What about the non-completers? The labor market returns to progress in community college[☆,☆☆]

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ABSTRACT

Despite copious research on the labor market returns to college, very little has adequately modeled the pathways of non-completers or compared their outcomes with those of award-holders. In this paper, we present a novel method for linking non-completers with completers according to their program of study. We use this method to calculate the labor market returns to programs of study, accounting for those who obtain an award and those who do not. We use a large dataset of community college transcripts matched with earnings data. We find that different classification systems – by algorithm, intent or goal – yield very different enrollment patterns across programs. Importantly, these classifications make a substantial difference to earnings patterns. Returns vary by program completion and by program non-completion. Consequently, combining completers and non-completers yields a new pattern of returns. We find that the variance in returns by subject of study is reduced when we combine data on completers and non-completers. In particular, the large returns to nursing awards are substantially lower when we account for the probability of completing a nursing program and the returns to not completing a nursing program. In addition, progression *per se* does not lead to higher earnings for non-completers: progressing further in a nursing program is no different from accumulating general college credits. If validated, these findings have significant implications for policies on program choice and on student retention policies.

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1. Introduction

Copious attention has been paid to the labor market returns to particular education credentials (Altonji, Blom, & Meghir, 2012; Belfield & Bailey, 2011). But most students in two-year colleges and many in four-year institutions do not complete a degree or certificate program. For students who first begin in community college, only one-third will earn a credential from any institution within six years (with another one-fifth still enrolled). Moreover, these completion rates have been declining over time (Bound, Lovenheim, & Turner, 2010; Radford, Berkner, Wheeless, & Shepherd, 2010). Despite their being in the majority, little attention has been paid explicitly to these non-completers and their labor market outcomes. It is important to know how labor market

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outcomes vary according to the students' status at point of exit from college: these students' status may vary with the number of credits they have accumulated, the courses taken, and their progression toward completing an award. Equally importantly, the outcomes of non-completers are essential for considering the returns to awards. Typically, estimates are reported only for the returns to those who actually completed a particular award and not those who intended to complete it. As such, these are *ex post* estimates of returns. But the optimal information for decision-making is the *ex ante* return to a college program, i.e. the return an enrolling student can expect. Only by combining evidence for non-completers with completers of a particular program is it possible to estimate the *ex ante* return. As well, non-completers vary in how far they have progressed in a program or even if they have enrolled in a program at all. For students who do not complete, it is unclear whether those who almost completed a specific program have higher returns than those who just accumulated college credits.

Identifying which programs non-completers are actually in is a challenge. Students fail to complete a college award for many reasons and many non-completers make very little progress toward completion. Broadly, there are two methods for categorization: stated preference, i.e. what the student proposes as their program of study; and revealed preference, i.e. what the student is actually doing to complete a program of study. Most attention has been paid to identifying students according to their declared program, with little research using revealed preference (Compton, Laanan, & Starobin, 2010). However, most of these studies have looked at completion rates and not labor market outcomes over the longer term.

In this paper, we look at labor market returns to completion and non-completion using a two-stage approach. Given the low average completion rate, and hence a greater and more varied group of non-completers, we focus on community college students for analysis. First, we utilize a novel method to determine a non-completer's program of study from her actual coursework. The method looks at the transcripts of all students who obtained each award in each program of study. It then classifies each non-completer with an award and subject corresponding to that of the set of completing students that each non-completer's transcript most closely resembles. In effect, the student is 'revealing' her program based on the courses she took in relation to courses needed to complete. Once each non-completer's program of study is identified, we apply a second method to determine how far along each student has progressed in their program of study. We compare this revealed preference approach with approaches based on stated preferences. In the second part of our investigation, we merge these data with data on labor market outcomes. This allows us to identify the labor market returns to non-completion pathways and to progress along each pathway. Also, by combining the sample of non-completers and completers, we are able to estimate the *ex ante* returns to awards and programs of study.

Our analysis is structured as follows. First, we describe the alternative approaches to categorizing non-completion and the challenges of categorization. We then set out our algorithmic approach. Next, we describe the data for analysis: a large-scale dataset of community college students with linked transcript and wage data over multiple cohorts and spanning multiple years in the labor market. We report information on non-completers using the algorithm and then estimate labor market returns both for non-completers (by status and by progress) and in combination with completers to get *ex ante* results.

Briefly, our results are as follows. We find different enrollment patterns across the measures to capture student progress and these in turn affect completion rates. We find differences between *ex post* and *ex ante* returns and these vary across awards and subjects: awards and fields that are relatively lucrative remain so after adjustment for non-completion, but the differential shrinks. Finally, we find no evidence that progression matters: controlling for the number of credits, students who are further along in an award program have labor market outcomes that are no better that students who have just accumulated college credits.

2. Understanding college non-completion

2.1. Categorizing students who fail to complete community college

Conventionally, students have been categorized by award received, with the residual put into a single group called 'some college' or 'college dropouts'. Yet many – almost all – of these students intended or expected to complete their program. By 'program' we refer to two elements: the award the student is aiming for and the field of study (major); we focus first on awards and then on subjects. Programs vary in their completion rates. But they also vary in their progression rates: some students will drop out in the introductory classes; others will fail the upper level classes. Thus, it is necessary to identify which program a student is in even if (especially if) they do not complete that program; this is done using either stated or revealed preference methods.

The stated preference method identifies non-completing students according to their declared major or their proposed program (see, e.g., Compton, Laanan, & Starobin, 2010; Bailey, Alfonso, Scott, & Leinbach, 2004; Choy & Horn, 1992; Jacobson & Mohker, 2009; Stuart, 2009). However, not all students declare a major and often declarations are made late. For some non-completers a declared major might not correspond to their intended pathway but serves simply a place-holder, e.g. to satisfy college requirements. Even for completers, we have found that the last declared major does not always match their actual completed major: our data shows that in only 61% of cases does the initial major correspond to the final major. Other related approaches rely on students' declarations of intent or goal. However, these declarations may be inaccurate or missing: questions about intentions or goals are often presented in closed form with mixed options (e.g. the student might have to choose between 'associate degree' or 'transfer' responses); and sometimes the declarations have a default category for assignment. As Bailey, Jenkins, and Leinbach (2006) noted, it is often difficult to determine the intentions of a student. In fact, they may be unclear even to the student herself, especially when starting out. Generally, economists are skeptical about stated preferences, particularly in the context of an experience good with uninformed consumers (for information deficiencies of students, see Zafar, 2011).