

The Effect of Government Subsidies on General Practitioners' Location and Labour Supply Decision

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Motivation: why study GP's location choice?

- The undesirable distribution of GPs across regions
 - Unequal access to health care
 - High health care cost resulted from delayed cure
- Recent changes surrounding the working environments of GPs
 - Ageing workforce; emphasis on work and life balance
 - The increasing number of female GPs
- Many government incentives and huge annual expenditure
 - Identify and assess strategies to influence GPs' location choice

Motivation: why incorporate labor supply?

- Only focus on location choice is insufficient
 - Not only the headcount of GPs matters, but also their quality and effective working effort
- Take income effect into consideration
 - How do GPs' labour supply respond to government subsidies?
 - Large negative income effect will decrease working hours

Motivation: why incorporate wage rate?

□ Endogeneity

■ Unobserved heterogeneity

- Ability, motivation, or productivity

■ Self-selection into locations

- GPs who choose rural area may be systematically different from those in major cities
- Different patterns for male and female GPs

Contribution

1. Simultaneously estimate the effects of government subsidies on GP's practice location and labour supply choice
 - Previous literatures
 - Location choice: Hurley(1989) and Denis et al. (1996)
 - Labour supply and earnings: Cheng et al.(2011)
 - Accounts for both self-selection and simultaneity
 - The first study to do it
2. Provide rich policy suggestions
 - The most effective subsidy programs

Data

- MABEL survey

(Medicine in Australia: Balancing Employment and Life)

- Advantages

- Nation-wide coverage

- Panel nature

- Discrete-choice experiment (DCE) component

- Wave 2008

- Response rate: 19.36%; Sample size: 3906 GPs

- Nationally representative (Joyce et al., 2010)

- Final sample size: 2473

Empirical strategy

- Simultaneous equations model
 - Location choice, labour supply, and wage equations
 - Express labour supply as a function as location choice and wage rate
 - Express wage rate as a function as location choice
 - Express location choice as a function as wage rate and labour supply
 - Government subsidies as an independent variable in location and labour supply equations
 - Take gender-specific difference into account
 - Allow for gender-specific labour supply and location choice equations
 - Allow for gender-specific variance-covariance matrix
 - Maximum likelihood estimation

Empirical strategy (cont.)

- Policy analysis: counterfactual experiments
 - Predicted location distributions by headcount of GPs
 - Predicted location distributions by hours-adjusted headcount of GPs
 - Increase the amount of government rural subsidies by 1%, 10%, \$1, and \$10

Main results – simultaneous equations model

- Higher rural subsidies is effective in attracting more GPs to rural and remote areas
 - A \$1 increase in hourly rural subsidies: 0.98% more male GPs and 0.59% more female GPs choosing rural and remote areas

- Higher subsidies increase the hours by male GPs and decrease the hours by female GPs
 - Hourly earnings have positive effect on male GPs' labour supply and negative effect on female GPs' labour supply

Main results - counterfactual experiments

- There is some effect when labour supply is incorporated into location choice, but the magnitude is trifling
 - The policy effect that more GPs are enticed to rural and remote areas by increased rural subsidies is
 - Magnified for male GPs
 - Attenuated for female GPs
 - Overall changes driven by labour supply are negligible

Main results – labour supply equation

- 1. Number of children
 - Decrease/increase hours worked by female / male GPs monotonically
- 2. The presence of a child under age five
 - Decreases hours worked by both male and female GPs, though more for females than for males
- 3. Non-practice income
 - Reduces hours worked by female GPs but not for male GPs

Main results – wage equation

- 1. Experience and its squared term
 - Wage rate increases up to 27 yrs of experient (concave)
- 2. Female GPs earn less than that of male GPs
- 3. More higher medical degrees correspond to higher wage rate
- 4. Urban GPs have higher wage rate than those in rural and remote areas

Discussions

- Pecuniary incentives
 - Government subsidies are effective to attract GPs to rural and remote areas
- Non-pecuniary incentives
 - To attract male GPs to rural and remote areas
 - Provide continued educational opportunity or training
 - To attract female GPs to rural and remote areas
 - Provide childcare
 - Facilitate job seeking for their spouse
 - Educational opportunities for children

- Thank you -