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.

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

- **Career Technical Education:** Our ongoing study of outcomes for CTE students in Portland Public Schools suggests that a well-implemented CTE curriculum could increase low-income student graduation rates by 5.0 percentage points.²

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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
• **Accelerated college credit:** We estimate that well-implemented dual credit programs could increase low-income student graduation rates by 5.8 percentage points.3

• **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 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

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6 See footnote 3 for the What Works Clearinghouse early college program study review.
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. Furthermore, we estimate that postsecondary enrollment increases by 17 percentage points and on average, lifetime earnings increase by $38,800 per individual. This expected increase in lifetime earnings would translate into increased income tax revenue for Oregon.

This estimate relies on the following key assumptions:

- 10 percent of economically disadvantaged students are already enrolled in effective dropout prevention programs;
- Benefits to students emerge four years after 2016-17;
- At full implementation, 50 percent of eligible economically disadvantaged students are at-risk and are enrolled in the expanded dropout prevention programs.

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CPE

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 five percentage points one to two years after full implementation. 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.

For this estimate, we assume that low-income student graduation rates increase by five percentage points overall, based on preliminary findings from our ongoing research. This estimate relies 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);
- Benefits begin to emerge one year after implementation begins;
- The program reaches full implementation

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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, 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.9 Furthermore, the program expansion would increase postsecondary enrollment by 4.5 percentage points.10 It would also add an extra $37,200 in lifetime earnings per individual, on average.

We assumed the following for the hypothetical accelerated college credit program scenario:

- 50 percent of economically disadvantaged students already participate in accelerated college credit and benefit from the program;

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• Student benefits emerge two years after 2016-17;
• All students eligible for the program enroll.

Figure 3. Anticipated impacts of a well-implemented accelerated college credit program on four-year graduation rates for economically disadvantaged students

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<th>Potential impact</th>
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<tr>
<td>Non-economically disadvantaged</td>
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