

4-18-2018

Trends in Retail Sales Pre and Post 2008 Recession

Follow this and additional works at: https://ecommons.udayton.edu/stander_posters

Recommended Citation

"Trends in Retail Sales Pre and Post 2008 Recession" (2018). *Stander Symposium Posters*. 1157.
https://ecommons.udayton.edu/stander_posters/1157

This Book is brought to you for free and open access by the Stander Symposium at eCommons. It has been accepted for inclusion in Stander Symposium Posters by an authorized administrator of eCommons. For more information, please contact frice1@udayton.edu, mschlengen1@udayton.edu.



Title: Trends in Retail Sales and the 2008 Recession

Name: Luke Bir

Advisors: Dr. Robert Dean,
Dr. Tony Caporale

Study Purpose:

- Determine impact of 2008 recession on long term trends in Retail Sales
- Determine the statistical relationship between retail sales and Gross Domestic Income

Hypothesis:

- Trend growth in retail sales: higher prior to the 2008 recession
- Statistical Relationship between RS and GDI weaker after 2008

Hypothesis Test:

- B coefficients from regression models larger prior to 2008 recession

Regression Models(Time Trends):

- $RS=A+B1(T1)$
- $RS=A+B2(T2)$
- $LG RS=A+B3(T1)$
- $LG RS=A+B4(T2)$
- $EC=R+B5(T1)$
- $EC=R+B6(T2)$

Regression Models: (RS=F(GDI)):

- $RS=A+B7(GDI1)$
- $RS=A+B8(GDI2)$
- $LG RS=A+B9(GDI1)$
- $LG RS=A+B10(GDI2)$
- $EC=A+B11(GDI1)$
- $EC=A+B12(GDI2)$
- $LG EC=A+B13(GDI1)$
- $LG EC=A+B14(GDI2)$

Terms:

- RS = Retail Sales
- EC = E-Commerce Sales
- T1 = Time Period 1 (1999-2007)
- T2 = Time Period 2 (2009-2017)
- GDI(1) = Gross Domestic Income (1999-2007)
- GDI(2) = Gross Domestic Income (2009-2017)

Table 1 Regression Models (Trend)

	Pre 2008			Post 2008		
	R2	B	T-Stat	R2	B	T-Stat
RS	0.9740	1187.8428	62.9929	0.9858	1424.8840	85.2914
LG RS*	0.9812	2.0048	74.3405	0.9753	1.8404	64.3509
EC	0.9690	969.5491	31.6500	0.9788	2257.1943	39.5825
LG EC*	0.9886	35.9957	52.5892	0.9984	19.9876	146.9153

Table 2: Regression Models (RS = F(GDI))

	Pre 2008			Post 2008		
	R2	B	T-Stat	R2	B	T-Stat
RS	0.9950	0.2819	79.5965	0.9865	0.3145	49.0468
LG RS*	0.9949	1.4529	79.2208	0.9852	1.9555	46.8984
EC	0.9869	0.0062	45.7372	0.9706	14.0298	33.5122
LG EC*	0.9637	56.2605	28.6939	0.9908	36.2974	60.6173

*B = annualized growth rates

Table 3: Dummy Variable Analysis (Δ Intercept) Trend Regressions

	Intercept	T-Stat	Δ Intercept
RS (1999-2007)	238884.1	228.0404	
RS (2009-2017)	200730.4	207.5278	-38153.75251
EC (1999-2007)	-11027.7	-5.62713	
EC (2009-2017)	-21645.1	-2.91749	-10617.4436

Table4: Dummy Variable Analysis GDI Regressions

	Intercept	T-Stat	Δ Intercept
RS (1999-2007)	3121576	113.0913	
RS (2009-2017)	2444344	-13.2123	-677231.947
EC (1999-2007)	-11027.7	-5.62713	
EC (2009-2017)	-21645.1	-2.91749	-10617.4436

Conclusions:

- Trend models for RS and EC – post 2008 B coefficients larger than pre 2008 B coefficients (non-logs)
- Log models for RS and EC post 2008 growth rates smaller than pre 2008 growth rates
- GDI models – RS and EC B coefficients larger for post 2008 compared to pre 2008 period
- GDI log models – RS post 2008 growth rate larger than pre 2008 growth rate. EC post 2008 growth rate smaller than pre 2008 growth rate
- Dummy Variable Analysis – intercepts for both trend and GDI regressions smaller in post 2008 period compared to pre 2008 period (recession effect).