

## ABSTRACT

This paper exams how the drug prescription behaviors by hospitals in Taiwan changes after July 2002 the implementation of global budget (GB), which sets a fixed annual cap on the total expenditure of all hospitals and a floating point value for the price of medical services. Taiwan's GB also allows hospitals reimburse drug expenditures at a full price before the floating point value is calculated.

We use Difference In Difference (DID) model and quantile regression method to analysis the monthly drug ratio from Taiwan's hospital department during 1998 to 2006. The result suggests that while the implementation of global budget slightly decrease the drug ratio by 0.2% on average, hospital departments which are with high quantiles of drug ratio indeed increase their drug ratio by 0.7% to 1.6%, after controlling for the time trend and other hospital characteristics. At the same time, our results suggest that the hospital departments with low quantiles of drug ratio on average decrease their drug ratio by 0.5% to 1.3%.

Our result contributes to a complete understanding about hospitals' drug prescription behavior and strategy changes under global budget.

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## INTRODUCTION

•Taiwan has compulsory National Health Insurance (NHI). To contain the rising costs of Taiwan NHI, hospital global budget (GB) schemes is implemented since July 2002.

•**hospital global budget (GB) scheme:**  
The total amount of the global budget will be distributed among all physicians on the fee-for-service bases, but the price of each unit of medical service provided (the reimbursement rate) is based on a floating ex-post relative point value, which will eventually decided by physicians' collective efforts.

### Research Question:

•Will hospitals prescribe **more drug** than before global budget was implemented?



## Data

•Source: Bureau of National Health Insurance (Taiwan)

•Monthly average drug expenditures by hospital departments during 1998-2006.

Final sample includes 655,931 observations.

## METHODS AND Models

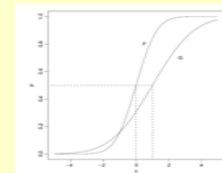
### •Difference in Difference

Simple DID model

$$y_i = \beta_0 + \beta_1 \text{treat}_i + \beta_2 \text{after}_i + \beta_3 \text{treat}_i * \text{after}_i$$

	Treatment (T=1)	Control (T=0)
Before (F=0)	0	0
After (F=1)	0	1

### •Quantile regression

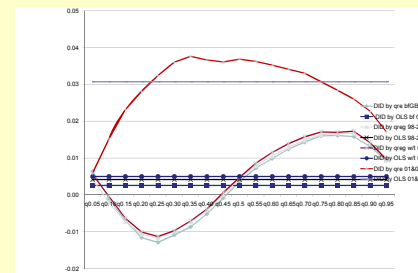


**Figure1:** Quantile treatment effect (Distribution G : the treatment group ; Distribution F: the control group. )

### • Empirical Regression Model

$$\text{Drug\_ratio} = D_{\text{High Drug Ratio}} + D_{\text{GB}} + D_{\text{High Drug Ratio}} * D_{\text{GB}} + \text{Hospital characteristics} + D_{\text{dept}} + \text{Time Trend}$$

## RESULTS



**Figure2:** effects estimated by OLS and quantile regressions.

Quantile regression results show that hospital departments that heavily depend on drug using actually increase their drug ratio by 0.7% to 1.6% on average during 2002-2006 (the time trend and other hospital characteristics are controlled). At the same time, our results suggest that the hospital departments with low quantiles of drug ratio on average decrease their drug ratio by 0.5% to 1.3%.

Tested within the short run of 2001 to 2004, we find that drug ratio difference in all quantiles have increased, and the average increase is 3%, conditional on other independent variables. The middle quantiles have the largest increases of 3.8%.

## CONCLUSIONS

The impacts of GB on hospital's drug prescription are not equal, but hospitals under GB in Taiwan generally behaved as "the tragedy of common resources" predicted. They indeed try to prescribe more drug to maximize their individual benefit.



## REFERENCES

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