ECON613 Reading Notes #2

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This paper mainly developed a framework that accounts for the potential welfare gains of top-up medical insurance designs by analyzing the breast cancer treatments. Firstly, they develop an empirical regression between the treatment choice and the distance to the radiation facilities. And then, with the result in baseline regression, the author estimate the relative demand curve of Lumpectomy with logit model to estimate the change of both consumer surplus and the probability of treatment choice under different charge for the treatment(different designs of the health insurance). At last, this paper briefly analysed the ex ante efficiency with calibration.

This paper uses the dataset merged by both patient level and radiation facilities level in California from 1997 to 2006. The author exclude the death certificated and under 20 observations and the missing data. The baseline data sample for the empirical analysis include 323,612 patients from 1997 to 2006.

The baseline empirical analysis is based on the choice of two alternative treatment of breast cancer and the distance of patient to the radiation facilities (also include the controls). Under the conceptual framework, patients can choose one of the two treatment when diagnosed breast cancer, the choice they make is likely to be related to the distance of the patient to the radiation facilities and the extra cost of a lumpectomy together with radiation therapy. Hence, the utility of choosing lumpectomy as the treatment can be expressed as $u_i = \alpha_i - \beta_i(\theta_i d_i + p)$, and when $Pr(u_i > 0)$, patient will choose Lumpectomy. And with the p=0 (evidence of the data in California), the Logit regression can be determined, which is $u_i = \alpha_i - \beta_i^{'} d_i$. The baseline empirical results shows that the treatment choice is significantly related to the distance of patient to the radiation facilities with the controls about characteristics from many aspects like neighborhood etc. via both heterogeneous and homogeneous Logit models.

With the results in baseline regression and the equations in set-up, the relative demand curve of price and probability of choosing Lumpectomy can be determined, which can graphically illustrate the welfare of different incremental charge level(can also be expressed as different health insurance designs). And then, this paper analyses the change of the total consumer surplus under different incremental charge(full coverage, top-up and no-top-up health insurance design). The result shows that the top-up health insurance design can increase the social welfare by $700-2500 compared with other designs. Moreover, this paper briefly discussed the ex ante efficiency with calibration, which shows that for high levels of risk aversion social efficiency can be higher under a full coverage policy than a top-up policy since the gains from reduction in risk exposure can outweigh the loss from ex post inefficient treatment choices. At the end, this paper also talks about additional health insurance designs.