Predicting Average Medical Payment using Physician Referral Network at the Hospital Service Area Level

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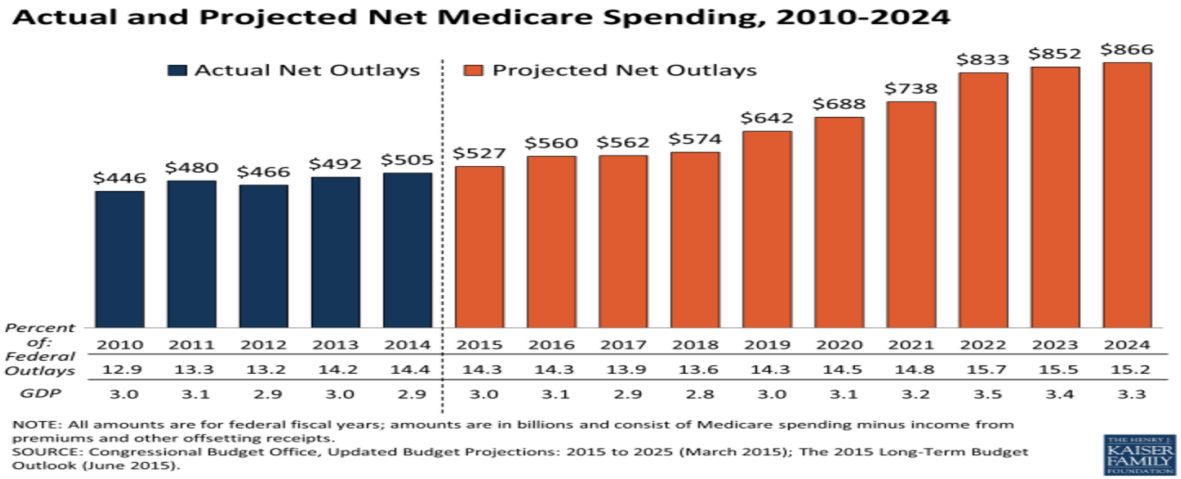
Background

- **Medicare** In 2012, covers more than 61 million citizens and used up hundreds of billions years every year.



- **The objective** of our study is to investigate whether there are regional differences in cost of care provided to Medicare Part B beneficiaries, and more specifically, to determine if the cost of care is related to local physician referral network structure. Finally trying to lower the cost medicare.

Data sets and Method

- Data sets:
  - Physician referral network 30-day (2012);
  - Hospital Service Areas are collections of zip codes, related covariates corresponding HSA, obtained from dartmouthatlas.org (2012).
  - Physician Payment Data from CMS (2012)
- Set up & data pre-processing:
  - Response Variable: average Medicare allowed amount from Payment data, aggregated over the physicians and services in each HSA.
  - Covariates: – HSA characteristics, like physician count, resident count, average income, crime rate etc ;
    – Network Characteristics, like mean node degree, edge density, transitivity, closeness etc.

Results from regression

Future directions

- Look at some representative networks, explore deeply why and how the physician referral network will affect the cost of Medicare.
- Build another model based on 2014 data. To see weather there are changes in the regression model and Network structure.