

## ABSTRACT

### ESSAYS IN HEALTH ECONOMICS

Julia Catherine Witt  
University of Guelph, 2005

Advisors: Prof. Brian Ferguson  
Prof. Michael Hoy

The process by which Canadian provinces decide what to cover, or to remove from coverage, under Medicare often seems *ad hoc*, without clear guiding principles. It has been argued that cost-effectiveness analysis could be used as an explicit tool to determine what services should or should not be covered; however, this is not well rooted in welfare economic theory. Part 1 of this thesis provides a review of the steps taken in the "Oregon Plan", highlighting the difficulties of using cost-effectiveness analysis without explicit consideration of the theoretical foundations, and then focuses on two theoretical issues. First, inconsistent outcomes between standard gamble and time trade-off scores have been the source of much debate, however, when both are derived from an expected utility framework, it is clear that they represent marginal rates of substitution into different dimensions and hence should not yield the same quality of life values. Second, individual elicitation mechanisms do not represent societal preferences, but the person trade-off (PTO) methodology, which explicitly incorporates trade-offs into utility values for health states, does, making the PTO a valid instrument for the purpose of policy-making.

The second part of the thesis focuses on applications to breast cancer. The first application is a comparison of prophylactic strategies for reducing the risk of breast

cancer, which shows that the most effective prophylactic options are the ones that have the greatest effect on quality of life. The second application is an expected utility model that evaluates whether women at high risk for breast cancer get mammograms more frequently than women at normal risk. While family history factors do have an effect, they are not overwhelmingly important in the decision to have regular mammograms. The third application looks at the effects that genetic testing for breast cancer has on the life insurance market, assessing a variety of regulations. Since the proportion of the population with a known genetic predisposition is small, the contribution to adverse selection of a few individuals knowing their true genetic status does not appear to outweigh the inequity that is introduced when insurance companies can price actuarially fair with genetic information.