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PSEO: Are Your Tax Dollars Really Paying Off?

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Abstract

The Minnesota Post Secondary Enrollment Options (PSEO) program allows high school students to take courses at the college level and receive both high school and transferable college credit. Qualified juniors and seniors are allowed to take up to a full load of college courses, and if successfully completed, will earn college credits. PSEO is a state funded program, allocating \$2,154 per student in 2004. This research analyzed whether the PSEO student gains from the use of the education policy. Three potential gains were assessed by utilizing an independent sample t-test to determine if PSEO students at a liberal arts college graduated earlier, had higher GPAs, and higher ACT scores. Preliminary results found students who have participated in the PSEO program are, in fact, graduating college before their peers; thus proving it beneficial for students to utilize the program.

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Introduction

Before 1985, the traditional completion of a college education consisted of taking four years of classes in a post-secondary institution. However, recent trends in secondary education are changing the completion of the four year degree. In the fall of 1985 Minnesota legislators implemented the Post Secondary Enrollment Options (PSEO) program as a way to offer a challenge to students looking for variety in course selection and more rigorous course work than a regular high school curriculum. The program offered qualified high school juniors and seniors the opportunity to attend college courses while earning both necessary high school credits and transferable college credits.

This research looks at the economic impacts of the PSEO program for the students rather than the institutions. The purpose of this paper was to determine if the students were obtaining the full benefits the program has to offer. With \$19 million being spent on the 8,819 students utilizing the program in 2004, it is important to assess if students are actually receiving the benefits that PSEO has to offer. Minnesota state legislators have proposed that students who utilize the PSEO program will potentially graduate college with a four year degree in fewer than four years, save money on college tuition costs and get a head start over their non-PSEO peers.

Background

Minnesota's PSEO program was enacted in 1985 with the Minnesota Higher Education bill. The program allows qualified high school juniors and seniors to enroll at a local post secondary institution to take courses to fulfill necessary high school requirements while earning college credits. Qualifications for enrollment include a GPA placing the student in the top third of the graduating class (seniors must be in the top half) and acceptance to the post secondary

program as well as the institution at which they will be attending classes. Once the course is successfully completed, the student receives credit for the applicable high school courses and transferable credit for future college education.

The PSEO program was created to promote advanced academic courses for students looking for a wider variety of classes. The Minnesota Legislative Auditor stated the advantages to the students using PSEO are saving money on college, getting a head start over peers, and having the opportunity to take challenging courses not offered in high school. The Minnesota State Legislators believed that by implementing the PSEO program, it could potentially help students graduate college in a shorter period of time, giving them the option to either enter the labor market or enroll in graduate school in less time than their peers. The program was predicted to save the students a substantial amount of money in tuition costs.

Today 66 post secondary education institutions in Minnesota accept PSEO students as well as the transferable credits they earned while utilizing the program. Students choose which post secondary institution they would like to attend including community colleges, state universities as well as private institutions. Because students can choose which institution they would like to attend, funding became a primary concern for policy makers. Tuition rates vary depending on the institution the student attends ranging from \$100 to \$700 per credit.

PSEO is a state funded program that allocates monies for all tuition-based expenses incurred by the student while enrolled in college courses. The funds that would have initially been allotted to the student's high school are now paid to the college that the student attended. The calculation for the expenditures is detailed in the chart located in Appendix 1.

Literature Review

While the PSEO program is a newly researched topic in economics, it has been researched in both the education and finance fields. Research conducted in the education field impacted how policies were written and how programs have evolved over the last ten years. Michelle Koker and Darwin Hendel conducted research in order to predict the graduation rates of “academically advanced students” including those students who participate in the PSEO program. Using many of the same variables that this research used, Koker and Hendel used a regression to find correlating data to see if advanced students are graduating earlier. This research used an Independent t-test to obtain relationships between individual variables rather than finding correlations through a regression.

The financial implications of the PSEO program have been widely researched to determine whether the program can continue to enroll students in the program. In 2005 Pradeep Kotamraju discussed the importance of the efficient management of publicly funded programs, focusing on the monetary resources allocated to the PSEO program. Kotamraju used The Integrated Student Record System from the University of Minnesota and compiled the data, finding that the PSEO programs prove effective in the allocation of education funding.

Because the PSEO program has been successful, it became important to look at all of the implications of the program, including looking at the benefits to the students themselves. Demaree Michelau addressed both the financial and personal benefits of this program to both students and their families in her 2001 research. This research looks at the importance of standards within the K-12 education system and how they relate to the transition into post secondary institutions; where this research looks at the benefits (potential to graduate college early) of students who utilize the PSEO program.

Methodology

The data was compiled by the Admissions Operations Manager and Senior Registrar at The College of St. Scholastica (CSS), a small, private, Liberal Arts College in northern Minnesota. A sample size of 1393 was used from students who entered CSS from 1999-2006. Data from 2002-2006 was eliminated because students identified as PSEO could also have earned credit through another program known as Concurrent Enrollment, where college courses are taught by high school teachers at a college level. From the sample of 1393 students, 222 were identified as students enrolling with PSEO College credits.

The research was conducted using five variables. I chose to assess whether students who utilized PSEO were graduating earlier by using a dummy variable to identify those students who enrolled with previous college credit. Dummy variables were also used to identify students who graduated college with a second major, and if they graduated from the same institution they enrolled as first-year students. Students were also classified by gender to determine if males or females had a higher ratio of college graduates. This paper also looked at the highest submitted ACT score and cumulative college GPA.

This research tested six hypotheses. The first hypothesis aimed to assess whether PSEO students graduated earlier than their non-PSEO counterparts. A single sample t-test was used to test the following hypothesis:

$$H_0: \text{Years to Graduate for PSEO Students} = 4$$

$$H_A: \text{Years to Graduate for PSEO Students} \neq 4$$

The researcher predicted that students who participate in the PSEO program will graduate in fewer than four years because that is the stated objective of the PSEO program. It was the goal of the researcher to assess if students who participated in the PSEO program are graduating

earlier; therefore it was necessary to measure the duration of the students' education at the institution.

Whereas the previous hypothesis tested if PSEO students graduated earlier, this hypothesis tests if PSEO students are graduating. Dummy variables were used to identify students that had graduated; hence an independent sample t-test was used.

$$H_0: \text{Identified PSEO Graduate} = 1$$

$$H_A: \text{Identified PSEO Graduate} \neq 1$$

It is expected that PSEO students are more likely to graduate from the same institution in which they enrolled as a first year student. There were restraints in the data provided; the data used was compiled of only those students who enrolled from 1999-2002 in order to give the students a chance to graduate within the four year time period. Even though a student may enter college as a first year student, it does not guarantee they will graduate from that same institution, therefore it was necessary to classify students by when they entered the college and the date of their graduation.

An independent sample t-test was also used to test the hypothesis that students who participated in PSEO were more likely to obtain a second major.

$$H_0: \text{Second Majors for PSEO Graduates} = 1$$

$$H_A: \text{Second Majors for PSEO Graduates} \neq 1$$

It is expected that students who participate in PSEO are more likely to obtain a second major because they enrolled with additional credits; therefore allowing them more class time to obtain a second major.

The next hypothesis tested was to determine if PSEO students were more likely to have a higher GPA throughout their college careers. The students were identified as PSEO students and non-PSEO students by using a dummy variable.

$$H_0: \text{Identified PSEO GPA} = 4.0$$

$$H_A: \text{Identified PSEO GPA} \neq 4.0$$

The researcher expected that students who were identified as PSEO would have a higher cumulative GPA throughout their college careers because they had a higher GPA throughout their high school careers. This could be attributed to the students' character; students who took college courses earlier than their peers could be driven by a challenging academic atmosphere.

The researcher also tested whether PSEO students have a higher submitted ACT score as opposed to their non-PSEO counterparts. An independent sample t-test was used to determine if students who participated in the PSEO program were more likely have a higher submitted ACT score upon college enrollment.

$$H_0: \text{Identified PSEO Students ACT score} = 1$$

$$H_A: \text{Identified PSEO Students ACT score} \neq 1$$

It was anticipated that students who participated in PSEO would have a higher submitted ACT score because they were also more likely to have a higher GPA. Students who perform better than their peers in the classroom are also anticipated to perform better on standardized exams. It was also predicted that PSEO students would perform better on this exam because they would have had previous college experience.

The paper also tested if gender played a role in the graduation rates of students who participated in PSEO. By using a dummy variable, students were identified as male or female and were tested using a single sample t-test.

H_0 : Identified male PSEO student = 1

H_A : Identified male PSEO student \neq 1

This study hypothesized that females were more likely to graduate at a higher rate due to national research suggesting that females are more likely to graduate college over their male counterparts.

After testing each hypothesis, results were obtained supporting several predictions as well and contradicting others. The research proved effective in determining the benefits to the students.

Results

After conducting several t-tests, the paper suggests that Minnesota legislation is meeting the proposed goals for students enrolled in the PSEO program. Students who participated in the program have a higher college graduation rate than peers; given the large difference of 25% points between PSEO college graduation rates, it was unnecessary to use a t-test to determine that PSEO students have a higher graduation rate than non-PSEO students.

Independent sample t-test results reveal that college graduates who participated in the PSEO program were graduating earlier than their peers; thus suggesting that legislative policies are positively affecting students' educational experiences.

Independent Sample t-test: Overall

Equality of Variances	F	P
Years to Graduation	39.859	.000
Graduation	126.711	.000

Second Majors	8.774	.003
Cumulative GPA	27.721	.000
ACT Scores	2.928	.087

Results show that there is a strong relationship between PSEO students and how many years it takes to graduate with a four year degree. PSEO students are shown to be graduating in fewer than four years. This result can be attributed to the students entering into college with previous credit, making it easier for them to graduate in less time. However, students who enter college without previous credit are also able to graduate early by either taking more than a full load of courses or by taking courses throughout the summer. Tests revealed that PSEO students are more likely to graduate; showing that students who enroll with previous credits are more likely to graduate from the college that they initially enrolled in. This could be accredited to the fact that students already have a base and idea of what they would like to continue to study.

There is a higher ratio of students who obtain second majors within the students who utilized the PSEO program, once again because they may have had more time to complete a second major given the entrance with previous credit. PSEO students are also shown to have a higher GPA as compared to traditional students.

Contrary to the researcher's hypothesis, there is not a strong relationship in terms of the students' ACT scores. PSEO students are not shown to be more likely to have a higher ACT score as opposed to their peers. Because ACT scores are not the only factor in admitting students into the PSEO program, it seems fitting that not every student excels on standardized tests.

Independent Sample T-test: Overall

Equality of Means	df	P
Years to Graduation		
Assumed	861	.000
Not-Assumed	228.778	.000

Graduation Assumed	1391	.000
Not-Assumed	335.291	.000
Second Majors Assumed	1391	.155
Not-Assumed	332.921	.128
Cumulative GPA Assumed	1353	.000
Not-Assumed	437.902	.000
ACT Score Assumed	1282	.000
Not-Assumed	320.185	.000

Results also show that in terms of the performance of PSEO students and Non-PSEO students, the only output that was not significant was obtaining a second major.

Single Sample T-test: Gender

	Test Value=4					
	t	df	Significant P	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Years to Graduation	-6.550	164	.000	-.29394	-.3825	-.2053

The study also wanted to test how gender effected whether students who participated in PSEO graduated earlier. After conducting a Single Sample T-test, results showed that there was not a significant relationship between men and women graduating early. Research has shown that nationwide, women have performed better in the classroom, but studies have not correlated doing well in the classroom with graduation rates. On the same note, the data provided by The College of St. Scholastica does not disclose that there is a six to one ratio of females to males in the student population.

Overall, the data reveals that students are gaining the proposed benefits of PSEO: higher GPAs, earlier graduation, and the potential to earn a second major in the time it takes most to earn one.

Conclusion

After determining the proposed benefits provided by legislators, results showed that it is beneficial for high school students to participate in the PSEO program. Overall, students who participated in the PSEO program appear to have higher GPAs and graduate earlier. Because the PSEO program is not a required course of action, but rather a supplement to high school education, it seems logical for students who perform well in the classroom to take advantage of the courses offered. Hence, it seems advantageous for students considering the program to take advantage of the opportunity to take college courses while the state is still paying for tuition costs.

Currently PSEO is enacted in thirty two states. Given the identified benefits to the students, I recommend that the remaining eighteen states adopt such a program.

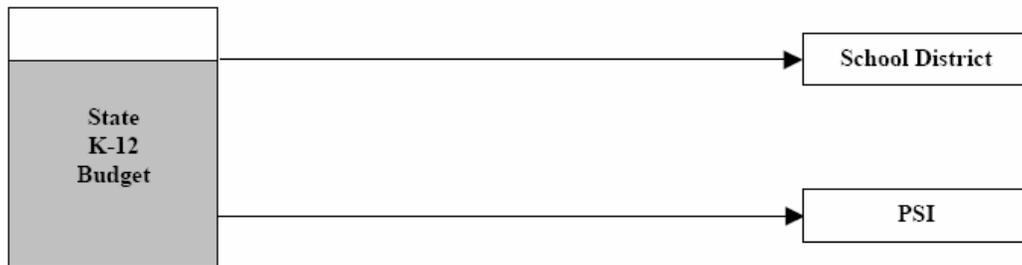
Also, I would like to see two avenues explored for future research. First is feasibility of the program in relation to how much each high school is losing in comparison to the college's loss or gain. Lastly, I would like to perform similar research utilizing a broader dataset encompassing institutions accepting PSEO students.

Appendix 1

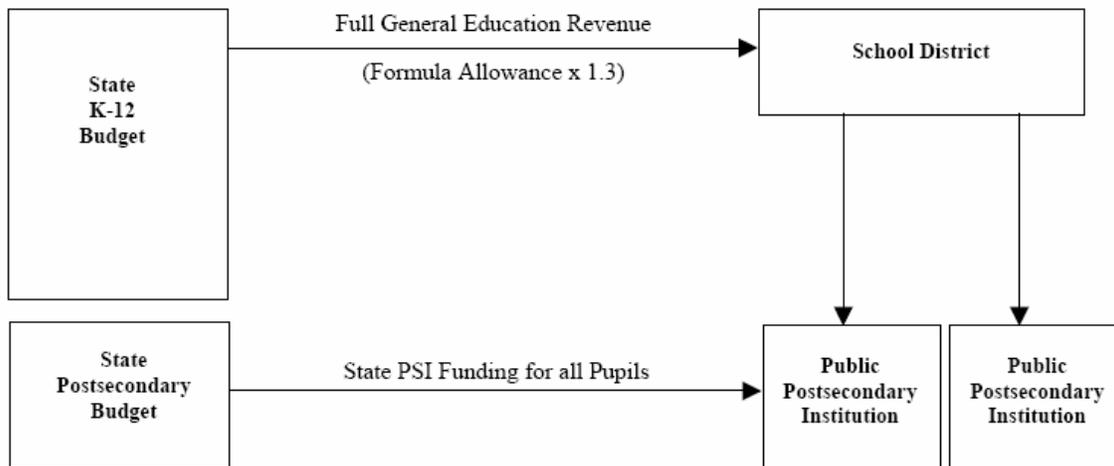
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For public school pupils who participate in the PSEO program, school districts receive 12 percent of the weighted formula allowance. For fiscal year 2006, for each full-time PSEO pupil attending a PSI, the district will receive about \$681 $((\$4,783 - \$415) \times 1.3 \times 12\%)$. For nonpublic pupils there is no payment to the school district of residence. For each part-time PSEO pupil, the district will receive a portion of the weighted formula allowance, based on the amount of time that the PSEO pupil attends the high school. A standard rate per credit hour is paid directly to the PSI by the Department of Education. The rate is set at \$111 for each quarter credit hour $([88\% \times (\$4,783 - \$415) \times 1.3]/45)$ and \$167 for each semester hour $([88\% \times (\$4,783 - \$415) \times 1.3]/30)$. The flow chart below shows how PSEO pupils are funded.



In 1992, the legislature specifically authorized school districts and PSIs to provide PSEO courses taught in the high school by instructors employed by the PSI. These instructors are often high school teachers. There is a different funding process for students taking these courses. The school district receives full funding for the PSEO. The district contracts with a PSI to provide PSEO courses, and pays the PSI directly. For fiscal year 2004, approximately 9,800 pupils participated in the PSEO programs offered at the high schools.



Appendix 2:

Statistical Group Data

Statistics	Number of Students	Mean	Standard Deviation
Years to Graduate			
PSEO	165	3.71	.576
Non-PSEO	698	3.98	.511
Graduation			
PSEO	222	.743	.438
Non-PSEO	1171	.596	.491
Second Major			
PSEO	222	.131	.338
Non-PSEO	1171	.169	.375
Cumulative GPA			
PSEO	220	3.38	.456
Non-PSEO	1135	3.14	.688
ACT Score			
PSEO	211	24.55	3.29
Non-PSEO	1073	23.45	3.64

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