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.

BACKGROUND

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

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)

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.
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.

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)

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.
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.

DATA
  - 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.).

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
Analysis

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

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

<table>
<thead>
<tr>
<th>Percentiles</th>
<th>10%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4905</td>
<td>166</td>
<td>467</td>
<td>1523</td>
<td>4612</td>
</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
<td></td>
<td>11424</td>
<td></td>
</tr>
</tbody>
</table>

Recession and the likelihoods of having any health care expenditure

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>$ Dr</th>
<th>$ Rx</th>
<th>$ Outpatient</th>
<th>$ Inpatient</th>
<th>$ ED</th>
<th>$ Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Recession</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Recession (2008-2009)</td>
<td>0.88*</td>
<td>1.02</td>
<td>0.92*</td>
<td>0.90**</td>
<td>0.90*</td>
<td>1.23***</td>
<td>0.91***</td>
</tr>
<tr>
<td>Whites</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Latinos</td>
<td>0.72**</td>
<td>0.84**</td>
<td>0.74***</td>
<td>0.85**</td>
<td>1.09</td>
<td>1.23***</td>
<td>0.75***</td>
</tr>
<tr>
<td>African Americans</td>
<td>0.65**</td>
<td>0.69**</td>
<td>0.71***</td>
<td>0.83**</td>
<td>1.13</td>
<td>1.34***</td>
<td>0.70***</td>
</tr>
<tr>
<td>Asians</td>
<td>0.52**</td>
<td>0.70**</td>
<td>0.56***</td>
<td>0.81</td>
<td>0.92</td>
<td>0.86</td>
<td>0.72***</td>
</tr>
<tr>
<td>Other Races</td>
<td>0.64**</td>
<td>0.78</td>
<td>0.78</td>
<td>0.81</td>
<td>1.06</td>
<td>0.95</td>
<td>0.78</td>
</tr>
</tbody>
</table>
## Results

The Great Recession was associated with significant drops in health care expenditures, particularly at the lower end of its distribution (**primary care**).
Results
No significant relationship between the recession and health expenditures at higher distributions of health care spending (intensive medical interventions).

Results
Inexpensive primary care spending DOWN
Expensive medical care spending UP

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

Policy Implication
The importance of providing cost-effectiveness treatments during economic crisis
- Primary care
- Preventive care
- Prescription drug use

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
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