

Willingness to pay to avoid minor morbidity: An international comparison

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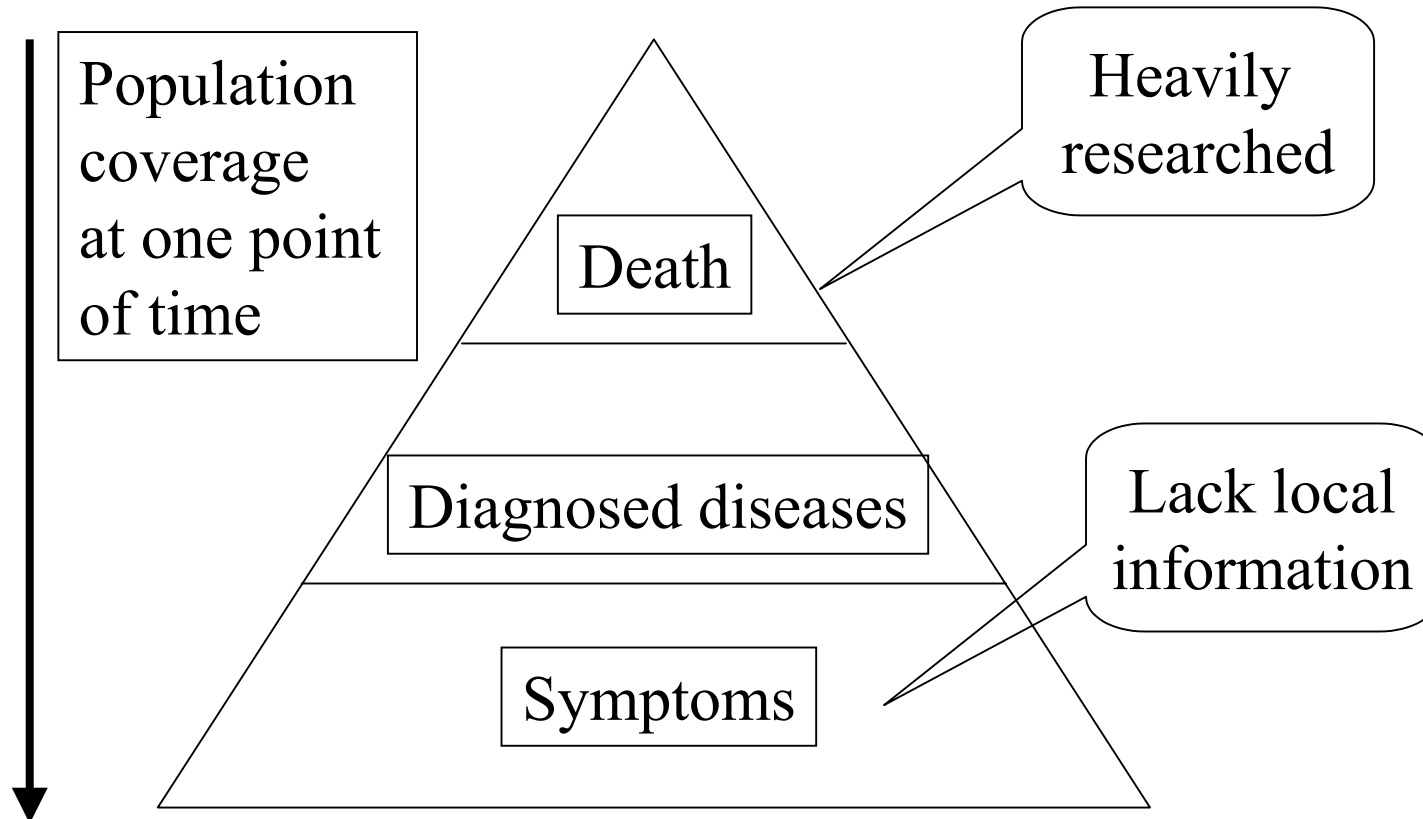
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A pyramid of disease burden



Studies of symptom valuation

- US Studies - Dickie et al 1987, Loehman et al 1979, Rowe & Chestnut 1984, Johnson et al 1997, Tolley et al 1994
- Norwegian - Navrud 1996
- Taiwan - Alberini 1997

Methodology

- Random digit dialing followed with reliability checking
- Double-bounded with follow-up if “No-No”
- Interval regression – STATA 7.0
- Face validity; construct validity checking by regression
- International comparison – PPP/CPI adjusted

Symptom specification

- “We are going to ask your willingness to pay for avoiding a one day episode of the symptom. Please assume that money can help you to avoid the symptom and you can pay for it from your own pocket: that is, you will have less to spend on other goods or services. Please take a moment to think about the pain and suffering caused by the symptom.” (a 5 second break)
“Now assume that you would experience one day of such [shortness of breath], the most troublesome you mentioned, are you willing to pay \$X to avoid one day of this symptom?” [If the person says “No”] “What about \$X/2?” or [if the person say “yes”] “What about \$X * 2 ?” (back translated from the Chinese version)

Estimating WTP

Log-normal specification:

$$WTP_i = \exp(X_i\beta + u_i) \quad u_i \sim N(0, \sigma^2)$$

$$\text{Median WTP} = \exp(\bar{X} \hat{\beta})$$

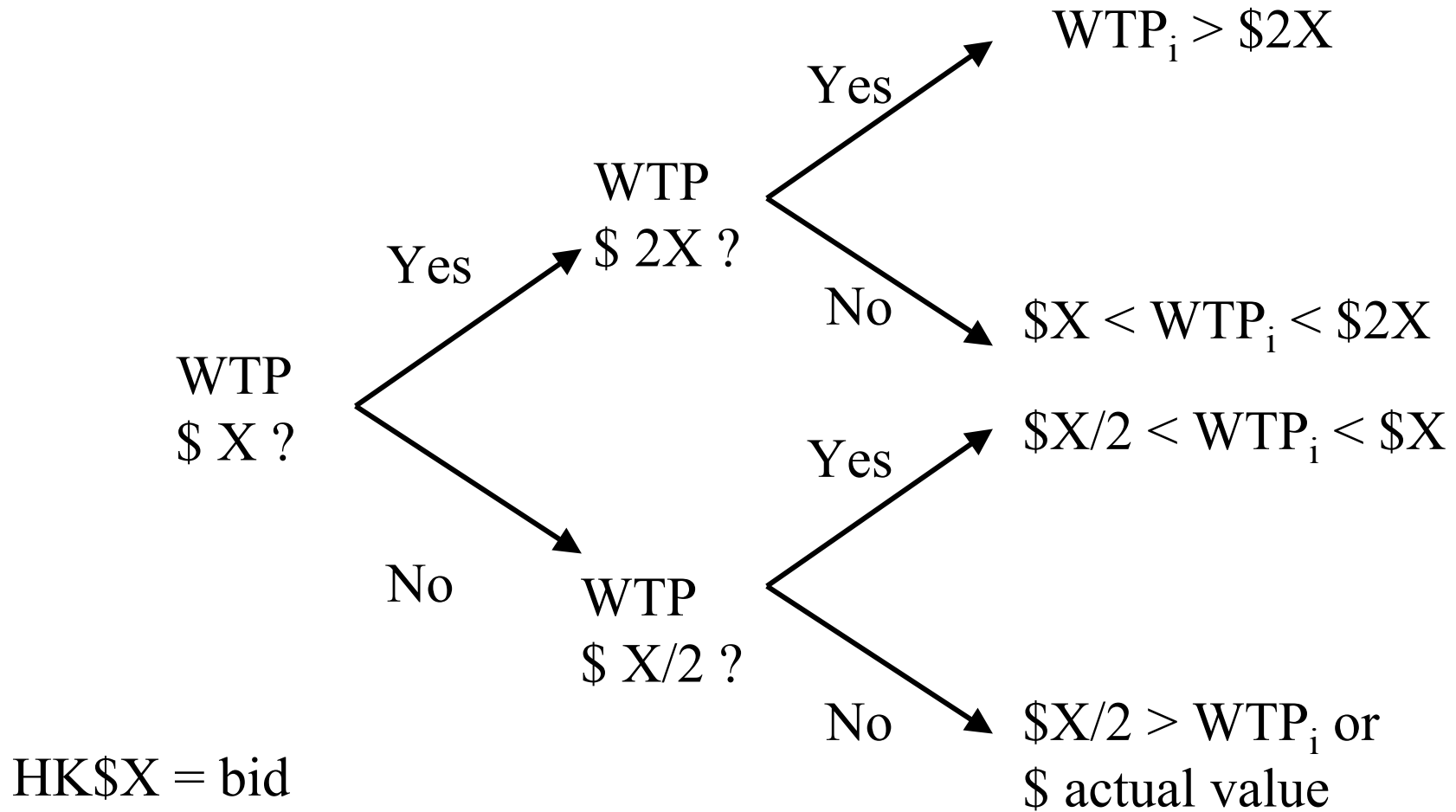
$$\text{Mean WTP} = \exp(\bar{X} \hat{\beta} + \hat{\sigma}^2/2)$$

Open-ended pilot data

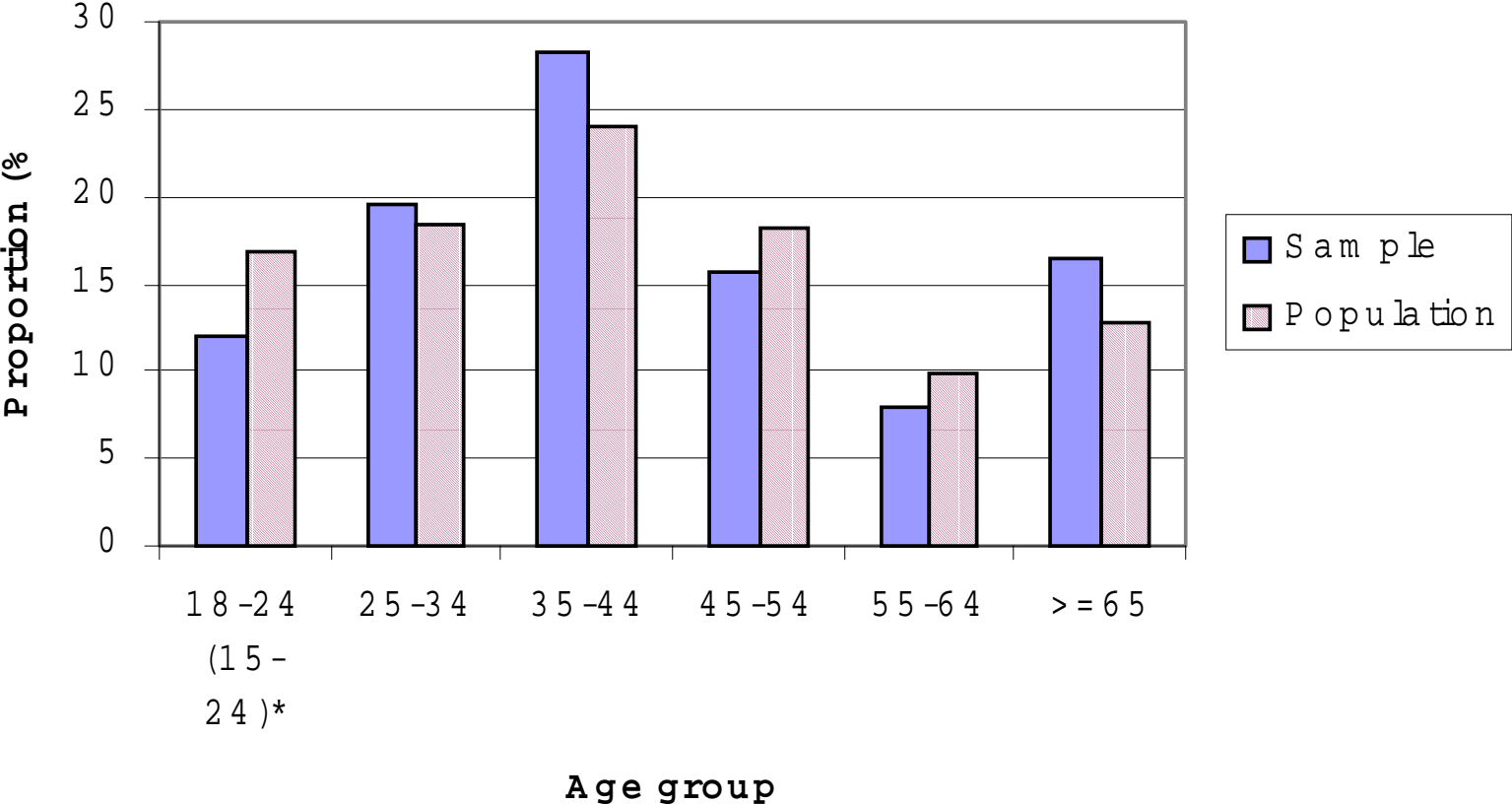
| wtp for the worst symptom | Freq. | Percent | Cum. | |
|---------------------------------|-------|---------|--------|------|
| 10 | 3 | 5.45 | 5.45 | |
| 20 | 1 | 1.82 | 7.27 | |
| 25 | 1 | 1.82 | 9.09 | |
| 30 | 1 | 1.82 | 10.91 | ~10% |
| 40 | 2 | 3.64 | 14.55 | |
| 50 | 2 | 3.64 | 18.18 | ~20% |
| 100 | 8 | 14.55 | 32.73 | ~33% |
| 150 | 5 | 9.09 | 41.82 | |
| 200 | 10 | 18.18 | 60.00 | ~60% |
| 250 | 1 | 1.82 | 61.82 | |
| 300 | 3 | 5.45 | 67.27 | ~66% |
| 500 | 7 | 12.73 | 80.00 | ~80% |
| 600 | 1 | 1.82 | 81.82 | |
| 1000 | 5 | 9.09 | 90.91 | ~90% |
| 5000 | 1 | 1.82 | 92.73 | ~93% |
| 10000 | 2 | 3.64 | 96.36 | |
| 100000 | 1 | 1.82 | 98.18 | |
| 500000 | 1 | 1.82 | 100.00 | |
| Total | 55 | 100.00 | | |

Percentile

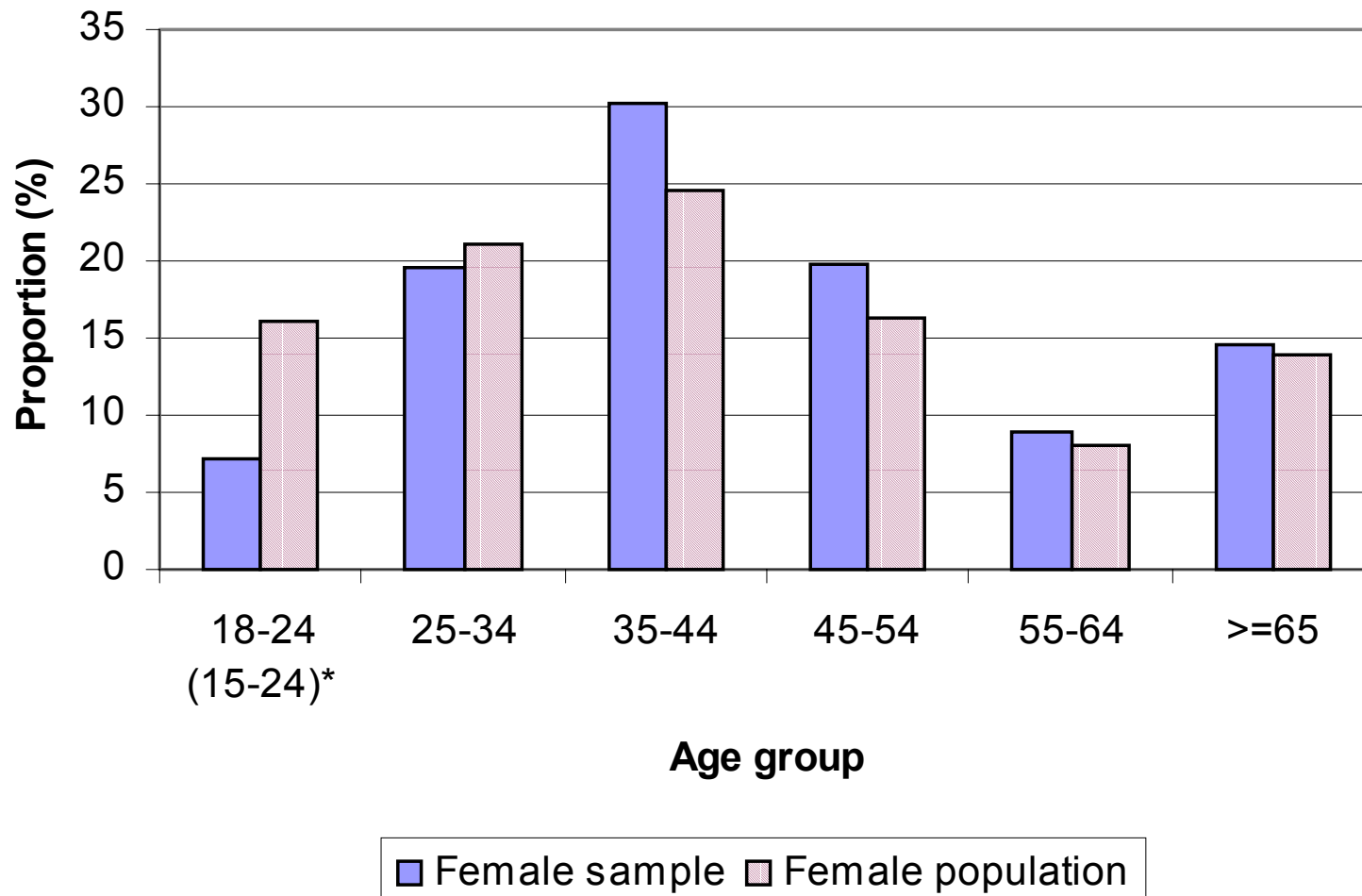
Double bounded dichotomous choice



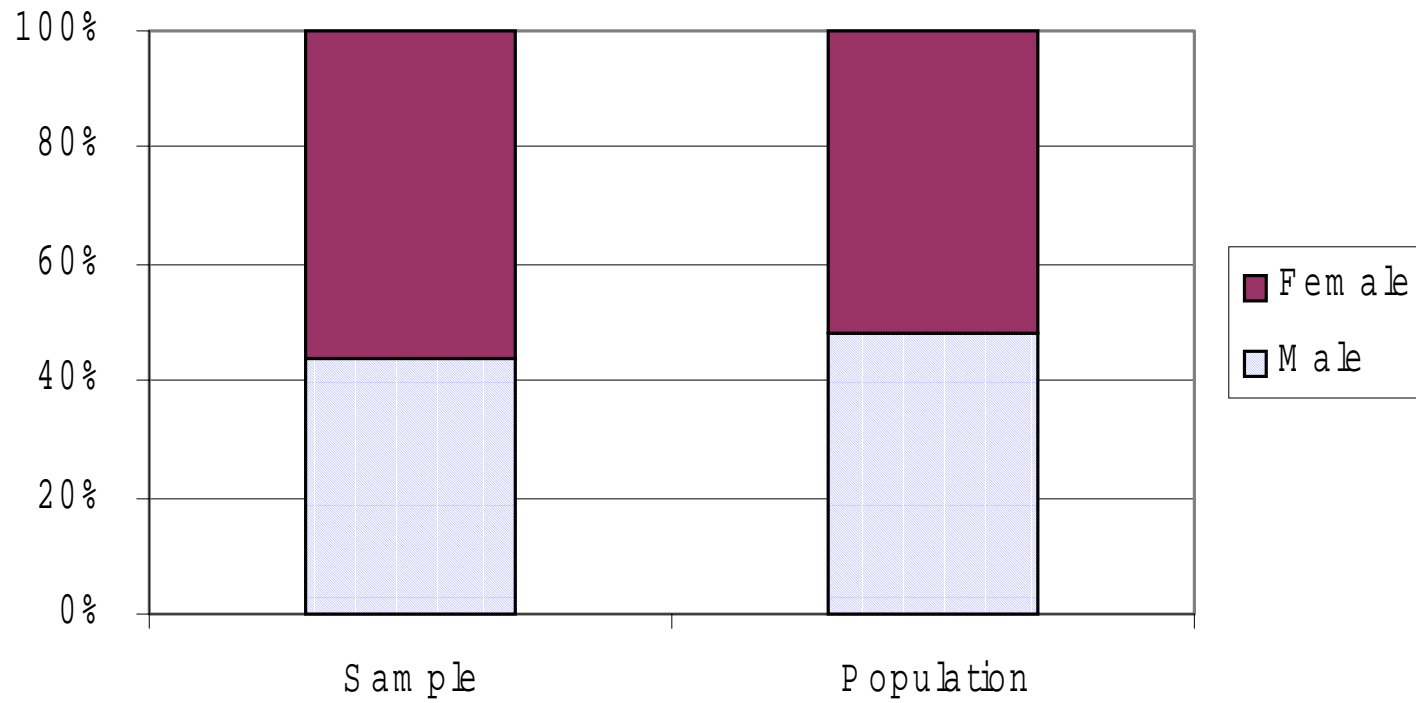
Age structure of male



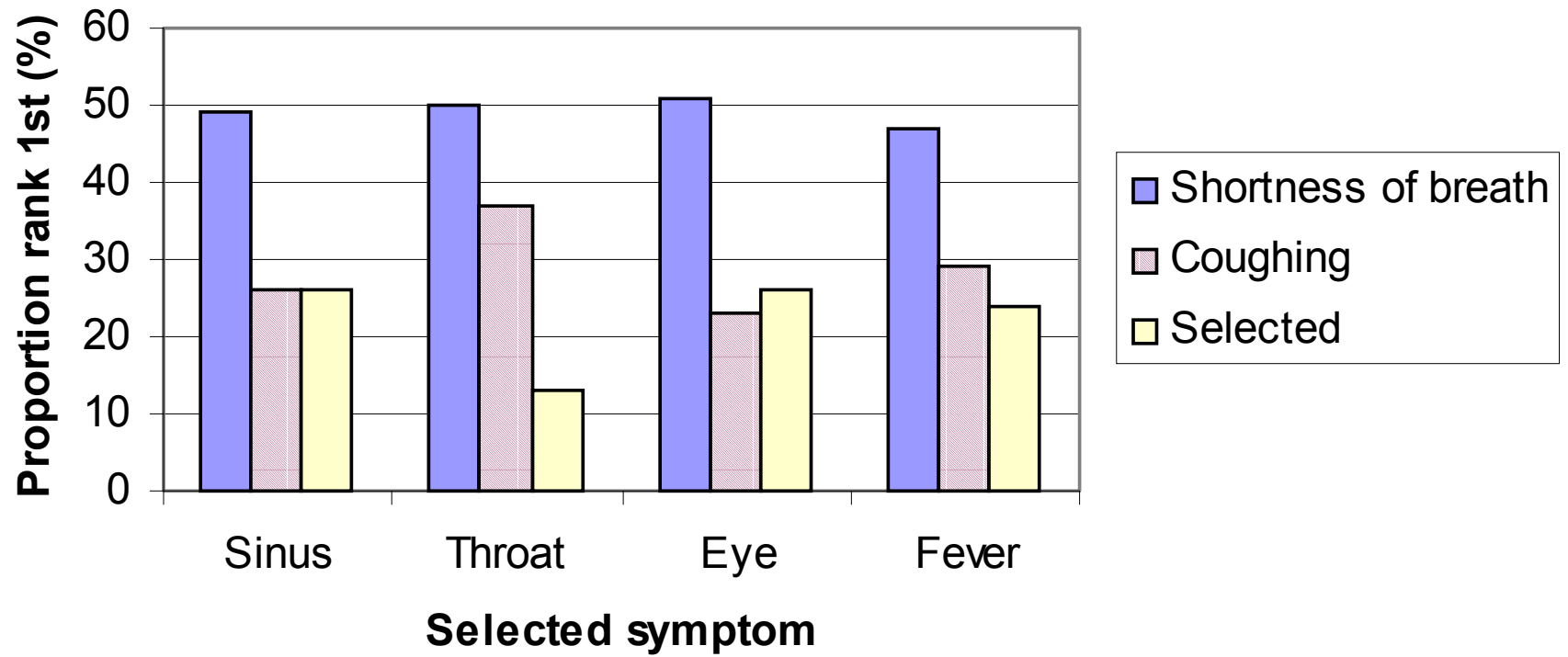
Age structure of female



Comparison of gender proportion



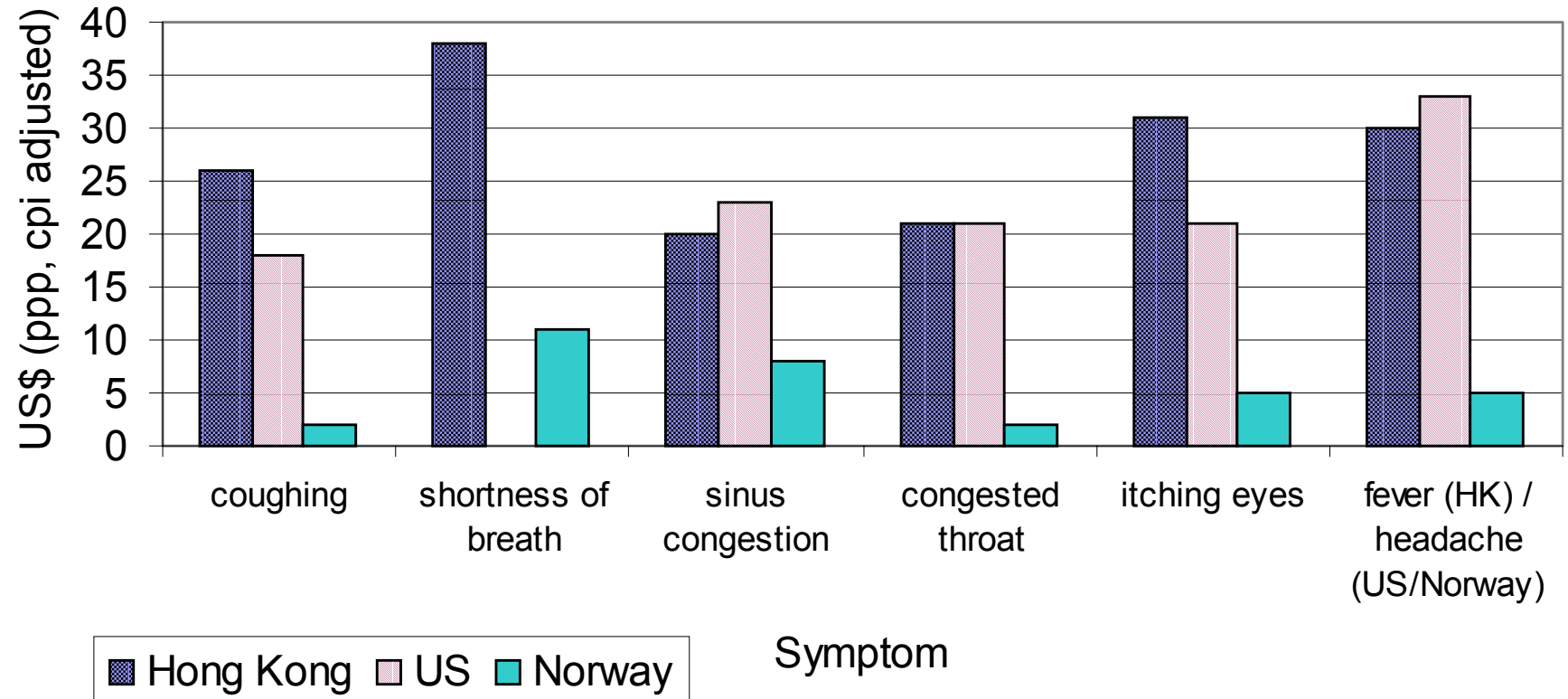
Ranking of troublesome



Coefficient estimates

| | N | β | S.E (β) | σ | Log-likelihood |
|-----------------------------------|------|---------|-----------------|----------|----------------|
| coughing | 1385 | 5.1883* | 0.04 | 1.4968* | -2077.8 |
| shortness of breath | 1379 | 5.5808* | 0.05 | 1.6952* | -2016.2 |
| sinus congestion | 367 | 4.9315* | 0.09 | 1.5077* | -518.6 |
| congested throat | 341 | 4.9804* | 0.09 | 1.4657* | -529.5 |
| itching eyes | 355 | 5.3545* | 0.1 | 1.6425* | -542.3 |
| Fever (HK) / Headache (US/Norway) | 321 | 5.3165* | 0.09 | 1.3611* | -425.68 |

WTP for avoiding symptom



Limitation and potential extension

- Reconcile international variation
- Strengthen the construct validity
- Need symptom incidence for full CBA
- Any econometric extension