(Un?)Happiness and Gasoline Prices in the USA

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Context

- Gasoline price trends
- Domestic and global economic crisis
- Implication on individual welfare through *"happiness economics"*

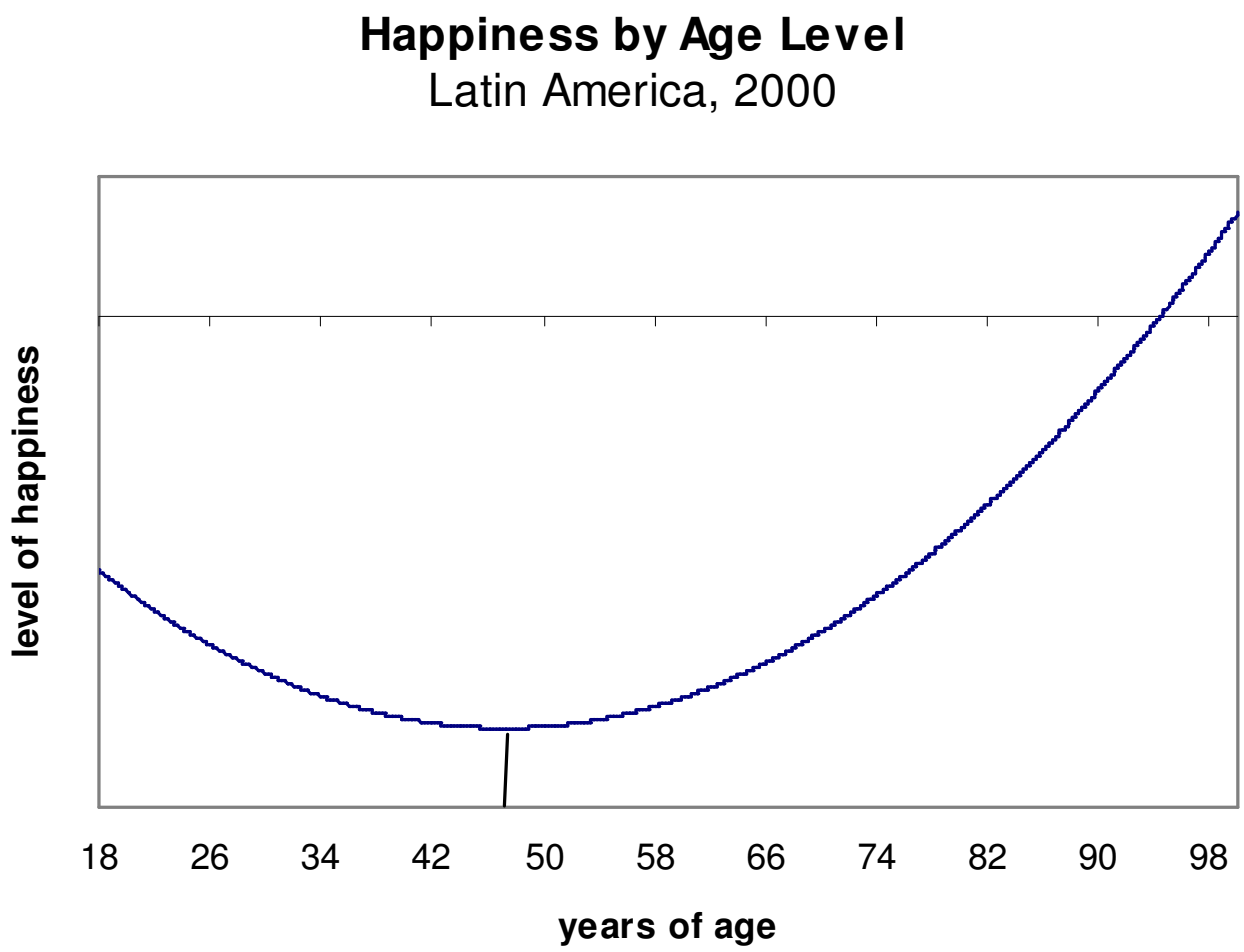
Happiness Economics

- What is it
- Methodology
- What it reveals and what it does not
- Key results – across countries and over time
  a) Effect of income changes
  b) Easterlin paradox
  c) Age and other determinants
  d) The paradox of unhappy growth
- Relevance to the economic crisis of 2008-2009

Happiness and income per-capita (1990s)

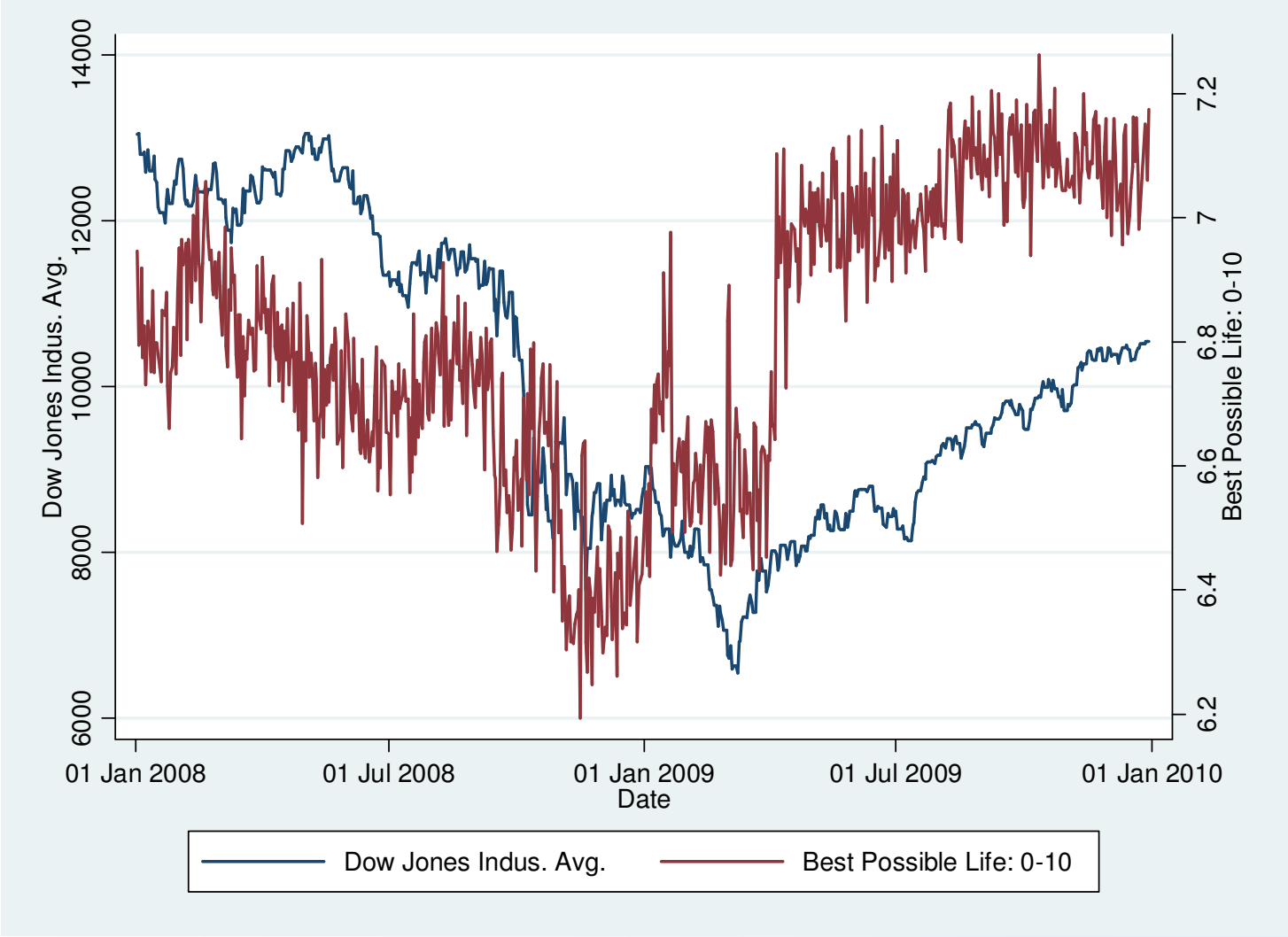
Source: Graham and Pettinato, 2002.

Happiness in Latin America: Age-pattern conforms!



Source: Authors' calculations using data from Latinobarometro

The economic crisis of 2008-2009



Source: Authors' calculations using data from Gallup Daily Poll and other sources

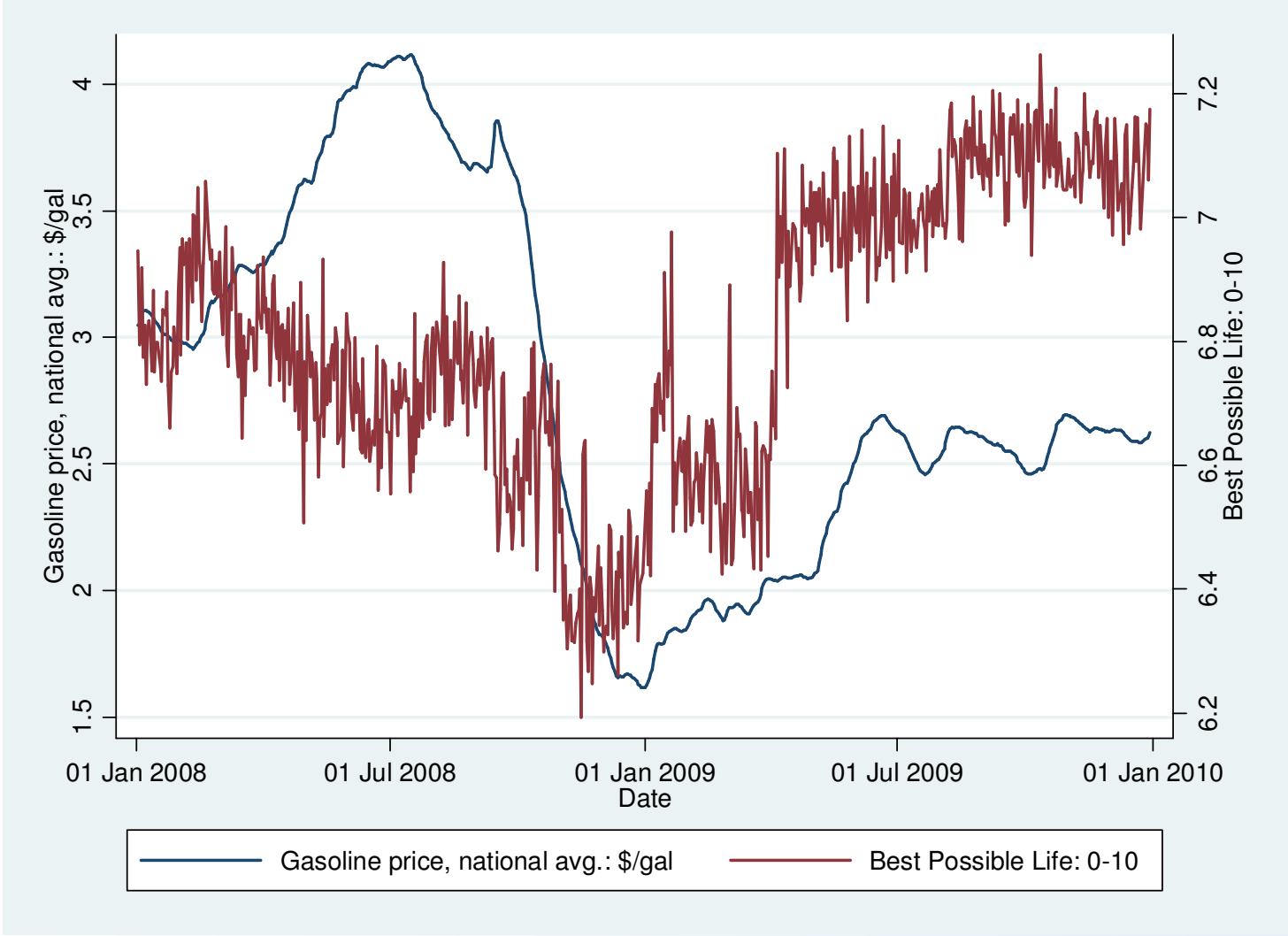
Additional results

- Response to uncertainty
- Adaptation to adverse developments
- The paradox of unhappy growth

Gasoline prices and (un?)happiness study

- **Data:** Gallup Daily Poll (2008-2009), Dow Jones, Gasoline prices and consumption data – Baker Institute, University of Michigan-Reuters, Bureau of Labor Statistics
- **Hypotheses:**
  a) Did gasoline prices have well-being effects in addition to those of the economic crisis?
  b) Did these effects vary across income cohort and regions?
  c) What were the channels driving these effects? (A variety of possible channels: budget constraints, signaling effects, and adaptation to fluctuating prices)
- **Valuation of these effects:** Comparing well-being effects of gasoline price changes to those of the crisis; Income equivalent effects on happiness?

Gasoline prices and well-being



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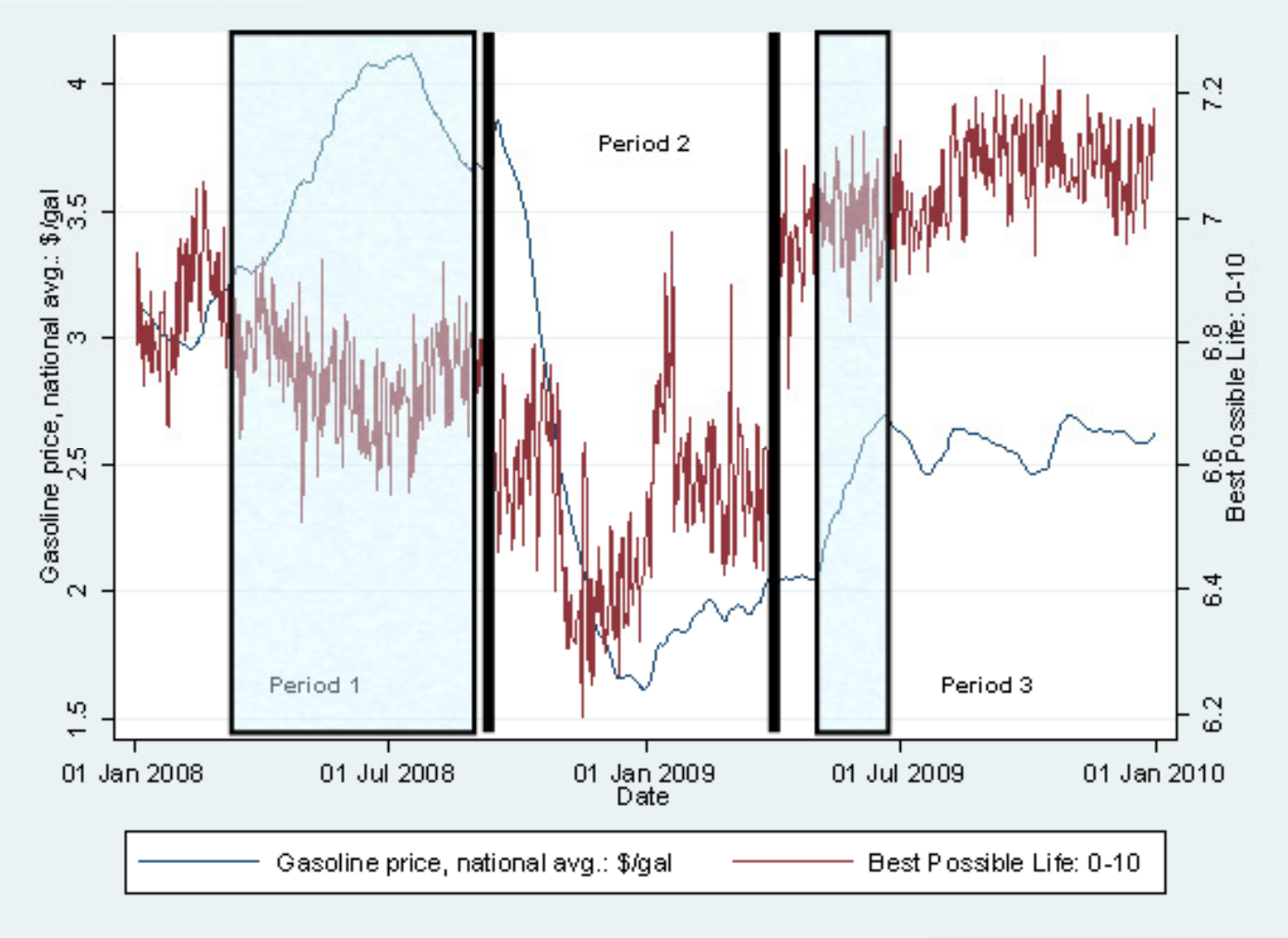
Gasoline prices and well-being



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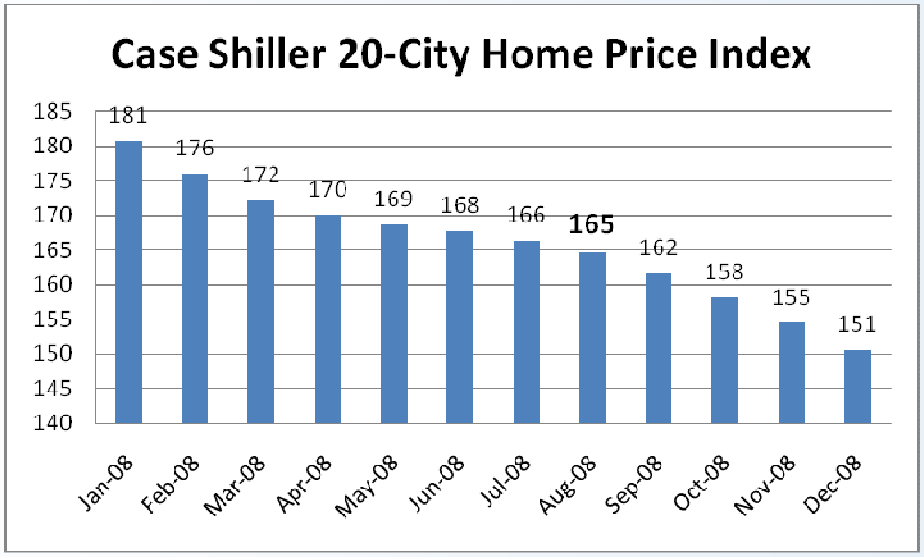
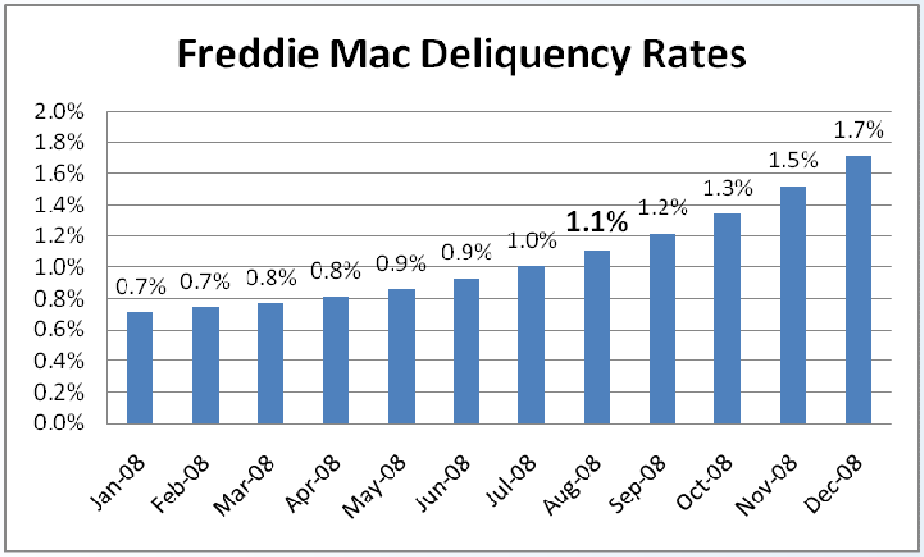
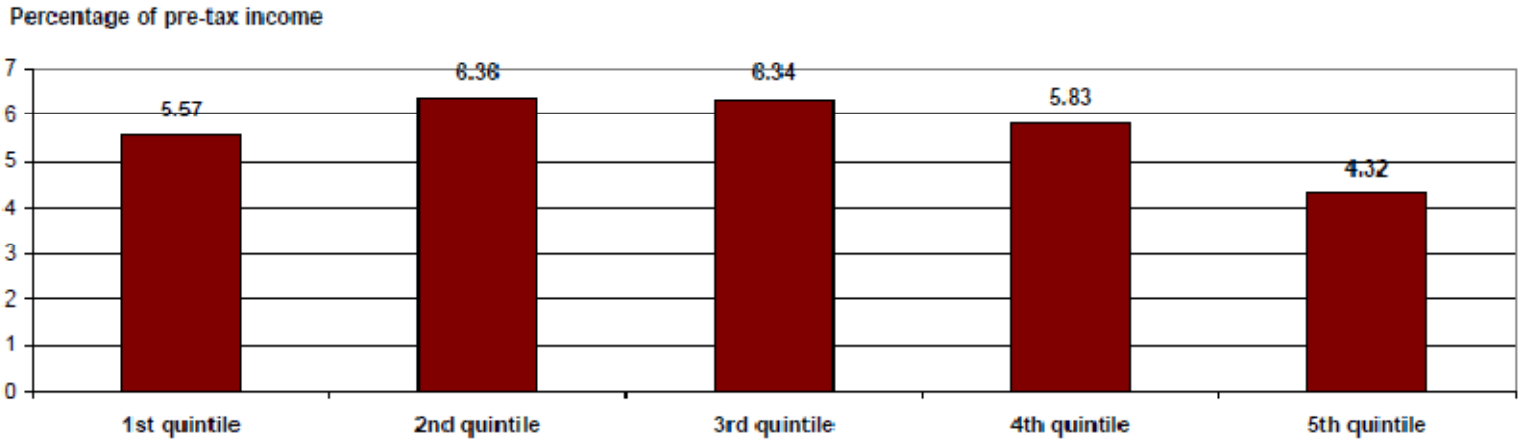
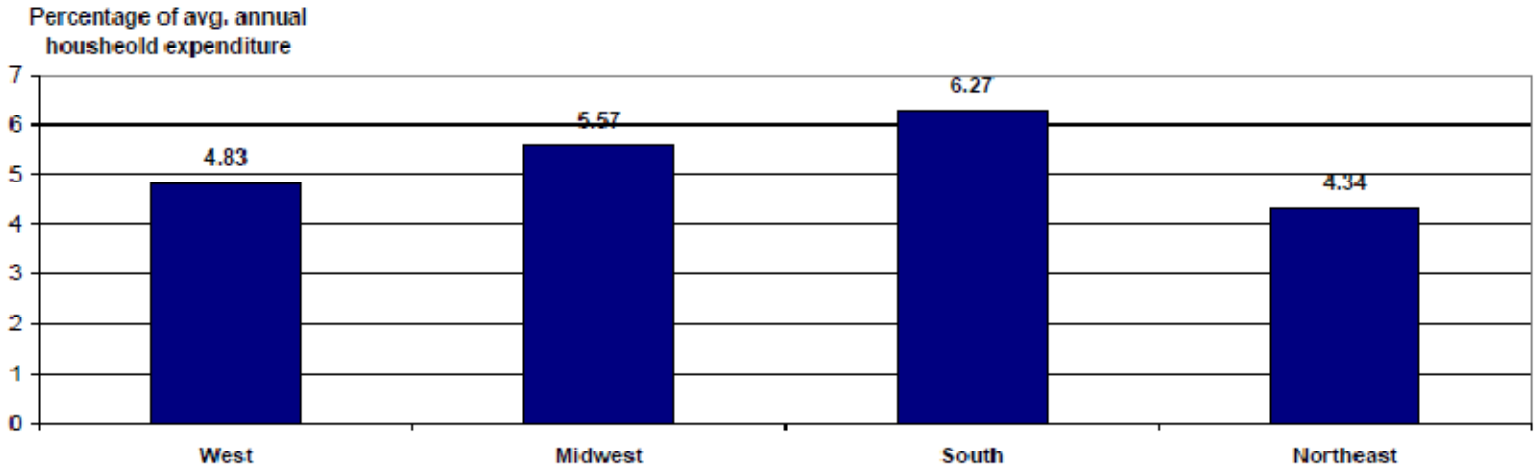
Other market indicators





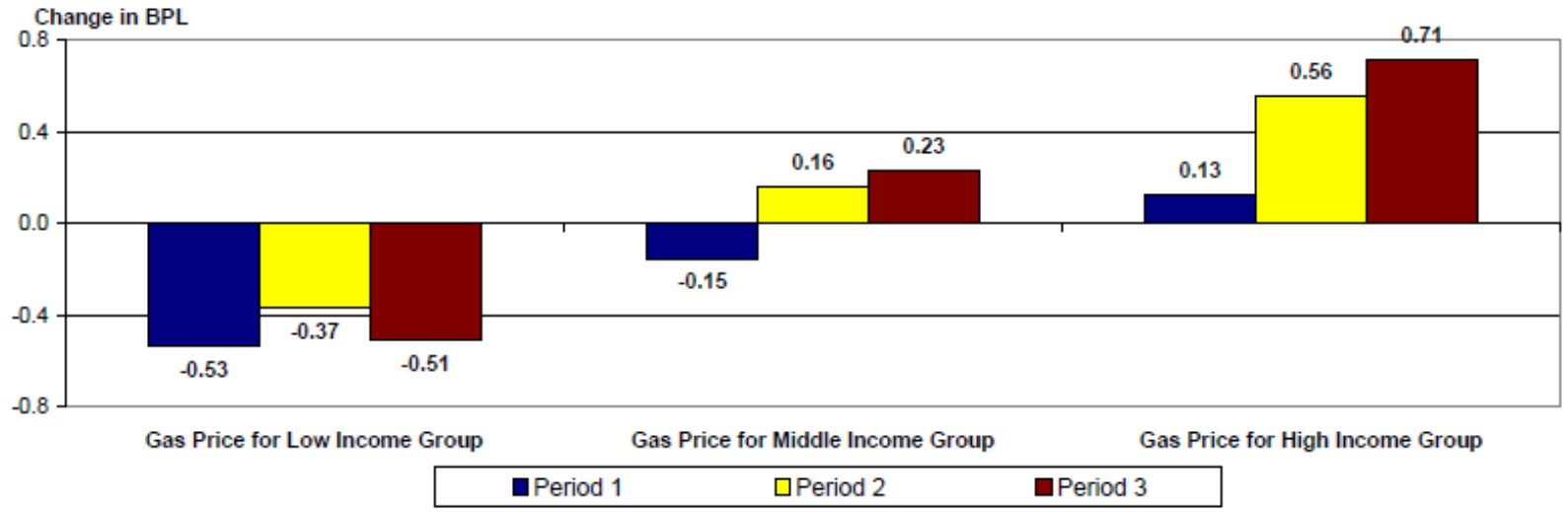
Gasoline expenditure

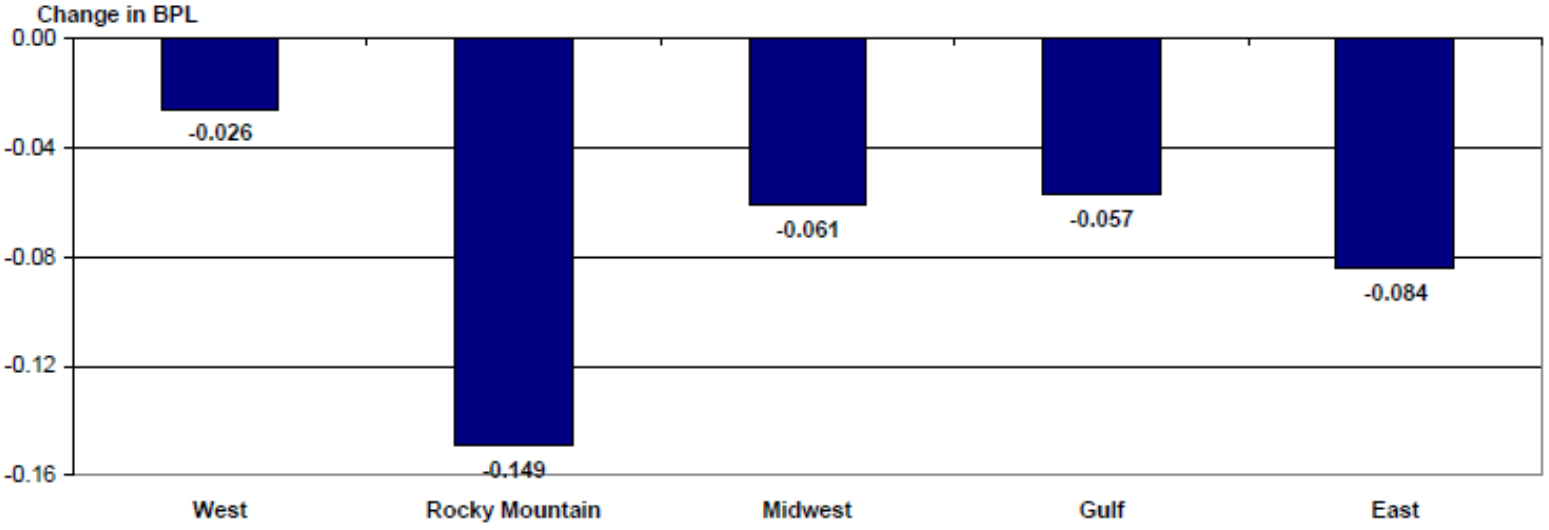




Source: BLS Consumer Expenditure Survey, 2008

Responsiveness to gasoline price changes





Notional income equivalence

	All income groups	Inc group $0-500	Inc group $2000-4000	Inc group $3000-5000	Inc group $5000-10000	Inc group $10000 and above
All periods						
Income Equivalence (gp midpoints)	**-$529.09**	**-$3.53**	**-$276.95**	**-$467.69**	**-$1,359.49**	**-$1,617.47**
Income Equivalence % of income (gp midpoints)	**-7.1%**	**-1.4%**	**-9.2%**	**-11.7%**	**-18.1%**	**-14.4%**
Period 1						
Income Equivalence (gp midpoints)	**-$1,039.40**	**-$68.90**	**-$587.44**	**-$633.55**	**-$2,195.00**	**-$2,871.01**
Income Equivalence % of income (gp midpoints)	**-13.9%**	**-27.6%**	**-19.6%**	**-15.8%**	**-29.3%**	**-25.5%**

Conclusions

- Gasoline price trends matter to well-being
- Differing effects on different income cohorts
- Differing effects in different periods
- Differing effects in different regions of the country
- And then there's California
- Gasoline price threshold effects
- Effect of well-being versus alternative measures of affect
- Notional equivalent income effects

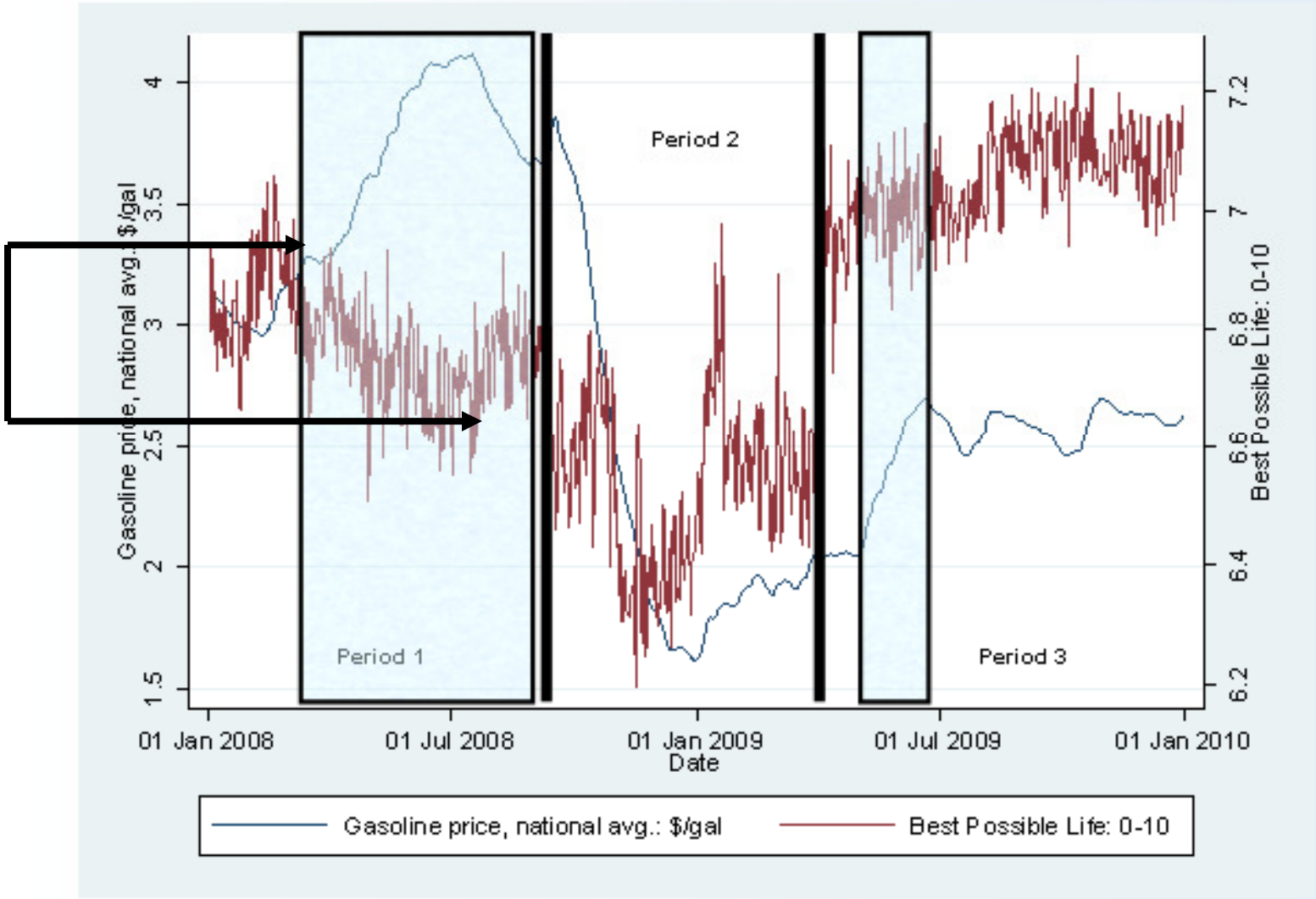
Conclusions, cont.

- Regressive effects of rising gasoline prices: Negative budget constraint effects dominate for the poor, while positive signaling effects dominate for the rich.
- Threshold effects: Above a certain point, high prices matter to all groups
- Regions tend to adapt to pre-existing trends

Caveat:

- The extraordinary period under study
- Results untested yet for more stable economic times, or for large extrapolation of gasoline prices.

Gasoline prices and well-being

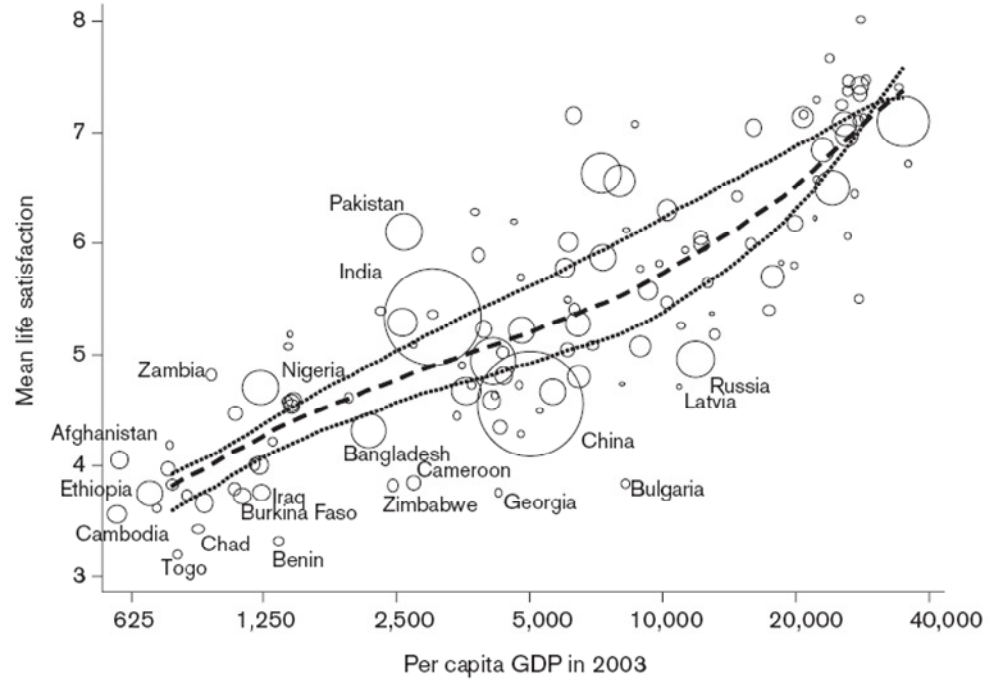


Source: Authors' calculations using data from Gallup Daily Poll and other sources

Effect of income on BPL

Figure 2

Each Doubling of GDP Is Associated With a Constant Increase in Life Satisfaction



Source: Penn World Table 6.2.

Note: Each circle is a country, with diameter proportional to population. The scale on the x-axis is logarithmic. The middle line shows average life satisfaction for each level of per capita GDP while the outer two lines show the same thing, but for two age groups, ages 15 to 25 — the upper line for most of the figure — and ages 60 and over — which is usually the lower line. GDP per capita in 2003 is measured in purchasing power parity chained dollars at 2000 prices.

Source: Deaton (2008) using Gallup World Poll

Roughly 10 times the magnitude

- On the 0-10 scale, each doubling of income is associated with a change of about 0.6 points
- Thus, with the US at around $45,000/person of GDP, the decline of 0.2-0.3 in last graph is equivalent to about **$7,500-$11,250 in a given year**
- In 2008, with an average price of $3.30/gal, prices increased about $1.15/gal, **or $950/year for the** average family (Consumer Expenditure Survey)

Reasons for large magnitude

Short-term issues:

- Loss aversion and adaptation
- Uncertainty about how bad conditions will get
- Helplessness/powerlessness
- Anger/disgust
- Diminished status of larger vehicles

Long-term issues:

- Fear of future economic conditions or national security problems

Magnifier of effect:

- Availability bias from the way gasoline is sold

Policy implications

- **All else being equal, stricter fuel economy standards:** We have previously missed a large psychological cost of price shocks that could be 10 times the magnitude of the income loss alone
- **Greater SPR flexibility:** There could be benefits of trying to reduce magnitude of price shocks
- **Constraints on CO_2 price fluctuations with mechanisms such as a safety valve or price collar:** This will reduce the possibility of noticeable price shocks
- **Refunds/transfer to lower-income households:** This group was most clearly negatively affected
- **Incentives to employers to provide alternatives:** Telecommute, teleconference, locate near public transportation

Happiness economics background

- Background: People asked to evaluate their lives with a variety of types questions used, most global (i.e. “On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead?”) and some others immediate (i.e. “Were you angry/sad/frustrated yesterday?”)
- Quite long history: Questions asked in Europe and U.S. every six months or year since 1970s
- Rapidly growing field: In database Scopus, about 4-fold increase in papers mentioning “happiness” or “subjective well-being” from 1999 to 2009 (224 vs. 881 and 77 vs. 278)

Happiness economics background, cont.

- Relevant topics studied, but not energy prices: effect of various macroeconomic conditions, income, distance traveled to work
- Increasing acceptance for use in public policy: *"Measures of subjective well-being provide key information about people's quality of life. Statistical offices should incorporate [these] questions"* (Commission led by Joseph E. Stiglitz and Amartya Sen, 2009)

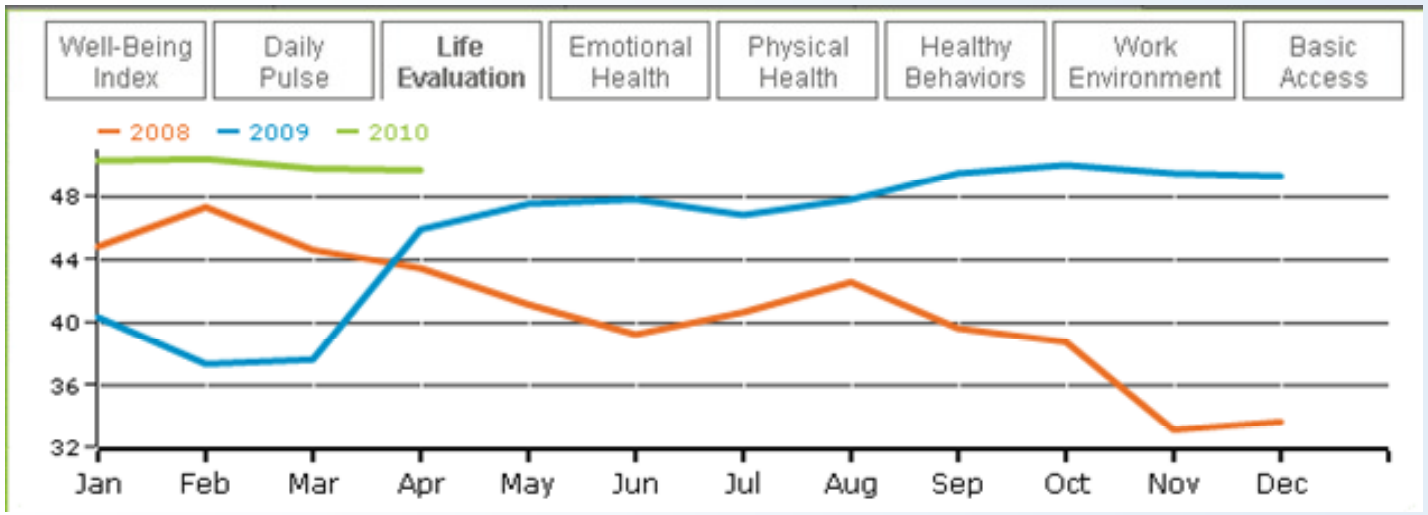
Gallup data set

- Ask 1,000 people every day in the United States since January 2, 2008
- Data set now has about 800,000 respondents
- The Cantril Self-Anchoring Scale
- Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top.
- The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you.

(1) On which step of the ladder would you say you personally feel you stand at this time?

(2) On which step do you think you will stand about five years from now?

Trends


Well-Being Index
Daily Pulse
Life Evaluation
Emotional Health
Physical Health
Healthy Behaviors
Work Environment
Basic Access
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