Willingness to Pay for a Quality-Adjusted Life-Year across Different Time Horizons   EE517

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Background

• Cost-effectiveness thresholds (CETs) need to be adapted to local contexts to reflect specific healthcare priorities, budgets, and opportunity costs.

• The Institut National d'Excellence en Santé et Services Sociaux (INESSS) is the Quebec-based Health Technology Assessment (HTA) agency that ensures new health technologies to meet safety, efficacy, and cost-efficiency standards.

• Given that Quebec's healthcare system is publicly funded, it is crucial for INESSS to develop a local CET.

Results

Heckman and Turnball models provided consistent results.

Key determinants of WTP-Q were:

• **Expected positive effect**: Income, education (not significant);

• **Negative effect**: Employment status, marital status;

• **Significant factors**: Age, gender, EQ-5D VAS, number of children <18y.

Discussion

• The CET estimated (2.11 times the GDP per capita) remained below the upper limit of 3, which is considered the highest CET by the WHO.

• CET was larger than those estimated in our previous study using TTO chained with CV, and DCE methods, in which CET for DCE was 0.90 of GDP per capita and for TTO chained with CV was 1.41 of GDP per capita.

• Higher CET in this study due to methodology & timing (COVID-19 impact).

• **WTP per QALY decreases as the time horizon extends**. This aligns with health economics principles like time preference and discounting, where immediate benefits are valued more than future ones.

Conclusion

• Mean WTP for a QALY across the three scenarios was CA $110,353, which is lower than the WHO-recommended threshold (3 × CA $52,267).

• WTP per QALY decreases as the timeframe for gaining one additional year of life in perfect health becomes more distant.

Methods

• Study questionnaire was developed by a group of practitioners and academics in HTA to estimate the WTP per QALY in Quebec, Canada

• A single-bounded dichotomous choice (SBDC) was applied in eliciting the maximum WTP value for each respondent.

• Suggested bids to participants were based on the standard of living in Quebec (i.e., from 0.1 to 10-fold the GDP per capita of 50,000 CAD).

• Respondents were asked to imagine scenarios where they can pay at the end of their life for one additional year of life in perfect health:

• Scenario 1: You have only a few weeks left to live;

• Scenario 2: You have 10 years left to live;

• Scenario 3: You have 20 years left to live.

• Heckman and Turnball models were employed to estimate WTP-Q. Heckman model used a two-stage process: first, a Probit model where the answer provided to the SBDC was the dependent variable, and second, a WTP model where the accepted bid was the dependent variable.

Results of Heckman model

Characteristic	Scenario 1		Scenario 2		Scenario 3		Full sample	
	Probit reg.	WTP reg.	Probit reg.	WTP reg.	Probit reg.	WTP reg.	Probit reg.	WTP reg.
	β	β	β	β	β	β	β	β
Bid amount	-0.001**		-0.001**		-0.002**		-0.002**	
Annual household income		0.0003		0.0004		0.0003		0.0004**
Age (years)		-1.381		-2.233*		-1.816*		-1.898**
Education (years of education)		0.451		2.040		2.664		1.085
EQ-5D VAS	0.005*	1.581	0.004*	1.300	0.002	0.405	0.004**	1.114*
Female	-0.221*		-0.181*		-0.291**		-0.236**	
Marital status (single=ref.)								
Married/living with partner	-0.067		0.030		-0.003		-0.008	
Divorced/ Widowed	-0.107		0.011		-0.248		-0.116	
Job status (unemployed/student=ref.)								
Employee/Self-employed	0.081		-0.245*		-0.052		-0.084	
Retired	0.161		0.065		0.195		0.131*	
Number of children <18y (no children=ref.)								
1	0.268		0.216		0.289*		0.249**	
2	0.316		0.266		0.087		0.218*	
≥ 3	0.731		0.484*		0.872**		0.675**	
Constant	-377.052*		-410.969*		-261.049*		-364.339**	
Number observations	1,207		1,252		1,292		3,751	
Mean WTP	CAD120,569		CAD 113,334		CAD 108,581		CAD 110,353	

References

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