

**A Three Study Investigation of Promise Programs in Tennessee: Enrollment Responses,
Experiences, and Unmet Needs**

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Degree
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Dedication

This work is dedicated to the many teachers who inspired me along the way.

Among our people are those we call our teachers. They are our elders, our storytellers, and our instructors. They teach us to care for ourselves in a healthful way. Some of our teachers instruct us how to use our minds intelligently to solve the problems that we will face in our everyday living. They teach us the names and the uses of the gifts of life. Some guide us back to healthful living when our thoughts and emotions become confused. Our spiritual teachers lift us to the greater meanings of life, and teach us to remember our Creator. We are grateful to our many teachers. Do you agree? Anushiik (Munsee-we are grateful). Oneewe (Mohican-thank you).

- Dorothy W. Davids, Stockbridge-Munsee Mohican Elder

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Abstract

Policymakers in the United States are increasingly adopting statewide free college policies - often referred to as promise programs - to address the rising costs of attending college and increase postsecondary credential attainment in their states. Concurrently, policymakers and scholars encourage institutions to increase enrollment among historically underrepresented students, such as non-traditional adult students and students from racialized backgrounds, in order to increase postsecondary degrees or certificates in the coming years. Additionally, there is a growing movement in the United States to promote and support programs focused on postsecondary career and technical education. While there is a growing body of research exploring the effectiveness of free college programs as they are currently structured, there is no research exploring the effectiveness of free college programs available to adult students, nor is there research exploring how free college programs impact enrollment in postsecondary career and technical education.

This dissertation includes three articles exploring Tennessee's two free college programs. The first two articles explore Tennessee Reconnect, a statewide policy which provides tuition-free college to adult students at all public and select private technical colleges, community colleges, and associate degree granting institutions in Tennessee. The first study qualitatively explores the lived experiences of students who used Tennessee Reconnect in its first two years. The second study deploys differences-in-differences to analyze the causal effect of Tennessee Reconnect on adult student enrollment in 2018 and 2019.

The third study included in this dissertation explores how Tennessee Promise - the original free college policy in the state that limits eligibility to high school graduates - impacted enrollment in postsecondary career and technical education programs in the state. In the third

study, I deploy differences-in-differences to analyze the causal effect of Tennessee Promise on student participation in postsecondary career and technical education programs. Findings from these studies build on the growing body of scholarship on promise programs. Specifically, the studies included in this dissertation are the first to explore promise programs created for adult students and the effect of statewide promise programs on postsecondary career and technical education. Implications for policy, practice, and research are discussed in chapter 5.

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Chapter 1: Introduction to the Study

A college degree is the surest ticket to the middle class. It is the key to getting a good job that pays a good income-and to provide you the security where even if you don't have the same job for 30 years, you're so adaptable and you have a skill set and the capacity to learn new skills, it ensures you're always employable. – President Barack Obama, address at the unveiling of America's College Promise in Knoxville, Tennessee.

Policymakers in the United States often proclaim their education initiative will improve the lives of low-income or other marginalized groups. Since the 1944 Servicemen's Readjustment Act - commonly referred to as the GI Bill - dramatically altered the landscape of postsecondary educational policy reform in the United States, policymakers strategically depict their initiatives as the next great progressive postsecondary educational reform. Policymakers and many of the public whom they represent believe that pursuing a postsecondary education can be a tool to climb the metaphorical ladder of socioeconomic status (Bourdieu, 1984).

Promise programs, which began as small community-based scholarships that provide free college, are quickly becoming the next progressive postsecondary education reform touted by policymakers at state and federal levels. Scholars and politicians alike point to the United States approaching a pivotal crossroads regarding postsecondary education policy (Bell, 2020; Callender & Mason, 2017; Perna et al., 2017). The cost to attend college has increased exponentially since the early 1990s due to substantial decreases in state and federal appropriations (Geiger, 2015). Tuition increases resulted in a ballooning student loan debt. In 2019, the U.S. consumer balance for student loans was over \$1.5 trillion, making it the second highest form of debt in the country (Cilluffo, 2019). While student loans “are likely to remain a central component of our higher education system for the foreseeable future” (Perna et al., 2017,

p. 274), promise programs and the feasibility of eliminating tuition has gone from an afterthought to a driving policy initiative in the United States.

Concurrently, policymakers and education advocates push for increased postsecondary credential and degree attainment in the United States. The Lumina Foundation, for example, partners with states to assist with creating strategies and policies that will help increase credential and degree attainment to 60% in the United States by 2027. The foundation specifically aims to increase postsecondary attainment among adult learners and within postsecondary career and technical education programs (Lumina Foundation, 2019). The Lumina Foundation's goals align with the trajectory of postsecondary education in the United States broadly. There is a growing movement in the United States to promote and support programs focused on postsecondary career and technical education (Cowan et al., 2020) and to increase postsecondary credential attainment among adult students and students who have some college credit but no degree (Soares et al., 2017).

While there is a growing body of research exploring the effectiveness of promise programs as they are currently structured, there is no research exploring the effectiveness of promise programs available to adult students, nor is there research exploring how promise programs impact enrollment in postsecondary career and technical education. This dissertation expands on the existing college promise program literature by exploring Tennessee's promise policies in three separate studies. The first two studies explore Tennessee Reconnect, a statewide policy which provides tuition free college to adult students at all public and select private technical colleges, community colleges, and associate degree granting institutions in Tennessee. The first study qualitatively explores the lived experiences of students who used Tennessee Reconnect in its first two years. The second study deploys a differences-in-differences analysis

to analyze the causal effect of Tennessee Reconnect's implementation on adult student enrollment behaviors.

The third study included in this dissertation explores whether Tennessee Promise - the original free college policy in the state that limits eligibility to high school graduates - impacted enrollment in postsecondary career and technical education programs in the state. I again deployed a differences-in-differences analysis to analyze the effect of Tennessee Promise on student participation in postsecondary career and technical education programs. Findings from these studies build on the growing body of scholarship on promise programs and specifically contribute to the non-existent literature on promise programs created for adult students and the effect of statewide promise programs on postsecondary career and technical education participation. Implications from all three studies are discussed in chapter 5, where I provide recommendations for future research, policy, and practice.

Background: Statewide Promise Programs

Statewide promise programs are a recent development (Davidson et al., 2020). There is limited research exploring statewide college promise programs, and a need for further investigation into how variations in the state policies impact student outcomes (Perna & Smith, 2020). This section provides a brief review of the limited research exploring statewide promise programs.

Davidson, Ashby-King, and Sciulli (2020) defined statewide promise programs as programs which are only offered in the entire state and programs which do not have high merit-based requirements. In their analysis, the authors identified 13 statewide programs which shared five common traits: (a) the program required a high school diploma or GED, (b) the program required FAFSA application, (c) the program was a last-dollar program, (d) the program used

state appropriations and funds, and (e) the program required satisfactory academic progress (Davidson et al., 2020). The authors concluded that statewide promise programs may increase postsecondary access and participation, although the last-dollar structure limited the financial benefit to low-income students (Davidson et al., 2020).

Similarly, in his 2019 analysis of the New York Excelsior program, Nguyen found that the positive effects of the promise program may be mitigated by its strict requirements. The author stated that:

While Excelsior provides New Yorkers with a highly cost-effective option for pursuing postsecondary education, the program involves an intricate set of binding academic and institutional requirements, the existence of which is likely to deter at least a portion of students who could have enjoyed the benefits of such a large-scale tuition reduction program. (Nguyen, 2019, p. 584)

The Excelsior program began in 2017 and provides a last-dollar scholarship to all public State University of New York and City University of New York institutions for students who have a household income under \$125,000 and are residents of the state. However, the program requires that students finish their education (associate or bachelor's degrees) in two to four years, and that students stay in New York to work for the same number of years they used the scholarship. If they fail to meet this requirement, their scholarships are converted to loans (Quinlan, 2017). The program has been criticized for limiting career prospects of students in the military, students pursuing graduate or professional school, and those with better career prospects outside of the state (Billings, 2018).

Washington State's College Bound Scholarship program places less strict stipulations on its promise program for low-income students – do not be convicted of a felony in high school

(Goldhaber et al., 2019). Yet, in their 2019 study Goldhaber et al. found insignificant evidence that the scholarship program had a positive effect on low-income student enrollment and persistence. The authors observed that students were often confused about eligibility requirements of the program, if the program covered costs beyond the Pell Grant, and the sustainability of the program (Goldhaber et al., 2019).

A promise program which has yielded encouraging results is the Tennessee Promise. In their 2016 analysis of Knox Achieves, the precursor program to the Tennessee Promise, Carruthers and Fox found that participating in the program was strongly associated with increased high school graduation rates and college enrollment. The success of the Knox Achieves promise program resulted in a statewide expansion of the Tennessee Promise in 2015. Designed as a last-dollar scholarship policy, Tennessee Promise covers full tuition and fees for any high school graduate who attends a public two-year college, including the Tennessee College of Applied Technology (TCAT), community colleges, and select private institutions. A primary goal stated by policymakers who implemented the Tennessee Promise was to increase the amount of Tennessee students pursuing a postsecondary career and technical education credential or degree and to broaden access to postsecondary programs.

The small but growing body of research on Tennessee Promise is revealing, showing that the program may decrease dependence on student loans (Odle et al., 2021), increase postsecondary enrollment among Black and Hispanic students and students who would not have otherwise enrolled in college (Nguyen, 2020), and divert enrollment away from private colleges and to public Promise eligible institutions (Bell, 2021). Nguyen (2020) deployed a differences-in-differences estimation to analyze the Tennessee Promise and its impact on enrollment in the state. The study found that while implementation of the Tennessee Promise was associated with

a 2% enrollment decrease in the state's public four-year institutions, there was an enrollment increase of 40% of full-time first-time undergraduates at the state's community colleges. He concludes by calling for further research which explores the effects of components other than free tuition of the Tennessee Promise, such as the program's built-in mentoring component (Nguyen, 2020).

In 2018, free college funding in Tennessee was made available to adult students through the Tennessee Reconnect. Tennessee Reconnect is one of two programs available to adult learners in the United States (Davidson et al., 2018). Tennessee Reconnect is a last-dollar grant that pays the remaining balance of tuition and mandatory fees after other state and federal financial aid have been applied. The Tennessee Reconnect is part of former Tennessee governor Bill Haslam's Drive to 55 Initiative, which challenged the state to get 55% of Tennesseans to earn an associate degree or technical certificate by 2025. The grant may be applied toward the pursuit of an associate degree, technical degree, or technical diploma at a Tennessee community college, or technical college. It may also be used at an eligible public or private college or university in Tennessee towards an eligible associate degree. There is limited research on Tennessee Reconnect (Collom et al., forthcoming), and no studies establishing a causal relationship between Tennessee Reconnect and student outcomes.

Statement of the Problem

The existing literature regarding the Tennessee Promise is small but growing, while the literature on Tennessee Reconnect is small and lacks quantitative analysis causally linking the policy to stated outcomes (Collom et al., forthcoming). As more states adopt their own promise programs, it is essential that researchers explore all possible intentional and unintentional consequences of offering a largescale statewide, last-dollar promise program and whether the

policies align with national attainment goals. It is currently unknown how expanding promise availability to adult students impacts adult student experiences and enrollment, and whether promise program availability impacts enrollment in postsecondary career and technical education. Further, as more states adopt ambitious postsecondary credential goals, it is imperative to explore how existing state policies impact credential attainment among target student groups (i.e. adult students) and target focus areas (postsecondary career and technical education).

Thus, the purpose of this dissertation was to explore the effect of the Tennessee Promise and Tennessee Reconnect policies, respectively. This dissertation is presented using a three-article format and consists of three independent studies. The three articles provide a broad study of Tennessee's free college policies using both qualitative and quantitative methods.

The first two studies explore Tennessee Reconnect. The first study was developed based on data from a longitudinal qualitative study conducted between 2018 and 2021. In this study, I explored the lived experiences of students who used Tennessee Reconnect in its first two years and address the hardships often faced by students returning to college after prolonged absences from formal educational settings. In the second study, I deployed quasi-experimental methods to analyze the causal effect of Tennessee Reconnect on adult student enrollment behaviors.

In the third study included in this dissertation, I explore how Tennessee Promise impacted enrollment in postsecondary career and technical education programs in the state. I deployed quasi-experimental methods to analyze the effect of Tennessee Promise on student participation in postsecondary career and technical education programs. In chapter 5, I conclude with a discussion of Tennessee's free college policies based on findings from the three studies and provide recommendations for future research, policy, and practice.

Research Questions

The three studies are guided by the following research questions:

Study 1: What are the lived experiences of students who received the Tennessee Reconnect during its first two years, and how did they experience the transition from non-student to adult learner?

Study 2: What were the adult learner enrollment responses following the implementation of Tennessee Reconnect?

Study 3: What were the enrollment responses within postsecondary career and technical education programs following the implementation of Tennessee Promise?

Chapter 2: “I’m Not Letting Nothing Stop me This Time.”: Transitions Among Adult Learners Using the Tennessee Reconnect Grant

Gresham D. Collom, J. Patrick Biddix, and Britta L. Svoboda

Author Note

This article is accepted for publication in the journal *Community College Review*. As part of the revision process, the article went through a blind review process with two peer reviewers. The article was accepted after one revision based on reviewer feedback. My co-authors, Patrick Biddix and Britta Svoboda, were instrumental to the development of this manuscript.

Abstract

Objective: States increasingly create promise programs to increase college enrollment and degree attainment (Davidson et al., 2018; Perna & Leigh, 2018). The objective of this study was to understand the experiences of adult learners using the Tennessee Reconnect Grant (TN Reconnect) as they transitioned to becoming college students. **Methods:** Drawing upon interviews with 23 adult learners, this longitudinal qualitative study deployed Schlossberg's (1981, 1984) Transition Theory to explore the experience of transitioning to college. **Results:** Findings revealed students who used the TN Reconnect, many of whom were first-generation and low-income students, faced insurmountable barriers that contributed to their decision to initially not enroll in college or drop out of college. Access to TN Reconnect provided an unexpected opportunity for them to return to college. However, participants still faced barriers often associated with adult, first-generation, and low-income students. **Contributions:** Findings suggest state and institutional policy and practice must adapt to fit the unique needs of adult learners to maximize degree completion outcomes. As currently structured, promise programs may not provide substantial benefits to student groups who face significant barriers to success, such as adult learners. State policy makers must explore the benefits to adopting a more equitable policy structure and/or implement additional services and resources for adult learners.

Keywords: promise scholarships; 2-year colleges; adult learners; college completion

“I’m Not Letting Nothing Stop me This Time.”: Transitions Among Adult Learners Using the Tennessee Reconnect Grant

The demographic landscape of higher education in the United States is evolving, and the idea of the “traditional” student is antiquated (Goldrick-Rab, 2010). Specifically, adult learners—defined as students who are older than 25—are increasingly pursuing postsecondary credentials to further their career and earning prospects (Carnevale et al., 2013). Concurrently, in an attempt to meet workforce needs and rejuvenate state and local economies, policy makers across the country have passed or proposed legislation to make college tuition-free (Davidson, et al., 2018). However, only two states (Oregon and Tennessee) offer tuition-free programs for adult learners (Davidson, et al., 2018). This study explored the experiences of adult learners enrolled in Tennessee’s program, The Tennessee Reconnect Grant.

The Tennessee Reconnect Grant (TN Reconnect) provides eligible adults in Tennessee the opportunity to attend an associate degree or technical certificate granting institution tuition-free through a last-dollar grant. Tuition-free programs, often referred to as promise programs, are either first-dollar (promise aid is applied first and other aid is used for non-tuition costs) or last-dollar (all other aid is applied first and promise aid covers remaining tuition costs) (Jones & Berger, 2018). The TN Reconnect is part of former Tennessee governor Bill Haslam’s Drive to 55 Initiative, which challenged the state to get 55% of Tennesseans a college degree or certificate by 2025. The TN Reconnect is one of two statewide tuition-free grant programs in the United States created to increase postsecondary attainment among non-traditional adult learners (Davidson et al., 2018). As such, there is no research examining the experiences of non-traditional adult learners using a tuition-free grant to pursue postsecondary education.

We developed the study to understand the following about TN Reconnect recipients: (1) their lifetime experiences with education, (2) the influence of the grant on their decision to enroll in college as an adult, and (3) the experience of transitioning from non-student to student. Data were derived from multiple interviews with 23 grant recipients, six first-time students and 17 who attended college earlier in their life but did not earn a college credential or degree. Interviews were initially coded using emergent coding, and codes were used to organize the data into six emergent themes. Following, the research team used Schlossberg's (1981, 1984) transition framework as a framework for a priori (theoretical) coding and to inform the findings and discussion sections.

Literature Review

Free college Programs

Multiple scholars have conducted descriptive analyses of free college initiatives in the United States (Davidson et al., 2018; Mishory, 2018; Perna & Leigh, 2018). Perna and Leigh (2018) identified 289 free college programs in the United States, the first being the Kalamazoo Promise, which was designed in 2005. The promise moniker is often used for new free college initiatives, yet the authors point to “the diversity of approaches that is masked by the college promise label” (Perna & Leigh, 2018, p. 164). The authors highlighted diversity of policy characteristics such as last-dollar/first-dollar funding, full-time/part-time enrollment, and merit and age requirements. However, Perna and Leigh (2018) also emphasized the importance of future research exploring subjective characteristics of promise programs such as support services, communication, program awareness, and diversity of programs.

Gershenfeld et al. (2019) reported that students who receive a tuition-free grant at a four-year university are 2.4 times more likely to graduate within five years compared to peers who do

not receive a tuition-free grant. Miller-Adams and Smith (2018) found that promise programs “can expand students’ postsecondary aspirations, improve a school district’s college-going culture, and increase college enrollment and degree attainment while promoting in-migration of residents and positive growth in housing prices” (p. 2). The authors noted that most programs do not support adult students and suggested doing so would provide additional benefits to local economies.

While local promise programs have existed since 2005, state-based promise programs are a recent development (Davidson et al., 2018; Mishory, 2018). Davidson et al. (2018) highlighted 13 state-based programs in their analysis; the authors found only two programs were open to non-traditional aged students. Scholars questioned the effectiveness of state-based promise programs and the last-dollar structure most adopted (Bell, 2020; Davidson et al., 2018; Jones & Berger, 2018). However, due to the novelty of state-based tuition-free college initiatives, there is a dearth of research exploring their effectiveness and no research exploring adult learners’ experiences using a last-dollar state-based promise program.

Adult Learner Success

Choy (2002) highlighted challenges associated with family and work responsibilities that compete with school for adult learners’ time, energy, and financial resources. Building off these considerations, Ritt (2008) added that personal, professional, and institutional barriers can also cause delays or struggles for adult learners. Deil-Amen (2011) recommended proactively connecting students early with faculty and advisors as mentors, working to affirm grant recipients’ sense of academic competence, and providing them with additional aid to navigate the institution. The researcher also speculated that cohort models could facilitate sustained

connections to others through devoted class time, networking opportunities, or even in online communities.

Tennessee Reconnect

The TN Reconnect is a last-dollar grant that pays the remaining balance of tuition and mandatory fees after other state and federal financial aid have been applied. The TN Reconnect is part of former Tennessee governor Bill Haslam's Drive to 55 Initiative, which challenged the state to get 55% of Tennesseans to earn an associate degree or technical certificate by 2025. The grant may be applied toward the pursuit of an associate degree, technical degree, or technical diploma at a Tennessee community college or technical college. It may also be used at an eligible public or private college or university in Tennessee towards an eligible associate degree.

To be eligible for the TN Reconnect;

1. students must be a Tennessee resident for at least one year,
2. be a U.S. Citizen or eligible non-citizen,
3. qualify as an independent student on the FAFSA,
4. comply with the U.S. Selective Service requirements,
5. not be incarcerated,
6. not have previously earned an associate or baccalaureate degree,
7. not be in default on student loan,
8. not owe an outstanding balance to an institution,
9. be admitted to and enroll in a Tennessee public community college at least part-time (6 hours) in courses leading to a certificate or associate degree,
10. maintain a minimum 2.0 GPA,
11. complete the renewal FAFSA each year,

12. and, continue to participate in the Reconnect success plan by completing the Reconnect Grant application every year.

Students who received the Reconnect grant have access to local Reconnect Navigators, college advisors who specialize in adult learners and connect them to resources. Navigators create a success plan based on a student's previous academic history and their individual needs. The success plan program was implemented following data collection for this project.

Theoretical Framework

Schlossberg's (1981, 1984) Transition Theory served as a theoretical framework for which data were analyzed through *a-priori* coding (Charmaz, 2008). Schlossberg's model provides a "framework in which transitions of all kind—positive and negative, dramatic and ordinary—can be analyzed, and possible interventions formulated" (p. 3, 1981). Her transition theory fits this study well as it is grounded within adult development literature (Patton et al., 2016). Furthermore, the theory is widely used in college contexts to understand the experience of transitioning from non-student to student (Anderson et al., 2011; Patton et al., 2016; McCoy, 2015).

Schlossberg's (1981) early transition model presented three sets of factors that influence adult transitions: type, context, and impact. Schlossberg (1981, 1984) defined three *types* of transitions: anticipated transitions, unanticipated transitions, and non-events. Non-events refer to transitions that were expected but never came to fruition (Anderson, et al., 2011). *Context* "refers to the individual's relationship to the transition and to the setting in which the transition occurs" (Patton et al., 2016, p. 37). *Impact* refers to the way in which the transition affects daily life.

In her later work, Schlossberg (1984) expanded her theory to include potential resources available to the person in transition, as well as how people can use their existing and new

resources during the transition; these are known as the four S's of transition (Anderson et al., 2011). *Situation* of the transition involves the trigger (what caused the transition), timing, control, role change, duration, previous experiences, stress, and assessment. *Self* involves the personal and demographic characteristics of individuals as well as their psychological resources. *Support* includes intimate relationships, family, friends, and institutions/communities. *Strategies* refer to coping strategies that modify the situation, control the meaning of the problem, and aid in managing the stress (Anderson et al., 2011; Patton et al., 2016; Schlossberg, 1984).

Policy decisions are often based on data and theory that may not represent the lived experiences and identities of all students as they transition through postsecondary education (Archer, 2007; Harper et al., 2009; Shaw, 2004). Schlossberg's theory, however, emphasizes the individual factors that influence transitions, including the situation, self, support, and strategies (Anderson et al., 2011; Schlossberg, 1984). Her model was not created to provide a definite timeline of transitions that should occur during one's life, but instead "incorporates the notion of variability while at the same time presenting a structural approach" (Anderson et al., 2011, p. 37).

Methodology

Data for this project were derived from a multiyear qualitative project, *Understanding How Students Reconnect: A Longitudinal Study* (2018). Data were collected longitudinally during a two-year period and involved multi-stage individual interviews with 23 TN Reconnect recipients. This longitudinal design allowed for focus on a single issue through different perspectives of individuals at different points in their lives (Derrington, 2018). We selected qualitative research methods, specifically semi-structured interviews, to give voice to the participants and their lived experiences. Personal stories provided insight into the unique challenges participants faced,

which would not have been attainable through close-ended questions (Merriam & Tisdell, 2015).

The research questions that guided this study were as follows:

1. What life-experiences preceded students returning to college with the TN Reconnect?
2. How do adult learners using TN Reconnect experience the transition from non-student to college student?
3. How can initiatives such as the TN Reconnect be enhanced to improve the transition process—and in turn increase educational outcomes such as retention and graduation—for non-traditional adult learners, many of whom identify as belonging to other traditionally marginalized student groups?

Participants

Twenty-three students using the TN Reconnect participated in this study. Our sample identified as female more frequently than the statewide sample (91% vs 71%; THEC, 2020). Other demographic information was consistent with state averages (see Appendix A). While we did not explicitly reach out to students who were previously enrolled in college, the majority of our participants (74%) identified as returning college students. This was consistent with the statewide sample (59% previously enrolled; THEC, 2020).

Following project approval by the university's Institutional Review Board, we contacted TN Reconnect advisors through the Tennessee Board of Regents and TN Reconnect communities with information about the study. We asked them to forward recruitment materials to TN Reconnect students and presented them with a letter of support from THEC. Students interested in the study contacted the research team, completed a demographic questionnaire, and received an informed consent document that provided details about their participation in the study. Not all students who reached out to the research team met the study criteria, and several

did not complete the questionnaire or informed consent and subsequently did not participate in the study. Once the demographic questionnaire and informed consent document were received, an administrative staff member contacted students to ensure they met the criteria for the study and to schedule interviews. Interviews, conducted by a research team, occurred via phone calls, online video conferencing, and in-person interviewing.

Data Collection

Our research team consisted of one tenured faculty member and doctoral students. All researchers were CITI certified and approved by the institutional IRB. Doctoral students were required to observe several interviews conducted by the primary investigator prior to conducting individual interviews.

We conducted three semi-structured interviews for each participant. The structure of the interviews followed a modified version of Seidman's (2013) model involving life history. This allowed the research team to ask standard questions of each participant while permitting participants to respond based on their experiences. The interviewer who conducted the first interview also conducted interviews two and three. This allowed for the interviewer and interviewee to build trust and encouraged participants to share their experiences.

The first interview focused on the students' histories that led them back to college and took place as they began their TN Reconnect experience. The second interview took place after initial course registration to enlighten transition experiences such as enrollment, course selection, and scheduling. The third interview took place at the end of the second semester, to allow for students to reflect on their academic experiences.

Data Analysis

Data analysis incorporated a two-phase approach that included both emergent and theoretical coding. Considering the data with two different approaches allowed for richer findings to emerge and allowed for findings to be relatable to the existing body of literature (Merriam & Tisdell, 2015).

In phase 1 of data analysis, we used emergent coding. Emergent coding, also called open or *in vivo* coding, involved searching for common words or phrases, also called “recurring regularities” (Merriam & Tisdell, 2015), in text-based data such as transcripts. This form of qualitative data analysis allowed findings to *emerge* from data collection and analysis (Charmaz, 2008). Biddix (2018) outlined a basic approach using these methods that we used in this study:

1. The researcher reads a data source and marks words or phrases (also referred to as “codes”) that appear frequently.
2. The researcher uses this list of codes and groups them into representative groups (also referred to as “themes”).
3. The researcher reviews the transcripts a second time to ensure the codes and themes are accurate and to identify examples, or representative quotations.

In phase 2 of data analysis, we used theoretical coding. Theoretical coding involved selecting an identifying theory and coding data based on the core tenets of the theory, seeking congruence and variance (Charmaz, 2008; Merriam & Tisdell, 2015). The approach is sometimes referred to as *a priori* since the researcher starts with the themes, as opposed to searching for them in the data. Based on experiences revealed in the emergent analysis, we used Schlossberg’s (1981, 1984) Transition Theory to reconsider the data and highlight recurring themes; theory based

codes included the type, context, and impact of the transition, and the resources available to the participant during their transition (see Appendix A1).

Trustworthiness

To increase trustworthiness of the findings, members of the research team coded the transcripts independently and compared codes before determining the themes. Similarly, to enhance trustworthiness for the theoretical coding, we used peer debriefing. This required a researcher not involved in data analysis to review results to ensure instances of the themes in the transcripts aligned with the theory (Merriam & Tisdell, 2015; Winkle-Wagner et al., 2009).

Findings

Findings of this analysis revealed commonalities in the life histories of study participants, who were adult learners seeking higher education through the TN Reconnect. Participants, many of whom self-identified as first-generation and/or low-income, faced hardships and increased barriers to obtaining postsecondary education when they graduated high school or first enrolled as college students, and they subsequently either did not pursue a postsecondary education or dropped out. Their lack of a postsecondary credential or degree limited career prospects and earning potential; congruently, they did not have the resources to obtain a degree even if they believed in their capability of earning a degree. Establishment of the TN Reconnect provided a change of context—namely, access to resources to return to college with minimal financial investment. However, study participants still faced barriers associated with adult learners and first-generation and low-income students. See Table 1 for a summary of study themes. Details and examples of each follow.

Experiences Prior to TN Reconnect

Emergent Themes: Rocky Starts and Roadblocks

Participants in this study often returned to college for the second or third time through TN Reconnect. Seventeen of 23 participants initially enrolled in college immediately following high school and dropped out soon after. These students indicated two primary reasons for their withdrawal: (1) the struggle to adapt to the rigors of college life and (2) hardships in their lives outside of college. Students experienced difficult beginnings and roadblocks to their college academic careers, which led to leaving postsecondary education prior to earning a credential.

Examples of Experiences Prior to TN Reconnect

Participant “Jay,” a 49-year-old male student who attended college in his early 30s, spoke about how he felt he was not mature enough to get an education at that time: “I had an aborted [college] attempt when I was in my early 30s. I was a remarkably bad student. I thought school to be a waste of time.” Many participants echoed his sentiments and indicated they did not see the value of getting a degree when they were younger.

Participant “Becky,” a 35-year-old female student who “was always a good student,” enrolled in college two years after high school and dropped out after one semester:

I don’t think I was mentally ready. I don’t think I really knew what I wanted to do. It was hard because that was my goal, to get an education, but it just seemed like there was always something holding me back. It was horrible.

Participant “Garden,” a 30-year-old female student, attended three institutions prior to returning to college through the TN Reconnect:

Judas College was a private Catholic college and they’ll take anybody as long as they’re willing to pay money for it. So, I was accepted, and first semester failed, so hard. I had no

idea what I wanted to do. And then after my first year at Judas, I was on academic probation, and my parents told me either I had to pay for my own tuition, or I had to come down to live with them and go to college there.

Garden re-enrolled at a public, four-year institution near her parents before experiencing a traumatic incident within her department:

Well, I was prehistoric anthropology, I only wanted to work with bones and shards. That was it. That did not work out—if you were an anthropology major you had to do a capstone [involving cadavers]. So, whenever somebody passes away, you go pick them up, and then you bring them to [the department]. We were driving at four o'clock in the morning [to get a cadaver], and I looked down and I saw that there was nail polish on her fingers. And I just lost it. I completely just went full like, 'oh my god, this is a person. Nope, can't do this anymore.' [I gamed] for two or three weeks and quit school altogether for about two years.

Many participants indicated they were first-generation college students with limited financial resources to pay for college earlier in life. The allure of working full-time and earning money was much greater than the alternative of spending money on college expenses. Some students chose to work full-time rather than continuing to pursue a degree. Participant “Wind,” a 34-year-old female student, shared her experience trying to balance full-time work and college:

I had gotten a secretary position and it was full-time with benefits. I was 19, I had to pay rent. I tried a little bit to do school while working . . . it was just too hard for me. I got to the point where I was worn out, so that's when I dropped.

Participant “Cat,” a 51-year-old female student, also reflected on not prioritizing college initially as a first-generation student:

So, growing up in the 70s and 80s, my parents didn't really encourage college. My dad went to college and didn't finish, you know, because of life, and starting a family. Back then college wasn't as important as it is now.

Cat's life circumstances when she was younger allowed for her to work full-time without a college degree. However, when she decided to try to return to college later in life, she faced other barriers to enrolling:

But I've always had a desire to go to college. But you know, it really wasn't required and I just wanted to make money. I started my family and wanted to go back; I had a strong desire to go back. And I kept getting roadblocks, because financial aid would say, "You make too much money." And I was like, "No, really, I don't." So that was the roadblock. I wanted to do better. I feel like I have so much to offer to the world. And it was very frustrating to me as an adult in my late 20s, 30s, and 40s, to, you know, just to not be able to go. So that was very, very frustrating because I had goals for myself, I just didn't want to settle for what I'm currently doing for the rest of my life.

Students also dropped out of college earlier in life due to unexpected hardships and responsibilities. Family illness, children, and work commitments often impeded their ability to continue or complete their education. Participant "Jen," a 37-year-old female student, reflected on how she attempted college twice prior to using the TN Reconnect. The first time she went to college, she was caring for her two children and working full-time. After her first semester, her family had to take in a child that was not their own. The commitments became too much to continue, as she noted, "it was a lot, you know. I was working full-time, three kids at home, it was just [homework] at midnight during the work week. It was just too much." She did not enroll

for classes following her first semester, but she did re-enroll a few years later. Later she dropped out to recover from a car accident and to homeschool her son.

Theory-Based Themes: Lack of Resources and Context

Students often dropped out of college because of limited access to resources, including financial and relational resources and self-esteem. Because their context and personal circumstances were not ideal for the typical life of a college student, they faced various challenges early on. Whether they planned on returning or not, the challenges were substantial enough to cause them to leave postsecondary education.

Enrolling with the TN Reconnect

Emergent Themes: Decreased Financial Barriers and an Opportunity to Improve

Students received incentives to re-enroll in postsecondary education because of the promise of tuition-free college. Therefore, their individual circumstances changed with a decrease in barriers, such as financial constraints. In addition, the TN Reconnect was an opportunity to improve their lives and the lives of their families. It was an opportunity for a fresh start. Furthermore, participants were on average 40 years old, and many indicated their children were either out of the house or self-sufficient. Many indicated that the time commitment to pursuing a degree, which may have previously posed a problem, was no longer a barrier.

Examples of Experiences Enrolling with TN Reconnect

Garden, who was working as a bartender and stand-up comedian before returning to college, explained to us how she learned about the TN Reconnect and decided to re-enroll in college:

I kind of acted like I was better than community college. I was driving home from the bar, and I was angry and I was tired and my feet hurt and I didn't know what I was going

to do. And then at a stoplight, I looked up and it was on a freakin' billboard. I felt like it was a sign from God. And I was like fuck it and just literally, while I was in the car driving home checked it on my phone.

Garden said her career prospects as a bartender and stand-up comedian were limited because “in the entertainment business, I’m already nearly past my prime.” The TN Reconnect was her chance to get a degree and “make 50 grand a year, get everything that I need to get health insurance and be able to buy a house and be really happy.”

Participant “Nana,” a 50-year-old female student, was unemployed after quitting her job in a school system to take care of her injured husband. She reflected on her decision to return to college with the TN Reconnect:

And then when I was working in the school system, I noticed that even when I tried to move laterally, I wasn't getting anywhere. So, then my husband had an accident, and I had to quit my job to take care of him. And then as he started to get better, I thought, well I'm not going to go back to the same job I spent 12 years spinning my wheels. So, when I heard about TN Reconnect, I thought, okay, you know, I can do this, I could take care of him, and I can go to school, and I wouldn't have to pay for tuition.

Nana was at a point in her life when her career prospects were limited by not having a degree, while her other commitments were minimal. The TN Reconnect Grant removed the financial burden of returning to college and gave her the opportunity to improve her career prospects.

Similarly, Jay believed TN Reconnect was an opportunity to improve his career and life:

I have pretty much peaked in in my chosen profession. Right now, I'm a local fleet manager for a small trucking company. But to move above that is not really going to be possible. Every time I've looked for a higher up job, the very first question is what degree

did you have. Of course, I don't have one, so that pretty much closed the door before I even got my foot into it.

Theory-Based Themes: Unexpected Transition, Ideal Context, and Minimal Negative Impact

As Schlossberg's (1981) early transition model indicates, the *type* of transition experienced, the *context* or relationship had with the experience, and the *impact* of the transition on daily life are factors that influence adult transitions. The TN Reconnect represented an unexpected transition opportunity for study participants (type). Many expressed a desire to improve their careers, yet found that without a degree, their prospects were limited (context). The TN Reconnect provided them with the opportunity to re-enroll in college and earn a degree with little to no financial commitment (impact). Participants in our study were at a point in their lives where although TN Reconnect was an unexpected transition, their lives (context) allowed for them to re-enroll in college with minimal negative impact.

Transition to College: First Semester as a Student

Emergent Themes: Driven to Succeed Despite Barriers and Learning Curves

Although participants had common experiences prior to re-enrolling in college with the TN Reconnect, their experiences of transitioning to college and becoming a student varied. While students often experienced barriers and learning curves when re-entering postsecondary education, including barriers such as technology and a lack of student support services for adult learners, some struggled more than others. This section explores the findings related to the participants' complex realities and how their perception of the situation, self, support, and strategies influenced their transition.

Examples of Experiences Transitioning to First Semester in College

Situation. Participants' perceptions of their *situation* influenced how they coped with the transition to becoming a student. Garden reflected on her transition and how her assessment of her career factored into her decision to return to college:

I kind of looked at stand-up, and I realized I was not going to get that out of stand-up.

Unless I moved to like LA or something like that. And even then, I know so many people that are some of the funniest, most just amazing stand-up comedians in the entire world.

And they will never get past comedy clubs. They'll never get to the point where they have a spot on a TV show. They're not going to make more than 30-grand a year. And that's not enough. Just this day and age. It's just flat out not.

Garden accepted the fact that she may not make it as a stand-up comedian. Instead of viewing her situation negatively, she embraced her new role as an adult learner.

Participant "Jackie," a 47-year-old woman, dropped out of her program after one semester. Jackie reflected on her situation during her interview:

Well, I wasn't exactly sure what I want it to go back for. And at this age, I really should know. But I just, I just wasn't sure. I just knew I wanted to take advantage of this opportunity. Because you never know how long it's going to stick around. [But] my youngest daughter broke her ankle playing soccer, and I didn't really want to use that as a cop out. I did try to study and all that. But she had so many appointments. It was hard to stay on top of things. And I thought, well, I better jump out early so that maybe they'll, you know, forgive me, if I want to try this again. I didn't want to hang on to something I knew I was going to let go of. And so yeah, so I decided to drop.

Jackie had recently lost her long-term job in information technology. Her daughter was using the TN Reconnect, and she decided to enroll as well. However, beyond getting a college degree, Jackie did not have a clear purpose for returning to college. Additionally, her daughter's injury added stress to her life, and this eventually led to her dropping out again.

Self. Participants' understanding of the *self*, the "characteristics that are particularly relevant for individuals as they cope with change" (Anderson et al., 2011, p. 71), influenced their transitions to becoming students. Wind, for example, worked as an EMT for 12 years before deciding to re-enroll with the TN Reconnect:

I don't want to be in my 50s working on an ambulance cause it's hard on your body. You know, working on an ambulance, I've already got arthritis. So, it's kind of like thinking about those things like keeping that in mind. So, I decided to go back to school and try to get my RN and become a nurse. I actually had no plans on ever going to college. I didn't think I would enjoy school because I was actually going to go into the military after high school. But after doing like the EMT and paramedic school and like these couple semesters, I've gone I actually enjoyed going to school. I enjoy learning new things, like it's fun now whereas in high school, I was always like just get me out of here.

Wind perceived her career as one she should not continue as she aged. Her understanding of certain aspects of her *self*, including her health and age, allowed for her to embrace the transition to becoming a college student.

Support. *Support* from family, friends, communities, and institutions is vital to coping with transition (Anderson et al., 2011). Participant "Kayla," a 32-year-old female student, attended college when she was in her early 20s. During Kayla's first experience in college, her ex-husband was unsupportive of her educational goals and her mother suffered from declining

health. The lack of support from her ex-husband compounded by her mother's health led to Kayla dropping out of school. After dropping out of college, she moved with her ex-husband to another state so he could attend graduate school. She said she "was basically there to pay for him to be there." Kayla further reflected on what helped her transition to college as an adult learner:

I currently have a boyfriend that is actually supportive and not leaning on me to support him. Work is absolutely great about it too. Whenever we have exams or something I'll ask for like a longer lunch, and they're absolutely cool with it . . . they are aware that I read my chapters at work whenever I have time. And they're fine with that. My parents obviously are very supportive. And even whenever I get down on myself, like I had made a bad grade one time and I wasn't feeling great about it . . . they encouraged me, that I was I was still doing a good job. Just verbal encouragement, actually, because I do have low confidence though, having somebody to have confidence for me is great.

Kayla's support system helped her thrive as an adult learner, especially when she questioned her ability. After enrolling in college with the TN Reconnect, she transitioned from someone who was "kind of dreading" college, to someone who "likes learning . . . [and] likes homework for the most part." Many other participants shared how the support of family and friends made the transition back to college easier.

Garden also reflected on how various supports within her institution and academic community helped her during her transition to becoming a college student again:

When I first started that first semester, my first class was at 9 a.m., Monday morning, college algebra, and I was pissed. And I was annoyed, and I didn't want to be there. And I didn't want to be surrounded by a bunch of freaking kids. And it was not that at all, there was three other people that were my age. There's a lot of young kids, but there's a shit-ton

of non-traditional students like me. And it's not all like stay at home moms finally getting it together. There's a good deal of millennials that, you know, are kind of trying to figure it out.

Garden said she felt supported by being surrounded by students she identified with, who were from similar backgrounds and close to her in age. She also spoke about how a professor supported her when she was questioning her transition:

And really, it was that math class that made me decide to stay at Village Community College. She [the professor] had mandatory two hours a week tutoring. So, if I was confused on something, I could immediately find my professor. All the homework was online. So, I never had to worry about just being bent over book in the middle of the night. It was mobile friendly. So, I could do my homework on my phone, which was great. And she would send out personal emails, and she always responded. One time it was four o'clock in the morning and I could not figure out this problem. I was ripping my hair out freaking out and I just sent her an email. Didn't think that she was going to respond to the next day. Two minutes later. Boom, right there responded to my question took care of me.

Other study participants shared similar stories about how specific faculty and staff members or students supported them during their transition. However, some expressed feeling a lack of support from their institution.

Nana felt that she “learned on my own about all the things that the college has to offer that they don’t tell you about in orientation.” During her transition, she attended college full-time, and therefore had time to explore the college’s various student services. She felt that other adult learners who “don’t want to go ask for help” struggled because the goal of the grant was to

just “get students in the door.” Nana felt that specific advising and mentoring for adult learners could help them feel supported by their college:

If they want the program to work and be successful, yeah. On the TN Reconnect page, there are people who you can call. But when it came to time for me to say, well, I need help getting a book, I need help with this, I need help with that, really [they were] no help. They need that kind of stuff to help adult learners.

Several other students, especially those taking online courses, echoed the sentiment that institutions provided little support for adult learners. Some felt that student services, such as advising and orientation, were not structured properly to support adult learners.

Strategies. *Strategies*—which refers to coping strategies that modify a situation, control the meaning of the problem, and aid in managing stress—also effected the transition process for adult learners using the TN Reconnect (Anderson et al., 2011). Garden reflected on how she approaches college differently as an adult learner:

I treat [school] like a new job. Every semester is a new job, and all of my professors are a manager. And [classes] are just a different varying part of the job that I do. It's easy to succeed in a job, but it feels almost like it's harder to succeed in school. Yeah. So, if you look at it like that just started working. It's so much easier to keep that in mind, show up to work all the time, maintain a clean uniform, and do what you need to. It's easier mentally to do that.

Although Garden previously struggled with the effort needed to succeed in college, her strategy for reframing college as a job allowed her to be more successful as an adult learner.

Nana discussed how she also approached college like a job, and how her routine keeps her focused, even when she struggles with course content:

So, you know, I show up to biology. I take the notes, I do the homework and yeah, I may bomb on a test here or there. But you know, you do the homework, you show up, you know, make the college effort. Every morning, I get up at 6:30, I take a shower, I get dressed, I anticipate traffic, I anticipate road conditions, all the things that you would do if you had a job, if you had to go to work every day. So, when I treated school like a job, even though I wasn't getting paid for it, still treated it like a job. And that's what helped me get through it.

Nana, who returned to college after 25 years, was able to endure the struggles of college by making “the college effort” and treating school as a job.

Theory-Based Themes: Resources Imperative for Transitions

These findings reflect Schlossberg's (1981, 1984) theory and her belief that “different individuals react differently to the same type of transition and . . . the same person reacts differently at different times” (Anderson et al., 2011, p. 63). Adult learners, no matter how similar their backgrounds may seem, are individuals with “complex realities . . . that influence the ability of the individual to cope during a transition” (Anderson et al., 2011, p. 61). Students experienced their transition to becoming a student differently based on their access to potential resources; those who transitioned effectively often reflected on access to resources that helped them in the process of becoming a student.

Discussion

Findings from this study are consistent with prior research concerning the experiences of adult learners re-enrolling in community colleges. Miller-Adams and Smith (2018) asserted that implementing tuition-free initiatives can increase a community's overall postsecondary aspirations and promote a college-going culture. Participants in our study reported both an

interest and an increase in postsecondary education aspirations following access to TN Reconnect. Specifically, their stories revealed that the opportunity enhanced their belief in their ability to succeed in postsecondary education—inclusive of college related expectations, attitudes, and aspirations—a relatively new finding among adult learners but consistently identified among other college-going populations (Luedke et al., 2019; Perna, 2006). Study participants also indicated that going back to college improved their family’s college-going culture.

Findings from this study also supported Ritt’s (2008) claim that personal, professional, and financial resources associated with work and family responsibilities impede adult learners’ ability to pursue postsecondary education. Participants in our study often left college during their first or second attempt due to financial hardships and family responsibilities. The TN Reconnect removed one of the largest financial barriers college students face. These findings align with Gallacher et al.’s (2002) assertions that providing adult learners with incentives to enroll in college is a “means of support that might enable them to proceed and become more fully engaged” (p. 504).

Results from this study also supported Ausburn’s (2004) finding that adult learners preferred alternative delivery methods such as hybrid or online delivery for coursework. However, while these hybrid or online courses may better fit adult learners’ schedules, our study participants said they faced steep learning curves associated with the technology and delivery methods used in alternatively structured courses. Further, returning to college often includes “feelings of loss and dislocation” (Christie et al., 2008, p. 567) for adult learners. The learning curves and independence associated with online coursework may enhance feelings of isolation.

Lastly, our findings support the notion that last-dollar promise programs may not be structured effectively to serve groups which traditionally face significant barriers to postsecondary education (Bell, 2020; Davidson et al., 2018). Some study participants struggled to adapt to college life because of a lack of connection with advisors and faculty. Many adult learners in this study reported wanting more of a connection or community with other TN Reconnect recipients but were limited by finances, and work and family commitments. Promise programs are heralded as progressive educational reforms which will fix the financial issues that plague postsecondary education in the United States; yet, promise programs are often structured to appease target populations with political sway rather than groups of potential students with greater need but less political capital (Bell, 2020). We join the scholars who question the effectiveness of last-dollar promise programs (Bell, 2020; Davidson et al., 2018; Jones & Berger, 2018), and our findings underscore the need for further research exploring whether or not promise programs as currently structured are effective or equitable.

Suggestions for Future Research

As policymakers in Tennessee and other states continue to adopt tuition-free initiatives like the TN Reconnect, researchers need to conduct additional studies to identify the experiences of participants and the evidence-based practices that best serve non-traditional adult learners. Based on our research and the literature about tuition-free programs, we recommend three areas for additional research on the TN Reconnect.

Conduct a Needs and Gap Analysis: Conduct an analysis of the TN Reconnect to determine the ongoing needs and gaps in services for adult learners. This analysis should incorporate the use of multiple methods, including quantitative data, review of student records, surveys, individual interviews, and focus groups with TN Reconnect recipients and college administrators.

Research Evidence-based Practices: Expand the current study to include additional interviews with TN Reconnect recipients, Tennessee Board of Trustees faculty and staff, and TN Reconnect advisors and staff. From those interactions, create and distribute a series of informative case studies to TN Reconnect communities and campuses.

Determine Program Effectiveness: Conduct research to determine program effectiveness, as outlined by Davidson et al. (2018), and the effect on:

1. Tennessee's Drive to 55 goals,
2. Education outcomes (e.g. retention, completion, graduation, and transfer rates),
3. Cost and benefit analysis, and
4. The impact on state economic and workforce development.

During conversations with TN Reconnect recipients and through our analyses, we developed five recommendations for both policy and practice. The following recommendations address issues outlined in our research findings:

Develop a specific TN Reconnect orientation and/or adult student first-year seminars (FYS).

The unique needs and challenges of adult learners, many of whom are returning after an extended period, demonstrate the need for specialized orientation and/or FYS. Many adult learners return to campus and experience a feeling of being marginalized because of their age, unfamiliarity with technology, and support services geared toward traditionally aged students. Tennessee policymakers should engage stakeholders to assess current programs and develop a specialized program for this population. Stakeholders include higher education experts, adult learners, first-year seminar and orientation programming departments, faculty, and academic and TN Reconnect community advisors.

Assess and improve advising models for adult students at TN Reconnect participating colleges.

Given the needs and unique schedules of adult learners, institutions of higher education should assess and improve their advising models for TN Reconnect students. The assessment should include but is not limited to examination of the following:

1. Implementation of a Proactive Advising Model, through which academic advisors intentionally interact with advisees through face-to-face and electronic means (e.g. text messaging software like Signal Vine);
2. Office hours and the availability of academic advisors outside of “normal” business hours; and,
3. Cross-training for advisors about issues related to TN Reconnect recipients.

Implement a cohort model and/or learning community model. Connecting students is vital to promoting engagement and a sense of belonging, which are fundamental to student success (Mayhew et al., 2016). To accomplish this, administrators should use either a more formal in-person approach with campus-based student groups, or a less formal approach via social media, such as a Facebook group. Additionally, administrators could seek to create sections of courses designed specifically for TN Reconnect students.

Implement an adult student mentor program. Connect incoming adult students with a returning adult student mentor. This mentor could provide incoming students with resources about the college and guidance from personal experience. These mentoring relationships help to mitigate feelings of marginality and isolation among this vulnerable population.

Evaluate the last-dollar nature and covered costs of the TN Reconnect. Policymakers designed tuition-free initiatives, like the TN Reconnect, as a last-dollar grant that covers the remaining cost of tuition and mandatory fees after all other gift-aid (e.g. Pell Grants, scholarships, and other

need-based grants). This model leaves the neediest of students without eligibility for the TN Reconnect. These tuition-free grant programs do not take into consideration the full cost of attendance as defined by the U.S. Department of Education, which includes “housing, food, utilities, transportation, books, and supplies” (Bell, 2020; Davidson et al., 2018; Jones & Berger, 2018; Perna & Leigh, 2018). These other expenses could remain as barriers for students looking to pursue a postsecondary degree or credential; therefore, it is important to understand the effects of this policy decision on issues of access, affordability, and indebtedness of adult learners. Our findings highlight the need for further rigorous research exploring whether or not promise programs as currently structured are equitable, and whether the model can effectively be adopted at the federal policy level.

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Appendix: Study 1

Table A 1: Emergent/Theory-Based Themes

Prior to TN Reconnect	Emergent Themes	Theory-Based Themes
	Rocky Starts & Roadblocks Students often experienced a difficult beginning to their college career, which led to leaving postsecondary education prior to obtaining a credential.	Lack of Resources & Context Students often dropped out of college because of limited access to resources (financial, relational, and self-esteem) or because their context was not ideal for the life of a college student.
Enrolling with TN Reconnect	Decreased Financial Barriers & An Opportunity to Improve Students received incentives to re-enroll in college because of the promise of tuition-free college, as well as the opportunity to improve their lives and the lives of their families.	Unexpected Transition, Ideal Context, & Minimal Negative Impact TN Reconnect represented an unexpected transition opportunity for study participants (type). Many expressed a desire to improve their careers yet found that without a degree their prospects were limited (context). TN Reconnect provided them with the opportunity to re-enroll in college and earn a degree with little to no financial commitment (impact).
First Semester in College	Driven to Succeed Despite Barriers & Learning Curves Students often experienced barriers and learning curves when re-entering postsecondary education. Specific barriers included technology and student support services geared toward traditionally aged students.	Resources Imperative for Transitions Students experienced their transition to becoming a student differently based on their access to potential resources. Students who transitioned effectively often reflected on access to resources that helped them in the process of becoming a student.

Table A 2: Student Demographic Information

Understanding How Students Reconnect: Participant Demographics (n=23)		Statewide 2018-19 Reconnect Applicants
Race/Ethnicity	65% White/Caucasian 30% Black/African American 5% Other	65% White/Caucasian 26% Black/African American 6% Other/Unknown 4% Hispanic
Average Age	40	32
Average Semester Credit Hours	8.5	N/A
Average Years Since Last Attended College	10.5	N/A
Employment Status	50% Employed Full-Time 25% Employed Part-Time 25% Unemployed	N/A
Marital Status	25% Single/Never Married 50% Married 25% Divorced/Separated	N/A
Dependents	70% Primary Caregiver for Child/Other Dependent	56% Primary Caregiver for Child/Other Dependent

Table A 3: Cohort Demographic Information

Pseudonym	Race/Ethnicity	Sex	Age	Years Since Last Attended College	Primary Caregiver?	Marital Status
Ashley	White	Female	27	1	Yes	Single
Becky	White	Female	35	14	Yes	Married
Diamond	Black	Female	32	5	Yes	Single
Greg	White	Male	44	21	Yes	Married
Gretta	White	Female	24	N/A	No	Single
Jackie	White	Female	47	15	Yes	Divorced
Jay	White	Male	49	N/A	No	Divorced
Jen	N/A	Female	37	5	Yes	Married
Jessica	White	Female	36	5	Yes	Divorced
Kay	Black	Female	54	10	Yes	Married
Kayla	White	Female	32	11	No	Married
Morgan	Black	Female	61	N/A	No	Divorced
Nana	Hispanic	Female	50	25	No	Married
Mac	White	Female	40	14	Yes	Married
Rida	Black	Female	28	3	Yes	Single
Rikki	White	Female	41	7	No	Single
Rose	Black	Female	32	1	Yes	Married
Strawberry	Black	Female	57	N/A	Yes	Married
Wind	White	Female	34	N/A	No	Divorced
Zoe	White	Female	38	10	No	Married
Deb	White	Female	40	N/A	Yes	Married
Garden	White	Female	29	4	No	Single
Kris	White	Female	51	32	Yes	Married

Chapter 3: A Quasi-Experimental Investigation of Adult Student Enrollment Responses to the Tennessee Reconnect Grant

Gresham D. Collom

Abstract

In this study I deployed quasi-experimental methods to explore enrollment responses to a unique statewide college promise program for adult students attending college within the two-year public postsecondary education sector in Tennessee. State policymakers implemented Tennessee Reconnect in 2018 to encourage adult students without a college degree to enroll in college and pursue a postsecondary credential or degree. There is little research quantitatively exploring how promise programs affect adult student enrollment in contrast with nationwide trends. For this study, I employ differences-in-differences to determine the effect of Tennessee Reconnect on total, part-time, full-time, male, and female adult student enrollment at public two-year postsecondary institutions in the first two years of the program. Findings revealed a significant increase in enrollment in response to the policy across all adult student categories in the first year. While overall adult student enrollment increased in the second year of the program, only part-time students and male students saw significant increases compared to the nationwide sample. Findings are encouraging regarding adult student responses to a free college program and how states can leverage policy to increase enrollment among individuals who may not have otherwise pursued postsecondary education, such as adult students.

Keywords: free college; promise program; Tennessee Reconnect; financial aid

A Quasi-Experimental Investigation of Adult Student Enrollment Responses Following the Implementation of Tennessee Reconnect Grant

Statewide promise programs, or free college programs, are increasing in popularity in the United States. The growing student debt crisis paired with increasing tuition and fees at public institutions is driving the student financing reform conversation. The cost to attend college, specifically tuition expenses, increased at a historic pace during the last 30 years (Perna et al., 2017). The burgeoning costs of college paired with a widening economic gap between the upper- and lower-income brackets in the United States created a system where low- and middle-income students were forced to borrow thousands of dollars to obtain a college education (Perna et al., 2017). Promise programs, although often varied in their design, are gaining popularity in part because of their simple and marketable message of free college for all (Bell, 2020). Policymakers and advocates for promise programs also point to the potential to increase enrollment and attainment among groups who would not have otherwise pursued postsecondary education (Bell, 2020). While the individual cost saving utility of last dollar promise scholarships is uncertain, especially among low-income or minoritized students (Collom et al., forthcoming; Davidson et al., 2020), research on existing statewide promise programs shows causal increases in college enrollment among all student groups (Nguyen, 2019; Nguyen, 2020).

The Tennessee Reconnect grant was implemented in 2018 specifically to increase postsecondary credential and degree attainment among adult students and individuals with some-college-no-degree (SCND) in the state. Currently, it is not known whether enrollment responses to the Tennessee Reconnect reflected those observed in other statewide promise programs. As more states consider the structure of their own promise programs, it is essential to explore how policy structures affect student outcomes in currently existing statewide programs. Further, if TN

Reconnect is effective for encouraging SCND students and other non-traditional adult students to enroll in college, other policymakers considering potential statewide or federal legislation must consider whether their own promise program should include age restrictions. Thus, the purpose of this study was to explore adult student enrollment responses to the implementation of the Tennessee Reconnect in 2018.

Data for this study include total, part-time, full-time, male, and female adult student enrollment at public two-year technical and associate degree grant institutions between 2011 and 2019. Further, I controlled for state economic conditions by including data from the 2011 to 2019 nationwide censuses. Data were gathered from the Integrated Postsecondary Education Data Systems (IPEDS) and from the U.S. Census Bureau. A differences-in-differences estimation was used to observe the enrollment responses among adult students following the implementation of the Tennessee Reconnect. The guiding research questions for this study were:

1. What were the adult student enrollment responses to the implementation of the Tennessee Reconnect grant policy?
2. To what extent do enrollment responses vary according to gender and part/full-time enrollment status?

Research on Statewide Promise Programs

There is a large body of research regarding institutional and local promise programs (see Perna & Leigh, 2018; Swanson et al., 2017). While institutional and local promise programs were popularized with the 2005 Kalamazoo Promise, statewide promise programs are a more recent development (Davidson et al., 2020). Thus, there is limited body of research exploring statewide college promise programs (Perna & Smith, 2020). In the following section, I provided

a brief review of current research exploring statewide promise programs and identified the need for this study.

Several scholars have attempted to classify statewide programs systematically (Davidson et al., 2020; Perna & Leigh, 2018). In their recent systematic review of statewide promise programs, Davidson et al. (2020) limited their sample to programs available throughout the entire state and programs which do not have high merit-based requirements. In their analysis, the authors identified 13 statewide programs which shared five common traits, including: (a) the program required a high school diploma or GED, (b) the program required a FAFSA application, (c) the program was a last-dollar program, (d) the program used state appropriations and funds, and (e) the program required satisfactory academic progress (Davidson et al., 2020). The authors concluded that statewide promise programs may increase postsecondary access and participation, although the last-dollar structure limited the financial benefit to low-income students (Davidson et al., 2020). Further, the authors called for research on individual statewide programs to determine how variability in program traits impacts student outcomes (Davidson et al., 2020).

While still limited, the research exploring individual statewide programs reveals mixed results regarding student outcomes. In his 2019 analysis of the New York Excelsior program, Nguyen found that the positive effects of the promise program may be mitigated by its strict requirements. The author stated that:

While Excelsior provides New Yorkers with a highly cost-effective option for pursuing postsecondary education, the program involves an intricate set of binding academic and institutional requirements, the existence of which is likely to deter at least a portion of students who could have enjoyed the benefits of such a large-scale tuition reduction program. (Nguyen, 2019, p. 584)

The Excelsior program began in 2017 and provides a last-dollar scholarship to all public State University of New York and City University of New York institutions for students who have a household income under \$125,000 and are residents of the state. However, the program requires that students finish their education (associate or bachelor's degrees) in two to four years, and that students stay in New York to work for the same number of years they used the scholarship. If they fail to meet this requirement, their scholarships are converted to loans (Quinlan, 2017). The program has been criticized for limiting career prospects of students in the military, students pursuing graduate or professional school, and those with better career prospects outside of the state (Billings, 2018).

Washington State's College Bound Scholarship program places less strict stipulations on its promise program for low-income students and only required that participants not be convicted of a felony in high school (Goldhaber et al., 2019). Yet, in their 2019 study, Goldhaber et al. found insignificant evidence that the scholarship program had a positive effect on low-income student enrollment and persistence. The authors observed that students were often confused about eligibility requirements of the program, if the program covered costs beyond the Pell Grant, and the sustainability of the program (Goldhaber et al., 2019).

A promise program which has yielded encouraging results is the Tennessee Promise. In their analysis of Knox Achieves, the precursor program to the Tennessee Promise, Carruthers and Fox (2016) found that participating in the program was strongly associated with increased high school graduation rates and college enrollment. The success of the Knox Achieves promise program resulted in a statewide expansion of the Tennessee Promise in 2015. Nguyen (2020) deployed a differences-in-differences estimation to analyze the Tennessee Promise and its impact on enrollment in the state. The study found that while implementation of the Tennessee Promise

was associated with a 2% enrollment decrease in the state's public four-year institutions, there was a corresponding enrollment increase of 40% of full-time first-time undergraduates at the state's community colleges and a positive enrollment response among both Black and Hispanic students (Nguyen, 2020).

Tennessee Reconnect

In 2018, free college funding in Tennessee was made available to adult students through Tennessee Reconnect. Tennessee Reconnect is one of the two active statewide promise program available to adult students in the United States¹ (Davidson et al., 2020). Tennessee Reconnect is a last-dollar grant that pays the remaining balance of tuition and mandatory fees after other state and federal financial aid have been applied. Tennessee Reconnect is an extension of Tennessee Promise and the Drive to 55 Initiative, which challenged the state to get 55% of Tennesseans to earn an associate degree or technical certificate by 2025. The grant may be applied toward the pursuit of an associate degree, technical degree, or technical diploma at a Tennessee community college or technical college.

There is minimal research on adult student promise programs or specifically studying Tennessee Reconnect. Collom et al. (forthcoming) conducted longitudinal interviews with 23 students who received Tennessee Reconnect funding. The authors of this study found that participants were incentivized to return to college because of a change of context, specifically because of the decreased financial burden presented through the grant (Collom et al., forthcoming). Yet, it was unclear whether there were adequate supports or services provided through Tennessee Reconnect for adult students who returned to college after prolonged time

¹ Michigan Reconnect was signed into law on April 2, 2020.

away from formal education. Several students in the study lost their initial drive and motivation prior to completing their degree. Participants in the study often indicated they did not have the family, communal, or institutional support they felt they needed to succeed in college a non-traditional age adult student (Collom et al., forthcoming). The authors of this study called for further research investigating outcomes of the program, including the initial statewide enrollment responses among adult students and whether enthusiasm for the program persisted following its first year. This quantitative study answers their call and expands on their qualitative work.

Theoretical Framework

Perna's (2006) conceptual model for college choice is the theoretical framework for this study. Her model proposed that college choices are shaped by four layers. Layer one represents habitus, or the belief in what one can achieve based on their socioeconomic and demographic characteristics, and other factors such as institutionalized racism and oppression (Bourdieu, 1984; Luedke et al., 2019). Layer two is the school and community context. This layer reflects "the ways in which social structures and resources facilitate or impede college choice" (Perna, 2006, p.177). Layer three is the higher education context and reflects the role postsecondary education institutions have in college choice through marketing and admission practices. Lastly, layer four reflects the macro-level effects on college choice due to social forces, economic conditions, and public policies. This study specifically explores how Tennessee Reconnect interacted with macro-level effects to affect enrollment responses of adult students.

The precursor to Tennessee Reconnect, Tennessee Promise, included unique components such as mandatory mentoring (10-15 hours/academic year) and community service (Carruthers & Fox, 2016). While previous research points to the positive effects of mentoring on habitus (layer one; Luedke, et al., 2019) and of community service on schools and communities (layer two;

Chesbrough, 2011), it is unclear what effect, if any, they had on enrollment and persistence among Tennessee Promise students (Nguyen, 2020). Tennessee Reconnect did not have the components which made Tennessee Promise unique, such as mandatory mentoring and community service requirements. While external advising for Tennessee Reconnect was offered through the Reconnect Navigator² program, this program was not mandatory nor widely marketed to adult students (Collom et al., forthcoming). Further, Tennessee Reconnect may have benefitted from the nationwide enthusiasm regarding Tennessee Promise and its strong statewide marketing. However, evaluating the impact of marketing and statewide enthusiasm for Tennessee's promise programs was beyond the scope of this study.

Thus, the primary macro-level forces defined by Perna (2006) which may affect adult student enrollment in Tennessee that were explored in this analysis are:

1. **Economic conditions:** the increase in jobs which require a postsecondary credential or degree (Lumina, 2018).
2. **Public policy:** the implementation of Tennessee Reconnect and the statewide availability of free college to adult residents.

Methods

Sample

For this analysis institutional level annual panel data (cross sectional and time series) were collected from the Integrated Postsecondary Education Data System (IPEDS) and from the United States Census Bureau. Adult student enrollment data from 2011 to 2019 were used. Cases with any missing data were deleted (i.e. listwise deletion). The final analytic sample included

² Reconnect Navigators “provide free, institution-neutral college navigation services, career exploration tools, and assistance with understanding financial aid & college costs” (Tennessee Reconnect, n.d.).

494 institutions over a nine-year period, for a total of 4,446 cases (institution-year). This analysis measured the causal effects of Tennessee Reconnect on total, part-time, full-time, male, and female adult student enrollment at public two-year postsecondary institutions in 2018 and 2019, the first and second year of the program (see Tables A4 and A5 for summary statistics). Lastly, United States Census Bureau data from 2011 to 2019 on state median income were included as a control.

Analytic Design

I analyzed the effect of Tennessee Reconnect by deploying a standard fixed-effects differences-in-differences (DiD) design (Nguyen, 2020). DiD is a widely used method in social science research to measure the causal effect of a policy or other treatment in non-experimental settings (Cunningham, 2021). The method is often used in policy analyses such as this study which rely on panel data (Donald & Lang, 2007). Recently, the method is often used to explore higher education policies such as performance based funding (Hillman et al., 2015) and promise programs (Nguyen, 2019; Nguyen, 2020).

While establishing the causal effect of a policy or practice is preferably researched through experimental methods, quasi-experimental methods such as DiD have been shown to effectively establish causation when the data and sample size are appropriate (Kim & Steiner, 2016). For this study, the effect was measured at both the institutional (15 treatment and 479 non-treatment) and state (one treatment and 49 non-treatment) levels.

In this study I sought to measure the effect (δ) of Tennessee Reconnect (TNR) on adult student enrollment (AE).

$$E[\delta] = E [AE^1 - AE^0]$$

However, causal effect could not be determined by means testing because AE^1 (enrollment when TNR exists) and AE^0 (enrollment when TNR does not exist) do not exist at the same time and are therefore counterfactuals (Cunningham, 2021). Thus, DiD provided a more accurate estimate of the effect by comparing the differences in the treated group (Tennessee) with differences in the non-treated group (non-Tennessee; see Figure 1 & 2).

The representative regression equation for this study is:

$$Y_{ist} = \pi_i + Year_t + \gamma TN_{is} + \lambda TREAT_t + \delta (TN_{is} * TREAT_t) + \mathbf{x}'_{ist} \boldsymbol{\beta} + \epsilon_{ist}$$

Where Y_{ist} is enrollment for college (i) in state (s) in year (t). TN is the variable dummy coded to 1=TN and non-TN=0. $TREAT_t$ is the dummy variable which marks the start of Tennessee Reconnect in 2018 and continued availability in 2019. π_i equals the college fixed effects and $Year_t$ is the year fixed effects. $\mathbf{x}'_{ist}$ equals the vector of observed time-varying covariates. Lastly, δ is the average enrollment effect of the Tennessee Reconnect on public two-year postsecondary institutions in the state. Following Nguyen's (2020) analytic method, I also conducted the analysis with the natural logarithm of the dependent variable enrollment (Y_{ist}); the estimated treatment effect was then calculated as $100 \times (e^{\delta} - 1)$ or $\delta \times 100$ percent.

Limitations

It is ideal to include at least three years of pre-treatment data and three years of post-treatment data to establish a causal relationship in studies using DiD (Hu & Hoover, 2018). However, this analysis was limited by the publicly available data in IPEDS, and therefore I was only able to observe the effects of Tennessee Reconnect in its first two years (2018 and 2019). Further analysis should be completed upon the release of annual IPEDS adult student enrollment

data, primarily considering the potential negative effects on adult enrollment following the COVID-19 pandemic and its economic fallout.

Furthermore, IPEDS did not include variables measuring the ethnicity of adult students in the 2011 to 2019 data. Therefore, this analysis is unable to address how Tennessee Reconnect affected adult student enrollment among students from marginalized backgrounds and was unable to address whether Tennessee Reconnect had the same positive effects among varying racial categories previously observed in Tennessee Promise (Nguyen, 2020). Lastly, this analysis was limited by the institutional level panel data available in IPEDS and the United States Census Bureau data, and therefore could not account for individual level factors (e.g. socioeconomic background, location, high school factors, GPA) which may have affected adult student enrollment decisions.

Common Trends

The most important and often violated assumption of DiD is the common trends assumption (Cunningham, 2021). The common trends assumption requires that the treated group and non-treated group follow similar trends prior to the treatment (Angrist & Pischke, 2009; Cunningham, 2021). Prior to running the DiD analysis, I visually compared trends in total, part-time, full-time, male, and female adult student enrollment at public two-year postsecondary institutions between 2011 and 2019 for both Tennessee and non-Tennessee institutions to ensure this assumption was met (Angrist & Pischke, 2009; Cunningham, 2021; see Figures 1 to 5).

Tennessee and the national sample followed similar downward trends in two-year public college enrollment between 2011 and 2017 in all categories. However, Tennessee did experience an unexpected increase in female adult students and part-time adult students in 2017. This unexpected increase may be due to several institutions providing a *soft-opening* of the Tennessee

Reconnect prior to the statewide launch in response to statewide enthusiasm for the program that preceded the official start of the program; however, there is no documentation of which institutions widely promoted early adoption (Siner, 2017). Tennessee experienced a sharp increase in all adult student enrollment categories in 2018, the first year of Tennessee Reconnect, while the nationwide sample continued the downward trend in enrollment for all categories. As observed in previous studies on promise programs (Nguyen, 2020), adult student enrollment appeared to taper off in all categories after the initial enrollment surge following the first year of the policy.

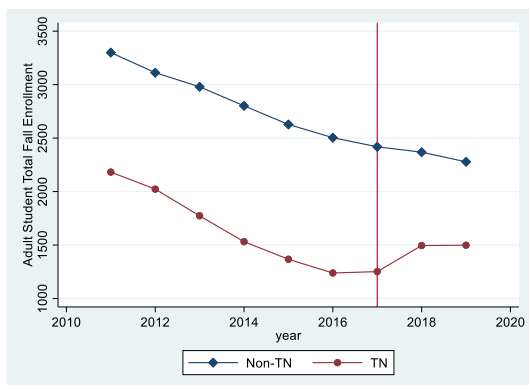


Figure 1: Common Trends Adult Student Enrollment

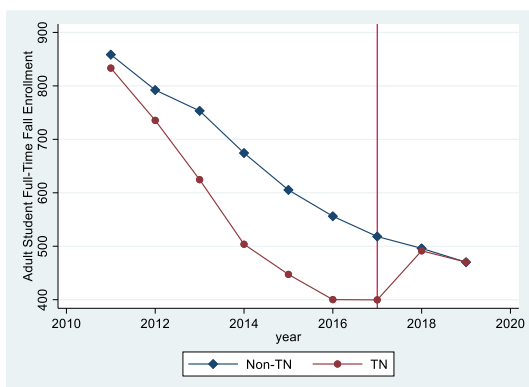


Figure 2: Common Trends Full-Time Adult Student Enrollment

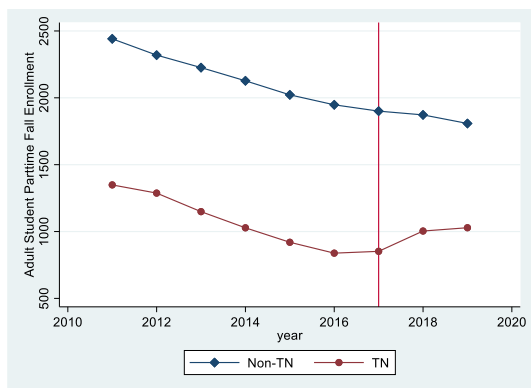


Figure 3: Common Trends Part-Time Adult Student Enrollment

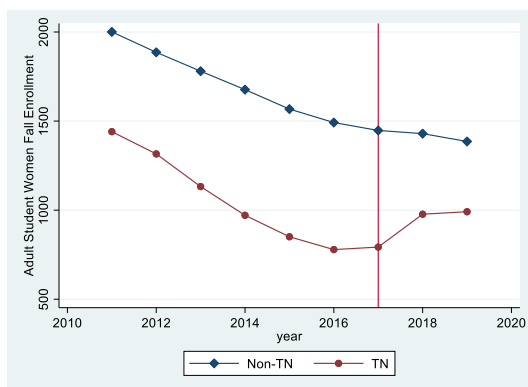


Figure 4: Common Trends Female Adult Student Enrollment

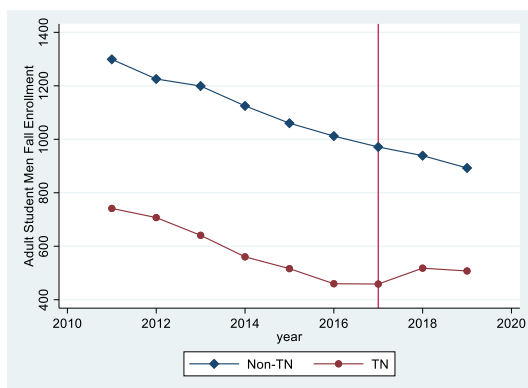


Figure 5: Common Trends Male Adult Student Enrollment

Differences-in-Differences Results

Summary results from the DiD analyses are presented in tables 1 and 2. Results are displayed for analysis when clustered by state and college. The interaction effects (TN*TREAT) in table 1 show a consistent significant positive effect when clustered by both state and college for total, full-time, part-time, male, and female adult student enrollment. Table 2 displays the results after a log transformation of the dependent variable, both when standard errors were clustered by state and by college. The estimated effect on enrollment due to TN Reconnect was calculated as $100 \times (e^{\delta} - 1)$ or $\delta \times 100$ percent on both the lower and upper 95% confidence interval coefficient.

After log transformation, DiD results indicate that from 2018 to 2019 the Tennessee Reconnect increased adult student enrollment by an estimated 19% to 28% in Tennessee when compared to others states, and an estimated 15% to 32% in Tennessee institutions when compared to the national sample of colleges. Full-time adult student enrollment increased by an estimated 26% to 36% by state, and by an estimated 20% to 42% by college. Part-time adult student enrollment increased by an estimated 24% to 34% by state, and by an estimated 13% to 45% by college. Male adult student enrollment increased by an estimated 20% to 30% by state, and by an estimated 16% to 31% by college. Lastly, female student enrollment increased by an estimated 19% to 29% by state, and by an estimated 15% to 33% by college.

Table 1: Main DiD Estimation Results

VARIABLE	(1) Total	(2) Total	(3) Full-Time	(4) Full-Time	(5) Part-Time	(6) Part-Time	(7) Male	(8) Male	(9) Female	(10) Female
TN*TREAT	422.027*** (58.765)	422.027*** (94.170)	135.010*** (17.492)	135.010*** (39.165)	287.017*** (46.046)	287.017*** (61.586)	161.819*** (25.693)	161.819*** (38.634)	260.208*** (34.659)	260.208*** (57.613)
Constant	2,673.364*** (308.254)	2,673.364*** (161.711)	618.566*** (93.468)	618.566*** (49.674)	2,054.798*** (218.708)	2,054.798*** (130.110)	1,043.422*** (117.255)	1,043.422*** (89.220)	1,629.941*** (194.812)	1,629.941*** (89.990)
Observations	4,446	4,446	4,446	4,446	4,446	4,446	4,446	4,446	4,446	4,446
Institutions	494	494	494	494	494	494	494	494	494	494
R-Squared	0.310	0.310	0.350	0.350	0.234	0.234	0.232	0.232	0.325	0.325
Clustered	State	College	State	College	State	College	State	College	State	College

Clustered standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 2: Main DiD Estimation Results with Log Transformation of Dependent Variable

VARIABLE	(1) Total	(2) Total	(3) Full-Time	(4) Full-Time	(5) Part-Time	(6) Part-Time	(7) Male	(8) Male	(9) Female	(10) Female
TN*TREAT	0.238*** (0.022)	0.238*** (0.043)	0.311*** (0.027)	0.311*** (0.057)	0.289*** (0.024)	0.289*** (0.079)	0.253*** (0.024)	0.253*** (0.046)	0.240*** (0.023)	0.240*** (0.044)
Constant	7.137*** (0.151)	7.137*** (0.052)	5.816*** (0.198)	5.816*** (0.062)	6.827*** (0.138)	6.827*** (0.055)	5.999*** (0.159)	5.999*** (0.064)	6.746*** (0.152)	6.746*** (0.049)
Observations	4,446	4,446	4,443	4,443	4,414	4,414	4,436	4,436	4,443	4,443
Institutions	494	494	494	494	492	492	494	494	494	494
R-Squared	0.542	0.542	0.603	0.603	0.362	0.362	0.483	0.483	0.525	0.525
Clustered	State	College	State	College	State	College	State	College	State	College

Clustered standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Discussion

Many states adopted grant aid policies, such as statewide promise programs or merit-based aid, to address the growing need for a college-educated workforce in the United States (Lumina, 2018; Perna & Miller-Adams, 2017). Yet, current projections show a continued decrease in postsecondary enrollment among traditional-age students due to a multitude of factors, such as decreasing population (Hussar & Bailey, 2019), and the rising cost of postsecondary education and pending student loan debt crisis in the United States (Perna et al., 2017). Initial projections in Tennessee, for example, indicate the state will fall well short of its stated goal of 55% of its population holding a postsecondary degree or credential by 2025 (THEC & TSAC, 2021).

Tennessee Reconnect was created to counter the shortfalls of the age restrictions included in Tennessee Promise and other state grant aid programs; it was also created to incentivize students who are traditionally left out of postsecondary education to either return to college or enroll for the first time (Collom et al., forthcoming). The results from this study highlight the initial increases in adult student enrollment across all categories in Tennessee in the first two years Tennessee Reconnect funding was available statewide, despite the continued downward trend in enrollment observed nationwide. While follow up research is warranted to determine if increases in enrollment are sustained, this study establishes a significant causal relationship between the policy and initial enrollment responses among adult students in Tennessee's public two-year institutions. Results from this study are encouraging for statewide promise programs moving forward, primarily promise programs which are made available to non-traditional adult students such as the recently announced Michigan Reconnect. Further, if tuition-free community college is adopted at the federal level - an explicit goal of the 2021-2024 presidential

administration - the results from this study highlight the potential benefits of avoiding any policy eligibility restrictions based on age or time passed after receiving a high school diploma or GED.

Future Research

While there is a growing body of research regarding statewide promise programs, substantial future investigations must be conducted. Researchers must determine how variations in statewide policies impact student outcomes. For example, a longitudinal qualitative investigation replicating Collom et al.'s (forthcoming) work on Tennessee Reconnect should be conducted to explore the recently implemented Michigan Reconnect. Such analysis may investigate whether there are state or regional differences in the experiences of adult students in similarly structured statewide policies. Further, longitudinal analyses of enrollment responses, such as the DiD analyses conducted in this study, are needed to determine whether Michigan Reconnect will see similar increases in adult student enrollment. Researchers must also explore whether initial enrollment responses to the Tennessee Reconnect were affected by factors unaccounted for in this analysis, such as the established marketing and nationwide acclaim of Tennessee Promise or the individual marketing and admission practices within colleges.

The downward trend in postsecondary education enrollment in the United States may be exacerbated due to the COVID-19 pandemic and the potential long-term economic and social consequences of the crisis. While four-year enrollment in the United States were initially relatively unaffected by the pandemic, reports of fall 2020 enrollment in community and technical colleges indicated a sharp decrease nationwide, primarily among adult students (National Student Clearinghouse, 2020). Continued investigation of enrollment responses and in Tennessee is warranted to observe whether the availability of Tennessee Reconnect funding

decreased the negative effect of the COVID-19 pandemic on adult student enrollment in the state.

Further, qualitative and/or mixed-methods investigations are needed to determine how the broader economic and social conditions described by Perna (2006), such as the nationwide economic (i.e. increased unemployment) and social (i.e. at-home virtual K-12 education) consequences of COVID-19, impact the efficacy of promise programs such as Tennessee Promise and Tennessee Reconnect. Future studies on statewide adult promise programs must investigate whether practices included in other statewide promise programs - such as academic coaching, mentoring, and learning communities - are potentially effective practices to increase enrollment, retention, and persistence of adult students participating in a promise program (Collom et al., forthcoming).

Lastly, there is a dearth of rigorous analyses regarding promise programs critically addressing whether the policies are structured effectively and equitably. Substantial analyses are warranted to determine if current promise program policy mechanisms (e.g. last-dollar vs. first-dollar) benefit students who have the most need, or if the majority of state funds provide tuition-free college to students from middle- and upper-class families (Jones & Berger, 2018). Further, future research must address whether institutions and their academic support staff are effectively funded and prepared to support substantial enrollment increases of students from minoritized or other underrepresented groups (Collom et al., forthcoming; Perna et al., 2020).

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Appendix: Study 2

Table A 4: Tennessee Public 2-Year Institution Adult Student Enrollment

Year	Mean	SD	Min	Max
2011				
Total	2182.067	1541.659	180	5508
Full-Time	833.267	528.815	138	1890
Part-Time	1348.8	1027.668	0	3618
Female	1440.6	1031.866	87	3919
Male	741.467	550.161	51	1696
2012				
Total	2022.933	1456.087	152	5150
Full-Time	735.467	485.518	136	1662
Part-Time	1287.467	989.893	0	3504
Female	1315.733	959.619	81	3631
Male	707.2	533.745	59	1647
2013				
Total	1773.333	1291.554	148	4361
Full-Time	624.533	421.696	130	1443
Part-Time	1148.8	883.069	0	2989
Female	1132.4	825.45	79	2972
Male	640.933	497.217	52	1512
2014				
Total	1531.6	1115.716	173	3750
Full-Time	503.733	296.741	145	1009
Part-Time	1027.867	831.127	3	2741
Female	971.267	714.03	84	2587
Male	560.333	433.02	70	1313
2015				
Total	1367	972.88	135	3094
Full-Time	447.333	262.447	125	952
Part-Time	919.667	719.86	7	2252
Female	850.733	602.484	66	2068
Male	516.267	406.522	51	1254
2016				
Total	1238.533	849.722	125	2806
Full-Time	400.133	217.75	96	754
Part-Time	838.4	642.102	2	2052
Female	778.733	537.335	65	1900
Male	459.8	343.103	49	1054
2017				
Total	1251.6	938.129	112	3013
Full-Time	399.667	243.069	84	888
Part-Time	851.933	711.804	1	2340
Female	792.933	593.618	69	2030
Male	458.667	368.93	43	1294
2018				
Total	1495.333	1014.303	131	3491
Full-Time	491.467	268.054	105	1001
Part-Time	1003.867	764.269	8	2490
Female	977.333	671.644	81	2475
Male	518	373.123	50	1285
2019				
Total	1498.8	960.547	99	3068
Full-Time	470.333	253.844	70	954
Part-Time	1028.467	725.862	9	2243
Female	991.267	643.428	71	2212
Male	507.533	350.472	28	1256

Table A 5: Non-Tennessee Public 2-Year Institution Adult Student Enrollment

Year	Mean	SD	Min	Max
2011				
Total	3299.766	3453.824	5	29181
Full-Time	858.474	869.834	5	8223
Part-Time	2441.292	2716.076	0	20958
Female	2000.664	2039.192	0	18222
Male	1299.102	1477.123	0	10959
2012				
Total	3111.626	3284.565	2	27294
Full-Time	792.24	806.237	1	7641
Part-Time	2319.386	2599.403	0	19653
Female	1886.054	1927.549	1	16967
Male	1225.572	1412.345	1	11045
2013				
Total	2979.418	3170.978	2	27543
Full-Time	753.273	773.557	2	7458
Part-Time	2226.144	2512.442	0	20085
Female	1780.188	1830.684	0	16824
Male	1199.23	1394.86	2	11125
2014				
Total	2801.612	3048.1	5	28656
Full-Time	674.355	697.399	3	7382
Part-Time	2127.257	2445.292	0	21274
Female	1676.67	1771.704	1	17729
Male	1124.942	1327.622	0	10927
2015				
Total	2627.647	2924.681	6	27069
Full-Time	605.324	629.242	3	6754
Part-Time	2022.324	2382.321	0	20315
Female	1567.384	1686.737	3	16666
Male	1060.263	1289.233	0	10403
2016				
Total	2503.981	2789.325	2	25727
Full-Time	556.159	572.92	0	6425
Part-Time	1947.823	2296.354	0	19302
Female	1491.902	1598.963	1	15765
Male	1012.079	1246.226	1	9962
2017				
Total	2418.641	2762.32	2	24955
Full-Time	518.173	548.783	0	6160
Part-Time	1900.468	2291.866	0	18795
Female	1447.409	1590.71	2	15564
Male	971.232	1229.683	0	9640
2018				
Total	2341.889	2735.224	2	25219
Full-Time	495.879	530.636	0	6288
Part-Time	1846.01	2285.714	0	18931
Female	1415.846	1572.254	2	16018
Male	926.043	1227.722	0	10647
2019				
Total	2254.674	2595.091	1	23246
Full-Time	470.132	495.41	1	5730
Part-Time	1784.543	2179.374	0	17516
Female	1373.607	1497.705	0	14962
Male	881.067	1162.396	0	9796

Chapter 4: A Quasi-Experimental Investigation of Tennessee Promise and Career and Technical Education Postsecondary Enrollment Responses

Gresham D. Collom

Abstract

In this study I deployed quasi-experimental methods to explore the effect of the implementation of a statewide free-college program, Tennessee Promise, on enrollment in postsecondary career and technical education programs. State policymakers implemented the Tennessee Promise, a free-college program for recent high school graduates attending public, two-year institutions, in 2015. As postsecondary attainment in the United States falls short of workforce needs, there has been an increased focus on postsecondary career and technical education credentials and degrees linking workforce needs directly with educational programs (Lumina, 2019; Perkins V, 2019). However, it is currently unknown whether access to statewide free-college funding impacts enrollment in postsecondary career and technical education. In this study, I use federal data to estimate the causal effect of Tennessee Promise on postsecondary career and technical education enrollment. Findings from the analysis show a small but non-significant increase in Tennessee after the implementation of the grant when compared to both the national control group and the contiguous control group. I discuss the implications for research and practice, and how promise programs may be leveraged more effectively moving forward to improve outcomes in postsecondary career and technical education.

Keywords: Career and technical education; state policy; promise program; Tennessee Promise; enrollment

A Quasi-Experimental Investigation of the Effect of Tennessee Promise on Postsecondary Career and Technical Education Enrollment Responses

In the United States there is a growing focus on the importance of postsecondary career and technical education. Career and technical education, which is too often disregarded as “taking shop class or home economics in high school” (Hersperger et al., 2013, p.158), is now central to our country’s workforce needs and postsecondary credential goals. The Carl D. Perkins Career and Technical Education Act of 2006 was reauthorized in 2019 through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V; H.R. 2353, 2018). Additions included in Perkins V expanded the focus on postsecondary career and technical education programs, broadening the target student populations to include persons who are incarcerated, students from rural localities, homeless persons, and persons impacted by the foster care system (Office of Career, Technical, and Adult Education, 2018).

Perkins V aligns with the widely adopted goal of 60% post-high school educational attainment in the United States by 2027, a goal which was originally promoted by the Lumina Foundation’s *A Stronger Nation* (2019). Since 2014, and central to Lumina’s most recent update to the original report, the foundation has called for increased participation in programs that emphasize matching postsecondary programs with workforce needs and focusing on often underrepresented groups in recruitment and retention initiatives (Lumina, 2019).

In 2015 Tennessee implemented the Tennessee Promise initiative (TN Promise). The statewide *free-college* program was created to increase college-going behaviors and improve statewide postsecondary credential attainment (Carruthers & Fox, 2016). Designed as a last-dollar scholarship policy, TN Promise covers full tuition and fees for any high school graduate who attends a public two-year college, including the Tennessee College of Applied Technology

(TCAT), community colleges, and select private institutions. A primary goal stated by policymakers who implemented the TN Promise was to increase the amount of Tennessee students pursuing a postsecondary career and technical education credential or degree and to broaden access to postsecondary programs.

The small but growing body of research on TN Promise is revealing, showing that the program may decrease dependence on student loans (Odle et al., 2021), increase postsecondary enrollment among Black and Hispanic students and students who would not have otherwise enrolled in college (Nguyen, 2020), and divert enrollment away from private colleges and to public Promise eligible institutions (Bell, 2021). Yet, little focus has been given to how statewide promise programs, specifically the TN Promise, may impact participation in postsecondary career and technical education programs. As more states adopt their own promise programs, it is essential to understand how broad access to tuition-free, two-year public education may impact participation in career and technical education programs.

In this study I estimate the causal effects on postsecondary career and technical education enrollment in Tennessee following the adoption of TN Promise. A differences-in-differences estimation was used to observe the enrollment responses following the implementation of TN Promise in 2015 and to further analyze the natural experiment in Tennessee. Data were gathered from the Consolidated Annual Report (CAR) from the U.S. Department of Education/Office of Career, Technical, and Adult Education (2020), which generates state reported data required by the Perkins V Act. Findings from this study contribute to the growing body of promise literature and are the first to link postsecondary career and technical education participation with the adoption of a statewide promise program through quasi-experimental methods. I conclude by discussing the implications for policy, practice, and research.

Literature Review

While improving postsecondary CTE is a focus of Perkins V and nationally, there is minimal research on the topic. Further, there is currently no research exploring how TN Promise or other statewide promise programs align with federal education policies such as Perkins V. The following section provides a brief review of current research on postsecondary CTE and a brief review of research on TN Promise.

Current Research on Postsecondary Career and Technical Education

Postsecondary career and technical education (CTE) was largely an afterthought during the dawn of American higher education. Despite the stated goal of increasing vocational education, the Morrill Acts of 1862 and 1890 resulted in colleges “focused on the general education curriculum with little to no attention to vocational education” (Hersperger et al., 2013, p. 161). It was not until the Smith-Hughes Act of 1917 that secondary CTE was specifically funded by the federal government; postsecondary CTE was largely absent from any federal legislation until the Perkins II Act was adopted in 1990³.

The focus on postsecondary CTE increased substantially in the last 10 years. Following an unprecedented economic recession in 2008, newly elected President Barack Obama delivered a speech to congress in which he stated:

I ask every American to commit to at least one year or more of higher education or career training. This can be community college or a four-year school, vocational training, or an apprenticeship. But whatever the training may be, every American will need to get more than a high school diploma...by 2020, American will once again have the highest proportion of college graduates in the world.

³ see Hersperger et al., 2013 for a more robust review of CTE history.

National foundations and state leaders echoed Obama's call for a more educated American population. The Lumina Foundation has tracked educational attainment in the US since 2008 for their *A Stronger Nation* initiative. The foundation articulated a goal to increase nationwide postsecondary attainment to 60% by 2025 (Lumina Foundation, 2019). The Lumina Foundation has partnered with numerous states to develop plans and policies to increase statewide postsecondary educational attainment. Recently, the organization has increased their emphasis on CTE. Since 2014, the Lumina Foundation has included workforce relevant certificates when tracking postsecondary attainment, and it began tracking certifications in 2018. The foundation's current state policy agenda specifically called for innovation within higher education and for state policymakers to think beyond traditional academic programs and focus more on postsecondary CTE.

Today, postsecondary CTE is an often-discussed topic among state and federal policymakers. The Carl D. Perkins Career and Technical Education Act of 2006 was reauthorized in 2019 through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V Act, 2019). Amendments to the 2006 Act in Perkins V expanded funding for increased rigorous research focused on postsecondary CTE and called for increased student diversity with an emphasis on equity in secondary and postsecondary CTE programs.

Despite the increased focus on postsecondary CTE, there is limited recent research focused on the topic in the United States or how postsecondary CTE interacts with existing policies. Much of the research regarding postsecondary CTE centers on how secondary CTE participation impacts educational pathways. For example, Cowan et al. (2020) studied how participation in secondary CTE impacted postsecondary transitions. The researchers found students who participated in secondary CTE were less likely to pursue postsecondary education

overall, more likely to enroll in further vocational training following high school graduation, and more likely to work full-time in the three years following high school (Cowan et al., 2020). Similarly, Dougherty and Lombardi (2016) found that the existing body of research on postsecondary CTE is growing and that “it is an opportune time to study how policy and program shifts in these areas affect student experiences and outcomes” (p. 349). The authors emphasized that future research should focus on equity and access to high quality postsecondary CTE programs for historically marginalized groups.

Regarding existing postsecondary CTE programs, there are indicators that the increased focus and access to non-degree credentials may yield positive outcomes for students. In their 2016 paper, Xu and Trimble analyzed the impact of certificates offered at community colleges. Contrary to previous research on community college certificates, which often focuses on changes in income, their analysis revealed that individuals who received a certificate were more likely to be employed and may use their credential to switch industries (Xu & Trimble, 2016). Similarly, in their 2019 paper Stevens et al. explored the estimated labor market returns of a postsecondary CTE credential in California. Their analysis revealed a 14% to 45% return compared to the cost of a postsecondary CTE degree or certificate, which is comparable to or exceeds most four-year degree ROI estimates (Stevens et al., 2019).

While the analyses highlighted above focused on transitions to postsecondary CTE and employment outcomes, little is known about how existing policies created to broadly increase access to postsecondary education (i.e. TN Promise) impact participation in postsecondary CTE. As the importance of high quality postsecondary CTE continues to grow, it is imperative that researchers also explore “the mechanisms by which students have come to access them” (Dougherty & Lombardi, 2016, p. 348).

Research on Tennessee Promise

In 2015, Tennessee implemented the Tennessee Promise Initiative to increase college-going behaviors and improve statewide postsecondary credential attainment (Tennessee Promise, n.d.). Designed as a last-dollar scholarship policy, TN Promise covers full tuition and fees for any high school graduate who attends a public two-year college, including the Tennessee College of Applied Technology (TCAT) and community colleges (Tennessee Promise, n.d.). Thus far the body of research on Tennessee Promise is small but promising. In their analysis of Knox Achieves, the precursor pilot program to the TN Promise, Carruthers and Fox (2016) found that participating in the program was strongly associated with a 25 to 30% increase in college enrollment. The success of the Knox Achieves promise program resulted in a statewide expansion of the Tennessee Promise in 2015.

Nguyen's (2020) analysis found similar results in the statewide program. He deployed a differences-in-differences estimation to analyze the Tennessee Promise and its impact on enrollment in the state. His study found that while implementation of the Tennessee Promise was associated with a 2% enrollment decrease in the state's public four-year institutions, there was an enrollment increase of 40% of full-time first-time undergraduates at the state's community colleges. Nguyen's (2020) analysis did not delaminate by degree programs and focused on enrollment by sector and race.

Bell (2021) explored the spillover effects of TN Promise through quasi-experimental methods. She found TN Promise resulted in significant changes to enrollment across various sectors in the state. Her study's findings - similarly to Nguyen's (2020) and Carruthers and Fox's (2016) - showed a sharp increase in overall enrollment at public community colleges and technical colleges. However, Bell's (2021) findings also revealed an increase of out-of-state

students at public four-year colleges who were ineligible to receive promise funding, a decrease in Black students at private colleges ineligible for promise funding, and an increase in tuition at public institutions eligible for promise funding.

Carruthers and Welch (2020) explored how the TN Promise impacted enrollment at Tennessee Colleges of Applied Technology (TCAT). Their analysis dived further than previous studies by exploring individual level financial aid data for students attending TCATs. The researchers found that while many TCAT students were eligible for state or federal aid that would have covered tuition expenses, such as TN Promise/Reconnect, HOPE Scholarship, Pell Grant, 64% of TCAT students did not apply for financial aid through the Free Application for Federal Student Aid (FAFSA; Carruthers & Welch, 2020). Findings from their analysis pointed to the potential for students pursuing a postsecondary CTE credential to benefit from the existing free-college policies in the state.

Statewide promise programs like TN Promise are becoming more common in the United States. While existing literature on the program is promising, more analyses are warranted. Further, researchers must determine how statewide promise programs align with federal policy focuses, such as Perkins V, and with the national emphasis on improving access and participation in postsecondary CTE programs. Thus, this study expands on existing postsecondary CTE and TN Promise research by leveraging data available through the Perkins data portal to explore the causal effect of TN Promise specifically on postsecondary CTE program enrollment.

Theoretical Framework

Perna's (2006) conceptual model for college choice served as the guiding theory for this study. She proposed that college choices are shaped by four layers. Layer one represents habitus, or the belief in what one can achieve based on their socioeconomic and demographic

characteristics, as well as other factors such as institutionalized racism and oppression (Bourdieu, 1984; Luedke et al., 2019). Layer two is the school and community context. This layer reflects “the ways in which social structures and resources facilitate or impede college choice” (Perna, 2006, p.177). Layer three is the higher education context and reflects the role postsecondary education institutions have in college choice through marketing and admission practices. Lastly, layer four reflects the macro-level effects on college choice due to social forces, economic conditions, and public policies.

Due to currently available data, the analysis in this study centered on the effect of a public policy (TN Promise) on enrollment in postsecondary CTE programs. However, Perna’s (2006) theory informed the discussion section of this manuscript. Particularly, her theory informed the discussion around why TN Promise may increase enrollment for certain groups of students, programs, or institutions, and have little to no effect elsewhere.

Methods

In this study I leveraged a natural policy experiment to explore the causal effect of TN Promise on CTE program enrollment. In the following section, I explain the methods for this study, including the study data, analytic framework, limitations, and results. The guiding research question for this study was: *What effect did the implementation of Tennessee Promise have on postsecondary CTE program enrollment in Tennessee?*

Data

State level panel data were gathered from the Consolidated Annual Report (CAR) from the U.S. Department of Education/Office of Career, Technical, and Adult Education (2020), which compiles state reported data required by the Perkins Act on CTE enrollment and

performance and is available through the Perkins data web portal⁴. Data on postsecondary CTE enrollment in the United States between 2011 to 2018 were analyzed in this study. State median income data for the same timeframe were also gathered from the United States Census Bureau. Cases prior to 2011 and data from non-state territories were deleted due to high levels of missing data.

Two control samples were used in this study. For the national control sample, I excluded four states which enacted some variant of a large-scale college promise program in the timeframe of this study: Oregon, Minnesota, Kentucky, and Rhode Island (Nguyen, 2020). The final national sample included 46 states over an eight-year period, for a total of 368 cases (state-year). For the contiguous state sample, I included Alabama, Georgia, Missouri, Mississippi, North Carolina, and Virginia. I excluded the one contiguous state with a large-scale promise program, Kentucky. Summary statistics are provided in tables 3, 4, and 5.

⁴ <https://perkins.ed.gov/pims/dataExplorer>

Table 3: Summary Statistics Non-Tennessee CTE Enrollment

Year	Mean	SD	Min	Max
2011	43400.851	52778.832	2088	243186
2012	42809.128	53831.36	1990	247827
2013	39768.851	49760.189	1833	243999
2014	39897.234	49423.645	1876	240458
2015	38167.915	48530.739	1602	240451
2016	38380.298	47528.455	1370	241481
2017	37011.830	46740.346	1642	241211
2018	35817.596	45875.553	849	243476

Table 4: Summary Statistics Contiguous States CTE Enrollment

Year	Mean	SD	Min	Max
2011	66626.167	42941.126	9703	119927
2012	58278.333	32570.566	9121	90388
2013	59133.5	30418.404	23346	104596
2014	56562.5	28707.536	24281	98574
2015	53145.333	27146.351	25338	91056
2016	53504.833	23741.897	23634	88495
2017	51538.167	22508.793	23027	85634
2018	46604.833	22779.392	23035	82855

Table 5: Summary Statistics Tennessee CTE Enrollment

Year	Total Enrolled
2011	15185
2012	15636
2013	16483
2014	16112
2015	14410
2016	14444
2017	13387
2018	12828

Analytic Framework

To estimate the causal impact of Tennessee Promise on postsecondary career and technical education enrollment I used a standard fixed-effects differences-in-differences (DiD) framework (Nguyen, 2020). Differences-in-differences is a widely used method in social science research to measure the causal effect of a policy or other treatment in non-experimental settings (Cunningham, 2021). The method is often used in policy analyses such as this study which rely on panel data (Donald & Lang, 2007). Recently, the method has been used to explore higher education policies such as performance-based funding (Hillman et al., 2015) and promise programs (Bell, 2021; Nguyen, 2019; Nguyen, 2020).

Quasi-experimental methods can be effective when examining a natural experiment when the data and sample size are appropriate (Kim & Steiner, 2016). For this study, the effect was measured compared to both a national sample (46 non-treatment) and contiguous sample (six non-treatment). Further, it is ideal to include at least three years of pre-treatment data and three years of post-treatment data to establish a causal relationship in studies using DiD (Hu & Hoover, 2018). In this study, data were included from four pre-treatment periods (years) and four post-treatment periods (years).

In this study I sought to measure the effect (δ) of Tennessee Promise on postsecondary career and technical education enrollment (CTEE).

$$E[\delta] = E [CTEE^1 - CTEE^0]$$

Causal effect cannot be determined by means testing because $CTEE^1$ (enrollment when TNP exists) and $CTEE^0$ (enrollment when TNP does not exist) do not exist at the same time and are therefore counterfactuals (Cunningham, 2021).

Differences-in-differences provided a more accurate estimate of the effect by comparing the differences in the treated group (Tennessee) with differences in the non-treated groups (non-Tennessee & contiguous states). The representative regression equation for this study was:

$$Y_{st} = Year_t + \gamma TN_s + \lambda TREAT_t + \delta (TN_s * TREAT_t) + \mathbf{x}'_{st} \boldsymbol{\beta} + \epsilon_{st}$$

Where Y_{st} is enrollment for state (s) in year (t). TN is the variable dummy coded to 1=TN and non-TN=0. $TREAT_t$ is the dummy variable which marks the start of TN Promise in 2015. $Year_t$ is the year fixed effects. $\mathbf{x}'_{st}$ equals the state income control covariate. Lastly, δ is the average enrollment effect of the TN Promise on postsecondary CTE enrollment by state. Following Nguyen's (2020) analytic method, I also conducted the analysis with the natural logarithm of the dependent variable enrollment (Y_{st}); the estimated treatment effect was then calculated as $100*(e^{\delta} - 1)$ or $\delta*100$ percent.

Common Trends

An important and often violated assumption for DiD is the common trends assumption (Cunningham, 2021). The common trends assumption requires that the treated group and non-treated group follow similar trends prior to the treatment (Angrist & Pischke, 2009; Cunningham, 2021). Prior to running the DiD analysis, I visually compared trends of postsecondary CTE student enrollment between 2011 and 2018 (see Figures 6 and 7). To account for the unequal trends in national pre-treatment enrollment, I ran the analysis against two samples (national and contiguous). The contiguous sample followed a similar pre-treatment trend in postsecondary career and technical education enrollment to Tennessee.

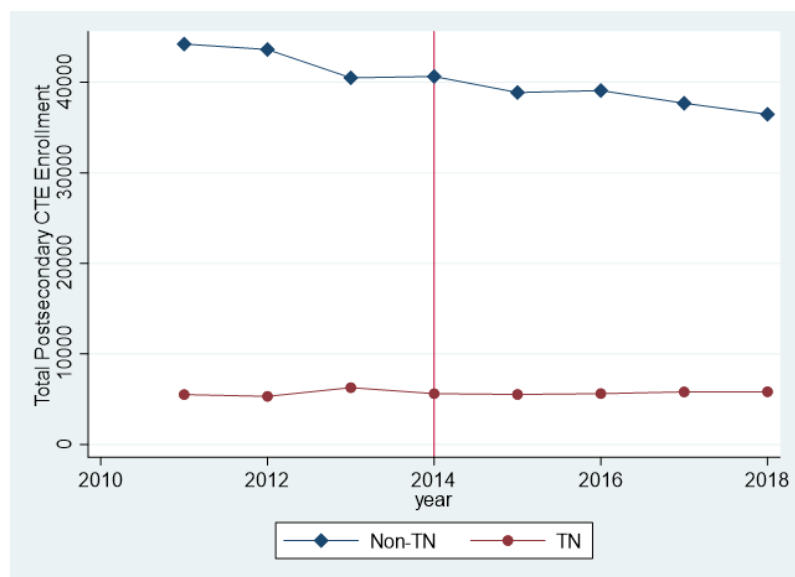


Figure 6: Common Trend Plot Nationwide Sample⁵

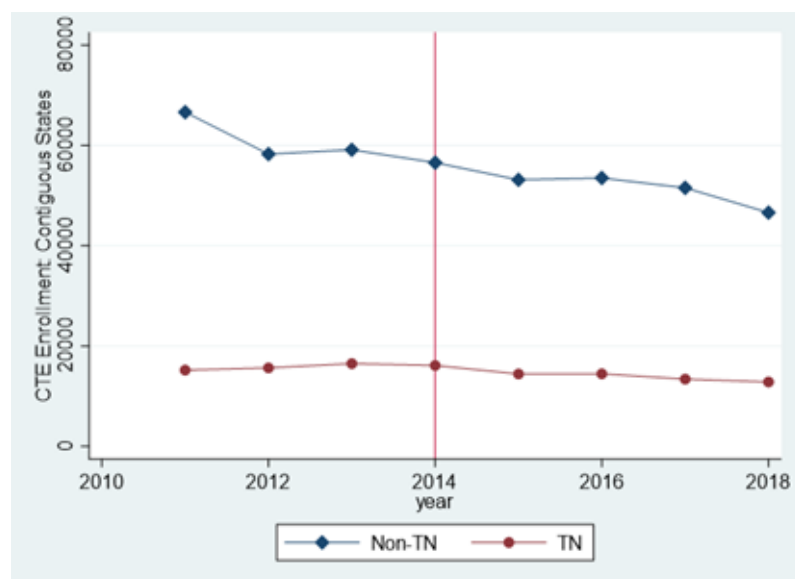


Figure 7: Common Trends Plot Contiguous States⁶

⁵ Data source: Consolidated Annual Report (CAR) from the U.S. Department of Education/Office of Career, Technical, and Adult Education (2020). Data from Oregon, Minnesota, Kentucky, and Rhode Island were excluded from the nationwide sample due to implementation of similar statewide promise programs.

⁶ Contiguous states included data from Alabama, Georgia, Missouri, Mississippi, North Carolina, and Virginia. Data from Kentucky was excluded due to implementation of a similar statewide promise program.

Limitations

This analysis was limited by the institutional level panel data available through CAR and the United States Census Bureau, and therefore could not account for individual level factors (e.g. socioeconomic background, location, high school factors, GPA) which may have affected student enrollment decisions. Further, this analysis was limited to state-level data and could not measure for institutional-level effects of the policy as Nguyen (2020) and Bell (2021) did in their analyses. Lastly, for this analysis I limited the scope to enrollment and did not explore whether TN Promise impacted other academic outcomes in postsecondary CTE programs such as retention and graduation. Future studies should expand on this analysis to investigate whether TN Promise had a causal relationship with other academic outcomes in postsecondary CTE programs other than enrollment.

Results

Results from the DiD analyses are presented in table 6. Results are displayed for analyses which compared Tennessee to a national (non-promise) control group and a contiguous control group. The interaction effects (TN*TREAT) in table 6 show the TN Promise had a non-statistically significant effect on enrollment in postsecondary CTE programs when compared to both the national control group and contiguous state control group.

Table 6: Differences-in-Differences Estimation Results for CTE Program Enrollment

	Raw Data		Natural Logarithm	
	(1) National	(2) Contiguous	(3) National	(4) Contiguous
TN*TREAT	2,282.680 (4,861.429)	10,995.083 (7,610.702)	-0.039 (0.223)	0.046 (0.168)
95% CI	-7282.53 - 11847.89	-4386.72 - 26376.89	-.4781 - .4009	-.2943 - .3865
Constant	52,107.079*** (19,961.461)	318,696.573** (124,101.756)	11.614*** (0.917)	17.801*** (2.747)
Observations	368	56	368	56
States	46	7	46	7
R-Squared	0.142	0.332	0.057	0.230

Clustered standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

The effect on postsecondary CTE enrollment due to TN Promise was calculated as $100 * (e^{\delta} - 1)$ or $\delta * 100$ percent on both the lower and upper 95% confidence interval coefficients (Nguyen, 2020). As expected due to the observed non-significant effect, there was a broad range of estimated enrollment changes attributable to TN Promise; -47% to 40% when compared to the national sample, and -29% to 39% when compared to the contiguous state sample. The results from this study, therefore, do not establish a causal relationship between TN Promise and postsecondary CTE enrollment.

Discussion

In this study I explored the effect of TN Promise on enrollment in postsecondary CTE programs in Tennessee using quasi-experimental methods. While descriptive statistics showed a small increase in postsecondary CTE enrollment in Tennessee when compared to both the national and contiguous samples, the results from the DiD analysis were not statistically significant and revealed no causal link between TN Promise and postsecondary CTE enrollment. The findings from this study supported Carruthers and Welch's (2020) study; while many students who pursue postsecondary CTE programs or enroll in TCATs may be eligible for funding through TN Promise, thus far the policy has had little to no impact on postsecondary CTE enrollment in the state.

Due to the multiple limitations to this analysis, I encourage researchers to replicate and expand upon this study to further investigate whether TN Promise effected enrollment in postsecondary CTE programs. In the following section I offer recommendations for future research, policy, and practice.

Recommendations for Research, Policy, and Practice

As the United States continues to prioritize postsecondary credential and degree attainment, attention must be given to how existing policies can be leveraged to meet stated goals. Future research must be conducted to explore why students who pursue postsecondary CTE do not appear to use existing state funding such as TN Promise (Carruthers & Welch, 2020). Further, researchers should explore existing pathways from secondary to postsecondary CTE programs in the state and determine whether such programs provide the necessary information and incentives for students to make informed choices regarding if and how they can use the FAFSA and federal/state funding to continue their education beyond high school in postsecondary CTE programs (Carruthers & Welch, 2020; Collom et al., forthcoming; Odle et al., 2021). Further research must be conducted to determine if current guided pathways efforts in select community colleges are effective and whether such programs could be expanded statewide to all public community colleges and TCATs to further incentivize students who are pursuing postsecondary CTE to use the TN Promise (Carruthers & Welch, 2020; Klempin & Lahr, 2021). Lastly, future research should explore whether the TN Reconnect (Tennessee's other promise program for adult students 24 and over) had a causal effect on CTE program enrollment.

From a policy perspective, as secondary CTE programs grow in Tennessee, state and local policymakers must ensure that postsecondary CTE is presented as an option to students from marginalized backgrounds and available in parts of the state where vocational education is not traditionally pursued. Furthermore, state policymakers should explore whether the potential expanded funding currently piloted in the state, which covers expenses beyond the tuition covered by existing programs such as books and living expenses, is also an effective way to support low-income individuals who are pursuing postsecondary CTE programs (Bohle, 2021).

From a practical standpoint, the TN Promise presents an opportunity for TCAT institutions and non-degree CTE credential programs in public community colleges to recruit and admit students who may not be interested in enrolling in two-year non-CTE or four-year programs. Admissions representatives and institutional leaders at TCATs and within community college CTE programs can leverage the free-college policies available in Tennessee to expand their student body and increase postsecondary CTE attainment in the state. While TN Promise is widely marketed by community colleges in the state, TCATs and specific CTE non-degree programs within community colleges should use the availability of TN Promise in marketing efforts.

The federal government and select states are beginning to realize the equity implications of increasing postsecondary CTE attainment. Findings from this study indicate there was little effect on postsecondary CTE enrollment in the state following the implementation of TN Promise. However, Tennessee has the opportunity to continue its role as a leader in postsecondary access by leveraging their current policies to expand postsecondary CTE outcomes and expand the number of students who pursue and succeed in postsecondary education.

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Chapter 5: Discussion and Implications

In this dissertation I expanded on previous promise program research and provided three novel studies exploring the Tennessee Promise and Tennessee Reconnect. Promise programs are likely to persevere in policy conversations at the state and federal levels (Perna & Smith, 2020). Likewise, the United States' need for an educated workforce will continue to grow, especially among professions included under the broad umbrella of career and technical education (Lumina Foundation, 2020). The higher education system must adapt to enroll and support non-traditional students and to provide postsecondary programs which are directly linked to workforce needs (Lumina Foundation, 2020). While promise programs may be an effective tool to meet the higher education and workforce needs in the United States, researchers must continue to rigorously evaluate such programs to ensure they are designed to benefit all students (Perna & Smith, 2020).

Tennessee's promise programs provide researchers with the ideal situation to leverage a natural experiment and explore causal relationships between the policies and student outcomes (Nguyen, 2020; Odle et al., 2021). The current literature exploring Tennessee's statewide promise programs is limited yet positive. Several studies have established causal links between Tennessee's statewide promise policies and student outcomes, and revealed their potential to expand access for Black and Hispanic students and other students who would not have otherwise attended college (Nguyen, 2020), decrease students' reliance on student loans (Odle et al., 2021), and divert enrollment from private colleges and toward public promise eligible institutions (Bell, 2021).

While research on Tennessee's programs is encouraging, there are currently no existing studies exploring initial experiences and enrollment outcomes of Tennessee Reconnect, which

made tuition-free college available to adult students. Furthermore, there is no research exploring how Tennessee Promise impacts programs that emphasize vocational college education, otherwise referred to as postsecondary career and technical education. I provide summaries and key findings from each study below, and follow with implications for policy and research.

Study 1: “I’m not letting nothing stop me this time.”: Transitions among adult learners using the Tennessee Reconnect Grant

In this study, I explored the experiences of adult students who received the Tennessee Reconnect funding in the initial two years of the policy. Longitudinal interviews were collected at three transition points from 23 adult students. I deployed Schlossberg’s (1981, 1984) Transition Theory as a theoretical framework to analyze qualitative data. The findings from this study revealed that the availability of tuition-free college encouraged adults to return to college, often following long absences from formal education settings. However, adult students within the sample still struggled to overcome the barriers often associated with adult, first-generation, and low-income students such as expenses beyond tuition (i.e. books, childcare) and navigating a postsecondary system not created to support adult students effectively.

Study 2: A Quasi-Experimental Investigation of Adult Student Enrollment Responses to the Tennessee Reconnect Grant

In this study, I leveraged a natural experiment to analyze the causal effect of Tennessee Reconnect on adult student enrollment. I gathered national adult student enrollment data at public two-year institutions from 2011 to 2019 from the Integrated Postsecondary Education Data Systems (IPEDS). Data provided by the U.S. Census Bureau were also included from the same timeframe to control for state median income. Following, I deployed a differences-in-differences framework to determine the causal relationship between Tennessee Reconnect and

adult student enrollment within public two-year institutions. Results revealed a significant increase in adult student enrollment with a direct causal link to the Tennessee Reconnect. However, while the total number of adult students continued to increase in the second year of the program when compared to the national sample, there were noticeable drop-offs in the second year of the program in all categories except among part-time and male students.

Study 3: A Quasi-Experimental Investigation of the Effect of Tennessee Promise on Postsecondary Career and Technical Education Enrollment Responses

In this study, I leveraged a natural experiment to analyze the causal effect of Tennessee Promise on enrollment in postsecondary career and technical education programs. I gathered enrollment data from the Consolidated Annual Report (CAR) from the U.S. Department of Education/Department of Career, Technical, and Adult Education (2020). Data available through the U.S. Census Bureau were also included to control for state median income. The analysis was conducted twice, once comparing Tennessee to a national sample and again comparing Tennessee to a sample of contiguous states. Findings from both analyses revealed a small but non-statistically significant increase Tennessee's postsecondary career and technical education programs after the implementation of Tennessee Promise.

Implications for Policy and Research

Findings from all three studies provide a novel exploration of how Tennessee's promise programs, Promise and Reconnect, impact important but under-researched areas of higher education; adult students within promise programs and postsecondary career and technical education programs. While the findings from these studies warrant further exploration, I provide several implications for policy and research below.

Policy Implication 1: Include Adult Students in Existing or In-Development Statewide or Federal Promise Program Policies

The results of the first two studies in this dissertation indicate that an adult promise program can substantially increase adult student participation in college. As state and federal policymakers explore strategies for increasing postsecondary credential and degree attainment and the possibility of implementing a large promise program, they must consider adult students. Since the Tennessee Reconnect was implemented, only Michigan has started a similar Reconnect program. Other state or federal policymakers and educational leaders discussing possible promise program legislation should explore the feasibility of expanding eligibility beyond traditional-aged college students. Policy researchers must determine if potential state or federal promise policies should include adult students in their eligibility, and the cost-benefit implications of doing so.

Policy Implication 2: Provide Increased Financial Support Available to Low-Income Adult Students

Findings from the first two studies revealed that the Tennessee Reconnect successfully increased enrollment among adult students who would not have otherwise considered college. However, both studies point to a potential levelling off in program participation in the second year potentially due to expenses other than tuition. State policymakers should consider expanding funding available to individual adult students to cover expenses beyond tuition, such as living expenses, books, and childcare.

Individual funding for at-need students is already available through a pilot program for Tennessee Promise students in Knoxville through the Knox Promise. State legislators are considering expanding the program statewide after positive results from the first year of the

program (Bohle, 2021). Findings from this dissertation revealed that adult students would likely similarly benefit from a program that assists with costs above tuition, especially considering the potential economic impacts of COVID-19.

Policy Implication 3: Improve, Expand, and Focus Marketing Efforts in Tennessee

Tennessee Promise is widely marketed in Tennessee and received nationwide attention when it was implemented. However, there is minimal marketing in the state and at publically funded institutions focused on Tennessee Reconnect. Nor is there substantial marketing that targets students interested in pursuing alternative programs that are covered by both Tennessee Promise and Tennessee Reconnect, such as postsecondary career and technical education programs (Carruthers & Welch, 2020; Collom et al., forthcoming).

Both private non-profit and for-profit institutions in Tennessee are increasingly creating two-year degree and certificate programs and highlighting the Tennessee Promise and Tennessee Reconnect in their marketing efforts. Public institutions, such as the Tennessee Colleges of Applied Technology and the state's 13 public community colleges, may benefit from adopting similar strategies to recruit and enroll adult students, and students who may have otherwise not considered college.

Policy Implication 4: Improve Student Pathways in Postsecondary Career and Technical Education

State business leaders, policymakers, and public institutions should partner to identify and offer certificate or degree programs for potential Tennessee Promise and Tennessee Reconnect students that are directly linked to employment and/or transfer pathways. There is a nationwide push for improving and expanding upon postsecondary career and technical education programs (Lumina Foundation, 2019). By offering nearly universal tuition-free

college, Tennessee is in an ideal position to also be a national leader in postsecondary career and technical education. Policy efforts in the state could focus on creating streamlined, creative, and clear pathways to both employment and transfer that are attractive and accessible to potential Tennessee Promise and Tennessee Reconnect students.

Research Implication 1: Longitudinal Investigation of Tennessee Reconnect

Researchers exploring Tennessee Reconnect must expand on the initial findings presented in this dissertation. Future research should explore the long-term effects of creating a statewide promise program to adult students and whether the initial enrollment increases observed are sustainable. Future longitudinal analysis of Tennessee Reconnect is especially imperative considering the potential long-term consequences of the COVID-19 pandemic and the initial negative effects on adult student community college enrollment (National Student Clearinghouse, 2020). Further, future research on Tennessee Reconnect should explore the long-term costs and benefits to the state, institutions, communities, and individuals impacted by the policy. Similar studies could also be conducted in Michigan to explore the potential differences or similarities in its reconnect policy, and whether the positive effects on enrollment observed in Tennessee are also observed in Michigan.

Research Implication 2: Map Postsecondary Career and Technical Education Pathways

Future research should map the existing and potential pathways to employment and/or transfer currently existing in Tennessee for students who wish to pursue postsecondary career and technical education. A defining factor among successful postsecondary career and technical education programs is a clear path from secondary education to postsecondary education to employment (Breen & Jonsson, 2000). Future research should explore existing pathways and

determine how Tennessee's promise policies could be leveraged to improve or expand upon those pathways.

Research Implication 3: Conduct Critical Analysis of Statewide Promise Programs in Tennessee

Lastly, all three studies in this dissertation highlight the need for analysis of statewide promise programs in which researchers critically explore program structures and outcomes. Critical policy research allows for researchers to use a wide range of theories, methods, and approaches to probe the dynamics of power, race, and socioeconomic status when exploring policy formation (Diem et al., 2014). Rigorous, mixed-methods, in-depth studies from a critical approach are warranted to ensure that any faults in statewide promise programs are identified and improved upon in existing and future state or federal programs. However, barriers to conducting such research exist due to restricted access to quality student-level data and limited funding provided to researchers who conduct purely critical research. State policymakers, non-critical policy researchers, and critical policy researchers must be open to engaging in collaborative research that both critically examines statewide promise programs and also provides constructive, actionable feedback to improve promise policy and benefit all students.

Conclusion

In this dissertation I provided three unique studies in which I explored Tennessee's two promise programs – Tennessee Reconnect and Tennessee Promise. In study one I provided a qualitative exploration of a statewide promise program for adult students and highlighted their unique experiences and barriers to success as returning college students. In study two I analyzed adult student enrollment responses during the first two years of Tennessee Reconnect and established a positive causal increase in enrollment. And in study three I analyzed enrollment

responses to Tennessee Promise within postsecondary career and technical education programs and did not find a causal relationship between the program and enrollment. Each of the three studies I conducted were novel approaches to researching statewide promise programs and can be used to inform and improve policy, practice, and future research on statewide promise programs.

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Vita

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