Nontraditional Students and Nontraditional Enrollment Patterns: College Choice, Multiple Life Roles, and Developmental Education

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TABLE OF CONTENTS

Page

LIST OF TABLES

Table

Paper 1

Paper 2

Paper 3

1. Study Characteristics
2. Results of Sub-Group and Sensitivity Analyses

LIST OF FIGURES

Figure

INTRODUCTION

There is an image that comes to mind when thinking of American higher education and American college students. For many, that image is one of hallowed ivy covered halls, young students who are fresh of face and deeply entrenched in an academic and social community that forms the backdrop of a four-year experience that will lead them to gainful employment or further education and provide a useful network of past, current, and future students. One might picture these students seated in small dorm rooms chatting with a roommate over popcorn, or feverishly writing late into the night in a library computer lab, or on an expansive quad soaking up sunshine while they read seminal texts in their chosen field of study. These students are bright, engaged, ready for the challenge of a postsecondary degree, and supported by their families in this endeavor. These students and their path to post-secondary success sound "traditional." But they are not the norm.

"Nontraditional" students are not merely becoming more prevalent; they are the norm. Only 26% of students currently enrolled in post-secondary institutions in the United States match the U.S. Department of Education's definition of a traditional student—74% are nontraditional in some (often more than one) way (U.S. Department of Education [USDE], 2015). Despite this, the proportion of research on college students that focuses on these nontraditional students remains low (Chao & Good, 2004; Cavote & Kopera-Frye, 2006). The notion that college enrollment takes place immediately upon completion of a high school education that has fully prepared students for college-level coursework is also inaccurate. Many students do not enroll in college immediately after high school. In fact, approximately 23% of the class of 2004 had not enrolled in any post-secondary institution

by 2006, and an additional 12.3% were enrolled in 2006 but had delayed their enrollment by 1-2 years (National Center for Education Statistics, 2006).

Another "nontraditional" enrollment pattern takes the form of developmental education, the result of insufficient academic preparation for college level coursework. This is a fairly common path to college enrollment. Given the number of nontraditional students who enroll at two-year colleges, and the number of community college students who enroll in remedial courses, developmental education must be viewed as an important aspect of the nontraditional student experience. More than 39% of minimally nontraditional students enroll at two-year institutions, along with 56% of moderately nontraditional and 64% of highly nontraditional students (USDE, 2002). At two-year institutions, 52% of students have to enroll in remedial courses instead of college-level classes; at four-year institutions, that number is 20% (Complete College America [CCA], 2012). Researchers have been unable to agree on whether developmental education works, whether it succeeds in readying students for college level coursework or leaves them farther behind, meaning that a large proportion of nontraditional students are taking a path to college that may or may not compound the other challenges they face. Moreover, data indicate that older undergraduates are less likely than the average student to succeed in and move on from remedial courses (CCA, 2012). In order to generate a more complete picture of the nontraditional student experience, it is important to more clearly understand the impact of developmental education.

The three papers that follow here address aspects of these timely and important issues. The first two papers focus on nontraditional students, the third on remediation as a nontraditional enrollment pattern. The first paper addresses the issue of college choice, an

issue that has been examined closely for traditional undergraduates. While we know a great deal about college choice for traditional students, we know very little about how the process works for their nontraditional counterparts. The second paper examines the experience of nontraditional undergraduates once they have made their enrollment decision. It examines the popular, but under examined, assertion that nontraditional students often fail to achieve their educational goals due to the multiple life roles they must fill and the accompanying strain. The final paper carefully and deeply examines the research that has been done on remedial or developmental education. To do this, the paper utilizes advanced meta-analysis and meta-regression techniques with the aim of clarifying what we know about developmental education, why the literature in this area is so frequently contradictory, and what information researchers need to gather to better understand remediation moving forward.

In the pages that follow, I present a review of existing literature on nontraditional students that informs the first two papers. Next, I outline information on college choice among nontraditional students along with the traditional models of college choice extant. This provides the basis for the first paper, which includes a discussion of the survey design, analysis, results, and conclusions. I will then outline information on multiple life roles among nontraditional students, including a definition of "multiple life roles." Using literature from both sociology and higher education, I will present existing research in this area in order to highlight the contribution made by the second paper. This paper will provide a clear discussion of the data used and methods employed, along with detailed results and discussion. Finally, I will present a brief literature review on developmental education including a definition, its prevalence, cost, and the role it plays in today's

postsecondary landscape. I will highlight the many contradictory conclusions reached by studies on this topic, indicating the need for a careful quantitative analysis of the existing research. This paper will detail the comprehensive search strategy, meta-analysis methods, findings and potential future directions for the research on developmental education.

CHAPTER 1

LITERATURE REVIEW: NONTRADITIONAL STUDENTS

The term "nontraditional students" encompasses a large and heterogeneous group of college students in the United States. This term can and has referred to adult students, students who delay their entry, students with children, students who are married, students attending part-time, students working full time, students who are financially independent, students who lack a high school diploma, and the variety of student groups who are traditionally underrepresented in higher education. These underrepresented groups, including first generation and minority students, have warranted considerable attention on their own, and so are not included in this analysis. It is important to note, however, that students who fulfill the other criteria above are much more likely to be first generation or minority students than their "traditional" peers (Horn & Carroll, 1996). That being said, this analysis will focus on students with characteristics other than first generation or minority status. The distinction lies in the fact that minority and first generation students remain underrepresented in colleges today, while students matching the other descriptors above are actually the norm (Kim, 2002). Therefore, the discussion of underrepresented students should be separate from a discussion of those students who are more than adequately represented on college campuses while also being underserved.

Multiple Identifiers of Nontraditionality

The United States Department of Education (2002) has defined nontraditional students in opposition to "traditional" undergraduates. "Traditional" undergraduates are characterized as those who earn a high school diploma, enroll immediately after high school, attend full time, are financially dependent, and do not work full time. These

students are the exception, however, rather than the rule. Just 26% of college students enrolled today meet these "traditional" criteria (USDE, 2015). In the work USDE does on nontraditional students, they have identified the following seven characteristics as defining nontraditional status (the following comes directly from their 2002 report):

- Delays enrollment (does not enter postsecondary education in the same calendar year that he/she finished high school);
- Attends part time for at least part of the academic year;
- Works full time (35 hours or more per week) while enrolled;
- Is considered financially independent for purposes of determining eligibility for financial aid;
- Has dependents other than a spouse (usually children, but sometimes others);
- Is a single parent (either not married or married but separated and has dependents; or
- Does not have a high school diploma (completed high school with a GED or other high school completion certificate or did not finish high school).

The difference between a student who has only one of the above characteristics and a student who has all of them is likely to be stark. For this reason, an earlier USDE report created a continuum of nontraditionality wherein students are considered "minimally" nontraditional if they have only one of the above characteristics, "moderately" nontraditional if they have two or three, and "highly" nontraditional if they have four or more (Horn & Carroll, 1996).

How many nontraditional students are there?

All in all, 74% of students enrolled in United States postsecondary institutions are nontraditional in some way. Utilizing the continuum of nontraditionality described above, we know that 19% of all college students are minimally nontraditional (possessing only one nontraditional characteristic), 31% are moderately nontraditional, and 24% are highly nontraditional (USDE, 2015). These statistics are especially striking when one considers that more students are moderately nontraditional (possessing two or three nontraditional characteristics) than are considered traditional undergraduates.

The sheer number of these students is impressive, but more compelling is how these students fare in comparison to their "traditional" counterparts. Students with any nontraditional characteristics are far less likely than traditional students to achieve their educational goals (Capps, 2012; Cavote & Kopera-Frye, 2006-2007; Horn & Carroll, 1996). Among students whose stated goal is to obtain a bachelor's degree, 54% of traditional students will do so within five years. In comparison, 31% of nontraditional students will achieve that goal, and 11% of highly nontraditional students will do so. When it comes to leaving college before their degree is complete, 19% of traditional students do so within five years, compared to 42% of nontraditional students. There is a clear difference between the education that nontraditional and traditional students receive, a difference it is important to understand.

Why study nontraditional students?

Nontraditional students cannot be better understood by applying what we know about traditional students to this population. Quite simply, things that work to improve the success of traditional student do not work for nontraditional students, by and large. Social

integration is not nearly as salient a concern for students whose lives are not centered on their college campus (Bean & Metzner, 1985; Chartrand, 1990; Forbus, Newbold, & Mehta, 2010). Researchers do not agree on what retention means for these students since their educational goals tend to vary widely and do not always include a credential of any kind (Fincher, 2010). While research largely agrees about the importance of the first year experience for traditional undergraduates, there is considerable disagreement in whether it is important to nontraditional students at all (Cavote & Kopera-Frye, 2006).

Many of the same factors contribute to success or failure for both types of students, but the relationships between background characteristics and academic outcomes are different, and sometimes opposite. Research shows that pre-college characteristics, so important to predicting success for traditional college students, do not accurately predict outcomes among nontraditional students (Kasworm, 2005). Even the personal and economic benefits of college are not the same across these two groups. Social development is not an important outcome of the nontraditional student experience (Wolfgang & Dowling, 2013). Additionally, the financial benefits of college attendance are much smaller for those who attend later in life (Monks, 1997). Because the two groups are essentially incomparable, a separate understanding must be established for the way in which college affects and is experienced by nontraditional students.

Existing Research on Nontraditional Students

Responding to increasing numbers of nontraditional students, Bean & Metzner (1985) utilized existing research to frame the problem of nontraditional student attrition. They defined nontraditional students in opposition to "traditional" students (as does USDE). They specified that the central difference between traditional and nontraditional

students is that nontraditional students experience "lessened intensity and duration of their interaction with the primary agents of socialization (faculty, peers) at the institutions they attend" (p. 488). The authors' key point was that the college experience is inherently different for nontraditional students, and so their reasons for leaving (and thereby the determinants of their success) cannot be understood using models and theories based on studies of traditional undergraduates.

They posited a model of nontraditional student attrition which has only been directly tested once (Metzner & Bean, 1987), but aspects of which have informed studies on nontraditional students since. The key difference between this model of student attrition and those developed for traditional students was the relative unimportance of social integration for nontraditional students. The results of Metzner & Bean's (1987) study lent credibility to the model proposed in 1985, and determined that the best predictors of dropout for nontraditional students are GPA and hours enrolled, along with the seemingly obvious intention of the student to depart. Social integration variables had no significant effect at all. Especially important was the finding that most of the results were in sharp contrast to results from studies of traditional student attrition (Metzner & Bean, 1987). Studies of nontraditional students that followed further clarified, and in some cases contradicted, this picture (Jacoby, 2000; Jacoby, 2002; Taniguchi & Kaufman, 2005; Laird & Cruce, 2009).

Common Characteristics of Nontraditional Students

The most troubling characteristic shared by the diverse students that fall under the "nontraditional" heading is that they do not complete or persist at the same rates as do their more traditional peers (Cavote & Kopera-Frye, 2006). Typically, when nontraditional

students do earn degrees, it takes them longer to do so because they are more likely to be enrolled part-time or to take break, and the education they receive ends up costing them significantly more over time (Capps, 2012; Horn & Carroll, 1996). Potentially related to this, nontraditional students are much more likely to doubt their ability to succeed, perhaps because they have attempted and failed before or perhaps because their life experiences have led them to conclude that things frequently do not work out (Chartrand, 1990; Klein, 1990).

Another challenging characteristic shared by many students in this group is that they are almost always juggling multiple roles and responsibilities outside of their role as "student" (Backels & Meashey, 1997; Chartrand, 1990; Donaldson & Graham, 1999; Eppler & Harju, 1997; Fairchild, 2003; Gerson, 1985; Jacobs & King, 2002; Jacoby, 1989; Kasworm & Pike, 1994; Lucas, 2009; Morris, Brooks, & May, 2003; Person & Edwards, 1997; Roksa & Velez, 2012; White, 2002). These multiple roles include spouse, parent, caretaker, and employee and frequently take precedence over the student role (Deutsch & Schmertz, 2011). One quantitative study demonstrated that being required to perform multiple roles has a negative impact on students whether those multiple roles were required of them before or after enrollment (Roksa & Velez, 2012). However, some researchers assert that this required multitasking in their daily lives leads nontraditional students to be more successful in their academic endeavors because they have developed coping mechanisms that more sheltered traditional undergraduates have not been required to develop (Fairchild, 2003; Morris et al., 2003).

Many nontraditional students are working while enrolled, and for them work is often the highest priority (Berker, Horn, & Carroll, 2003; Donaldson & Graham, 1999;

Kerka, 1995). This creates a very different experience for these students. Berker et al. (2003) referred to "employees who study" and compared them to "students who work." They found that most nontraditional students are employees who study, considering work their main activity, while traditional students who happen to have jobs consider themselves students who work. There are a number of challenges inherent to the employee who studies, especially the difficulty in acquiring financial aid due to their part-time enrollment and full-time employment status. If they are part-time students, they are unlikely to qualify for aid, and even if they attend full-time the amount they qualify for can be lower due to the income they receive from their job (Hart, 2003). These employees who study are likely to attend community colleges, aim for an associate's degree, and major in vocational and technical fields like computer science and business (Berker et al., 2003; Compton & Cox, 2006). The Berker et al. (2003) study showed that these students are also much more likely to drop out, especially within the first year of enrollment.

Because of the importance of work in their lives, many nontraditional students are most likely to pursue a vocational track (Compton & Cox, 2006). Their motivation is typically different from traditional undergraduates and researchers often find a close connection between their particular educational goals and their careers (Chao & Good, 2004; Eppler & Harju, 1997). Because there is such a close connection between what they learn and their work experience, they tend to emphasize learning goals over performance goals such as grades and grade point averages (Chao & Good, 2004; Eppler & Harju, 1997; Jacoby, 2000b; Klein, 1990; Morris et al., 2003; Shields, 1993; Whitt, 1994; Wolfgang & Dowling, 2013). While being pulled in so many directions leads to more negative strain for

nontraditional students, it can also lead to significantly more gratification from their academic experience (Gerson, 1985).

This increased gratification might be due, in part, to the fact that nontraditional students perform better in school than do traditional students at the same institutions, especially when it comes to traditional measures of academic success like grades and grade point averages (Capps, 2012; Forbus, et al., 2010; Graham, 1998; Hagedorn, 2005; Kasworm, 2005; Morris et al., 2003). Research has shown that nontraditional students tend to be of low socioeconomic status, academically underprepared, and less involved on campus, which would lead all traditional models of academic success to suggest that they should perform less well academically, but this has not been shown to be the case. While pre-college characteristics are poor indicators of future academic success for nontraditional students, marital status and income explain variability in grades more accurately for this group (Kasworm, 2005). Their improved performance over traditionally aged peers might be explained by their comparative wealth in personal and work experiences. Applicability of knowledge has been shown to be important to learning, and students with work, life, and family experiences outside of school have an advantage in that area. Being better able to connect classroom learning to real world scenarios may be the reason that adult students can overcome other deficits and outperform traditional undergraduates (Chao & Good, 2004; Graham, 1998). Research has found that things that are traditionally detrimental to student success, such as first generation status, can actually be tempered if the student is also an adult returning to school (Gerson, 1985).

Other characteristics shared by students in this group include independence, maturity, clear goals, and a lack of participation on campus (Backels & Meashey, 1997;

Kerka, 1995). Nontraditional undergraduates exhibit strong ties to their career culture, but limited ties to the academic culture of their institution (Kerka, 1995). Social integration at the institutional level is unimportant to them, but the classroom experience in highly salient for this group, and when social integration is measured at the classroom level instead of the institutional level, it has a significant positive effect on nontraditional student retention (Ashar & Skenes, 1993; Kerka, 1995). These findings serve to demonstrate that an understanding of positive and negative impacts on the success of traditional undergraduates cannot be applied to our understanding of nontraditional student success, and that we must rethink how we measure these important constructs.

Distinct Challenges Faced by Nontraditional Students

There are a variety of challenges faced by nontraditional students that traditional students do not have to conquer. For example, they deal with time constraints and financial strain that is unique to their situation (Forbus et al., 2010). Additionally, nontraditional students have largely been neglected in American higher education, made to feel invisible and marginalized, and denied the resources they need to succeed (Sissel, Hansman, & Kasworm, 2001). They are moving against the prevailing social norms in their decision to return to school, even if those social norms have eased slightly, and they are doing so in an institution designed to facilitate the success of another kind of student entirely (Hagedorn, 2005). Moreover, even though their numbers are overwhelming, the system is unlikely to change easily or quickly to accommodate them because the residential model of college-going is so intrinsic to higher education in the United States (Jacoby, 2000b). These challenges can be a lot to overcome.

While social integration is easily achieved for many traditional undergraduates, external constraints make it much harder for students with nontraditional characteristics (Donaldson & Graham, 1999). Nontraditional students report that class with more traditional students can be an unpleasant experience, especially socially. Because social relationships formed outside of class are likely to carry over into the classroom, nontraditional students have difficulty inserting themselves into class discussions, finding partners for class projects, and utilizing peer support for difficult material. Nontraditional students say that this makes them feel disenfranchised and confirms for them what they already feared: that they do not belong (Kasworm, 2010).

Other challenges faced by nontraditional students are the negative stereotypes discussed briefly above. Nontraditional students are sometimes seen by faculty, administrators, and fellow students as apathetic, unmotivated, and uninvolved (Jacoby, 2000; Jacoby, 2002; Ogren, 2003). This is due, in large part, to the limits imposed on nontraditional students by their multiple roles; they are simply unable to be as present and involved as traditional students (Jacoby, 2000). These negative perceptions of nontraditional students are discouraging to them, and may affect the opportunities with which these students are presented. Additionally, realities of their lives outside of school make frequent stop-out (enrolling, leaving, and then returning) much more prevalent among nontraditional students. This can leave the impression with faculty and staff that nontraditional students do not value their education, though their periodic absences and stop-out behaviors are often due to the fact that these students have no other choice (Hagedorn, 2005).

Perhaps the most overwhelming challenge faced by nontraditional students is related to finances and financial aid. The financial strain on nontraditional students is significant, and considerably more intense that that placed on traditional college students. Nontraditional students are responsible for their tuition, fees, books, supplies, rent, car or other commuting costs, childcare, and other unavoidable expenses, while traditional undergraduates usually do not experience such extensive financial demands (Forbus, et al., 2010). Their financial independence contributes directly to the challenges nontraditional students face related to financial aid. Because nontraditional college students file for financial aid as independent adults, for the most part, there is limited financial aid available to them. The financial aid for which they qualify is further limited by any other debts these students have, debts with which traditional students are far less likely to be burdened (Hart, 2003).

The different attendance patterns of nontraditional students, namely part-time attendance, mean that these students often do not qualify for any financial aid at all. Unlike most traditional students, their financial responsibilities often extend beyond themselves. They are responsible for educational expenses, transportation expenses, while at the same time they are frequently supporting multiple family members and other dependents. This means that they must find a way to pay everything expected of a traditional student in addition to paying for their existing financial commitments, and they must do it with less assistance than traditional students often receive (Hart, 2003).

Additionally, financial aid offices at most colleges and universities are ill equipped to deal with issues that are specific to nontraditional students. Nontraditional students might be divorced, estranged from parents or spouses, recently unemployed, or have multiple

dependents draining their personal financial resources. These are complicated issues not faced by most traditional students, and many financial aid officers and counselors frequently do not have the knowledge or training to assist students in dealing with these complications. On top of this, financial aid policies that are currently in place at the institutional, state, and federal levels are designed with the traditional college student in mind and rarely make allowances for the life circumstances of nontraditional students (Hart, 2003). It is practically very difficult for nontraditional students to secure the funding they need to ease the burden of college tuition.

Factors that Contribute to Nontraditional Student Success

Unique strengths. Amidst all these challenges and complications, nontraditional students do have several strengths that are unique to their position. Because nontraditional students share many roles with their professors, such as parent, spouse, and employee, they are able to relate to their professors in a way that traditional students cannot. This opens up the possibility of unique and fruitful relationships with professors (Deutsch & Schmertz, 2011; Forbus, et al., 2010). In fact, several studies have found that these relationships can be central to improving nontraditional student retention (Jacoby, 2002; Laird and Cruce, 2009). If nontraditional students can overcome some of the challenges they face and develop these relationships with their professors, they can bring a great deal to the nontraditional students' college experiences. In fact, research has shown that nontraditional students are especially adept at making the most of their classroom time and engaging in significant interactions with faculty and certain peers (Fairchild, 2003). When compared to the kinds of relationships traditional students develop with faculty

members, the relationships forged by nontraditional undergraduates are stronger. The same can be said of relationships with administrators on campus (Forbus et al., 2010).

Additionally, nontraditional students enjoy a close connection between their educational and career goals. It is rare for a nontraditional student to aimlessly choose to enroll in college, take classes in multiple areas to see what they like, and choose a major without a clear picture of how that major will translate into employment (Chao & Good, 2004). Nontraditional students usually know precisely how their education will translate to their career goals, which contributes to their motivation and their academic success (Chao & Good, 2004; Forbus, et al., 2010). Often they have previous experience in the area they are studying, meaning that certain things come to them more easily (Donaldson & Graham, 1999; Graham, 1998). It is their singular focus on how the things they learn apply to their outside lives that might make them so successful (Fairchild, 2003). When things do become difficult, as they do for traditional and nontraditional students alike, at least one study has shown that nontraditional students handle that stress more effectively than traditional undergraduates, proactively tackling the source of their stress (Forbus et al., 2010).

Finally, nontraditional students exhibit a stronger commitment to learning for learning's sake than do their traditional counterparts (Eppler & Harju, 1997). This commitment to learning for learning's sake, rather than a model of learning that is motivated by grades, leads to better study habits, more long term retention of concepts, and easier application of classroom learning to real-world situations (Eppler & Harju, 1997; Morris, et al., 2003). Overall, this commitment on the part of nontraditional students to learning for its own sake contributes to their academic success (Eppler & Harju, 1997; Forbus, et al., 2010). This helps to explain, in part, why nontraditional students are

generally found to perform academically as well as or better than their traditional counterparts (Jacoby, 2002; Giancola, Grawitch, & Borchert, 2009).

Success factors common to traditional and nontraditional students. While nontraditional students are certainly unique, there are certain factors that have been found to contribute to nontraditional student success in the same way they contribute to the success of traditional students. A student's perception of their ability to succeed is important for students in both groups (Chartrand, 1992). A student who evaluates their own performance positively and indicates commitment to their role as a student is more likely to succeed whether that student is a traditional undergraduate or not (Chartrand, 1990).

The nature of the academic community in which their learning takes place is also central to increasing both groups' success. Smaller class sizes and engaged professors have been found to be significant to student learning whether a student is fresh out of high school or attending college for the second time around (Deutsch & Schmertz, 2011; Donaldson & Graham, 1999). The perception of whether a professor is sufficiently engaged, at least for nontraditional students, is determined by satisfaction with the faculty member's level of respect for students, his or her availability, concern for, and contact with students, and the quality of classroom instruction (Graham, 1998). Finally, both traditional and nontraditional students' educational experiences and chances of success are improved if they have a community of others like them with whom to go through the experience (Deutsch & Schmertz, 2011).

The literature that exists on nontraditional students paints an incomplete picture. While we have good information on the connections between their education and career

goals, some of the challenges they face when they arrive on campus, the rates at which they persist and depart, and the demographic characteristics that many of them share, there are multiple gaps in our understanding of this diverse population of students. The research that follows is a first step in filling some of the holes in our understanding.

CHAPTER 2

PAPER 1: COLLEGE CHOICE AMONG NONTRADITIONAL STUDENTS

Research Questions: To what extent are key characteristics of nontraditional students associated with college predisposition, search, and choice? How are these associations different from those found to be important for traditional undergraduates?

The preceding literature review has demonstrated that nontraditional students make up a significant portion of the college-going population in the United States, that they are different from traditional undergraduates in meaningful ways, and that we cannot learn more about this population of students by simply applying what we know about their traditional counterparts. In the following sections, I will present information on one of the most important areas of research on college students: the college choice process. This process has been the object of extensive study and is central to our understanding of the broader context in which students make the personal and economic decision to enroll in a postsecondary institution (Perna, 2006). While this is an important topic, and nontraditional students make up an important segment of the undergraduate population, our current understanding of nontraditional students focuses on why they leave college rather than why they choose to enroll (Strage, 2008; Giancola, Grawitch, & Borchert, 2009) and our current understanding of the college choice process is based almost entirely on research conducted on traditional students (Bers & Smith, 1987).

There is a significant gap in both the literature on college choice and the literature on nontraditional students. Nontraditional students comprise a significant percentage of the college-going population, and the fact that so many of them are enrolled in college indicates that they experienced a college choice process of some kind, but existing research

tells us very little about what that process might look like, the extent to which it is similar to the processes in which traditional students engage, or how a different college choice process might impact their postsecondary experience. The traditional student college choice literature portrays the process as fairly lengthy, starting early in a student's secondary education, with an extensive search, difficult decision, and significant impact of parents, teachers, and peers. I will show in this paper that there are significant differences between that process and the one experienced by nontraditional students, which is much shorter, more cut and dry, and involves few individuals other than the student him or herself. First, I will outline the existing models of college choice, detail what limited research tells us about college choice for nontraditional students, and present the research question and conceptual framework that will drive this paper.

Existing Frameworks of College Choice

Models of college choice typically examine the issue from one of two perspectives: economic and sociological. A combination of the two is ideal when examining these issues because the economic perspective highlights the determinants of decision-making while the sociological perspective highlights the determinants of the types of information decision-makers receive (Perna, 2006). When reduced to their bare bones, most models of college choice focus on three broad stages: predisposition, search, and choice (Hossler & Gallagher, 1987; Hossler et al., 1989; Hossler et al., 1999; Perna & Titus, 2004).

Multiple factors influence students' predisposition, including families' socioeconomic status, teachers, peers, and interactions with institutions of higher education. Parents are one of the most significant factors in determining whether students enroll in college (Hossler et al., 1999; Hamrick & Stage, 1995, 2000, 2004). The search

phase is the period during which students determine which characteristics of institutions are important by gathering information and developing a choice set of institutions (Bergerson, 2009). As in the predisposition phase, parents are shown to play a significant role in the search process (Galotti & Mark, 1994; Hossler et al., 1999; Martin & Dixon, 1991). Information gathering in this phase can include information on institutions as well as state, federal, and institutional financial aid policies, which are likely to impact the student's decision of whether to attend college, as well as where (Cabrera & LaNasa, 2000; DesJardins, Ahlburg, & McCall, 2006). The final stage of this process is the one during which students make their choice—will they attend college and, if so, where? Institutional characteristics are important here (Hossler et al., 1999, Cabrera & LaNasa, 2000). Also important here are, again, parents, academic ability, and financial concerns (Cabrera & LaNasa, 2000). Other factors that arise in the choice phase include location and course offerings (DesJardins, Dundar, & Hendel, 1999; Goenner & Pauls, 2006; Stewart & Post, 1990; Johnson & Stewart, 1991; Sanders, 1990).

From this basic model, empirical studies have been conducted allowing for refinement and expansion of this model over time. However, these studies have been conducted with traditional college students, making the updated models empirically appropriate for that group of students (Bers & Smith, 1987). Whether the more specific models are appropriate for nontraditional students is unclear. For example, Perna's (2006) model includes a layer for school context, when nontraditional students are typically not enrolled in school when going through their choice process. That model also contains, within the higher education context layer, colleges' recruitment materials, materials that are rarely disseminated to nontraditional students. For this reason, the broadest of the

existing models—predisposition, search, and choice—is the best starting point for exploring this process for a different category of student.

College Choice and Nontraditional Students

For students who are not coming straight from high school, who do not plan to live on their college campus, whose peers are not going through this process alongside them, or whose parents play little or no role in their decision, the steps from first inclination to eventual enrollment are likely to be different from the pictures painted by college choice research among traditional students. While it is certainly true that just like traditional students, nontraditional students are seeking out institutions that will fulfill their needs and desires, it is less certain that those needs and desires are the same in both groups. Moreover, it is unlikely that the two groups of students would prioritize in the same way (Hutchens & Franklin, 2013).

A thorough search turns up only one published study on nontraditional college choice, conducted over 20 years ago, and utilizing qualitative focus groups (Bers & Smith, 1987). This study found that students' predisposition to return was significantly influenced by a significant personal or professional event. This study found that nontraditional students do not engage in any of the sequential search and decision activities suggested by the college choice literature. In fact, the study determined that nontraditional students decide to return and where in one step, eliminating the part of the process wherein students weigh different colleges. The primary factors influencing students in this study were convenience and affordability (Bers & Smith, 1987)

A more recent qualitative study (conducted in an effort to inform the design of this study) found much the same thing and confirmed the finding that convenience and cost are

the primary factors in deciding where to enroll (Bers & Smith, 1987; Hutchens & Franklin, 2013). Additionally, Hutchens & Franklin (2013) found that nontraditional students enrolled in an associate's degree nursing program were very concerned with the employment outcomes associated with the program they chose. They wanted to be sure that they would easily be able to secure employment based on their degree. The information we have on how the choice process works for nontraditional students remains limited, and this paper will begin to expand our knowledge with the hopes of moving toward a model of college choice for nontraditional students.

Research Question

The scholarly community agrees that when, how, and where students choose to enroll in college are issues worthy of close examination due to the extraordinary significance of college-going for both personal and economic development (Perna, 2006). However, our understanding of this issue is based almost entirely on studies of traditional undergraduates, meaning that we have a very limited understanding of whether and how the process might differ among the significant percentage of the college-going population that is nontraditional. For this reason, this paper addresses the questions: to what extent are key characteristics of nontraditional students associated with college predisposition, search, and choice? How are these associations different from those found to be important for traditional undergraduates?

Conceptual Framework

The conceptual framework for this study is based on Hossler's (1987) three critical stages: predisposition, search, and choice. Predisposition is defined as the stage during which a person makes a decision to attend college; search is defined as the stage during

which a person begins to seek information about and narrow down the choice set of colleges; choice is defined as the stage during which the student decides which college to attend. The inquiry into predisposition will focus on the students' background, including previous educational experiences (Hutchens & Franklin, 2013) and professional or educational influences (Perna & Titus, 2004).

The examination of the search phase will examine length of search and determination of choice set, along with methods of information gathering (Galotti & Mark, 1994; Hossler et al., 1999). The examination of the search phase will also include the importance of financial factors and college costs (Cabrera & LaNasa, 2000; DesJardins, et al., 2006). The framework for studying students' choice will focus on institutional characteristics: academic and non-academic offerings, while considering size, location, institution type, degree programs, and course options (Bers & Smith, 1987; Hossler et al., 1999; Cabrera & LaNasa, 2000; Goenner & Pauls, 2006; Hutchens & Franklin, 2013). The importance of significant others to nontraditional students' other college-related decisions (departure/persistence) mean that the framework of this study would be incomplete without an exploration of the role of significant others and, moreover, a determination of which significant others are important (Phillip & Iris, 1997; Deutsch & Schmertz, 2011).

Laid over the basic framework within which these issues will be examined is Perna's (2006) concept of *habitus*. This is the system of thoughts, beliefs, and perception an individual possesses, shaped and perpetuated by their immediate environment. While there are aspects of Perna's model that are unlikely to be relevant, as discussed above, this notion of *habitus* will be key to understanding how nontraditional students view the choice to return to or enroll in college and how they engage in the choice process. An individual's

habitus can be almost entirely subconscious, the result of dispositions and preferences imbued by the people, places, and things with which an individual is surrounded. While an individual may not be actively aware of it, this internal system can determine what an individual views as "possible" and therefore determine their choice set before they consciously begin to do so themselves (Perna, 2006).

Methods

To address these questions, I designed and disseminated a survey to nontraditional students at six institutions: one four-year public institution and five two-year public institutions. To find institutions willing to participate, I contacted representatives from all public institutions, four-year and two-year, in Tennessee. I received responses from seven of them--the four-year institution included here and six two-year institutions. At each institution that expressed interest and willingness, I shared the materials that I submitted to the Vanderbilt IRB, including the approval I received. I then went through each institution's individual IRB process, and received approval from each.

In cooperation with various offices at each institution, I sent the survey to all enrolled students. While not ideal, this was the only method that the institutions would agree to, as it was minimally labor intensive for their staff and did not require giving me access to students' contact information. I wrote the invitation and reminder emails, prepared the online survey, and send the emails and links to the designated individual at each school who would communicate with students via email on my behalf. Because the emails went to all enrolled students, the response rates are very low. Overall, 842 students responded to the survey across all six institutions. Table 1 shows the institutions at which the survey was disseminated, their enrolled student population, and the number of

responses received. The highest number of responses were received from the public 4-year institution (225) and public 2-year institutions E (189) and B (186). The fewest number of responses were received from public 2-year institution D (16). All but one school sent emails specifically regarding this survey. Two-year institution D was not willing to do this, and instead included a very brief ("a couple of sentences") blurb in the weekly email newsletter sent to all students. This may account for the very small number of replies from students at this institution.

Table 1 also attempts to provide some context for the nature of this convenience sample as it compares to the student populations at the institutions from which it was drawn. Institutional data is not available on most of the nontraditional characteristics under study here, so it was not possible to compare the groups on most of those nontraditional characteristics. Part-time enrollment is frequently reported, so it is included for comparison. While not how nontraditionality is defined in this paper, or by the Department of Education, age can serve as a rough proxy for nontraditionality and has the added benefit of being frequently reported by institutions. I provide a comparison of the age of respondents to the age of students at the corresponding institutions for further context. As would be expected of a convenience sample, there is limited parity between the groups.

To capture nontraditional students, and waste the time of as few traditional students as possible, the invitation email delineated the definition of nontraditional students and indicated that only those students with one or more of the highlighted characteristics should take the survey. The survey was then designed so that the first question asked students to indicate, from a checklist, which characteristics described them.

Those students who did not select any nontraditional characteristics were then bumped to the end of the survey and thanked for their time. Because the invitation emails were clearly worded, only 31 of the 842 responses were from students who had no nontraditional characteristics. I excluded these students from the data set during analysis.

Pilot Testing

Before the survey was administered, I conducted a pilot test. This pilot test was conducted online through Amazon's Mechanical Turk (MTurk). MTurk is an online platform through which researchers (and others) can request assistance with various tasks. In this case, I requested 25 individuals to complete the survey and provide feedback on its length and the clarity of questions and answer choices. I offered $2.00 for each unique pilot tester, including completion of the survey (for timing purposes) and feedback regarding content. Each individual who completed the pilot survey was required to complete the entire survey and provide feedback where requested. I reviewed responses for appropriateness and thoroughness before deciding whether to approve the task. Only when the task was approved were pilot testers able to receive their $2.00.

For the purposes of the pilot test, each item was followed by the following statement: "The preceding question was confusing or problematic." Respondents were able to select "yes" or "no," and those who selected "yes" were asked to explain the issue. The respondents helped improve the clarity and structure of the survey by suggesting alternate wording, more intuitive formatting, and more complete answer choices. Where appropriate, I incorporated these changes into the survey instrument that ultimately went to students. A copy of the final version of the survey instrument is attached in Appendix A.

Survey Dissemination and Data Collection

I used Qualtrics survey software to design and disseminate the survey, and to collect the results (Qualtrics, Provo, UT). I sent invitation email text and survey links to each institution, representatives of which then sent the invitation and links to their students on my behalf. I was never given access to students' contact information. Responses were stored in the cloud on Qualtrics' website, which is password protected, and all responses were anonymous. I was not able to connect responses to individual students. Since downloading the data from Qualtrics, it has been stored in a password-protected file.

Tennessee context. There are a variety of factors that make the geographic context of this study important to discuss. This survey was conducted in the fall of 2014, when a variety of relevant policies were being discussed and implemented by the state of Tennessee. The Complete College TN Act was passed in January 2010. This act created a statewide transfer policy that eased the transition for students from two-year to four-year colleges (Tennessee Higher Education Commission [THEC], 2011). The improved transfer agreements, allowing students to pursue a four-year degree at lower cost by spending two years at a community college, may have drawn students to community colleges who would otherwise have attended a four-year institution. This could mean that, at the time of this survey, there were more “traditional” students, and students of traditional age, than would have been present in the community college otherwise. Governor Bill Haslam launched his “Drive to 55” initiative in September 2013, with the goal of increasing the percentage of state residents with a post-secondary credential to 55 percent. A centerpiece of this plan was to encourage re-enrollment among those 940,000 adults with some college credit but no degree (Drive to 55 Alliance, 2016). This could have led more students with previous

post-secondary experiences to enroll in college in Tennessee at the time of this study. It should be noted, however, that the Tennessee Reconnect initiative, the initiative that in March 2015 put into practice the goals of high adult enrollment, was not implemented until after this survey was conducted. The push for higher adult enrollment will not have affected this survey as much as it might have had the survey been conducted one year later.

Analysis

The analysis of this data largely focuses on rich descriptive statistics along with cross-tabulations examining the relationship between various nontraditional characteristics and students' college choice experiences. Results will be presented in the aggregate here, but for institutions that request a report on their students' responses, the results can be broken down by institution. The bulk of the analysis reported here is aimed at painting a clear picture of the college choice process experienced by the students at the six Tennessee institutions. Frequencies, means, and conditional means will paint most of this picture, while chi-square tests of independence will allow assessment of the relationship between college choice processes and the various types and levels of nontraditionality. Additionally, to assess differences between the groups of nontraditional students (minimally, moderately, and highly nontraditional), I performed ANOVA with *post hoc* Scheffé.

Variables. The survey collected information on the following variables: gender, age, marital status, nontraditionality (characteristics defined by the United States Department of Education), previous college enrollment, search and application behavior, reason for returning/enrolling, importance of various college characteristics, and the role of significant others in the choice process.

Results

The following section will detail the results of the survey of nontraditional student college choice at six institutions in Tennessee. To follow the conceptual framework introduced above, the results will be broken down into the following sections: predisposition, search, and choice. This will be followed by a discussion of how these might vary by type of nontraditionality, and whether there are differences across institutions. First, I will provide a few basic details about the students who responded to the survey.

Of the nontraditional students who responded, 22.8% are minimally nontraditional (one nontraditional characteristic), 51.0% are moderately nontraditional (2-3 nontraditional characteristics), and 26.2% are highly nontraditional (four or more nontraditional characteristics). Nationally, approximately 23% of nontraditional students are minimally nontraditional, while 38% are moderately nontraditional, and another 38% are highly nontraditional (U.S. Department of Education [USDE], 2015). This sample has an overrepresentation of moderately nontraditional students and an underrepresentation of highly nontraditional students, when compared to the national averages. Nearly 54% of respondents have been enrolled in college before. The number of colleges in which students had previously enrolled varied, with a mean of 1.54 institutions. The mean age of respondents was 31.4 years, and respondents ranged in age from 17 to 72 years.

The students were asked to indicate which nontraditional characteristics described them. Nearly 58% of respondents report starting college more than seven months after graduating high school (compared to 34.2% nationally); 36.8% attend college part time (compared to 43.4% nationally); 52.7% work more than 35 hours a week while attending college (compared to 25.9% nationally); 46.8% are independent for purposes of financial

aid (compared to 51.3% nationally); 47.8% have dependents other than a spouse (compared to 27.5% nationally); 21.1% are single parents (compared to 15.2% nationally); and 4.6% are attending college without a high school diploma (compared to 9% nationally). These numbers, along with other basic descriptives can be found in Table 2.

Predisposition

Respondents were asked to indicate why, at this particular point in their lives, they decided to enroll in college. While it is likely that many students had multiple reasons, they were asked to select only one--the reason that had the greatest impact on their decision. The most common response indicated that respondents had always planned to go to college, but that this was the right time (28%), while the next most popular response indicated that they decided to attend for personal growth (27%) (see Table 3). For approximately 24% of respondents, the choice was related to their professional life: about 10% enrolled so they could change career fields, nearly 8% enrolled so that they would qualify for a better paying job, and nearly 4% enrolled because they had lost their job. Just under 1% indicated that enrolling in college was required by their employer. Over 11% indicated that their return was precipitated by a significant personal event (divorce, death, etc.).

Respondents were also able to fill in their own reasons for choosing to enroll, and 80 provided a written response. Multiple students' text responses indicate that their job was their primary motivation—for some a desire for promotion, for others anticipating the end of their current job and the need to pursue another for which their current level of education would be inadequate, and still others who have hit a wall in their field and need a degree to get past it (16). For example, one student said, "I may lose my job soon," while

one said, “I lost my job of 21 years.” Another said, “I need a degree to continue to work in my field,” while one student said “I am unable to continue on my desired career path without it.” If these responses are added to the career related options students could have selected above, it appears that 25% of respondents returned to or began school because of their job. It is possible that those who chose “other” and wrote in a job-related option did so because the options they could have chosen in the survey did not feel entirely accurate to their lives. A few students (6) indicated that they had always planned to attend college, but their decision to enroll when they did was the result of finances finally coming together. For example, one student said, “I had to wait several years after high school for my family financial situation to calm down and stabilize,” another said that she had student loans from a previous enrollment episode that needed to be taken care of before she could re-enroll. Text responses also indicate the importance of the GI Bill (5) and a sudden disability (5) as motivation for the timing of an enrollment decision.

These responses did differ slightly by level of nontraditionality (see Table 4 and Figure 1). Highly nontraditional students were more likely to indicate that they returned to college due to a significant personal event (14.4%) than were moderately (10.9%) or minimally (9.5%) nontraditional students. Minimally nontraditional students were less likely to indicate that their decision to enroll at this point in their lives was related to their professional life. Only 14.8% of minimally nontraditional students selected one of those responses, while 23.7% of moderately nontraditional students and 26.3% of highly nontraditional students selected a response that was related to jobs or careers in some way. Additionally, highly nontraditional students were less likely to indicate that they had "always planned to" enroll and that this was just the right time. Only 22.8% of them gave

this response, compared to 28.3% of moderately nontraditional students, and 35.5% of minimally nontraditional students.

The literature on college choice focuses the discussion of predisposition on parental influence, teachers and peers, and interactions with institutions of higher education (Hossler et al., 1999; Hamrick & Stage, 1995, 2000, 2004). Moreover, predisposition is often understood as occurring at a specific point in time, usually related to a students' secondary schooling (Cabrera & LaNasa, 2000; Perna, 2006). Perna (2006) indicates that significant amounts of research on predisposition focus on the high school years, while Cabrera and LaNasa assert that the predisposition phase of college choice is associated with a specific age cohort corresponding to grades 7-9. However, the results reported here indicate that this understanding of predisposition is inadequate for nontraditional students. None of the responses from these nontraditional students emphasize their parents, peers, or secondary educational context. Predisposition among nontraditional students is not confined to a specific age range, but instead may be constrained to a specific set of circumstances.

Search

The search process for these students appears to be fairly brief. Among survey respondents, over 65% started looking at colleges less than six months before they officially enrolled (see Table 5). Among highly nontraditional students, this brief search period was even more common; nearly 75% of these students started looking less than 6 months before enrolling. Highly nontraditional students are less likely than moderately or minimally nontraditional students to search for more than six months or a year, but some

do engage in a search process that lasts that long (see Table 6). The differences between highly nontraditional students and the other two groups are significant at $p < .05$.

When determining the set of schools in which they are interested, over 57% of respondents indicate the internet as the primary source of information--this remains fairly constant across levels of nontraditionality. Word of mouth is the next most important source for nontraditional students here, with approximately 40% of students indicating that word of mouth played a part in highlighting their enrollment options. Driving by campuses was not particularly common as a means of providing institutional choices, but it was more common among minimally nontraditional students (19.6%) than among moderately (16.2%) or highly (12.6%) nontraditional students. Several students provided text answers to this question, and these answers indicated that an institution being close to home played a key role in bringing it to a student's attention. Of the 107 students who provided a text response to this question, 66 mentioned the importance of an institution being close to home, and hence at the forefront of a student's mind when seeking out institutions in which to enroll—"it was the closest to home," "the local college," or the "college within my community." Another 15 students indicated via text response that their search process was limited to a single institution because it was the institution in which they had previously enrolled. Very few text responses indicated that the search was influenced by admissions recruiters (6), information from the Department of Veterans Affairs (3), or employers (1).

These results were compared across students enrolled at the four-year institution, and those enrolled at one of the two-year institutions using t-tests for equality of means (all differences reported here are significant at $p < .05$). This comparison indicated that

students in the sample at a four-year institutions engaged in a slightly longer search process than did students at two-year institutions. The results were also compared, using the same tests, across male and female students. This comparison indicated that driving by campus was a search strategy more likely to be used by men than by women. No other differences in search process were found.

Information gathering. The most important source of information for students was, as would be expected, institutional websites (see Table 7). Nearly 71% of students indicate that this was their source. Another important source of information for these students are in-person campus visits (34.2%), though organized campus visit days did not appear to be popular (10.2%). They are significantly less popular among highly nontraditional students than in the other two groups ($p < .05$) (see Table 8). Students across all levels of nontraditionality indicate the importance of conversations with current students, which reflect the importance of word of mouth discussed above. While minimally nontraditional students are somewhat unlikely to call for information (14.5%), highly nontraditional students will utilize phone calls to gather information, though the number who do so remains low (26.2%) ($p < .05$). Students were also able to provide their own answers to this question, and their text responses confirm the importance of word of mouth.

Student responses to this question reflect the understanding within the broader college choice literature that higher education institutions can influence a students' college choice program "passively," merely by being close to students (Perna, 2006). The text responses reported here show that this is true for nontraditional students as well. The difference between traditional and nontraditional students in this area seems to be that

more information comes to nontraditional students "passively," while the same information is communicated both passively and actively to traditional students (Perna, 2006; Bergerson, 2009). The broader college choice literature also emphasizes the role of parents, teachers, and peers in traditional students' college choice process (Perna, 2006; Galotti & Mark, 1994; Hossler et al., 1999; Martin & Dixon, 1991). The equivalent of this among nontraditional students appears to be "word of mouth," an important element of this process. The idea that those with whom the potential student interacts regularly will play an important role in the search process is sound. However, it is important to note the differences, especially the lack of teachers and parents influencing nontraditional students' searches, and the changing nature of "peers" as individuals become more distant from formal schooling.

As described above, these results were compared across two-year and four-year students and across male and female students. The comparison revealed that nontraditional students at the four-year institution were more likely to gather information via campus visit days, conversations with current students, and college guidebooks than are traditional students. No other differences in information gathering were found.

The Decision

Finally, respondents were asked to indicate how they factored in a variety of institutional characteristics when making their final enrollment decision. They could rate each characteristic on a scale from 1 to 5, 1 indicating "unimportant" and 5 indicating "very important." They were also able to indicate "not applicable." See Table 9 for full details of the results of this question. The means displayed are based on the 1 to 5 scale. Among all respondents, availability of a specific major and cost were the two most important

institutional characteristics. This was true of each nontraditional type, as well, though among highly nontraditional students cost replaced availability of a specific major as the primary concern (see Table 10).

Institutional characteristics with mean importance of greater than 4 were availability of a specific major, cost, quality of faculty, access to faculty, variety of courses offered, and overall academic reputation. With the exception of cost, each of these characteristics relate to the academic function of the institution. In contrast, the characteristics that are least important all fall outside of the academic sphere: on-campus housing, athletics, child care, extracurriculars, and social life. These unimportant characteristics are fairly consistent across all levels of nontraditionality, with only a few minor differences. The significant differences include greater importance placed on social life and campus attractiveness by minimally nontraditional students, when compared to both moderately and highly nontraditional students ($p < .05$). The different importance given to available childcare by highly nontraditional students, versus minimally nontraditional students, is not great in magnitude but is statistically significant ($p < .05$) (see Table 10 and Figure 2).

Comparisons across institutions types and gender revealed a few differences in importance of various factors. Two-year college students place more emphasis on academic reputation and out of pocket cost than do students at four-year colleges. There are many more differences in important factors between male and female respondents. In each case, female respondents give more weight to the factor than male respondents. This is true for quality of faculty, availability of major, academic reputation, variety of courses,

concentration on undergraduates, prominent athletics, out of pocket cost, athletics, available religious activities, and location.

Opinions of significant others. Because, often, college choices are the result of discussions between students and significant others in their lives, respondents were asked to look at a list of possible significant others and indicate how the opinions of each factored into their college decision. For each--parents/guardians, spouse/significant other, children, friends/coworkers, potential future employers, others--students could rate the importance of their opinion on the same 1 to 5 scale discussed above. None of the significant others listed were overwhelmingly important to these respondents' choice processes (see Table 11). The highest rated opinion (mean = 2.8) was that of potential future employers. Over 51% of respondents indicated that potential future employers' opinions were important or very important. Children and friends/coworkers proved to have the least important opinions among survey respondents, with 30% and 20% indicating their opinions were important or very important, respectively.

Nearly 9% of respondents indicated that there were other opinions that were important or very important to them in making their college decision. They provided text responses to further elucidate what these other opinions were. A common theme in these text responses is that the only opinion the student took into account was their own. Several simply answered "myself," while others were more explicit. For example: "I looked at what I wanted to do in my life and ignored pretty much everything else. It's my turn!" Another student wrote, "I'm selfish. My college degree is mine alone. The opinions of others are taken into account but do not matter as long as I know my choice is right for me." Another said, "I wanted to start college for many years, so when I finally chose to start I really did

not care what anyone else thought, I knew it was right for me." Another common response was that previous graduates had played a part in the decision, either through conversations or through example. One respondent indicated that the nurses that cared for her ailing parents had graduated from the institution in which she eventually enrolled, and she believed they must have received an excellent education and were respected by their employer.

The seeming unimportance of the opinions of significant others is a pattern that holds across all levels of nontraditionality (see Table 12). However, there are a few differences of note. Parents and guardians are most important, on average, to minimally nontraditional students, followed by moderate, and then highly nontraditional students. The reverse is true for the importance of spousal opinions—they are least important to minimally nontraditional students, and most important to their highly nontraditional peers. Children's opinions rate especially low (less than 1 out of 5) for the least nontraditional students, and are increasingly important the more nontraditional characteristics a student has ($p < .05$). These patterns make sense given the types of students who are likely to fall into each category, but it is important to keep in mind that all these significant others' opinions are rated as fairly unimportant (less than or equal to 3 out of 5, where 3 means "moderately important").

Cost and academic factors are important to nontraditional students, while the opinions of significant others are not. The important of cost and academics can be found in the college choice literature on traditional students as well (DesJardins et al., 1999; Goenner & Pauls, 2006; Stewart & Post, 1990; Johnson & Stewart, 1991; Sanders, 1990; Hossler et al., 1999), indicating that certain factors in college choice cross the

traditional/nontraditional boundary. However, the responses reported here indicate that an understanding of college choice for nontraditional students will require reevaluation of the role of significant others (family, teachers, etc.). No opinions other than the students' own merited much consideration from the respondents here, which is in stark contrast to the importance of parents, teachers, and peers that studies of traditional students have reported (Cabrera & LaNasa, 2000; DesJardins, et al., 1999; Goenner & Pauls, 2006).

Relationship between Nontraditionality and Choice Process

The analysis conducted here includes an examination of how the choice processes varied by type of nontraditionality—this focuses on specific characteristics of the nontraditional student, allowing an exploration of whether delayed enrollers, part-time attendees, full time workers, financially independent students, students with dependents, single parents, or those without a high school diploma experience the choice process in significantly different ways. To assess the significance of the observed differences, chi-square tests of independence were performed to examine the relationship between type of nontraditionality and students' predisposition, search, and final choice. Unless otherwise noted, the differences discussed here are statistically significant at $p < .05$.

Type of Nontraditionality

One of the important questions raised above is whether the nature of a student's nontraditionality impacts their college choice process. The following section will examine the aspects of the choice process discussed above in the context of each nontraditional characteristic: enrolling more than seven months after high school, enrolling part time, working more than 35 hours per week, being financially independent for purposes of

financial aid, having dependents other than a spouse, being a single parent, and having no high school diploma.

Reasons for enrolling now. Students who enrolled more than seven months after high school report significantly different reasons for enrolling now than students who did not ($p < .05$). More of these delayed enrollers report enrolling due to a significant personal event or a lost job. Part-time enrollers report enrolling in order to find a better paying job, while full-time enrollers more frequently report that they had always planned to enroll but felt that this was the right time ($p < .05$). There are stark differences between students who work more or less than 35 hours a week ($p < .001$). Full time workers are much more likely to report enrolling in order to get a better paying job, while those who work less than 35 hours per week are more likely to cite a significant personal event as their reason for enrolling now. Students who are financially independent are less likely to report enrolling due to a significant personal event, and more likely to report a desire to change career fields ($p < .05$). Students who do not have dependents are much more likely to indicate that this is "just the right time," while students with dependents are more likely to report enrolling because of a significant personal event ($p < .05$). This difference also exists between students who are and are not single parents, but is even more pronounced ($p < .001$). There does not appear to be a difference between those with and without high school diplomas in terms of motivation for enrolling.

Search process. Search time does not vary widely across the different types of nontraditionality. The exception to this is students with dependents, more of whom search for 1-6 months, while students without dependents are more likely to search for over a year ($p < .01$). Students with dependents and single parents are less likely to use the

Internet as part of their search process ($p < .05$). Those who are financially independent are more likely to do so ($p < .05$). The search process does not appear to be related to other variations in nontraditional characteristics.

Information gathering. There is some variation across types of nontraditionality in terms of how students gather information during their search process. Students who delay their entry more than 7 months are more likely to gather information via internet ($p < .01$). These same students ($p < .01$), along with those students with dependents ($p < .05$), and those without a high school diploma ($p < .01$), are more likely to call institutions to get more information. Full time students ($p < .05$) and students without dependents ($p < .01$) are more likely to visit the campus for information than part time students and those with dependents. Organized visit days are more popular with immediate enrollers ($p < .001$), full time students ($p < .05$), and those with dependents ($p < .01$).

Important factors. Part-time students rate availability of major as less important than do students enrolled full time ($p < .05$). Students working full time rate availability of major as slightly more important than do students working less than 35 hours per week ($p < .05$), they also are more likely to emphasize variety of course offerings ($p < .05$). Single parents think academic reputation is more important than students who are not ($p < .05$). Students who are independent in terms of financial aid indicate that access to faculty is less important than it is for dependent students ($p < .05$). On campus housing is, for a number of reasons, less important to nontraditional students generally, but the difference is especially pronounced for delayed versus on-time enrollers, part-time vs. full-time students, and students with dependents versus students without ($p < .01$). Students who work more than 35 hours per week and financially independent students are more likely to

think available childcare is unimportant, compared to their part-time working and financially dependent counterparts ($p < .01$). Predictably, students with dependents and single parents are more likely to emphasize availability of childcare ($p < .001$). Students who are financially independent rate an institutional concentration on undergraduates as slightly less important than students who depend on their parents for purposes of financial aid ($p < .05$). Delayed enrollers and financially independent students do not emphasize prominent athletics, when compared to on-time enrollers and financially dependent students ($p < .05$). Delayed enrollers ($p < .01$) and financially independent students ($p < .05$) rate the availability of athletics in which to participate as less important than do their counterparts. Delayed enrollers ($p < .01$), part time students ($p < .05$), and students with dependents ($p < .001$) feel similarly about the availability of extracurricular activities. Part-time students ($p < .05$) and students with dependents ($p < .001$) rate off-campus opportunities as less important than do full-time students and students with no dependents. Delayed enrollers, financially independent students ($p < .05$), and students with dependents ($p < .001$) rate a campus' social life as less important than their traditional counterparts.

Opinions of significant others. Respondents were asked to indicate the role of various significant others' opinions in their college choice process. The importance of these opinions varied somewhat by type of nontraditionality. Students with dependents of their own rate the opinions of their parents as less important ($p < .001$) than students with no dependents, as do students with no high school diploma, when compared to students with a diploma ($p < .05$), though the disparity is less marked. Students working more than 35 hours per week were more likely than others to have a spouse or significant other. Among

students with spouses, those who work less than full time were more likely to assign high importance to their spouses' opinions ($p < .01$). Students with dependents and a spouse rate their spouses' opinions as more important than do students with no dependents ($p < .001$). Single parents rate their children's opinions as more important than do parents with a spouse or significant other ($p < .001$). Those students who already have full time employment are less likely to emphasize the opinions of future employers in their college choice process than students with no job, or only part-time work ($p < .05$).

Summary. The preceding paragraphs provide a lot of information on the differences between students with and without certain nontraditional characteristics, and it is helpful to think about the sum of the information about each type of nontraditionality. Students who delay enrollment are more likely to enroll when they do because of a significant personal event, and they find on-campus housing, athletics, extracurricular activities, and campus social life to be especially unimportant. Students who are enrolled in college part time are likely to enroll in order to find a better paying job, and they find available majors, on-campus housing, and extracurricular activities to be especially unimportant. Students who work full time are likely to enroll to find a better paying job, they find availability of a specific major to be especially important, and they deemphasize the importance of their spouses' and future employers' opinions. Students who are financially independent are likely to enroll in order to change career fields, and they find access to faculty, concentration on undergraduates, athletics, and campus social life to be unimportant. Those with dependents and a spouse or partner are likely to enroll because of a significant personal event, after a shorter search for which they are less likely to use the internet. To these students on-campus housing and extracurricular activities are notably unimportant,

as are the opinions of their parents; the opinions of their spouses are more important than those students who are married but have no children; the availability of childcare is important. Single parents are also likely to enroll because of a significant personal event and less likely to use the internet in their search; the availability of childcare is important to them. Additionally, the opinions of their children are more important than they are to non-single parents.

When viewed this way, a few interesting patterns emerge. The similarities between parents, both single and non-single, are not surprising. Parents are more likely to enroll in college because of a significant event. The examples given in the wording of this question are "loss of spouse/significant other, loss of parent, birth of child, divorce, etc.," so it is possible that the birth of their children had an impact on their decision, several text responses indicate that students wanted to provide better for their kids. It is also possible that, for single parents, the loss of a previously breadwinning spouse led them to return to school out of necessity. Predictably, parents are interested in potentially available childcare. Part time enrollers and full time employees are more likely to start college to find better paying jobs, which may indicate nothing more than a significant overlap between those who work full time and enroll part time.

Discussion

The first important point about this study is that the results, while potentially informative, are not broadly generalizable. First, because of the wishes of the participating institutions, random sampling was not possible. The surveys were made available to all students at all institutions, and very small percentages of those students chose to respond. There are likely to be significant differences between students who chose to respond to the

survey and those who did not; answers to these questions from non-responders might well have painted a different picture.

It is important to keep in mind, throughout this discussion, how this sample of students compares to the broader national population of nontraditional college students. Nationally, 25.3% of students are minimally nontraditional, compared to 22.8% in this sample; 42.4% are moderately nontraditional, compared to 51.0% in this sample; and 32.3% are highly nontraditional, compared to 26.2% in this sample. The sample of students discussed here over represents the number of highly nontraditional students, and underrepresents the number of moderately nontraditional students. This could indicate that highly nontraditional students were more inclined to respond to the survey when they received it, perhaps in order to gain the opportunity to share their stories, if they feel unheard within the wider context of higher education.

Nationally, over 51% of nontraditional students delay their entry into college—in this sample, nearly 58% did so. This sample underrepresents students who attend part time, over 43% nationally, but only 37% here; students without a high school diploma are also underrepresented (4.6%, compared to 9%). On the other hand, single parents are slightly overrepresented here (21%, compared to 15%). Similarly, the proportion of students who work full time is vastly higher in this sample (52.7%) than in the population at large (25.9%). Finally, the number of students who are financially independent or who have dependents other than a spouse is roughly similar (47% and 48%, respectively), but nationally, financially independent students far outnumber students with dependents (51%, compared to 28%). These differences confirm the caution with which these results must be taken.

Predisposition

There seem to be two types of predisposition that emerge most frequently from the results reported above: professional predisposition and right time predisposition. Despite previous indications (Hutchens & Franklin, 2013) that significant personal events, i.e. divorce or death of a significant other, lead a number of nontraditional students to enroll in college, only 11% of students in this sample indicate that an event like that was the catalyst for their decision to enroll. Instead, the most frequently cited reasons for seeking to enroll in college at this particular point in time include personal growth, professional reasons, and a sense that it was the "right time." Among those students indicating that this was the "right time," six of their written responses indicated that this sense was financial, that what had prevented them from enrolling previously was a lack of funds or other things on which they were required to spend their money. An additional five written responses indicate the respondents decided to begin the college search process because they had received GI Bill funding, funding without which they would not have been able to consider college. This indicates that the notion of the "right time" is complex for nontraditional students, and that a variety of factors must come together in precisely the right mix in order for college to be a feasible option.

The biggest difference in predisposition between students of different levels of nontraditionality was related to professional reasons for enrolling. Minimally nontraditional students cited this as their reason for enrolling much less frequently than other nontraditional students. Minimally nontraditional students in this sample were more likely to point to have a "right time" predisposition, than more nontraditional students, who were likely to have a "professional" predisposition. Further examination of these

differences is certainly warranted, as it may point to a significant difference in predisposition among students of different nontraditionality levels. If moderately or highly nontraditional students have more responsibilities outside of their potential student role, they may see more barriers to their entry into college, so the "right time" may be harder for them to find.

This notion of "barriers to entry" is one that may be key for nontraditional students, and it would be most relevant in this predisposition stage. It is possible that barriers to entry is intricately linked to the difference between "right time" predisposition and "professional" predisposition. Students with a "right time" predisposition may do so because they have fewer, or less significant, barriers to college entry at the time they are answering the question, and this could be related to their position as less nontraditional. If a student only has one or two nontraditional characteristics, they are likely to have fewer responsibilities standing between them and the time it takes to pursue postsecondary education. The notion of entering college because it is "the right time" is more reflective of the experience of traditional college students who experience the pipeline from secondary to postsecondary education on a "traditional" timeline (Perna, 2006). Those with a "right time" predisposition may have more in common with traditional students than do those with a "professional" predisposition.

If a student has many nontraditional characteristics—i.e. they are a single parent, working full time, taking care of a dependent parent, and they have been out of school for many years—they are very different from a traditional college student. Because of the many demands on their time and energy, they would need to see a clear benefit of taking on yet another responsibility (college). This could take the form of an employer requirement

for continuing education, certification, or a degree; a clear and present need for a better paying job that can only be achieved through postsecondary education; or a necessity to change career fields, due to job loss, personal injury, relocation, or a host of other potential reasons. This may be why more nontraditional students are more likely to have a "professional" predisposition—because by the time they have decided to enroll in or return to college it is for a very specific reason that they believe will result in concrete benefits. This is an area of nontraditional student predisposition that would benefit from closer investigation, as it seems to diverge markedly from our notion of predisposition for traditional students.

This relationship between barriers to entry and a students' predisposition is a topic of discussion in the literature on traditional college students as well (Cabrera & LaNasa, 2000; Cabrera & LaNasa, 2001; Grodsky & Jones, 2007). In that literature, many barriers take the form of aversion to the cost of college, leading parents and families to not consider college as an option (Burdman, 2005; Grodsky & Jones, 2007). This would lead to a particular student's choice not to attend college. The nature of this study is such that every student surveyed did make the choice to attend college, so by definition they all overcame cost as a barrier to entry. However, the number of students indicating that they chose to enroll because their financial situations were finally sorted out indicates that up to that point, cost had been a barrier to these students who were otherwise predisposed to attend college. The adds credence to the possible link between "right time" predisposition and cost concerns that is discussed above.

Search

Importance of search time. Most students in this sample searched for a college in which to enroll for less than 6 months (over 65%). The U.S. Department of Education (USDE) recommends to traditional students that they have their list of potential colleges narrowed down by the summer before twelfth grade—a full 13-15 months before a theoretical fall enrollment (USDE, 2016). Additionally, Tennessee's state financial aid deadline falls on March 1 (only two months before a summer start date, and five and a half months before a fall start date), and a student must list an eligible in-state school on his or her application in order to be eligible for state aid (USDE Federal Student Aid, 2016).

If it is true that many nontraditional students in Tennessee limit their entire search process to 6 months (nearly 75% of highly nontraditional students indicate this is their time frame), a number of conclusions can be drawn. First, that their search process is quantitatively, and perhaps also qualitatively, different from the search process of traditional undergraduates. Second, it might indicate that they are at a disadvantage when it comes to state financial aid. A student applying for admission in the fall or spring semesters may not begin search until close to or after the March 1 deadline, leaving them unable to claim state financial aid for at least the first semester of their enrollment. Financial aid is central to persistence and completion (DesJardins, et al., 1999; Bettinger, 2004), so this disadvantage in terms of financial aid could negatively impact not just enrollment, but also student outcomes.

Nature of search. A potential explanation for nontraditional students' truncated search process can be found in the text responses to the question "how did you go about looking for places to enroll?" Of the 107 respondents who clarified their choice of "other"

with a written answer, 66 referred to the college closest to their home, indicating that their search process was not really a "process." Rather, these students seem to be indicating that they identified their limited choice set by referring to the only college(s) with which they were familiar—the college(s) they saw on a regular basis, as a part of their daily routine. These students were aware of the colleges' existence not because of an internet search, word of mouth, or other method, but because the college was part of their landscape, it was the default option. The written answers to this question point to the importance of students' environment in determining their college choices and of understanding students' various "default" options, as these may play a significant role in deciding a students' choice set of colleges.

It is important to remember that the college choice literature does acknowledge the potential for colleges to passively “recruit” students by simply being around and a part of the students’ daily landscape, as seems to be the case for many students in this study (Perna, 2006). This passivity is likely to be more important among nontraditional students than traditional students, simply because active recruitment is much easier among traditional students. Traditional students are easy for institutions to find and provide with information—they can be found at school or at college fairs, the sorts of places admissions counselors are likely to go. Nontraditional students are significantly less easy to recruit because it is difficult to know where one is likely to find a concentrated group of potential nontraditional students. It makes sense that the influence of colleges and universities on nontraditional students’ searches would be more passive in nature, that they influence search by being in the right place in the student’s landscape, and this is reflected in their responses to the question about their search.

While the role of the internet in the search process is surely significant, only 57.5% of respondents report using internet searches to look for potential institutions. Nearly 41% point to word of mouth, indicating yet another aspect of a student's environment that impacts their choice set: the people with whom nontraditional students interact regularly. This is also true for traditional students (Hossler et al., 1989; Hossler & Stage, 1992; Cabrera & LaNasa, 2000). However, it appears that individuals who play a significant role in traditional students' initial search are very minimally involved when it comes to nontraditional students' searches. Of all respondents, only six mention admissions counselors or recruiters as helping them navigate this process, though these individuals are very important to traditional students (Perna, 2006). It is difficult to know whether that is because admissions professionals are more likely to be able to seek out and speak with traditional students, or because nontraditional students are less likely to feel compelled to seek input from an enrollment officer. Certainly, both are possible, and the question could be further explored. The other individuals who play an important role for nontraditional students are an open question. This study indicates that the parents, teachers, and peers who play such an important role in the literature on traditional students do not play the same role for nontraditional students engaged in the college search process.

Student landscapes. Both the idea of word of mouth and proximity of the college to a student's home highlight the importance of a student's "landscape," an important concept to emerge from this study. By "landscape," I mean the world in which a student exists on a daily basis, the people with whom they speak and interact, and the landmarks they see and recognize. This landscape seems to be where many students get their information and where many of them wish to stay, either because it is comfortable or because going

elsewhere is not an option for them—perhaps because of their job, children, or other dependent family members. This could also raise the issue of "commute time" as a factor in nontraditional students' college choice; it was not included in the current survey, but should be included in future studies. The landscape in which a nontraditional student exists when they make the decision to enroll in college may have a much more significant impact on his or her choice set than it would on a typical traditional student. While a traditional student may be limited to going to college within his or her landscape because of a variety of socioeconomic factors (Cabrera & LaNasa, 2000; Cabrera & LaNasa, 2001; Perna, 2006), a nontraditional student may be limited to remaining there because of the significant roots they have in that place, developed over the course of their adult life. This limitation could very well be socioeconomic for nontraditional students as well, but based on their answers to these several questions, it seems possible that their reasons for remaining within their landscape may be broader than that. Exploring the difference between traditional students who choose to stay close to home and nontraditional students who do so could provide significant information about the differences and similarities between these two groups.

This notion can be tied to Perna's (2006) *habitus* in the sense that *habitus* is likely determined by a person's landscape. It can be helpful to view the concept of *habitus* as the linking mechanism between a person's landscape and their college choice behavior. The landscape, as discussed above, is the surroundings that Perna (2006) refers to as creating internalized dispositions and preferences that subconsciously define what an individual will view as possible or reasonable. While Perna's model focuses on *habitus* especially as it creates attitudes about and aspirations for college attendance, it seems from these data that nontraditional students' *habitus* determines the extent to which they feel tied to their

immediate physical surroundings and therefore to the postsecondary institution that is close by. It is important to consider that this close tie to a nearby college, due to the impact of landscape on a student's habitus may lead to undermatching among nontraditional students to a greater degree than we see among their traditional peers. Undermatching occurs when a student attends a college that is less selective than their level of ability and achievement would indicate they could (Bastedo & Flaster, 2014). Typically, this is observed among students from disadvantaged backgrounds, but it could be an important concept for the study of nontraditional students as well.

Information Gathering. This survey differentiated between looking for colleges in which to enroll and gathering information on those colleges, assuming that, for some students, there are multiple tiers within the search process (Bergerson, 2009). I have conceptualized the first tier as the "search" process and the second as "information gathering." The internet plays a significant role in both, according to respondents, but more students report using the internet to gather information (70%) than for their initial search (57%). This may be an indication that the search process is less extensive than the information gathering process, for nontraditional students. If nontraditional students are limited by their "landscape" when searching for a college to attend, it is possible that the decision to enroll in or return to college and the identification of a specific potential college are simultaneous occurrences. If this is the case, nontraditional students would be less likely to need the internet to assist in "searching" for a school, and more likely to use it to gather information about that school once it's been identified.

The importance of a student's landscape is further supported by the text responses to this question. Most of the students who wrote in answers regarding their information

gathering process emphasized that they received significant input via word of mouth (42%). Whether in the form of "friends," "conversations with employers, managers, and others related to my field," or "conversations with graduates," students' responses suggest that they gathered information about their potential institution by asking around. Within their daily landscapes, they encountered multiple people who had information about the institution, and were able to ask for perspective from people who had attended the institution, or knew someone who had, or had employed graduates, or had worked there.

This is not to discount the importance of internet to the information gathering process. It is important for students across the levels of nontraditionality, and across types of nontraditionality. Students who are nontraditional due to delayed entry into college are more likely than on-time enrollers to gather information via the internet. This makes sense in the context of delayed entrants' lives; delayed entrants are likely to have jobs or other responsibilities the place significant constraints on their time, making the internet the easiest place for them to gather information. They are less likely than on-time enrollers to be able to contact institutions during regular business hours, or attend information sessions or campus visit days. As with asynchronous learning (flexible online courses that allow the learner to log in at any time to engage with teachers or students, or complete assignments), it is the flexibility of the internet that appeals to these nontraditional students (Hrastinski, 2008; Twigg, 2009). The ubiquity of the internet renders this revelation less significant than it might have been before the internet was widely available on small pocket sized devices owned by most.

Timing of information gathering. The most striking difference in information gathering between traditional and nontraditional students is where in the process it is

most likely to fall. The nontraditional students who responded to this survey seem to indicate that they did most of their information gathering after they had identified the institution in which they were interested, as a means of determining whether it would meet their needs. In contrast, the information gathering stage among traditional students usually precedes the determination of a choice set of institutions (Stage & Hossler, 1989; Ceja, 2006; Bergerson, 2009). This difference requires further examination, especially among students who have not already enrolled in the school of their choice, so that we can begin to better understand what information nontraditional students seek and what role it plays in their search process. If the decision truly is, as postulated above, more about whether to attend college than where, that is an important difference between the current models of college choice and the process as experienced by nontraditional students.

The Decision

Most important factors. For the students surveyed here, the two most important factors in their decision were cost of attendance and availability of a specific major. These two factors are unmistakably utilitarian, which is unsurprising given the population of students in question. For most of them, college is serving a very specific purpose, or they waited to attend college until it was financially feasible. Rather than these two factors being deal sweeteners, or icing on the cake of a student's postsecondary choice, they can be viewed as "deal breakers." If the college they are choosing doesn't have the academic major that matches their professional goals or requirements, there is no point in their considering it further. This is similarly true if the college they have finally decided to attend, because it is now financially "the right time," is prohibitively costly—it would not be an option for them at that point.

Most models of college choice for traditional students focus the discussion of decision on what type of institution the student ultimately decides to attend (Perna, 2006). Far fewer studies of college choice examine whether a student decides to enroll at all (Perna & Titus, 2005). However, it is this choice, to enroll or not to enroll, that seems to be particularly salient to nontraditional students. This decision, however, is a difficult one to study among nontraditional students. Existing studies of whether or not traditional students ultimately decide to enroll in a postsecondary institution do so by following them through the process and seeing what they choose to do (Perna & Titus, 2005; Cabrera & LaNasa, 2000, 2001). The study reported here examines nontraditional students who have already made the decision to enroll in college. It is somewhat more straightforward to study traditional students as they go through the college choice process because many of them can be found in concentrated locations (high school) and existing national data sets collect data from them periodically over the relevant time period. There are far fewer options for capturing people who are considering enrolling in college, would be nontraditional students if they did, and then ultimately choose not to. This will be an important challenge to tackle as the research on nontraditional college choice moves forward, especially since this study shows that much of their "choice" process is about the choice to attend or not attend, and much less about where.

Academic versus non-academic concerns. More broadly, academic characteristics top the list of important factors in nontraditional students' college choice; all the factors deemed least important are non-academic. The structure of the survey questions is important to the interpretation of this result. The survey asked students to rate the importance of each characteristic independent of the other options on the list, it did not ask

students to make a rank list of the factors in order from most to least important. The difference in mean ratings between the academic and non-academic factors is instructive, and it is wide. On average, students rated the academic factors 3.98 out of 5, while they rated the non-academic factors 1.90 out of 5. This indicates that academic characteristics are more important to nontraditional students than non-academic characteristics in absolute, rather than relative, terms. Nontraditional students report feeling underestimated academically (Jacoby, 2000, 2002; Ogren, 2003), and the literature indicates that some assume nontraditional students are not invested in or struggle with academics (Hagedorn, 2005). This finding adds to the increasing body of research refuting that stereotype (Graham, 1998; Morris, Brooks, & May, 2003; Kasworm, 2005; Hagedorn, 2005; Forbus, Newbold, & Mehta, 2010; Capps, 2012).

Traditional and nontraditional students share an emphasis on academic factors in their decision process. The relative importance of academic and non-academic factors, however, is different for these two groups of students. One study of traditional students found that extracurricular and social opportunities were given a mean importance of 3.27 out of 5, compared to the average 1.90 out of 5 that nontraditional students in this survey gave to non-academic characteristics (Espinoza, Bradshaw, & Hausman, 2002). That same study gave an importance rating of 4.58 out of 5 to quality of undergraduate education, which is much closer to nontraditional students' ratings of similar characteristics: quality of faculty (4.05 out of 5), overall academic reputation (3.97), or the average importance of all academic factors (3.98 out of 5). This makes sense given the broader understanding of nontraditional students as less engaged in the social life of an institution (Donaldson & Graham, 1999; Kasworm, 2010).

Minimal importance of the opinions of others. In addition to important institutional characteristics, the survey asked students to indicate any other people in their lives whose opinions played a role in their college choice. Overwhelmingly, the students in this sample indicate that the opinions of others are unimportant to them when making a decision about where to attend college. None of the others whose opinions students were asked to rate appear to be important at all, judging by the mean ratings they received. A rating of 3 indicated "moderate importance," while a 2 indicated "little importance," and none of the means are higher than 2.8. The "significant other" who merits this almost important rating (2.8) is a potential future employer, again indicating the importance of career concerns for students in this sample.

The written responses to this question serve to emphasize the conclusion indicated by students' ratings of significant others. Rather than naming other individuals whose opinions were important to them, individuals who perhaps had been overlooked in the process of designing the question, the students make clear that there are no "others" whose opinions on this decision were significant. Students took the opportunity provided by the write-in option to emphasize that this decision was made by and for them. This is a stark contrast to what literature on college choice tells us about traditional college students and the role of "significant others" in their choices processes—i.e. that parental influence and encouragement is important to their choice processes (Martin & Dixon, 1991; Galotti & Mark, 1994; Hossler et al., 1999; Cabrera & LaNasa, 2000). For a student just graduating from high school, parents or guardians are likely the most significant "other" in their lives, but that role could belong to a spouse, child, employer, or parent for a nontraditional

student. However, none of these individuals appear to play an important role in the decisions of nontraditional students.

Opinions of others as relevant to predisposition. It could be significant that the question about others' opinions was asked in relationship to their final choice, rather than the predisposition phase. It seems difficult to believe that nontraditional students, many of whom have spouses and dependents to whom they are responsible, would take no account of the feelings of the important people in their lives when it comes to a decision as large as where to attend college. However, this could be because the big decision in a nontraditional student's life is not *where* to attend college, but *whether* to attend college at all. It is perhaps at that stage, the decision that now is the time to enroll in college, in which the opinions of others—of spouses who may need to pick up extra slack at home, of children whose lives will be impacted by a parent's new schedule, and more—would be especially significant, and taken into account. The research on traditional students consistently emphasizes family in the college choice process (Stage & Hossler, 1989; Cabrera & LaNasa, 2000, 2001; Perna, 2006), so it is difficult to comfortably conclude that nontraditional students have completely freed themselves of the influence of family or other significant people in their lives. Further examination of the relevance of the opinions of others would be prudent in this area.

Differences across levels of nontraditionality. The difference between minimally, moderately, and highly nontraditional students is clearly illustrated by the comparison of these results across the three groups. The opinions of parents or guardians are rated most important by minimally nontraditional students (2.85), followed by moderately nontraditional students (2.16), and rated least important by highly nontraditional students

(1.92). The opposite pattern appears for the opinions of spouses/significant others; minimally nontraditional students rate their importance at 1.85, followed by 2.45 and 2.50 for moderately and highly nontraditional students respectively. The same pattern, but more pronounced holds for the opinions of students' children. Minimally nontraditional students rate children's opinions as unimportant (.86); they are given slightly more credence by moderately nontraditional students (1.75); and highly nontraditional students give children's opinions the most weight (2.58). As students' level of nontraditionality increases, so does their estimation of the importance of future employers' opinions—2.49, 2.83, and 3.00 for minimally, moderately, and highly nontraditional students. Friends' and coworkers' opinions are similarly unimportant for students at all levels of nontraditionality.

This is important to reiterate because it demonstrates that the difference between students at these three levels of nontraditionality may truly be qualitatively different when it comes to their experiences and priorities. While all nontraditional students have several things in common, it appears that the additive effects of various nontraditional characteristics have real impacts on how these students consider their college options within the broader context of their own lives. Not only is this important to understanding the college choice process of nontraditional students, it also carries implications for the further study of nontraditional students throughout higher education research. It will continue to be necessary to consider "nontraditionality" not as a catch-all term, but as an umbrella term for the many different types and levels of nontraditional students pursuing postsecondary education in the United States.

Types of Nontraditionality

In addition to levels of nontraditionality, the types of nontraditionality are important to consider. Whether a student has delayed their entry into college, attend part time, work full time, are financially independent, have dependents, are single parents, or do not have a high school diploma, the specific characteristics that describe them may shed more light on their experience as nontraditional students. There are some differences in the college choice processes described here that are relevant to these different factors, and understanding them allows a deeper understanding of the complex patchwork that is nontraditionality in contemporary higher education.

Reasons for enrolling. Students who reported choosing to enroll now because of a significant personal event are more likely to be delayed enrollers, have dependents of their own, or be a single parent. This finding is most significant for single parents. Students did not provide specifics about their significant personal events, but a few of the text answers provide some intriguing insight into what might be going on for these students. One student reports losing her spouse to a serious illness and said, "I am wanting to further my education so I will be able to have a good job and take care of our three living children." Another reports finding herself newly single and cites a "desire to provide a better future and security for [her] child." The combination of the finding that single parents are more likely to cite a significant personal event as the impetus for starting college ($p < .001$) and these few text answers providing insight into certain students' particular circumstances raises the possibility that college-going, for some single parents, may be necessitated by their single parenthood. The choice a single parent makes to enroll in college may be

strongly influenced by these significant personal events, and further examination of this issue might yield illuminating results.

Gathering information. In terms of the process of gathering information, students with dependents in this sample report that they were unlikely to stop by campus more casually ($p < .01$), but they are *more* likely than others to attend a formal, organized visit day. The difference may lie in the importance of structure to parents trying to juggle childcare and other responsibilities—a formal visit day is planned well in advance, has set start and end times, and a specific agenda. Often these visit days are one-stop-shops where students are guaranteed face time with admissions officers, financial aid officers, and current or future students, allowing them to get significant informational bang for their buck. It is true that organized campus visit days are also more popular with students who enroll in college immediately after high school ($p < .001$), which is likely due to the pervasiveness of the college search among high school students. The fact that these visit days are also more popular among students with dependents indicates that it is not only high school students who are hoping to attend formal visit days. This finding raises questions of how best to get information to nontraditional students and what, specifically, they look for and get out of official campus visits. More information on this question would be helpful to institutions serving nontraditional student populations, or institutions that hope to do so.

Important factors. There is considerable discussion within the literature on nontraditional students about their relationship to the social community at the institutions they attend (Jacoby, 2000; Jacobs & King, 2002; Taniguchi & Kaufman, 2005; Laird & Cruce, 2009). For decades, considerable attention has been paid to this question. Bean and

Metzner (1985) hypothesized that social integration at their college campus was relatively unimportant to nontraditional students, and a later study of theirs confirmed that social integration variables had no significant effect on whether a nontraditional student departed college without a degree (Metzner & Bean, 1987). More than one study has found that nontraditional students are unlikely to participate in social events or organizations on their college campuses (Kerka, 1995; Backels & Measheey, 1997), possibly due to the constraints placed on them by the other responsibilities in their lives (Donaldson & Graham, 1999).

The current study cannot confirm or refute the notion that social life is unimportant to nontraditional students' success. However, it does provide insight into the role social life plays in students' college choice process. Overwhelmingly, the students in this sample rated social factors as unimportant. The factors related to social life received an average importance rating of 1.76 out of 5—though when looking at minimally nontraditional students, the importance of social life increases to 2.4 out of 5. There is a significant difference in the relative importance placed on social factors by on time enrollers, students still financially dependent on their parents, and students with no dependents of their own, when compared to all other students in the sample. These students, generally, may lack some of the external constraints placed on other types of nontraditional students, making them more likely to be interested in all that a college social life has to offer.

Opinions of others. It is also interesting to examine the relationship between types of nontraditionality and the importance of others' opinions in their college choice processes. It is clear from this analysis that others' opinions are not of central importance to most nontraditional students, but the differences visible across types of

nontraditionality serve to emphasize that the exact characteristics making students nontraditional are significant. For example, students who work full time while enrolled in college are less likely than others to be concerned about the opinions of future employers. This might be due to the fact that they are pleased with their current employment, or that they are not concerned about their ability to find work in the future. Students who have children but no spouse put more emphasis on their children's opinions than do students with children and a spouse. This highlights another potential difference between single parents and other parents that could affect the college-going behavior and outcomes of single parents. Additionally, the data show that students who are working part time and are married, and more likely to be concerned with their spouse's opinion about their college choice. This may be reflective of the need for a spouse's support when someone decides to cut back on working hours in order to pursue postsecondary education. These are merely possibilities, but they indicate areas within the study of nontraditional students that are ripe for further inquiry.

Limitations

When discussing conclusions, the limitations of the research must be at the forefront. First, the sample of students collected here is one of convenience. Parameters established by the institutions that agreed to participate prevented sampling and follow-ups, resulting in a non-representative sample of nontraditional students. All findings and conclusions must be considered with this in mind. Second, the survey focused on three phases—predisposition, search, and choice—and asked students questions about their process within this framework. This may have limited the information provided by the students, given that their experiences choosing colleges are different from the experience

of traditional students on whom the original three-part framework is based. The option for respondents to write in their own answers to several questions should alleviate some concerns about this, but the limitation should be kept in mind, all the same.

Conclusions and Future Directions

The research reported here may raise more questions than it answers, but that does not diminish its importance to the field of nontraditional student college choice. First, it is important to remember the dearth of information on these processes among nontraditional students, and second, it is important to remember the position of nontraditional college students as the hidden majority in American colleges and universities. Our knowledge of these students is not limited because they are only a small part of the higher education landscape; it is limited because they are a difficult population to locate and study. There are few points of entry to research on nontraditional college students, especially before they enroll in college, making the study of their choice processes especially challenging. Many studies of college choice start to follow students in the 7th or 8th grade in order to capture the full extent of their "predisposition" process, and end their study in 12th grade when the students make their choice (Cabrera & LaNasa, 2000). Continuing to follow students who do not make a choice in 12th grade, and who may not make a choice for many years, if ever, is an untenable proposition for most researchers. This study makes a first attempt at finding those students once they have made a decision in order to see if there are enough differences in their choice process to justify making more efforts to study this phenomenon among this specific population. It starts to establish major differences between the choice process of nontraditional versus traditional students and highlights some issues and questions that should be at the forefront of a continued line of inquiry.

A summary of factors influencing nontraditional student college choice can be found in Table 13. This table lists the factors in each of the three stages that have strong, moderate, and low impact, based on the results presented above. Among the most notable findings here is that nontraditional students in this sample are enrolling in college because a wide variety of stars have aligned just so, allowing them to take the postsecondary plunge. Many of them indicate that they chose their moment to enroll because it was the "right time," but this concept is complex, holding within it a student's personal circumstances, financial status, and employment prospects (or lack thereof). As the federal and state governments become more invested in increasing college completion rates, establishing goals that require college enrollment of adults as well as graduating high school seniors, an understanding of what makes the "right time" for a nontraditional college student will become increasingly important. The broader college choice literature highlights the importance of the high school environment (Perna & Titus, 2004), which does not come up here. It also notes the centrality of parental influence to the college choice process, and especially predisposition (Hamrick & Stage, 1995, 2000, 2004; Hossler, Schmit, & Vesper, 1999), of which there is very little evidence in this study.

The "right time" may be a more nebulous concept for minimally nontraditional students than for their more nontraditional counterparts, reflecting the significantly higher transaction cost associated with enrolling in college when a potential student has significant responsibilities outside the potential role of "student." Moderately and highly nontraditional students indicate that the "right time" may not be enough of an incentive to enroll in college, that they require more concrete reasons to take on the additional burden of college attendance, so many of these students have a "professional" predisposition that

led them to enroll in college. While this cannot necessarily be extrapolated to apply to all nontraditional students, it is an important conclusion for those interested in persuading more adults to pursue postsecondary education. The more a potential student has on their plate, the more important it will be to be able to demonstrate to them exactly why and how a certificate or degree will benefit them. Without this, the "predisposition" to attend college may be lacking for many potential enrollees, because the barriers to entry seem insurmountable and they are not convinced that the effort would be worth the pain.

The difference between the search process as we understand it for traditional students and the search process observed among the students in this sample is substantial. While the search phase is usually thought of as the one during which a student creates and then narrows down a choice set (Hossler & Gallagher, 1987), the results reported here indicate that the choice set for nontraditional students may be very small. Survey responses indicate that students usually applied to at least one other institution, but written responses indicate that many students knew where they would go before the process began. It is this question—whether a real search actually ever takes place—that provides an opportunity to conduct further research into why nontraditional students land where they do and whether, as the analysis above suggests, they feel that they are limited to colleges found within their personal "landscape." The notion of landscape is also central to establishing an understanding of nontraditional students' information gathering practices, as it appears from this data that many of them get their information from people with whom they interact frequently. In this way, findings here mirror the research on traditional student choice, which finds that peers and teachers play a significant role for students who are going through this process in high school (Perna & Titus, 2004). It will be

important to determine what information nontraditional students glean from those interactions and what impact it has on their decisions.

The results reported here raise the question of when the college choice decision takes place for nontraditional students. It seems that for many of the students in this sample, the decision in question is not which institution to attend, but whether to enroll in college at all. Many of these students are so limited by their "landscape" that once they choose to pursue postsecondary enrollment, the "choice" of where to go is already made. This preliminary work did not pursue this question further, but it is an important issue that arises from the responses received to this survey. In the updated conceptual framework created based on these results (Figure 3), I have left "choice" as the final stage, largely because of the exploratory nature of the work done here, but it is important to pursue the question of whether this choice takes place earlier in the process.

Relatedly, the analysis reported here indicates that nontraditional students have a different decision experience than do traditional college students. Rather than finding and selecting a college based on how many items it checks off on a proverbial wish list, nontraditional students may be more likely to have only one or two requirements, both of which must be met for an enrollment decision to be made. Cost and the availability of a specific program may be "deal breakers" for nontraditional students in a way that they are not for many traditional students. For traditional students, college may be the next logical, default step along their life's path, so it's a matter of finding the college that's the best fit and making that work, even if the fit isn't perfect (DesJardins, et al., 1999; Goener & Pauls, 2006). But nontraditional students are taking a step off their lives' paths in order to pursue a postsecondary education that they have deemed necessary. If the school in which they

are considering taking this step does not exactly conform to nontraditional students' needs, it is not a matter of "making it work," it may instead be a matter of waiting until their predetermined needs can be fully met. Students' written responses lend support to this notion, i.e. "I had to wait… for my financial situation to stabilize," or "I needed a certain program to sit for CPA exam." The life of a nontraditional student is a complex puzzle, comprised of many pieces; if the college they are considering does not fit precisely, there are few options for them to pursue.

The factors nontraditional students identify as important to their college decision show the utility of their choice process, and they emphasize the choice of enrolling or not much more than the choice of where to enroll. The factors nontraditional students highlight as important also show the ways in which they are similar to and different from traditional students. Both traditional and nontraditional students view academics as important, but they diverge on the importance of social factors. For nontraditional students, the social aspects of their potential college life are not a central concern, which confirms previous literature that emphasizes the separation of nontraditional students from the social life of their campuses (Bean & Metzner, 1985; Metzner & Bean, 1987; Kerka, 1995; Backels & Meashey, 1997; Donaldson & Graham, 1999). The importance of others' opinions is another way in which nontraditional students distinguish themselves from their traditional counterparts. These results indicate that they do not consider the opinions of others when making their college decision. However, it is possible that the question should be asked regarding nontraditional students' predisposition, since the choice to enroll or not might have more of an impact on the people in their lives than the choice of where.

This is a rich vein of study for higher education researchers. Nontraditional students are nearly 74% of the college-going population in the United States and they will continue to be a central component of the push to increase college completion rates. Without nontraditional students, it will be impossible to achieve the White House's ambitious goal that the U.S. have the highest proportion of college graduates in the world by the year 2020 (White House Issues, 2016). In order to get these students to graduate, they must first choose to enroll, and the work presented here is an important first step to understanding how they make the decision to enroll at a particular time, in a particular place. More research will elucidate these processes further, allowing institutions and policymakers to better serve the needs of these students and the nation at large. This study does not provide definitive answers to the questions we have about how nontraditional students engage in their college choice processes; it is impossible to do so in a single study with limited scope. However, this does not diminish the importance of the research reported here, research that demonstrates clearly that there is much about these students we do not yet know, and will not know until we delve deeper, dedicating adequate resources to understanding the hidden majority.

Table 1

Enrollment and Responses at Participating Institutions

	Enrolled Students	Reponses
Public 4-year	11,550	225
Public 2-year A	4,924	96
Public 2-year B	7,664	186
Public 2-year C	6,005	130
Public 2-year D	5,832	16
Public 2-year E	5,117	189
Total		842

	% Above Age 25		% Enrolled Part-time	
	Student Population	Sample	Student Population	Sample
Public 4-year	23%	58%	27%	25%
Public 2-year A	22%	55%	59%	30%
Public 2-year B	29%	58%	55%	43%
Public 2-year C	21%	45%	48%	29%
Public 2-year D	29%	25%	52%	19%
Public 2-year E	27%	59%	56%	43%

Table 2

Basic Descriptive Statistics

		N	%
Types of Nontraditionality			
	> 7 Month Delay Before College	453	57.6%
	Part-time Attendance	289	36.8%
	> 35 Hours Worked per Week	414	52.7%
	Financially Independent	368	46.8%
	Dependents other than Spouse	376	47.8%
	Single Parent	166	21.1%
	No HS Diploma	36	4.6%
Levels of Nontraditionality			
	Minimal	179	22.8%
	Moderate	401	51.0%
	High	206	26.2%

Table 3

Reasons for Enrolling

Why did you decide to enroll in college at this point in your life?		
	N	%
Significant Personal Event	88	11.5%
Lost Job	28	3.7%
Seeking Better Paying Job	60	7.8%
Required for Job	7	0.9%
Personal Growth	209	27.3%
Always Planned To, Right Time	218	28.4%
Change Career Fields	77	10.0%
Other (See Text)	80	10.4%
Total	767	100.0%

Table 4

Reasons for Enrolling by Level of Nontraditionality

Reasons for enrolling, as they relate to level of nontraditionality[1]:						
	Minimal		Moderate		High	
	N	%	N	%	N	%
Significant Personal Event	16	9.5%	43	10.9%	29	14.4%
Lost Job	5	3.0%	16	4.0%	7	3.5%
Seeking Better Paying Job	7	4.1%	32	8.1%	21	10.4%
Required for Job	0	0.0%	4	1.0%	3	1.5%
Personal Growth	43	25.4%	106	26.8%	60	29.7%
Always Planned To, Right Time	60	35.5%	112	28.3%	46	22.8%
Change Career Fields	13	7.7%	42	10.6%	22	10.9%
Other (See Text)	25	14.8%	41	10.3%	14	7.0%
Total	169	100.0%	396	100.0%	202	100.2%

Note: Column totals may not equal 100%; this is due to rounding.
[1]ANOVA not performed here, due to the nature of the variable.

Table 5

Search Process

	N	%
How long before you enrolled did you start looking at potential colleges?[1]		
Less than 1 month	221	29.6%
1-6 months	266	35.6%
6 months - 1 year	121	16.2%
More than 1 year	140	18.7%
Total	748	100.1%
How did you go about looking for places to enroll?[2]		
Internet	452	57.5%
Word of Mouth	321	40.8%
Driving By	126	16.0%
Other	148	18.8%

[1]Column totals may not equal 100%; this is due to rounding.
[2]This reports percentage of total survey respondents.

Table 6

Search Process by Level of Nontraditionality

Search time as it relates to level of nontraditionality:[1]	Minimal		Moderate		High[a,b]	
	N	%	N	%	N	%
Less than 1 month	40	25.5%	105	27.0%	76	37.6%
1-6 months	51	32.5%	140	36.0%	75	37.1%
6 months - 1 year	31	19.8%	69	17.8%	21	10.4%
More than 1 year	35	22.3%	75	19.3%	30	14.9%
Total	157	100.1%	389	100.1%	202	100.0%

Search methods as they relate to level of nontraditionality:[2]	Minimal		Moderate		High	
	N	%	N	%	N	%
Internet	100	55.9%	238	59.4%	114	55.3%
Word of Mouth	77	43.0%	158	39.4%	86	41.8%
Driving By	35	19.6%	65	16.2%	26	12.6%
Other	27	15.1%	76	19.0%	45	21.8%

[a] Difference between minimal and high ($p < .05$)

[b] Difference between moderate and high ($p < .05$)

[1] Column totals may not equal 100%; this is due to rounding.

[2] This reports the percentage of the particular type of nontraditional student that gave this answer, i.e. 55.9% of minimally nontraditional students used the internet to search, compared to 59.4% of moderately nontraditional students.

Table 7

Information Gathering

How did you go about gathering information about potential colleges?		
	N	%
Institution websites	553	70.4%
Phone calls	166	21.1%
In-person visit to campus	269	34.2%
Organized campus visit day	80	10.2%
Conversations with current students	232	29.5%
Guidebooks/Websites	142	18.1%
Other	57	7.3%

Note: This table reports percentage of total survey respondents.

Table 8

Information Gathering by Level of Nontraditionality

Information gathering as it relates to level of nontraditionality:						
	Minimal		Moderate		High	
	N	%	N	%	N	%
Institution websites	118	65.9%	286	71.3%	149	72.3%
Phone calls[a]	26	14.5%	86	21.5%	56	26.2%
In-person visit to campus	71	39.7%	138	34.4%	60	29.1%
Organized campus visit day[a,b]	25	14.0%	45	11.2%	10	4.9%
Conversations with current students	50	27.9%	116	28.9%	66	32.0%
Guidebooks/Websites	30	16.8%	84	20.1%	28	13.6%
Other	15	8.4%	25	6.2%	17	8.3%

[a] Difference between minimal and high ($p < .05$)

[b] Difference between moderate and high ($p < .05$)

Note: This reports the percentage of the particular type of nontraditional student that gave this answer, i.e. 55.9% of minimally nontraditional students used the internet to search, compared to 59.4% of moderately nontraditional students.

Table 9

Important Institutional Characteristics

Please indicate how important each of the following characteristics was to you in choosing the college in which you are enrolled. You may also indicate "not applicable."			
	N	Mean	% Important/ Very Important
Availability of a specific major	672	4.50	90.3%
Cost to you	672	4.49	89.6%
Quality of faculty	674	4.05	79.7%
Access to faculty	670	4.05	77.2%
Variety of courses offered	674	3.98	77.8%
Overall academic reputation	673	3.97	76.8%
Where the college is located	669	3.93	71.0%
Concentration on undergrads	671	3.80	71.1%
Quality of academic facilities	674	3.78	68.6%
Individual attention	673	3.72	63.2%
Career Services availability	672	3.16	48.8%
Adult student services	671	3.11	50.1%
Surroundings	671	2.91	38.5%
Attractiveness of campus	671	2.53	27.4%
Off campus culture and recreation	672	1.87	14.3%
Size of student body	673	1.85	14.4%
Quality of social life	671	1.78	14.6%
Available extracurriculars	675	1.74	13.0%
Availability of religious activities	673	1.55	12.0%
Services/aid for veterans	674	1.55	22.4%
Prominent intercollegiate athletics	673	1.35	8.3%
Availability of child care	671	1.34	14.8%
Athletic programs for you	674	1.18	6.1%
On-campus housing	670	1.16	9.7%

Scale: 1 “Unimportant” 2 “Little Importance” 3 “Moderately Important” 4 “Important” 5 “Very Important

Table 10

Important Characteristics by Level of Nontraditionality

Please indicate how important each of the following characteristics was to you in choosing the college in which you are enrolled. You may also indicate "not applicable."

Minimal	N	Mean	Moderate	N	Mean	High	N	Mean
Availability of a specific major	132	4.43	Availability of a specific major	346	4.57	Cost to you	193	4.56
Cost to you	131	4.39	Cost to you	348	4.49	Availability of a specific major	194	4.44
Quality of faculty	133	4.12	Access to faculty	346	4.09	Overall academic reputation	194	4.07
Access to faculty	132	4.06	Quality of faculty	348	4.04	Variety of courses offered	195	4.05
Variety of courses offered	132	3.91	Where the college is located	345	4.01	Quality of faculty	193	4.03
Overall academic reputation	132	3.85	Variety of courses offered	347	3.99	Access to faculty	192	4.01
Concentration on undergrads	130	3.85	Overall academic reputation	347	3.97	Concentration on undergrads	194	3.88
Quality of academic facilities	132	3.83	Quality of academic facilities	348	3.81	Where the college is located	193	3.87
Where the college is located	131	3.83	Individual attention	347	3.77	Quality of academic facilities	194	3.72
Individual attention	132	3.73	Concentration on undergrads	347	3.72	Individual attention	194	3.61
Surroundings	132	3.23	Career Services availability	348	3.25	Adult student services	191	3.38
Attractiveness of campus[a]	131	3.10	Adult student services	348	3.13	Career Services availability	193	3.05
Career Services availability	131	3.10	Surroundings	346	2.94	Surroundings	193	2.61
Adult student services	132	2.65	Attractiveness of campus[b]	347	2.48	Attractiveness of campus[a,b]	193	2.24

Off campus culture and recreation	131	2.45	Size of student body	347	1.88	Size of student body	194	1.66
Quality of social life[a]	133	2.41	Off campus culture and recreation	347	1.79	Off campus culture and recreation	194	1.61
Available extracurriculars	133	2.40	Quality of social life[b]	346	1.72	Services/aid for veterans	193	1.50
Size of student body	132	2.08	Available extracurriculars	348	1.69	Quality of social life[a,b]	192	1.46
Availability of religious activities	132	2.02	Availability of religious activities	347	1.52	Availability of child care[a]	194	1.39
Services/aid for veterans	133	1.89	Services/aid for veterans	348	1.44	Available extracurriculars	194	1.36
On-campus housing	132	1.85	Availability of child care	346	1.36	Availability of religious activities	194	1.29
Prominent intercollegiate athletics	132	1.64	Prominent intercollegiate athletics	347	1.33	Prominent intercollegiate athletics	194	1.17
Athletic programs for you	132	1.58	Athletic programs for you	348	1.10	Athletic programs for you	194	1.05
Availability of child care[a]	131	1.16	On-campus housing	345	1.07	On-campus housing	193	0.85

[a] Difference between minimal and high ($p < .05$)

[b] Difference between moderate and high ($p < .05$)

Scale: 1 “Unimportant” 2 “Little Importance” 3 “Moderately Important” 4 “Important” 5 “Very Important”

Table 11

Opinions of Significant Others

Students often take into account the opinions of other people when making college choices. Please indicate how important the opinions of the following people were when making your college choice.			
	N	Mean	% Important/Very Important
Parents/Guardians	668	2.26	31.1%
Spouse/Significant Other	668	2.32	42.4%
Children	669	1.74	30.2%
Friends/Coworkers	663	1.96	20.1%
Potential Future Employers	668	2.80	51.1%
Other	416	--	8.7%

Scale: 1 "Unimportant" 2 "Little Importance" 3 "Moderately Important" 4 "Important" 5 "Very Important"

Table 12

Opinions of Significant Others by Level of Nontraditionality

Importance of others' opinions as it relates to level of nontraditionality:						
	Minimal		Moderate		High	
	N	Mean	N	Mean	N	Mean
Parents/Guardians	131	2.85	344	2.16	193	1.92
Spouse/Significant Other	129	1.85	345	2.45	194	2.50
Children[a,c]	128	0.86	345	1.75	196	2.58
Friends/Coworkers[a,c]	127	1.96	341	1.91	195	2.05
Potential Future Employers[c]	130	2.49	344	2.83	194	3.00
Other	97	--	222	--	97	--

[a] Difference between minimal and high ($p < .05$)
[b] Difference between moderate and high ($p < .05$)
[c] Difference between minimal and moderate ($p < .05$)
Scale: 1 "Unimportant" 2 "Little Importance" 3 "Moderately Important" 4 "Important" 5 "Very Important"

Table 13

Summary Table – Factors of Varying Impact on the College Choice Process

	Factors with Strong Impact	Factors with Moderate Impact	Factors with Low Impact
Reasons for Enrolling (Predisposition)	Professional life "Right time"	Personal growth	
Search and Information Gathering	Institution websites "Close by"	Word of mouth	Campus visits Guidebooks Phone calls
Decision	Academic concerns Cost Location	Campus life	Athletics Child care availability Housing Opinions of significant others

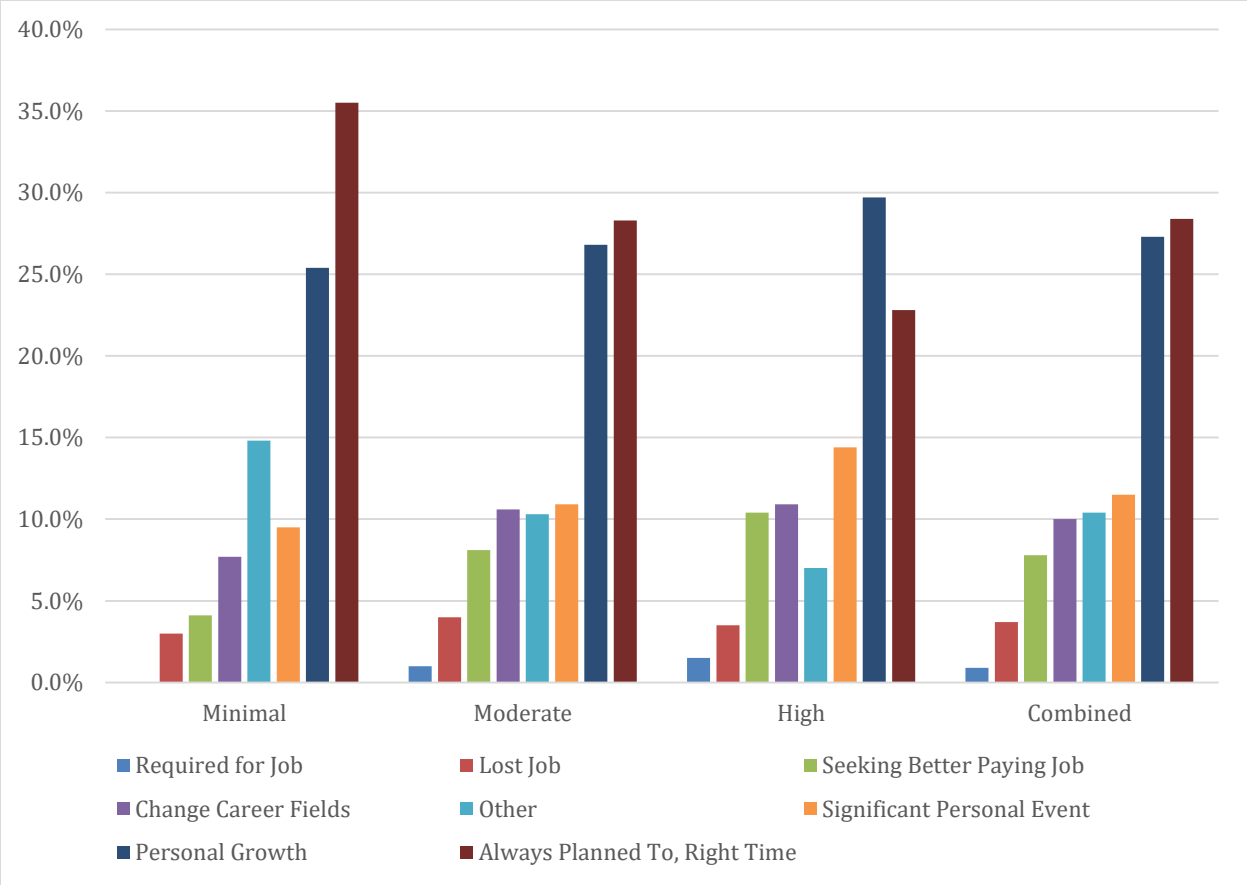

Figure 1. Reasons for enrolling now. This figure shows the primary reason for enrolling according to students in each nontraditional group, in addition to overall.

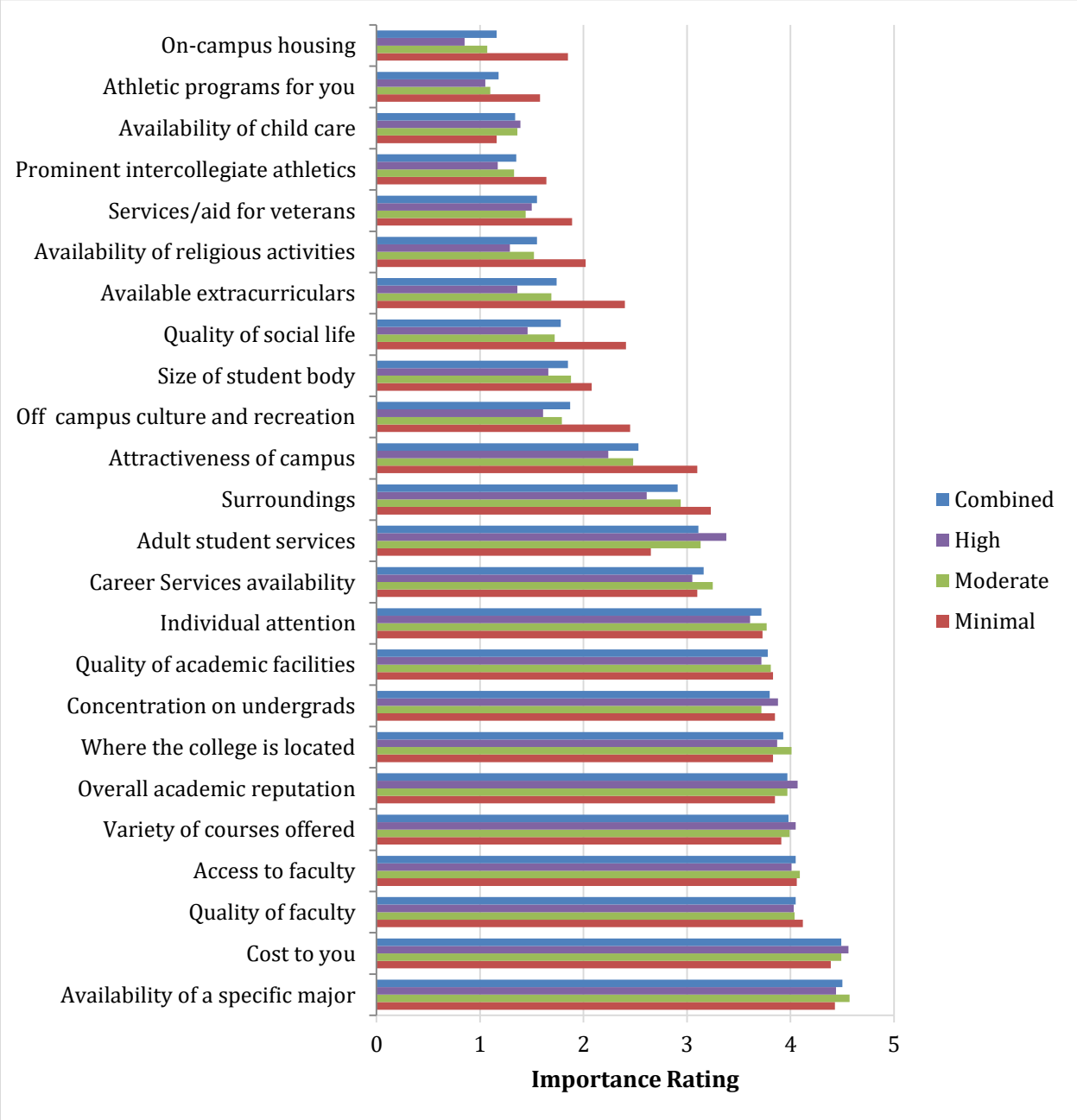

Figure 2. Importance ratings of various institutional characteristics. This figure shows the overall importance of each characteristic, along with the importance ascribed by students at each level of nontraditionality.

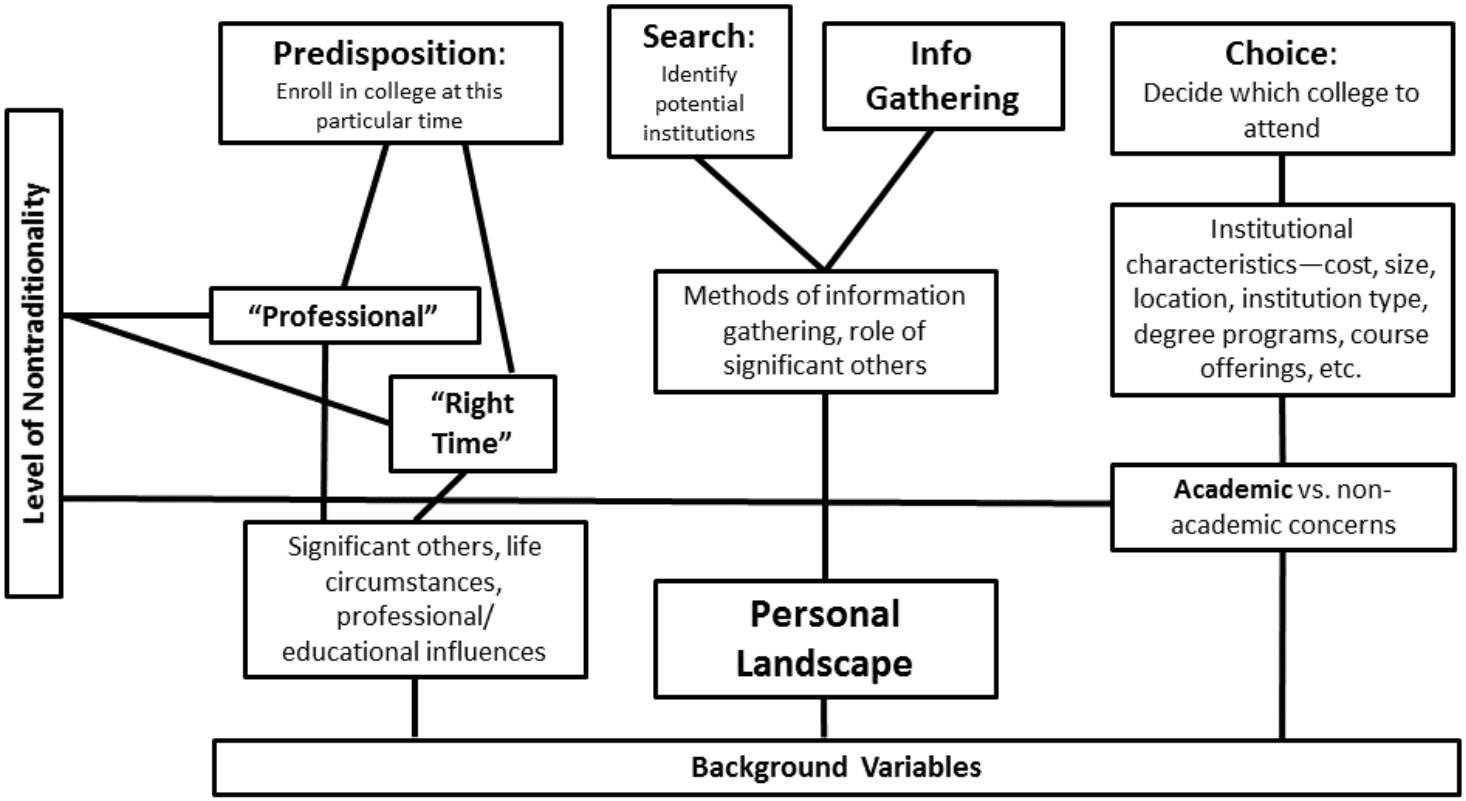

Figure 3. Updated conceptual framework.

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Appendix: Survey Instrument

Introductory Paragraph

Thank you so much for participating in this survey! I assure you it won't take too much of your time. Please be aware that your participation in this survey is entirely voluntary and your answers will be ***completely anonymous***, so feel free to be frank and honest. This survey will ask you questions about how and why you enrolled in college, and why you chose the institution where you are currently enrolled. Nontraditional college students are a huge presence on college campuses, but they are still largely misunderstood. Your participation in this survey will help change that, so that nontraditional students will be better served in the future. Thank you so much for your time!

Student Characteristics

____ Male ____ Female

Age: ____

____ Single ____ Married ____ Divorced

Please select each of the following that describe you:

- I enrolled in college more than seven months after I graduated from high school
- I attend here part-time
- In addition to being a student, I work more than 35 hours per week
- I am financially independent when it comes to Financial Aid
- I have dependents other than a spouse
- I am a single parent
- I do not have a high school diploma

Have you been enrolled in any other postsecondary institutions?

- Yes
- No

  If yes, how many? _____

Just before you enrolled here, did you consider other institutions?

- Yes
- No

  If yes, how many? _____

Just before you enrolled here, did you apply to other institutions?

- Yes
- No

If yes, how many? _____
To how many were you offered admission? _____

Why did you decide to enroll in college at this point in your life? If more than one of the following applies to you, select the one that was most influential.

- I experienced a significant event in my personal life (loss of spouse/significant other, loss of parent, birth of child, divorce, etc.)
- I lost my job
- I want to leave my current job for a job that will pay more money
- My employer required it
- Desire for personal growth
- I've always planned to go to college, and this was the right time
- Other (please explain): _____

Search Process

How long before you enrolled did you start looking at potential colleges?
____ < 1 month ____ 1-6 months ____ 6 months-1 year ____ > 1 year

How did you go about looking for places to enroll? Select all that apply.

- Internet search
- Word of mouth
- Driving by campuses
- Other

How did you go about gathering information about potential colleges? Select all that apply.

- Institution websites
- Phone calls
- In-person visit to campus
- Organized campus visit day
- Conversations with current students
- Guidebooks/Websites (i.e. College Board, U.S. News and World Report, etc.)
- Other (please explain): _____

College Characteristics

Many characteristics are important to students in choosing their college. Some of these are listed here. Please indicate how important each characteristic was to you in choosing the college in which you are enrolled. Select a number from 1-5, 1 being unimportant and 5 being very important. You may also indicate "not applicable" if you do not feel a particular characteristic applies to your choice process.

	Unimportant	Little importance	Moderately important	Important	Very important	Not applicable
Quality of faculty	1	2	3	4	5	N/A
Availability of a specific major	1	2	3	4	5	N/A
Overall academic reputation	1	2	3	4	5	N/A
Quality of academic facilities (library, laboratories, computers, etc.)	1	2	3	4	5	N/A
Variety of courses offered	1	2	3	4	5	N/A
Access to faculty	1	2	3	4	5	N/A
Concentration on undergraduate education	1	2	3	4	5	N/A
Prominent intercollegiate athletics	1	2	3	4	5	N/A
Cost to you – how much you would have to pay after grants and scholarships (if any) are subtracted from total college costs	1	2	3	4	5	N/A
Athletic programs in which you would like to participate	1	2	3	4	5	N/A
Availability of extracurricular activities	1	2	3	4	5	N/A
Access to off-campus cultural and recreational opportunities	1	2	3	4	5	N/A

Availability of religious activities	1	2	3	4	5	N/A
Quality of social life	1	2	3	4	5	N/A
Attractiveness of campus	1	2	3	4	5	N/A
Surrounds (neighborhood, town, or city)	1	2	3	4	5	N/A
Where the college is located	1	2	3	4	5	N/A
On-campus housing	1	2	3	4	5	N/A
Availability of child care	1	2	3	4	5	N/A
Size of student body	1	2	3	4	5	N/A
Individual attention from faculty and staff	1	2	3	4	5	N/A
Career Services availability	1	2	3	4	5	N/A
Adult student services	1	2	3	4	5	N/A
Services/Aid for veterans	1	2	3	4	5	N/A

Opinions of Others

Students often take into account the opinions of other people when making college choices. Please indicate how important the opinions of the following were when making your college choice.

	Unimportant	Little importance	Moderately important	Important	Very important	Not applicable
My parents/guardians	1	2	3	4	5	N/A
My spouse/significant other	1	2	3	4	5	N/A
My children	1	2	3	4	5	N/A
My friends/coworkers	1	2	3	4	5	N/A
Potential future employers	1	2	3	4	5	N/A

Other (please explain)	1	2	3	4	5	N/A

Other: _____

CHAPTER 3

PAPER 2: THE IMPACT OF MULTIPLE LIFE ROLES ON NONTRADITIONAL STUDENTS' POSTSECONDARY OUTCOMES

Research Questions: To what extent do nontraditional students' life roles (outside of "student") impact their odds of certificate/degree completion? To what extent do longer or shorter time periods filling multiple roles (other than "student") impact those odds?

As detailed in Paper 1 on nontraditional student college choice, the literature on nontraditional students focuses significant attention on the multiple life roles that these students must juggle. Moreover, the literature tends to blame these multiple life roles for the lower rates at which nontraditional students persist and complete (Backels & Meashey, 1997; Chartrand, 1990; Donaldson & Graham, 1999; Eppler & Harju, 1997; Fairchild, 2003; Gerson, 1985; Jacobs & King, 2002; Jacoby, 1989; Kasworm & Pike, 1994; Lucas, 2009; Morris, et al., 2003; Person & Edwards, 1997; Roksa & Velez, 2012; White, 2002). However, there are a variety of pieces missing from the multiple life role puzzle in the existing literature.

Many of the studies that examine multiple life roles among nontraditional college students look only at female students (Beutell & Greenhaus, 1982; Backels & Meashey, 1997; Gerson, 1985; Jacobs & King, 2002; White, 2002). While it is important to understand these conflicts for female students, our understanding is limited if we do not explore the multiple roles juggled by male students as well. Additionally, the more extensive literature on multiple life roles has focused on work-family conflict, and extension of this work to work-student or family-student conflict, much less a conflict among all three, is less common (Gerson, 1985; Frone & Rice, 1987). Much of the discussion about the impact of

multiple life roles on nontraditional student outcomes is theoretical or based on conjecture, rather than empirical (Edwards & Person, 1997; Donaldson & Graham, 1999; Jacoby, 2000; White, 2002; Fairchild, 2003; Morris, et al., 2003; Lucas, 2009).

Among the literature that examines this question empirically, some is qualitative and provides rich, if limited, context (Backels & Meashey, 1997). A number of studies have considered multiple life roles and their impact on outcomes using quantitative methods, but there is still much to be done. Beutell & Greenhaus (1982) examined multiple life roles, quantitatively, in a sample of 115 college students, but did not examine the student role at all. Chartrand (1990) had a sample of 179 nontraditional undergraduates, men and women, but the study focused on personal distress and academic adjustment as outcome variables, rather than persistence or completion. Eppler & Harju (1997) were able to make interesting connections between multiple life roles and resistance to "learned helplessness," and identified this as a source of success for nontraditional college students. However, a sample of 47 students and a smaller time frame limit the applicability of this study (Eppler & Harju, 1997). With a fairly sizable sample of 124 students, Gerson (1985) examined the consequences of multiple roles for women returning to school, and found that there were positive and negative outcomes. For example, students in the study experienced both greater role gratification and greater strain, in contrast to those who were not students. The students experienced increases in self-esteem and perceived potential future status enhancement, but they also experienced a greater sense of insufficient time, unfulfilled personal commitments, and guilt. However, the analysis focused on personal enrichment and stress rather than goal achievement or educational outcomes (Gerson, 1985).

Two more recent studies have made use of large national data sets to examine multiple life roles. Jacobs and King (2002), studied a sample of 10,847 women between the ages of 15-44, using data from the National Survey of Family Growth. The authors conducted what they called a life-history analysis and determined that competing demands do make it more difficult for older college students to complete their studies. Moreover, they concluded that the mechanism by which competing life roles impede completion is part-time enrollment, rather than the existence of multiple roles on its own (Jacobs & King, 2002). Most recently, Roksa and Velez (2012) utilized the 1997 National Longitudinal Survey of Youth to conduct an event history analysis. The aim of the study was to examine whether life course transitions can explain the negative relationship between delayed entry into college and degree completion. The results of the study indicated that the negative relationship is not merely a result of transitioning into adult life roles during the gap between secondary and postsecondary enrollment, and the authors suggest that it is more likely to be the challenge of combining all of those roles once a student is enrolled that underlie the negative impact of delayed entry (Roksa & Velez, 2012). It is precisely that challenge, rather than the transitions into various life roles, that this paper will examine.

Multiple Life Roles Defined

According to Stryker (1968), the symbolic-interactionist model posits that interactions with others teach us how to classify and behave towards the objects we encounter, while symbols teach us which positions comprise the components of social structure. These positions carry behavioral expectations and it is those behavioral expectations that we label "roles." When names are given to people in particular positions, this is a means of invoking expectations of those individuals, in the same way that

individual actors can assign named positions to themselves and thereby create internalized expectations of themselves and their behavior (Stryker, 1968). Over the course of a lifetime, an individual is likely to apply multiple names to him or herself, and they are likely to apply those names in varying orders, more than one at a time, given the increasing flexibility of traditional life course patterns (Frone & Rice, 1987). Role theory simplifies this, defining roles as a set of specific behaviors that are expected of a person occupying a particular social position (Frone & Rice, 1987; Hughes and Graham, 1990).

The strain that researchers attempt to identify comes, at least theoretically, from the incompatibility of the expectations associated with different roles an individual occupies simultaneously (Frone & Rice, 1987). While different roles do not necessarily call for incompatible behavior, they sometimes do and it is in those circumstances that role strain occurs (Stryker, 1968). Historically, research has focused on the difficulties inherent in fulfilling work and family roles simultaneously (Frone & Rice, 1987), and this has largely been due to the traditional view of life roles as progressing linearly and in a predetermined succession (Hughes & Graham, 1990). The challenge to this view comes from a multifaceted approach to adult development which asserts that as adults grow and change they experience life roles at different times, perhaps entering and exiting the same life roles multiple times in new or different contexts (Hughes & Graham, 1990). It is this view that motivates the research described here.

In short, a life role is a general aspect of an adult's life that is viewed in conjunction with other roles and includes the tasks and behavioral expectations commonly associated with a particular label (Frone & Rice, 1987; Hughes & Graham, 1990). Nontraditional students have to deal with one more role than others whose circumstances are otherwise

similar—the role of student (Chartrand, 1990). Previous research has found that there is an inverse relationship between commitment to one role and commitment to others, especially when the expectations of one role compete with the expectations of another (Stryker, 1968; Frone & Rice, 1987; Chartrand, 1990). This is a potential explanation for the previously observed difference in persistence and completion rates between traditional and nontraditional undergraduates.

Research Question

The review of literature on nontraditional students demonstrated that there is a difference between the rates at which nontraditional students persist and complete college and the rates at which traditional students do so (Horn & Carroll, 1996; USDE, 2002; Cavote & Kopera-Frye, 2007-2007; Capps, 2012). There are a variety of possible explanations for this, among them that nontraditional students are more likely to be low-income, first generation, and minority students (Kim, 2002); more likely to be under significant financial strain in order to attend college (Forbus et al., 2010); more likely to be socially isolated on campus (Jacoby, 2000; Jacobs & King, 2002; Taniguchi & Kaufman, 2005; Laird & Cruce, 2009); and more likely to encounter institutional barriers to their success—including ill-equipped financial aid offices, lack of necessary services, scheduling difficulties, and an institutional culture focused on traditional students (Hagedorn, 2005; Monroe, 2006; Hart, 2003).

However, the most common explanation offered for this difference is the commitments nontraditional students have off campus, the multiple roles other than "student" that these individuals must fulfill. While we have some research on this, as detailed above, many conclusions on the impact of multiple life roles are based on

conjecture, many are based on studies only of women, and those studies that do examine the question quantitatively are otherwise limited. There are not enough studies using nationally representative samples of men and women to examine the long-term impact of multiple life roles on enrollment in and departure from postsecondary education, along with their impact on degree completion. This paper asks the question: To what extent do nontraditional students' life roles (outside of "student") impact their odds of certificate/degree completion? To what extent do longer or shorter time periods filling multiple roles (other than "student") impact those odds?

Conceptual Framework

The framework for this study hinges on the definition of life roles. Here, life role is defined as a social position that brings with it expectations for behavior and set tasks that must be performed as long as the role is held (Frone & Rice, 1987; Hughes & Graham, 1990). Within this study, the sample will consist entirely of individuals who have enrolled in college at one point or another, possibly at multiple points, so they will all fill the "student" life role at some point, but the other roles they fulfill will vary. Previous research indicates that the other roles will be those of parent, caretaker, employee, spouse, and military service (Roksa & Velez, 2012), though closer examination of the data may require the definition of other life roles as the study progresses. A student will be defined as fulfilling multiple roles if they occupy more than one of these roles simultaneously (Chartrand, 1990).

While the literature would indicate that role strain (the incompatibility of roles held simultaneously) is the construct most of interest here, because it is the guilt, stress, lack of time, and financial burden that comes with role strain that some researchers believe leads

nontraditional students to depart (Deutsch & Schmertz, 2011), this is not a construct easily examined. To understand role strain, we need to know whether the student feels they are being asked to fill roles with simultaneous, incompatible demands; whether the student feels they have insufficient time to meet those demands; and whether the student feels preoccupied with one role while performing another (Home, 1998). The available data do not provide the necessary information to answer these questions, so this study will instead look at the number of roles held and the duration of those roles in relationship to enrollment, departure, and completion over time. But it should be clearly understood that this will not allow conclusions about the impact of role strain on student outcomes, rather it will permit possible conclusions about the impact of accruing multiple life roles over time on the odds a student will complete their degree.

Methods

Data

To answer this research question, I used the National Longitudinal Survey of Youth (NLSY). The NLSY is comprised of two cohorts, the 1979 cohort (NLSY79) and the 1997 cohort (NLSY97). I utilized the NLSY79 because there are many more years of follow up (most recent follow up data available are from 2012) than are available from the 1997 cohort. The NLSY79 sample is comprised of 12,686 individuals who were between 14 and 22 at the time of their first interview in 1979. NLSY79 respondents were re-interviewed every year through 1994, after which they have been re-interviewed every other year, for a total of 25 data collection points over 33 years. Retention rates up to 1993 were over 90%, over 80% until 2000, and just under 80% since 2002. This survey is ideal for this study because it provides information on labor market behavior, educational experiences, family

background, military service, and family life, among other things (U.S. Department of Labor [USDL], 2016).

Analysis

I utilized an event history, or survival analysis, design to examine this question. This method estimates the time to occurrence of a particular event, in this case, degree completion for respondents meeting the "nontraditional" criteria who, at any point, enroll in a postsecondary institution. To do this, I utilized a Cox (1972) proportional hazard model, which I discuss further below.

Variables. The dependent variable, or "event," is completion of a degree (either AA or BA, whichever is completed first). It is important to note that in most years, the NLSY survey asks the question, "since we last talked with you on (date of last interview), have you obtained any kind of academic degree, for example, an associate's degree or any other type of college degree?" so degree completion in this case includes any degree the respondent views as "a college degree." The independent variable of interest is multiple life roles, which is defined as the number of roles other than student in which the individual is involved. Variables for determining multiple life roles were based on respondents' marital status, employment status, parental status, and military status. These were the only life roles other than student on which information is provided in the NLSY. In addition to a categorical variable for number of life roles, an alternative analysis included dummy variables for each life role separately.

A number of control variables were included: gender, race/ethnicity, family background, and academic preparation (Jacobs & King, 2002; Roksa & Velez, 2012). Family background was defined as parental education (dummy variables for high school or less,

some college, or college degree or more), family income (dummy variables for each income quartile as determined in the first year of data collection), number of siblings, and a dummy variable denoting a two-parent household (Roksa & Velez, 2012). I controlled for respondents' academic preparation through the use of their Armed Forces Qualifications Test (AFQT) score. All respondents completed the battery, and the sections on arithmetic reasoning, word knowledge, paragraph comprehension, and numerical operations were used to construct their scores. The scores were re-normed in 2006, and the NLS staff recommend using the re-normed score in all studies (USDL, 2016).

To determine which students to include in the sample, I created a dummy variable for nontraditionality. Nontraditional students are defined by delayed enrollment, part-time college attendance, full time employment, single parenthood, parenthood more broadly, and completion of a GED instead of a traditional high school diploma (USDE, 2002). The definition of nontraditional students typically includes students who are "independent" for the purposes of financial aid, but this information is not included in the NLSY79, so I did not include it as a nontraditional criterion. I created these indicators for each time period in the analysis.

An important note about variables within the context of a survival or event history analysis: each time period (years, in this case) must have a value for each variable. Once the data set includes a value for each variable in each time period (called wide form), the data can be converted to long form, wherein there is a row for each individual in each time period (person-year, in this case), and a value for each variable in every row. While the NLSY79 is a strong data set for the purposes of this study, its utility is slightly hampered by its inconsistency. Certain questions which were key to this analysis were only asked in

certain years, and others were asked one way for a period of time, then another way later in the survey period. Generally, I addressed this problem by creating the necessary variables from variables asked in later years. For example, respondents were not asked about whether they had received a college degree from 1984 to 1988. However, in 1989, they were asked for the year they received their highest degree and whether that degree was a high school diploma, college degree, or graduate degree. I used the later variables to create variables for each of the years in which information was missing. Other types of missing data will be discussed below.

Modeling strategy. The strategy employed here is similar to that used by Roksa and Velez (2012), in that it is a survival analysis that examines time to an event and the impact of various covariates on the "hazard" of the even taking place. Typically, a survival analysis is used when the event in question is the result of a natural process that will inevitably end in the same way for every individual in question, i.e. death. Clearly, in the case of postsecondary completion, this is not the case, since not everyone who enrolls in college will inevitably complete. It may seem better to apply a different type of model, perhaps ordinary linear regression, to these data and this outcome. However, using linear regression presents its own set of concerns when answering a question like this with longitudinal data. It was important, in this case, to choose a modeling strategy that would present the fewest number of problems.

The first problem with applying a linear model to event history data is that most linear models assume that time to event will have a normal distribution, when this is rarely the case with data of this kind. For example, time to failure in these data sets is always positive, while the normal distribution theoretically includes both positive and negative

numbers. Additionally, the distribution of time to event might be bimodal and is almost always nonsymmetrical. A model must be used that relaxes these assumptions. Additionally, ordinary linear regression cannot handle the censoring of observations (when information about a respondent's survival or outcome is incomplete), but instead assumes cases of non-survival and cases of censoring are the same. In contrast, a survival model can absorb censored cases and treat them appropriately, utilizing a dependent variable that has two parts—survival up to a given time and hazard that an event will occur after a given time, given survival up to that point (Cleves, Gould, & Marchenko, 2016). While a hazard model is not perfect for this circumstance, it is a vastly better choice, presenting far fewer problems, than the alternative.

To do this, I selected a Cox proportional hazards model. The Cox model is considered semi-parametric and is generally thought of as a compromise model between the parametric and non-parametric models that can also be used for event history analysis. It is semi-parametric because it specifies a particular functional form for the regression model, but does not make any assumptions about the distribution of event times (Allison, 2014). To use this model, we do not need to know the shape of the hazard over time. The model includes the assumption that the general shape of the hazard is the same for everyone, if all covariates are equal. This is not a particularly stringent requirement, and should it be violated, a few different adjustments are possible to correct for it. This will be further discussed below. The model estimated in this study is written as follows:

$$\log h(\mathrm{t}) = a(\mathrm{t}) + b_1 \mathrm{LIFEROLES}_{1ij} + b_\mathrm{n} \delta_{\mathrm{p}ij}$$

where $a(t)$ is any function of time, LIFEROLES is a categorical variable indicating the number of life roles outside of student, and δ_{ij} is a vector of control variables. An alternative model estimated in addition is written as follows:

$$\log h(t) = a(t) + b_1 \text{MARRIED}_{1ij} + b_2 \text{EMPLOYED}_{2ij} + b_3 \text{PARENT}_{3ij} + b_4 \text{MILITARY}_{4ij} + b_n \delta_{pij}$$

where $a(t)$ is any function of time, MARRIED is a dummy variable indicating that a respondent is married, EMPLOYED is a dummy variable indicating that a respondent is employed, PARENT is a dummy variable indicating that a respondent has at least one child, MILITARY is a dummy variable indicating that a respondent is enlisted in a military branch, and δ_{ij} is a vector of control variables.

The final data set includes 4,877 subjects who were, at one point, enrolled in college as nontraditional students. The data include 121,925 observations on these individuals. Subjects are observed from the first time they enter the data set, which for all subjects is the first survey in 1979. However, they are not considered "at risk" until they enroll in college for the first time, at which point they are considered "at risk" until they complete a degree ("fail"), leave the sample, or data collection ends ("censoring"). After accounting for insurmountable amounts of missing data on the "at risk" or "failure" variables, 4,690 subjects were included in the analyses. Among these subjects, 2,213 total "failures" were observed.

Results

Typical preliminary analyses, such as basic descriptive statistics, do not translate well to survival data because of the nature of the person-year format (Cleves, et al., 2016). Instead, I will first present the Kaplan-Meier survival estimates, followed by the results of the Cox proportional hazards regression. The survival estimates are nonparametric

estimates of the probability of survival past a given time *t*, which is slightly complicated to interpret in the context of this particular study. Because survival analysis was first used within the medical community, these methods were applied to the survival or death of patients in certain circumstances, so survival was considered positive while death, or failure, was negative. In this context, the opposite is true. Here, the "failure" event is completion of a degree, and survival is the lack of a degree beyond a certain time *t*. This will be important to bear in mind as the results are presented and discussed.

Survivor Functions

Figure 1 shows the overall survivor function for the raw data. Over the full 33 years of the data, the survivor function never reaches .5, indicating that within the full data set, less than 50% of subjects have completed a degree, and over 50% are still "surviving," meaning that they have not done so as of the last data collection point (2012). Tables 1, 2, and 3 provide some useful descriptions of the survival distribution as estimated by the Kaplan-Meier calculations. The overall mean survival time is nearly 20 years. Table 1 provides this information along with the mean survival time for subjects with each possible number of life roles: zero if they are a student and nothing else at a given time, one if they have one role outside of student, and so on. Figure 2 shows the survivor curves for each of these groups. It should be noted that Table 1 table reports the restricted mean, which is used when the last observed analysis time may be censored, as may be the case for subjects in this study. The restricted mean may be underestimated, indicating that the mean survival time, or time after first enrolling without receiving a degree, may actually be longer than reported here.

Table 2 further clarifies the survivor function by providing the survivor function at specific points in time. For example, it shows that at 2 years, 13% of subjects report completing a degree (likely an associate's degree, but it is not possible to say for certain). At 6 years, 36% of subjects report completing a degree. At 33 years, the last point of analysis, 49% report having completed a college degree of some kind. Table 3 reports the survivor functions at these same points in time, but breaks it down by number of life roles. There is variation in the actual survivor functions across groups, as well as in the rate at which the survivor function decreases within each group. Whether these differences across groups are significant will be explored below.

As might be expected, those with four life roles are least likely to have completed a degree by the last year of observation (t = 33). The Kaplan-Meier survivor functions indicate that by year 33, 34% of those with four life roles will have completed a degree, compared to 58% of those with one life role. At year two, the first time period at which an associate's degree might be possible 14% of those with one life role have a degree, compared to 12% of those with two, 13% of those with three, and 8% of those with four. The analysis here suggests that having no life roles other than student is easier on degree completion, since 18% of those students would have completed a degree by year 2. In most college completion literature, six-year bachelor's degree completion is a standard period of analysis. Table 3 indicates that 47% of students with one other life role will complete a degree (recall that this may or may not be a bachelor's degree) within 6 years, compared to 28% of those with two, 36% of those with three, and 9% of those with four. The results reported here are not entirely clear cut; there are some cases in which those with more life roles indicate better outcomes. However, the initial Kaplan-Meier survivor functions do not

control for any other characteristics, and the unexpected overlaps in patterns are corrected below in the Cox proportional hazards model.

Survival Time. The median survival time, or time beyond which 50% of subjects are expected to survive, can be a useful descriptor for event history data. However, the median cannot be calculated for this data, since (as seen in Figure 1) the survivor curve never reaches 50%. Other percentiles can be calculated, and for the full sample the highest percentile is 48; 48% of the sample will have "failed" within 31 years, based on that calculation, which means that within 31 years, 48% of the sample will have completed a degree. This is not particularly instructive since it does not get to the heart of the question of the impact of multiple life roles. However, comparing a particular percentile survival time across specific groups—number of life roles, for example—can provide a further descriptive picture of the sample here.

Table 4 provides this information for the 25th percentile across number of life roles, and across each specific life role, for comparative purposes. This allows an examination of the different "survival" times for subjects with each number of life roles. For each number of life roles, Table 4 provides the number of years within which 25% of people in each group will complete a degree. The analysis of number of life roles shows that it will take 17 years for 25% of people with four life roles to complete a degree, while it will only take 3 years for people with one life role to do so. The analysis of type of life role shows that it will take 8 years for 25% of those who are married to complete a degree, and 14 years for those 25% of those who are parents to do so.

This metric provides a rough estimation of the impact of multiple life roles, or particular life roles, on survival or failure (non-completion versus completion of a degree),

because it allows a comparison of apples to apples. I used the log-rank test to test the null hypothesis that there is no difference in survival functions between groups (Cleves, et al., 2016) in order to determine whether the different times to degree reported in Table 4 reflect real differences. In the case of number of life roles, as well as the comparison of those with and without each specific life role, this hypothesis is rejected. This means that the differences between subjects with different numbers of life roles, the differences between those who are and are not married, those who are and are not employed, those who are and are not parents, and those who are and are not military, are all statistically significant. These patterns will be examined within the context of the full hazard model, discussed below. This suggests that number of life roles do affect whether or not a student completes a degree, and that the type of life role matters.

Cox Proportional Hazard Model

Two models, specified above, were analyzed using the Cox proportional hazards method. The first looks at the impact of number of life roles, a categorical variable ranging from zero to four. The results of this first regression are reported in Table 5, and the resulting hazard curves can be seen in Figure 3. First it is important to understand the difference between the survivor functions discussed above, and the hazard functions that will be discussed here. They are related, but distinct. The survivor function reports the probability of surviving beyond a given time *t*, while the hazard function is the instantaneous rate of failure. The hazard function reports the probability of failure at a given point in the analysis, given that the subject has not failed up to that point (Allison, 2014; Cleves, et al., 2016).

Table 5 reports the coefficients generated by the Cox regression performed here. The coefficients are reported as hazard ratios for ease of interpretation. The first model examines the accumulation of a number of life roles and expressly answers the question: what impact do multiple life roles have on completion of a degree among nontraditional college students? The hazard ratio, .74, for number of life roles, is difficult to interpret meaningfully, as is the coefficient from which the hazard ratio is derived. A useful technique is the exponentiate the negative of the coefficient, because this will give the amount by which the hazard rate changes for every one unit decrease in the variable of interest—in this case, decrease in number of life roles. To work backwards to the coefficient, first take the natural log of the hazard ratio, which yields -0.3. Exponentiating 0.3 (the negative of the coefficient) yields 1.35, allowing us to conclude that for every decrease in number of life roles (from four to three, or two to one, for example), the hazard rate of completing a degree increases by 1.35 times. This indicates clearly that fewer life roles increase the likelihood of completing college, while more life roles decrease the likelihood.

This model controls for gender (male is the reference group), race (non-Black and non-Hispanic is the reference group), parental education (college degree or more is the reference group), parental income (top income quartile is the reference group), number of siblings, two-parent household, and academic ability. Figure 3 uses this Cox proportional hazards regression to generate cumulative hazard curves for each number of life roles. These curves are more distinct from one another and smoother than the survival curves generated by the Kaplan-Meier estimates, and the functions seen here take into account the covariates for which the model controls.

The second model attempts to delve further into the impact of type of life role, rather than number. In order to do this, the model includes binary variables for each type of life role: marriage, parenthood, work, and military service. Within this model, the two life roles that are significant are marriage and parenthood. The four binary indicators for type of life role are not mutually exclusive, they are simply indicator variables indicating whether, in each time period, a respondent held a particular role. The reference group for each, when interpreting results, is those who did not hold that role, though they may have held others. At a given point in time, someone who is not married has a hazard rate of completing a degree that is 1.31 times greater than someone who is married. Similarly, at a given point in time, someone who has no children has a hazard rate of completion that is 1.63 times greater than those who have one child or more. This indicates that having children has a more negative impact on the likelihood of completing a degree than does marriage. An interaction term looking at the relationship between marriage and parenthood was not significant, so is not included here. Figure 4 uses this Cox proportional hazards regression to generate cumulative hazard curves for those with and without each life role. This allows a comparison of the impact of each individual life role on the probability of degree completion over time. The determination made above that having a child is more harmful to the prospect of eventual completion than having a spouse is confirmed by a visual assessment of these curves.

Different hazards for men and women. A large number of the studies that have previously touched on this issue have focused entirely on female students, and the impact of multiple life roles on their postsecondary experiences (Beutell & Greenhaus, 1982; Backels & Measheу, 1997; Gerson, 1985; Jacobs & King, 2002; White, 2002). Figure 5 shows

the cumulative hazard functions for each number of life roles, separately for men versus women, in order to determine whether number of life roles impacts the possibility of completion differently for men versus women. The sample is nearly evenly split between men and women (54% female), so the two groups are comparable in size. Among males, the hazard ratio of .81 indicates that each decrease in number of life roles increases the hazard rate of degree completion by 1.23. Among females, the hazard ratio of .68 indicates that for each decrease in number of life roles increases the hazard rate of degree completion by 1.47 times. This indicates that the negative impact of multiple life roles is more severe for women than it is for men. Figure 5 presents cumulative hazard functions, based on these Cox proportional hazards models, for men and for women. The findings reported here are confirmed by visual assessment of these figures, which show much greater differences in women's hazard rates across number of life roles than in men's hazard rates. Men appear to be able to take on more life roles simultaneously without experiencing the same magnitude of role strain as women who do so.

Testing the proportional hazards assumption. Whether or not the proportional hazards assumption of the Cox model holds in the results thus far reported, they are likely to be satisfactory approximations of the impact of these explanatory variables. Still, it is useful to examine this assumption. To do this, I examined the data for any interactions between time and any of the explanatory variables (Allison, 2014). In doing so, I determined that both number of life roles and, specifically, military service report residuals that are correlated with time. In this case, the coefficients reported in Table 5 for number of life roles and for military service should be viewed as the average effects of each over the period of the study, rather than the instantaneous rate of failure that usually defines a

hazard ratio. Since military service is not significant in the Cox model, even though the residuals indicate a correlation with the passage of time, this violation is not a particularly pressing concern. The correlation between number of life roles and time, however, is more pressing, and can be addressed.

The simplest way to address this violation of the proportional hazards assumption is to add an interaction term to the model, a term that interacts number of life roles and time. This new model specification is reported in Table 6; here coefficients and hazard ratios (exponentiated coefficients) are reported. The hazard ratio on number of life roles is now .63, indicating that with each decrease in number of life roles, a subject's hazard rate of completing a degree increases by 1.59 times, indicating a slightly more severe negative effect of role accumulation than was found in the first model, without the interaction term. The coefficient (not hazard ratio) on the interaction term is .02. This means that there is an increase in the hazard rate of .02 for every year that passes, leading to the conclusion that this more pronounced negative impact diminishes somewhat over time. The hazard ratios and significance levels of the other explanatory variables remain largely unchanged. Because of the violation of the proportional hazards assumption in the previously discussed model, the estimates reported here, with the interaction term included, are preferred.

Discussion

Both the number of life roles and the type of life role have a significant impact on nontraditional students' "survival" and "failure" within the context of this data. The pattern is evident from the basic descriptive analyses, showing that mean survival time increases with number of life roles, or that the survivor functions vary across number of life roles.

The pattern is also evident, if a little muddled, in the estimation of 25th percentile survival to compare years to "failure." The pattern is confirmed and clarified when control variables are added to the analysis and the Cox model is fitted to the data. There we see that, all other things being equal, additional life roles on top of being a "student" do decrease a subject's hazard rate. The primary research question asked to what extent multiple life roles impact nontraditional students' degree completion, and this analysis provides an answer to that question. Someone with no life roles other than student at a given time has a 1.59 times greater chance of completing a degree than someone who has one life role beyond student, a 3.18 greater chance than someone with two other life roles, and so on.

The difficulty with this discussion is terminology, as mentioned above. Increasing a student's survival sounds positive, but in this case it means that the student goes longer before getting a degree of any kind. Likewise, decreasing a subject's hazard rate seems like a good thing, but in this case it means that the subject has a lower chance of completing a degree. It is helpful throughout this discussion to think of "survival without a degree" and "hazard of completing a degree."

This study allows the determination that nontraditional students face a harder road to degree completion than their traditional counterparts, not only because of the reasons previously demonstrated, but because of the previously somewhat untested assertion that they are tasked with filling too many roles at once, and it is detrimental to their progress toward a degree. Other reasons previously cited have included the fact that nontraditional students are more likely to be minorities, first generation students, or of low socioeconomic status (Kim, 2002), but all of these factors are controlled for here, allowing me to determine whether the impact of their multiple life roles is negative on its own, all

else being equal. It is clear that the answer is yes. Previous work has also claimed that there may be a reason that nontraditional students didn't go to college soon after high school—inadequate academic ability—and that same reason could explain the difficulty they have in completing a degree once they enroll. Other studies have debunked this notion by demonstrating that nontraditional students are just as academically successful as their traditional peers (Capps, 2012; Forbus, et al., 2010; Graham, 1998; Hagedorn, 2005; Kasworm, 2005; Morris et al., 2003), and by controlling for academic ability, this study adds credence to that assertion.

The primary goal of this study is to determine the effect of multiple life roles on the degree completion of nontraditional students. This question is clearly answered. The benefit of testing the proportional hazards assumption, and adding the interaction term between number of life roles and time, is that the results of the Cox regression tell us not only the impact of number of life roles at a particular moment in time, but how that impact changes over time, which was the secondary research question. It is true that every additional life role means a decrease in the chances of completing a degree. But the interaction term allows the conclusion that this negative impact slowly decreases over time. This may indicate that nontraditional students get better at juggling multiple roles the longer they are required to fill them.

Another goal of the study was to take a first step toward understanding the differential impact of the types of life roles (above and beyond that of student) on a nontraditional student's trajectory. While the hazard ratios indicate that any of these life roles decrease a student's chances of completing a degree, only the hazard ratios for marriage and parenthood are significant. The difficulty with multiple life roles is not the

simple fact of their existence, but rather the strain that is associated with the competing expectations of each role—multiple role strain (Frone & Rice, 1987). Not all different roles require an individual to engage in incompatible behaviors, but when they do, usually one of the roles suffers (Stryker, 1968). It is possible that the results seen here indicate that the roles of parent versus student, or spouse versus student, are more incompatible than are the roles of employee versus student, or soldier versus student. Some employers encourage their employees to further their education; often this is included in military service as well. There may be less incompatibility between these competing demands, at least for some students, leading to the lower significance of these life roles' impact on chances of degree completion.

The finding regarding the differential impact of multiple life roles on men and women is important to the overall literature in this area. A life role frequently concerns societal expectations placed on a person with a certain label—mother, for example, or provider (Stryker, 1968). The different social expectations placed on men and women could be factors explaining why women are more negatively affected by multiple life roles than men. A significant amount of previous research in this area has focused on women, because social expectations for women are so high and potentially incompatible with schooling (Beutell & Greenhaus, 1982; Backels & Meashey, 1997; Gerson, 1985; Jacobs & King, 2002; White, 2002). The finding here indicates that important differences still exist in this area and the implications of this finding are significant.

When a woman increases her number of life roles by one, her odds of completing a degree go down more precipitously than they do for a man who increases his number of life roles by one. This means that a female student who becomes a parent is at a greater

disadvantage than a male student who becomes a parent, and that a woman who works full time and decides to enroll in college is less likely to complete a degree than a man who works full time and makes the same decision. While the reasons for this are embedded deep within our culture's differing expectations of men versus women, and therefore it is unlikely that individual institutions can combat this problem in a vacuum, it nevertheless behooves institutions to be especially aware of the disparity between male and female nontraditional students. If making completion easier for nontraditional students is a goal, it is necessary to do so with a complete picture of the challenges they face, including the more substantial challenges evidently faced by women.

Conclusions and Limitations

The literature on nontraditional college students is limited and, at times, relies on assumptions about these students who are too often misunderstood or misrepresented. The field has asserted on many occasions that it must be the multiple life roles nontraditional students fill that account for their struggle to complete degrees (Backels & Measheу, 1997; Chartrand, 1990; Donaldson & Graham, 1999; Eppler & Harju, 1997; Fairchild, 2003; Gerson, 1985; Jacobs & King, 2002; Jacoby, 1989; Kasworm & Pike, 1994; Lucas, 2009; Morris, et al., 2003; Person & Edwards, 1997; Roksa & Velez, 2012; White, 2002). Before this study, much of the work attempting to confirm this focused on data sets made up only of women, leaving a significant portion of students out of the conversation; much of the work used very small data sets and utilized qualitative methods; and some of the work focused on only one type of nontraditional student, rather than students who are nontraditional in a variety of ways. This study fills those gaps.

The work conducted here uses a large national data set to ensure a sample size large enough for the complexities of survival analysis. It utilizes 33 years' worth of data, correcting a limitation of much of the literature on nontraditional student degree completion: insufficient follow-up time. It makes use of a modeling strategy with relaxed assumptions and straightforward mechanisms for dealing with the extraordinarily important role of time in our understanding of degree completion. The data is rich and complex, and this opens up the possibility of further work on related questions. Future research with this data could and should delve into the different possible combinations of life roles, the interaction of those specific combinations with gender, and look more deeply at the role of stop-out behavior in determining "risk" of degree completion.

This analysis is somewhat limited by missing data. Where possible and theoretically appropriate, missing data was filled in using Stata's "stfill" command, which allows previous values of a variable to be carried forward into the next time period. This was done for all time-non-varying covariates (gender, race, parental education, family income, number of siblings) because missing data in certain years for these variables was very likely a clerical error. This was also done for number of life roles. If, for some reason, a subject did not report (or was not asked, as was sometimes the case) about certain life roles in a given year, their number of life roles from the previous year was carried forward (Cleves, et al., 2016). Even with missing data that could not logically be filled in, the study is left with a significant number of subjects and observations. An additional weakness of this work is the use of "degree completion" as the outcome of interest without knowledge of the students' educational goals. The NLSY79 did not ask students what their goal was, so it is not possible to know, from this data, whether "degree completion" is an unreasonable

expectation to place on certain students within the sample. It is important to keep in mind that not all students enter postsecondary education with a degree in mind.

Despite these few limitations, this is one of the only studies that examines the impact of multiple life roles on degree completion among nontraditional students. It is a first step towards a much deeper understanding of the experience of being a nontraditional student in American higher education. The results reported here clearly demonstrate that the strain of multiple life roles is real for nontraditional students, and it has a significant impact on their degree completion prospects. Each additional life role makes a hopeful student less likely to complete a degree, especially the life roles of marriage and parenthood, and the effect is more significantly negative among women. These are important findings on their own, and within the broader context of research on multiple life roles and nontraditional students, they provide an important basis on which to build further work on these central issues.

Table 1

Estimated Mean Survival Time in Years by Number of Life Roles (Outside of Student)

	N	Restricted Mean	95% Confidence Interval
Zero	150	17.41	(11.46, 23.35)
One	3,280	16.91	(16.31, 17.51)
Two	2,529	22.13	(21.35, 22.91)
Three	1,944	24.75	(23.90, 25.59)
Four	145	25.63	(22.94, 28.32)
Total	4,690	19.94	(19.53, 20.35)

Note: When the largest observed analysis time is censored, the mean will be underestimated.

Table 2
Initial Kaplan-Meier Survivor Functions for Various Time Points of Interest

Time in Years	Subjects Remaining in Sample	Subjects Completing Degree (Failure)	Survivor Function	% of Subjects Completing Degree
0	4,690	0	1.00	0%
2	4,457	375	0.87	13%
4	3,637	419	0.69	31%
6	3,054	104	0.64	36%
10	2,744	48	0.59	41%
33	358	3	0.51	49%

Table 3

Initial Kaplan-Meier Survivor Functions by Number of Life Roles (Outside of "Student")

Time in Years	Zero Life Roles		One Life Role		Two Life Roles		Three Life Roles		Four Life Roles	
	Survivor Function	% With Degree	Survivor Function	% With Degree	Survivor Function	% With Degree	Survivor Function	% With Degree	Survivor Function	% With Degree
0	1.00	0%	1.00	0%	1.00	0%	1.00	0%	1.00	0%
2	0.82	18%	0.86	14%	0.88	12%	0.87	13%	0.92	8%
4	0.54	46%	0.60	40%	0.76	24%	0.69	31%	0.91	9%
6	0.54	46%	0.53	47%	0.72	28%	0.64	36%	0.91	9%
10	0.54	46%	0.48	52%	0.67	33%	0.59	41%	0.83	17%
33	n/a	n/a	0.42	58%	0.58	42%	0.51	49%	0.66	34%

Note: Given the small number of subjects with zero life roles outside of student, none survived to the final year of observation (t = 33). At the last year of observation for those with zero life roles (t = 31), approximately 50% had completed a degree.

Table 4

25th Percentile Survival by Number and Type of Life Role

	N	Years within Which 25% of Subjects in Each Group Will Graduate
Number of Life Roles**		
Zero	150	4
One	3,280	3
Two	2,529	5
Three	1,944	12
Four	145	17
Type of Life Role		
Married**	2,399	8
Employed**	4,678	4
Parent**	2,310	14
Military**	397	10

**The difference between groups reported here is significant at $p < .001$.

*The difference between groups reported here is significant at $p < .01$.

Table 5
Cox Regression Estimates

	Hazard Ratio	S.E.	*p*-value
Modeling Number of Life Roles			
Number of Life Roles	0.73***	0.03	<.001
Female	1.22***	0.06	<.001
Black	1.02	0.08	.792
Hispanic	0.87	0.07	.087
Parental Education – HS or Less	0.84*	0.07	.031
Parental Education – Some College	0.91	0.09	.382
Family Income – First Quartile	1.22*	0.09	.011
Family Income – Second Quartile	1.01	0.08	.890
Family Income – Third Quartile	1.02	0.07	.801
Number of Siblings	1.02	0.02	.199
Two Parent Household	1.27***	0.07	<.001
AFQT Score	1.00***	0.00	<.001
Modeling Type of Life Role			
Married	0.76***	0.06	<.001
Employed	0.69	0.16	.106
Parent	0.61***	0.05	.000
Military	0.83	0.15	.279
Female	1.22***	0.06	<.001
Black	0.95	0.07	.532
Hispanic	0.83*	0.07	.023
Parental Education – HS or Less	0.85	0.07	.053
Parental Education – Some College	0.91	0.10	.390
Family Income – First Quartile	1.30**	0.10	.001
Family Income – Second Quartile	1.06	0.08	.456
Family Income – Third Quartile	1.02	0.07	.746
Number of Siblings	1.02	0.02	.198
Two Parent Household	1.25***	0.07	<.001
AFQT Score	1.00***	0.00	<.001

*** $p < .001$
** $p < .01$
* $p < .05$

Table 6
Corrected Cox Regression Estimates

	Hazard Ratio	S.E.	*p*-value
Modeling Number of Life Roles			
Number of Life Roles	0.63***	0.03	<.001
Female	1.22***	0.06	<.001
Black	1.02	0.08	.766
Hispanic	0.87	0.07	.084
Parental Education – HS or Less	0.84*	0.07	.036
Parental Education – Some College	0.91	0.09	.346
Family Income – First Quartile	1.23**	0.10	.007
Family Income – Second Quartile	1.02	0.08	.812
Family Income – Third Quartile	1.02	0.07	.785
Number of Siblings	1.02	0.02	.222
Two Parent Household	1.26***	0.07	<.001
AFQT Score	1.00***	0.00	<.001
	b	S.E.	*p*-value
Number of Life Roles x Time	0.02***	0.01	<.001

*** $p < .001$
** $p < .01$
* $p < .05$

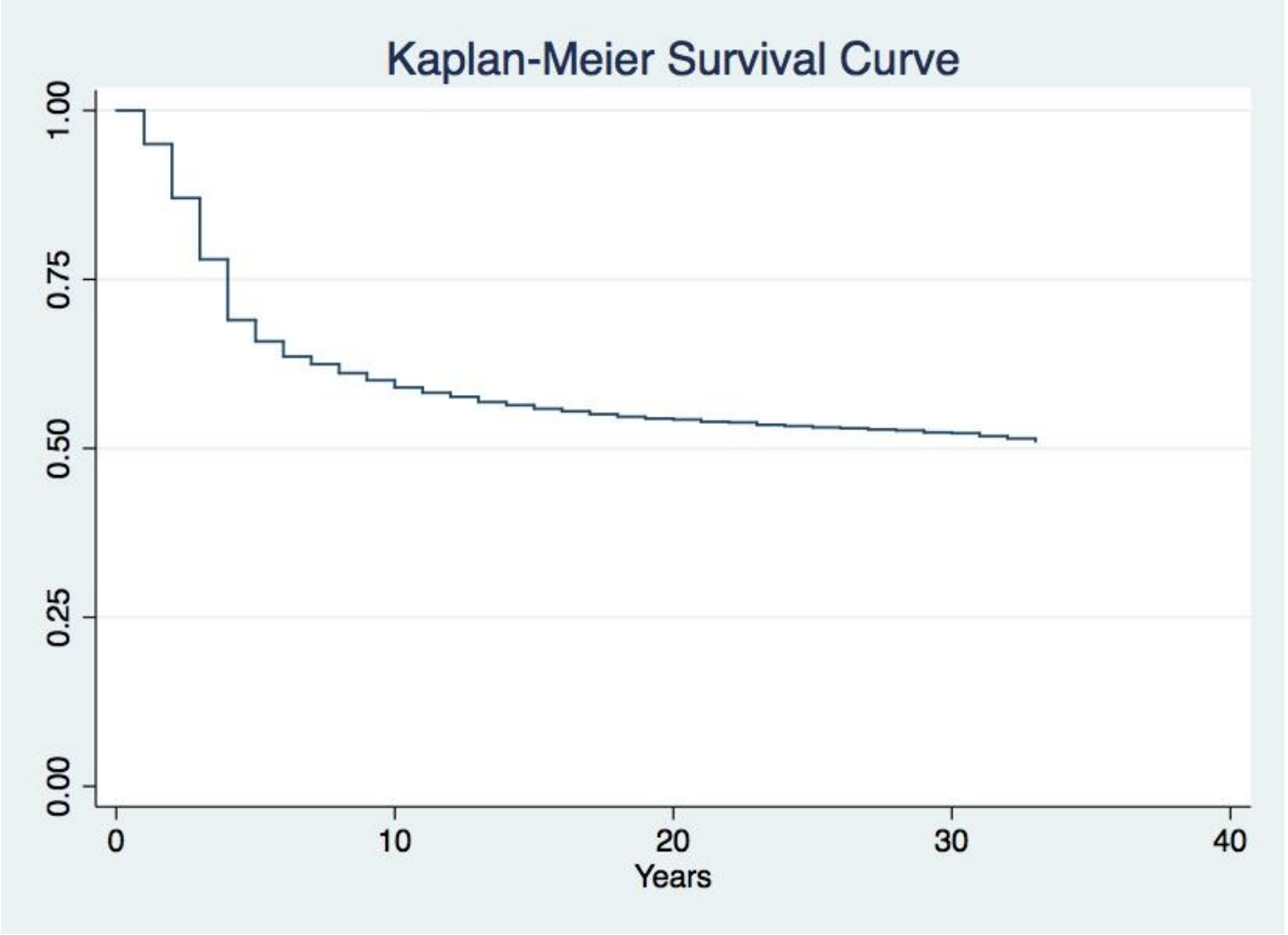

Figure 1. This figure shows the overall estimated survivor function for the full data set.

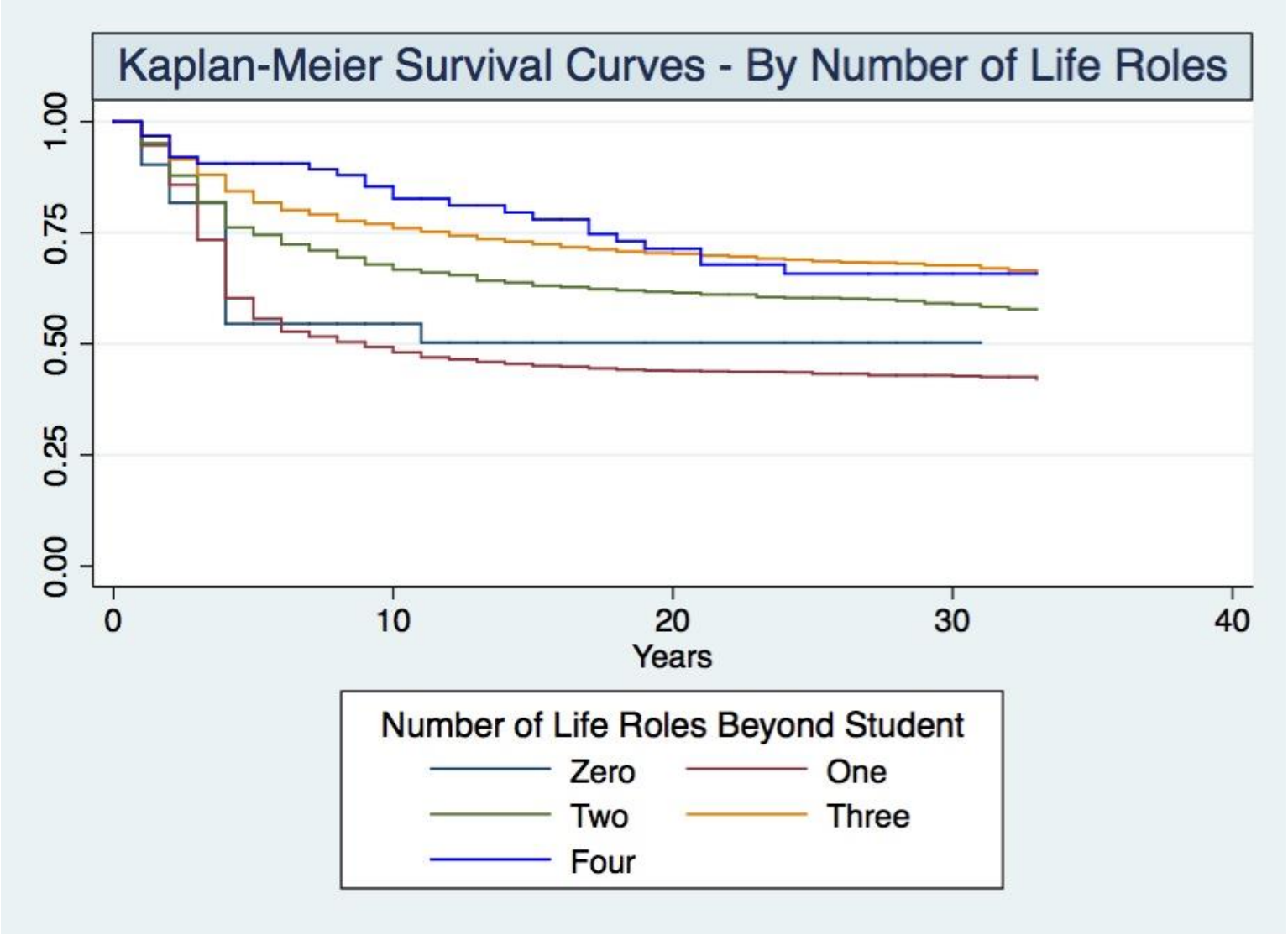

Figure 2. Kaplan-Meier Survival Curves by Number of Life Roles. This figure provides a visual representation of the numbers presented in Table 3, demonstrating the hazard of achieving a degree, based on raw data with no controls, for students with each number of life roles.

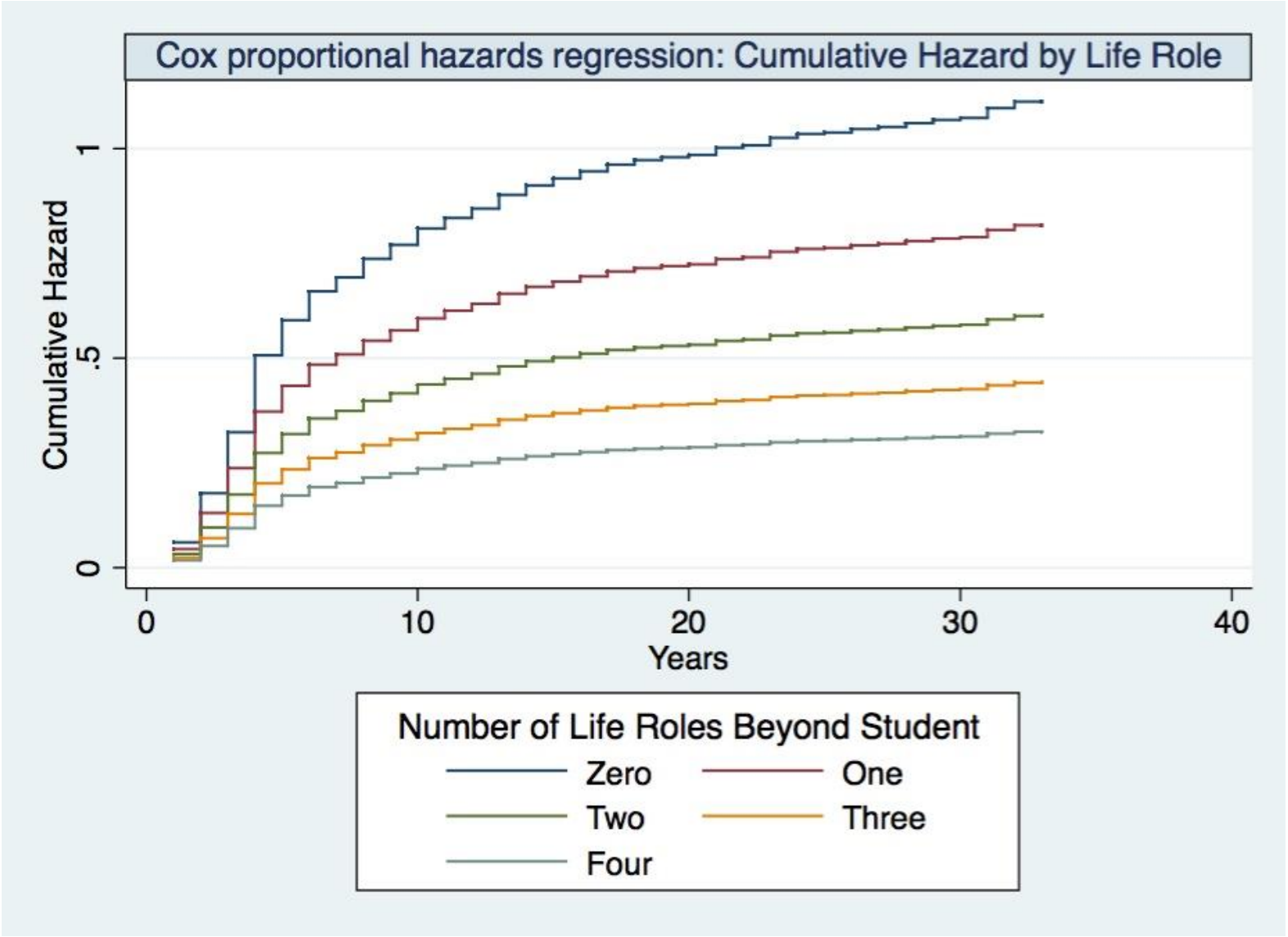

Figure 3. Cumulative hazard function by number of life roles.

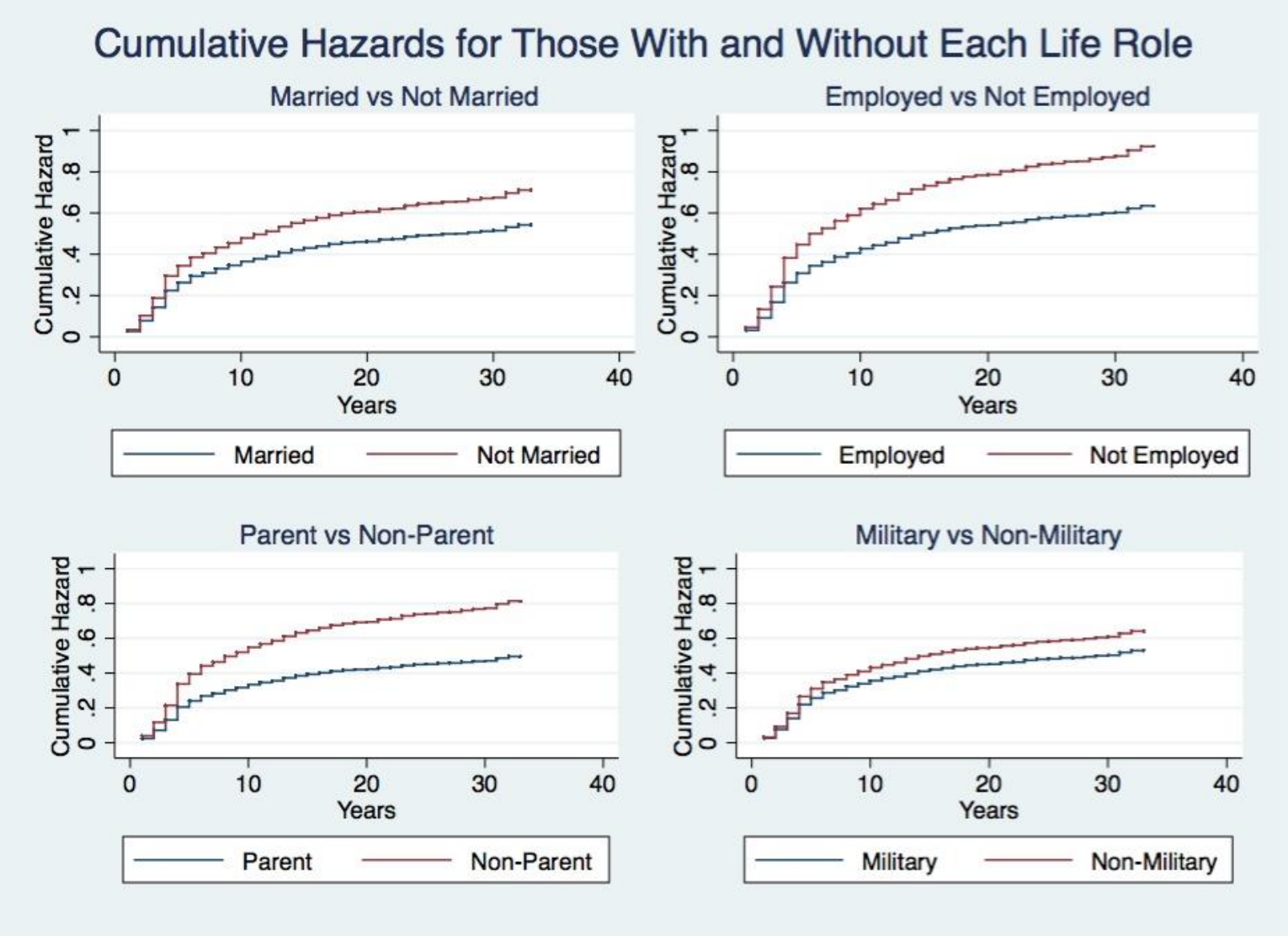

Figure 4. Cumulative hazard functions for subjects with and without each of four life roles.

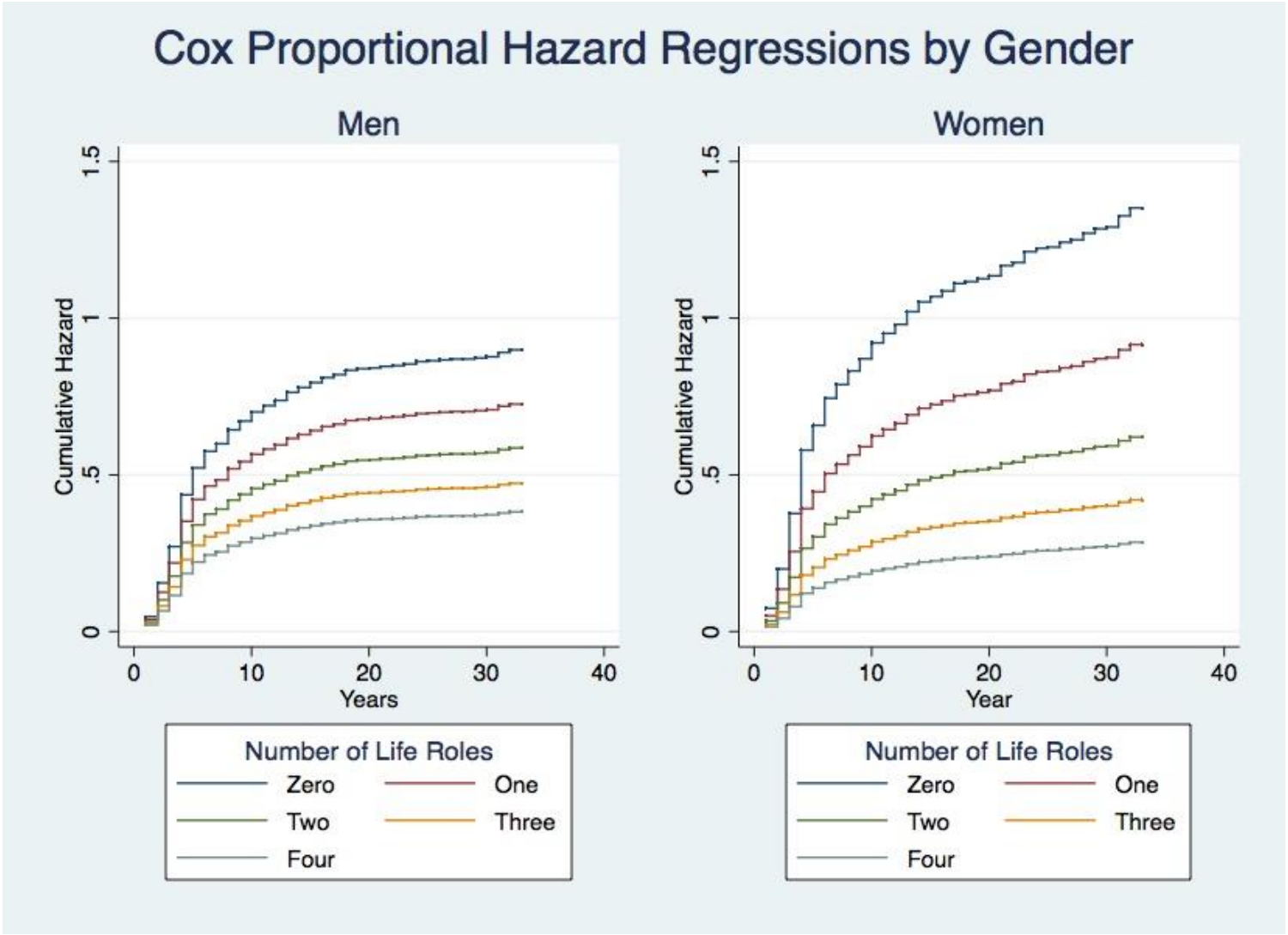

Figure 5. Cumulative hazard functions by gender.

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CHAPTER 4

PAPER 3: A META-ANALYSIS OF THE IMPACT OF POSTSECONDARY REMEDIATION ON COLLEGE OUTCOMES

Research Questions: What is the average impact of developmental education on student outcomes (the overall effect)? What level of heterogeneity exists in the research on developmental education? What explains the widespread variation in the conclusions reached regarding the impact of developmental education on outcomes?

Remedial education represents a significant aspect of the work done by American post-secondary institutions. Remedial," or "developmental," courses are offered to students, many of whom are nontraditional, who arrive in college ill prepared for college-level courses, (National Conference of State Legislatures [NCSL], 2013). Three billion dollars per year is spent on these courses by governments and individuals (Complete College America, 2012). Understanding whether these efforts help or hurt students is crucial.

"Remedial," or "developmental," courses are offered to students who arrive in college ill prepared for college-level courses, many of whom are nontraditional (National Conference of State Legislatures [NCSL], 2013). They are generally not offered for credit but are designed to equip students with skills in math, reading, and writing. More than 52% of students at two-year institutions, and 20% of students at four-year institutions enroll in remedial courses, making them a major expenditure for states and institutions. Although remediation is prevalent, it remains politically contentious (Attewell, Lavin, Domina, & Levey, 2006; Doyle, 2012). Some believe that the necessity for remediation is evidence that students are arriving on campus with inadequate academic preparation and that post-

secondary institutions are lowering their standards to meet enrollment goals, while others argue that helping students overcome deficits in the interest of future achievement is part of the mission of higher education (Attewell et al., 2006).

The source of some of this disagreement is the fact that there is considerable uncertainty surrounding the issue of whether or not remediation actually works (Martorell & McFarlin, 2011; Panlilio, 2012). Studies that examine the impact of remediation have conflicting findings. Some studies have found that, when compared to similar students, those in remediation have improved outcomes (Bettinger & Long, 2009; Fike & Fike, 2008). Other researchers find that remediation can improve outcomes in the short term, but it has no effect in the long term (Calcagno & Long, 2008). Still other studies have concluded that remediation has no effect on eventual attainment (Martorell & McFarlin, 2011; Scott-Clayton & Rodriguez, 2012), while others find that it has a decidedly negative impact on students (Bettinger & Long, 2004).

The problem is that researchers have considerable difficulty measuring the impact of remediation because of the systematic differences likely to arise between those students assigned to remediation and those who are not. Students in these two groups are likely to be very different, so we would expect them to have different educational outcomes on average (Attewell et al., 2006; Bettinger & Long, 2004, 2009; Martorell & McFarlin, 2011; Panlilio, 2012). Researchers have attempted to address this problem with a variety of estimation techniques designed to mimic as closely as possible "random assignment" to remediation. However, even when this is done well, the problem remains that making generally applicable conclusions about remediation is nearly impossible. As Doyle (2012) points out, remediation can be a wholly different thing from institution to institution.

Different educators will teach remedial courses differently ("intervention fidelity") and different students will receive and respond to that remediation in different ways ("heterogeneous treatment effects") (Doyle, 2012).

Several researchers have argued that findings on the impact of remediation will vary by remediation type, institution type, and the outcome measured (Attewell et al., 2006; Panlilio, 2012). However, no one has formally tested this assertion. Moreover, no one has yet completed a systematic review and meta-analysis in this area. This paper aims to systematically review the literature on developmental education, assess the average impact of remediation on outcomes and the amount of variation present in the literature, and explain the source of the widespread disagreement on whether or not remediation actually works. It is important to note that this analysis is designed to take stock of what existing research says on this question, not to assess the practice of developmental education in general. The empirical research done on developmental education is of interest here—what questions it asks, what data it uses, what outcomes it measures, and what conclusions it reports.

Research Question

This paper will address the questions: What is the average impact of developmental education on student outcomes (the overall effect)? What level of heterogeneity exists in the research on developmental education? What explains the widespread variation in the conclusions reached regarding the impact of developmental education on outcomes?

Objectives. First, I will assess the average impact of post-secondary remediation on educational outcomes. After determining the average effect and the heterogeneity of effect sizes, I will determine whether the variation in effect sizes is explained by the outcome

measured, institution type, remediation type, or estimation technique employed. Examining outcome measured will allow me to determine whether disagreement on the impact of remediation is a result of confusing its short term and long term impacts. Looking at type of remediation and institution type will allow me to determine whether researchers examining math and English remediation or two and four year institutions are assessing wholly different things, thereby making comparisons across these studies both difficult and unhelpful.

Finally, different estimation techniques have been recently employed in the study of developmental education, largely in order to closely imitate experimental settings. With methods such as regression discontinuity and propensity score matching, researchers approximate random assignment to the treatment that is remediation, which may mean that they are finding different results than are those studies that merely control for other characteristics, or those that control for nothing at all. Being able to explain the different findings about remediation based on any of these factors will allow future researchers to conduct better studies of the impact of developmental education, providing institutions and policymakers with reliable conclusions about the efficacy of remediation.

Methods

This study utilizes meta-analysis, which is an especially strong analytic tool. Meta-analysis is a quantitative technique whereby data are collected from a set of primary research studies, from which research findings are synthesized using specialized statistical methods (Glass, 1976). Meta-analysis standardizes findings across studies so that results can be compared, usually by calculating effect sizes based on data in each individual study (Wilson & Tanner-Smith, 2012). In this analysis, I calculated odds ratios. This meta-analysis

was conducted on the basis of a systematic review of the evidence on developmental education, as follows:

Eligibility Criteria

In order to be eligible, studies had to provide information on the post-secondary outcomes of remedial students in comparison to students not assigned to remediation. Post-secondary outcomes needed to include either persistence, attrition, completion, or upward transfer (transfer from a two-year to a four-year institution). Studies that examined only course-level outcomes (passing a course or course completion) were excluded along with those that looked only at remedial students. Multiple study designs were eligible, including those that provided only descriptive data for the two groups, those that used regression, and those that used more complex statistical techniques like instrumental variables, regression discontinuity, and propensity score matching. Studies were excluded if they were major-specific or if they took place at a for-profit institution because remediation in those contexts is systematically different from the developmental education that is of broader policy interest.

Search: Information Sources

The search was conducted using the following databases: Education Full Text and ProQuest. ProQuest searches ERIC, PsycInfo, and IBSS, and included a search of dissertations and theses. Additionally, I searched the online repositories of the National Center for Postsecondary Research and the National Bureau of Economic Research, which have previously published research on remediation. I also conducted a hand search of the following journals: Journal of Human Resources, Review of Economics and Statistics, Journal of Higher Education, Research in Higher Education, Journal of General Education,

Review of Higher Education, Journal of Higher Education Policy & Management, and Journal of Developmental Education. Finally, I searched the reference lists of included manuscripts.

Search: Study Selection

In each search, I used the following search query:

(postsecondary OR post-secondary OR college OR university) AND (remedia* OR "developmental education") AND (persist* OR "drop out" OR dropout OR attrit* OR complet* OR outcome*)

Additionally, the search was restricted to results in English, to studies in the United States (since remediation is specific to this context), and to the following types of results: books, conference proceedings, dissertations/theses, reports, scholarly articles, and working papers. After the search query was run, I identified potential studies by their title and abstract. I scanned the full text to determine whether the studies met the eligibility criteria. See the Appendix for a full list of citations for studies included in this meta-analysis.

Variables

From each report, I collected information on publication type, remediation type, institution type, estimation technique, controls, outcome measured, data source, gender composition, and racial composition. Publication types were journal articles, dissertations, and working papers. Remediation types were math, reading, and writing, English, and combinations of remediation types. Institution types were two- and four-year institutions. For estimation techniques I coded the most advanced technique used to estimate the effect of remediation: frequency, correlation, logistic regression, instrumental variables, regression discontinuity, or propensity score matching. Outcomes measured were placed

into one of several categories: bachelor's degree attainment, single semester persistence, single year persistence, and persistence over one year. In order to understand the nature of the sample, I coded data sources: institutional, school system, state, and national. For composition of each sample, I coded the percentage of female students along with the percentage of white students.

Analytic Strategies

To begin, I generated a variety of descriptive statistics. I calculated the effect sizes for each study using odds ratios. I aggregated these effect sizes into one random effects mean effect size and calculated a variety of heterogeneity statistics. I conducted a series of moderator analyses. For assessing the explanatory value of outcome measured, estimation technique used, and institution type I conducted meta-regressions. To determine whether the impact of remediation varies by remediation type, I conducted a sub-group analysis. Finally, I conducted a variety of sensitivity analyses. These sensitivity analyses allowed me to examine the robustness of my results in light of potential effect size outliers, sample size outliers, and effect sizes that I had to calculate based on raw data (as opposed to those that were presented in the reports).

The results of this study provide a detailed descriptive picture of the existing studies on developmental education, indicating how many studies exist, what outcomes they measure, the types of remediation they include, the estimation techniques employed, and the control variables they include. The primary result of the meta-analysis is a random effects weighted mean effect size (odds ratio) which indicates what, on average, the studies on this topic tell us about the impact of remediation on college outcomes. The meta-analysis also indicates the total between-study variation, and whether that variation is due

to chance; it indicates the amount of heterogeneity and that it is useful to try to explain the heterogeneity. Given that heterogeneity is present, I conducted a multivariate meta-regression to ascertain whether any of the explanatory variables discussed above are able to explain the variation between studies. The adjusted R^2 of this regression provides an estimate of the amount of variation explained by the included variables. The sub-group analysis provides further detail as to the differential effect sizes of math, reading, and writing remediation by conducting the meta-analysis only among studies examining each specific course type.

This meta-analysis, overall, provides a clear quantitative picture of the state of research on this important topic and attempts to provide some explanation for the extensive disagreement on the impact of developmental education on postsecondary outcomes. This question of whether developmental education helps or hurts is significant to those studying nontraditional students, because remedial courses can act as yet another hurdle to conquer in nontraditional students' already challenging pursuit of higher education. It is also significant to the study of higher education more broadly, given the expense and extent of developmental education in the United States. The meta-analysis conducted here prompted a careful and thorough search of the existing research in this area and provides an objective means of evaluating what that research tells us, along with potentially illuminating the reasons for such extensive disagreement on the impact of remediation. This is a timely and important inquiry.

Results

Descriptive Study Characteristics

Table 1 provides descriptive statistics for the studies included in this analysis. The analysis includes 40 studies, which produced 73 effect sizes from 44 distinct samples. A meta-analysis can only examine effect sizes from distinct samples, so while a study may be included more than once in a meta-analysis sample (because the study examined two separate samples and calculated different effect sizes for each), a study that uses the same sample to produce multiple effect sizes (examining different outcomes, for example) can only be included once. I included only effect sizes from distinct samples, so the sample size for this analysis is, for all intents and purposes, 44. The choice of which effect sizes from a particular study to include and exclude will be discussed below in the context of sensitivity analyses.

Of the 44 studies included in the main analysis, 24 were published as journal articles, 5 as working papers, and 15 as dissertations. The outcomes measured in each study varied widely, with 23% examining bachelor's degree attainment, while smaller numbers examined persistence beyond one year, semester to semester persistence, and other certificates or associate degree attainment. The types of remediation studied varied as well. Most commonly (41%), studies looked at general remediation, meaning that they did not identify a particular subject. Math was the second most common remediation type (31%), while other studies looked at English, reading, or writing. Of the 44 effect sizes included in the main analysis, 43% were based on institutional data, 30% on system-wide data, 18% on national data, and the remaining 9% on state-wide data. Among the studies

gender composition ranged from 32-69% female, with a mean of 56%, and the racial composition ranged from .6%-93% white, with a mean of 59%.

Analyzing outliers. It is important, before aggregating effect sizes and performing further analyses, to determine whether there are any studies that may unduly impact these analyses through particularly large or small effect sizes and sample sizes. It is possible that a study with an extreme effect size or sample size could pull the aggregated numbers in one direction or another, providing an inaccurate picture of the field of studies in this area. To assess this, I conducted outlier analyses for both sample size and effect size. These analyses highlighted five effect size outliers (two were particularly low and three were particularly high – see Figure 1), and six sample size outliers (all of which were especially large – see Figure 2). Below, I report the results of sensitivity analyses to determine what effect, if any, these extreme cases have on the results reported here.

Synthesis: Average Impact of Developmental Education on Student Outcomes

The primary question of the impact of developmental education on student outcomes is answered with the random effects weighted mean odds ratio. This is the overall effect of the treatment (developmental education), and it is .854 with a 95% confidence interval between .73 and 1.004. At the .05 level of significance, the data do not indicate that the mean odds ratio across all studies is significantly different from 1; this is confirmed by the inclusion of 1 in the 95% confidence interval. Recall that in the case of an odds ratio, a value of 1 indicates that there is no difference in the odds of success between those exposed to the treatment and those who are not. This indicates that overall, the body of research on the impact of developmental education finds no impact of exposure to remediation on students' postsecondary outcomes. Figure 3 provides a picture of all

studies included here, summarizing the effect sizes, relative weights, and mean effect size. Sensitivity analyses reported below will address whether this finding is reliable or is perhaps unduly influenced by a small number of outlying studies. Based on this finding alone, the answer to the primary research question would be the developmental education has minimal impact on student outcomes. However, this is not the full story.

Heterogeneity statistics. The next step in a meta-analysis is to understand how different the studies in this field are from one another. This is the second research question: what level of heterogeneity exists in the research on developmental education? The answer is that considerable heterogeneity exists; measures of heterogeneity across these effect sizes indicate significant variation. The Q-statistic is 7931.04 ($p = 0.000$). This reveals the total observed between-study variation, indicating it is very high; the reported p-value indicates that this heterogeneity is not due to chance. The I^2 statistic, which indicates how much of the observed variation is real, is 99.48%, indicating that it is useful to try to explain the variation across studies. Since this is a random effects meta-analysis, we assume that there are a variety of true effect sizes to be found in the population. The τ^2 statistic of .259 indicates that the distribution of those true effect sizes is significant in range.

The sum of these statistics leads to the conclusion that there is considerable heterogeneity in the studies included here, which is consistent with my previous assertion that considerable disagreement exists in this field. While the overall mean effect size suggests that the body of research on remediation finds no effect, these heterogeneity statistics show that the mean effect size is not the end of the story. It is useful and

important to try to explain the source of these widely varying findings, which is the what the third research question asks.

Moderator Analysis

The first step in answering the third research question—what explains this widespread variation between studies—is to examine a number of potential moderators of the differences across studies of developmental education. These include which type of remediation each study examined, which outcome each study measured, whether controls were included in the calculation of the effect size, estimation technique, data source, institution type, gender composition, and racial composition. To assess the extent to which any of these variables impact the variation across these studies, I conducted meta-regressions and sub-group analyses. I included all potential moderators in the meta-regressions and utilized sub-group analysis to further understand the impact of remediation type, inclusion of controls, and outcomes measured on studies' assessments of the impact of developmental education. In doing so, I hoped to determine why studies asking ostensibly similar questions are finding such different answers.

Meta-regressions. None of the meta-regressions performed resulted in statistically significant coefficients. I conducted bivariate regressions for each individual moderator and multivariate regressions combining the moderator variables. All of these resulted in the same insignificant results. All but one regression conducted reported a negative adjusted R^2, indicating that less variation was explained by the variable or variables than would be expected due to chance. None of the study characteristics included in this analysis explain the variation in findings across studies of the impact of developmental education on

postsecondary outcomes. This means that given what we know about these studies, we are unable to determine why their findings are so divergent.

Sub-group analyses. Since the meta-regressions did not yield an answer to the third research question, I tried another approach. To better understand the field of research on developmental education, I did a series of sub-group analyses. These analyses are largely descriptive, but can still provide useful information. First, to understand the difference between studies that used control variables and those that did not, I compared mean effect size and heterogeneity statistics between the two types of studies. Next, I compared mean effect size across studies with different types of outcomes measured. Finally, I subset the data to create three separate data sets—one with all studies of math remediation, one with all studies of "general" remediation, and one with all the reading, writing, and English remediation studies—in order to understand how mean effect sizes and heterogeneity varied across studies that looked at different remediation types. Table 2 provides a summary of the results of these analyses.

Inclusion of control variables. Among those studies that included control variables, the mean effect size was .912, with a 95% confidence internal of .805 to 1.034. This, along with the test of the null hypothesis (H_0: Effect Size = 1, p = .151) confirm that among studies with controls, the average effect size is no different from 1. This means that with controls included, studies find that exposure to developmental education has no impact on student outcomes) one way or another. In contrast, the studies that did not utilize control variables had a mean effect size of .854, with a 95% confidence interval of .469 to .897. This confidence interval does not include 1, and the test of the null hypothesis (H_0: Effect Size = 1, p = .009) confirms that the mean effect size among studies without controls is

significantly different from 1. In this case, because it is less than 1, we can conclude that, on average, when studies do not include controls they find that developmental education is harmful to student outcomes. In short, when studies compare students to one another using control variables, developmental education has minimal impact on those students' outcomes. When they compare developmental and non-developmental students without control variables, they find that developmental education has a negative impact on student outcomes, which may simply be due to the fact that the two types of students are different in other ways.

Outcome measured. When broken down by outcomes measured, most results are the same as in the full sample. The exception to this is studies examining persistence for any period of time over one year and studies examining Fall to Fall persistence. All other types of outcomes measured (certificate/AA attainment, BA attainment, Fall to Spring persistence, other outcomes) had aggregated effect sizes of approximately 1, indicating no impact of developmental education. On the other hand, studies examining persistence of more than a year had a mean effect size of .586, with a 95% confidence interval of .355 to .968. The test of the null hypothesis (H_0: Effect Size = 1, p = .037) confirms the confidence interval and leads to the conclusion that these studies find a negative impact of developmental education. Studies examining Fall to Fall persistence, in contrast, had a mean effect size of 1.454, with a 95% confidence interval of 1.039 to 2.034. The test of the null hypothesis (H_0: Effect Size = 1, p = .029) confirms the confidence interval and leads to the conclusion that these studies find a positive impact of developmental education. This will be explored further below; it is likely that this difference is related to the difference between upward transfer and within-institution persistence as outcomes.

Remediation type. Studies that report examining math remediation, along with those that report examining English, reading, and writing, have mean effect sizes that are very close to the mean effect size for the full data set. Both sets of studies have mean effect sizes of less than 1, but the confidence intervals and hypothesis tests indicate that they are statistically no different from 1. For both studies of math and studies of English, reading, and writing, students who take developmental courses in those areas are no more or less likely to succeed than those who do not. In contrast, studies that report studying remediation more generally (this could mean that they do not report type of remediation or that they examine multiple types and do not separate their results by type of remediation) have a mean effect size of .880, with a 95% confidence interval of .816 to .949. The test of the null hypothesis (H_0: Effect Size = 1, p = .001) confirms the confidence interval and indicates that among these studies of "general" remediation, students who receive remediation are less likely to succeed than those who do not.

Sensitivity Analyses

I conducted a variety of sensitivity analyses to assess the robustness of the results reported here. As mentioned above, there were five studies with outlying effect sizes and six with outlying sample sizes. I conducted the meta-analysis without the effect size outliers and sample size outliers, in turn, to determine whether they skewed the results reported above. Additionally, because studies reported multiple effect sizes based on the same sample, I had to exclude certain effect sizes from the main analysis. The selection of an effect size from each sample with more than one was done using a random number generator. To assess whether the selection of certain effect sizes rather than others impacted the results of this analysis, I created an alternative data set with the effect sizes

that were not selected. I conducted the meta-analysis using the alternative data in order to assess whether the findings are markedly different. Finally, I conducted tests of publication bias which will be discussed below.

Without outliers. The random effects weighted mean effect size is not significantly different when the analyses are run without sample size outliers. The same is true when the analyses are run without effect size outliers. In both cases, the mean effect size is just under .9, with a confidence interval that includes 1, and a p-value greater than .05, indicating that we can draw the same basic conclusion from these meta-analyses as from the meta-analysis using the full data set (see Table 2). This leads to the conclusion that the outlying effect sizes and sample sizes did not have undue effects on the aggregated effect size originally calculated.

Alternate data set. Recall that most studies included here reported multiple effect sizes. A random number generator was used to select which effect size from each study would be used. Those that were not selected were used to create an alternate data set and I conducted the same meta-analysis with this alternate data set to make sure that the effect sizes were not significantly different from those originally included. The alternate random effects weighted mean is .862, which is very close to the mean effect size from the main data set. The confidence interval (.741, 1.003) and associated p-value (.055) indicate that the same conclusion can be drawn from the alternate data set as from the original—the studies indicate that, on average, developmental education has no impact on student outcomes (see Table 2).

Publication bias. Publication bias in a meta-analysis is an important issue, but one that is difficult to assess. If published studies of this issue are systematically different from

those studies that are never made public, their results must be called into question, or at the least, the categorical difference between results of published and non-published studies must be explained. This is made difficult by the limited means by which unpublished studies can be located. While the mechanism of search in a meta-analysis attempts to correct for this by searching grey literature, this is not a foolproof method.

One tool for assessing whether further publication bias exists is a funnel plot. This particular assessment tool plots studies' effect sizes (horizontal axis) against the studies' standard errors (vertical axis). The idea here is that precision of studies will increase as sample size increases, so the results from smaller studies will appear toward the bottom of the plot (due to larger standard errors). If the studies adhere to expectations, the smaller studies at the bottom of the plot will be spread more widely, while larger studies toward the top of the plot will be more narrowly spread. Symmetry in the funnel plot indicates a lack of bias. An asymmetrical funnel plot might indicate that smaller studies without significant effects haven't been published. This is important to note; while this is a mechanism by which meta-analysts test for publication bias, "publication bias" is a bit of a misnomer. In fact, the funnel plot is a means by which to assess the presence of small-study bias; it can be a surrogate for publication bias because small studies are less likely to be published.

Figure 4 shows the funnel plot for the full, original data set. Visual assessment indicates some asymmetry, but the distribution does not appear to be egregiously out of balance. The plot indicates a higher concentration of studies above the mean than below it, but this is true for both large and small studies. A statistical test of the funnel plot's asymmetry confirms this assessment. A test of the null hypothesis that there are no small

study effects in this sample results in a p-value of .897. Since this p-value does not allow us to reject the null hypothesis, there is no evidence of significant publication bias. It should be noted that the test conducted here is the Egger test, which performs a linear regression of the effect estimates (θ) on their standard errors. Due to the nature of the mathematical relationship between logged odds ratios and their standard errors, the Egger test can result in false positives in analyses reporting odds ratios (Egger, Smith, Schneider, & Minder, 1997). All other possible tests require data that very few studies included here provide, so the results of the Egger test are the only results I am including. Because the result is negative, it is unlikely that this particular test of bias is suffering from the Egger test's potential drawbacks. Still, the conclusion reported here should be taken with a grain of salt.

To further explore the issue of small study bias, I performed a trim and fill using the "metatrim" command in Stata. This command performs a nonparametric trim and fill, using the funnel plot discussed above to estimate the number of theoretically missing studies and their theoretical outcomes. The program then adjusts the meta-analysis to incorporate the filled studies and reports the results. Figure 5 is the adjusted funnel plot. Five studies were filled (see points with boxes around them). The new random effects weighted mean is .773 ($p = .001$). With the filled studies, the meta-analysis indicates an average effect size that is significantly different from 1. Since it is less than 1, the average effect size of the filled data set indicates that the odds of success are less likely among students who receive remedial education. This is different from the results based on the original data set, which indicate that remediation has no impact on student outcomes in either direction. The assessment of publication bias reported above does not allow for a firm conclusion that any bias exists, so it is not necessary to dismiss the earlier reported results that found no effect of

developmental education. However, since the "trim and fill" method found a few holes to fill, this result should be considered for additional perspective.

Discussion

Overall, the studies analyzed here indicate a significant lack of consensus in the field of developmental education research. This meta-analysis demonstrates an average impact of exposure to developmental education on student outcomes (.854, p = .056) which leads to the conclusion that developmental education has no significant impact. But the meta-analysis also provides much more information than that. It shows there is significant variation among the studies in this field. These studies examine different types of remediation, at different types of institutions, with different types of data. The studies define "success" in myriad ways. The measures of between-study variance reported here paint a picture of a field fraught with disagreement. Advocates of the wildly divergent positions in the debate surrounding remedial education are able to point to research supporting their views, despite those views varying widely. This is not conducive to rational policy making.

Before delving further into the between-study variance, it is important to examine the average mean effect size more closely. The random effects weighted mean, the 95% confidence interval, and the reported p-value indicate that this field of research, overall, finds no difference between students who are exposed to developmental education and those who are not. Arguably, in the study of remediation, a finding suggesting that remedial students are no different from non-remedial students is potentially positive. The conclusion here must depend on the nature of the non-remedial students to whom students in remediation are compared.

This analysis includes studies with and without controls. Studies "with controls" are those that conducted regressions with a variety of variables controlling for background and academic characteristics, as well as those studies that used more sophisticated statistical techniques to imitate, as closely as possible, random assignment to a treatment condition (developmental education). These studies are comparing students who took developmental courses to students with similar background and abilities who did not take developmental courses. In essence, they are comparing students who need remediation, and get it, with students who need remediation, but do not. In comparison, there are studies included here that provide raw data allowing for the calculation of odds ratios, but do not in any other way control for background and academic characteristics. In these cases, students who took developmental courses are being compared to students who not only did not take those courses, but who likely did not need to take them. The sub-group analysis reported above allows us to examine these two sets of studies separately.

The meta-analysis of studies with controls resulted in conclusions similar to those based on the main data set. Studies utilizing controls found, on average, that there was no difference between students exposed to remediation and those who were not. In contrast, the meta-analysis of studies without controls resulted in a random effects weighted mean of .854 ($p = .009$). This indicates that studies without controls conclude, on average, that the odds of success are less likely among students exposed to developmental education. While we do not expect that developmental education will make remedial students more likely to succeed than more academically prepared students, we might hope that they would be just as likely to succeed once remedial courses erase the gap in preparation that made remediation necessary in the first place. Additionally, among students who are in

need of remediation, we would hope that taking a remedial course would make developmental students more likely to succeed than those similar students who took college-level courses instead. Taken together, the two meta-analyses here lead to the general conclusion that in comparison to better-prepared peers, developmental students remain less likely to succeed, even after remediation, while students qualifying (or nearly qualifying) for developmental classes are no better off after taking those courses than their similarly prepared peers who enrolled directly in college-level classes.

Of course the discussion about which students are more and less likely to succeed is complicated by the widely varying definitions of "success" used by these studies. These definitions range from degree attainment to persistence over various periods of time and certificate completion. I conducted sub-group analyses by outcome in order to further explore the impact of how each study defines "success." Most of the different outcome groups had results similar to those found in the main data set. However, studies that defined success as persistence for any amount of time over a year (n = 8) found that success was less likely among remedial students (p = .037). Studies that defined success as year to year persistence (n = 6) found that success was more likely among remedial students (p = .029).

The studies defining success as "persistence over a year" (where success is less likely for developmental education students) were largely examining persistence in the form of upward transfer, both with and without credits, to a different institution. The studies defining success as "year to year persistence" (where success is more likely for developmental education students) were looking at whether students re-enrolled in the same institution in their second year. It is possible that the difference in findings between

these types of studies is a reflection of the difference between same-institution persistence and transfer to a different institution.

This raises the question—why might students be less likely to transfer to a different institution following exposure to remedial courses, while being more likely to persist at the same institution? Part of this is likely an issue of time frame. The studies examining same-institution persistence are looking at smaller time frames than the studies looking at transfer. The difference between the conclusions drawn by these two groups of studies might be due to the length of time over which they followed students, rather than by the students' specific persistence decisions. It is possible that studies following students for longer periods of time (those examining upward transfer), are finding negative effects of remediation because those effects take longer to surface. At this point, there is no way to say for certain whether developmental education has a different impact in the short term than the long term, but that is one possible explanation for the differences seen here. This issue of time frame does not fully explain the widely varying findings across this sample of studies, but it is an important example of how different approaches to the study of developmental education can result in mixed conclusions about whether or not it works.

Unfortunately, none of the other study characteristics analyzed here explain the significant variation in effect sizes. We can conclude, based on reported heterogeneity statistics, that the between-study variation observed is real and not due to chance, but the source of that variation remains unclear. Based on the meta-regressions conducted, it appears that the variation is not attributable to the percent of the sample that is female or the number of non-white students. The data source—institutions, university systems, states, or national data sets—was not significant. None of the explanatory variables on

which data was reported and collected were able to explain any of the variation across the studies included here.

Within the context of the meta-regressions, remediation type was not a significant explanatory variable. However, the sub-group analyses of the different remediation types shed some light on the differences that might be present depending on the subjects in which students receive developmental instruction. While studies examining math remediation and those examining English, reading, and writing reported average effect sizes around 1 (similar to the full data set), the studies that examined "general" remediation were different. These studies (n = 18) reported a mean effect size of .880 (p = .001), indicating that students who took these "general" remediation courses were less likely to succeed than their non-remedial peers. Because we do not know the exact nature of these "general" remediation classes, it is difficult to know why they might have a different measured impact than math or English/reading/writing remediation.

Sensitivity analyses indicate that the findings here are robust to extreme cases. While there are several outliers in terms of both effect and sample size, these do not appear to unduly influence the mean effect size calculations. The analysis of possible publication bias is slightly more complex. While the funnel plot does not appear to be significantly asymmetrical based on visual assessment, and the "metabias" test confirms this with a p-value of .897, the trim and fill I conducted indicates that a small amount of bias may exist, and it may be significant. The five filled studies alter the outcome of the meta-analysis so that the average finding among the filled sample of studies is that developmental education has a negative impact on student outcomes.

There are a number of variations on the main meta-analysis reported here that indicate a potentially negative relationship between developmental education and student outcomes, but only one that indicates a potentially positive relationship (studies that examine year to year persistence as their measure of "success"). Despite this single exception, the main thrust of this analysis indicates that developmental education has either no impact or a negative impact on the student outcomes most frequently examined. Given the significant public resources expended on remedial programs, and the importance of helping students succeed (however we define "success") these are disturbing findings.

Conclusions and Future Directions

The purpose of meta-analysis is to look broadly at the full body of studies asking a particular question and see what they tell us. In this case, the question is what impact developmental education has on postsecondary student outcomes. The analyses performed here do not give us a clear answer. Across 44 effect sizes, there is an average effect size of essentially 1, leading to the conclusion that, on average, research finds that developmental education has no impact on whether post-secondary students succeed. However, there is such significant variation between the studies analyzed here that it is impossible to take this conclusion at face value. Both a careful read of the studies in this field and the heterogeneity statistics reported here indicate that we really cannot say whether or not developmental education, as a whole, has the desired result.

Closer examination of the differences between studies does not yield particularly satisfying explanations of the vast disagreement within this field. While it is clear from the analyses performed here that definition of terms is an important aspect of understanding the developmental education literature, it is equally clear that varying definitions are not

the only source of confusion as to the true impact of remediation on students. This is made clear by the comparison of subgroup analysis results to meta-regression results. Indeed, the subgroup analyses yield interesting findings (particularly the differences across types of outcomes measured, types of remediation included, and studies with and without controls), highlighting some possible explanations for the varying conclusions about developmental education. But the metaregressions fail to find any explanatory value in the included study characteristics. From a meta-analytic perspective, the data indicate significant heterogeneity between studies, heterogeneity that is not due to chance. However, meta-analytic methods to explain that heterogeneity yield less explanatory power than one might expect due simply to chance (as evidenced by negative R^2 values).

While this may seem a frustrating outcome, it is important and instructive. The key to understanding the lack of statistically significant variables in the metaregressions is to examine the sorts of variables that are and are not included. The explanatory variables collected from this sample of studies include outcome measured, presence of control variables, estimation technique, data type, sample composition (percent female, percent white), institution type, and remediation type. These are the variables that are widely reported by studies in this field (though not all studies report all this information). This information does nothing to explain, statistically, why studies looking at the impact of developmental education disagree so widely as to whether or not developmental education works. Yet there must be a reason.

The simplest explanation is that this is because some remediation works and some does not. Like many obvious things, this is important to bear in mind. Much of developmental education research focuses on whether developmental education works,

and in order to make such causal inferences, uses advanced statistical methods and the large data sets that such methods require. While this is certainly useful, such data sets rarely measure, or attempt to measure, the efficacy of developmental education in the classroom where the courses are taught. It is possible that within these large data sets, we are capturing students that go through very effective developmental courses along with students whose developmental courses leave much to be desired, and every type of course in between. Currently, studies of developmental education look at whether or not a student takes a remedial course (or remedial courses) and then looks at whether or not that student later succeeds (using varying definitions of success). Some of these studies also control for various background and academic factors.

The primary variable of interest explaining success in these studies is whether the student takes a developmental course. Attempting to look at these studies and find an answer to the broader questions regarding the efficacy of remediation assumes that all developmental courses are created equal—that the "treatment" students are receiving is the same from study to study. While we do not have conclusive empirical evidence of this, it is unlikely to be the case. It is very likely that what is making a difference to developmental students is happening inside individual developmental classrooms. Questions of classroom composition (age, ethnicity, and gender), class size, instructor training, motivation, and competence, pedagogy, classroom technology, and more could be the key to understanding why some developmental students do better than others. While the appeal of large studies and advanced methods is the ability to draw causal conclusions, doing so may be limiting our ability to accurately assess whether our vast investment in developmental education is wise or useful.

Future work on the impact of developmental education should focus on things that have, so far, made limited appearances in the literature. Classroom composition is an important element of student learning, but is not an element of the studies reported here. Peer effects range from direct peer-to-peer education, to the impact of a single problematic student on the time instructors have to give to others, to the mere presence of more or fewer females in the room, and they are widely found to impact student outcomes (Hoxby, 2000). Those who have studied developmental education argue that classroom composition—who the peers are—could improve outcomes, but whether this is true has yet to be deeply examined (Bettinger & Long, 2009).

The training given to instructors of developmental courses is also an important question. Whether or not a student emerges from a remedial course more or less ready to succeed than he or she would have been without the course can be dramatically impacted by the nature of the pedagogical approach. There is some research that provides a framework for successful developmental educators, but it does not put the pieces of that framework into practice and test them, nor is there research that examines whether these practices are common or helpful (Wambach, Brothen, & Dikel, 2000; Brothen & Wambach, 2000; Boylan, 2002). Some research suggests that three concepts are central to a successful developmental education classroom: demandingness, responsiveness, and self-regulation (Wambach, et al., 2000); examination of the efficacy of these strategies would be an important step toward a better understanding of why developmental education works sometimes and not others.

The use of technology to improve developmental education is an area with great potential as well, but its efficacy must be examined within the context of impact on

outcomes in order to understand whether different approaches to technology may explain different findings on developmental education (Bettinger, Boatman, & Long, 2013). Early findings from the Developmental Education Initiative (DEI) indicate that institutions are starting to scale up technology-based instructional strategies in a variety of ways within their developmental education programs (Quint, Jaggars, Byndloss, & Magazinnik, 2013). However, there is not currently sufficient data on whether or not these strategies have an impact on student outcomes. Analyses of outcomes from the DEI are forthcoming, and it will be interesting to see how more detailed understanding of exactly how remediation is delivered impacts conclusions about its impact.

It is also worth considering the outcomes measured by most studies. Most of the developmental education literature focuses on outcomes such as retention and graduation, outcomes that are fairly far removed from the more immediate goals pursued within a developmental classroom. This analysis eliminated the very few studies that looked at grades in developmental courses as their outcome of interest, because it is not possible to compare developmental course grades to students who do not enroll in developmental education. But future research on developmental education could focus more closely on the more limited goals of a developmental education course—providing knowledge and skills that will allow students to pass the first credit-bearing course in that subject area. It is possible that the outcomes most frequently studied are too far removed from the developmental classroom to give us an accurate picture of whether the developmental course in question was effective.

Further study of developmental education is required if we are to adequately understand whether or not it works, why some works and some does not, and how to

improve the outcomes of students who require remediation. However, more studies asking similar questions and coming up with contradictory answers are not going to move the field forward. While burdensome, research that goes into developmental classrooms should be the next major step in this area. It is necessary to understand what remedial students are learning, how they are learning it, and whether what they learn is enough to prepare them for college level courses. As long as students arrive in college under-prepared, and as long as personal and economic motivations to complete college remain, remedial courses will be necessary to bring hopeful college students up to speed. Whether the time they spend in those courses is a waste of public and private resources will depend on what happens in the classrooms to which they are assigned. The next step to understanding and improving developmental education is to move beyond the broad questions currently addressed in the research, and to move into individual programs and classrooms.

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Table 1

Study Characteristics

Studies	24 journal articles
40 Studies	5 working papers
44 Separate Effect Sizes	15 dissertations
Outcomes Measured	23% BA attainment
	18% Persistence beyond one year
	16% Other
	15% Certificate/AA attainment
	14% Fall-to-Fall persistence
	14% Fall-to-Spring persistence
Types of Remediation	41% General
	31% Math
	18% English
	5% Reading
	5% Writing
Estimation Techniques	34% Logistic Regression
	20% Frequencies
	11% Regression Discontinuity
	9% Instrumental Variables
	7% RD/IV Combination
	7% Matched HGLM
	6% Propensity Score Matching
	2% Expected Frequency
	2% Matched Logit
	2% Correlation
Data Source	43% Institution
	30% System
	18% National
	9% State
Controls	77% Include controls

Table 2

Results of Sub-Group and Sensitivity Analyses

		RE Weighted Mean	*p*-value	N
Use of Controls				
	Controls Included	.912 (.805, 1.034)	$p = .151$	34
	No Controls Included	.854 (.469, .897)	$p = .009$	10
Type of Outcome				
	Certificate/AA	.858 (.507, 1.452)	$p = .569$	7
	BA	.900 (.772, 1.048)	$p = .176$	10
	Persistence > 1 Year	.586 (.355, .968)	$p = .037$	8
	Fall-Spring Persistence	.991 (.904, 1.087)	$p = .849$	6
	Fall-Fall Persistence	1.454 (1.039, 2.034)	$p = .029$	6
	Other	.796 (.602, 1.051)	$p = .107$	7
Remediation Type				
	Math	.903 (.736, 1.109)	$p = .332$	17
	General	.880 (.816, .949)	$p = .001$	18
	English/Reading/Writing	.971 (.699, 1.349)	$p = .861$	17
Sensitivity Analyses				
	W/out Effect Size Outliers	.873 (.752, 1.013)	$p = .070$	39
	W/out Sample Size Outliers	.867 (.695, 1.081)	$p = .204$	38
	W/Alternate Data	.862 (.741, 1.003)	$p = .066$	44

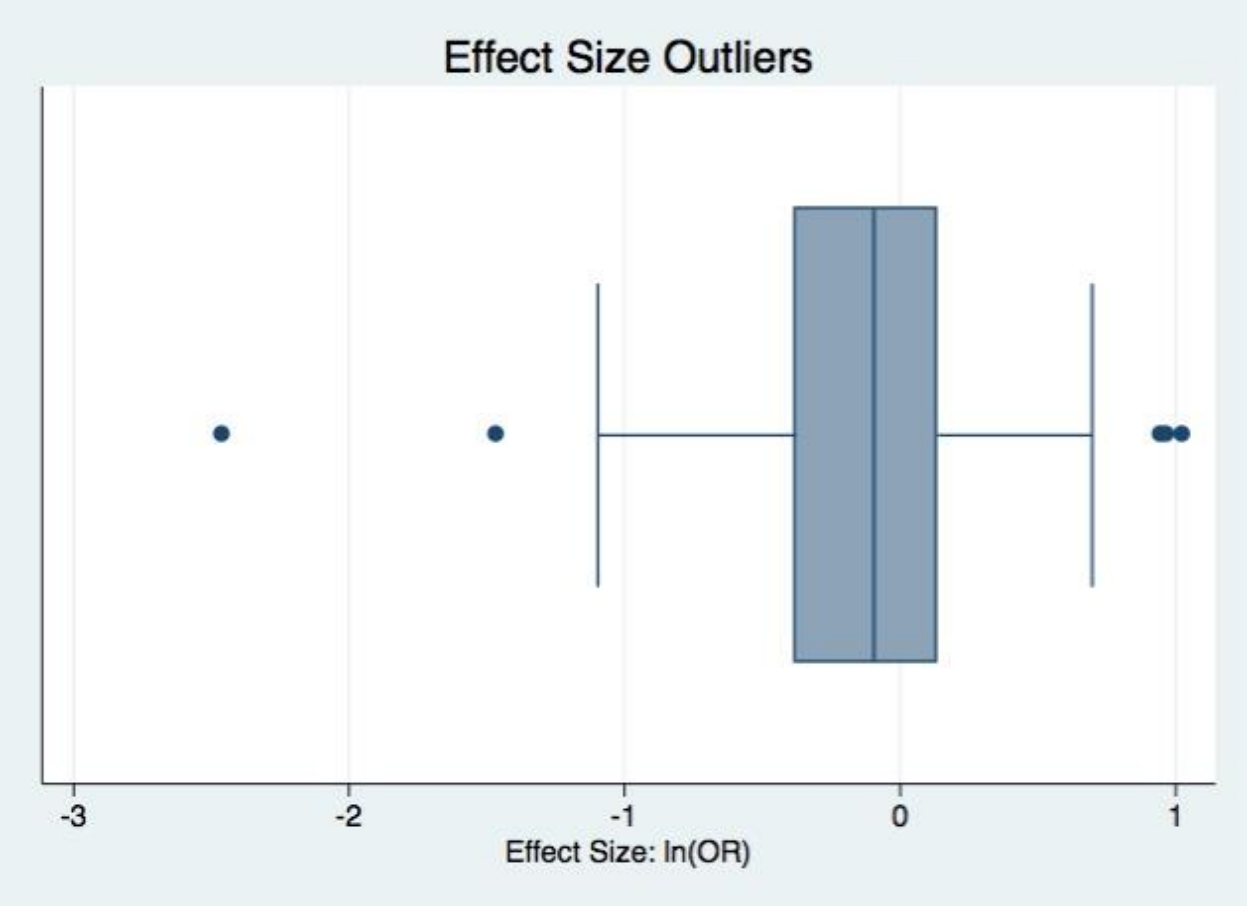

Figure 1. Box plot of effect size outliers, demonstrating that five studies report especially low or especially high effect sizes, the impact of which are discussed in the section on sensitivity analysis.

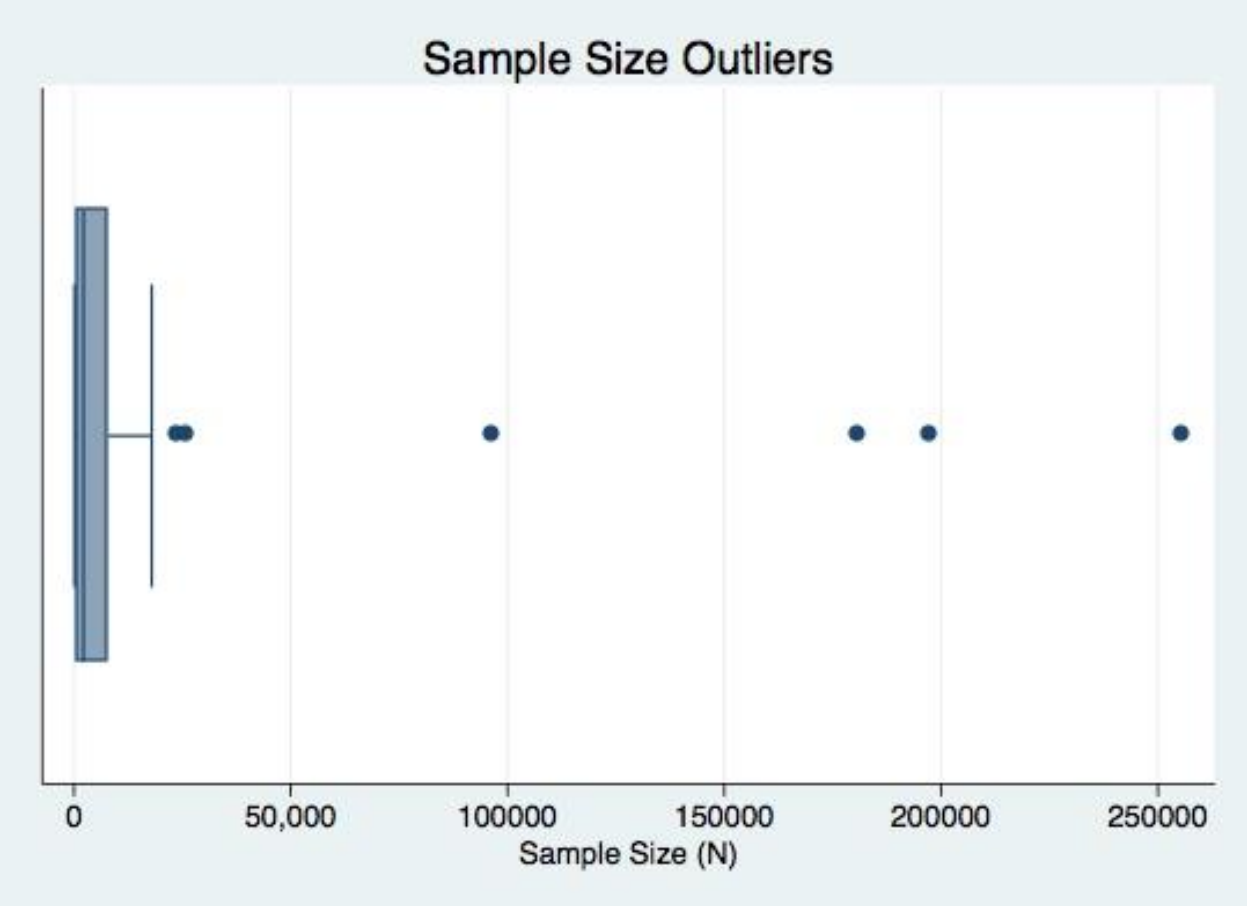

Figure 2. Box plot of sample size outliers, demonstrating that six studies have especially large samples, the impact of which are discussed in the section on sensitivity analysis.

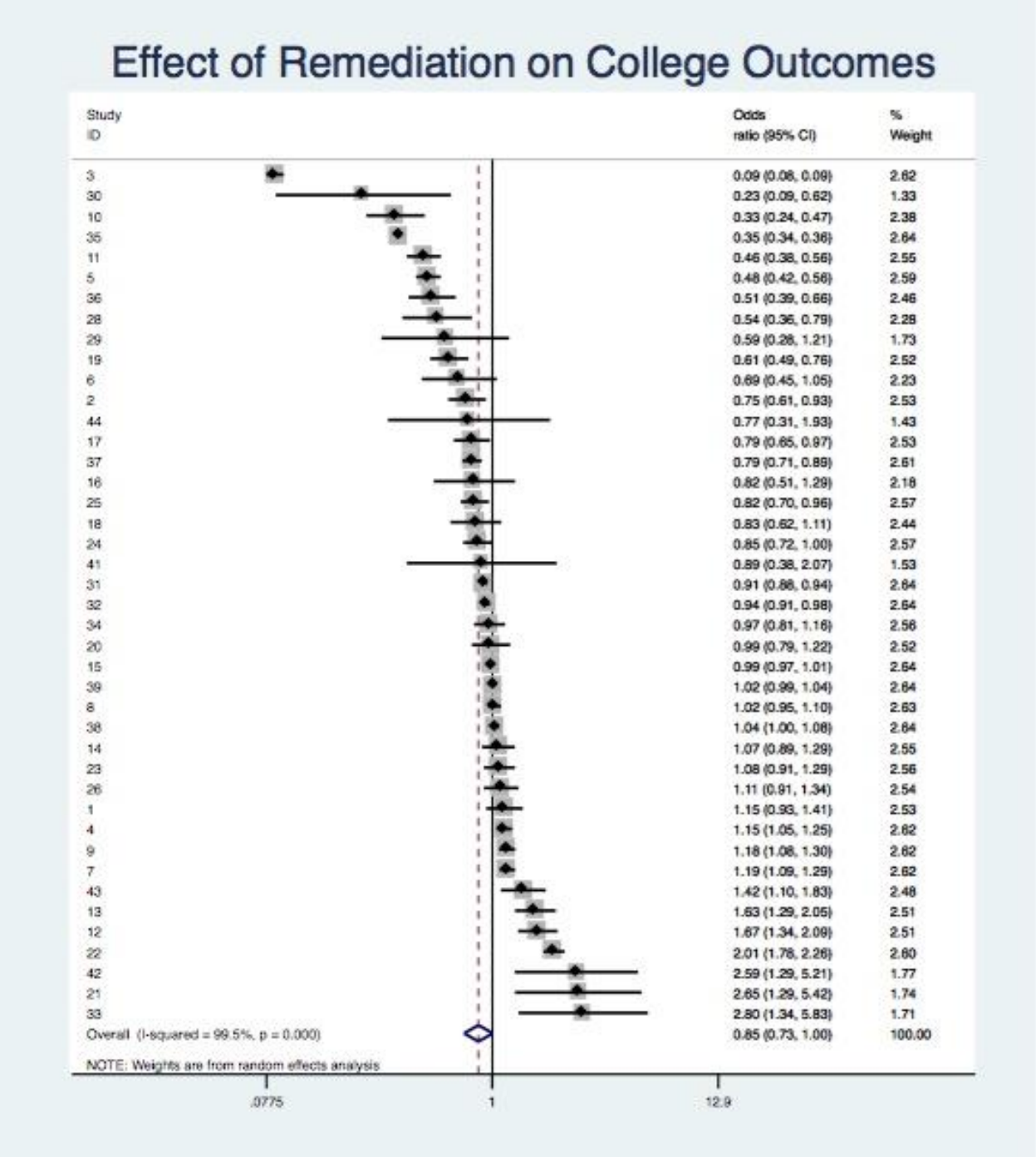

Figure 3. Forest plot of full sample, showing effect sizes, confidence intervals, and relative weights.

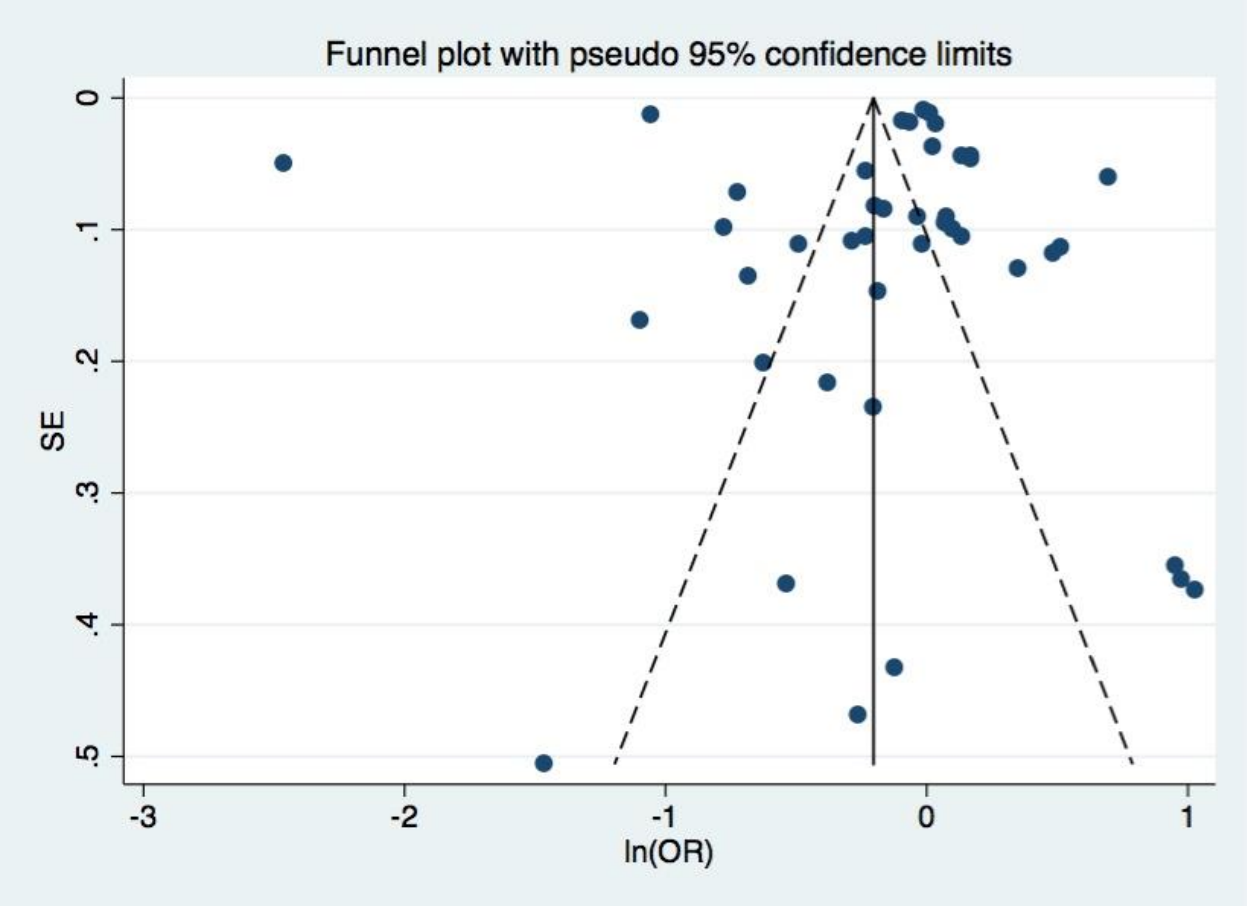

Figure 4. Funnel plot to assess potential publication bias.

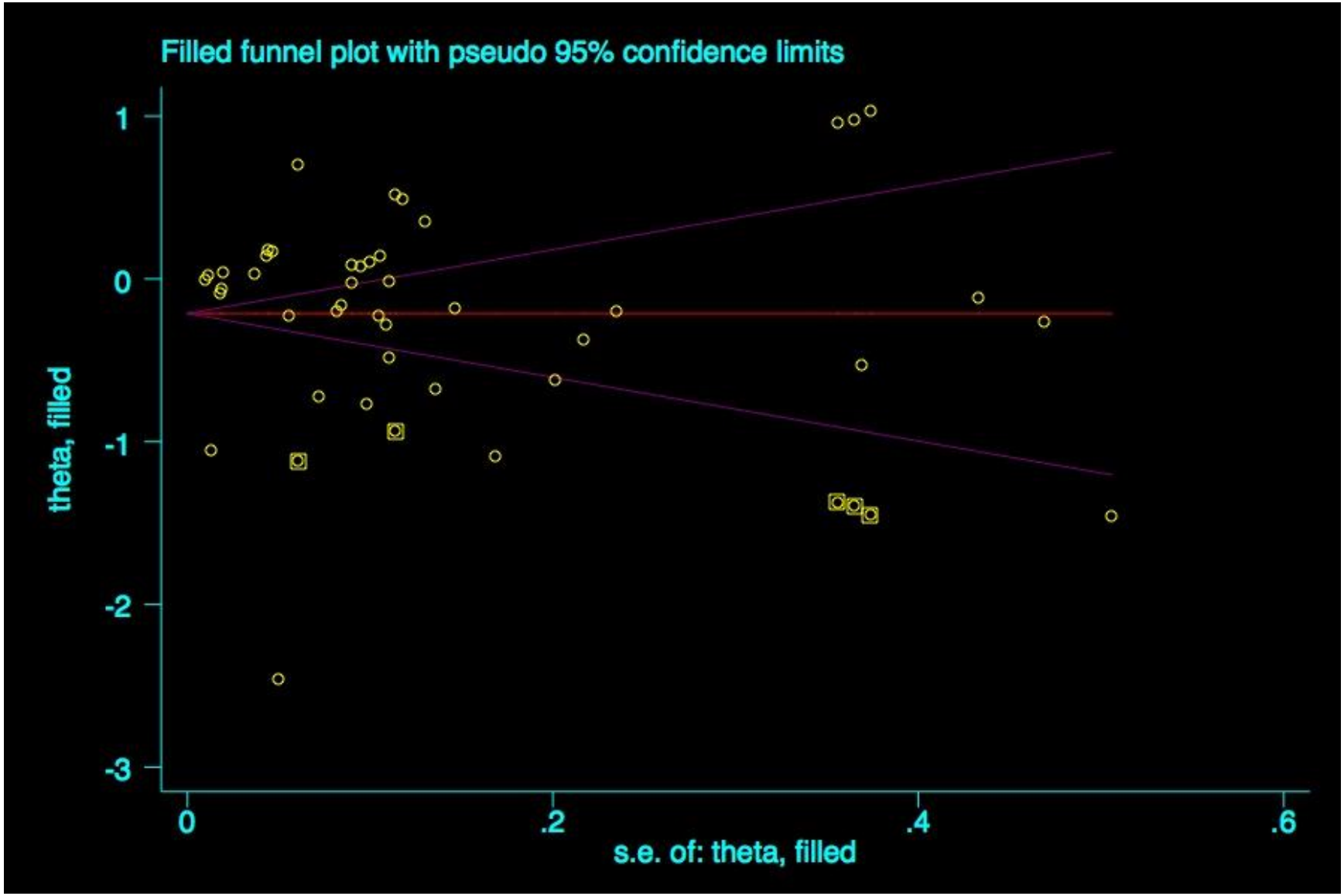

Figure 5. Adjusted funnel plot (points surrounded by boxes indicate filled studies).

Appendix

Citations for Studies in Sample

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CHAPTER 5

CONCLUSIONS AND OVERALL CONTRIBUTION

Here I have presented three papers aimed at deepening our understanding of the nontraditional student experience and the challenges that nontraditional students face. The first broadens our understanding of college choice and deepens our understanding of nontraditional students by examining college choice among nontraditional students at six Tennessee institutions. The second adds to the literature on the challenges nontraditional students face amid their competing life roles and provides a quantitative and comprehensive examination of an important topic—the impact of multiple life roles on nontraditional students' postsecondary outcomes. The final paper provides much needed clarity on a topic of great importance to nontraditional students returning to school after a gap in their education (and of broader importance as well)—the effect of developmental education on student outcomes.

The combined contribution of these three papers is substantial, not merely for the new information they offer, but also for the new directions for research they set out. The new information presented in the first paper includes the beginnings of a model for nontraditional student college choice. This research suggests that a model for nontraditional student college choice would perforce conceive of predisposition independently of age or year in secondary school, viewing it instead as dependent upon life circumstances. It would examine predisposition from both a "right time" and "professional" perspective, examining whether students who are more nontraditional are more likely to exhibit a professional predisposition, while less nontraditional students are more likely to emphasize the right time. The model would think of the search process in two stages:

"search" in which potential institutions are identified, and "information gathering" in which relevant information is collected on the potential schools. It would emphasize the potential instantaneous nature of the search process, wherein a nontraditional student decides to return to school and where in a single step, because the only school they consider attending is the one already present in their daily "landscape." Finally, it would limit the importance of the opinions of others to a students' decision, in stark contrast to the models of college choice extant, and it would carefully examine the relative importance of academic versus social factors in the final choice. This research also highlights important next steps in this line of research: determining a strategy for following potential nontraditional students who ultimately decide not to enroll so that predisposition can be more fully understood, closely studying nontraditional students' landscapes in order to clarify how those landscapes indicate their selection of a choice set of institutions, and determining whether opinions of others are important to predisposition, even though they are not important to the decision.

The conceptual framework offered at the end of the first paper is not definitive. There is significantly more work to be done on the question on nontraditional student college choice processes. However, it is a place to start for future research. Because of the limited generalizability of the data presented here, it is important that the conceptual framework remain general and flexible until the findings it depends on can be supported or further developed by research in other state and institutional contexts. However, because the new elements make sense given what we know already about nontraditional students more broadly, they should absolutely be incorporated and explored by future studies on this question. An important next step in the development of this conceptual framework will be to determine whether the basic stages (predisposition, search, and choice) in their

existing order should be reconsidered for nontraditional students. If the finding discussed above, that nontraditional students' central choice is to enroll in college at all, rather than where, the order of these stages may need to be revised, or the temporal order altered.

The information presented in the second paper is also compelling. First, it confirms that accumulation of multiple life roles does negatively impact the likelihood of degree completion among nontraditional students, something that has been widely postulated, but never thoroughly tested. This study uses a national sample over a time span of 33 years, meaning that the results are more broadly generalizable than those from more limited studies, and they are unlikely to suffer as much from censoring. The second paper also shows that the nature of the life roles a student takes on is important, that it is not just the number of life roles that matters. Several important next steps emerge from this study. Future research will need to further explore the impact of different types of life roles, especially the unique combinations of life roles, in order to understand how they interact to impact student outcomes. It will also be important for future research to address the definition of student success, since it is difficult with this data to differentiate one type of completion from another, and to know whether degree completion was part of the students' educational goals.

The differential impact on men and women of multiple life roles is one of the most important findings from these three studies. It confirms that societal expectations placed on women in various social roles can be more onerous than those placed on men, making gender and its associated roles an important consideration to those trying to facilitate success among nontraditional college students. This analysis used 33 years' worth of data from a broad swath of individual Americans, showing that the differences identified are

largely generalizable to the broader American context. These data are a powerful tool for understanding nontraditional college students as they enroll, leave, and re-enroll, and will continue to be so as data continues to be collected.

The second paper, in combination with the paper on nontraditional student college choice, tells us clearly that nontraditionality should not be conceived of as only a binary state. Not only is it important to study nontraditional students separately from their traditional counterparts, it is important to look at the levels of nontraditionality of each student. The first paper shows important differences between minimally, moderately, and highly nontraditional students, notably in terms of the nature of their predisposition and the factors affecting their final decision. The second paper shows that there are significant differences between those with zero, one, two, three, or four life roles, concepts that can serve as proxies for levels of nontraditionality. Students with more life roles, who are therefore more nontraditional, take longer to complete a degree and are less likely to do so at all. This continuum of nontraditionality is not as widely utilized as it should be, but doing so more frequently will serve students and policy makers alike, by allowing a better application of policies to enhance nontraditional student retention and success.

The third paper, a meta-analysis of the impact of developmental education on student outcomes is important on its own, and also to those who study nontraditional students. Nontraditional students struggle when they return to school; many of them have been out of school for a long time, many are academically underprepared. Developmental education is a part of their college experience. A better understanding of developmental education will mean a better understanding of the education that many nontraditional students receive. To demonstrate this, the survey conducted on college choice included a

question about whether respondents had ever been required to take remedial or developmental courses; 55% of respondents answered in the affirmative. Of those students, nearly 49% had taken more than one remedial or developmental course. Future research on the experience of nontraditional students should examine the impact of these types of classes on this particular population of students.

On its own, the final paper makes a significant contribution. The role of meta-analyses in systematic research is to periodically take stock to see what a field knows about a particular topic, what it tells us about a particular question, what level of consensus exists, and what should be done next. This paper does this for the field of developmental education research, and it does so in a systematic, quantitative way. The meta-analysis finds that the overall effect of developmental education, across the studies in question, is neutral, but that varies based on the type of remediation studied, whether or not control variables are included, and whether the sample is "filled" to correct for minimal publication bias. More importantly, the study shows that the differences across studies cannot be accounted for by the quantifiable, reported differences between the studies. This indicates that something else is going on, something that differentiates the type of remediation being evaluated from study to study, that is not being captured by the data. This is the important next step highlighted by this work, and the paper offers several roads down which that research can go.

Throughout these three papers, the term used to describe the students of primary interest is "nontraditional." This phrase is troubling because it fails to reflect the position of these students as the majority in American higher education. It positions these students outside of mainstream higher education and categorizes them as "other." While this may be

the best word we have to capture this large group, it remains problematic. American higher education institutions serve a variety of students from a variety of backgrounds with a variety of aspirations, but the focus of the national conversation, and of much higher education research is on "traditional" college students as we have long conceived of them. We tend to think about students of a certain age, with limited outside obligations, living on their campuses, and totally immersed in university life. It is for this reason that we still think of older students with full time jobs, part time enrollment, children, and spouses, etc., as "nontraditional" despite their ubiquity on American college campuses. This work does not have a solution to this problem, but would be remiss to not point it out.

There is much work yet to be done in each of these areas, and it is work to which I look forward to contributing. The landscape of higher education in the United States is vast and complex—nontraditional students and nontraditional enrollment patterns are large and important parts of that landscape. The progress toward deep understanding of both feels, at times, exceedingly slow, but that is because in both areas the data are difficult to collect, to work with, and to analyze meaningfully. The papers presented here are vital contributions to the progress being made in both areas, while simultaneously showing how far there is yet to go.