

Long Term Inflation Trends and the 2008 Recession An Empirical Analysis: 2001- 2019

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Study Objectives

Develop inflation trends for

1. CPI (Consumer Price Index)
2. PCE (Personal Consumption Expenditures)
3. ECI (Employment Cost Index)

Inflation Trend Time Periods

1. 2001-2019
2. 2001-2007
3. 2009-2019

Hypotheses Tests

1. Inflation rates post 2008 recession lower than pre 2008 inflation rates
2. CPI inflation rates trend higher than PCE inflation rates
3. ECI inflation rates post 2008 recession trend lower than pre 2008 recession
4. ECI is strongly correlated with PCE:
cost push inflation effects demand pull inflation

Research Design

Develop Time Trend Regressions

1. $CPI-ALL = A+B (t^*)$
2. $CPI-xF\&E = A+B (t^*)$
3. $PCE = A+B (t^*)$
4. $ECl = A+B (t^{**})$
5. $ECl- m = A+B (t^{**})$
6. $ECl -P = A+B (t^{**})$

Where:

A,B = Equation Parameters

t^* = Time in Months

t^{**} = Time in Quarters

CPI-ALL= Consumer Price Index

CPI- xF&E= CPI Less Food and Energy

ECl= Employment Cost Index: All Civilians

ECl-m= Employments Cost Index: Manufacturing

ECl-P= Employment Cost Index: Professional

Time Trend Regressions

2001-2007

Y (logs)	X	R ²	B Coefficient	T Stat	Annualized
PCE	Time	0.988	0.0018	94.52	2.15%
CPI-All	Time	0.99	0.0022	107.7	2.67%
CPI-(x F+E)	Time	0.993	0.0018	150.71	2.18%

Time frequency monthly

Time Trend Regressions

2009-2019

Y(logs)	X	R ²	B Coefficient	T Stat	Annualized
PCE	Time	0.978	0.0012	77.28	1.45%
CPI-All	Time	0.976	0.0014	73.13	1.57%
CPI-(x F+E)	Time	0.996	0.0016	182.59	1.94%

Time frequency monthly

**Employment Cost Index
Time Trend Regressions
2001-2007**

	R ²	B coefficient	t stat	annualized
ECI- All Civilian	0.994	0.0055	87.93	2.2%
ECI - Manufacturing	0.973	0.0054	30.63	3.4%
ECI - Professional	0.985	0.0078	41.15	3.2%

**Employment Cost Index
Time Trend Regressions
2009-2019**

	R ²	B coefficient	t stat	annualized
ECI- All Civilian	0.994	0.24	87.93	1.0%
ECI - manufacturing	0.997	0.0056	126.56	2.3%
ECI - professional	0.992	0.0049	75.61	2.0%

Cost Push-Demand Pull Regressions

		2001-2007			2009-20019		
Y(logs)	X(logs)	R ²	B	TSTAT	R ²	B	TSTAT
PCE	ECI	0.97	0.69	33.6	0.87	0.67	38
PCE	ECI-M	0.97	0.7	42.3	0.97	0.65	41.4
PCE	ECI-P	0.97	0.69	34.2	0.98	0.74	43.2
PCE	WS*	0.97	0.51	29.8	0.97	0.32	36.6

*WS = wages and salaries

Conclusions

1. Hypothesis 1: Post 2008 inflation rates lower than pre 2008 inflation rates
2. Hypothesis 2: CPI inflation rates trend higher than PCE inflation rates
3. Hypothesis 3: Post 2008 ECI inflation rates trend lower than pre 2008 rates
4. Hypothesis 4: R^2 s in .97 range for ECI regressions on PCE