

# Socioeconomic differences in the use of GP and Specialist Services in Germany

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- 1. Introduction**
2. Data & Methods
3. Results
4. Conclusion



# Introduction

- One of the main principles within the German Health Care System is to ensure free choice of health care professionals and equal access for equal needs.
- Free access to healthcare was further strengthened through the implementation of a statutory insurance obligation in 2009.
- ➔ In the case of illness, patients have free choice of health professionals and direct costs of illness are relatively low.



- Nevertheless, doctor consultations are distributed unequally:
  - pro-rich pattern in Specialist visits and pro-poor pattern in GP visits (van Doorslaer, Koolman, Jones 2004)
- Furthermore: First evidence of income related inequalities in the use of preventive health care services (von dem Knesebeck and Mielck 2008, Lungen et al. 2009).
- However, when assessing the degree of inequality in the use of preventive services, two aspects have to be considered:
  - unequal use could be caused through unequal needs
  - dependency of the setting (GP vs Specialist)



# Objectives

- Measuring of income-related inequalities in the use of several preventive treatments as well as doctor consultations. Special focus on:
  - Adjustment for need-factors
  - Impact of the setting (GP versus Specialist)



# Outline

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- SHARE wave 1 & wave 2, German sample
- Dependent variables: binary variables for whether respondents
  - had  $\geq 1$  specialist visit
  - had a mammogram
  - had a coloscopy

} Specialist setting

  
  - had  $\geq 3$  GP visits
  - had a flu vaccination
  - regularly took a blood test

} GP setting



### Need variables:

- for **mammographie**: women, aged 50-69, history of cancer
- for **coloscopy**: aged 50-74, history of cancer, self-stated gastrointestinal problems, intestinal ulcer
- for **flu vaccination**: aged 60+, chronic conditions (asthma, diabetes, stroke, lung diseases, arthritis), bad self-assessed health
- for **blood test**: heart attack, stroke, diabetes, overweight, male
- for **GP and Specialist visits**: heart attack, stroke, diabetes, lung diseases, arthritis, asthma, limitations in ADL, depressive symptoms

### Non-need variable:

- equivalent gross household income





1. Probit-regression of the Ys of need and non-need variables
2. Measurement of inequalities through the Concentration Index (CI)
  - the CI quantifies the magnitude of inequalities described by the concentration curve, which plots the cumulative proportion of the population (ranked by income) against the cumulative proportion of preventive care use.

$$(1) \quad CI = \frac{2}{n\mu} \sum_{i=1}^n y_i R_i - 1$$
$$= \frac{2}{\mu} * \text{cov}(y, R)$$



- Adjustment for binary dependent variables

- **Horizontal equity (HI):**

*„inequalities in use which can't be explained by needs are considered inequitable (Sen 2002, Fleurbaey and Schokkart 2012)“.*

$$(2) \quad H_i = C_i - C_b$$



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# Results

| Variables           | Mammogram            | Colocscopy          | Flu vaccination     | Blood Test          | GP visists           | Specialist visits     |
|---------------------|----------------------|---------------------|---------------------|---------------------|----------------------|-----------------------|
| Age                 |                      |                     |                     | 0.005***<br>(0.014) | 0.008***<br>(0.002)  | -0.001<br>(0.001)     |
| Age 50-69           | 0.211***<br>(0.039)  |                     |                     |                     |                      |                       |
| Age 55-79           |                      | 0.027<br>(0.050)    |                     |                     |                      |                       |
| Age > 60            |                      |                     | 0.129***<br>(0.037) |                     |                      |                       |
| Men                 |                      |                     |                     | -0.053**<br>(0.026) | -0.019***<br>(0.025) | -0.0120***<br>(0.023) |
| Stomach problems    |                      | 0.183***<br>(0.056) |                     |                     |                      |                       |
| Health < good       |                      | 0.007<br>(0.019)    | -0.001<br>(0.018)   | 0.045***<br>(0.014) | 0.080***<br>(0.014)  | 0.036***<br>(0.014)   |
| Cancer              | 0.351***<br>(0.068)  | 0.157*<br>(0.084)   |                     |                     |                      |                       |
| Depressive Symptoms |                      | 0.013<br>(0.010)    |                     |                     | 0.023***<br>(0.007)  | 0.020***<br>(0.007)   |
| Cardiac infarction  |                      |                     | 0.80<br>(0.057)     | 0.119***<br>(0.036) | 0.181***<br>(0.040)  | 0.121***<br>(0.034)   |
| Lung desease        |                      |                     | 0.020<br>(0.091)    |                     | 0.117<br>(0.070)     | 0.035<br>(0.034)      |
| Asthma              |                      |                     | 0.026<br>(0.101)    |                     | 0.130*<br>(0.066)    | 0.091<br>(0.057)      |
| Stroke              |                      |                     | 0.065<br>(0.085)    | 0.104<br>(0.061)    | 0.106<br>(0.078)     | 0.041<br>(0.054)      |
| Diabetes            |                      |                     | 0.234**<br>(0.056)  | 0.122***<br>(0.040) | 0.320***<br>(0.037)  | 0.063*<br>(0.036)     |
| Arthritis           |                      |                     | -0.14<br>(0.051)    |                     | 0.092**<br>(0.037)   | 0.098***<br>(0.033)   |
| ADL                 |                      |                     |                     |                     | -0.045*<br>(0.026)   | -0.009<br>(0.022)     |
| BMI > 25            |                      |                     |                     | 0.128***<br>(0.027) |                      |                       |
| Phys. Limitations   |                      |                     |                     |                     | 0.036***<br>(0.008)  | -0.011<br>(0.008)     |
| 1. Income quintile  | -0.173***<br>(0.039) | -0.099*<br>(0.048)  | 0.024<br>(0.054)    | -0.031<br>(0.040)   | 0.070*<br>(0.038)    | -0.231***<br>(0.037)  |
| 2. Income quintile  | -0.123***<br>(0.042) | -0.005**<br>(0.052) | 0.075<br>(0.055)    | -0.038<br>(0.041)   | 0.110***<br>(0.038)  | -0.090**<br>(0.037)   |
| 3. Income quintile  | -0.047<br>(0.046)    | 0.019<br>(0.053)    | 0.055<br>(0.053)    | -0.048<br>(0.041)   | 0.083**<br>(0.037)   | -0.033<br>(0.037)     |
| 4. Income quintile  | -0.29<br>(0.045)     | -0.008<br>(0.050)   | 0.024<br>(0.053)    | -0.054<br>(0.037)   | 0.063*<br>(0.035)    | -0.048<br>(0.035)     |
| n                   | 1335                 | 704                 | 1008                | 2539                | 2642                 | 2642                  |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# Results

## Concentration Indices

|                           |                   | Inequality in Use ( $C_i$ ) | Inequality in Use due to needs ( $C_b$ ) | Horizontal Inequity (HI) |
|---------------------------|-------------------|-----------------------------|--|--------------------------|
| <b>GP Setting</b>         | GP visits         | -0.179***                   | -0.15***                                 | -0.029                   |
|                           | Flu Vaccination   | -0.079***                   | -0.032                                   | -0.047                   |
|                           | Blood Test        | -0.051                      | -0.09***                                 | 0.039                    |
| <b>Specialist Setting</b> | Specialist Visits | 0.125***                    | -0.058***                                | 0.183***                 |
|                           | Mammogram         | 0.188***                    | 0.054                                    | 0.134***                 |
|                           | Coloscopy         | 0.049                       | -0.025                                   | 0.074**                  |

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



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### ■ **Main findings:**

- Consideration of medical needs can change results, therefore it is important to take different needs into account.
  - after consideration of different needs for health care services, there is no inequality in GP visits and preventive services which are provided by a GP (Flu Vaccination and Blood Tests).
  - there is substantial inequality in Specialist visits and preventive services which are provided by a Specialist (mammogram and coloscopy).
- ➔ The setting in which the service is provided has a stronger impact on the extent of inequality as the service itself.



## ■ Conclusion:

- further research about the reasons for these inequalities.
- further research should address the question of possible instruments to convince low-income groups from the benefit of preventive services.
- GPs could play an important role to inform patients about preventive services.





Thank you!