

1. Proposal Cover Page

2005 AIR/NPEC RESEARCH GRANT PROPOSAL

**Using State Student Record Data
To Map Pathways to Success for Underserved Community College Students**

Data Sets of Interest:

Florida Community College System
Student Data Base
and

Washington State Board for Community and Technical Colleges
Student Record Information System

Grant Amount Requested: \$29,996

Principal Investigator:

Thomas Bailey

George and Abby O'Neill Professor of Economics and
Education, and Director,
Community College Research Center,
Teachers College, Columbia University
525 West 120th Street, Box 174
439 Thorndike Hall
New York, NY 10027
Phone: 212.678.3091 Fax: 212.678.3699
Email: tb3@columbia.edu

Co-Principal Investigator:

Davis Jenkins

Senior Research Associate,
Community College Research Center,
Teachers College, Columbia University, and
Senior Fellow, Great Cities Institute,
University of Illinois at Chicago
412 S. Peoria Street, Suite 400
Chicago, IL 60607
Phone: 312.996.8059 Fax: 312.996.8933
Email: davis@uic.edu

Authorized Institutional Representative:

Paul Kran

Director, Office of Sponsored Programs
Teachers College, Columbia University
525 West 120th Street, Box 151
New York, NY 10027
Phone: 212.678.4106 Fax: 212.678.8110
Email: kran@exchange.tc.columbia.edu

Principal Investigator

Authorized Institutional Representative

Co-PI

2. Project Summary

A team of researchers from the Community College Research Center (CCRC) at Teachers College, Columbia University proposes to analyze longitudinal student record data provided by the community college systems in Florida and Washington State to track the experience and outcomes in community colleges of low-income students, students of color, students who enroll in college at an older age and those who attend part-time. The goal will be to inform community college practice and public policy in these and other states in ways that improve degree and labor market outcomes for such students, who, as numerous studies show, represent substantial proportions of community college enrollments, yet who complete postsecondary degrees at lower rates on average than do other students.

The datasets provided by Florida and Washington State contain extensive information on cohorts of first-time college students enrolled in a community or technical college in each state, including demographics, full transcripts over three- to six-year timeframes, and community college degree outcomes. The Florida dataset also includes information on transfer to baccalaureate institutions and baccalaureate completion. The Washington State dataset includes data from the state's Unemployment Insurance wage records on employment status and quarterly earnings one year before, during, and for five years after initial enrollment in one of the state's community or technical colleges. CCRC will incorporate into both datasets information from the IPEDS Institutional Survey on the overall student body characteristics, size, location and finances of the community or technical colleges in the two samples. This will allow us to account for the impact of institutional characteristics on student attainment. CCRC will use these datasets to address the following research questions:

- 1) What are the critical filter points at which community college students – particularly those who are low-income, persons of color, older or part-time – tend to flounder or drop out?
- 2) What course-taking patterns or “pathways” are associated with higher rates of degree completion among such underserved community college students?
- 3) What institutional characteristics, policies and practices (to the extent the latter are measured in the data) are associated with higher rates of degree completion among underserved community college students?
- 4) How does employment affect college attendance patterns and outcomes for low-income students, older students and those who enroll part-time?

- 5) What are the labor market outcomes of a community college education for different groups of underserved students, and what pathways lead most readily to family-supporting jobs for these students?

CCRC has conducted a series of studies over the past several years on educational and economic attainment by community college students, with a particular focus on those in occupational education programs and those who face barriers to success in college. These studies used the National Center for Education Statistics (NCES) datasets from the National Education Longitudinal Study of 1988 (NELS:88) and Beginning Postsecondary Students Longitudinal Study 1996-2001 (BPS:96/01), each of which has certain limitations for answering the above questions. Using the longitudinal student record data from the partner states will enable us to address the questions above in ways that have not been possible using data from the NCES surveys.

The partner states plan to use the findings from CCRC's analysis to stimulate debate and experimentation among community college professionals in their respective systems on practices effective in serving disadvantaged students. Both states will also use the results and input from their colleges to identify ways that state policy can be changed to facilitate efforts to bridge gaps in the performance of underserved students and thereby create educational "pathways" to success for these students. A key objective of the proposed project will be to model an analytical process that states can follow in using data collected at the state level to inform changes in policy and practice that lead to improved student success.

CCRC and the two partner states are participants in at least three major foundation-funded initiatives involving over 20 states that are seeking to promote state policies that support efforts by community colleges to improve outcomes for underserved students. Both the results and the methods of the proposed study will be of interest to community college leaders, state higher education officials, and public policy makers in these and other states. The national policy initiatives will provide networks and forums through which CCRC will disseminate the results of the project, in addition to publication in professional and scholarly journals and presentations at national meetings.

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4. Project Description

a. Statement of problem and variables

A team of researchers from the Community College Research Center (CCRC) at Teachers College, Columbia University proposes to analyze longitudinal student record data provided by the community college systems in Florida and Washington State. The goal will be to inform community college practice and public policy in these and other states in ways that improve degree and labor market outcomes for low-income students, students of color, students who enroll in college at an older age, and students who attend part-time. Studies have shown (see, e.g., National Center for Education Statistics, 2002) that these underserved students represent a substantial share of community college enrollments, yet they complete postsecondary degrees at lower rates on average than do other students.

Community colleges are an important entry point to higher education for all four groups of students. In 1995-96, the most recent period for which such information is available, over half (55 percent) of first-time community college students were from the first and second family income quartiles, compared to 38 percent of entering students in four-year public institutions.¹ In fall 2002, community colleges enrolled 54 percent of Hispanic undergraduates and 46 percent of black undergraduates, while public four-year institutions enrolled 27 percent of Hispanic undergraduates and 33 percent of black undergraduates. That same fall, adults between 25 and 64 represented 35 percent of full-time equivalent (FTE) enrollments at two-year public colleges, compared to only 15 percent of FTE undergraduate enrollments at four-year public institutions. Nearly two-thirds (63 percent) of community college students were enrolled part-time, compared to a little more than one fifth (21 percent) of students at four-year public institutions.²

Despite the importance of the community college as a gateway to higher education for students such as these, there has been relatively little research on their experience in community colleges, the barriers they face to earning credentials and the determinants of their success.

In recent years, researchers have taken advantage of databases available from surveys by the National Center for Education Statistics (NCES) that track nationally representative cohorts of students over time and thereby make it possible to chart their progress both within and across institutions. Four such surveys are High School and

¹ Beginning Postsecondary Students Longitudinal Study 1996-2001. Authors' calculations.

² Figures on enrollment by race/ethnicity, age and enrollment status are from Integrated Postsecondary Educational Data System (IPEDS), Fall Enrollment Survey, 2002. Authors' calculations.

Beyond 1980-1992 (HS&B), National Education Longitudinal Study of 1988 (NELS:88), and Beginning Postsecondary Students Longitudinal Study of 1989-1994 (BPS:90/94) and 1996-2001 (BPS:96/01).

Most of the studies that have analyzed these datasets focus on baccalaureate attainment, although some examine the effect of attending a community college on the probability of earning a bachelor's degree (see, e.g., Adelman 1999, 2003; Cabrera, Burkum & La Nasa, 2003). One exception is a recent study by CCRC (Bailey, Alfonso, et al., in press) that used NELS:88 to examine the characteristics and outcomes of students in community college occupational programs. The findings from that study indicate that African-American and Hispanic community college students earn certificates or degrees and transfer at lower rates than do white students. This effect is weakened when controlling for high school background and family income. Community college students with higher family income and whose parents are college-educated are more likely to complete degrees and transfer than those who are low-income and the first in their families to attend college. The effect of socioeconomic status is weakened, however, when attendance patterns are taken into account. As with students in four-year institutions, community college students who delay entering college after high school, work while attending school part-time, and interrupt their schooling are less likely to earn degrees.

This and other studies of educational attainment by undergraduate students focus on the effects of student characteristics and enrollment patterns on degree attainment. Recently, researchers have asked how such outcomes are affected by the characteristics, policies and practices of the institutions they attend. Most of this research has been conducted on baccalaureate-granting institutions (see e.g., Titus, 2004, in press), although CCRC researchers recently analyzed the effects of institutional characteristics on community college student degree outcomes using a dataset that incorporates institutional characteristics from IPEDS and student characteristics and outcomes from NELS:88 (Bailey, Calcagno, et al., in press).

While studies relying on national surveys have yielded rich insights into patterns of undergraduate student persistence and attainment, the data they employ have limitations for use in studying community colleges and their students. For example, over a third of students in community college college-credit programs are over 24 years of age. Yet, NELS:88 only has postsecondary enrollment data through 2000 for its sample of individuals who were 8th graders in 1988. Hence, NELS:88 can be used only to analyze the course-taking behavior of students until they are about 26 years old, thus missing any ongoing enrollment beyond this age and excluding completely those students who first enroll in college when they are older. The BPS:96/01 survey is based on a nationally representative

sample of all first-time college students in 1995-96, but its dataset does not include college transcript information and therefore has limited use in charting student course-taking behavior.

None of the NCES national surveys contains information about students in adult literacy programs, which include adult basic education (ABE), English as a Second Language (ESL), and GED preparation, and which, in many states, are provided by community colleges.

To the extent that such surveys include data on employment and earnings of respondents (as in the case of NELS:88), such information tends to be limited to a point in time. Hence, these data cannot be used to measure changes in job status and earnings over time or to examine the interplay between employment and college attendance.

Finally, none of the national surveys have enough data points to allow for conclusions about colleges and students in particular states, even though state policies vary and may, as a recent CCRC study suggests (Bailey, Calcagno, et al., in press), have considerable bearing on institutional performance and student outcomes.

The data from Florida and Washington that will be used in the proposed study do not have the limitations of the national survey data and will therefore enable us to deepen the insights gleaned from analysis of national datasets such as NELS:88 and BPS:96/01. Both of the states have shared with CCRC demographic and longitudinal data on representative cohorts of first-time community college students. We will use these data to examine the experience and outcomes of cohorts of underserved community college students in the two states and, specifically, to address the following research questions:

- 1) What are the critical filter points at which community college students – particularly those who are low-income, persons of color, older or part-time – tend to flounder and drop out?
- 2) What course-taking patterns or “pathways” are associated with higher rates of degree completion among such underserved community college students?
- 3) What institutional characteristics, policies and practices³ are associated with higher rates of degree completion among underserved community college students?

³ The data available for this study will only allow us to measure fairly broad practices such as expenditures, course offerings, and use of financial aid. To understand in greater depth the practices associated with disadvantaged student success, CCRC, with funding from the Lumina Foundation, is using the student cohort data provided by Florida and institutional characteristics data from IPEDS to select a sample of six Florida community colleges – three that have higher than expected graduation rates given their mix of students and institutional resources and three that have lower than expected rates – for field research during the spring and summer of 2005. During visits to these

- 4) How does employment affect college attendance patterns and outcomes for low-income students, older students and those who enroll part-time?
- 5) What are the labor market outcomes⁴ of a community college education for different groups of underserved students and what pathways lead most readily to family-supporting jobs for these students?

Although these questions are clearly relevant to community college policy and practice generally, the community college systems in Florida and Washington State have particular interest in them. Both systems are known nationally for their emphasis on improving student outcomes and for using data to inform that process, thereby increasing return on the public's investment in community colleges. Both systems recognize that many if not most of the students they serve face barriers to college, so efforts to improve service to particular groups of disadvantaged students will likely improve outcomes for all students. In addition, both are involved with other states in initiatives intended to shape state policy in ways that enhance the success of underserved community college students. (These initiatives are described below in the section on policy relevance.)

Both states plan to use the findings from this study to stimulate debate and experimentation among community college professionals in their respective systems on practices effective in serving disadvantaged students. The staff of the Washington State Board for Community and Technical Colleges is already doing this with the findings from a preliminary analysis of data that they conducted together with CCRC on the experience and outcomes of cohorts of low-skill adult students in the state's community and technical colleges (Prince & Jenkins, in press). Both states will also use the results and input from their colleges to identify ways that state policy can facilitate efforts to bridge gaps in the performance of underserved students and thereby improve educational and economic outcomes for these students.

The proposed study builds on and extends several recent studies by CCRC on education and economic attainment by community college students, particularly those who face obstacles to success in college:

- An extensive analysis using NELS:88 and BPS:96/01 of the characteristics and outcomes of community college students in occupational programs for NAVÉ, the National Assessment of Vocational Education (Bailey, Alfonso, et al., in press).

colleges, CCRC researchers will conduct structured interviews with administrators, faculty, staff and students to identify the key dimensions of organizational policy and practice related to degree completion rates.

⁴ Data available from Washington State only.

- A review of the literature on community college degree attainment conducted with funding from the Lumina Foundation for Education as background for its *Achieving the Dream* initiative (Bailey & Alfonso, 2005).
- A Ford Foundation-funded analysis using IPEDS and NELS:88 of the institutional characteristics that affect degree completion among community college students (Bailey, Calcagno, et al., in press).
- An analysis (also Ford Foundation-funded) using BPS:96/01 of enrollment and degree completion by low-income and minority community college students (Bailey, Jenkins & Leinbach, in press).
- A preliminary analysis of the experience and outcomes of low-skill adult students in the Washington State community and technical college system (Prince & Jenkins, in press). (The Prince & Jenkins paper has been accepted for presentation at the 2005 AIR Forum in San Diego.)

In addition, CCRC, in partnership with Jobs for the Future and the National Center for Higher Education Management Systems (NCHEMS), has launched a new project that will provide technical assistance to the ten states involved in the Ford Foundation *Bridges to Opportunity* and Lumina Foundation *Achieving the Dream* initiatives (Colorado, Florida, Kentucky, Louisiana, New Mexico, North Carolina, Ohio, Texas, Virginia, and Washington) with the aim of helping these states better use the data they collect to improve educational and economic outcomes for underserved students. A key objective of the project we are proposing to AIR/NPEC will be to model a process that these and other states can follow to use data for such ends. In this way, the project will seek to advance the practice of postsecondary institutional research.

b. Proposal of work

The chart below shows the main activities, along with a timeline for each, that will be carried out to complete the proposed study in the twelve months starting June 1, 2005.

Project Activity	Q1	Q2	Q3	Q4
Conduct descriptive analysis of both samples	██████████			
Conduct multivariate analysis of both samples	████████████████████			
Present findings to cc system staff in WA and FL			██████████	
Submit grant progress report to AIR/NPEC		██████████		
Prepare findings for publication		████████████████████	████████████████████	
Present findings at national forums*			████████████████████	
Summit final report to AIR/NPEC				██████████

* In addition to the 2006 AIR Forum and NPEC 2006 Student Success Symposium.

The data we will use from Florida includes records on over 34,000 first-time college students who completed (with a passing grade) at least one college-credit course (including college remedial) at a Florida community college in the fall of the base years of 1998-99, 1999-2000 and 2000-01. The database tracks enrollment by students in these cohorts at Florida community colleges through the spring of 2004. The Washington State sample includes approximately 38,900 records of first-time college students who entered one of the state's community or technical colleges in 1996-97 or 1997-98 and tracks each entering cohort for five years.

Both data sets include information on: demographic characteristics of all entering students in each cohort, including gender, race/ethnicity, age, family status, previous education, English language proficiency, and college placement test scores; individual transcripts for all students in the selected cohorts who enrolled in a college-level course (including college remedial) at a community college in the given state, with credits attempted and completed by semester, full- or part-time enrollment, program of study, course grades received and credentials earned; and amount and type of financial aid received.

The Florida dataset also includes information on transfer to public baccalaureate-granting institutions in the state and baccalaureate degree awards from Florida public institutions with major field and date of award.

The Washington State dataset also includes data from the state's Unemployment Insurance wage records on employment status and quarterly earnings one year before, during, and for five years after initial enrollment in one of the state's community or technical colleges.

CCRC will incorporate into both datasets information from the IPEDS Institutional Survey on the overall student body characteristics, size, location and finances of the community or technical colleges in the two samples.

CCRC has received all of the necessary data from Florida except for transfers to baccalaureate institutions, which the Florida Department of Education has promised to deliver by the end of January, 2005. The research staff of the Washington State Board of Community and Technical Colleges has agreed to share data on two cohorts of adult community college students 25 or older who have at most a high school education along with data from the Washington State Unemployment Insurance wage records on employment and quarterly earnings for each student in the sample. In letters that will be mailed with the signed cover page to this proposal, Florida and Washington State indicate that CCRC will have access to the data described here and will be able to publish the results from this study.

This study investigates four specific community college student populations: low-income students, students of color, older students, and students who enroll part-time. In past studies, CCRC has identified these various populations using dummy variables in multivariate regressions. We are aware of the unique characteristics that each brings to their postsecondary education. In the current study, the size of the state datasets will allow us to perform analyses on each separate subpopulation rather than using the whole population with dummy variables for each group. The effects for each group will be compared to those of its relevant comparison group. For example, low-income students - those in the lowest income quartile - will be compared to students from higher income quartiles. In conducting multivariate analyses of the Florida and Washington State datasets, we will use methodologies CCRC has applied and refined in our research on the NELS:88 and BPS:96/01 national datasets.⁵

After transforming the raw data into useable individual student records, we will produce a set of descriptive statistics about each subpopulation, its comparison group, and the whole community college cohort. These statistics will include transition rates from developmental to credit programs, completion rates by credential earned, and transfer rates to four-year colleges for each subpopulation and by student characteristic within subpopulation (for example, by income level within race/ethnicity). Labor market outcome descriptive statistics by population will also be produced for the Washington State sample. These statistics will stand alone for their own informative value, but will also be used to guide the development of models for our multivariate analyses.

We will then use regressions to estimate student outcomes for each population of students. As we are particularly interested in the institutional characteristics, student enrollment patterns or “pathways,” and individual

⁵ For an in-depth discussion of the methodological issues involved, see Bailey, Calcagno, et al. (2005) and Bailey, Alfonso, et al., (in press).

characteristics (including employment) that contribute to or detract from successful student outcomes, our models will incorporate this information as either dummy, discrete, or continuous explanatory (or independent) variables. We intend to develop several models with different outcome (or dependent) variables. Each will introduce the three sets of characteristics (institutional, enrollment patterns, and individual) in a stepwise fashion. At the simplest level, the model will have credentials earned (degrees and certificate) as outcomes, as well as transfer to baccalaureate institutions. For students who start in adult literacy or college remedial courses, an additional model will be developed in which completion of such coursework is measured as a successful outcome. Transition into credit programs will be another outcome. A final outcome measure will be credits accumulated, for which we can use OLS regression since the number of credits earned is a continuous variable. The models that use credits earned as their dependent variable will help particularly to identify the “filter points” at which different types of community college students drop out without completing a credential program.

To measure labor market outcomes for students we will use quarterly earnings data from Washington State as the dependent variable in an OLS regression. This will include earnings before, during and after postsecondary enrollment, so our dependent income variables can be both the absolute value after enrollment or completion as well as change in earnings from prior to after postsecondary enrollment (as a means of measuring more directly the impact of education on income).

Explanatory variables in the models will include student pathways, which measure part-time enrollments, interruptions to education (stop-outs for one semester or more), delayed enrollment after high school completion, and program characteristics (e.g., academic or vocational dominant coursework). Our past research (see Bailey, Alfonso, et al., in press) used similar sets of independent variables to identify factors associated with success among students in national survey samples. Student background characteristics will include gender, age, race/ethnicity, household income, ability level, as well as dummy variables for students’ educational level at initial enrollment (e.g., high school credential or not, ESL or not). In earlier research (Bailey, Calcagno, et al., in press) we have successfully incorporated into our models institutional characteristics for all institutions that a student attends, with the relative influence of each institution proportional to the amount of time spent at that institution (measured by FTE months enrolled). This innovative methodology recognizes both the contemporary pattern of student

enrollments in which nearly 40 percent of first-time community college students enroll in more than one institution within six years⁶ and the fact that each institution has a different impact on a student's educational outcome.

c. Dissemination plan

CCRC regularly presents at national meetings of community college professionals such as AIR, AACC and the League for Innovation as well as at scholarly meetings such as the American Educational Research Association (AERA) and Association for the Study of Higher Education (ASHE). CCRC plans to present the findings of the proposed project at at least two national forums during spring 2006, in addition to the 2006 AIR Annual Forum in New Orleans.

CCRC's publications, available through our website, www.tc.columbia.edu/ccrc/default.asp, are widely read by community college professionals and researchers. Products from the proposed project will be publicized electronically through the CCRC mailing list, which contains over 8,000 recipients. These include college personnel, state agency staff, researchers and public officials involved with community college policy. CCRC has a strong record of publication in journals for both practitioner and scholarly audiences. CCRC Director Thomas Bailey, who is co-PI on the proposed project, writes a column for *Community College Week* and is a frequent contributor to the American Association of Community College's *Community College Journal*. Dr. Bailey has also published extensively in scholarly journals such as *The American Journal of Education, Evaluation and Policy Analysis, the Educational Researcher*, and the *Economics of Education Review*. CCRC will publish the results of the proposed study in at least one practitioner publication and one scholarly journal.

CCRC's partners in the project, the community college systems in Florida and Washington State, plan to disseminate the findings of the study widely within their states. Both states, along with CCRC, are involved in the national policy initiatives described in the next section. These national initiatives will provide additional networks and forums through which CCRC will disseminate the results of the study beyond the two partner states.

⁶ Authors' calculations using BPS:96/01.

d. Description of policy relevance

As indicated, the staffs of the Florida and Washington State community college systems already plan to use the results of the study to guide on-going efforts in their states to improve community college policy and practice in ways that enhance success of underserved community college students.

The impetus for these efforts comes in part from their participation in national community college policy initiatives. One of these, the Ford Foundation's *Bridges to Opportunity* initiative, is funding community college policy work in Washington and five other states (Colorado, Kentucky, Louisiana, New Mexico, and Ohio) with the goal of promoting state policies that strengthen the capability of community colleges, working with other partners, to improve educational and economic opportunities for low-income adults. In another, the Lumina Foundation for Education is funding the *Achieving the Dream: Community Colleges Count* (AtD) initiative, which is working at both the institution and state policy levels to strengthen the work of community colleges with low-income, minority and first-generation college students in Florida and four other states (New Mexico, North Carolina, Texas, and Virginia)⁷.

Ten other states are involved in the *Pathways to Advancement* project of the National Governor's Association, also funded by Lumina, which is supporting interagency teams to produce policy agendas that promote degree attainment by low-income students.

All of this activity indicates that there is broad interest among community college practitioners and state policy makers in the questions to be addressed by the proposed study.

e. Discussion of innovative aspects of project

The proposed study has two objectives: 1) to answer research questions on factors affecting degree attainment and economic outcomes of underserved community college students; and 2) to model a process in which states and colleges can use data analysis to guide practice and policy in order to improve outcomes for such students. This project entails a partnership between CCRC and the states of Florida and Washington. The states will provide the data for analysis and have the mechanisms for using the results to improve policy and practice, while CCRC, with its strong research capabilities, will conduct analyses that the research staffs of the state systems do not have the time or capability to perform. This partnership model has potential long-term benefits for state systems of

⁷ Community colleges and state agencies in California and Ohio are planning to join the AtD initiative in 2005.

postsecondary education. Both this collaboration and the model for using longitudinal state-level data analysis to guide higher education policy and practice are innovative features of the project.

In addition, the individual student record data collected from all community and technical colleges in the two states will allow a different level of analysis heretofore not utilized in studies of postsecondary student attainment. Most research to date on student outcomes uses either data from case studies of individual institutions or from national-level surveys. The results of the former are of limited use in generalizing across students and institutions as well as for informing public policy, while the latter, which depend on national surveys with limited numbers of data points, often fail to have significant analytical power to allow definitive conclusions about student subpopulations. With detailed student record data from Florida and Washington, this study will be able to answer questions that cannot be addressed using data either from national surveys or case studies of individual institutions.

f. Discussion of audience to whom the project will be important

Both the results and the methods of the proposed study will be of interest to community college leaders and institutional researchers, state higher education officials and policy makers in the many states – not only Florida and Washington – that are seeking to improve outcomes for underserved community college students. The study will also be of interest to higher education researchers seeking to answer questions about community college student attainment that cannot be fully addressed using data from institutional case studies or national surveys.

g. Appendices

None.

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6. Biographical Sketches

Thomas Bailey is the George and Abby O'Neill Professor of Economics and Education in the Department of International and Transcultural Studies at Teachers College, Columbia University. Dr. Bailey holds a Ph.D. in labor economics from MIT, and is an expert on the economics of education, educational policy, community colleges, and the educational and training implications of changes in the workplace.

In 1996, with support from the Alfred P. Sloan foundation, Dr. Bailey established the Community College Research Center (CCRC) at Teachers College, which conducts a large portfolio of qualitative and quantitative research based on fieldwork at community colleges and analysis of national- and state-level datasets. As Director of CCRC, Bailey has led a team of researchers conducting a *National Field Study of Community Colleges*, which has examined eight research topics at 15 community colleges across the country. He is currently in the process of preparing a book based on this research. Dr. Bailey has also conducted a major quantitative study funded by the U.S. Department of Education through the *National Assessment of Vocational Education* (NAVE), which analyzed data on the characteristics and educational and economic outcomes of postsecondary occupational students. In addition, Dr. Bailey has recently completed a project for the National Science Foundation examining the institutional impact and sustainability of *Advanced Technological Education* (ATE) programs on community colleges. Bailey is currently leading two Ford Foundation-funded projects designed to identify and promote institutional practices and state policies that can improve community college service to minority and low-income students.

Since 1992, Dr. Bailey has also been the Director of the Institute on Education and the Economy at Teachers College. His articles have appeared in a wide variety of policy-oriented and academic journals, and he authored or coauthored several books on the employment and training of immigrants and the extent and effects of on-the-job training. His latest book, *Working Knowledge: Work-Based Learning and Education Reform* (forthcoming), co-authored with Katherine Hughes and David Moore, examines the costs and educational benefits of internships and other forms of work-based learning. *Manufacturing Advantage* (2000), written with Eileen Appelbaum, Peter Berg, and Arne Kalleberg, analyzes the effects of high performance work systems on organizational performance and worker welfare. *The Double Helix of Education and the Economy* (1992), co-authored with Sue Berryman, examines the poorly understood link between the needs of the workplace and the contemporary understanding of effective learning.

Dr. Bailey has served as a consultant to many public agencies and foundations including the U.S. Department of Labor, the U.S. Department of Education, the U.S. Congress Office of Technology Assessment, the Alfred P. Sloan Foundation, the William T. Grant Foundation, and several state and local economic development and educational agencies.

Davis Jenkins (co-PI) is senior research associate at the Community College Research Center and senior fellow at the University of Illinois at Chicago's Great Cities Institute. Dr. Jenkins conducts research on how to increase access to economic opportunity by disadvantaged youths and adults. A key focus of his work is the role of post-secondary institutions, particularly community colleges, in educating economically and educationally disadvantaged individuals for gainful employment in a knowledge economy. He also consults on the development of programs and policies that reflect findings from research on what works.

With funding from the MacArthur Foundation, National Science Foundation and other sources, Jenkins worked with community colleges and community groups in Chicago and Detroit to create a nationally-recognized model for enabling educationally disadvantaged adults to advance from low-wage jobs to family-supporting careers in technology fields. This work was profiled in a 2002 report on *Building a Career Pathways System: Promising Practices in Community College-Centered Workforce Development*, which Jenkins co-authored with Julian Alssid et al. The report examines efforts by community colleges, working in conjunction with employers, schools, community groups and social service agencies to create educational pathways to college degrees and careers for low-income students.

As a visiting scholar at the Education Commission of the States, Jenkins helped the Ford Foundation design an initiative that is bringing together state policy makers and higher education leaders to find ways to facilitate efforts by community colleges to serve as "bridges" for disadvantaged students to higher education and career-path employment. Jenkins is evaluating the efforts in the six pilot states (CO, KY, LA, NM, OH, WA) together with a team from the Community College Research Center. He is currently also a consultant to the National Governors Association's *Pathways to Advancement Academy*, which is bringing together policy makers from eight states to develop and implement plans for increasing postsecondary access and attainment by low-income adults.

Jenkins is co-investigator with Thomas Bailey on a series of studies, funded by the Ford and Lumina foundations, on the role of community colleges in degree attainment by minority and low-income students. He is

also working on a U.S. Department of Education-funded study of the transition from adult basic education to community colleges that is being led by Berkeley Planning Associates and MDRC.

Jenkins has over 20 years of experience as a researcher, program manager, evaluator and consultant on projects related to education for employment in the U.S. and abroad. He holds a bachelor's degree from Princeton University and a Ph.D. in Public Policy Analysis from Carnegie Mellon University.

Timothy Leinbach is a research associate at the Community College Research Center with expertise in national education databases and applied data analysis. His work at CCRC includes studies of enrollments and outcomes of low-income and minority students at community colleges nationwide; characteristics, educational outcomes, and economic outcomes of students in postsecondary vocational education; peer benchmarking of colleges; the state of institutional research at community colleges; and data analysis and support for a variety of other CCRC projects.

Leinbach was a data analyst and co-author for a recent CCRC study, funded by the Ford and Lumina foundations, on the role of community colleges in degree attainment by minority and low-income students. His work on that project entailed programming in the SAS language to prepare for analysis two NCES datasets, the Beginning Postsecondary Students Longitudinal Study of 1996-2001 and the National Educational Longitudinal Study of 1988, as well as processing numerous data elements from several years of data from the Integrated Postsecondary Education Data System. He also recently co-authored a paper with Thomas Bailey, supported by The Civil Rights Project at Harvard University and the Pew Hispanic Center, that used student cohort data from the City University of New York to measure and assess the educational outcomes of Hispanic immigrants at CUNY since 1990.

For the proposed project, Leinbach will be the person primarily responsible for preparing the datasets and will be directly involved in their analysis. Leinbach holds a bachelor's degree in computer science and economics from Duke University, a master's degree in geography from the University of Washington, and has done advanced graduate work in geography at the University of Minnesota. Prior to joining CCRC he worked in the Department of Information Technology and Systems at Madison Area Technical College.

Juan Carlos Calcagno is a research fellow at CCRC and doctoral candidate in Economics and Education at Teachers College, Columbia University . He earned a B.A. in Economics from Universidad Nacional de Córdoba, Argentina. His research focuses on postsecondary education outcomes, both from student and institutional perspectives. Currently, he is contributing his statistical expertise to CCRC projects on the institutional effects on community college student outcomes and institutional graduation rates. As part of a project funded by the Lumina and Ford Foundations, he conducted the statistical analysis of the role of community colleges in degree attainment by minority and low-income students. He is also particularly interested in econometric program evaluation and the long-term effects of financial aid on degree attainment by postsecondary students.

7. Budget

a. Itemized Budget

**TEACHERS COLLEGE, COLUMBIA UNIVERSITY
Community College Research Center**

2005 AIR/NPEC RESEARCH GRANT PROPOSAL BUDGET

*Using State Student Record Data To Map Pathways to Success
for Underserved Community College Students*

June 1, 2005 - May 31, 2006

Personnel		
Principal Investigator:	.5 FTE academic year months @ \$18,365/mo	\$0
Research Associate:	2 FTE academic year months @ \$3,664/mo	\$7,328
Graduate Student:	2.25 FTE academic year months @ \$2,601/mo	\$5,852
Total Salaries and Wages		\$13,180
Fringe Benefits @ 37%		\$4,876
Travel (AIR Annual Forum)		\$1,400
Total Benefits and Travel		\$6,276
Other Direct Costs		
Subcontract (University of Chicago at Illinois)		
Co-Principal Investigator:	1 FTE summer month @ \$10,540/mo	\$10,540
Total Other Direct Costs		\$10,540
TOTAL AMOUNT OF AWARD		\$29,996

b. Budget Justification

Personnel:

Thomas Bailey, the principal investigator on the project and CCRC director, will spend half of one FTE month overseeing the project. He will be responsible for overall guidance of the project, reviewing all analyses and findings of the research, and for reviewing any documents produced out of this project. His time on this project will be donated at no cost.

Davis Jenkins, co-principal investigator and CCRC senior research associate, will work for one FTE month on the project. He will be responsible for overseeing the research on a daily basis, and drafting reports and papers on the results produced by Leinbach and Calcagno (see below). Together with Tom Bailey, Jenkins will present findings from the research at the 2006 AIR Forum and other conferences.

Timothy Leinbach, CCRC research associate, will spend two FTE months on the project. He will be responsible for transforming the raw state data and the IPEDS data into complete individual data records. He will also produce the descriptive statistics tables from the datasets. Leinbach will write relevant portions of the reports and papers and be responsible for overall editing of documents generated through the research.

Juan Carlos Calcagno, CCRC research fellow, will spend two and one quarter FTE months on the project. His tasks will be to design and to run the regression models. He will analyze the results, draft preliminary findings, and write the technical methodological portions of any reports and papers resulting from the project.

Total Personnel costs (salaries and wages) are \$13,180.

Fringe benefits:

These costs are calculated at a rate of 37% of salaries and wages for a total of \$4,876.

Travel:

Costs have been included for the PIs to present research findings at the AIR annual forum. These costs are estimated at \$1,400.

Total Benefits and Travel costs are \$6,276.

Other Direct Costs:

A subcontract agreement will be arranged between CCRC/Teachers College and the University of Illinois at Chicago for one month of Davis Jenkins' time. These costs are estimated at \$10,540.

Total Other Direct Costs are \$10,540.

TOTAL AMOUNT OF AWARD: \$29,996.

8. Current and Pending Support

a. Current Support:

Source: Alfred P. Sloan Foundation
Project: *Community College Research Center: Institutional Support*
Duration: July 1, 2003 - December 31, 2006 Amount: \$1,800,000
1 month per year for T. Bailey

Source: Ford Foundation
Project: *Evaluating the Community College Bridges to Opportunity Initiative*
Duration: June 1, 2003 - May 31, 2005 Amount: \$300,000
1 month per year for T. Bailey
2 months per year for D. Jenkins

Source: National Science Foundation
Project: *Effect of Regional Centers and Selected National Centers on the Number and Quality of Technicians and on Program Characteristics and Community College Structure and Organization*
Duration: September 1, 2003 - August 31, 2006 Amount: \$826,872
1.5 months per year for T. Bailey

Source: Office of Vocational and Adult Education, U.S. Department of Education
Project: *Accelerating Student Success through Credit-Based Transition Programs*
Duration: October 1, 2003 - March 31, 2005 Amount: \$445,802
1.5 months per year for T. Bailey

Source: National Science Foundation through Haywood Community College
Project: *Project to Expand and Institutionalize Learning through Simulated Information Technology Enterprises (L-SITES)*
Duration: August 1, 2003 - July 31, 2006 Amount: \$35,019
.6 months in Year 3 only for T. Bailey

Source: Lumina Foundation for Education
Project: *Achieving the Dream: Community Colleges Count*
Duration: May 1, 2004 - October 31, 2005 Amount: \$1,027,566
4 months per year for T. Bailey
3 months per year for D. Jenkins
2 months per year for T. Leinbach

b. Pending Support:

Source: Ford Foundation
Project: *Continuation of Evaluating the Community College Bridges to Opportunity Initiative & Building the Capacity of Bridges States to Use Data to Facilitate Access and Attainment by Underrepresented Students at Community Colleges*
Duration: December 1, 2004 – November 30, 2006 Amount: \$409,727
1.5 months per year for T. Bailey
2.5 months per year for D. Jenkins

9. Facilities, Equipment and Other Resources

The Community College Research Center (CCRC) was established in 1996 by the Alfred P. Sloan Foundation and is housed within the Institute on Education and the Economy (IEE) at Teachers College, Columbia University. As a research entity within Teachers College, CCRC is granted full access to all facilities within the Columbia University system. These include all libraries, computing centers, conference rooms and teleconferencing facilities, banquet accommodations, and classrooms. The College also provides training and support for the use of these facilities. CCRC currently occupies two suites that provide more than ample space and resources for its current and planned research. CCRC is fully supplied with all of the equipment necessary to conduct multifaceted and long-term research, including a local network, personal computers, printers, software, fax machines, telephones, copiers, administrative assistance, etc. In addition to managing and maintaining the local server, CCRC licenses additional statistical and econometric software for use in research applications requiring advanced graphics and modeling capabilities. Along with modern presentation software and the appropriate hardware for its production, this insures that the Center's research is state-of-the-art in content and appearance. Teachers College also has several contracts with vendors providing supplies and equipment at discounted costs.

CCRC is devoted to conducting both quantitative and qualitative research on community colleges and higher education in general, and to the development of practice and policy that expands access to higher education and ensures success for all students. The research includes qualitative case studies, policy studies, and quantitative analysis of individual and institutional data. The Center has conducted projects involving quantitative analysis of student access and completion as well as case studies and institutional analyses of numerous community college activities including student services, academic preparedness and remediation, the linkages between high schools and community colleges, distance education, the effects of the growing emphasis on accountability, and the question of how reform activities can become institutionalized and brought to scale in the colleges. In total, CCRC researchers have conducted research at over 60 community colleges across the country.

The Center maintains an extensive mailing list consisting of leaders in education, business, government, media, and policy makers, to which it regularly sends a newsletter announcing new or ongoing developments in research as well as its latest *Research Briefs* (summaries of research reports). CCRC has developed and maintains an informative Website, which contains descriptions of current research projects, research papers and non-technical briefs, conference presentations, staff bios and contact information, and announcements of upcoming activities.

10. Special Information and Supplementary Documentation

Letters from the Florida Department of Education and Washington State Board for Community and Technical Colleges indicating that CCRC will have access to the data described in this proposal and may publish the results of the study have been mailed to the grant program address along with the signed proposal cover sheet.