# ECON 613 Reading Note 2

Yonghan Shi

February 2022

The paper compares two treatment options of breast cancer with different costs, estimates the corresponding costs of insurance policies using distance to radiation treatment facilities, and compares the ex post efficiency of the three types of policies (full coverage, top-up, and no top-up) as well as briefly mentions the ex ante utility. It finds out that the 'top-up' insurance policy increases the social benefits of patients.

This article is built on several theoretical foundations. A very important feature of the two treatment options is that they have no significant difference in survival outcome, which makes it easier to identify and estimate the effect of costs on patients' willingness of choosing the option. Meanwhile, the main reason why lumpectomy is more expensive than mastectomy is the cost of follow-up radiation treatment. In the United States, the costs of mastectomy have been covered by insurance whereas the costs of lumpectomy follow-up radiation are not covered. The authors then use the distance to radiation facilities to estimate the different time costs for individuals, which can simulate the costs of different insurance policies and find the demand curve.

The paper uses data from a patient-level cancer registry data set as well as data on radiation treatment facility locations. The authors create the data set by selecting female breast cancer patients from 1997 to 2009 excluding those who did not choose either of the two treatments and matching their registered address with the radiation facilities to create a variable of distance to nearest radiation. The data set also includes demographic information, census-block characteristics, and clinical characteristics to control the effect of individual characteristics. Based on the average hourly wage and the average number of round trips, they estimate the time costs and set up benchmarks for each of the three policies. They then run several homogeneous and heterogeneous logit regressions respectively with different conditions.

Through such simulations, the authors find out that the 'top-up' has a higher welfare level compared with both the 'full coverage' policy and the 'no top-up policy'. After controlling other variables, such a relationship still holds. It also indicates that for the lowest value of risk aversion, social welfare is higher in the 'top-up' policy while in higher risk aversion, it is higher under the full-coverage policy.

In conclusion, the article indicates that the 'top-up' policy sorts low willingness-to-pay patients to cheaper treatment options and would not 'over price' the

more expensive options thus allocating too many patients to lower-cost treatment options, which would increase the welfare of patients. Furthermore, there are places that can be considered in detail. The authors mention the different incomes of the individuals, but when evaluating time costs they use the same average hourly wage. Other costs with different policies could also be taken into consideration, for example, there might be an additional cost for the claiming procedure of the 'top-up' policy.