

# Using Quantile Regression to Examine Health Care Expenditures during the Great Recession

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## Presenter Disclosures

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months

No relationships to disclose.

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## BACKGROUND

The longest of any recession since World War II officially began in December 2007 and ended in June 2009.



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### BACKGROUND

The national unemployment rate was 5.0% in December 2007, and was 9.5% in June 2009 at the end of the recession.

US home foreclosures filings hit a record high.



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### BACKGROUND

The economic recession had different impacts across different races and ethnic groups.

- Inflation-adjusted median wealth
  - Latino households (66% reduction )
  - African American households (53% reduction )
  - white households (16% reduction )

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### BACKGROUND

The Great Recession was significantly associated with a lower incidence of health care utilization.

It also slowed health care spending to historical low growth.



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**BACKGROUND**

Health spending: consumers' different health needs.

- Lower expenditures: demand for relatively elastic primary and preventive health care services
  - access to and preferences for preventive services
  
- The higher expenditures: demand for more inelastic, expensive, and intensive health care services
  - chronic illness and high-technology care, especially among those individuals with severe health issues.

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**The recession could have had heterogeneous effects across the distribution of health care expenditures**

Elastic primary and preventive health care services (**\$100 plus**)

**VS**

Inelastic, expensive, and intensive health care services (**\$10,000 plus**)

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**OBJECTIVE**

To investigate the association between the Great Recession and the heterogeneous impact along the health spending distribution of different populations.

- Hypothesis: the economic recession may relate to a relatively substantial reduction of health spending at the lower end of the distribution.

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**OBJECTIVE**

To examine racial/ethnic disparities in health expenditure adjustments along the expenditure distribution.

- Hypothesis: while the magnitude of health expenditure variation will differ across racial/ethnic groups, more variability will be observed in the lower end of the health expenditure distribution.

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**DATA**

- Medical Expenditure Panel Survey 2005-2006 and 2008-2009

- the noninstitutionalized, civilian population ages 18 to 64 years old.

- Health Care Expenditure

- Total health care spending
- Spending on specific types of health care services

- physician visits, prescription drug, outpatient visit, inpatient visit, ED visit, and other services (such as dental care, vision care, etc.).

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**Variables**

- The Great Recession indicator

- equal to 1 if the survey year was 2008-2009, and 0 if the survey year was 2005-2006

- Interaction terms of this recession indicator with race and ethnicity

- Demographic and SES variables

- Health needs

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### Analysis

- Quartile Regression
  - two-part model with quantile regression estimation
- Difference-in-difference analysis
- Sensitivity Analysis

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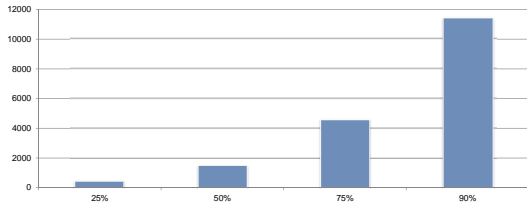
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### Total Health Care Expenditure (\$)



Total Health Care Expenditure (\$) during 2008-2009

mean	Percentiles				
	10%	25%	50%	75%	90%
4905	166	487	1523	4612	11424

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### Recession and the likelihoods of having any health care expenditure

	\$Total	\$ Dr	\$ Rx	\$ Outpatient	\$ Inpatient	\$ ED	\$ Other
	OR	OR	OR	OR	OR	OR	OR
Before Recession	-	-	-	-	-	-	-
Recession (2008-2009)	<b>0.88*</b>	<b>1.02</b>	<b>0.92*</b>	<b>0.90***</b>	<b>0.90*</b>	<b>1.23***</b>	<b>0.91***</b>
Whites	-	-	-	-	-	-	-
Latinos	0.72***	0.84**	0.74***	0.85*	1.09	1.23***	0.75***
African Americans	0.65***	0.69***	0.71***	0.83***	1.13	1.34***	0.70***
Asians	0.52***	0.70***	0.56***	0.81	0.92	0.85	0.72***
Other Races	0.64**	0.78*	0.78*	0.81	1.06	0.95	0.78*

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**Recession and health care expenditures**

	10 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	90 <sup>th</sup>
	Coef	Coef	Coef	Coef	Coef
<b>Total Health Care Expenditures</b>					
Before Recession (2005-2006)	reference	reference	reference	reference	reference
Recession (2008-2009)	-0.21***	-0.19***	-0.06***	-0.03	0.01
Whites	reference	reference	reference	reference	reference
Latinos	-0.29***	-0.24***	-0.14***	-0.11***	-0.10*
African Americans	-0.36***	-0.33***	-0.22***	-0.14***	0.00
Asians	-0.42***	-0.43***	-0.28***	-0.22***	-0.22
Other Races	-0.02	-0.08	-0.05	-0.10	-0.12
Latinos×Recession	0.04	0.04	-0.05	-0.08	-0.03
African Americans×Recession	0.00	0.01	-0.04	-0.03	-0.08
Asians×Recession	0.01	0.02	-0.08	-0.10	-0.08
Other Races×Recession	-0.35**	-0.16	-0.12	-0.03	0.11

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**Recession and health care expenditures**

	10 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	90 <sup>th</sup>
	Coef	Coef	Coef	Coef	Coef
<b>Prescription Drug Expenditures</b>					
Recession (2008-2009)	-0.68***	-0.61***	-0.41***	-0.23***	-0.06*
<b>Physician Visits Expenditures</b>					
Recession (2008-2009)	-0.04	0.01	0.04	0.07**	0.06*
<b>Outpatient Expenditures</b>					
Recession (2008-2009)	0.01	0.03	0.02	0.02	0.05
<b>Inpatient Expenditures</b>					
Recession (2008-2009)	-0.28**	-0.08	-0.02	0.05	0.11
<b>ED Visits Expenditures</b>					
Recession (2008-2009)	-0.05	0.12*	0.23***	0.28***	0.28***
<b>Other Services Expenditures</b>					
Recession (2008-2009)	-0.59***	-0.19***	-0.07***	-0.05	-0.02

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**Results**

The Great Recession was associated with significant drops in health care expenditures, particularly at the lower end of its distribution (**primary care**).




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### Results

No significant relationship between the recession and health expenditures at higher distributions of health care spending (**intensive medical interventions**).



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### Results



Inexpensive primary care spending **DOWN**



Expensive medical care spending **UP**



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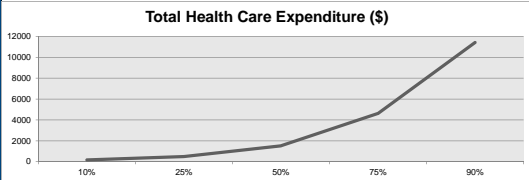
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### Significant Racial and Ethnic Disparities



- Racial and ethnic disparities were more substantial at the lower end.
- Disparities persisted during the recession.

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### Limitation

- Cross sectional analysis.
  - It is likely that the trends of health care spending during 2005-2006 and 2008-2009 were affected by other unobserved factors, such as geographic variation of unemployment across the U.S. and the implementation of different state and local policies.
- Health care expenditures were self-reported.

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### Policy Implication

The importance of providing cost-effectiveness treatments during economic crisis

- Primary care
- Preventive care
- Prescription drug use

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### Policy Implication

Value of the Affordable Care Act

1. Essential Health Benefits
2. Expansion of eligibility in Medicaid
3. The state-based Marketplaces/Health Exchanges

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## Policy Implication

All of these ACA provisions

1. Reduce the burden of health care spending for low-income families
2. Help to close racial and ethnic disparities in health care spending

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