

## Background

Germany has 3<sup>rd</sup> highest health expenditures in the world; one reason: high physician visits per year (Germany: 10.0, EU-15: 6.8 in 2006). Since Jan 2004 as part of the Statutory Health Insurance Modernization Act a co-payment was introduced for outpatient doctor visits. Persons insured by the Statutory Health Insurance have to pay €10 per calendar quarter upon their first visit with a specialist's or GP's office. Apart from the pure financial effect, the introduction of copayments for ambulatory care aimed at tackling the moral hazard problem. Once they paid the €10 per quarter they can have as many outpatient visits as they want without paying €10 again.

## Objective

We want to examine whether the copayment 1) effectively reduced the overall demand for physician visits and whether they 2) acted as a deterrent to vulnerable groups such as persons with low income or chronic conditions.

## Data

- Data of the German Socio Economic Panel (SOEP): 2000-2006
- 2004 was year of intervention, 2000-2003 as pre-intervention years and 2005-2006 as post-intervention years
- We excluded all individuals under the age of 18 and those covered by governmental schemes
- Dependent variable: number of physician visits during the past 3 months
- We controlled for socio-economic characteristics, including gender, age, age-squared, existence of children in household, employment status, educational level, resident of former East or West Germany, active sports, smoker, household income in quintiles and population at residence location and self-reported health.

## Methodology

- Pooled the data from the abovementioned 5 years (i.e. from 2000-2003 and 2005-2006)
- Reform can be regarded as a natural experiment, since privately insured individuals are fully exempt from the co-payments
- Estimated the effects of copayments by comparing the expected number of physician visits before and after the intervention using a difference-in-difference (DID) approach

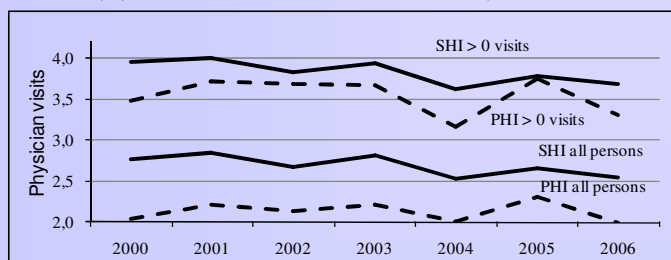
$$y_{it} = \beta_0 + \beta_1 x_i + \beta_2 z_t + \beta_3(x_i \times z_t) + \beta_4 w_{it} + \varepsilon_{it}$$

$x_i$  treatment vector indicating whether person is subject to the increased copayment  
 $z_t$  indicates the occurrence of the copayment in period  
 $w_{it}$  represents a variety of socio-economic characteristics

- We constructed 4 DID estimators, each of which was related to a pre-post change in physician visits:
  - 1) Non-exempt SHI members vs. group of PHI member
  - 2) SHI members with chronic conditions vs. group of PHI members
  - 3) SHI members with the lowest income quintile vs. group of PHI members
  - 4) All persons who received public welfare benefits vs. group of PHI members
- Probit model: outcome variable takes the value of 1 if the person has visited a physician and 0 if not
  - > has the probability of visiting a physician decreased following the introduction of copayments?
- Negative Binomial Model and Zero-Inflated Negative Binomial Model (excess zeros -> Vuong-Test favours ZINB)
  - > has the number of physician visits declined after the introduction of copayments?

## Results

Number of physician visits for PHI members and non-exempt SHI members



### Descriptive figure:

- sharp decrease in physician visits only in 2004, but rose again afterwards
- physician visits decreased in parallel for private health insured

### Regressions:

- the coefficients for DID estimates are only significantly negative for DID in negative binomial models and significant effects disappear in Zero-Inflated Negative Binomial models (which are more appropriate according to the Vuong-Test)

DID estimates for the probit model the negative binomial model and the zero-inflated negative binomial model (first coefficient = pre/post change of treatment group/ second coefficient = DID estimate)

Treatment group vs. PHI as control group	Probit	Negative Binomial Model	Zero-Inflated Negative Binomial Model
Model	Marg. Eff.	Marg. Eff.	Marg. Eff.
<i>SHI w./o. exemption</i>			
SHI	0.122***	0.133***	-0.001
DiD SHI	0.019	-0.023	-0.055
<i>SHI w. chronic condition</i>			
Chronic	0.879***	0.620***	0.947
DiD Chronic	0.099	-0.061**	0.100
<i>SHI-lowest income quintile</i>			
Lowest income quintile	0.023	0.130*	-0.128
DiD Lowest income quintile	-0.079	-0.086**	-0.015
<i>SHI-public welfare</i>			
Public assistance	0.063	0.108	-0.019
DiD Public assistance	0.007	-0.065	-0.049

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

## Discussion

- Copayment has had only a transitory effect and has failed to reduce the demand for physician visits
  - > most likely due to design: copayment is low and has to be paid only for the first visit per quarter and not for each visit
- No evidence that the copayment decreased the probability that persons with chronic conditions or low income will visit a physician
  - > may be due either to the low amount of the copayment or the effectiveness of the income thresholds.
- Limitation: exclusion of non-prescription drugs as part of the Statutory Health Insurance Modernization Act may have contributed to the reduction
- Policy implication: Imposing copayments for each physician visit might be more effective e.g. \$5 per physician visit for HMO enrollees in Washington state led to a significant decrease in physician visits