

### **[Research Question]**

How do provider characteristics, such as gender and entity type influence Medicare reimbursement rates for mental health care services across different zip codes?

### **[Analysis Plan]**

#### **1) Specific Questions**

- Do Medicare reimbursement rates for mental health care vary between urban and rural areas in different zip codes?
- Are there differences in Medicare reimbursement rates for mental health care services between male and female providers and do these differences vary by zip code?
- How do Medicare reimbursement rates for mental health care providers differ between individuals and organizations, and do these differences change across zip codes?

#### **2) Data Sources**

- The Medicare provider utilization and payment data :
  - Medicare Physician & Other Practitioners - by Provider
  - Medicare Physician & Other Practitioners - by Provider and Service
- Individual Income Tax Statistics - 2020 Zip Code Data

#### **3) Methodology**

- ① Map out the Medicare reimbursement rates across different zip codes to see geographic patterns.
- ② Compare and visualize the differences in reimbursement rates between urban and rural zip codes, male and female providers, and individual versus organizational providers.
- ③ Conduct a regression analysis to examine if the provider's gender and entity type (individual or organization) influence Medicare reimbursement rates.
- ④ Apply a multivariate analysis to control for income levels, so we can better understand the impact of provider characteristics.
- ⑤ Check for statistical robustness by identifying any issues such as heteroscedasticity or multicollinearity.
- ⑥ Use ANOVA or partial F-test to explore how provider characteristics relate to reimbursement rates in various zip codes.