Pilot proposal: NBER Center for Aging and Health Pilot Projects

# "Unintended and Unnoticed: How Medicaid Funding Affects the Treatment of Dementia Patients"


## Abstract

We show theoretically and empirically how joint Medicaid funding can result in price and volume distortions and affect the treatment of dementia patients. Our empirical analysis combines audit, survey, and administrative datasets on skilled nursing facilities (SNFs) from 1999-2017 with two reforms, difference-in-differences and discrete choice models. We first document that states use creative financing schemes to divert federal Medicaid matching funds. Using the case study of Indiana, we then document that these schemes lead to an increase in Medicaid SNF days for dementia patients. The expansion of SNFs of lower match quality leads to an increase in mortality pointing to a misallocation of vulnerable patients to providers.


We propose to study how the structure of Medicaid funding may affect the provision of long-term care and the treatment of dementia patients. Medicaid, public insurance for low-income populations, absorbs the lion's share (60%) of overall federal grants to states and local government. The federal government matches state spending through the Federal Medicaid Assistance Percentage (FMAP), denoting the federal cost share of total spending. However, states use "creative financing schemes" to divert federal funds, as shown by Baicker and Staiger (2005).

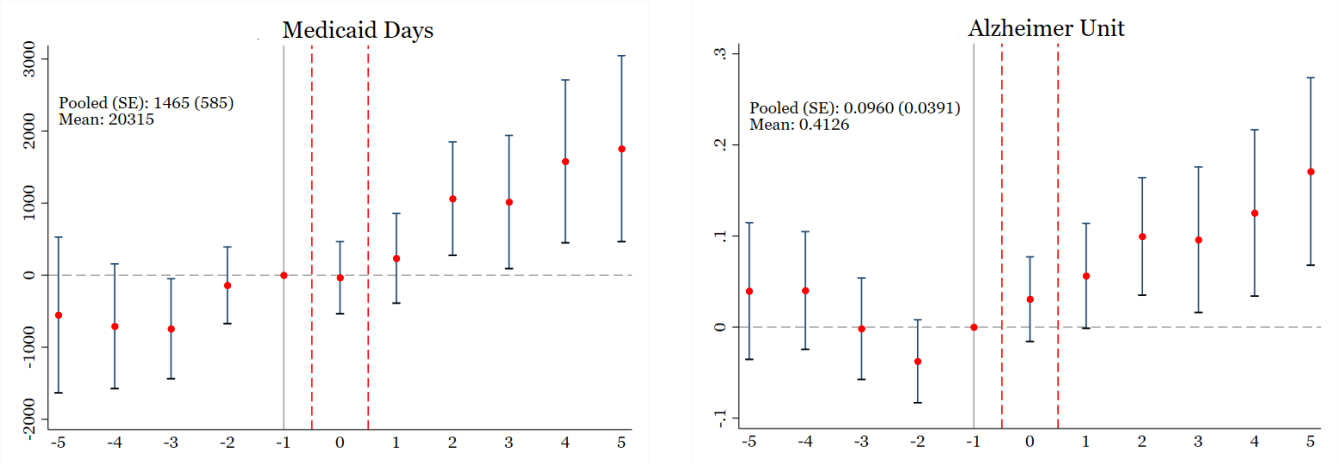
Our first aim is to show, theoretically and empirically, that creative financing schemes (CFS) provide states with incentives to increase the volume of Medicaid-provided care; and that vulnerable long-term care patients are very susceptible to such practices. We will begin with a basic theoretical point on how CFS can distort health care prices and volume in opposing directions. When states can transfer matching funds across programs at no cost, they have incentives to lower the effectively paid reimbursement rate. By contrast, the ability to transfer funds increases the effective (marginal) FMAP on quantities beyond the nominal FMAP. States have incentives to increase the volume of care, covered by Medicaid, to increase federal matching funds, which are (quantity) open-ended.

After making this simple theoretical point, we will then quantify the diversion of federal matching funds using the Medicaid supplemental payments (SPs) program for skilled nursing facilities (SNFs). SPs top up Medicaid base payments and are typically lump-sum payments, making them particularly susceptible for creative financing practices. In 2019, SPs accounted for seven percent of total Medicaid FFS nursing facility payments (MACPAC, 2019b). We will combine survey and audit datasets from 2000-2017 to evaluate a national reform that intended to end these practices in 2003. Prior to 2003, 15 states used schemes to divert SPs from private and public nursing homes to fund other programs. The reform disallowed the diversion of SPs from private SNFs, limiting these practices to the small fraction of public SNFs. Using a difference-in-differences (DD) design, our preliminary findings suggest that only 80% of total nominal spending was effectively spent on nursing homes in states with a SP scheme between 2000 and 2002.

Our second aim is to show, using administrative microdata and an event study framework, how the provision of Medicaid-provided nursing home care is systematically biased by CFS practices. To explore such SNF volume distortions, we focus on the state of Indiana. It allows us to exploit detailed institutional information and quasi-experimental variation. In an effort to side-step the 2003 regulation, the state of Indiana encouraged county hospitals to acquire private SNFs to divert federal matching funds. Between 2000 and 2017, the share of county-owned nursing homes increased from 5% to about 90%. Using administrative micro data, we will study the impact of SNF acquisitions on the allocation of care in an event study framework. Consistent with our theoretical predictions, our preliminary findings suggest significant volume increases.

Our third aim is to show, using administrative microdata along with reduced-form and structural discrete choice models, how specifically the institutional nursing home care biases operate at the SNF level and affect the health of dementia patients. We will also estimate the value-added of SNF care for dementia patients. Our preliminary findings suggest a significant increase in the number of SNF days funded by Medicaid by 7% (Figure 1a); and that this increase was mainly driven by newly admitted dementia patients and newly built Alzheimer units (Figure 1b).

**Figure 1: Effect of Municipalization of Nursing Homes Triggered by 2003 Reform and CFS practices**




Source: Centers for Medicare & Medicaid Services (2020b) and Indiana Department of Health (2020). The two graphs show event studies where the year before the SNF municipalization is the reference period (solid gray line). The dashed vertical lines indicate the beginning and end of the implementation period. The pooled effect corresponds to the post-reform effect, pooled over 1-5 years after the conversion. All event studies show 90% confidence intervals.

Our preliminary findings also suggest that these vulnerable patients are often admitted to SNFs of low "match quality" for dementia care. While these lower quality SNFs add Alzheimer units (Figure 1b) and staffing following the municipalization, our first evidence suggests a meaningful increase in dementia patient mortality. This points to a misallocation of dementia patients across long-term care providers. In the final part of the project, we will estimate the value-added of nursing home care for dementia patients, following approaches similar to Einav, Finkelstein, and Mahoney (2022).