



# Pathways Toward (Unequal) Earnings: Examining Students' Choice of Career Training Program Using Washington State and National Data

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# Background

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- **40%** of all undergraduates in the U.S. are enrolled in community and technical colleges (Ma & Baum, 2015).
- **3.9 million** students enrolled in career training programs nation-wide (ACTE, 2014).
- **< 800 thousand** certs/associate's degrees awarded (AACC, 2017).
- **71%** increase in the number of students earning a certificate or associates degree from 2002 to 2012 (ACTE, 2020).



# Background

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- e.g., For technical college students in Washington state, the selection of a program of study is the first decision they will make.
- For students, career-choice decisions have long-term impacts on job prospects, marketability, and wage-earnings potential (Baker et al., 2018; Berger, 1988; Beffy et al., 2012; Stevens et al., 2015).
- For technical programs and colleges, job placement and post-completion earnings are central to mission fulfillment, meeting student expectations, and student upward mobility (Stevens et al., 2015).



# Purpose of the Study

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The purpose of this study was to examine if students' sociodemographic characteristics are associated with their selection of a career training program with varying wage-earning potentials.



# Review of Literature

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## Employment Outcomes & Two-Year Colleges:

- Sociodemographic factors: Age, gender, family status, race/ethnicity
- Career factors: Interest, ability, future earnings, marketability
- Institutional factors: Availability of program, faculty & program reputation
- Interpersonal factors: family, peers, teachers, counselors



# Theoretical Framework

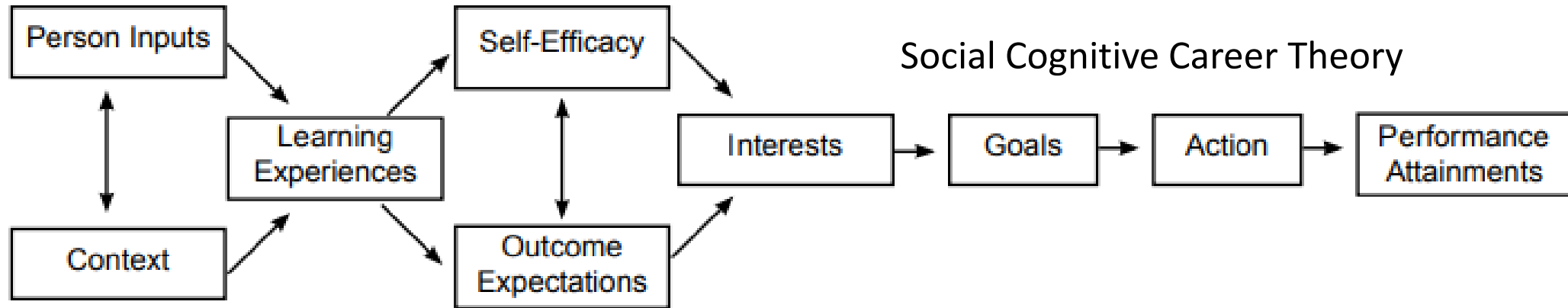


Figure 1. Social Cognitive Career Theory. Reprinted from Lent, R. W., Brown, S. D., & Hackett G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45, 79-122.

*RQ: To what extent are students' characteristics related to their selection of programs with varying wage-earning potential?*

# Data Source and Sample

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## National:

- High School Longitudinal Study of 2009 (HSLs:09)
- 23,500 9th graders (2009) → 11th grade (2012) → 3yrs after HS (2016)
- 2,915 students whose first postsecondary credential program in any CTE field

## Washington State:

- Secondary data from the Washington State Board for Community & Technical Colleges (SBCTC)
- 2017, 2018, 2019 entering fall students from the five technical colleges (n = ~30,000)



# Variables (National)

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<b><i>Outcome Variable</i></b>	Earning potential of first postsecondary major (in quintile) (Mabel et al., 2020)
<b><i>Sociodemographic Characteristic in 11th grade</i></b>	Race Sex SES
<b><i>Motivational Attribute in 11th grade</i></b>	Math self-efficacy belief Science self-efficacy belief Educational aspiration Identified an occupation to have at age 30
<b><i>Academic Pathway and Performance in 12th grade</i></b>	High school GPA for all academic courses Met with school counselor about college admission and/or financial aid Number of credits earned in CTE
<b><i>High School Characteristic</i></b>	Control Urbanicity Geographic region

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# Variables (Washington)

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## Dependent (Outcome) Variable

Low Wage-Earning Program

Medium Wage-Earning Program

High Wage-Earning Program

## Independent (Predictor) Variables

Age

Economic Disadvantage

Prior College Credits

Sex

Race/Ethnicity

Veteran Status



# Analytic Strategy

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Descriptive Statistics

Ordinal Logistic Regression

$$\Pr (y = m | x) = \Pr ( \tau_{m-1} \leq y_i^* < \tau_m | x) \quad \text{for } m = 1 \text{ to } k$$

Assumption Check: violation of the proportional odds assumption

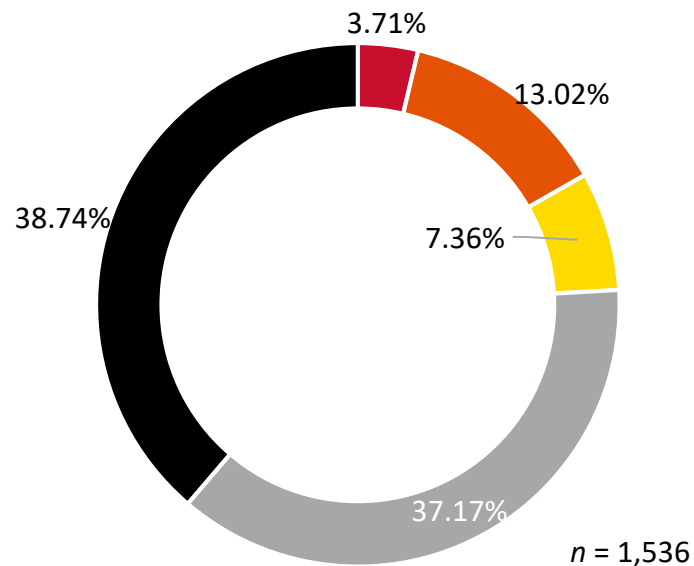
Limitations



# Student Enrollment by Wage-Earning Potential

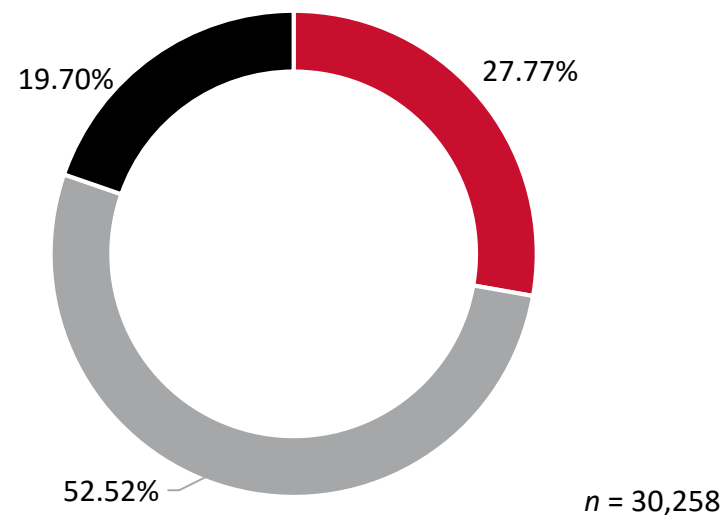
## National Sample: Wage-Earning Potential

- Bottom Quintile
- Second Quintile
- Third Quintile
- Fourth Quintile
- Top Quintile



## WA Sample: Wage-Earning Potential

- Low Wage-Earning
- Medium Wage-Earning
- High Wage-Earning



# Results (National)

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CTE students' likelihood of selecting programs with higher earning potential is associated with their sex, math self-efficacy belief, and the geographic region of high school.

- Women students are 81.1% less likely to choose a program with higher earning potential ( $p < 0.001$ ), all else being constant.
- Students with higher math self-efficacy belief are 27.6% more likely to choose a program with higher earning potential ( $p < 0.001$ ).
- Students in the Midwest and South are about 45% less likely to enroll in a program with higher earning potential ( $p < .05$ ), when compared with students in the Northeast.



# Results (Washington)

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- The odds of choosing a low wage-earning career rather than a high wage-earning career increase by a factor of 1.136 and 1.012 respectively for students aged 0-19 and 20-24 versus the reference age group (40-Over) ( $p < .05$ ).
- The odds of choosing a low or median wage-earning career increase by a factor of 1.190 for economically disadvantaged groups vs. non-economically disadvantaged groups ( $p < .05$ ).
- The odds of choosing a low wage-earning career is statistically higher for all students of color compared to their White counterparts ( $p < .05$ ).
- The odds of females choosing a low wage-earning career increases by a factor of 1.735 when compared with males ( $p < .05$ ).



# Discussion

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- Students with varying sociodemographic characteristics matriculate into majors with different earning potentials.
- Mind the different sample selection, outcome operationalization, and analytical strategies.
- Call for equity-minded approach to ensure targeted CTE students' access to information and resources, academic preparedness and aspiration, and self-efficacy beliefs.



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*The Council for the Study of  
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