

Impacts of Unconventional Shale Gas Development on Psychological Stress & Quality of Life in Pennsylvania



<http://gisweb.cc.lehigh.edu/marcellus/>

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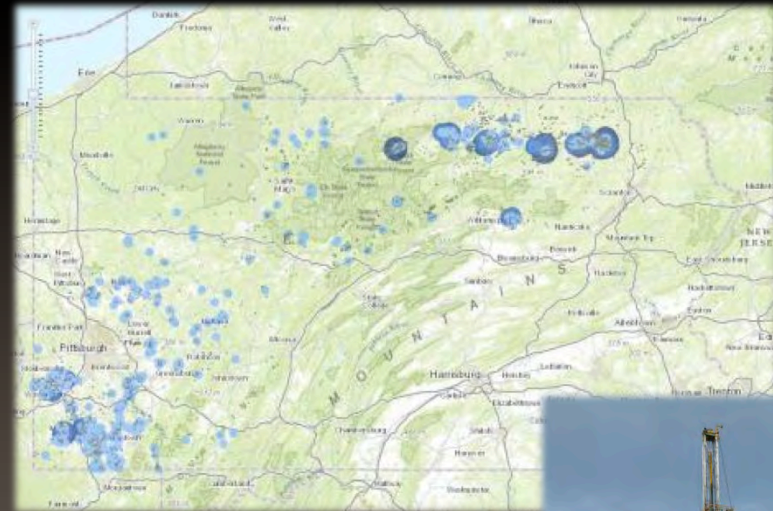
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Unconventional shale gas development

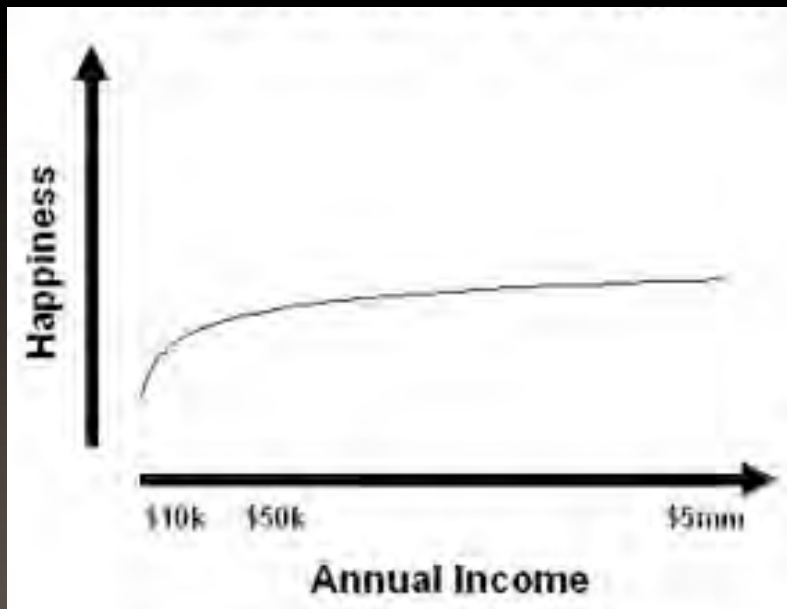
Research needs:

- Psychological stress
- Quality of life
- Economic sustainability

(boom & bust?)



Happiness in America



“Emotional well-being rises with income, but there is no further progress beyond an annual income of \$75,000”

Kahneman and Deaton 2010

A fly fisherman wearing a tan hat, a blue jacket, and a grey vest is standing in a river, casting a yellow fly fishing line. The background is a lush green forest with trees and rocks.

Fundamental Questions

1. What are sources of psychological stress
2. How do economic development and stress interact to impact well-being?
3. Why do some communities experience more benefits than others?

Structural Equation Modeling

Independent variables & sources

Drilling activity

- GIS
- Remote Sensing

Socio-economic assets

- Census
- GIS
- Tax records

Quality of life indicators

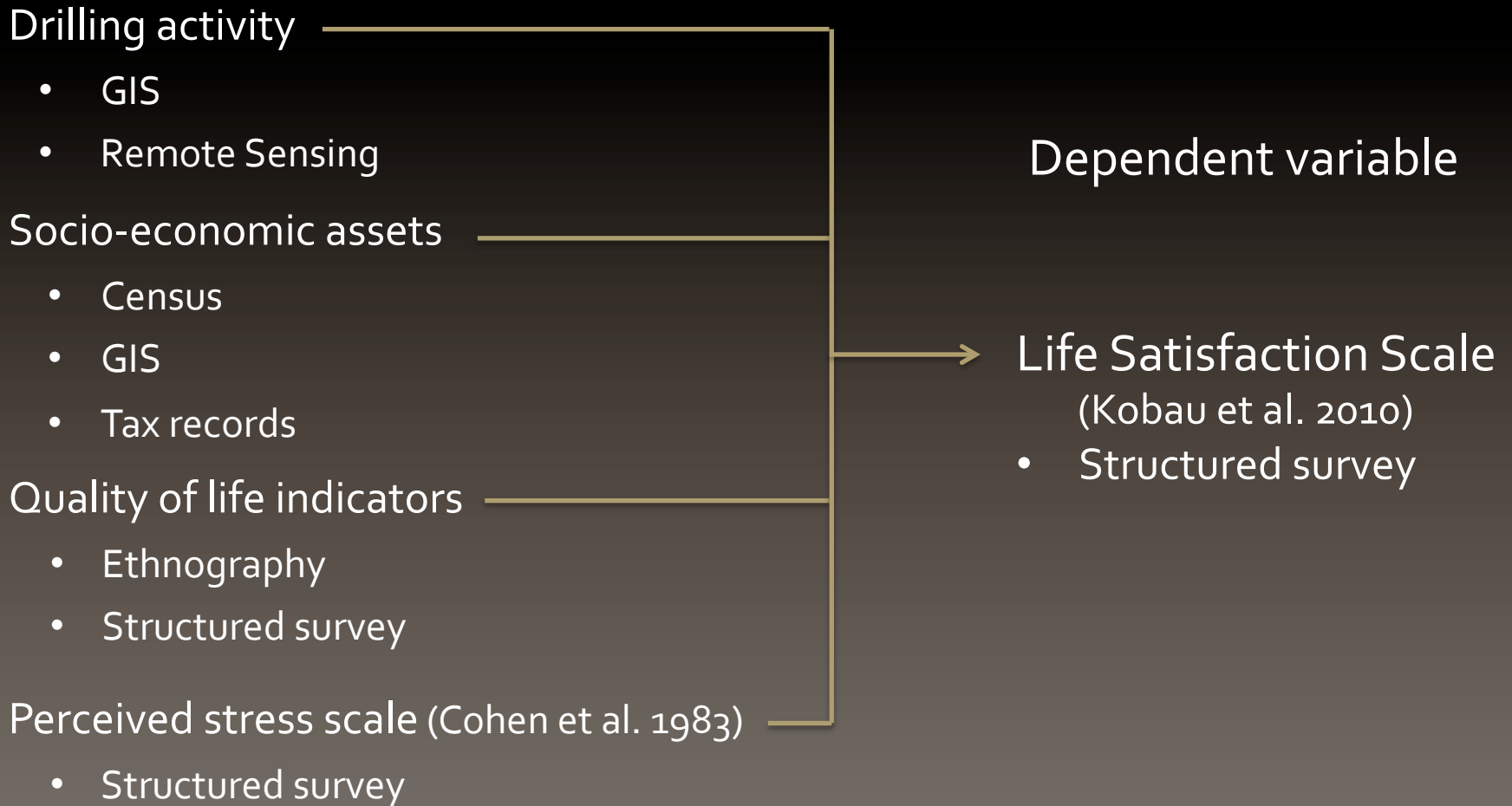
- Ethnography
- Structured survey

Perceived stress scale (Cohen et al. 1983)

- Structured survey

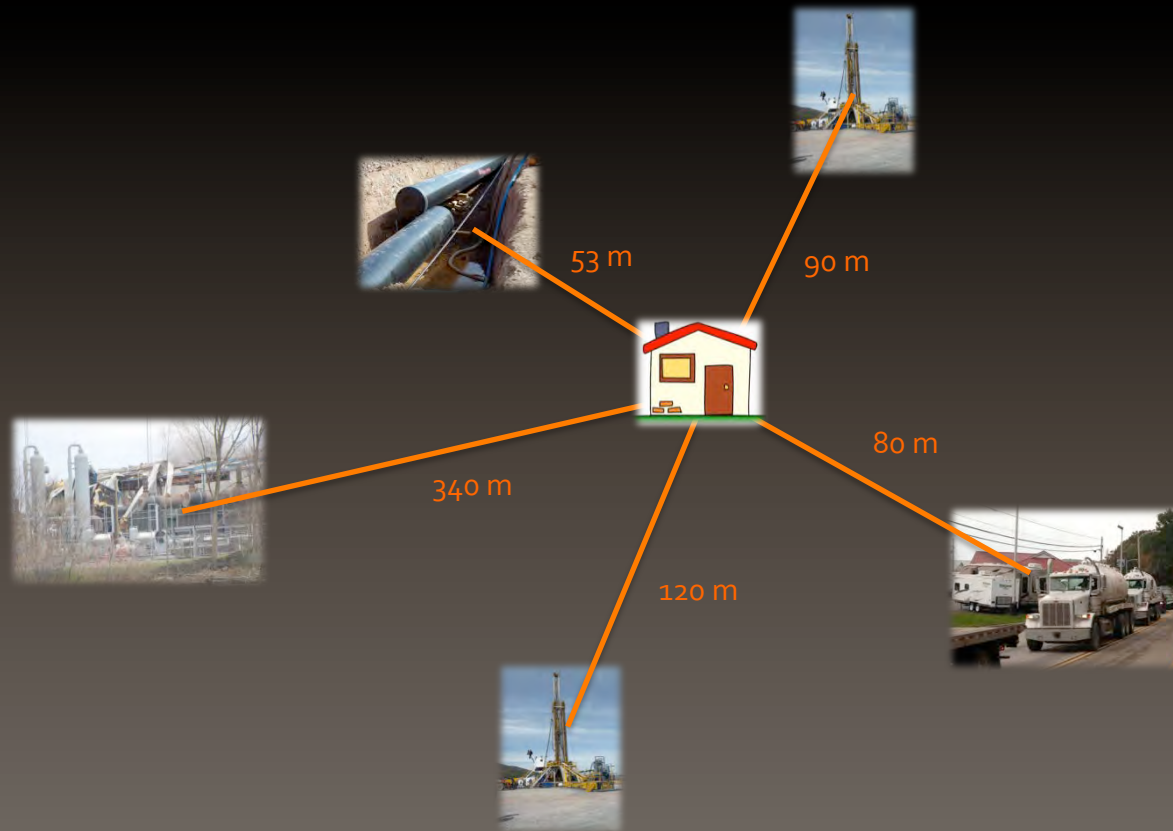
Dependent variable

- ### Life Satisfaction Scale (Kobau et al. 2010)
- Structured survey



Drilling Activities

(proximity to households)



Socio-economic Assets



How communities capture benefits

- Institutions of higher education
- Proximity to highways
- Retail
- Office space
- Housing stock
- Education level



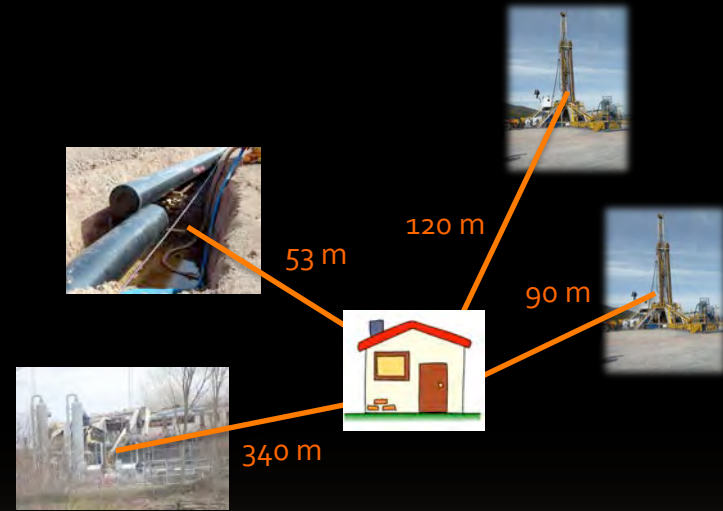
Research Flow



Ethnography

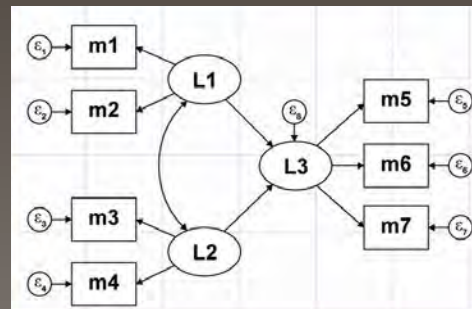
- Focus groups
- Interviews

Media analysis



Structured surveys

Socio-economic & geospatial data aggregation



Structural equation modeling