



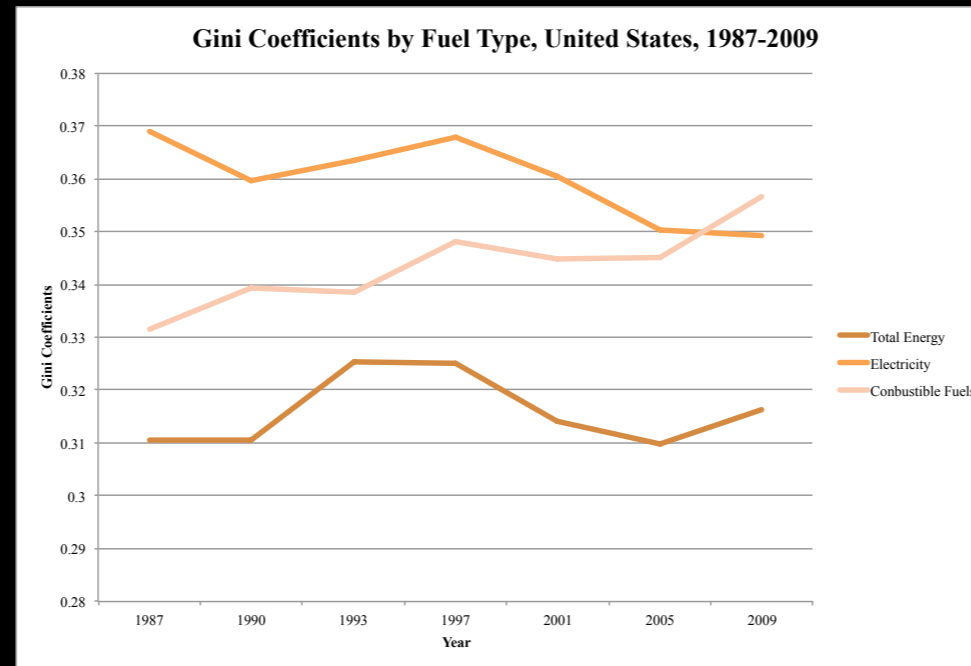
Energy Inequality in the United States: What's the difference?

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Motivation

The distribution of energy use and carbon emissions is of central importance to climate change research and policy (Jorgenson et al. 2011). The implications of differential energy use are important for any policy related to energy use, particularly at the household level.

Energy inequality is inextricably related to individual household consumption, and as such, important drivers of that consumption are important to consider. This study specifically takes up demographic drivers (O'Neill and Chen 2002).



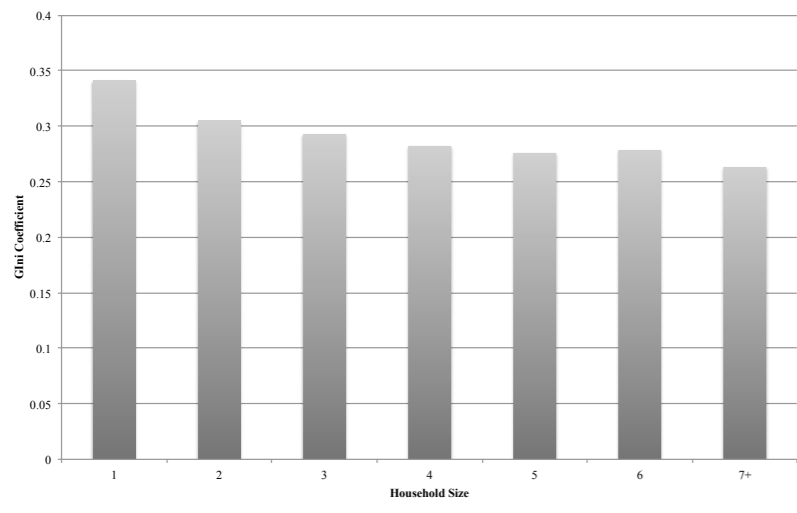
Data and Methods

Data: The Residential Energy Consumption Survey is a repeated cross-sectional nationally representative survey of households in the United States for the years 1987, 1990, 1993, 1997, 2001, 2005, and 2009.

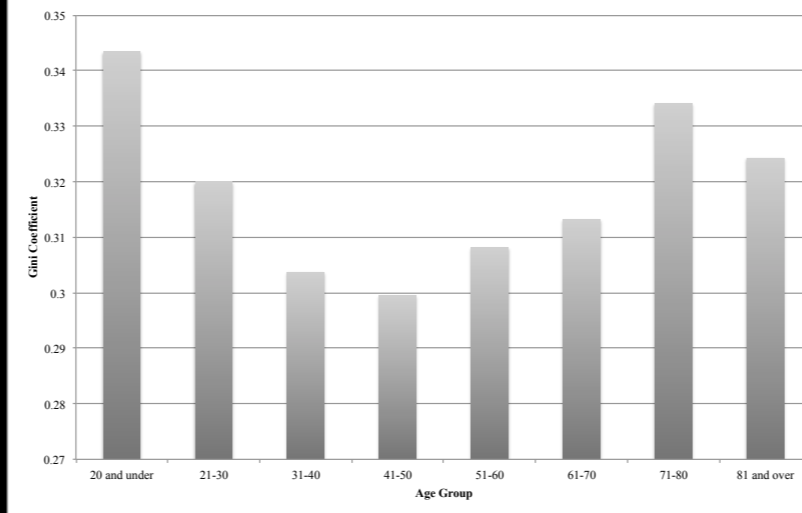
Methods: These data were used to estimate Gini coefficients that range from 0, indicating perfect equality, to 1, indicating perfect inequality. These coefficients were calculated for each year by fuel. Gini coefficients for each household size and householder age are calculated only for the year 2009 due to a lack of temporal variation.

Measures: *Total energy use* is the total amount of energy in british thermal units (BTU) consumed directly by the household in the year preceding the survey. *Electricity* use is the total amount of electricity used over the preceding year, also in BTUs. *Combustible fuels* is the total amount of energy in BTUs derived from sources that require combustion to be used (e.g. Natural Gas). *Household size* is the number of members living in a household. *Householder age* is the age of the member identified as the household head.

Gini Coefficients by Household Size, United States, 2009



Gini Coefficients by Householder Age, United States, 2009



Results Summary and Conclusions

- Energy Inequality in the U.S. over the study period was roughly similar, marked by increases in the mid-90's. Increasing equality in electrical consumption is offset by increasing inequality among combustible fuels.
- Larger household sizes exhibit lower levels of inequality than smaller households, while a U-shaped relationship between energy use and householder age exists. It appears that economies of scale in larger households leads to more equity. Inequality is highest among age groups with the highest energy consumption.
- Future work should consider the amount of energy inequality that is directly responsible for energy inequality and identify other important factors.

References

- Jorgenson, D. W., Goettle, R., Ho, M. S., Slesnick, D. T., & Wilcoxon, P. J. (2011). The distributional impact of climate policy. *The BE Journal of Economic Analysis & Policy*, 10(2), 17.
- O'Neill, B. C., & Chen, B. S. (2002). Demographic determinants of household energy use in the united states. *Population and Development Review*, 28, 53-88.