A COST-BENEFIT ANALYSIS OF A TEEN PREGNANCY PROGRAM EMPLOYED AS A HIGH SCHOOL DROPOUT INTERVENTION

The purpose of this study was to evaluate a state-wide teen pregnancy dropout prevention program using cost-benefit analysis. Data analyzed from five high schools covering a decade compared three student populations: teens from the general population, teens who were enrolled in the fully online program, and teens who selected out of the full program but made use of daycare services. Graduation outcomes and the cost per student for administering each version of the program were examined. Results revealed that students in the full program (over the 10 years) experienced a graduation rate of 1.6% with a negative rate of return of $-8,989,736; whereas, student continuing their face-to-face courses (but making use of daycare services) experienced a graduation rate of 64.5% and rate of return of $293,370. These findings demonstrate the utility of employing a cost-benefit analysis, encouraging school districts to collect more data regarding educational outcomes of pregnant and parenting teenagers to guide the efficient allocation of resources. This methodology could be adopted to inform future policy decisions aimed at increasing high school graduation rates while judiciously evaluating the investment for those interventions.

Introduction

For decades, failure to complete high school has been recognized as a social and economic problem in the United States. Dropping out of school accounts for long-term negative social and economic effects for the dropouts themselves and society. Dropouts report a variety of reasons as to why they leave school early, but these reasons do not often identify the underlying causes of dropout behavior. It is difficult to attribute any single factor as the cause of dropout behavior (Bowden & Belfield, 2015).

Identifying students with risk factors early in their academic careers and providing them with ongoing support, remediation, and counseling are likely to be the most promising means of encouraging them to remain in school. It is possible to identify the factors more closely related to dropping out. Home, life, and socioeconomic status are closely linked with dropout behavior. Ongoing absenteeism, poor grades, grade retention, school climate, practices, and resources may also affect dropout behavior (Beatty, 2001).

Warning signs for students at risk of dropping out often appear in

elementary school with many interacting school-related, home life, and socioeconomic factors that lead to the process of dropping out (Rumberger, 2011; Beatty, 2001). The proportion of students who are racial, ethnic, and linguistic minorities and whose families' incomes are in the lowest 20 percent of the population are more likely to drop out than students now in the highest 20 percent of the population. An increased risk in academic difficulty can also be seen in students of single-parent families, those from large families, and those who become parents themselves (Beatty, 2001).

Within the complexity of at-risk factors that ultimately leads to dropping out of school, there is typically one final event that leads youth down the pathway to dropping out of school. Identified tipping points that lead to dropping out that have been described as: serious academic failure, expulsion and suspension, bullying, housing instability or homelessness, health issues, pregnancy, and gang membership or delinquent activity. The 'tipping point' is representative of a culmination of multiple unaddressed academic, behavioral, peer, and personal issues. A pregnancy, itself, is typically representative of the final dropout act following a lengthy history of academic and social problems as pregnancy may have expedited the way out from an already adverse situation (Feldman, et al., 2017).

After forty years of research, the effect of teenage childbearing on educational attainment is still unclear, and there is a presumed negative effect on the rate of graduation that results from teenage childbearing (Kane, 2013). Many of the earlier studies suggested that the teenagers who became pregnant were not doing well before their pregnancy occurred as they were more likely to come from disadvantaged backgrounds, experienced problems in school, and had lower expectations of going to college than their peers (Furstenberg, 2003).

 A review of the research suggests that the dropout process may be greatly accelerated by teenage pregnancy for a student who already exhibits one or more of the at-risk factors of drop out behavior prior to such events. Research has documented that academic failure is typically experienced by young women before becoming pregnant, and pregnancy was often the catalyst for dropout behavior (Feldman et al., 2017). It is also more likely that social and economic factors that a teenage mother experiences lead to poor outcomes compared to the experience of early childbearing (Hotz, et. al., 1999).

Rapid departures from school are often associated with expulsion, homelessness, bullying, and pregnancy. These accelerated leavers dropout within such a shortened time frame that intervention opportunities are difficult if not impossible to implement. Pregnancy has been consistently identified as one tipping point that leads young women to a rapid departure from school. The dropout problem matters because high school diplomas have served as credentials for labor markets and colleges. Understanding risk factors and identifying and implementing effective practices and policies that reduce the dropout rates remain a critical issue for the nation

(Feldman, et al., 2017).

Pregnancy and Specific Dropout Behavior

The idea that teen childbearing elicits the poor socioeconomic outcomes that teen mothers face implies that the young mother already had developed the skills and knowledge required to compete in the labor market. The adverse outcomes attributed to teenage childbearing may simply reflect preexisting differences in family background, such as poverty and other factors that make teen mothers different from women who delay childbearing. These adverse outcomes may have little to do with the timing of motherhood (Hoffman, 2012).

Hotz, McElroy, and Sanders determined the counterfactual conditions of an adolescent mother's economic outcomes if she had not had a child as a teen. They compared the outcomes of women who became pregnant and experienced a miscarriage as teenagers to women who became pregnant as teenagers. Through this natural (in vivo) experiment, researchers obtained comparison groups from which they derived estimates of counterfactual outcomes for teenage mothers. These researchers found that the negative consequences of teenage childbearing were much smaller than indicated in previous studies and that the consequences of early childbearing were short-lived. This experiment raised doubts about teenage childbearing as a social problem in the United States (Holtz, et al., 1999). Most studies have indicated a negative effect of becoming a teenage parent on educational outcomes (Mollborn, 2010). The proportion of students who are racial, ethnic, and linguistic minorities, who come from poor families, and who live in single-parent households, are factors that research has shown to be associated with school failure and dropping out and, as such, are increasing in the nation's schools (Rumberger, 2011).

Cost Benefit Analyses in Education

With respect to a cost-benefit approach, it is clear that completing high school results in substantial benefits to taxpayers over time. The benefits can be seen as increases in federal, state, and local tax revenues, increases in contributions to social support and insurance programs, reductions in public expenditures on social support and insurance programs, and reductions in public expenditures on the criminal justice system (Carroll, et. al., 2009).

While educational spending has increased, historically, little attention has been given to the cost and productivity of education and how education may be improved relative to the costs (Levin, 1988). Typically, more time and attention has been devoted to educational program effectiveness rather than to the costs of achieving this effectiveness. Cost analysis in research promotes the use of interventions in consideration of the

resources required to implement them. It is necessary to determine which methods are most efficient at increasing the rate of high school completion (Hollands, et al., 2013).

Policymakers allocate a significant amount of resources to efforts to prevent teenage childbearing (Kane, 2013). However, less funding is allocated for tracing pregnant and parenting student academic outcomes (Pillow, 2006). This study examined the graduation outcomes of pregnant and parenting students in the selected Florida school district data and the rate of graduation achieved through teenage parenting academic program interventions.

About the Teenage Parenting Program

The Teenage Parenting Program (TAP) was a voluntary program designed to provide comprehensive and ancillary services to facilitate coursework completion necessary to earn a high school diploma. Each school district in the state of Florida maintains a TAP for pregnant and parenting students and their children. The program provided the option to participate in a tailored online program that included daycare (i.e., the full program) or regular classroom activities with included daycare (i.e., day-care only). The established and defined goals of the Teenage Parent Programs were as follows:

- Support the health and well-being of the teenage mother, father, and their infant, both physically and psychologically;

- Prevent pregnancy among teenagers and avoid subsequent births;

- Provide alternative academic arrangements to assist teen mothers in completing school;

- Provide counseling assistance or case management services; and

- Teach teen parents strategies for caring for themselves and parenting skills for the care of their child(ren) (Teenage Parenting Program, 2017).

The costs of caring for the children of teenage students were based on the accounting report of the selected Florida school district of this study. In addition to the regular academic program, the TAP program provided four additional ancillary services for pregnant and parenting students and their children that included childcare, health services, social services, and transportation. These services were provided during the hours when the child's teenage parent was in school. For funding purposes, Florida school districts reported the children of participants and completers for full-time equivalent student membership in the Florida Education Finance Program, when the district met certain conditions. Child care health services including prenatal and postnatal health checkups, health and nutrition education, routine physicals and checkups, and immunizations for teenage parents

and their children coordinated during the time that the teenage parent-student reported for FTE in the teenage parent program (FRS, Sec. 003.54).

Children enrolled in child care provided by the district were funded at the special program cost factor while their parent was enrolled full time in the Florida public school district (Senate, 2018). Provided that the child of a TAP student had not attained the age of five or was eligible for kindergarten, the child of a TAP student continued to receive childcare services until the parent graduated or withdrew from the TAP program. Transportation service was provided for pregnant and parenting students who were enrolled in the TAP program or for TAP program completers who have returned to their home schools and their children. Provision of this service required transportation for teenage parents and their children to and from home and the childcare facility and the school as required for the parent's educational activities during credit-earning hours, regardless of distance (FRS, Sec. 003.54).

Students enrolled in the TAP intervention program often shared defined risk factors such as lower socioeconomic status, limited English proficiency, exceptional student education (ESE) status, previous grade retention, and rates of poor academic progression. While their parenting status was the sole qualifier for the intervention, students who received the TAP interventions exhibited an assortment of at-risk factors that have been identified as precursors to dropout behavior. Data from the TAP program included ESE status, English language learner (ELL) status, low socio-economic (SES) status as determined by participation in the free and reduced school lunch program and graduation outcome status were included in the analyses.

Research Questions

This study examined a dropout prevention education intervention strategy designed to meet the needs of pregnant and parenting teenagers and to provide a cost-benefit analysis. Specifically, the study compared the graduation outcomes of the program provided in two formats (i.e., full online-program with daycare provisions and daycare provisions only) to the graduation outcomes of a traditional high school program. This study weighed each program format intervention cost against the outcomes and the best intervention approach was considered (Levin, et al., 2018). In addition, this study evaluated the economic consequences of students who dropped out of the public school program and the public savings or societal benefits of each high school graduate of each intervention format.

Research question one: How did the graduation outcomes for students enrolled in the full TAP academic and daycare service intervention (treatment one) compare with the graduation outcomes of students enrolled in the TAP daycare-only service intervention with an academic program in a traditional high school setting (treatment two)?

Research question two: Which intervention approach is the most

cost-effective in achieving higher rates of graduation?

Research question three: For each intervention approach, what is the cost per high school graduate?

Research question four: What public savings occur with each program intervention graduate when compared with the program intervention public cost?

This study examined the allocation of resources to a TAP as applied to achieve the program's goal of an increased rate of graduation. This study also examined the graduation rates of students of pregnant and parenting teenagers to determine which educational programming is most effective and efficient in achieving the graduation outcomes for pregnant and parenting teenagers.

Fiscal Context

Using the latest available audited financial statements, the 2016-2017 financial report of the selected Florida school district, the average school enrollment cost of a typical student was $7,784. Based on this 2016-2017 enrollment cost, the total cost of public school education from kindergarten to twelfth grade was $101,192. In 2017-2018, the graduation rate in the state of Florida was 86.1 percent. In 2017-2018, the rate of graduation in the state of Florida was 89 percent for whites, 85.1 percent for LatinX students, and 80.9 percent for Blacks. Florida students from non-economically disadvantaged households experienced a graduation rate of 90.9 percent in 2017-2018 while Florida students from economically disadvantaged households experienced a graduation rate of 82 percent in 2017-2018. "Non-at-risk" Florida students graduated at a rate of 90.3 percent in 2017-2018 while "at-risk students" in Florida graduate at a lower rate of 72.7 percent in 2017-2018 (Education Attainment, 2017).

From a public and social cost perspective, an extensive body of research literature has established that poor education contributes to significant costs in the form of lower-income and economic growth, reduced tax revenues, and higher costs of public services such as health care, criminal justice, and public assistance. Levin has identified seven social consequences of inadequate education, which he defined as the failure to complete high school.

- Forgone national income.

- Forgone tax revenues for the support of government services.

- Increased demand for social service.

- Increased crime.

- Reduced political participation.

- Reduced intergenerational mobility.

- Poorer levels of health. (Levin, 1972).

Research Methodology

This study examined three populations of female students enrolled in a selected large Florida public school district between 2006 and 2016, inclusively. Treatment one consisted of 246 typically-enrolled students that received the full TAP academic and TAP daycare intervention treatment. Treatment two consisted of 35 typically-enrolled students who received TAP daycare-only and TAP parenting class-only services while in a traditional high school academic program, and control group which consisted of 10,184 typically-enrolled high school students in one of five regular district high schools. The five area high schools were selected as the control group for this study given that these schools were the zoned home schools of the students who received the TAP intervention. Members of the control group provided a baseline estimate of what the treatment group would have attained in the absence of the treatment.

All collected data remained anonymous and each student's district-assigned number was replaced with a randomly assigned number. The researchers examined the costs of the TAP as well as the costs of the regular education high school program with accounting data provided by the district.

A cost analysis was conducted to compare the monetary estimates of the cost-benefits of the TAP program. A cost-benefit analysis determined whether the benefits of given alternative outweighed the costs of providing it. The program and its alternatives were compared to determine which program provided the greatest amount of benefit relative to its cost (Levin, et al., 2018). The cost-benefit ratio provided a simple indicator of whether the benefits outweighed the costs and were interpreted as the number of monetary units of benefit for each unit of costs. The benefits for the taxpayer as well as for program participants were calculated.

This analysis controlled for pregnancy and parenting variables. It was anticipated that even after establishing these controls, the TAP improved educational outcomes for pregnant and parenting students.

The researchers used graduation data from 2006-2016 from five high schools in the selected Florida school district that served as the original home schools of the females who received the intervention. Data were analyzed and characterized by student demographic information that included female gender, socioeconomic status as determined by the percentage of students who received free or reduced-cost lunch, race, ESE status, ELL status, and graduation outcome status. Participation in the school lunch program determined the incidence of economic need among students in this program as they had come from families at or below 130 percent of the poverty level and eligible for free meals. Students from families with an annual income between 130 percent and 185 percent of the poverty level were eligible to receive meals at a reduced price. Participation in the free and reduced lunch program determined the socio-economic

status of the students in this study (Hotz, et al., 1999).

The first research question explored the graduation outcomes for students enrolled in the TAP academic and daycare intervention compared with the graduation outcomes of students enrolled in the TAP daycare-only intervention and an academic education program in a traditional high school setting. This question required a control group that tested the TAP intervention groups. Binary logistic analyses were performed to investigate which of the demographic factors predicted the successful graduation outcomes for the female students in the three study groups; treatment one group, treatment two group, and the control group. Demographic factors consisted of ELL status, ESE status, SES status, race defined as Black, white, or LatinX, and graduation outcomes.

The dataset used in this study contained 10,465 cases. Of the 10,465 cases, 10,184 females (97.3 percent) were in the control group and enrolled in the traditional high school academic program. There were 246 females (2.4 percent) who were in the treatment one group and enrolled in the teenage parenting academic intervention program (TAP) with their children enrolled in the TAP daycare. The treatment two group consisted of 35 females (0.3 percent) enrolled in a traditional high school academic program and their children were enrolled in the TAP daycare intervention service.

The demographic characteristics of each study group are presented in Table 1. There were significant differences among the three study groups on all variables, except ESE status. Specifically, the treatment two group had a smaller percentage of white females, a larger percentage of females eligible for free and reduced lunch, and more females with ELL status compared to the other two groups. As for the variable of interest, the graduation rate is significantly smaller in the treatment one group compared to the control and treatment two groups.

Binary logistic regression analyses were performed to investigate which of the demographic factors contributed to the chances of graduation for the females in the three study groups. The first analysis included the main effects of the demographic variables as well as the interactions with the study group to investigate whether demographics had different effects in each group. All nonsignificant interactions were eliminated in the final model.

The final regression model had a good fit with these data, $X2(9) = 1508.02$, $p < .001$, Nagelkerke $R2 = .21$. The model correctly predicted 80.9 percent of the cases in the sample, which is a 2.4 percent difference compared to the null models without any explanatory variable. The regression coefficients for the final model are presented in Table 2.

Table 1

Demographics of Study Groups

	Group						
	Control		Treatment two		Treatment two		Chi-square
Variable	Count	% within group	Count	% within group	Count	% within group	test of indepedence
Race							56.25***
Black	1733	17.0	37	15.0	10	28.6	
LatinX	4680	46.0	163	66.3	22	62.9	
White	3771	37.0	46	18.7	3	8.6	
ESE status	1414	13.9	35	14.2	3	8.6	85
Free lunch	5073	49.8	143	58.1	19	61.3	8.23*
ELL status	1639	16.1	53	21.5	14	40.0	19.69***
Graduation	8190	80.4	4	1.6	20	64.5	887.40***

* sig .05
** sig. at .01
*** sig. at .001

Table 2

Regression Coefficients for Binary Logistic Regression

				95% CI for OR	
Variable	B	SE	OR	Lower	Upper
Black	-0.37***	0.09	0.69	0.58	0.82
LatinX	-0.43***	0.07	0.65	0.56	0.74
Treatment 1	-6.98***	1.00	0.00	0.00	0.01
Treatment 2	-0.79	0.42	0.45	0.20	1.04
ESE status	-0.89	0.07	0.41	0.36	0.47
Free lunch	0.02	0.06	1.02	0.91	1.15
ELL status	-1.42***	0.06	0.24	0.21	0.27
ESE status by treatment 1 group	3.71***	1.17	40.67	4.07	406.03
ESE status by treatment 2 group	1.15	1.36	3.15	0.22	45.05
Constant	2.14	0.05	8.52		

Results

Research question one: How did the graduation outcomes for students enrolled in the full TAP academic and daycare service intervention (treatment one) compare with the graduation outcomes of students enrolled in the TAP daycare-only service intervention with an academic program in a traditional high school setting (treatment two)?

Of all three study groups, Black and LatinX females were less likely to graduate compared to white females. Specifically, of all three study groups, black females had a 45 percent less chance to graduate and LatinX females had a 54 percent less chance to graduate. Similarly, females with ESE and ELL status were less likely to graduate compared to females without these conditions. However, the effect of ESE status varied across the three study groups. In the control group, the females with ESE status were 2.4 times less likely to graduate, and in treatment two group the chances to graduate for these females were similar. However, in the treatment one group, successful graduation outcomes for the females with ESE status were 16.7 times higher than for the females without this status. This result should be considered with caution, as in the treatment one group the graduation rate was very small and only one female without the ESE status had graduated, while three females with this status had graduated. ELL females had four times less a chance to graduate compared to non-ELL females.

Finally, the females in treatment one group graduated at a significantly lower rate compared to the females in the control group. There was no difference in the graduation rate between the control and treatment two group. Therefore, it is concluded that treatment two program was effective in increasing the graduation rate of at-risk females.

Research question two: Which intervention approach is the most cost-effective in achieving higher rates of graduation?

Based on the graduation outcomes of treatment one and treatment two, the intervention approach that was considered the most cost-effective was treatment two with a graduation rate of 64.5 percent between 2006 and 2016. The graduation rate of treatment one was 1.6 percent between 2006 and 2016. Using the treatment cost of $18,886 for each typical female student and $18,886 for her child, the total cost of the treatment one program between 2006 and 2016 was $9,291,912 in 2017 dollars. Of the $9,291,912, it cost $151,088 for the graduated females and their children in the treatment one group and $9,140,824 for the non-graduated females and their children in the treatment one group. The cost of graduates from the treatment one group minus the cost of non-graduates from the treatment one group was -$8,989,736. Between the years 2006 and 2016, the treatment one group experienced a negative rate of return of $-8,989,736 with a graduation rate of only 1.6 percent.

The graduation rate of treatment two was 64.5 percent between 2006 and 2016. Using the treatment cost of $18,886 for each student's child enrolled in the intervention and $7,784 as the cost for each typical

female student enrolled in the traditional high school program, the total cost of the treatment two program between 2006 and 2016 was $933,450 for both graduates and non-graduates of the treatment. Of this $933,450, $613,410 was the cost of the treatment two graduates, and $320,040 was the cost of the treatment two non-graduates. The cost of graduates from the treatment two program minus the cost of the non-graduates from the treatment two program was $293,370 with a graduation rate of 64.5 percent.

Research question three: For each intervention approach, what is the cost per high school graduate?

In the 2016-2017 academic year, the cost of a typical student enrolled at one of the district's TAP intervention site one was, $17,474. The cost of a typical student enrolled in the district's other TAP intervention site was $20,298. Therefore, the average student cost of the TAP intervention provided by the district to a typical student at each of these intervention sites was $18,886.

The school district appropriated funds to meet the needs of the program. The federal, state, and local revenues did not cover the full cost program expenditures and costs of the 2017 year. For 2017, the actual funding for one of the two program intervention sites in terms of revenue generated by the specific program was $207,627 while the expenditures and costs were $641,397. For 2017, the actual funding for the second of the two program intervention sites in terms of revenue generated by the specific program was $143,938 while the expenditures and costs were $533,956. This meant that the school district subsidized the intervention program through other revenue sources.

The 2016-2017 typical student cost of enrollment for the control group consisted of the enrollment costs for the five district high schools used in this study that served as the home-schools of TAP students for graduation reporting purposes. The costs of a typical student enrolled in each of the five district high schools were as follows: $8,097; $7,568; $7,749; $7,707; and $8,316. Therefore, the average cost of a typical student enrolled in a traditional high school in the selected school district was $7,784.

The difference in the average cost of typical student enrollment for the treatment group and the average cost of typical student enrollment in the control group was $18,886 - $7,784 = $10,998.60. It costs an additional $10,998.60 for the treatment program per typical student enrolled compared to the cost of the standard high school program per typical student enrolled.

In a program cost comparison, the treatment one group consisted of typical female students enrolled in the teenage parent academic program and their children enrolled in the teenage parent program (TAP) daycare. There was not an enrollment cost differentiation between the student mother and her child in the TAP treatment program.[1] The cost per female student was $18,886 and her child enrolled was $18,886.

The treatment two group consisted of typical female students enrolled in a traditional high school academic program and their children enrolled in the teenage parent program daycare. The cost for a typical student enrolled in a traditional high school was $7,784 and the cost of her child enrolled in the TAP daycare program was $18,886.

The control group consisted of typical female students enrolled in any one of the five district high schools that were considered home schools to the students served by the intervention. The average cost of a typical female student in any one of the five district high schools was $7,784 and represented the control group of this study.

The cost of the treatment one program for the typical female student and her child was $18,886 each or $18,886 x 2 which equaled $37,772 in 2017. The treatment one group experienced an overall graduation rate of 1.6 percent and was more expensive to implement than the treatment two intervention.

The treatment two intervention costs consisted of the traditional high school program for the typical female student plus daycare for her child enrolled in the TAP intervention. The cost of a typical student enrolled in the traditional high school program represented the baseline education cost of $7,784 plus the cost of daycare for her child at $18,886 equaled $26,670 in 2017. Overall, this treatment two group experienced a significantly higher rate of graduation at 64.5 percent and at a lower cost than that of the treatment one group.

The treatment one intervention consisted of typical female students who received full-time TAP academic intervention services with their children enrolled in the TAP daycare at a cost of $37,772 or $18,886 for the female student and $18,886 for the child of the female student. The baseline cost of a typical female student in the traditional program was $7,784. The implementation cost of the treatment one program at $37,772 minus the baseline cost of a typical female student in the traditional program of $7,784 equaled $29,988. This figure represented the cost of the intervention per female student and child in the treatment one group.

The cost to implement treatment two was $26,670. This figure included the cost of the typical female student in the traditional high school program at $7,784 plus the cost of the TAP intervention daycare service provided to the student's child at $18,886. The implementation cost of the treatment two program at $26,670 minus the baseline cost of a typical female student in the traditional program at $7,784 equaled $18,886; the cost of the treatment two intervention per female student and child.

The control group consisted of typical female students enrolled in the traditional high school program between 2006 and 2016. Treatment one consisted of typical female students who received full time TAP academic intervention services with their children enrolled in the TAP daycare between 2006 and 2016. Treatment two consisted of typical female students who received the traditional high school academic program while

only their children received the TAP daycare intervention between 2006 and 2016. The control group experienced the highest rate of graduation at 80.4 percent while treatment one experienced the lowest rate of graduation at 1.6 percent. The treatment two group experienced a graduation rate of 64.5 percent.

Treatment one was the most expensive intervention to implement at a cost of $29,988 with a significantly low rate of graduation of 1.6 percent. The implementation cost of treatment two was $18,886 with a higher graduation rate of 64.5 percent. The control group represented the cost of a typical female student in a traditional high school program. This group experienced a rate of graduation of 80.4 percent at the baseline cost of $7,784.

Of 10,184 female students in the control group between 2006 and 2016, 8,188 female students graduated from high school, and 1,996 female students did not graduate from high school. Of the 246 female students enrolled in the treatment one group between 2006 and 2016, 4 female students graduated from high school and 242 female students did not graduate from high school. Of the thirty-five female students enrolled in the treatment two group between 2006 and 2016, twenty-three female students graduated with a standard high school diploma and twelve female students did not graduate from high school. The 2017 lifetime total social benefit per Florida female by education level is a gain of $283,535 for a high school graduate over a high school dropout (see table 3).

Research question four: What public savings occur with each program intervention graduate when compared with the program intervention public cost?

Society experienced a 1.76 billion-dollar gain in social benefits as represented by earnings, health savings, crime savings, welfare savings, and productivity gains, with the control group of this study. Society experienced a total lifetime loss of 67.5 million dollars in social benefits as represented by earnings, health savings, crime savings, welfare savings, and productivity gains, with the treatment one group of this study. Society experienced a 3.1 million dollar gain in social benefits as represented by earnings, health savings, crime savings, welfare savings, and productivity gains with the treatment two group. For all three groups, the lifetime social benefit loss per person for the total number of non-graduates was subtracted from lifetime benefit gains per person for the total number of high school graduates to determine the overall public benefits that occurred with each of the three groups in this study.

Earnings and Benefits by Educational Attainment

In the state of Florida, the total lifetime social benefits per female high school graduate was a total gain of $283,535 over a female student with no high school diploma. (see table 3).

Table 3

Lifetime Total Social Benefits per Person by Education Level (Present Value at Age 18)

	Female		Male		Average	
	Difference over HS dropout					
	HS graduate	Expected HS graduate	HS graduate	Expected HS graduate	HS graduate	Expected HS graduate
College costs	$-	($25,978)	$-	($23,434)	$-	($24,706)
Earnings	$205,515	$309,587	$234,284	$381,236	$219,905	$345,417
Health savings	$45,693	$61,851	$31,831	$42,642	$38,762	$52,246
Crime savings	$12,838	$14,573	$186,414	$201,623	$99,631	$108,104
Welfare savings	$1,574	$2,328	$959	$$1,358	$1,272	$1,842
Productivity gains	$12,331	$18,572	$14,067	$22,873	$13,204	$20,729
METB savings	$5,584	$6,123	$11,447	$11,857	$8,516	$8,990
Total gains over HS dropout	$283,535	$386,056	$479,002	$638,155	$381,290	$512,623

Source: Clive R. Belfield, "The Economic Burden of High School Dropouts and School Suspensions in Florida," EScholarship, University of California, December 10, 2016 accessed January 28, 2019, https://escholarship.org/uc/item/8cj0n19m.

Discussion

There are recommended strategies that may be implemented to support pregnant and parenting students to stay in school. The availability of daycare to parenting students remains a crucial factor in supporting the mother's decision to remain in school (Clewell, et. al., (1989). The daycare models in the TAPs increased the likelihood that teenage mothers remained in school and as such, treatment two experienced a higher graduation rate of 64.5 percent. Thus, this research supports Clewell and others regarding these programs.

A daycare center at a high school may help young mothers to stay in school, but it is also a public service with a potential constituency in-

dependent of the justification that it prevents dropping out. The existence of the daycare in school not only appeals to a student-mother but also the child's grandparents, neighborhood organizations, and school employees with their children (Dorn, 1996).

The researchers established that the traditional high school academic delivery of treatment two was the more cost-effective intervention that supported a higher rate of graduation among TAP students than did the academic pullout design of the TAP treatment one program. The full pullout program design of treatment one did not prove beneficial in achieving successful graduation outcomes.

The precise tracking of the graduation outcomes of pregnant and parenting teenagers is imperative to inform the most cost-effective approach in achieving high school graduation. To inform educational policy decisions, cost-effectiveness comparisons of interventions should consistently be incorporated into education program evaluations.

Endnote

1   This figure was derived from the total cost of daycare on a per capita cost of daycare figure. The cost of the intervention was a fixed amount and reported by the district to cost $18,886 per female student and per child enrolled in the TAP intervention.

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