

DATE: September 14, 2016
TO: Toya Fick, Executive Director, Oregon Stand for Children
FROM: Andrew Dyke and Ryan Knapp
SUBJECT: POTENTIAL IMPACTS OF MEASURE 98 FUNDS ON LOW-INCOME STUDENTS

Introduction

Measure 98 would, if enacted, provide state funds to school districts for dropout prevention, high school Career Technical Education (CTE), and college-level courses for high school students. Stand for Children has engaged ECONorthwest to analyze the potential impacts of these three programs on high school graduation rates, as well as on longer-term outcomes such as educational attainment and employment. This memorandum summarizes our estimates of the potential impacts of the types of programs Measure 98 would fund.

Oregon's economically disadvantaged students—roughly half of Oregon's K-12 enrollment—face significant challenges during their K-12 experiences, as illustrated by the gap in 2014-15 on-time graduation rates between this low-income student population and their non-economically disadvantaged peers (66 percent versus 83 percent). To address this disparity, the state's ADMw school funding formula allocates additional resources to districts with higher proportions of economically disadvantaged students.

The state would allocate Measure 98 funds using the same weighted distribution formula and so, for illustrative purposes, our analysis focuses specifically on how well-implemented programs could benefit economically disadvantaged students. This student population presents a relatively greater opportunity to make progress towards the state's 40-40-20 goal, although in practice these programs would likely benefit all student groups to some extent.

Overall, our research indicates that Measure 98 would provide funds for programs that can, if well implemented, increase graduation rates to a large and meaningful extent.

Key findings on four-year graduation rates include the following:

- **Dropout prevention:** We estimate that graduation rates for low-income students could increase by 6.3 percentage points as a result of well-implemented programs as effective as *Talent Search*.¹ Effects would appear four years after implementation.
- **Career Technical Education:** Our ongoing study of outcomes for CTE students in Portland Public Schools suggests that a well-implemented CTE curriculum could

¹ See http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/WWC_Talent_Search_122806.pdf for a What Works Clearinghouse review of evaluations of the Talent Search program.

increase low-income student graduation rates by 5.0 percentage points.² Effects would begin to appear one to two years after implementation.

- **Accelerated college credit:** We estimate that well-implemented dual credit programs could increase low-income student graduation rates by 5.8 percentage points.³ Effects would begin to appear one to two years after implementation.
- **The timing of impacts would vary with program type:** Dropout prevention programs focused on early high school experiences would not measurably affect graduation rates until several years after implementation, while CTE and accelerated college credit programs typically serve students later in their high school experience and would likely produce impacts over a shorter time horizon.
- **Program impacts are not necessarily additive:** We anticipate that most districts would spread Measure 98 funds across multiple programs that serve the same students. For example, improved CTE might encourage the same set of students to stay engaged as an early high school dropout prevention program, in which case the impacts of the two programs would be less than the sum of the separate impacts. It is also possible that CTE encourages a different set of students to stay engaged, or that it enhances the effects of dropout prevention efforts. The available research does not provide enough evidence to draw strong conclusions about these possible interactive effects.

Additional findings about impacts on outcomes include the following:

- **Dropout prevention:** The *Talent Search* evaluations identified above found that the program increased postsecondary enrollment of participants by about 17 percentage points, depending on program site.
- **Career Technical Education:** An evaluation of *Career Academies*, a school-based program focused on dropout prevention and career-related coursework, found that enrollment in a career academy increased average post-high school monthly earnings by 11 percent.⁴
- **Accelerated college credit:** Rigorous research based on a nationally representative sample of youth found that dual enrollment (college-level coursework for students

² Ongoing research on Portland Public School (PPS) Benson High School suggests that students who enter the Benson lottery and attend Benson have a graduation rate that is 5 percentage points higher than the rate for students who enter the lottery but attend other PPS high schools.

A Fordham Institute study measured effect on high school graduation rate and postsecondary (PS) enrollment for those taking one CTE course above average: Graduation rate increases by 3.2 percentage points; PS enrollment increases by 0.6 percentage points. See Dougherty, S. (2016). *Career and Technical Education in High School: Does it improve student outcomes?* Washington, DC: Thomas B. Fordham Institute. Available at: <https://edexcellence.net/publications/career-and-technical-education-in-high-school-does-it-improve-student-outcomes>.

³ See review at http://ies.ed.gov/ncee/wwc/pdf/single_study_reviews/wwc_hchs_031114.pdf for a What Works Clearinghouse single study review of an early college program.

⁴ Kemple, James. *Career Academies: Long-term impacts on labor market outcomes, educational attainment, and transitions to adulthood*, MDRC. June 2008.

enrolled in high school) increased college-degree attainment by 8 percentage points.⁵ Another study of an early-college program found that the studied program increased postsecondary enrollment by 9 percentage points and degree attainment by 20 percentage points.⁶

In the sections below, we cite the research that informs our impact estimates for Oregon. These estimates rely on, but differ from, estimates in individual studies. Specifically, we adjust our estimates of program impact to account for differences in baseline graduation rates between study populations and that of Oregon's economically disadvantaged students. We also make assumptions, described below, about the extent to which Oregon students already receive high-quality dropout prevention, CTE, and accelerated college credit. The latter assumptions are based on the very limited publicly available data. As a result, our findings should be applied cautiously.

Dropout prevention

A review of evaluations of *Talent Search*, a dropout prevention program aimed at low-income students, found that the program increased high school completion by 9 to 14 percentage points for participants. Figure 1 illustrates the potential impacts in Oregon on four-year graduation rates as a result of expanding dropout prevention programs consistent with this research and the adjustments described in the introduction. This analysis assumes only low-income students benefit. In practice, we anticipate non-economically disadvantaged students would benefit as well.

Approximately four years after implementation begins for ninth graders, we anticipate a potential increase of 6.3 percentage points in high school graduation rates for economically disadvantaged students.⁷ This is equal to 37 percent of the graduation rate gap between economically disadvantaged students and their more affluent peers. Furthermore, we estimate that postsecondary enrollment increases by 17 percentage points and on average, lifetime earnings increase by \$38,800 per individual.⁸ This expected increase in lifetime earnings would translate into increased income tax revenue for Oregon.

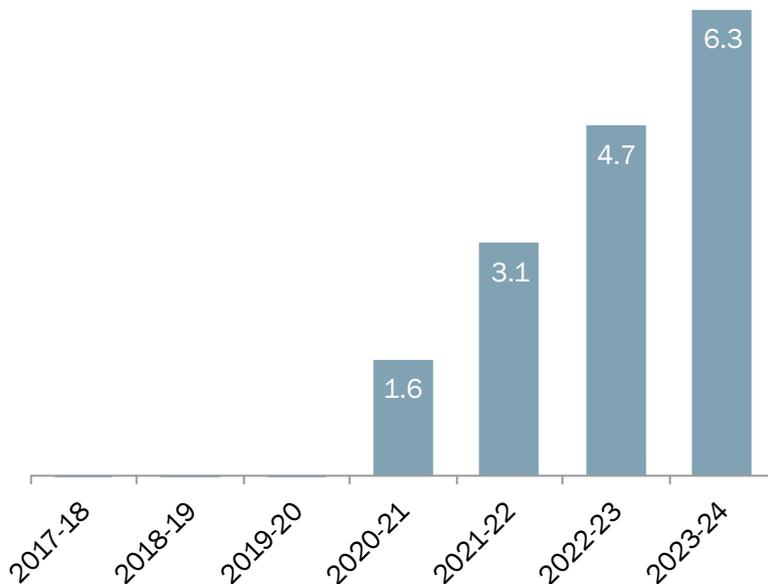
⁵ See review at http://ies.ed.gov/ncee/wwc/pdf/single_study_reviews/wwc_dual_121713.pdf.

⁶ See footnote 3 for the What Works Clearinghouse early college program study review.

⁷ Constantine, et al. *A study of the effect on the Talent Search program on secondary and postsecondary outcomes in Florida, Indiana, and Texas: Final report from phase II of the national evaluation*. Report prepared by Mathematica Policy Research for the U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, Policy and Program Studies Service. Washington, DC: U.S. Department of Education. 2006.

⁸ The increase would be greater for some individuals than others (e.g., individuals who increase their educational attainment as a result of participation would likely experience a larger increase than students for whom participation did not affect attainment).

Figure 1. Potential impact of well-implemented dropout prevention programs on four-year graduation rates for economically disadvantaged students (percentage point increase)



The estimates illustrated in Figure 1 rely on the following key assumptions:

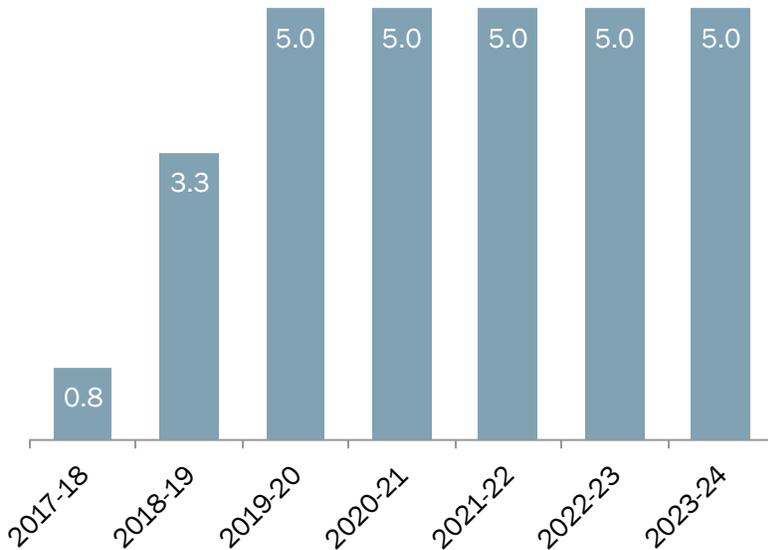
- 10 percent of economically disadvantaged students are already enrolled in effective dropout prevention programs
- Improvements in graduation rates emerge four years after implementation
- At full implementation, 50 percent of eligible economically disadvantaged students are at-risk and are enrolled in the expanded dropout prevention programs
- The program reaches full implementation over a four-year period
- The on-time graduation rate of economically disadvantaged students would otherwise equal the 2014-15 rate of 66 percent

CTE

An analysis of CTE programs in Arkansas found that enrollment in a single CTE course increased high school graduation by 3 percentage points, with larger effects for students enrolled in multiple CTE courses. These effects are similar in magnitude to preliminary findings from our Benson High School analysis. Figure 2 displays our estimates of the impacts of well-implemented CTE programs on the graduation rate of Oregon’s economically disadvantaged students, consistent with this research and the additional adjustments described in the introduction. We estimate an increase of 5.0 percentage points one to two years after full

implementation.⁹ This is equal to 30 percent of the graduation rate gap between economically disadvantaged students and their more affluent peers. In addition, we estimate this increases lifetime earnings by \$12,700 per individual, on average. There is limited data on how much well-implemented CTE exists in Oregon.

Figure 2. Potential impact of well-implemented CTE programs on four-year graduation rates for economically disadvantaged students (percentage point increase)



For the estimates illustrated in Figure 2, we assume that low-income student graduation rates increase by 5.0 percentage points overall, based on preliminary findings from our ongoing research. The estimates rely also on the following assumptions:

- All economically disadvantaged students could benefit from improved CTE offerings (i.e., the graduation rate effect applies to the full economically disadvantaged population)
- Improvements in graduation rates begin to emerge one year after implementation
- The program reaches full implementation over a three-year period
- The on-time graduation rate of economically disadvantaged students would otherwise equal the 2014-15 rate of 66 percent

⁹ Dougherty, Shaun. *Career and Technical Education in High School: Does it improve student outcomes?* Thomas Fordham Institute. April 2016.

Accelerated college credit

Accelerated college credit enrollment has grown steadily in Oregon over the past decade. These programs in Oregon award secondary and postsecondary credit for courses offered at high school during regular school operation hours. Accelerated college credit programs are already widely adopted. In the 2014-15 school year, 16 dual credit programs were operating in Oregon, but it remains unclear how much these programs could grow and improve.

One study of an early college program found that the program increased high school graduation in the treatment group by 5 percentage points. Figure 3 displays our estimates for how expanding accelerated college credit opportunities could improve graduation rates for economically disadvantaged students.

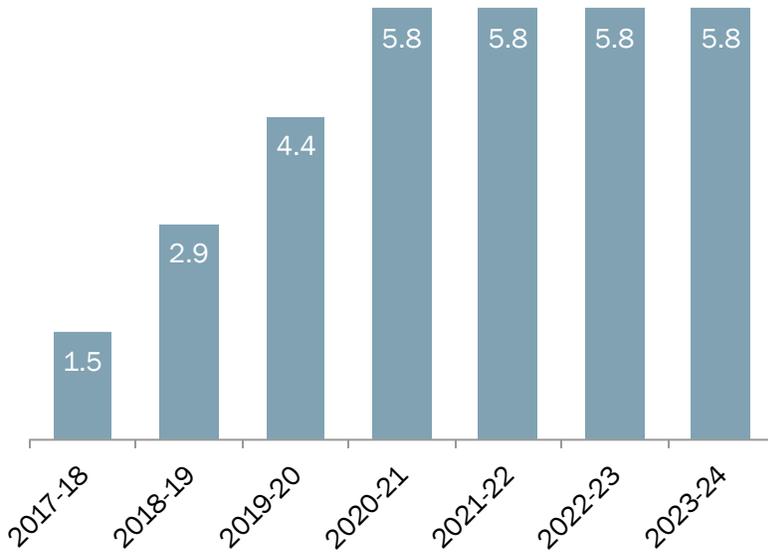
The estimates illustrated in Figure 3, based on the available research and the adjustments described in the introduction, assume that impacts accrue to low-income students who would not otherwise enroll in a well-implemented program. We estimate high school graduation rates would increase by 5.8 percentage points, one to two years after implementation for both 11th and 12th graders.¹⁰ This is equal to 34 percent of the graduation rate gap between economically disadvantaged students and their more affluent peers. Furthermore, the program expansion would increase postsecondary enrollment by 4.5 percentage points.¹¹ It would also add an extra \$37,200 in lifetime earnings per individual, on average.¹²

¹⁰ An, B. (2012). *The Impact of Dual Enrollment on College Degree Attainment: Do Low-SES Students Benefit?* Educational Evaluation and Policy Analysis, 35 (1), 57-75.

¹¹ An IES study measured effects on high school graduation rates and postsecondary enrollment. See U.S. Department of Education, IES, What Works Clearinghouse. *WWC review of the report: Early college, early success: Early College High School Initiative impact study*. March 2014.

¹² The increase would be greater for some individuals than others (e.g., individuals who increase their educational attainment as a result of participation would likely experience a larger increase than students for whom participation did not affect attainment).

Figure 3. Potential impact of well-implemented accelerated college credit programs on four-year graduation rates for economically disadvantaged students (percentage point increase)



The estimates illustrated in Figure 3 rely on the following assumptions:

- 50 percent of economically disadvantaged students already participate in accelerated college credit and benefit from the program
- Improvements in graduation begin to emerge one to two years after implementation
- All students eligible for the program enroll
- The on-time graduation rate of economically disadvantaged students would otherwise equal the 2014-15 rate of 66 percent