

# An Increasingly Negative Outlook

## How Income Inequality Affects Personal Consumption Expenditures

# Abstract

This paper analyzes the effects of income inequality on real personal consumption expenditures (RPCE) within the United States. At first glance, income inequality and RPCE have both risen over time. This paper examines whether income inequality actually causes growth in RPCE. We created a time-series model explaining RPCE with six explanatory variables and data spanning 37 years. Using this model, we were able to determine that income inequality has a statistically significant effect on RPCE. This effect becomes increasingly negative when the distribution of income becomes less equal and there is growth in real income. Thus, our results refute the possibility that income inequality has a positive effect on RPCE.

# Theory–Variables

- Dependent Variable
  - Real Personal Consumption Expenditures (RPCE)
- Independent Variables
  - Real Income (RY)
  - % of income held by the top 1% income holders (1SHARE)
  - Interactive Variable (RY\*1SHARE)
  - Real Wealth (RW)
  - Real Interest Rate (RIR)
  - Consumer Sentiment (CS)

# Theory–Equation

- Regression Equation

$$- RPCE_t = \beta_0 + \beta_1 RY_t + \beta_2 1SHARE_t + \beta_3 RY*1SHARE_t + \beta_4 CS_t + \beta_5 RW_t + \beta_6 RIR_t + u_t$$

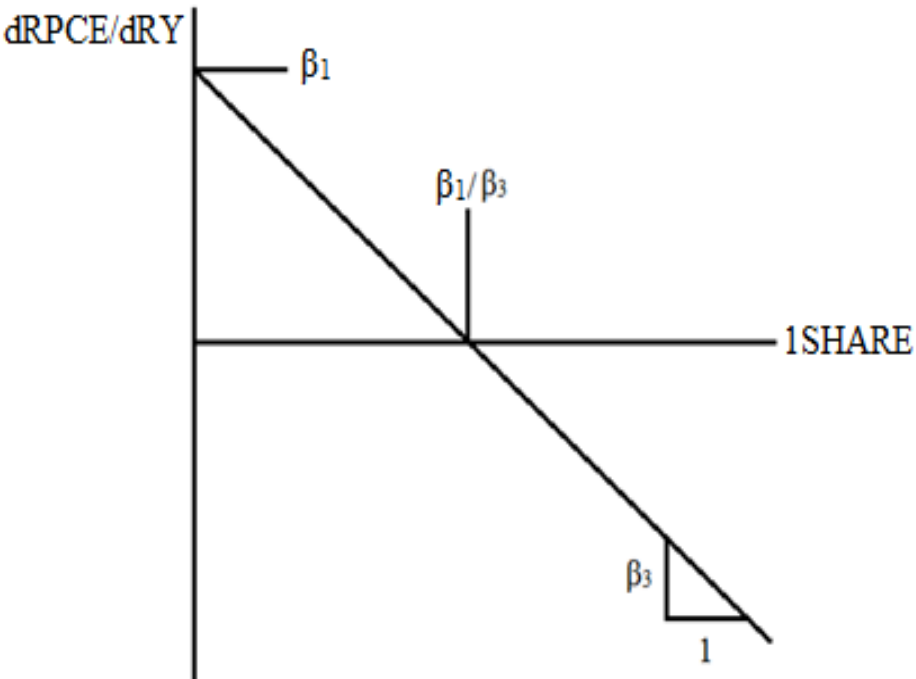
- Hypotheses

•H <sub>O</sub> : $\beta_1 \leq 0$	•H <sub>O</sub> : $\beta_2 \leq 0$	•H <sub>O</sub> : $\beta_3 \geq 0$
•H <sub>A</sub> : $\beta_1 > 0$	•H <sub>A</sub> : $\beta_2 > 0$	•H <sub>A</sub> : $\beta_3 < 0$
•H <sub>O</sub> : $\beta_4 \leq 0$	•H <sub>O</sub> : $\beta_5 \leq 0$	•H <sub>O</sub> : $\beta_6 \geq 0$
•H <sub>A</sub> : $\beta_4 > 0$	•H <sub>A</sub> : $\beta_5 > 0$	•H <sub>A</sub> : $\beta_6 < 0$

# Theory–Derivatives

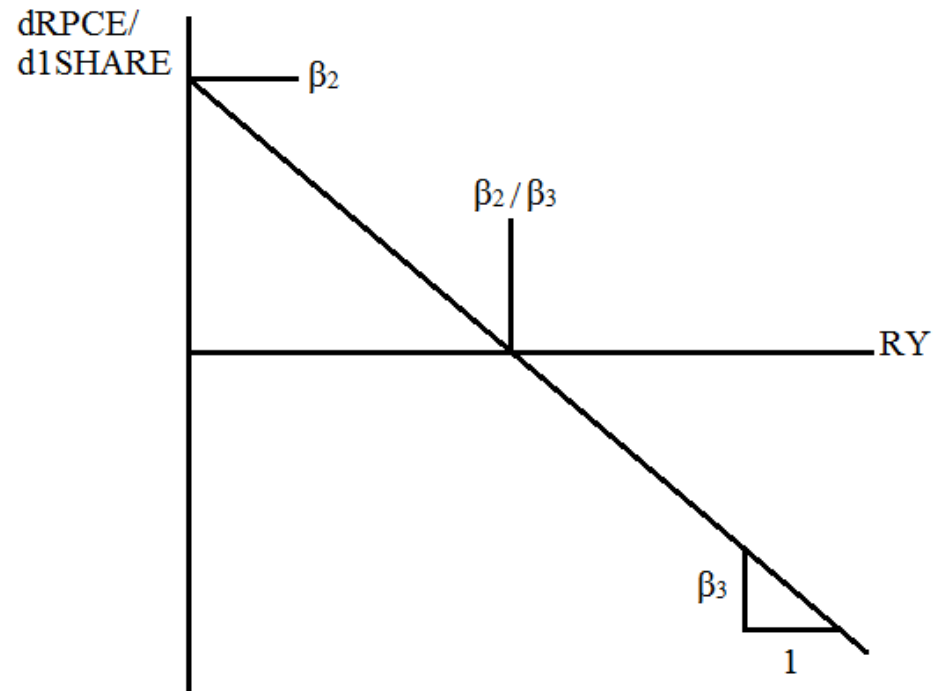
Deriving the marginal propensity to consume (MPC)

$$dRPCE_t/dRY_t = \beta_1 + \beta_3 1SHARE_t$$



Deriving the effect of 1SHARE on RPCE

$$dRPCE_t/d1SHARE_t = \beta_2 + \beta_3 RY_t$$



# Results

- T-Statistics for Independent Variables

Dickey-Fuller Test Statistics and Levels of Significance				
Variables	1%	5%	10%	T-Stat
CS	-4.226815	-3.536601	-3.20032	-2.13121
RW	-4.226815	-3.536601	-3.20032	-2.2153
RIR	-4.226815	-3.536601	-3.20032	-1.78957
RY	-4.226815	-3.536601	-3.20032	-1.05482
1SHARE	-4.226815	-3.536601	-3.20032	-2.71516

- Checking for Cointegration

Dickey-Fuller Test Statistics and Levels of Significance for Residuals of the Regression				
	1%	5%	10%	T-Stat
Residuals	-2.62896	-1.95012	-1.61134	-3.61745

# Results

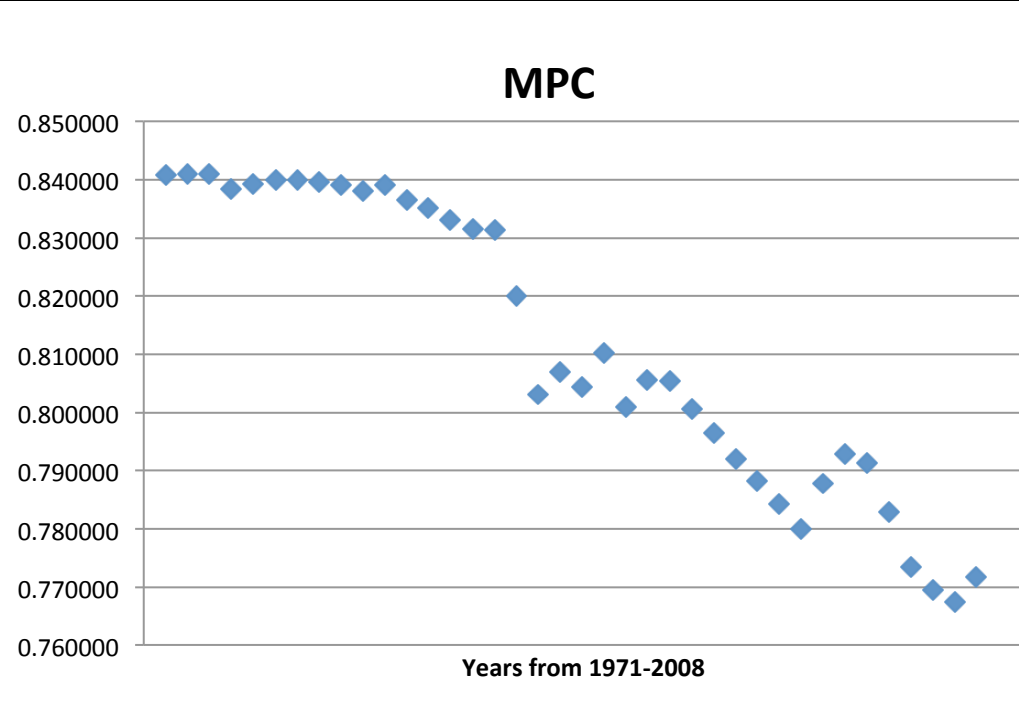
Newey-West Regression Results			
Variables	Coefficient	t-statistic	Prob.
C	-9.17E+11	-6.834312	0
RY	0.895159	26.95407	0
1SHARE	3.36E+10	2.402091	0.0225
RY*1SHARE	-0.006987	-4.41758	0.0001
RIR	-3.58E+10	-6.848505	0
RW	0.016907	4.278621	0.0002
CS	-3.95E+08	-0.380121	0.7064
R-squared	0.999167		
Adjusted R-squared	0.999006		

## Measuring the MPC for 1971

$$dRPCE_t/dRY_t = MPC = \beta_1 + \beta_3 1SHARE_t$$

$$dRPCE_t/dRY_t = .895159 - .006987 * 7.79$$

$$MPC = 0.84073027$$

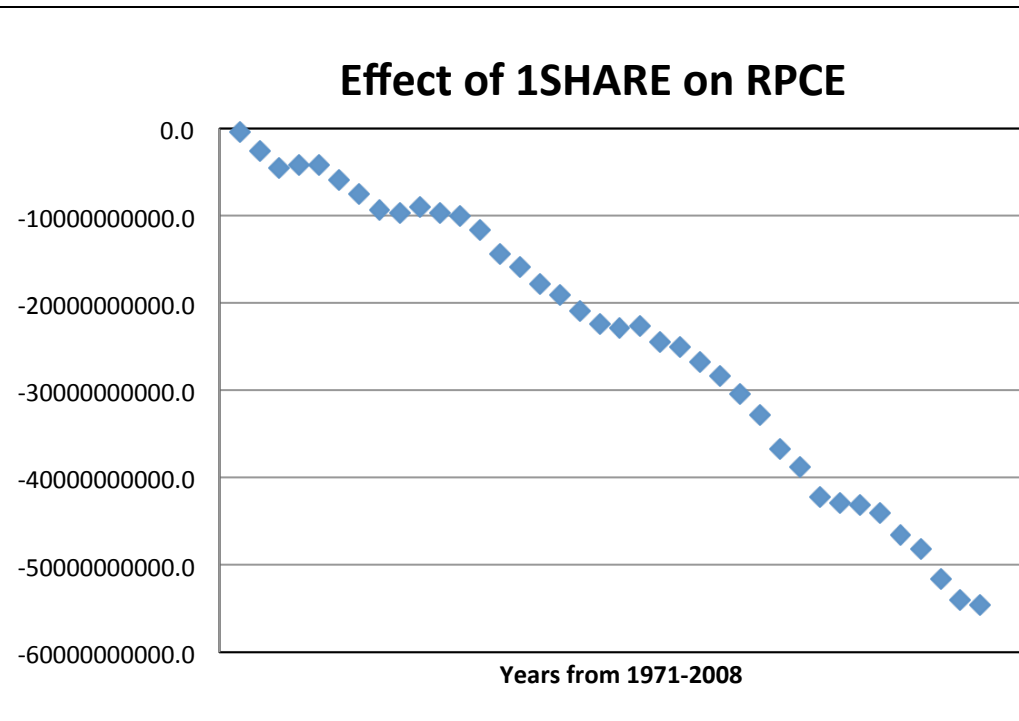


## Measuring the effect of 1SHARE on RPCE for 1971

$$dRPCE_t/d1SHARE_t = \beta_2 + \beta_3 RY_t$$

$$dRPCE_t/d1SHARE_t = 33,600,000,000 - .006987 * 4862379595061.728$$

$$dRPCE_t/d1SHARE_t = -373446230.6962935$$





# Conclusion

- Economists will continue to study income inequality because it is a measurement of equity and affects the economy in numerous ways.
- We expected that income inequality would decrease the marginal propensity to consume in the U.S.
- Our results showed that the aggregate effect of an increase in income inequality was a decrease in consumption.
- As real income increases in the economy, a constant level of income inequality will have an increasingly negative effect on personal consumption expenditures.
- As we recover from the Great Recession we will witness income inequality's increasingly negative effect on real personal consumption expenditures.