**Subsidy Shock: Reshaping Judgements of
College Sticker Prices**

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Abstract

Three studies tested the hypotheses that 1) people think college tuitions are too high, 2) people know very little about the extent to which colleges and universities subsidize their students and 3) providing people with subsidy informaiton leads them to judge the prices that such schools charge as more reasonable. The results offered qualified support for all three hypotheses. First, people generally thought public institution charges were reasonable but tended to think that private institution charges were unreasonable. Second, people were generally aware of the subsidies provided by public institutions but were in many cases unaware of the subsidies provided by private colleges and universities. Third, after receiving subsidy information, people increased their reasonableness ratings of the private school prices but not the public school prices. This was true even when they correctly estimated the private schools' subsidies.

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People make a wide range of important judgments and decisions over the course of a lifetime. They decide where to live, whether to get married, when to start a family, and, when their children finish secondary school, what college will be best for them. Each of these decisions is made in the context of complex "decision frames" that powerfully affect those decisions. Tversky and Kahneman (1981) use the term decision frame to refer to "the decision-maker's conceptions of the acts, outcomes, and contingencies associated with a particular choice" (p. 453) and they have shown that varying frames for a decision can change it dramatically. An older and similar notion is that of frame of reference, Cantril's (1940) concept of "an organized mental context which provides an individual with a basis for interpretation" and judgment (Cantril, 1940, p. 68). The present paper is concerned with how important information might reframe and thus alter the judgments that people make about a critical life decision and investment, that of paying the price of attending college.

We begin with three interrelated hypotheses. First, people feel that the current price of attending college is too high. Second, people know very little about a key element in the economics of higher education, namely, the extent to which each student's education is subsidized by a college's or university's own financial resources. Third, information about those

subsidies can reframe people's understanding of college charges in a way that leads them to judge the prices that they are being asked to pay as more reasonable.

The (too) high price of college

The high price of attending colleges and universities has generated a great deal of discussion in recent years. National newsmagazines, university administrators and trustees, the federal government, politicians, and economists have all voiced concern about the cost of attending college, at both private and public institutions. <u>Newsweek</u> (1996) recently carried a cover story about the issue, with the headline proclaiming "$1000 a week: the scary cost of college." Following, perhaps, the model set by <u>USNews and World Report,</u> newspapers have delighted in listing colleges in descending order of tuition or total charges (that is, "sticker price" -- tuition, fees, room, and board) and <u>Money</u> magazine has ranked schools on a "best buy" scale. recent book by economists McPherson and Schapiro (1991), <u>Keeping College Affordable: Government and Educational Opportunity</u>, asks whether parents and students can pay the high price of higher education. In 1990 it seemed hard to believe that sticker prices at selective private schools could actually rise above $20,000. Five years later, the $25,000 mark, or $100,000 for four years, seemed unthinkable. In each case, however, prices continued to rise beyond those respective marks. At this writing, the $30,000 figure is clearly coming into view.

As anxiety regarding price and affordability increases to near the panic level, "sticker shock" obscures some of the facts potentially relevant to judging student charges. For example, in the 1980's incomes for the most wealthy Americans, the only ones who paid the full price at elite private colleges and universities, increased faster than student charges (cf. Phillips, 1990). Also, financial aid expenditures, or price discounting, increased substantially at many institutions.

The role of subsidies in the economics of higher education .

One key fact about the economics of higher education that has been missing in these discussions, either because it has been unknown or ignored, is that of ~~subsidy.~~ The extent to which an individual's education is subsidized by sources of income other than what students themselves pay can be crucial in determining the quality of a student's educational experience and therefore whether the price is worth paying. As Winston and Yen (1995) have pointed out, many colleges and universities subsidize their students' educations to a high degree, especially when the costs of the services provided by buildings, equipment and land are considered. The income to pay such subsidies comes primarily from state funding, in the case of public schools, or from alumni contributions and endowments. The subsidies are particularly large among high quality, elite colleges and universities such as Williams, Harvard, and-the University of North Carolina. For example, the 10% of public schools that offer the most generous

subsidies actually subsidize 94.5% of the total cost of **producing** their students' education; the 10% most generous private institutions subsidize 75.3% of their students' education (Winston & Yen, 1995).

The impact of subsidy information on judgments

The frames of reference that we use to judge the price of a year in college are most likely composed of a wide array of strong and hedonically relevant conceptions--what we think about how much the price of college has increased recently, whether we can manage to pay the bills, whether the college experience is positive, whether we will be denied access because of our financial situation, and whether the financial investment will be worthwhile in terms of later earnings or other important dimensions of life quality. Given these conceptions, if subsidy information were to change the way people think about college prices, it would probably have to dramatically reframe or recontextualize price information.

Examples of this kind of reframing are not common in the psychological literature, but one illustrative case comes from a study of "over-compensation" for expectancies. Subjects who were led to evaluate a high school student negatively because he killed a cat subsequently thought extremely well of him when they learned that the cat was rabid and that the boy killed it to protect a child that the cat was threatening (Walster, Walster, Abrahams, & Brown, 1966). In fact, these subjects thought more

highly of the high school student than did subjects who received all the information about the boy at one time. The main point is that the information about the boy's reason for killing the cat completely recontextualized or reframed their judgment of the boy.

Could information about subsidies have a similar impact? Perhaps so. Kahneman, Knetsch, and Thaler (1986) have shown that there are important "community standards of fairness for the setting of prices . . . "(p. 728). In general, people believe that it is acceptable to charge prices that are tied to costs. Perhaps people would feel that setting college prices in line with the cost of subsidizing and producing education is fair. Anecdotal evidence based on observations of college presidents and trustees suggests that they use a "fair share" principle based on subsidies both in thinking about and talking about the prices their institutions charge. Trustees nervous about bad publicity and about the affordability of their institutions sometimes find it reassuring to learn that those schools have maintained a long-standing subsidy proportion even though prices have risen. College presidents sometimes try to persuade parents that student charges are reasonable by pointing to the magnitude of the subsidies their sons and daughters enjoy. While the price of college is high, if people realize that the cost is also high, and borne in great measure by the institution or the state, then they might feel that the price is more justifiable and reasonable.

Three studies were conducted to explore this possibility, specifically, whether subsidy information would lead people to reframe student charges. In all three studies, subjects were given subsidy information about both a public and a private institution. Public colleges and universities charge considerably less than private schools, and are funded very differently. Also, it is possible that people know more about state funding for public institutions than endowment support for private institutions. For these or other reasons people may judge public and private schools differently, although we had no specific predictions in this regard.

In the first two studies data were collected from students at a college or university. Study 1 was conducted at two institutions in a northeastern state and Study 2 was conducted at two institutions in a southeastern state. In each state one school was a public institution and the other was private. The northeastern schools were a widely known "elite" four-year liberal arts college and the main campus of a state university. The southeastern schools were a widely known private university and the main campus of a state university. At each campus students were asked to make estimates and judgments about the school they attended and the other school in the state. Thus all subjects considered both a public and a private institution. In Study 3 data were collected from a group of public school teachers from several towns in the northeast, who were asked about the same two institutions as the subjects in Study 1.

In each study subjects were asked to rate the reasonableness of the prices charged by the two schools both before and after they were given subsidy information about those schools. We explored their initial reasonableness ratings, whether they had accurate knowledge of each school's subsidy, and whether providing them with subsidy knowledge changed their reasonableness ratings.

STUDY 1 - TWO NORTHEASTERN SCHOOLS

The two sets of data for our first study were collected in the 1995-96 academic year using identical procedures at the main campus of a large state university in the northeast and at an elite liberal arts college in the same state and within the same general area.

Method

Subjects

The subjects were volunteers from psychology courses at the two schools who participated in the study in exchange for course credit. There were 36 subjects at the state university and 19 at the liberal arts college.

Procedure

Subjects volunteered to participate in a study of "college costs and tuition." They were run in two groups and the order in

which they were asked to judge the two schools was varied between

the two groups. The experimenter explained briefly to each group

that the purpose of the study was to explore how people felt

about the education they were getting and what they were **paying**

for it. She explained that data were being collected at two

campuses in the state, one private and one public, and that she

would ask them questions about the costs of education at both

schools.[1] Subjects were given an answer sheet keyed to the

questions that the experimenter asked verbally.

The experimenter first asked subjects to estimate the total

price for tuition, fees, room and board being charged at either

their own school or the other school in the state. She then told

the subjects the actual charges in round numbers ($10,000 at the

state university and $27,000 at the private college), and asked

them to write that figure on their answer sheets. Subjects next

were asked to rate, on their answer sheets, "how reasonable, that

is, how fair" the charges figure seemed to them, from 1, "totally

unreasonable," to 10, "totally reasonable." The experimenter

then asked subjects how much they thought the school was spending

during the current year, 1995-96, "to produce the total

undergraduate educational experience." They were told that this

figure "includes instruction, room and board, financial aid, and

student services such as athletics and health services. It also

includes the portion of services such as the library and computer

center, buildings and grounds, and administration that support

instruction." After giving their estimates subjects were told an

actual figure and asked to write it on their answer sheets. Based on data from the Integrated Postsecondary Education Data System (IPEDS) of the Department of Education and the approach adopted by Winston and Yen (1995) the figures given were $18,000 for the state university and $46,000 for the private college. Subjects were told that the school was "paying for, or subsidizing," $8,000 or 44% (public school) or $19,000 or 41% (private school) "of each student's education." Both the cost ($18,000 or $46,000) and the price ($10,000 or $27,000) were repeated and it was explained that the subsidy money came from "the state and alumni donations" in the case of the state university and from "the endowment and alumni donations" at the private college. Next, subjects were asked to rerate the reasonableness of the student charges total "knowing that (school) spends (amount) for each student's educational experience." They were also told to feel free to give the same answer as before or a different one, depending on what they thought now. Again, subjects indicated their answers on a 10-point scale on the answer sheet.

At this point the experimenter told the subjects to consider the other school and she asked the same questions about that institution. Lastly, subjects reported their gender, whether they received financial aid, whether they lived on or off campus, and at the state university, whether they were in-state or out-of-state students.

Results

Subjects' ratings were submitted to factorial analyses variance, or ANOVAs. In most cases there were two between-subject factors, Student (whether the subjects attended the university or the private college) and Order (whether subjects rated the state university or the private college first), and one-within subjects factor, School (ratings of the state university vs. the private college). Analyses using different designs will be noted below. There were no effects for gender, financial aid status, state of residence, or on- vs. off-campus status and these variables are not discussed further.

Price estimates

Subjects' estimates of total charges at both the private and public schools were fairly accurate, especially about their own school. State university students estimated their own school at $10,069 and the private college at $23,253 while the private college students estimated the state university at $12,658 and their own school at $26,894. An ANOVA of these estimates revealed highly significant main effects for School, with all subjects estimating the private school as charging more than the public school (Ms = $24,511 and $10,491; $F (1,51) = 472.69$, p<.001), and for Student, with the private college students giving higher estimates across schools than state university students (Ms = $19,776 and $16,661; $F (1,51) = 22.07$, p<.001).

No other effects were significant.

<u>Initial reasonableness ratings</u>

The results partially support our first hypothesis, that people judge the price of attending college as too high. Students actually rated the public school's charges as somewhat reasonable. In contrast, they rated the private school's charges as somewhat unreasonable, but not extremely so. Specifically, public students rated their own school's charges as more reasonable (M = 6.01) than the private college's charges (M = 3.64) while private school students also rated the public school's charges as more reasonable than their own school's charges (Ms = 7.00 and 5.32). An ANOVA revealed main effects for both School and Student with the ratings of the public school being more reasonable than those of the private (F (1,51) = 24.99, p.<OOl) and private school students giving higher reasonableness ratings than their public school peers (F (1,51) = 5.77, p<.O5). The interaction was not significant.

<u>Cost estimates</u>

The cost estimates for students at both schools are presented in Figure 1. Inspection of the means shows that the private school students were accurate in judging both the public school costs and the private school costs while the public school students were accurate in judging the public school costs but not the private school costs. Thus our second hypothesis, that

people know little about the cost of producing higher education, seemed only to be true for the public school students in judging the private school's costs. Consistent with this reading of the data, an ANOVA revealed a Student X School interaction ($F(1,51) = 12.19$, pc.01) reflecting the fact that private school students accurately estimated the cost of their own school to be significantly higher than the cost of the public school (Ms = $44,158 and $21,158; $t(18) = 4.3$, pc.001) while public school students inaccurately gave very similar estimates for the private and public schools' costs ($20,557 and $17,671, n-s.).

Complicating the accuracy question in an intriguing way was a Student X Order X School interaction ($F(1,51) = 6.35$, p<.05), qualifying the Student X School interaction reported above. This interaction reflects three elements in the data: 1) public school students gave a significantly higher estimate of the private school cost when they considered the private school second, that is, after they had considered their own school first (Ms = $27,361 vs. $13,352, $t(33) = 4.79$, pc.001); 2) those same public school students did not give different cost estimates for their own school as a function of order of measurement; and 3) private school students did not give different cost estimates for either school as a function of order. The public school students' extremely low estimates of private school costs are remarkable, especially when they considered the private school first.   In this case they evidently thought the private school was making a large profit on each student.

Finally, there were main effects for School, with the private school's costs estimated as higher than the public school's (Ms = $28,861 and $18,898; F (1,51) = 19.79, pc.001) and for Student, with private school students giving higher cost estimates across schools than public school students (Ms = $32,658 and $19,114; F (1,51) = 23.70, p<.00l).

Changes in reasonableness ratings

After subjects were told the cost of producing a student's education at each school they were asked to rerate the reasonableness of the school's charges. Figure 2 presents both the initial reasonableness ratings discussed above and the second ratings made after the cost information was provided. An ANOVA was conducted on these data using an additional within-subjects variable, Time, which compares the initial vs. post-subsidy ratings.

The Time main effect tests our third hypothesis, that subsidy information is likely to produce different reasonableness ratings. This main effect was significant, with the post-subsidy reasonableness ratings being higher than the initial reasonableness ratings (Ms = 6.43 and 5.30, F(1,51) = 12.49, pc.01). Interestingly and importantly, qualifying this main effect was a highly significant School X Time interaction (F(1,51) = 16.56, p<.00l), reflecting the fact that the reasonableness ratings for the private school increased significantly after the subsidy information was provided, from

4.22 to 6.26 (t(54) = 5.47, p<.OOl), while the reasonableness rating for the public school did not change significantly, moving from 6.38 to 6.60. It is also important to note that the increased reasonableness rating of the private school and the stable reasonableness rating of the public school combine to produce post-subsidy ratings of the public and private schools that do not differ significantly (Ms = 6.60 and 6.26).

Finally, the ANOVA revealed main effects for Student, with private school students giving higher reasonableness ratings than public school students (Ms = 6.65 and 5.44, F(1,51) = 8.73, p<.Ol) and for School, with ratings of the public school being higher than those for the private school (Ms = 6.49 and 5.24, F(l,Sl) = 11.66, pc.01).

STUDY 2 - TWO SOUTHEASTERN SCHOOLS

A second study was conducted in a southeastern state during the 1995-96 academic year in an attempt to generalize the results of the first study to a different region of the country with a very different history of public and private higher education. Historically, public universities have enjoyed more prestige in the southeastern state than in the northeastern state, while the reverse was true of private colleges and universities. The procedures for the second study were largely the same as for the first. Subjects were recruited differently and there was an additional measure, as described below. The subjects were from

two schools, the main campus of the state's large state university system and a prestigious private university, both in the same general area.

Method

Subjects

Subjects were recruited with signs posted in various campus locations. The signs described the study as investigating "college costs and tuition" and subjects were offered $5.00 for a half-hour of their time. There were 40 subjects at the state university and 27 at the private university.

Procedure

As in the first study, subjects at each school were run in two groups. In one group subjects considered the public school and then the private school and in the other they considered the two schools in reverse order. The procedures were identical to those used in Study 1. The price and cost information given to the subjects were $6,000 and $22,000 for the public university and $26,000 and $36,000 for the private university. Again, the cost information was derived from IPEDS data and the approach used by Winston and Yen (1995). There was an additional measure in this study. At the end subjects were asked to indicate how surprised they were to learn how much each school "spends to produce each student's educational experience" using lo-point scales, ranging from "not at all surprised" to "very surprised."

                              Results

    Subjects' ratings were submitted to the same factorial
analyses of variance as used in the first study. As in the first
study, there were no effects for gender, financial aid status,
state of residence, or on- vs. off-campus status and these
variables are not discussed further.

Price estimates

    State university students estimated their own charges at
$6,925 and the private school's charges at $22,413. Private
university students estimated their own charges at $26,903, and
the public school's charges at $9,907. Again subjects are quite
accurate in estimating total student charges at their own
schools. As in Study 1, an ANOVA revealed two highly significant
main effects: one for School, such that subjects estimated the
private school's charges as significantly higher than the public
school's charges (Ms = $23,896 and $8,127; $F(1,63) = 520.09$,
p-C.001); and one for Student, such that private school students
made higher estimates than public school students (Ms = $18,000
and $14,669; $F(1,63) = 20.00$, p<.OOl). No other effects were
significant.

Initial reasonableness ratings

As in the first study, the results gave partial support to our first hypothesis. The public school's charges were rated as highly reasonable but the private school's charges tended be rated as unreasonable. Specifically, public school students rated their own school's charges as considerably more reasonable than the private school's ($Ms = 8.35$ and 3.58). Private school students also rated the public school's price as more reasonable ($Ms = 8.19$ and 5.07). An ANOVA of these ratings revealed, as with the northeastern students, a main effect for School ($Ms = 8.28$, public, and 4.18, private; $F(1,63) = 133.45$, $pc.001$). In addition there was a Student X School interaction ($F(1,63) = 8.35$, $pc.01$) showing that while the public school was rated very similarly by both groups of students, the private school was rated as significantly more reasonable by the private school students than the public school students ($Ms = 5.07$ and 3.58; $t(65) = 2.94$, $px.01$).

In addition there were two effects involving the Order variable. First, there was a main effect for Order ($F(1,63) = 6.28$, $p<.OS$), with subjects who rated the private school first making higher overall estimates. This effect is best understood as reflecting the fact that subjects who rated the private school first, at a price of $26,000, found the public school, at a price of $6000, more reasonable in contrast, while those who rated the public school first found the private school less reasonable in contrast. There was also an Order X School interaction ($F(1,63) = 4.28$, $p<.05$), revealing that this effect of order was slightly

more pronounced in the public school ratings.

<u>Cost estimates</u>

Mean cost estimates are presented in Figure 3. They are not
very accurate, especially in the case of estimating the costs of
the private school. While subjects notably underestimated the
cost at the public school, they did recognize that it provided a
substantial subsidy. As in Study 1, an ANOVA of these data
revealed a main effect for School such that subjects estimated
the per student cost of producing a year of education to be'
significantly higher at the private school than at the public
school (Ms = $23,403 and $12,802, respectively; F(1,63) = 37.19,
pc.001). However, both these figures are too low, especially for
the private school. Furthermore, this main effect is qualified
by a significant Order X School interaction (F(1,63) = 20.03,
p<.OOl), with subjects giving larger estimates of the cost of
each school, particularly the private school, when they rated it
second. Subjects estimated the public school cost at $10,182
when they rated it first, but estimated it at $15,346 when rating
it second. Similarly, subjects rated the private school cost at
$18,265 when rating it first and at $28,697 when they rated it
second. That is, subjects are less accurate about both schools
when they rate them first. It is of note that when subjects
considered the private school first they estimated its cost as
being substantially below its price, as if they believed the
school was making a profit on each student. In this respect both

the public school and the private school students, like the
public school students in Study 1, seemed quite unaware of the
private school's subsidy. Finally, in contrast to Study 1,
subjects at both schools gave very similar cost estimates. There
were no effects involving the Student variable in these analyses.

Changes in reasonableness ratings

Figure 4 shows both the initial reasonableness ratings
discussed above and the second ratings made after the cost
information for each school was presented. An analysis of these
results, with Time as an additional within-subjects variable,
revealed several effects. First, as with the northeastern data,
our third hypothesis was supported with a main effect for Time
($F(1,63) = 9.31$, p$\times$.01). Subjects gave higher reasonableness
ratings after learning about the schools' subsidies than they did
initially (Ms = 6.95 and 6.22). Also, as with the northeastern
data, support for the third hypothesis was qualified by a highly
significant School X Time interaction ($F(1,63) = 41.95$, p$\times$.001).
The reasonableness rating of the private school increased
significantly after the subsidy information was given, from 4.18
to 6.09 ($t(66) = 6.32$, p<.00l), while the reasonableness rating
of the public school did not change significantly, dropping from
8.28 to 7.84.

There were several additional findings as well. As in Study
1 there was a significant main effect for School, with subjects

rating the public school as more reasonable than the private school (Ms = 8.04 and 5.30; $F(1,63) = 50,78$, p<.OOl). Unlike Study 1, there was no Student main effect, but there was a main effect for Order, with higher reasonableness ratings when the private school was considered first (Ms = 7.27 and 5.90, for private first and public first, respectively; $F(1,63) = 30.23$, p-C.001). As noted above, this effect reflects the tendencies for subjects to give lower reasonableness ratings to the private school after hearing about the low price of the public school in the public school first order, and to give higher reasonableness ratings to the public school after hearing about the higher price of the private school in the private school first order. This effect is qualified by a marginally significant Order X Time interaction ($F(1,63) = 5$ 15, p<.OS) reflecting the fact that these tendencies are slightly stronger in the post-cost ratings.

There were two other interactions not found in the northeast data. First, there was a Student X School interaction ($F(1,63) = 9.21$, pc.01) with the private school rated as more reasonable by the private school students than the public school students (Ms = 6.11 and 4.48) and the public school rated as equally reasonable by both private and public school students (Ms = 7.89 and 8.18). Finally there was a four-way Student X Order X School X Time interaction ($F(1,63) = 8.22$, p<.Ol). This interaction is best understood as the Student and Order variables interacting in qualifying the highly significant School X Time interaction noted above. The strong general tendency for subjects to increase

their reasonableness rating of the private school but not the public school following the cost information was higher for the public school students when the private school was considered first but higher for the private school students when the public school was considered first. These two effects are unique to the southeast data and do not seem to qualify meaningfully the highly significant School X Time interaction found in both data sets. They will not be discussed further.

Surprise ratings

Subjects from both schools expressed more surprise about the public school's subsidy information than about the private school's (Ms = 7.70 and 6.88; $F(1,63)$ = 6.30, $p<.05$). No other effects were significant.

STUDY 3 - PUBLIC SCHOOL TEACHERS

While college students are overused as research participants in many areas of investigation, their direct involvement with paying for college makes them highly appropriate subjects for the present studies. Nevertheless, the generalizability of research findings is increased when they are based on diverse populations. Therefore, a third study was conducted with public school teachers from several adjacent school districts in western Massachusetts.

Method

Subjects

The subjects were 19 elementary, junior high, and **high** school teachers from nearby communities attending an accreditation seminar at Williams College, a liberal arts college in western Massachusetts. After the seminar the teachers were invited to participate in a study of "college costs and tuition." They were offered $5.00 for less than a half-hour of their time.

Procedure

The procedure was similar to that used in Studies 1 and 2. Subjects were first asked to estimate total student charges at the two northeastern schools used in Study 1. After being told the actual charges they were asked to rate their reasonableness from 1 to 10. Then they were asked to estimate the cost per student for each school to produce a year's educational experience. After being told the cost figures, the same as those provided in Study 1, they were asked to rerate the reasonableness of the total charge figures at each school. It was not possible to run two different groups using different orders. In each pair of questions and answers subjects were asked or told about the private school first.

Results

The analyses below consider ratings of both the public school and the private school, both before and after the subsidy

information was provided.   There were no gender differences in any of the results.

Price estimates

Subjects estimated the private school's price as significantly higher than the public school's (Ms = $27,394 and $14,921; t(18) = 3.98, p<.001).   Their estimate of the private school was very accurate.   Their estimate of the public school was too high.

Initial reasonableness ratings

Contrary to our first hypothesis, subjects initially rated the charges of both schools as somewhat reasonable.   Their initial rating of the reasonableness of the public school's charges was higher than their rating of the private school's charges, but the difference fell short of statistical significance   (Ms = 7.79 and 6.32, t(18) = 1.89, p<.10).

Cost estimates

Subjects gave reasonably accurate cost estimates for both schools (Ms = $38,158 for the private school and $20,289 for the public school).   Their cost estimate of the private school was significantly higher than their estimate of the public school (t(18) = 3.76, pc.001).

Changes in reasonableness ratings

Subjects' post-subsidy ratings of the reasonableness of the private school were slightly but not significantly higher than their ratings of the public school (Ms = 8.00 and 7.42, n.s.). An ANOVA of the initial and post-subsidy reasonableness ratings of both schools revealed a School main effect, with the ratings of the public school being higher across time than those of the private school (Ms = 7.61 and 7.16; $F(1,17) = 5.98$, pc.05). As in Studies 1 and 2, there was a highly significant School X Time interaction ($F(1,17) = 11.85$, p<.01), showing that the ratings of the reasonableness of the private school increased after the subsidy information was provided ($F(1,18) = 14.24$, p<.001), while the ratings of the public school did not significantly change.

Discussion

The results of our three studies give strong, but interestingly qualified, support to our three major hypotheses. First, we hypothesized that people would regard student charges as too high. However, while many students regarded private school's charges as at least somewhat unreasonable, public school's charges were generally regarded as reasonable. Second, we expected that our subjects would have little knowledge of subsidies. In fact, while three of our four undergraduate subject groups did not know that subsidies existed at private schools, the fourth undergraduate group and the public school teachers seemed reasonably knowledgeable about them. Also, all

five subject groups were cognizant of the fact of subsidies at public schools. Third, we expected that subsidy information would reframe people's judgments about the reasonableness of student charges, and lead them to view those charges as more reasonable. There is considerable support for this idea, but only for private institutions. This latter finding was strikingly consistent for all five subject groups, even for those who were aware of the private school's subsidy. However, we have not found direct support for the implicit idea that subjects increased their reasonableness rating of the private schools charges as a function of how much they underestimated those schools' subsidies. These issues are discussed below.

Initial reasonableness ratings

Subjects were not as harsh as we had expected in their judgments of college prices. They clearly responded to the actual level of those prices. They felt that the $6,000 sticker price of the southeastern public school was very reasonable, the $10,000 sticker price of the northeastern public school was more reasonable than unreasonable, and that the charges of the two private schools, $26,000 and $27,000, were somewhat unreasonable, but not extremely so. Also, public school students felt the charges across the board were less reasonable than did the private school students and the teachers. For those interested in educational policy issues, these results suggest caution but not alarm about the way students currently view college charges.

<u>Cost estimates</u>

All five groups of subjects recognized that the public school provided a subsidy. The northeastern students and the northeastern public school teachers all made cost estimates of the northeastern public school's cost that were quite close to the actual figure of $18,000. The southeastern students underestimated the magnitude of the subsidy at the southeastern public school, but they knew that there was one. Their average cost estimate was $12,802 while the actual cost was around $22,000.

In contrast to these generally accurate estimates, the estimates of the costs of the two private schools by the northeastern public school students and the two groups of southeastern school students seem astonishingly inaccurate. It should be noted first that these subjects' estimates of the costs of the private school depended to a large degree on whether they considered the public school or the private school first. When they rated the private school first they were "rookie" raters and had not had the opportunity to conceive or develop the idea of subsidy from hearing about the subsidy at the public school. When they rated the private school second, after considering the cost, price, and subsidy of the public school, they were "veteran" raters, and they clearly used their knowledge of the public school's subsidy in estimating the cost of the private

school.

The "rookie vs. veteran" difference was most pronounced among the northeastern public school students. They estimated the northeastern private school's cost at $13,352 when they considered it first. In effect, they were saying that by charging $27,000 to full fee-payers the school was marking up its costs by 100%. When they considered the private school second, after learning about the $8,000, or 44%, subsidy at the public school, they estimated the private school to be breaking even, with a cost of $27,361. A similar pattern was found for both the public and private school students in the southeast. As "rookie" raters they estimated that the private university spent $18,265 per student, thereby making a large profit on each student. When they were "veterans," having heard about the state university's $16,000, or 78%, subsidy, they estimated that the private university spent $28,697 per student, thereby providing a modest subsidy. One surprising aspect of these results should be noted. Since subjects were generally aware of the public schools' subsidies, it is odd that reporting them precisely changed so dramatically subjects' estimates of the extent to which the private school was making a profit on each student.

In sum, our major finding regarding cost estimates is that all five of our subject populations knew that the public schools provide substantial subsidies to each student, but three of five of them seemed to believe that the private schools made substantial profits on each student.

Changes in reasonableness ratings

Our findings on changes in reasonableness ratings are very clear. Subjects gave significantly higher reasonableness ratings to private schools after being told of their subsidies but they did not change their reasonableness ratings of the public schools after being told of their subsidies. This data pattern was the same for all subject groups, whether or not they estimated, and presumably "knew," that the private school subsidized its students.

There are several pieces of evidence that show that increases in reasonableness ratings for private schools did not depend on the extent to which subjects "knew" the subsidies. First, despite the fact that "veteran" raters gave substantially higher estimates of the costs of the private school, they made similar increases in their reasonableness ratings. It was not only the surprised "rookies" who increased their reasonableness ratings. The "veterans" did as well, as did the public school teachers and the private northeastern college students who were more accurate about the degree of subsidy at the private school. Also, we found that in none of the five subject groups was there any correlation between subjects' estimates of cost and their initial reasonableness ratings or their increase in reasonableness ratings. Nor was there any relationship in Study 2 between self-reported surprise concerning the cost information and initial reasonableness or change in reasonableness ratings.

In fact, southeastern subjects increased their reasonableness ratings of the private school but not the public school, even though they reported more surprise about the public school subsidy.

How are we best to understand, then, just how the information about subsidy led to increases in subjects' reasonableness ratings of the private school? Two possibilities suggest themselves. First, we provided subjects with specific cost information that for many of them may have been real news. This enabled them to judge very specific price information, 'which was familiar, in terms of very specific cost information, which was novel. The comparison of these two specific figures may have been decisive in leading subjects to increase their reasonableness ratings. Second, simply by asking subjects to rate the reasonableness of a school's charges in the context of asking them to estimate its cost, we may have led them to link, in ways that they had not done before, price and cost. In the past, even if subjects had been aware of the simple reality of cost, they may not have considered it relevant in judging price. In the present context, subjects may have judged the price as more reasonable when the fact that their school was paying for a substantial share of the cost of their education was made salient. These possibilities await further research.

Conceptions of public and private colleges

However cost information worked, it did not have the same

effect on judgments of private and public institutions. This may be because people have very different conceptions of the financing of the two types of schools. People may understand that public colleges, perhaps by definition, are financed significantly through state funding, and that such schools spend more per student, through monies raised through taxes, than they charge. On the other hand, people may think of private colleges as profit-making institutions that have to charge more than they spend on each student in order to stay afloat financially. cost and subsidy information about them may lead to a substantial revision in people's conceptions of the way private colleges and universities are financed and thus a substantial reframing of what they charge. This, too, is a matter for further research.

Conclusion

Our subjects seem to understand that public institutions of higher education are subsidized through state funding and that they spend more per student than they charge. When they are given specific information about how much each student's education is subsidized they do not change their judgments about the reasonableness of the charges. However, many people believe that private colleges and universities charge more than they spend on each student, and thereby make a profit. Whether they believe that or not, specific information about the subsidies of private schools leads subjects to reframe their prices and then judge them as being more reasonable. Future research is needed

to provide a more thorough understanding of how subsidy information leads to such changes in judgments of reasonability.

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Author Notes

Endnotes

1. One or the other of the two authors served as the experimenter in each study. For ease of exposition the experimenter is always referred to as "she."

Figure 1. Cost estimates of public and private northeastern schools.
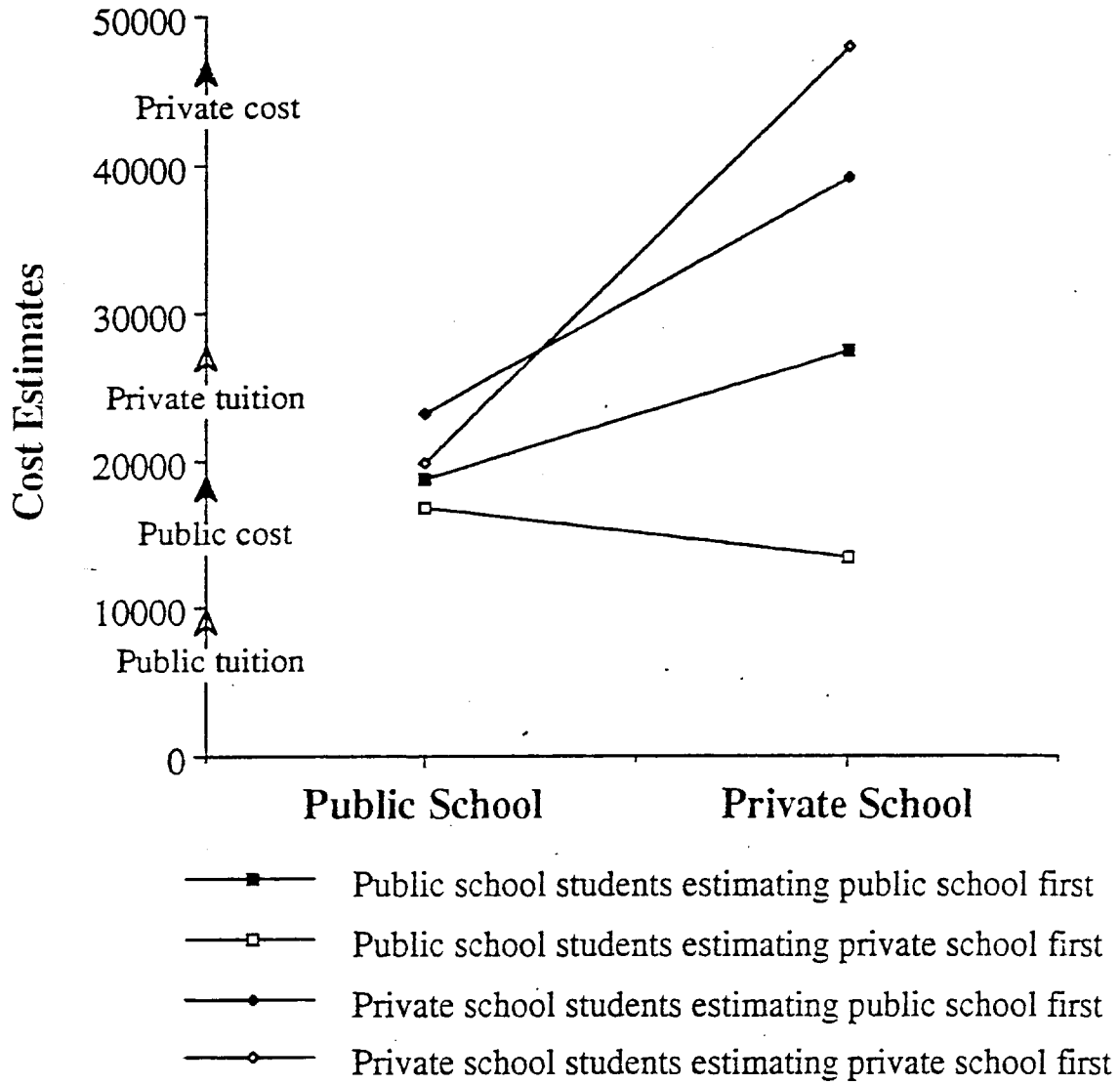

Public school students estimating public school first
Public school students estimating private school first
Private school students estimating public school first
Private school students estimating private school first

Figure 2. Initial and post-subsidy reasonableness ratings of public and private northeastern schools.

Public school students rating public school
Public school students rating private school
Private school students rating public school
Private school students rating private school

Figure 3. Cost estimates of public and private southeastern schools.

Legend:
- Public school students estimating public school first
- Public school students estimating private school first
- Private school subjects estimating public school first
- Private school students estimating private school first

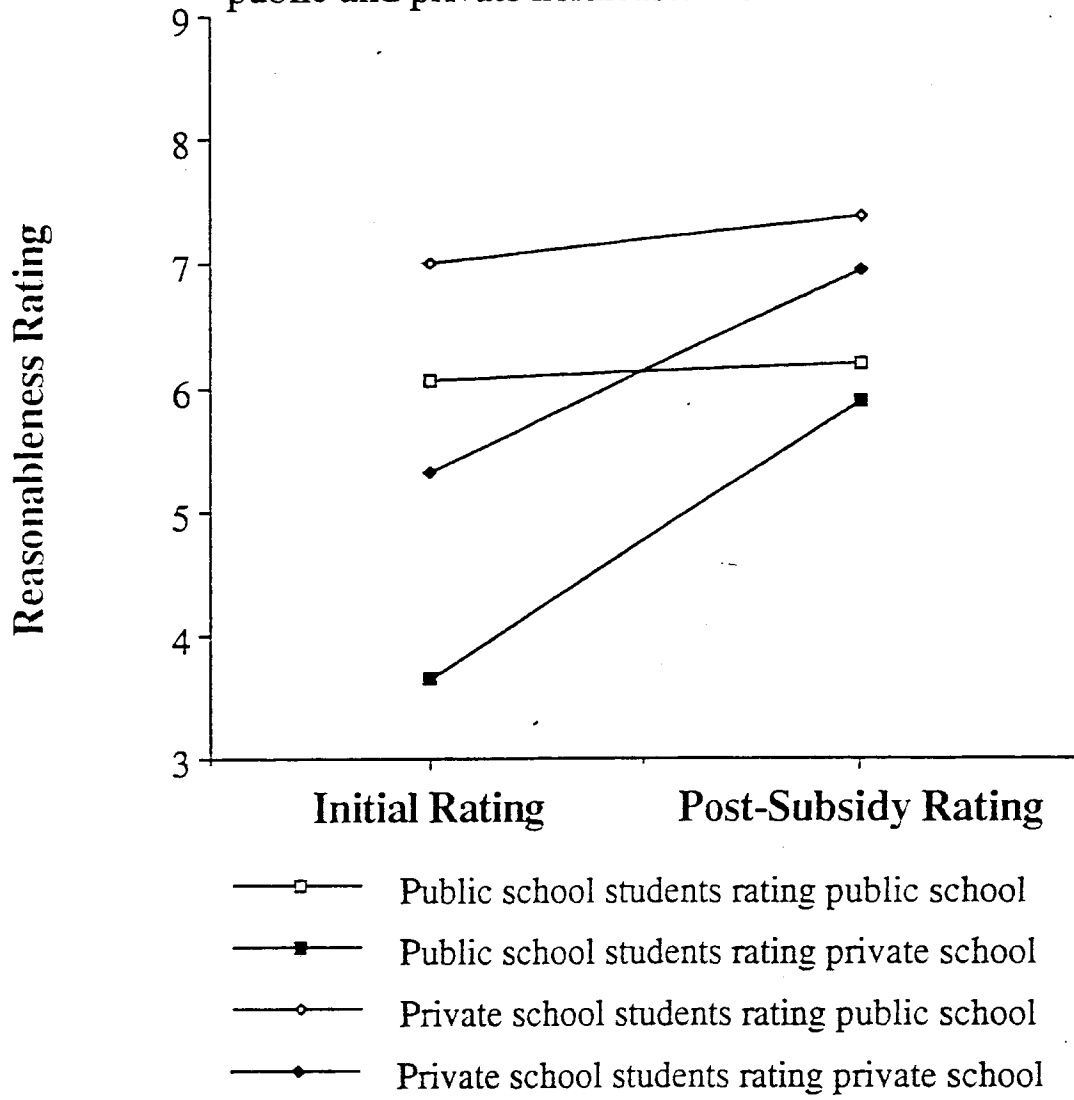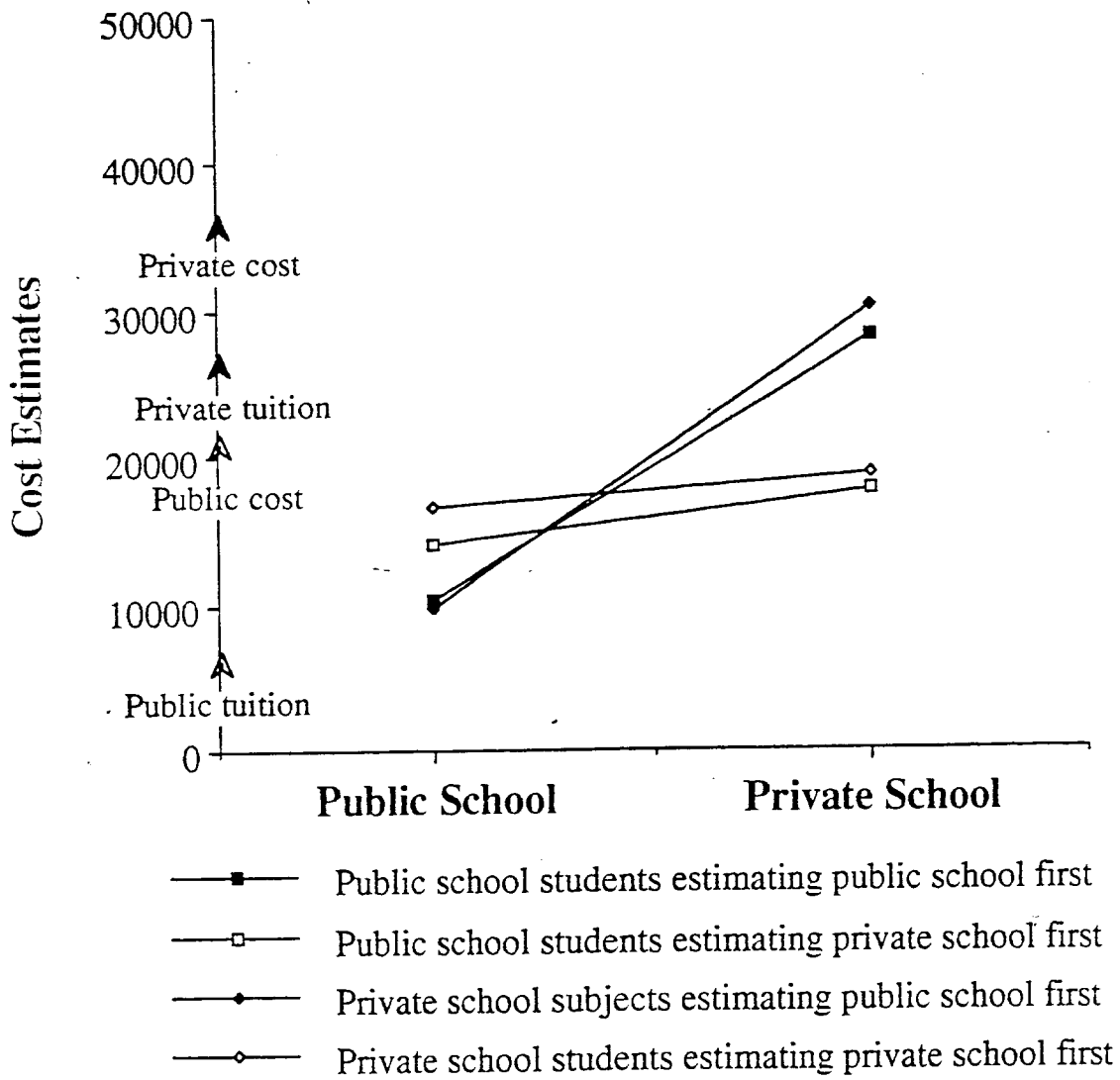Figure 4. Initial and post-subsidy reasonableness ratings of public and private southeastern schools.

Reasonableness Rating

9

8

7

6

5

4

3

Initial Rating   Post-Subsidy Rating

———□——— Public school students rating public school

———■——— Public school students rating private school

———◇——— Private school students rating public school

———◆——— Private school students rating private school