

Abstract

This work represents an exploratory study of public attitudes about energy availability and measures related to addressing shortfalls in energy supplies. The study also examines household responses to increased energy costs during this earliest stages of a potential new energy regime. The study finds mixed views about energy availability, especially in the foreseeable future. Despite this, the study finds overwhelming support for energy conservation and alternative energy development. The study also finds that recent increases in energy costs caused substantial financial and economic hardships among Ohio households.

Introduction

Recent increases in the cost of energy have prompted serious discussions about U.S. energy needs. While energy prices have receded modestly from the peaks of 2005 and 2006 (EIA 2006), they are once again on the rise and there is growing concern among some that the world is entering a new energy regime where supply will remain static or even decline and costs will steadily increase (Goodstein 2005; Heinberg 2003; and Simmons 2005), seasonally achieving new highs and never fully retreating to the previous lows. This poster address the following issues:

1. Public attitudes regarding energy availability & responses;
 2. Household responses to increased costs at the earliest stages of this potentially new energy era.
- Of Sociological interest is how household responses (particularly cutbacks in consumption due to financial hardship) are related to residential location along the rural-urban continuum and socioeconomic status.

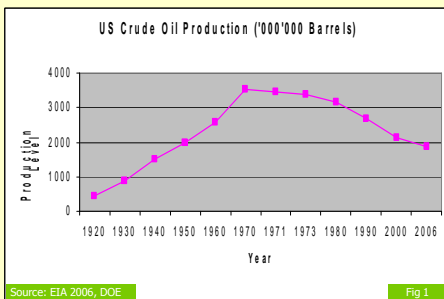
Hypothesis

The examination of public attitudes about the emerging energy regime are primarily exploratory, with no a priori expectations regarding what Ohioans attitudes about the current state of energy and its availability. In late 2005 when these questions were developed and early 2006 when Ohioans were studied, it was believed that it was too early to expect strong views and opinions. Primarily, this data was collected to establish a baseline for future comparisons. In terms of financial hardship and household adjustments to the early spike in transportation and home heating fuels, the following relationships were expected:

- a) Cutback in consumption due to increased energy costs will be higher among households located in more rural locations than those in more urbanized places. This relationship is expected because rural residents tend to drive longer distance to work than urban residents (Magliet 1982; Shoemaker et al. 2006; and Nutley 1996). Poverty, which also affects how households respond to exigent situations (such as substantial increases in energy costs), is higher in rural places than urban areas.
- b) Socioeconomic status (income) will be negatively related to cutting consumption as a response to increased energy costs.

The Context: The Concept of Peak Oil

Unlike the 1970s "energy crisis", where political forces conspired to limit supply, the current situation may be a result of global liquid fuel production approaching a peak. The term peak oil is increasingly being utilized to reflect the fact that we may be approaching the point where the amount of recoverable fossil fuels is limited and that expansion of supply to meet growing demand is no longer easily possible since the most readily available supplies have been used up. Peak production of U.S. oil occurred around 1970 (Figure 1) and total U.S. production has steadily declined since then. Some argue that global production of oil has also recently peaked or soon will. If this is a case, then the likely scenario is a period of market volatility where demand exceeds supply and prices spike prompting demand retraction. In this scenario, prices will in the short-run moderate a balance between supply and demand, but eventually a point may be reached where supply steadily declines causing prices to increase considerably. The consequences of a peak in oil production for society and the economy could be dire as no reasonable alternatives currently exist for the worlds primary energy source.



Source: EIA 2006, DOE

Fig 1

Data and Methods

To explore public attitudes and early household response to the early energy regime, data from the 2006 iteration of the Ohio Survey of Food, Agriculture and Environmental Issues (N=1727) are utilized. This biennial mail survey of Ohioans seeks to understand public views of emerging food, agricultural and environmental issues. Equal number of respondents were selected from Ohio's core metropolitan and fringe and nonmetropolitan counties. The final sample was weighted to account for any possible under-representation.

Results

The results are presented under three subheadings: attitudes about the future availability of fossil fuel; addressing future shortfall in energy supplies (conservation and alternative energy sources); and evidence of the household consequences of recent increases in energy costs.

Future Availability of Fossil Fuels

> In early 2006 Ohioans opinions regarding future energy availability were mixed:

A substantial proportion of the Ohio public (39%) disagreed or strongly disagreed (SD) that "there are sufficient oil and natural gas supplies around the world to meet US needs for the foreseeable future" (see Fig 2). A substantial proportion of the Ohio public (38%), however, agreed or strongly agreed (SA) with the statement. A much larger proportion of the respondents (43.9%) agree or strongly agree (SA) with the more general statement that "the era of abundant fossil fuels is coming to an end" (Fig 3). A small proportion (about 17%) of the Ohio public disagree with this statement. Quite a substantial proportion of Ohio public remains ambivalent (neutral) about whether or not the end of the era of abundant fossil fuels is nigh.

Energy and Society: Public Views and Responses to the Emerging Energy Regime

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Fig 2: Oil and Gas Supplies Exist

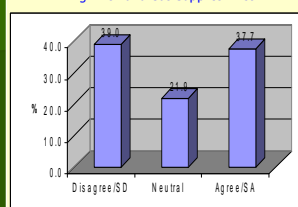
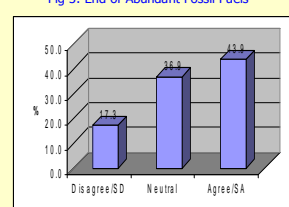


Fig 3: End of Abundant Fossil Fuels

**Conservation**

> There is strong support for energy conservation among Ohioans:

While conservation is not currently an important part of the current dialogue about energy, Ohioans appear quite supportive of increased efforts to conserve energy. About 83% of respondents agree or strongly agree (SA) with the statement that "more should be done to encourage energy conservation" (Fig 4). Only about 3% of the respondents disagree or strongly disagree (SD) with the statement, while about 13% remained neutral.

Over 69% of respondents agree or strongly agree (SA) with the statement that "Americans must change their consumptive lifestyles to avoid the onset of an energy 'crisis' in the US". Again, only a small proportion of respondents disagree or strongly disagree with the statement (Fig 5).

This level of support for the encouraging of conservation is to be expected given that a good proportion of respondents agree that fossil fuels might be running out in the foreseeable future.

Fig 4: Encourage Energy Conservation

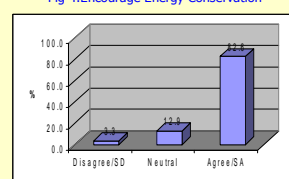


Fig 5: Americans Must Change Consumptive Lifestyles

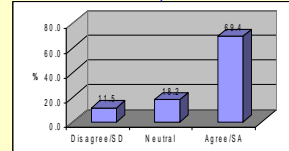


Fig 6: More Done to Develop Biofuels

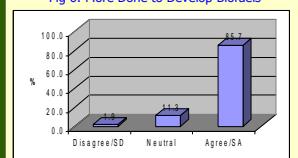
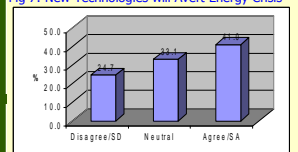


Fig 7: New Technologies will Avert Energy Crisis

**Household Consequence of Hikes in Energy Costs**

While general attitudes about the new energy regime are relevant to the formulation of public policy, a more immediate and personal impact of the new energy regime is its impact on household budgets. To explore these more personal responses to energy, data was collected from Ohioans concerning changes they have made in their household budgets due to increased fuel and transportation fuel costs in late 2005 and early 2006.

A large proportion of Ohioans reported some cutbacks in household consumption (Table 1). Over 70% of survey respondents reported some amount of cutting back (either "a lot," "some," or "a little") on holiday or vacation trips, money put into savings or a retirement account, purchases of appliances or furnishings, recreational or social activities, dining out, purchase of clothes, and use of a car (Table 1). A substantial proportion of respondents also reported cutting back on essentials such as groceries (63%) and health care or prescription drugs (47%). The most substantial cutbacks were reported in the area of vacation or holiday trips, with about 34% of respondents reporting having cutback **a lot** on this category of spending (Table 1)

An important question from a rural sociological perspective is how consequences are differentially experienced in society. Two sets of bivariate comparisons are reported here, examining how cutbacks vary according to residing in a more rural versus a more urban places and varies by household income.

Cutbacks by Rural & Urban

In terms of place of residence, cutbacks were most common among rural households (86% of households reported some or substantial cutbacks), but a high proportion of residents of all types of places reported some or substantial cutbacks. Seventy four percent of suburbanites reported some or substantial cutbacks, 76% of urbanites, and 78% of exurbanites (Table 2).

Looking at the likelihood of making substantial cutbacks, the data revealed that rural residents were the most likely to report making substantial cutbacks (33% of all rural households), followed closely by urban core households (28%) (Table 2; fig 8). Residents of the suburbs and the exurbs were less likely to report having to make substantial cutbacks (21% and 25% respectively).

Fig 8: Cutbacks by Residence

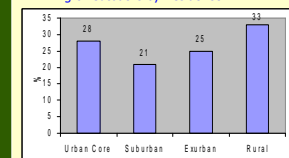
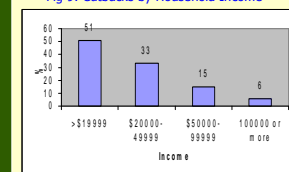


Fig 9: Cutbacks by Household Income

**Research highlights**

- In early 2006, Ohioans views of the a new energy regime were mixed.
- There is substantial attitudinal support for increased energy conservation among Ohioans.
- There is substantial confidence among many Ohioans that technology will successfully overcome energy limitations; there is also substantial public support for biofuels.
- In terms of household response, as hypothesized, poorer and more rural Ohioans are having to make the most serious adaptations to the new, emerging energy regime.

Practical Applications and Next Steps

- Conservation is largely absent from much of the current dialogue regarding responses to the current changes in the energy regime; Ohioans appear to be supportive of conservation efforts and from a risk management standpoint, a multifaceted approach that seeks to develop alternative energy sources as well as encourage greater conservation may have merit.
 - As the new energy pricing regime becomes more long-term, these results suggest there will be a need for increased attention by policy-makers on assisting those subpopulations most adversely impacted by the changing energy regime.
- Next steps in this research include further tracking of Ohioans views in the 2008 Ohio Survey to further appreciate Ohioans views and responses to the emerging energy regime. Particular attention will be given to short-term and long-term conservation efforts of Ohio households, such as using energy efficient lighting, purchasing more energy efficient vehicles, or home weatherization.

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Table 1: Extent of Cutback in Consumption due to Increased Energy Costs

Cutback	A Lot		Some		A Little		None
	Lot	Some	Little	None	Percent	Percent	
Vacation or holiday trips	33.8	26.4	19.8	20.0			
Money put into savings or retirement account	26.3	28.3	19.3	26.1			
Purchases of appliances or home furnishings	25.3	26.4	21.0	27.3			
Recreational or social activities	22.4	33.1	22.0	22.4			
Dining out	27.2	28.9	23.1	25.8			
Purchase of clothes	19.3	31.0	22.7	27.0			
Use of car	17.6	37.0	26.5	18.9			
Communication/Media (e.g. internet, cellphones, cable)	13.4	23.4	22.8	40.4			
Health care or prescription drugs	11.6	18.5	16.7	53.2			
Groceries	9.9	29.9	24.1	36.7			

Table 2: Cutback in Consumption by Residence, Household Income and Debt Stress

Respondent Characteristic	No or Little cutback		Some Cutbacks		Substantial Cutback		Total
	Percent	Percent	Percent	Percent	Percent	Percent	
Residence:							
Urban	24	48	28	100			
Suburban	26	53	21	100			
Exurban	22	53	25	100			
Rural	14	53	33	100			
Income:							
> \$19,999	7	42	51	100			
20-49,999	14	53	33	100			
50-99,999	24	61	15	100			
100,000 or more	53	41	6	100			

Cutbacks by household income

In terms of socioeconomic status (household income), respondents from households with annual incomes of less than \$19,999 were the most likely to report some or substantial cutbacks (93% of households), while respondents from high income households, annual incomes of \$100,000 or more, were half as likely to report some or substantial cutbacks (only 47% percent of households) (Table 2). Focusing more specifically on the likelihood of making substantial cutbacks, the data show that 51% respondents from households with annual incomes of less than \$19,999 reported substantial (or the most severe) cutbacks in consumption, while only a paltry 6% of respondents from households with incomes of \$100,000 or more reported substantial cutbacks (Fig 9)