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Eliciting Preferences for Resource Allocation in Health Care*

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Abstract: Willingness-to-pay (WTP) studies are increasingly being used in the evaluation of health care programmes and, although less frequently, for priority setting in health care. The usefulness of willingness-to-pay as a discriminatory tool for priority setting is considered in this paper for three different health care programmes in Ireland: cancer, cardiovascular and community care. While the resulting estimates are consistent with respondents' rankings of the programmes, there is no statistical difference among the three programmes in terms of WTP. In considering marginal changes to existing health care programmes people consider their rankings of the programmes and the existing capacity of each programme. People are also more concerned with the gains to themselves of expanding various health care programmes than with wider issues of access or fairness.

I INTRODUCTION

This paper is concerned with priority setting in health care in Ireland, about which almost nothing of significance is known. There have been a number of initiatives in recent years to enhance accountability in the health care

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sector which contain the promise of improvements in the future with respect to the efficiency of the resource allocation process. For example, the Health (Amendment) Act 1996 makes explicit, in law, the accountability obligations of Health Boards in respect of funding, service planning and service delivery. The onus now on Health Boards is to "secure the most beneficial, effective and efficient use of resources". There are also clearly established "value for money" principles in place since the publication of the health planning document *Shaping a Healthier Future* (Department of Health, 1994) covering economy, efficiency and effectiveness issues. Notwithstanding these important developments, accountability and evaluation have not yet taken root within the Irish health care system. Moreover, whatever the various legal responsibilities pertaining to the allocation and accountability process, there remains a degree of obscurity and obfuscation about the precise workings of the resource allocation process, particularly in respect of priority-setting. There are no explicit efficiency, effectiveness or equity criteria against which current allocations can be judged and, most importantly, we do not know if the services currently being provided are what the public want as they have never been asked to reveal their preferences in this regard.

The absence of consumers and citizens from the health care allocation process is particularly noteworthy. The public has no voice and therefore no influence on the allocation of money among competing health care programmes. There have been surveys which point up the importance of health care in the lives of the citizenry. For example, spending on health care is set to dominate the next general election in Ireland with almost two-thirds of the electorate seeing it as one of the three most important issues in the campaign (*Irish Times*/MRBI, June 2001). The problem is that opinion polls only scratch the surface of the public's preference for health and health care spending. When people say "health is important" it is impossible to know what they really mean given that to say otherwise would be ludicrous. Consequently, the implications for resource allocation are vague. People are seldom asked in opinion polls to comment on the merits of one health care programme over another, so even if they have views on resource allocation it is rare that these are heard, let alone acted upon. The case for involving the public in priority setting within health care is compelling given their central role in funding the system and their knowledge of the benefits of the various health care programmes gained through their own experience and the experience of family members.

The use of contingent valuation methodology as an aid to decision-making in the public sector is becoming increasingly popular as a means of supplementing expert opinion with the views of the public as expressed by their willingness-to-pay (WTP). The latter has become a well-established tool

for the evaluation of policies relating to safety and the environment (Jones-Lee, 1989; Arrow *et al*., 1993) and its application to health care evaluation is becoming more widespread, despite ongoing conceptual and methodological difficulties with the WTP approach (Diener *et al*., 1998; Blumenschein *et al*., 2001). Recent examples of WTP being applied in health care include reductions in waiting time (Bishai and Lang, 2000), asthma (Blumenschein and Johannesson, 1998), longevity (Johnson *et al*., 1998) and assisted reproduction techniques (Ryan, 1998). Most of the applications of WTP in health care have, however, tended to focus on eliciting WTP values from patients for alternative options for treating the same conditions. Very few studies have examined the issue of whether WTP can be used as an aid to health care priority setting at a regional or national level (Olsen and Donaldson, 1998). This paper uses WTP methodology to tease through the issues of priority setting and resource allocation for health care in Ireland and the value consumers and taxpayers place on different health care spending and health outcomes. The study is the first attempt in this country to elicit community preferences for health care using willingness-to-pay methodology.

Respondents are asked to consider expansions in three health care programmes: a pain-relieving treatment programme for cancer patients, cardiovascular operations, and community care services. The public is asked for its view on the extent to which the different programmes should be available to the population at large and to consider allocations within a fixed budget framework. In recent years, Irish public policy in the health care field has concentrated additional resources on cancer and cardiovascular programmes. In contrast, community care services for older people have received much less attention, with expenditure on community-based programmes for older people accounting for a much smaller proportion of overall health care expenditure. The aim of the paper is to investigate the use of willingness-to-pay in a broader priority-setting context by allowing members of the public to set priorities amongst alternative uses of health care resources.

The paper is structured as follows. In the next section we consider theoretical aspects of priority setting in health care, including a discussion of the theory behind WTP. Methodology and survey design are discussed in Section III. The results are examined in Section IV. We then summarise and offer some conclusions.

II THEORETICAL ASPECTS OF PRIORITY SETTING IN HEALTH CARE

The economic approach to health care evaluation has focused on the identification, enumeration and valuation of the costs and benefits of

alternative health care interventions or programmes. This broad area of work – which incorporates cost-effectiveness (CEA), cost-utility (CUA), and cost-benefit (CBA) analyses[1] – provides the basis for ranking health care programmes in terms of "value for money" (Robinson, 1999) and is increasingly used by governments as an aid to priority setting in the health care field. In CEA, the outcome or benefit of a treatment is measured only in terms of uni-dimensional units, such as life-years gained, and the analysis reports only a cost per unit of outcome. CEA is of limited value, therefore, in making broader priority setting decisions because the uni-dimensional measurement of outcome is likely to miss other aspects of the programme or procedure. It is also restricted to comparing programmes with similar outcomes and does not include public values.

CUA is a special form of CEA in which the different dimensions of health are collapsed into a generic utility-based measure of outcome such as quality-adjusted life-years (QALYs). The QALY is appealing because comparisons of efficiency can, in principle, cover all the various forms of health care interventions that exist today. Therefore, programmes with different outcomes can be compared. While CUA is seen as best practice by economists with regard to priority setting, the reality is that it remains an incomplete technology (Hutton, 1994). In particular, a QALY measures and values health status only and so may not be useful in valuing programmes that have non-health benefits. The valuation of health care programmes among the public is likely to be a more personal and idiosyncratic process than CUA allows, with people likely to be influenced by a whole range of factors other than health outputs.

In CBA, the physical effects of alternative health care programmes, such as disability days avoided or life-years gained, are translated into monetary values using market prices when available and proxy valuations when they are not. CBA is useful in evaluations where the outcomes of different programmes are not identical and, therefore, cannot be expressed using the same physical measure. CBA allows the policy-maker to compare treatment costs with benefits using the same unit of value, usually money. In practice, however, full CBA is rarely performed on specific health care interventions, as the monetary valuation of certain less tangible costs and benefits is often not possible. This limitation makes it difficult to compare across programmes which is one of the major potential uses of monetary values of benefits of programmes within limited public sector budgets.

One way of overcoming this limitation is to use a contingent valuation

[1] For detailed descriptions and critiques of these analyses see Drummond *et al*. (1997).

approach to estimating benefits. Contingent valuation studies are designed to estimate how respondents value the output from programmes where information on consumer choices in relation to prices is not available. The theoretical base for the measurement of benefits under contingent valuation is economic welfare theory and the concept of consumer surplus (Johannesson and Jonsson, 1991). The task of contingent valuation is to generate monetary values that reflect the gains or losses in utility that consumers experience when a programme is introduced or removed. There are two monetary measures of utility change: compensating variation and equivalent variation. Under compensating variation an individual is maintained on the initial level of utility prior to the policy change while equivalent variation keeps the individual on the new level of utility attained if the policy change was carried out. Compensating variation is, therefore, evaluated from the original level of welfare while equivalent variation is based on the anticipated new level of welfare (O'Brien and Gafni, 1996). Consumer's willingness-to-pay (WTP) or willingness-to-accept (WTA) (compensation demanded) are the techniques used to assign compensating variation or equivalent variation values to programme benefits. In theory, WTP should equal WTA when income effects are small, although empirical evidence suggests that differences do occur (Haneman *et al*., 1991).

In practice, the majority of health care contingent valuation studies reflect studies using WTP in the context of the introduction of new programmes or the expansion of existing programmes. The estimated WTP values include both health and non-health benefits. WTP also captures important sources of non-user values such as externalities. The WTP value is a measure of individual utility and, using the potential Pareto principle, it is possible to aggregate utility across a population. Notwithstanding its potential, the WTP approach, while increasing in use in health care, remains the least used evaluation technique of health economists. The reasons for this, according to Drummond *et al*. (1997), are due to the inherent difficulties of measuring willingness-to-pay linked to a range of methodological difficulties, which, for some, are so serious as to undermine the credibility of WTP as a method of economic evaluation (Diamond and Hausman, 1994).

This paper is not designed to provide a detailed discussion of the various problems associated with WTP, but it is worth noting some of the main issues if only to signal their importance for the discussion on survey design that follows in the next section. The following, therefore, are some of the unresolved issues that continue to undermine the usefulness of WTP for some people:

- The appropriateness of insurance-based (i.e. individual risk) questions and community-based (i.e. community-risk) WTP questions.

- The reliability and consistency of the "thought process" assumed by WTP techniques.
- The poor correlation between hypothetical and real willingness-to-pay.
- The discrepancy between WTP and WTA.
- The discrepancy between the simple ranking of programmes and the rankings implied by WTP for programmes.
- Ordering effects and starting point bias.
- The variation of values in accordance with risk reductions presented to respondents.
- The effect of the amount and type of information on each health care alternative that is given to respondents.
- The effect of presenting respondents with payment cards as opposed to closed-ended WTP questions.

What these problems point to is the difficulty of carrying out WTP studies in health care or in the public sector generally. The application of the contingent valuation approach to priority setting in health care requires careful handling in order to mitigate the design problems inherent in the methodology. This fact is accepted by both supporters and critics of WTP. However, asking people directly to give values for different health care programmes has the potential to inform about the nature, depth and economic and social significance of the values provided, even if some precision is lost in the telling (Portney, 1994). This potential is the virtue of the application of WTP in health care. In the past, health care decisions in most countries have tended to be historical (i.e. based on what has evolved with some minor changes over time), with a heavy weighting on expert judgment in the decision-making process. Priority setting in health care should, however, incorporate the needs of the population, measures of efficiency and the value or utility of different services to the population. Therefore, a strategic approach to priority setting needs to involve the public, as well as experts, if it is to have legitimacy (Hanemann, 1994). The difficulty lies in obtaining input from the public that is informative, deliberative, accurate and representative. For all of its problems WTP provides a more appealing vehicle for the elicitation of preferences than CUA, public opinion surveys, or small-scale qualitative methodologies (Kneeshaw, 1997; Mossialos and King, 1999). The WTP estimate incorporates all of the effects of the programme on the respondent. Moreover, WTP can help to identify the range of factors that are likely to influence the opinions of the public with respect to the valuation of health care programmes, including personal attributes, experience with the programme, socio-cultural background and ideology. It should also be noted

that none of the other elicitation methods referred to above have received the same amount of empirical scrutiny as has WTP.

III METHODS AND SURVEY DESIGN

The survey was part of a larger European project (EuroWill) covering six countries which examined many of the methodological questions outlined in the previous section pertaining to the application of WTP studies in health care. While the general format of each country's survey was broadly similar, insofar as members of the public were asked to set priorities amongst alternative uses of health care resources through the use of WTP, specific issues were addressed by each of the surveys. In Ireland, three different sample groups were generated to test for the methodological issues of ordering effects (Stewart *et al*., 2002, forthcoming) and incrementalism. This paper is, however, only concerned with the aggregated results of the standard WTP estimates for three health care programmes provided by respondents in the various surveys. Cancer and cardiovascular programmes had to be included to facilitate cross-country methodological analysis but each country was allowed to choose an additional programme for internal comparison purposes. For Ireland, the additional programme chosen by the national contributor was community care services. The motivation behind the choice of community care was to allow comparisons to be made between high spending programmes (cancer and cardiovascular) and a low spending programme like community care. The choice of community care as a third programme also allowed comparison to be made between two technology-oriented programmes and a personal care intensive programme. The additional community care services for older people were specified as home nursing, home help and day care facilities. Specifying services in this manner is likely to ensure that community care is interpreted in the same way by all respondents.

The survey was confined to the Western Health Board region of Ireland, which contains a population of approximately 350,000 people. While this sample has implications for our ability to generalise the results, we were constrained by the overall budget of the survey. The sample design was based on a two-stage clustered sample using the Electoral Register as a population frame.[2] The data generated from the electoral register was re-weighted on the basis of the principal economic status of head of household, household composition and sub-regional classification to make it representative of the

[2] The survey was undertaken by The Economic and Social Research Institute under the direction of James Williams.

overall population in the region. A total of 712 people were selected for interview. The overall response rate was 47 per cent giving a total number of people interviewed of 335. This rate was less than the response achieved in some surveys in which WTP has been used in interviews of the general public, but more than in other such surveys (Donaldson *et al*., 1997; Olsen and Donaldson, 1998). The main difficulty for the interviewers, even with return visits, was meeting the people selected for interview face-to-face. Once contact was made the response rate was high with only 7 per cent of people refusing to be interviewed when met face-to-face by the interviewers.

In terms of the survey itself, respondents were first given introductory information outlining the objective of the survey (See Appendix A). The three programmes were named and the respondents were asked to think about them "as if they were in competition with each other for funding." Respondents were then asked about their perception of ever needing the programmes and their past experience with the health states. Next, respondents were presented with the programme descriptions and asked to consider the relative importance of each programme and to rank the programmes from most important to least important. The numbers used in the descriptions of the three programmes were based on estimates of what might be reasonable comparative increments given the limited knowledge of current activity and marginal costs in the area. The estimates were based on previous EuroWill experience, which, in turn, are based on a study by Olsen and Donaldson (1998) adjusted for activity rates in Ireland.

The next section of the survey asked the respondents about their WTP for each programme. The WTP values were elicited with the help of a payment card (see Appendix B) which listed a number of values from £0 to £200 from which respondents were asked to indicate the value that corresponded to their maximum WTP (respondents whose WTP was over £200 had the option of writing their value in the space provided). For each programme, the interviewer began by asking respondents if they would be willing to contribute anything in extra taxation for the given expansion. All respondents, regardless of their answer to the taxation question, were then asked if they would be willing to pay if the payment was in terms of a voluntary contribution. The inclusion of the voluntary option is important because it provides a payment option for those people who, for whatever reason, distrust public mechanisms of health care resource allocation and prefer more direct voluntary contributions, in the absence of private markets. If the respondent answered "no" to both of these questions, they were asked to explain the reasons why they were unwilling to pay. Otherwise, respondents were asked the maximum their household would be willing to contribute each year for the expansion in the relevant programme. They were reminded that their contribution would

reduce what they had left to spend on other things. After the WTP question, respondents were asked for the reasons why they were willing to contribute to the programme. Because the methodological question addressed in Ireland was on ordering effects the full sample contains some respondents who were presented with the programmes in the order: cancer, cardiovascular and community care and some respondents who were presented with the programmes in the order: community care, cardiovascular and cancer.

Table 1 lists the variables used in the analysis and provides a description of each variable. We ran interval regressions to control for observed differences among respondents and to test for the internal consistency of the reported WTP values. We used this approach because the reported WTP values were grouped. All respondents reported a WTP value that was on the payment card and so we interpreted the respondent's choice as indicating they were at least willing-to-pay the stated amount, but not willing-to-pay the next highest amount. We assumed that the true WTP value was in this range. The interval regression also controlled for any censoring to the WTP values that may have occurred because the highest WTP value on the payment card was £200.

Table 1: *Variable Specification*

Female	1 for female, 0 for male
Age	age in years
Age-squared	age-squared in years
Single	1 for never married/single, 0 for other status
Primary Education	1 for highest level of education of a primary certificate, 0 for higher levels
Own Health < Good	1 for self reported health status of "neither good nor bad" or "poor", 0 for "very good" or "good"
Smoker	1 for smoke daily, 0 for smoke occasionally or never
Income	log of the midpoint of the income interval in Irish pounds adjusted for number of persons in the household (OECD weights: 1 for first adult, 0.7 for additional adults, 0.5 for each child).
Experience	1 if answered yes to "Have you or anyone in your close family ever had personal, first hand experience of (the relevant condition)?"

The interval regression is formalised in the following manner.[3] We take these responses (a_j) to indicate that the respondent was willing-to-pay the amount they indicated but not the next highest amount (a_{j+1}) on the payment card. We assume that the respondent's true WTP (y_i^*) lies somewhere in this interval, $a_j \leq y_i^* < a_{j+1}$. The observed WTP (y_i) is related to the true WTP by the following set of relationships:

$$y_i = a_1 \text{ if } y_i^* < a_2$$

$$y_i = a_2 \text{ if } a_2 \leq y_i^* < a_3$$

$$y_i = a_{N-1} \text{ if } a_{N-1} \leq y_i^* < a_N$$

$$y_i = a_N \text{ if } a_N \leq y_i^*$$

We assume that the true WTP is a function of observable characteristics, $y_i^* = x_i'\beta + u_i$. Then the probability of observing $y_i = a_j$ is:

$$\begin{aligned} \Pr[y_i = a_j] &= \Pr[a_j \leq y_i^* < a_{j+1}] \\ &= \Pr[a_j \leq x_i'\beta + u_i < a_{j+1}] \\ &= \Pr[a_j - x_i'\beta \leq u_i < a_{j+1} - x_i'\beta] \end{aligned}$$

If we assume that the errors follow a normal distribution with a mean of zero and variance of σ^2, then we get:

$$\Pr[y_i = a_j] = \Phi[a_{j+1} - x_i'\beta/\sigma] - \Phi[a_j - x_i'\beta/\sigma]$$

where Φ denotes the cumulative normal distribution. The log-likelihood function is then:

$$\ln L = \Sigma\Sigma \ln(\Pr[y_i = a_j]).$$

IV RESULTS AND DISCUSSION

Table 2 shows the rankings of the three programmes from most important to least important. Respondents were allowed to, and did, rank programmes as being of equal importance. About one-third of the sample ranked all three programmes as being equally important. In order to test for a statistical

[3] See Stewart (1983) for the development of this methodology and Donaldson *et al.* (1998) about the use of discrete variable analysis in WTP studies.

difference in the ranking between each pair of programmes, we restricted our sample to those respondents who reported a distinct ranking. Our results indicate that, of these respondents, a larger proportion (73 per cent) prefer cancer to cardiovascular and cancer to community care (72 per cent). When comparing the cardiovascular and community care programmes, a larger proportion of respondents (60 per cent) prefer cardiovascular to community care.

Even in the initial rankings by respondents of the three programmes there are some interesting results. The cancer programme is clearly seen as the most important programme in the rankings, but the strong showing of the community care programme indicates more support for expenditure in this area than is suggested by current allocations. It is difficult to separate cardiovascular and community care on the basis of first preferences even though the cardiovascular programme is clearly ahead on second preferences. Given the major impact of heart disease on mortality and the high level of public spending in this area associated with the recently introduced Cardiovascular Strategy by the government, the expectation might be that the public would also show strong support for the importance of the programme. This support was not evident, suggesting that the public use a much more complex decision-making calculus than either mortality accounting or financial accounting when asked to make judgements on the relative importance of various programmes.

Table 2: *Ranking of Programmes (percentage of sample)*

	Cancer	*Cardio-vascular*	*Community Care*
Most Important	73.73	52.84	52.24
Second Most Important	20.60	30.75	11.94
Least Important	5.67	16.42	35.82
Prefer Cancer to Cardio-vascular	72.88* (n = 177)	(percentage is of those respondents who report a distinct difference in rankings between the two programmes)	
Prefer Cancer to Community Care	72.43* (n = 214)		
Prefer Cardiovascular to Community Care	59.72* (n = 211)		

*The null hypothesis that the proportion equals 50 per cent can be rejected at a 95 per cent confidence level.

Table 3 reports descriptive statistics about the WTP for each programme. The mean WTP values reveal the same pattern as the general ranking

question. The cancer programme has a higher mean WTP than the cardiovascular programme which has a higher mean WTP than the community care programme. However, unlike the ranking question, the mean WTP values do not indicate a statistically significant difference among the three programmes. Using the bootstrap confidence interval, we cannot reject the null hypothesis that the mean WTP values are equal. Despite being able to rank the programmes, respondents are not able to distinguish among the programmes in terms of what they are willing-to-pay.

Table 3: *Descriptive Statistics of Willingness-to-Pay*

	Cancer	*Cardio-vascular*	*Community Care*
Mean	48.88	44.02	40.82
Std. Dev.	57.46	56.65	52.32
Median	25	20	20
BS 95% C.I.	42.38 – 55.35	37.91 – 50.45	35.27 – 47.10
Zeros	22	27	21
n	293	287	290

On one level this result is surprising given *de facto* allocations among the three programmes and the high level of political and local support for cancer and cardiovascular services across the country. On the other hand, that may be precisely the reason why the public do not indicate a strong WTP preference for more expenditure on cancer and cardiovascular programmes relative to community care services. The latter are so poorly provided (the only community care service provided with any degree of consistency is the public health nurse service) that respondents may value marginal changes to community care higher than marginal changes to already heavily supported programmes. While people think of cancer as the most important programme they may be reluctant to sanction further increases in the programme relative to poorly supported programmes such as community care. As economists predict, individuals face diminishing marginal utility and this is reflected in the values they give in WTP surveys.

Table 4 reports the results from the interval regression of log WTP values for each programme on respondents' characteristics. The one prediction from economic theory is that respondents with a higher income should have a statistically significant higher WTP and we find that they do for all three programmes. Respondents with only a primary education have a lower WTP for all three programmes. Singles have a lower WTP only for the cancer and

Table 4: *Interval Regression of log WTP for Programmes (standard errors in parentheses)*

	Cancer	*Cardio-vascular*	*Community Care*
Female	–0.2489	–0.2610	0.0794
	(0.1859)	(0.1870)	(0.1802)
Age	0.0346	0.0388	0.0155
	(0.0363)	(0.0381)	(0.0355)
Age-Squared	–0.0005	–0.0005	–0.0003
	(0.0003)	(0.0003)	(0.0003)
Single	–0.5235*	–0.4688*	–0.2442
	(0.2621)	(0.2618)	(0.2556)
Primary Education	–0.5994*	–0.8178*	–0.4362*
	(0.2588)	(0.2590)	(0.2548)
Own Health < Good	–0.0732	0.0552	0.0323
	(0.2465)	(0.2527)	(0.2433)
Smoker	0.0384	–0.0506	–0.1009
	(0.2265)	(0.2317)	(0.2273)
Income	0.5673*	0.6145*	0.7006*
	(0.1873)	(0.2022)	(0.1890)
Experience	0.3360*	0.0132	0.2160
	(0.1864)	(0.1941)	(0.2178)
Constant	3.5061*	3.5512*	3.1853*
	(0.1905)	(0.1996)	(0.1735)
Sigma &	1.3004*	1.3039*	1.2611*
	(0.0705)	(0.0719)	(0.0680)
Log-Likelihood	–596.7609	–571.8339	–577.8781
Null Log-Likelihood	–635.7811	–608.0430	–608.0114
Likelihood Ratio Index	0.9357	0.9404	0.9504
Sample Size	223	217	217
Number of Zeros	22	27	20

*Significant at a 90 per cent confidence level. The baseline characteristics are male with the mean age, previously married, more than a primary education, very good/good health, non-smoker, mean income.

cardiovascular programmes. Previous experience with cancer was related to higher WTP for the cancer programme. The data does not allow us to say why experience only acts on the WTP for cancer. It may be that the intensity of the cancer experience lasts longer for respondents than the other two programmes because people fear cancer more than heart problems or dependency in old age. Gender, age, health status and being a smoker do not have an impact on the reported WTP.

Table 5 lists the reasons presented to respondents to indicate why they are willing to contribute to the various programmes. The percentage indicates the proportion of positive WTP responses for whom that reason was the "most important". The top two reasons for all three programmes were *I, or a member of my household, might benefit* and *Reassuring to know care is accessible*, respectively. These reasons indicate the respondents are motivated by selfish reasons such as personal/family benefit or existence value. The third most common reason for contributing to the programmes was related to the potential of the programmes to benefit other people. For cancer, it was *The programme will improve health*. For cardiovascular, it was *More people will be able to return to their normal activities*. For community care, it was *Other people will benefit*. These are all altruistic reasons and are related to the programme descriptions. Only a very small percentage of people gave *more equal access to care* as the "most important" reason for WTP.

Table 5: *Most Important Reason Willing to Contribute (percentage of positive WTP values)*

	Cancer	*Cardio-vascular*	*Community Care*
I, or a member of my household, might benefit	36.78	39.84	43.63
A member of my family/friend has used the service	11.11	6.77	5.41
Other people will benefit	8.43	10.36	8.88
More people will be able to return to their normal activities	6.51	12.35	5.02
The programme will improve health	12.64	9.96	8.11
More equal access to care	6.13	5.18	7.72
Reassuring to know care is accessible	13.79	13.55	19.31
I would support technical progress in medicine	4.21	1.59	0.77
Other	0.38	0.40	1.16
N	261	251	259

Table 6 lists the reasons for not being willing to contribute presented to respondents and the percentage indicating that for this reason they were not contributing. The reasons were similar across the programmes. *I can't afford it, Health services should be more efficient,* and *Pay enough taxes* were the top three reasons in that order. *I can't afford it* is considered to be a "true zero" in this paper, that is, respondents cannot contribute because of a budget constraint. The other two reasons are both "protest votes." Approximately

8 per cent of respondents feel that they have already contributed enough towards public goods and that it is the responsibility of the government, or the appropriate health authority, to ensure that existing allocations are wisely spent.

Table 6: *Reason Not Willing to Contribute (percentage of non-positive WTP values)*

	Cancer	*Cardio-vascular*	*Community Care*
This programme is of no value to my household	3.39	1.43	1.69
Other programmes are more valuable	0.00	2.86	5.08
Other public budgets should be cut	1.69	0.00	0.00
Other groups in society should pay	1.69	1.43	3.39
Pay enough taxes	18.64	14.29	15.25
The users should pay	3.39	2.86	3.39
Health service should be more efficient	23.73	28.57	32.20
I can't afford it	33.90	37.14	33.90
Prefer other ways of paying (private voluntary insurance etc.)	3.39	2.86	1.69
Other	10.17	8.57	3.39
N	59	70	59

People think more about the value of each health care programme to themselves and their families than to others. For example, in providing a WTP estimate for community care, people valued the benefits of the programme to themselves and other members of their households (44 per cent) and also valued the reassurance associated with additional spending in the area (19 per cent), even more so than in the other two programmes (Table 5). That respondents think of health care in a predominantly selfish way may partly explain the high level of tolerance in the country for existing levels of inequality in both health care and health (Nolan, 1991). There was no strong expression of solidarity in the reasons given for willingness to contribute to the three programmes. It may be that the caring externality rationale for public funding of health care is weaker in Ireland than elsewhere, for example than in the UK, where it has been used to explain the existence of the National Health Service in that country (Lindsay, 1969). People may be prepared to sacrifice further tax cuts for a better health service, as indicated in opinion poll surveys, but it is a better service for themselves and their families they want, at least in the first instance.

One has to be careful in taking these arguments too far, however, given the limited set of possibilities available to respondents to explain their reasons for contributing to the three programmes. People may require more time to consider these issues than is available in surveys of this kind. Another reason for caution is that the significant results in the regressions reported in the paper are to be found among a priori non-selfish variables such as *being single* and *income*. Conversely, a priori selfish-related variables such as smoking do not show up as significant. In addition, very few people felt that private insurance should be used more to pay for health care services, suggesting a stronger public orientation among respondents. Though, in respect of private insurance, it is debatable the extent to which respondents think of health care insurance in Ireland as purely private, given the historic link between the state and the Voluntary Health Insurance and the ongoing public subsidisation. Finally, any suggestion of weak support for fairness in the allocation of health care resources must be tempered by how few people gave *the user should pay* as the reason for not providing a WTP estimate.

The relatively small number of people making a contribution on the basis that the designated programmes *will improve health* also points to the absence of a direct relationship between health care expenditure and improved health in the minds of respondents. So little is known publicly about the relationship between health care inputs and outcomes in Ireland that this is perhaps as far as people could go in terms of making a statement on the health production function. Even if you give people reasonable programme descriptions, including information on outcomes, this may not be enough to overcome a priori uncertainty about the marginal contribution of the various programmes to better health. It could also mean that the public are genuinely more circumspect in their views of the effectiveness of health care programmes than are health professionals. It is not that people do not value health care programmes – they clearly do – but more for reasons they *might benefit* from them, rather than that the various programmes *will improve health*. The distinction between *might* and *will* is important for respondents.

After *I can't afford it*, the most cited reason for not contributing to any of the programmes was the belief among some respondents that the *health service should be more efficient* (Table 6), a belief that should reassure economists if not policy-makers. It is not clear why this view was strongest for community care than for the other two programmes. The result though is part of a process of dissatisfaction among some people with the public funding and public production of health care. It is complemented by the absence of any support for the view that *other public budgets should be cut* as an explanation for an unwillingness to make a contribution. People responding in this way clearly believe that the health service is adequately funded and that the

problem relates to the overall efficiency of the system. The fact that between 14 per cent and 19 per cent of people providing non-positive WTP values gave as their reason that they already *pay enough taxes* may also be part of the same process.

V CONCLUSION

Rising public expenditures on health care have led policy-makers around the world to focus their attention on the subject of rationing or priority setting to ensure the system is getting "value for money". This paper provides information on rankings and WTP estimates for marginal changes to three health care programmes in Ireland: cancer, cardiovascular and community care. People rank cancer as their most preferred programme, but when it comes to providing WTP estimates respondents are unable to distinguish among the three programmes in terms of monetary valuation. There is no statistical difference in WTP among the three programmes. This result is surprising given existing resource allocation, which tends to favour cancer and cardiovascular programmes. The explanation may lie in the unwillingness of the public to sanction increases to programmes that are already well provided for relative to poorly resourced programmes. In providing WTP estimates, people are also more concerned about the benefits to themselves and their immediate family than with the needs of others.

The origins of this paper lie in a major European initiative designed to examine the application and usefulness of WTP methodology in the health care field. For that reason, the authors are acutely aware of the measurement and design challenges associated with the application of contingent valuation methods in the public sector. One cannot rule out the possibility that the numbers arising from the survey have been affected by methodological problems associated with using WTP to elicit preferences, despite adherence to best practice in the questionnaire and survey design. Respondents used to thinking about health care provision in a non-market environment may not be able to think about changes to specific health care programmes in a very direct financial way. Consequently, they may be incapable of giving a differentiated response to the question of value. Despite the limitations, the paper provides the first real indication of public preferences among given health care programmes in Ireland. This is a considerable advancement on the current approach to priority setting which relegates the consumers and funders of health care programmes to the status of outsiders in the resource allocation process.

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APPENDIX A
DESCRIPTION OF HYPOTHETICAL PROGRAMMES

CANCER PROGRAMME

200 more patients with advanced cancer could have pain relief from pain by radiotherapy in addition to the 1,600 who are currently getting this treatment.

Without this treatment they would get pain-reducing medicine. Many patients will not have satisfactory pain relief, while others will get significant side effects in the form of tiredness and poor quality of life.

Radiotherapy for these patient groups may have good pain relieving effects among 75 per cent and lead to improved functioning among most patients. The treatment will have few side effects.

On average patients will benefit from this treatment in their last year of life. The treatment will not prolong the patients' lives.

There are patients in every age group and the average age is 60 years old. Men and women are affected in equal numbers.

CARDIOVASCULAR PROGRAMME

100 more heart operations can be provided each year in addition to the 600 which are currently done in the country.

Most of the extra heart patients are men aged 60-70 years. They have chest pain and breathe heavily when strained.

The operation will make 75 per cent of patients completely free from pain, with less pain for the rest. Without the operation the patients will expect to live 8-10 years. With the operation they will on average live for an extra year on top of this.

The operation mortality risk is 1 per cent (so 1 in 100 people will die whilst being operated on).

COMMUNITY CARE PROGRAMME

200 more physically and mentally dependent elderly people would be able to remain in their own homes as a result of an expansion of community care services, thereby reducing the current admissions to long-stay care from the present level of 6,000 per year.

The additional community care services would be in the areas of home nursing, home help and day care facilities. The additional services would be targeted at highly dependent elderly people living at home.

The expansion of community care facilities would improve the quality of life of dependent elderly people living at home, provide support for their carers and reduce admissions to long-stay care for people currently on the margin between community care and residential care.

The majority of the people benefiting from this programme will be women aged 75 years and over.

APPENDIX B
PAYMENT CARD

Amount	*Amount*	*Amount*
£0.00	£25.00	£120.00
£2.50	£30.00	£140.00
£5.00	£40.00	£160.00
£7.50	£50.00	£180.00
£10.00	£60.00	£200.00
£15.00	£80.00	More than £200.00
£20.00	£100.00	(Please specify)

In the interview please tick (✓) the amounts you are sure you *would pay*.

In the interview please put a cross (✗) beside the amounts you are sure you *would not pay.*

In the interview please put a circle (O) around the amount which is the *maximum* you would be willing to pay.