

**The Relationship Between Private Education and Financial Reward –
A Pilot Study Case of Private Music Lessons and College Scholarship**

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Abstract

A survey was distributed to 126 music ensemble students at two state universities to explore the relationship between the costs of private music lessons and college scholarship. Participants were asked to describe the costs and benefits of music lessons and report how much music related college scholarship money they were receiving. Using the surveyed samples, a positive relationship was found between total amounts of money spent for private music lessons before attending college and the financial reward received. The empirical result showed that each \$1 spent for private music lessons pre-college resulted in \$0.11 music merit-based scholarship in his/her freshmen year at college. The result remained unchanged after controlling for three socioeconomic factors – parent income level, parent education level, and parent’s music background.

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An economic model of private music lessons began in America throughout the 1700's through what became known as "Singing Schools" (Mark & Gary, 2007). An itinerant "singing master" would arrive in a community and advertise the formation of a group music lesson, mostly to improve singing in the local church. The singing master would also post tuition costs, a meeting place, times of instruction, and other pertinent information. However, in the late nineteenth century new interests in European music, as well as more public schools offering free music instruction led to the decline of the singing schools (Mark & Gary, 2007). The formation of the Music Teacher National Association (MTNA) in 1876 helped develop and promote quality private music instructors and new techniques of instruction (MTNA, 2016). Current goals for the MTNA (2014), which certifies private music instructors, include increasing the number of students studying music privately and insuring the long-term future of the music teaching profession.

Students who wish to continue to study music as a career are expected to have participated in music lessons in high school. Cutietta (2000) writes:

For the teen interested in a career as a classical musician, private lessons in his [or her] instrument or voice need to continue throughout the high school years. A

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private teacher will work with the teen to bring the playing ability to the level required for admission. As the audition approaches...the private teacher will help prepare the actual audition. (p. 190)

Students who take private music lessons before college may “be rewarded with both acceptance into a program and an offer of a scholarship” (p.191). It is the quantification of this relationship that is being explored in this study.

Measurable Effects of Private Music Lessons

Researchers and music educators have been interested in finding measureable outcomes of music education. Following Wolff (1978) and Hallam (2010), many prior studies document supporting evidence of positive relationship between music education and some measureable achievement or development. For example, these studies investigate the effect of music education on academic achievement (using standardized test scores), intellectual development (using IQ), or learning behaviors and socialization (using self-reported, either interviews or questionnaires).

Numerous studies have shown measurable cognitive benefits in children and adults with participation or interaction with music. A sampling of these studies, as collected by Elpus & Abril (2011), Piro & Ortiz (2009), and Shellenberg (2011), shows many areas of research, including intellectual and psychological benefits. As an example, in a three-year study Piro and Ortiz (2009) found that students taking piano-based music lessons twice a week during their school day had significantly higher vocabulary and verbal sequencing scores at the post-test than the control group, which had no music training. Cutietta (2000) writes, “There appears to be some support for the

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fact that if children learn to read music at the same time they learn to read words, both skills will be enhanced” (p. 11). These seem to break down later in life, as Shellenberg (2011) warns that cognitive advantages are found for “those that take music lessons in *addition* to everything else, but not for those who study music instead of something else” (p.286). Cutietta (2000) also argues, “There is also data to support the notion that the isolated spatial intelligence...is enhanced by music study. Interestingly, there is little, if any, objective support for music increasing actual math skills, language skills, or overall academic achievement” (p. 11).

Flowers & Murphy (2001) also write about measureable benefits to students taking private music lessons:

Participation in private lessons and school music experiences seemed to have some effect on music activities and opinions in later life. For example, a large percentage of older adults with school or private music experience (high- and middle- groups) continued making music and attending concerts after high school or college. There was also some evidence that school music experiences brought about continued music learning and creating, at least to a greater degree than in those with little musical background. (p. 31)

Rife, Shnek, Lauby, and Lapidus (2001) developed a Music Lesson Satisfaction Scale and distributed it to 568 students taking private music lessons. Results indicated that students were generally satisfied with their music lessons, and that satisfaction acts as positive reinforcement for students to remain motivated to continue to participate in private music lessons.

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Although these studies have documented some relationship between their tested variables, none has shown direct relationship between monetary resources spent in private music education and financial reward earned. In this study using survey data, we examine the direct relationship between monetary resources spent in private music education during high school years and any financial reward the student earned at the time of college entrance.

Research Questions

Is there any economic relationship between private music education and college scholarship? How is private music education related to college scholarship?

Hypothesis. Based on earlier findings in the literature, we formulate the following hypothesis, which is stated in a null form:

H1: There is no economic relationship between the costs of private music lessons prior college and college scholarship. That is, students with higher level of spending in private music lesson during their high school years will not receive different amount of financial reward in college.

Based on the findings in prior studies (both theoretical and empirical), it is expected that a positive relationship exists between a student's level of spending in private music lesson during the pre-college period and his/her financial reward in college. In other words, students with higher level of spending in private music lessons during their high school years will receive greater amount of financial reward in college.

Research Design

Levin (1983) defines a cost-benefit analysis as “the evaluation of alternatives according to a comparison of both their costs and benefit when each is measured in

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monetary terms” (p. 21). Evaluating both monetary costs and monetary values, “each alternative can be examined on its own merits to see if it is worthwhile” (p. 21). A successful cost-benefit analysis results in finding the highest ratio of cost to benefit. Hummel-Rossi & Ashdown (2002) discuss the benefits of applying cost-benefit and cost-effectiveness studies in education in relation to program decision-making. They argue that these types of analyses create more rational decision-making when it comes to funding programs. Chambers (2000) concludes that to make informed decisions on allocating funds, educational decision makers need more information about the relationship between economic costs and benefits, including the form of student achievement outcomes.

Prior studies explore the cost-benefit relationship between private tutoring and student performance outcomes. Kang (2007) found that increases of ten percent in private tutoring expenditures related to a 0.56 percentile increase, or a 1.1% increase in the test score. Ono (2005) reports that students attending private college-preparatory schools who spent an extra year studying for college entrance exams in Japan resulted in an increased quality of the college achieved. Gurun & Millimet (2008) also find that students spending money on private tutoring show a positive causal effect on university placement in Turkey.

Empirical analyses began by examining the association between the level of total spending during high-school years and the total scholarship award students received. In order to test the association we use following model:

$$\text{ScholarshipAward}_{i,t} = a_0 + b_1 \text{TotalSpending}_{i,t} + e_{i,t} \quad \text{Equation (1)}$$

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ScholarshipAward is the amount of financial award package he/she receives from school, TotalSpending stands for the total amount of money spent in private lessons before attending college. We expect the coefficient b_1 to be positive and significant.

Albert (2006) predicts the causal relation between socioeconomic status and the access to private music lessons, thus possibly affecting recruitment, participation, and retention. Elpus and Abril (2011) also point out, “Socioeconomic status and its correlates also were significantly associated with participation in music ensembles. Students in the lowest quartile were significantly underrepresented in the music student population, while those in the highest socioeconomic quartile were significantly overrepresented among music students (p. 135).” Given the concerns from prior studies, in order to avoid correlated but omitted variable bias due to socioeconomic status affecting both the dependent and independent variable, Equation (1) was rerun with three additional variables:

$$\text{ScholarshipAward}_{i,t} = a_0 + b_1 \text{TotalSpending}_{i,t} + b_2 \text{PARENT_IND}_{i,t} + b_3 \text{PARENT_EDU}_{i,t} + b_4 \text{PARENT_MUSIC}_{i,t} + e_{i,t} \quad \text{Equation (2)}$$

ScholarshipAward is the amount of financial award package he/she receives from school, TotalSpending stands for the total amount of money spent in private lessons before attending college, PARENT_IND is an indicator variable, taking 1 if parent’s income level is between \$70,000 and \$149,999, 2 if parent’s income level is greater than \$150,000, 0 otherwise, PARENT_EDU is an indicator variable taking 1 if parent earned Bachelor’s or Master’s Degree, 2 if parent earned terminal degree, 0 otherwise. PARENT_MUSIC is a dummy variable taking 1 if either of parents involved in music (i.e., music teacher, performer, singers, musician), 0 otherwise. The coefficient b_1 , the

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key interest variable, is expected to be positive and significant after controlling for those socioeconomic factors, which may affect probability of receiving financial awards.

Sampled Data. Originally, an online survey was constructed based on questions concerning the frequency and costs of private music lessons prior to college and rewards of college scholarship money. The survey was piloted at a small university in the Northwest. Data were analyzed and the survey was refined based on student feedback. Ensemble directors (Band, Orchestra, and Choir) from seven universities in the Western United States were invited to participate in this project. The online structure resulted in disastrously low response rates (8%) so data were discarded.

The survey was transferred into a paper form, and two different state universities (one in the Northwest, one in the Southeast) accepted our invitation to participate in this survey. The participating universities had mean in-state tuition of \$5,730. The survey was distributed to band, choir, and orchestra members by the music education professor at each university. A total of 126 participants completed the survey. Participants included Music Minors ($N = 3$), Music Majors ($N = 114$) and Non-music Majors ($N = 9$). An Institutional Review Board (IRB) reviewed and approved the survey before it was distributed to the participants, and student participation was voluntary.

Results

Table 1 reports summary descriptive statistics of the participants, including major, gender, academic year, tuition, years of private lessons received, total monetary spending pre-college period, freshmen year scholarship received, freshmen year music related scholarship received, current year total scholarship, current year music related scholarship, total scholarship estimated amount in college, private teacher status, and

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three socioeconomic indicators – parent’s income level, parent’s education level, and parent’s music background. In terms of gender, 39% of participants were male, 61% female. The mean (median) tuition was \$6,078 (\$5,388) when accounting for students who pay out-of-state tuition. Approximately 43% of participants had received private lessons for more than one instrument. On average, our participants had spent \$4,195 in private lessons before attending college. During their freshmen year, on average, students received \$3,437 in a form of scholarship. During their freshmen year, on average, students received only \$677 in a form of music-related scholarship. The total expected scholarship money through graduating from a college was on average \$11,863.

Table 2 shows correlations among tested variables, and Table 3 reports our main empirical test results. Using our surveyed sample of 126 observations, our regression analyses found a positive relationship between total amounts of money spent for private music lessons before attending college and the financial award received. More specific, the empirical result tells us that each \$1 spent for private music lesson in pre-college period results in \$0.11 music merit-based scholarship in his/her freshmen year at college. The result is statistically significant (at $p\text{-value} < 0.10$) after controlling for these three socioeconomic factors – parent’s income level, parent’s education level, and parent's music background (see Table 3).

However, it is reasonable to question whether our main empirical finding, the return of \$0.11 per \$1 spend in music private lesson during pre-college period, is economically meaningful. We believe that given our research question of such a short-term return, i.e. financial reward at the time of college entrance and during college period, it may be premature to draw a conclusion solely based on our empirical findings.

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To address this concern, it is worthy to note that a student's professional career should not be overlooked. Nevertheless, based on our empirical findings, we conclude that there is a statistically significant relationship between financial spending in private music education prior to college entrance and freshmen year music merit-based scholarship (see Table 2). This finding is robust even when we use a rank-regression instead of an ordinal least squares (OLS) regression model. Similar findings can be observed from the correlation results (see Table 2).

Participants were asked to describe non-financial costs involved in taking private music lessons in high school. Forty participants responded (32%) with the most comment being "No" from 18 of the responses. Similar comments of "The schedule was always flexible" (#121), "Music lessons didn't interfere with other activities in my life" (#87), and "Everything was included and scheduled around music" (#76) were reported. Many participants did have conflicts with music lessons and work when they reported, "I couldn't go to work because of music lessons" (#81), or "I could not work Saturday morning and Thursday nights" (#86). Many participants described a conflict between music activity and sports (#6, #33, #61, #97). Some students had to quit music lessons as they felt it interfered with school (#4, #51), and some felt music activity interfered with social or leisure time (#21, #33, #39). One response was "I still did it all" (#88). In general, these comments show minor conflicts with other activities and or reflections about time spent practicing.

When asked about non-financial benefits of music lessons, 50 participants responded (40%). Most of the responses acknowledged that as their music ability increased, more opportunities became available with auditions (#3, #56, #106, #115,

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#116), more performances (#11, #27, #77, #86, #97, #101), attending honor or All-State ensembles (#21, #76, #103, #109, #127). Auditioning for and being accepted in a college music program (#76, #85, #90, #103, #106), and attaining better musical skills (#15, #25, #47, #61, #84, #93, #101) were also described as benefits to music lessons. Some participants (20% of those who responded) recorded no non-financial benefits to music lessons (#88, #91, #95, #100, #108, #114, #117, #121, #124, #125).

Participants were asked if they had any thoughts about the costs and benefits to private lessons. Thirty-two participants responded (25%). A sampling of responses would indicate that private music lessons are “worth it” (#3, #9, #33, #38, #60, #65, #79, #86, #109) but many concerns were expressed about the expense (#5, #31, #32, #58, #65, #68, #113). Participants also expressed a perceived connection between music lessons and college scholarship by reporting, “They are expensive, but not as expensive as tuition, and they can lead to scholarship” (#113), or “It pays off in the long run” (#3).

Discussion

As the survey was distributed to two in-state universities with low-cost tuition, our results might change considerably if a national survey were instituted. Results from high-cost private universities may also provide different results. Music departments may also have different scholarship philosophies. One school may award a “merit” scholarship based on overall perceived talent of that student, whereas another might award scholarship based on the number of ensembles with which a student chooses to participate.

Many outside variables can also determine differences in private lesson costs regionally and amounts of scholarship money available to music students. We

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deliberately tried to keep the survey small, to provide a starting point for future research. Having students respond to a survey, especially regarding money, may also be difficult to include data from private lesson costs, as it could be conceivable that parents paid the private teacher without the student knowing exactly how much it cost.

This pilot study was also conducted to start a discussion of a possible route of music education advocacy, especially in times of national levels of economic hardship among families (Moseley, 2009). Many instances of the question, “Are piano lessons worth the money?” (MyDadBlog, 2012) are being posted on various parenting websites and blogs, many complaining of the hourly cost of private lessons. Private music teachers are then forced to justify their reasons for the importance of teaching music to children and their lesson fees. Although Flowers & Murphy (2001) describe many reasons why music lessons are beneficial to students, in an era that often emphasizes “bottom line” results, exploring the relationship of economic costs and benefits between private music lessons and college scholarship may provide substantive support for the value of music instruction for children.

References

- Albert, D. J. (2006). Socioeconomic status and instrumental music: What does research say about the relationship and its implications? *Update: Applications of Research in Music Education*, 25, 39–45. doi: 10.1177/87551233060250010105
- Chambers, J. G. (2000). Measuring resources in education: A comparison of accounting and the resource cost model approach. *School Business Affairs*, 66(11), 26-34.
- Cutietta, R.A. (2000). *Raising musical kids: A guide for parents*. New York, NY: Oxford University Press.
- Elpus, K., & Abril, C. R. (2011). High school music ensemble students in the united states a demographic profile. *Journal of Research in Music Education*, 59(2), 128-145. doi: 10.1177/0022429411405207
- Flowers, P. J., & Murphy, J. W. (2001). Talking about music: Interviews with older adults about their music education, preferences, activities, and reflections. *Update: Applications of Research in Music Education*, 20(1), 26–32. doi: 10.1177/875512330102000106
- Gurun, A., Millimet, D. L. (2008). Does private tutoring payoff? *IZA Discussion Papers*, No. 3637. Retrieved June 25, 2016, from <http://hdl.handle.net/10419/34857>.

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- Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. *International Journal of Music Education*, 28, 269-289. doi: 10.1177/0255761410370658
- Hummel-Rossi, B., & Ashdown, J. (2002). The state of cost-benefit and cost-effectiveness analyses in education. *Review of Education Research*, 72(1), 1–30. doi: 10.3102/00346543072001001
- Kang, C. (2007). Does money matter? The effect of private educational expenditures on academic performance. *National University of Singapore, Department of Economics Working Paper*, 704. Retrieved June 25, 2016, from <http://www.fas.nus.edu.sg/ecs/pub/wp/wp0704.pdf>
- Levin, H. M. (1983). *Cost effectiveness: A primer*. Newbury Park, CA: Sage Publications.
- Mark, M. L., & Gary, C. L. (2007). *A history of American music education*. (3rd Ed.) New York, NY: Rowman & Littlefield Education.
- Moseley, F. (2009). The U.S. economic crisis: Causes and solutions. *International Socialist Review*, 64. Online Edition. Retrieved June 25, 2016, from <http://ceics.org.ar/english/mosley20081.pdf>
- MTNA. (2016). About MTNA. *Music Teachers National Association*. Retrieved on June 25, 2016, from <http://www.mtna.org/about-mtna/>
- MTNA. (2014). MTNA strategic plan. *Music Teachers National Association*. Retrieved on June 25, 2016, from <http://www.mtna.org/about-mtna/strategic-plan/>
- MyDadBlog. (2012, August 14). Are piano lessons worth it? [Web log post]. Retrieved from <http://www.mydadblog.com/are-piano-lessons-worth-it/>

COST BENEFIT ANALYSIS OF PRIVATE MUSIC LESSONS

- Ono, H. (2005). Does examination hell pay off? The cost-benefit analysis of “ronin” and college education in Japan. *SSE/EFI Working Paper Series in Economics and Finance No. 346*. Retrieved June 25, 2016, from <https://core.ac.uk/download/files/153/7097904.pdf>
- Piro, J. M., & Ortiz, C. (2009). The effect of piano lessons on the vocabulary and verbal sequencing skills of primary grade students. *Psychology of Music, 37*, 325–347. doi :10.1177/0305735608097248
- Rife, N. A., Shnek, Z. M., Lauby, J. L., & Lapidus, L. B. (2001). Children’s satisfaction with private music lessons. *Journal of Research in Music Education, 49*, 21–32. doi: 10.2307/3345807
- Shellenberg, E. G. (2011). Examining the association between music lessons and intelligence. *British Journal of Psychology, 102*, 283-302. doi: 10.1111/j.2044-8295.2010.02000.x
- Wolff, K. I. (1978). The nonmusical outcomes of music education: A review of the literature. *Bulletin of the Council for Research in Music Education, 1*-27.

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Table 1. Descriptive Statistics ($n = 126$)

Variables	Mean	Std Dev	25th Pctl	Median	75th Pctl
<i>MAJOR_IND</i>	1.83	0.53	2	2	2
<i>GENDER_IND</i>	0.39	0.49	0	0	1
<i>YEAR_IND</i>	2.06	1.33	1	2	3
<i>TUITION</i>	6,078	2,306	5,388	5,388	6,071
<i>YEARS_LESSONS</i>	3.49	3.74	0.33	2	6
<i>MULTI_INST_IND</i>	0.43	0.50	0	0	1
<i>TOTAL</i>	4,195	7,016	0	1,560	5,400
<i>FY_TOTAL</i>	3,437	4,084	1,000	2,000	5,388
<i>FY_MUSIC</i>	677	859	0	150	1,000
<i>CURRENT_TOTAL</i>	3,107	3,778	0	2,000	4,750
<i>CURRENT_MUSIC</i>	924	1,375	0	500	1,500
<i>TOTAL_EST</i>	11,863	15,280	2,000	6,250	15,000
<i>PRIVATE_TEACHER_IND</i>	2.00	1.49	0	2	3
<i>PARENT_IND</i>	1.62	0.81	1	2	2
<i>PARENT_EDU</i>	1.82	0.67	0	1	2
<i>PARENT_MUSIC</i>	0.29	0.45	0	0	1

Table 1 shows descriptive statistics. Total number of samples is 126. *MAJOR_IND* is an indicator variable, taking 1 for music minor, 2 for music major, 0 otherwise.

GENDER_IND is a dummy variable taking 1 if male, 0 otherwise. *YEAR_IND* is an indicator variable taking 1 for sophomore, 2 for junior, 3 for senior, 0 otherwise. *TUITION* stands for the tuition amount paid per academic year. *YEARS_LESSONS* is total number of years taking private lessons before entering college. *MULTI_INST_IND* is a dummy variable taking 1 if a participant took private lessons for more than one instrument, 0 otherwise. *TOTAL* stands for the total amount of money spent in private lessons before attending college. *FY_TOTAL* is first-year total scholarship earned. *FY_MUSIC* is first-year music-related scholarship earned. *CURRENT_TOTAL* is current-year total scholarship received. *CURRENT_MUSIC* is current-year music-related scholarship received. *TOTAL_EST* is total expected scholarship money through graduating from the college by participant. *PRIVATE_TEACHER_IND* is an indicator variable taking 1 if pre-college private teacher was a family member or highschool student, 2 if it was a K-12 music teacher or professional private teacher, 3 if it was a undergraduate/graduate student, 4 if it was a professor at a college or higher level, 0 otherwise. *PARENT_IND* is an indicator variable, taking 1 if parent's income level is between \$70,000 and \$149,999, 2 if parent's income level is greater than \$150,000, 0 otherwise. *PARENT_EDU* is an indicator variable taking 1 if parent earned Bachelor's or Master's Degree, 2 if parent earned terminal degree (i.e., DMA or PhD in Music), 0 otherwise. *PARENT_MUSIC* is a dummy variable taking 1 if either of parents involved in music (i.e., music teacher, performer, etc.), 0 otherwise.

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Table 2. Correlation among Key Variables

Variables	MAJOR_IN D (1)	GENDER_I ND (2)	YEAR_IND (3)	TUITION (4)	YEARS_LE SSONS (5)	MULTI_INST T_IND (6)	TOTAL (7)	FY_TOTAL (8)	FY_MUSIC (9)	CURRENT_ TOTAL (10)	CURRENT_ MUSIC (11)	TOTAL_ES T (12)	PRIVATE_T EACHER_I ND (13)	PARENT_I ND (14)	PARENT_E DU (15)	PARENT_M USIC (16)
(1)	1	0.08	0.20	0.02	-0.20	-0.10	0.03	-0.20	0.19	-0.19	0.16	-0.13	0.14	0.00	-0.10	0.02
(2)	0.08	1	0.17	0.86	0.03	0.26	0.78	0.02	0.04	0.04	0.08	0.16	0.12	0.99	0.31	0.81
(3)	0.42	0.17	1	-0.02	-0.03	-0.02	-0.12	0.04	0.21	-0.12	-0.06	0.00	0.02	-0.07	-0.05	0.00
(4)	0.20	0.06	0.44	0.80	0.72	0.82	0.25	0.66	0.03	0.22	0.55	0.98	0.80	0.51	0.63	0.99
(5)	0.03	0.06	0.44	-0.07	-0.10	-0.06	-0.15	-0.14	-0.06	-0.20	-0.02	-0.21	-0.15	0.02	0.02	-0.01
(6)	-0.10	0.01	-0.06	0.03	0.03	0.02	0.05	0.17	-0.04	0.25	-0.01	0.22	0.25	0.17	0.12	0.04
(7)	0.29	0.93	0.54	0.78	0.83	0.57	0.07	0.68	0.01	0.92	0.01	0.00	0.07	0.19	0.63	0.63
(8)	-0.10	0.01	-0.14	0.30	1	0.50	0.64	0.00	0.00	0.13	0.09	0.09	0.40	0.25	0.20	0.14
(9)	0.26	0.95	0.12	0.00	<.0001	<.0001	1.00	0.96	0.17	0.33	0.31	<.0001	0.01	0.03	0.13	0.13
(10)	-0.08	-0.02	-0.06	0.20	0.54	1	0.26	0.13	-0.10	0.15	0.00	0.18	0.29	0.25	0.18	0.10
(11)	0.40	0.82	0.50	0.03	<.0001	0.01	0.15	0.25	0.11	0.97	0.05	0.00	0.01	0.05	0.31	0.31
(12)	0.01	-0.05	-0.19	0.31	0.88	0.55	1	0.15	0.06	0.02	0.15	0.03	0.35	0.28	0.09	0.14
(13)	0.90	0.60	0.05	0.00	<.0001	<.0001	0.12	0.52	0.83	0.12	0.77	0.00	0.00	0.38	0.14	0.14
(14)	-0.19	0.08	-0.12	0.24	-0.07	0.11	0.13	1	0.15	0.79	0.14	0.89	0.02	-0.22	-0.06	0.00
(15)	0.03	0.38	0.20	0.01	0.43	0.22	0.10	0.09	<.0001	0.11	<.0001	0.79	0.02	0.54	0.97	0.97
(16)	0.22	0.19	-0.08	0.11	0.06	-0.07	0.12	0.37	1	0.06	0.52	0.14	0.16	-0.13	-0.08	-0.05
(17)	0.01	0.04	0.38	0.24	0.50	0.48	0.19	<.0001	0.54	<.0001	0.11	0.08	0.17	0.38	0.56	0.56
(18)	-0.13	-0.12	-0.23	0.33	0.04	0.08	0.12	0.65	0.20	1	0.29	0.92	0.10	-0.14	0.02	0.03
(19)	0.15	0.20	0.01	0.00	0.66	0.38	0.20	<.0001	0.03	0.00	<.0001	0.26	0.14	0.87	0.78	0.78
(20)	0.21	0.00	-0.11	0.09	0.10	0.00	0.20	0.23	0.60	0.50	1	0.22	0.14	-0.15	-0.08	0.17
(21)	0.02	0.97	0.21	0.35	0.28	0.99	0.03	0.01	<.0001	<.0001	0.01	0.11	0.13	0.39	0.07	0.07
(22)	-0.01	0.09	-0.20	0.39	0.05	0.13	0.14	0.78	0.37	0.81	0.46	1	0.17	-0.18	-0.05	-0.01
(23)	0.94	0.33	0.03	<.0001	0.57	0.17	0.14	<.0001	<.0001	<.0001	<.0001	0.06	0.06	0.59	0.93	0.93
(24)	0.16	0.03	-0.15	0.20	0.52	0.27	0.58	0.00	0.19	0.11	0.22	0.21	1	0.12	0.10	-0.02
(25)	0.08	0.77	0.10	0.03	<.0001	0.00	<.0001	0.98	0.03	0.21	0.02	0.02	0.21	0.27	0.80	0.80
(26)	0.00	-0.05	0.01	0.12	0.30	0.26	0.32	-0.21	-0.13	-0.15	-0.13	-0.21	0.11	1	0.25	0.02
(27)	0.96	0.59	0.93	0.21	0.00	0.01	0.00	0.03	0.18	0.12	0.18	0.03	0.23	0.01	0.85	0.85
(28)	-0.08	-0.03	0.02	0.07	0.18	0.18	0.13	-0.11	-0.13	-0.05	-0.16	-0.13	0.11	0.26	1	0.19
(29)	0.36	0.74	0.84	0.44	0.05	0.06	0.19	0.24	0.15	0.62	0.08	0.18	0.23	0.01	0.04	0.04
(30)	0.04	0.00	-0.01	0.07	0.12	0.10	0.16	0.02	-0.03	0.02	0.04	0.02	-0.03	0.04	0.20	1
(31)	0.68	0.99	0.95	0.44	0.19	0.31	0.10	0.79	0.71	0.81	0.65	0.84	0.75	0.71	0.03	0.03

Table 2 shows correlations among variables. Pearson (top) and Spearman (bottom) test results are reported. Total number of samples is 126. *MAJOR_IND* is an indicator variable, taking 1 for music minor, 2 for music major, 0 otherwise. *GENDER_IND* is a dummy variable taking 1 if male, 0 otherwise. *YEAR_IND* is an indicator variable taking 1 for sophomore, 2 for junior, 3 for senior, 0 otherwise. *TUITION* stands for the tuition amount paid per academic year. *YEARS_LESSONS* is total number of years taking private lessons before entering college. *MULTI_INST_IND* is a dummy variable taking 1 if a participant took private lessons for more than one instrument, 0 otherwise. *TOTAL* stands for the total amount of money spent in private lessons before attending college. *FY_TOTAL* is first-year total scholarship earned. *FY_MUSIC* is first-year music-related scholarship earned. *CURRENT_TOTAL* is current-year total scholarship received. *CURRENT_MUSIC* is current-year music-related scholarship received. *TOTAL_EST* is total expected scholarship money through graduating from the college by participant. *PRIVATE_TEACHER_IND* is an indicator variable taking 1 if pre-college private teacher was a family member or highschool student, 2 if it was a K-12 music teacher or professional private teacher, 3 if it was a undergraduate/graduate student, 4 if it was a professor at a college or higher level, 0 otherwise. *PARENT_IND* is an indicator variable, taking 1 if parent's income level is between \$70,000 and \$149,999, 2 if parent's income level is greater than \$150,000, 0 otherwise. *PARENT_EDU* is an indicator variable taking 1 if parent earned Bachelor's or Master's Degree, 2 if parent earned terminal degree (i.e., DMA or PhD in Music), 0 otherwise. *PARENT_MUSIC* is a dummy variable taking 1 if either of parents involved in music (i.e., music teacher, performer, etc.), 0 otherwise.

COST BENEFIT ANALYSIS OF PRIVATE MUSIC LESSONS

Table 3. Ordinary Least Squares (OLS) Regression Analyses

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
<i>Intercept</i>	5858.73 ***	1112.67 ***	3913.65 ***	1441.32 ***	9356.01 ***
	4.42	4.12	3.11	4.15	3.75
<i>Total</i>	0.07	0.11 *	0.06	0.12 **	0.19 **
	1.25	1.69	1.54	2.22	2.18
<i>Parent_Ind</i>	978.04	143.92	538.88	157.98	1862.90 *
	1.09	1.25	1.39	1.06	1.78
<i>Parent_Edu</i>	-26.99	-70.30	-183.60	-144.34	-168.28
	-0.07	-0.96	-0.54	-1.53	-0.12
<i>Parent_Music</i>	-29.52	-61.86	80.44	236.47	-637.47
	-0.03	-0.30	0.08	0.91	-0.17
<i>Adj. R²</i>	0.07	0.06	0.05	0.04	0.07

Table 3 reports the results of OLS regression analyses. Total number of samples is 126. *Total* stands for the total amount of money spent in private lessons before attending college. *Parent_Ind* is an indicator variable, taking 1 if parent's income level is between \$70,000 and \$149,999, 2 if parent's income level is greater than \$150,000, 0 otherwise. *Parent_Edu* is an indicator variable taking 1 if parent earned Bachelor's or Master's Degree, 2 if parent earned terminal degree (i.e., DMA or PhD in Music), 0 otherwise. *Parent_Music* is a dummy variable taking 1 if either of parents involved in music (i.e., music teacher, performer, etc.), 0 otherwise. In Model (1) dependent variable is first-year total scholarship earned. In Model (2) dependent variable is first-year music-related scholarship earned. In Model (3) dependent variable is current-year total scholarship received. In Model (4) dependent variable is current-year music-related scholarship received. In Model (5) dependent variable is total expected scholarship money through graduating from the college by participant. ***, **, and * represent two-tailed significance at the 1%, 5%, and 10% levels, respectively.