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RESEARCH NOTE

What should guide priority setting in health care? A study of public preferences in Sweden.

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Abstract: Priority setting criteria in health care are commonly set by politicians on behalf of the public. It is desirable that these criteria are in line with societal preferences in order to gain acceptance for decisions on what health services to provide and reimburse. We study public preferences for the allocation of the health care budget based on age, disease severity and treatment cost. We use data from a web survey where 1,160 respondents provided their views on priority setting criteria in health care. The data was analyzed using multinomial logistic regression analyses and one-sample proportion tests. Between 13 to 25 percent of the respondents agree that age, disease severity and treatment cost are valid criteria for priority setting, whereas 56 to 80 percent support weaker versions of the statements. We also find significant differences within the population; young men are for example more prone to support explicit priority setting criteria. Our results imply a need for trade-offs in health care priority setting if balancing differing preferences among population groups. To achieve a greater understanding for priority setting in general, and for using economic reasoning in particular, there may be a need for more public transparency to make clear that priority setting is inevitable.

JEL classification: A13, D63, D70, I14, I18

Key words: equity, health care rationing, prioritizing, public preferences

1 Introduction

As people live longer and health care innovations offer a growing number of costly intervention options, there is a growing importance of priority setting, highlighting questions of fairness and efficiency (Sabik and Lie, 2008). Deciding on what services to

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provide or, perhaps more controversially, not to provide, raises questions about values and principles in the health care system (Buxton and Chambers, 2011).

Public attitudes towards priority setting in health care are diverse (Peacock, 2015) and decisions may or may not reflect the preferences of those affected, not least due to lack of information on public preferences (Carlsson et al., 2012). In many cases, criteria for priority setting and reimbursement are made by politicians on behalf of the general public, whose risk and well-being as payers and patients are affected by these decisions.

Although guiding principles are set at the political level, actual prioritization has to be made by a range of different actors, including clinicians facing individual patients, and hospital/regional care organizations deciding on reimbursement and coverage.

Recently, a study of views on health care priority setting in nine countries indicated that differences were more country-specific than related to socio-economic characteristics (Mason et al., 2016). This indicates that studies are not necessarily transferrable between countries and that multiple factors need to be considered in the priority-setting process in order to reflect population preferences (Mason et al., 2016). As there is no reason to believe that preferences are static, there is a need for keeping track of what the public – as payers and patients – consider to be a fair allocation of resources to and within the health care sector.

2 Aims

In this paper, we look at public preferences in Sweden for three basic values often discussed when setting priorities: age, severity of disease and cost of treatment. Further, we look for differences in preferences based on demographic variables.

3 Methods

3.1 Survey design

In the spring of 2014, we conducted a web-survey where respondents were asked to consider questions and statements related to priority setting in health care. Respondents were told that the aim of the survey and research project was to analyze how the Swedish population values different health conditions and its views on allocation of health care resources.

The first section of the survey contained questions on respondents self-reported health status, as well as their views on the subjective health status for different described health conditions. The second section contained questions on the willingness to pay (WTP) for different health improvements. The third section of the survey consisted of questions on respondents' attitudes to age, severity of disease and treatment cost as priority setting criteria when allocating a health care budget. The fourth and last section included questions on socio-economics and demographics.

The third section, the attitudinal questions, are analyzed in the present paper. Results from the WTP-section are used for estimating the willingness to pay for a quality adjusted life year (QALY) and are published separately (Sund and Svensson, 2018). Resulting estimates conform reasonably well to previous studies in Sweden but illustrate the lack of sensitivity to scope that is commonly present in WTP-studies.

The data collection was carried out by the company Scandinfo based on their web-panel, which consists of respondents who are randomly recruited by phone among all Swedish residents aged 18 and over, i.e. there is no self-recruitment into the panel. In total 1,400 respondents answered the survey over 10 days and 1,160 answered all the questions focused on in the present paper.

3.2 Priority setting statements

The statements aimed at exploring normative attitudes towards health care priority setting are shown in Table 1. For each question, respondents were asked to state which claim is closest to *their own opinion* on how a health care budget should be allocated, i.e. the perspective taken is that of each individual. The specific wording of the statements was inspired by and related to a qualitative interview/focus group study by McKie et al. (McKie, et al., 2011). In all domains, supporting statement 1 corresponds to agreeing that age, disease severity and treatment cost, respectively, are valid criteria for setting priorities.

Table 1: Survey items

What claim is closest to your opinion on how a health budget should be allocated?
<u>Statement 1</u> : Among patients who are equally ill, younger age groups should have priority over older age groups, since those who are younger can be supposed to benefit from the treatment over a longer period.
<u>Statement 2</u> : Priority among patients should not depend on age.
<u>Statement 3</u> : Priority among patients should not depend on age, unless when the remaining life span of older patients is very short.
<u>Statement 1</u> : Treatment for mild diseases should have lower priority than treatments for severe diseases even if the health enhancements are of equal size.
<u>Statement 2</u> : Priority among patients should not depend on disease severity.
<u>Statement 3</u> : Priority among patients should not depend on disease severity, with exception for very mild diseases, which should be given lower priority.
<u>Statement 1</u> : Among patients who are equally ill, those who can be treated at low cost should have priority over those who can be treated at high cost, allowing more people to be treated when resources are limited.
<u>Statement 2</u> : Priority among patients should not depend on the cost of treatment, although this might mean that fewer patients can be treated.
<u>Statement 3</u> : Priority among patients should not depend on the cost of treatment, unless the cost is extremely high.

3.3 Statistical analysis

We show descriptive summary statistics of the answers and conduct one-sample tests of proportion to test if a majority supports the suggested priority setting criteria applicable to age, disease severity, and treatment cost. We test if a majority (50% or more) supports statement 1 in each of the three domains. As a second test, we also assess if a majority supports a combination of statements indicating some support for the hypothesis that age should not be considered in priority setting while severity of disease and costs should (statement 2 and 3 for age, and statement 1 and 3 for disease severity and cost).

To explore the relationship between individual characteristics and priority setting preferences, we perform multinomial logistic regression analysis using sex, age, level of education, unemployment, income, and subjective health as determinants for priority setting preferences.

3.4 Sample description

Table 2 shows sample descriptive statistics for sex, age, university education, unemployment, income and self-reported health on a scale from 0 and 100 (Visual Analog Scale). Comparing the sample with data on national statistics (in the age range 18+) shows that our sample corresponds well with respect to sex and age. The sample has a higher share of individuals with university education (three years or more) as well as a higher net of tax household income, approx. 33 000 Swedish kronor (SEK) per month compared to 22 000 SEK per month (1USD~8SEK) (SCB, 2010, 2011). This discrepancy, in terms of income and education, is often seen when using web panels for performing a survey (Schonlau et al., 2009).

Table 2: Descriptive statistics

Variable	Mean	Standard deviation	Min-value	Max-value
Female	0.50	-	0	1
Age (years)	43.56	17.24	18	98
University education	0.46	-	0	1
Unemployed	0.04	-	0	1
Income (SEK)	32,853	17,229	0	60,000
Subjective health	80.69	14.46	0	100

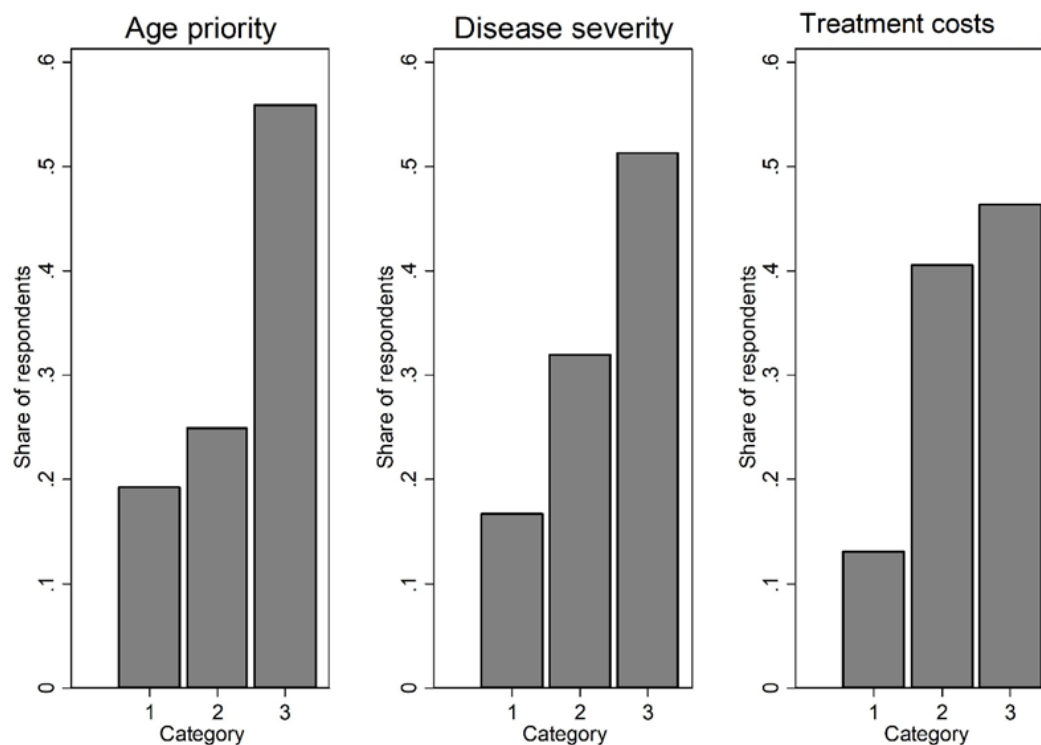
Notes: Number of observations is 1,160. University education is equal to one if respondent has three or more years of university education. Income is measured in Swedish kronor (SEK). Subjective health ranges from 0 and 100, where 100 is the best possible health.

4 Results

Answers to the priority setting questions are shown in Figure 1, where the categories correspond to the statements in Table 1. The results show that 19 per cent of respondents think that younger individuals should have priority over older individuals. We reject that a majority supports that age should never be a determining factor, but we find a relatively strong support (80 percent) for the combination of statement 2 and 3. The latter can be seen as a weak support of age not being a determining factor for priority setting (95% confidence interval for the support for the combination of 2 and 3 goes: 0.78 to 0.83).

We also reject a majority support of the statement that priority setting should depend on severity of disease, which 17 percent of respondents agree to. However, if we combine statement 1 (disease severity should guide priority setting) and 3 (disease severity should guide priority setting if considering very mild diseases) this reaches a support of 68 percent (95% confidence interval: 0.66 to 0.71). There is thus majority support for a “weak” version of the statement that disease severity should be a determining factor or play some role in priority setting.

Finally, 13 percent of the respondents support that treatment costs should play a role in priority setting in health care (statement 1). 41 percent state that treatment costs should *not* be a guiding principle (statement 2) while 46 percent support that treatment cost should not be a guiding principle unless when it is extremely high (statement 3). The combination of statement 1 and 3 receives a joint support of 59 percent (95% confidence interval: 0.57 to 0.62). Thus, even though there is a very low support for using treatment costs as a general determining factor in priority setting, there is a (small) majority support for the “weak” interpretation by combining statement 1 and 3.

Figure 1: Distribution of answers to the prioritizing questions

Note: Categories 1-3 correspond to Statements 1-3 in Table 1.

Table 3 shows average marginal effects based on multinomial logistic regressions. Average marginal effects show how the variables affect the likelihood for supporting a specific statement in the survey. Effects are presented in percentage points and represents the likelihood for supporting a specific statement while keeping all other variables constant at their means.

Some individual characteristics are clearly related to priority setting preferences. Most notably, women are less likely than men to state that treatment costs should be considered (-5.2 percentage points less likely to support statement 1), prioritizing the young (-9.4 percentage points less likely to support statement 1), and prioritizing severe diseases (-7.2 percentage points less likely to support statement 1).

Respondents 65 years of age or older are less likely to support prioritizing the young (-6.8 percentage points), and more likely to support that disease severity should not matter (8.5 percentage points). Respondents below 45 years of age are more likely to support prioritizing the young (10 percentage points), and more likely to support prioritizing severe diseases (8.7 percentage points). Respondents with low income are more likely to support prioritizing severe diseases (6.7 percentage points). Respondents with poor health are less likely to support the importance of cost (-4.1 percentage points).

Table 3: Average marginal effects after multinomial logistic regression

	Age priority			Disease severity			Treatment cost		
	1	2	3	1	2	3	1	2	3
Woman	-0.012 (0.025)	-0.094*** (0.023)	0.106*** (0.029)	-0.072*** (0.022)	0.032 (0.027)	0.041 (0.029)	-0.052*** (0.020)	0.020 (0.029)	0.033 (0.029)
≥65 years	0.056 (0.040)	-0.068** (0.035)	0.012 (0.045)	-0.022 (0.036)	0.085* (0.044)	-0.063 (0.045)	-0.011 (0.030)	-0.011 (0.045)	0.022 (0.045)
<45 years	-0.079*** (0.030)	0.100*** (0.026)	-0.021 (0.034)	0.087*** (0.025)	-0.056* (0.033)	-0.030 (0.034)	0.000 (0.023)	0.068** (0.034)	-0.068** (0.034)
University	-0.027 (0.026)	-0.032 (0.023)	0.059** (0.029)	0.008 (0.022)	-0.049* (0.028)	0.042 (0.030)	0.026 (0.020)	-0.133*** (0.029)	0.107*** (0.030)
Unemployed	0.065 (0.069)	-0.030 (0.050)	-0.035 (0.074)	-0.025 (0.047)	-0.021 (0.069)	0.047 (0.074)	-0.015 (0.047)	0.020 (0.073)	-0.006 (0.074)
High income	-0.056* (0.032)	0.046 (0.033)	0.011 (0.039)	0.024 (0.031)	-0.025 (0.036)	0.001 (0.039)	0.021 (0.028)	-0.022 (0.038)	0.001 (0.039)
Low income	0.034 (0.031)	0.038 (0.029)	-0.073** (0.036)	0.067** (0.029)	0.031 (0.034)	-0.098*** (0.036)	0.033 (0.027)	-0.054 (0.034)	0.021 (0.036)
Good health	0.031 (0.034)	0.005 (0.031)	-0.036 (0.039)	0.014 (0.030)	0.021 (0.037)	-0.035 (0.039)	-0.008 (0.025)	0.028 (0.038)	-0.020 (0.039)
Poor health	-0.017 (0.032)	0.001 (0.029)	0.016 (0.037)	-0.011 (0.027)	-0.031 (0.034)	0.042 (0.037)	-0.041* (0.041)	-0.025 (0.036)	0.066 (0.037)

Notes: 1,160 observations. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. High income is above the 75th percentile, low income is below the 25th percentile, good health is above the 75th percentile, poor health is below the 25th percentile. 1,2,3 in column headings corresponds to allegations 1,2 and 3 as presented in table 1.

5 Discussion

It has been argued that acceptance of priority setting and rationing will depend on the congruence between public preferences and principles and processes adopted (Landwehr and Klinnert, 2015). Preferences on priority setting in health care vary greatly within and between political and geographical contexts (Mason et al., 2016; Peacock, 2015; Ratcliffe, et al., 2017). In our study, we also found that individual characteristics relate to priority setting preferences, where women were less likely to agree to any one of the explicit priority setting factors. We also found indications of self-interested preferences, e.g. the elderly are less likely to agree using young age as an argument for higher priority (and vice-versa). This highlights that there will always be trade-offs in health care priority setting as legislators balance differing interests among population groups.

Self-interest can be put in contrast to concerns about fairness and equity that are important to the public in distributional decisions as well. Potential sources of social value are factors that relate to the patients, as well as factors that relate to the interventions' effect on health outcomes (Schwappach, 2002).

In Sweden, the parliament has decided on guiding principles to priority setting in health care by establishing an ethical platform (Proposition 1996/97:60). This platform is based on three principles that are explicitly ranked: the human-dignity/value principle takes precedence over the need- and solidarity principle, which in turn takes precedence over the cost-effectiveness principle. In short, relating to our survey those principles imply that age should not be considered when setting priorities while severity of disease should. Also, costs should be reasonable in relation to benefits, meaning that costs are to be considered in priority setting. It is however being discussed whether the cost-effectiveness principle has been given an extended role, due to changes in the law regulating pharmaceutical reimbursements (Sandman, 2018). Our results indicate a need for further studies on whether the existing official criteria still are in line with public preferences in Sweden.

5.1 Limitations

The sample is not completely representative to the Swedish population when it comes to income and education, which of course might influence our results. Also, in order to understand the survey statements correctly, respondents had to read all three statements. A general limitation is that attitudes to difficult subjects, like how to set priorities in the health care system, are hard to capture from a limited number of survey questions. A more study specific limitation is that respondents were not required to take a stand on how to actually set priorities in a public health care system, thus allowing them to disagree with all the priority-setting statements. A possible way to get around that problem might have been to ask respondents to prioritize between different interventions, aiming at mirroring the real-world setting. Obviously, resources are limited and in some way or another some principles need to guide the distribution of resources to and within a public health care sector, but those suggested in the survey are not the only ones.

5.2 Conclusion

The present paper explores societal preferences in Sweden regarding priority-setting criteria in health care. We find significant differences in preferences due to age, sex and income, as well as indications on preferences based on self-interest. This implies a need for trade-offs in health care priority setting to balance differing preferences. In addition, our results indicate a reluctance to priority setting in health care in general and economic reasoning in particular. Thus, there might be a need for making clear that priority setting is inevitable as well as for studying people's preferences in more detail as priority setting grows more important.

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