = .498 White p = .239

GLM	B	p	HC3 95%CI	PtEta2
Intercept	10.297	.372	-13.351 33.945	.044
Stores	0.418	.478	-0.793 1.629	.028

Users v. Sales**N = 60 provincial quarterly differences**

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant	-.401	5.748	-	-.070	.945	-11.907	11.10	-	-
Sales	1.481	.706	.266	2.099	.040	.069	2.893	1.000	1.000

$R^2 = .071$

outliers #32 @3.274, good normality, minimal heteroskedasticity

Bayes factor 0.822 anecdotal evidence against

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	-.401	5.457	-.074	.942	-11.324 10.521	.000
Sales	1.481	.574	2.580	.012	.332 2.630	.103

White p = .448 Mod Breusch-Pagen p = .840

Omit outlier case 32 so N = 59

LinReg	B	StE	Beta	t	p	Lo95	Up95	Tol	VIF
Constant)	-2.154	5.247	-	-.410	.683	-12.661	8.353	-	-
Sales	1.447	.641	.286	2.255	.028	.162	2.731	1.000	1.000

$R^2 = .082$

no outliers, good normality, minimal heteroskedasticity

Bayes factor 1.127 anecdotal evidence for

GLM	B	RSE	t	p	HC3 95%CI	PtEta2
Intercept	-2.154	5.184	-.415	.679	-12.536 8.228	.003
Sales	1.447	.559	2.588	.012	.327 2.566	.105

White p = .589 Mod Breusch-Pagen p = .650

N = 20 provincial annual differences

LinReg	B	StE	Beta	t	p	Lo95	Up95	VIF
Constant)	12.452	15.266	-	.816	.425	-19.620	44.52	-
Sales	.421	1.360	.073	.309	.761	-2.437	3.279	1.000

$R^2 = .005$

No outliers, good normality & scatter plot

Bayes factor 0.179 (invert 5.58) moderate evidence against

GLM	B	p	HC3 95%CI	PtEta2
Intercept	12.452	.448	-21.271 46.175	.032
Sales	.421	.765	-2.495 3.337	.005

Mod Breusch-Pagen p = .743 White p = .814