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Title: Difference in Quality of Care Across Ward Classes

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Abstract

One of Singapore's healthcare objectives is to ensure that everyone has access to uniformly good quality basic medical services, regardless of income. There are four types of ward class in public hospitals – Ward Class C, B2, B1 and A – in decreasing level of subsidy and increasing level of comfort. Given that the system is designed with the intention that the same quality of medical care will be availed to patients regardless of ward class, this thesis investigates the difference in quality of medical care across ward classes, if any, in terms of the cost of actual medical treatment (drugs and procedure costs only, net of all other incidental expenditures) incurred by patients who otherwise have similar observable characteristics (for instance, race, gender and age). Also, given the hospital's incentives to minimise costs, this thesis investigates if there is a difference in the cost of actual medical treatment incurred by the hospital across ward classes.

Propensity score methodology is used to determine unbiased estimates of the effects of ward class on cost of actual medical treatment to both patients and the hospital. Since ward class is an ordinal variable, conventional propensity score methodology for binary treatment groups cannot be used. Instead, ordinal multinomial logit and probit models are used to estimate the propensity score and matching methods – subclassification and optimal nonbipartite

matching – that are tailored for ordinal treatment groups are used to create groups balanced in observed confounders but with patients in different ward classes.

This thesis focuses specifically on breast cancer as a case study, and uses data extracted from electronic medical records of breast cancer patients admitted to the National University Hospital (NUH) during the period of 2004 to 2013. There is substantial evidence that there is indeed a difference in the actual medical treatment costs across ward classes incurred by both the patients and the hospital.