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The problem of the 21st century: Economics faculty and the color line

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ABSTRACT

With historical data on black economist hirings in Ph.D. granting economics programs and the supply of new black economics doctorates in the United States, this paper examines the conventional pipeline explanation for the dearth of blacks on economics faculties. Parameter estimates from count data specifications of a demand–supply relationship reveal that increases in the supply of new black economics doctorates do not increase, but instead decrease the likelihood of a Ph.D. granting economics department hiring black economists. Our results suggest that black economists are underrepresented on the faculties of Ph.D. granting economics departments by at least a factor of two. Instead of there simply being too few blacks earning economics doctorates to fill faculty jobs—the so-called pipeline problem—there appears to be a "color line" problem in that race explains the underrepresentation of blacks on the economics faculties of Ph.D. granting departments in the U.S.

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1. Introduction

The typical Ph.D. economist, newly minted or experienced, has an investment in human capital—a doctorate, and some productivity characteristics—publications/citations—that are easy to observe and measure. As the demand for labor is a function of its marginal productivity, the academic labor market for economists is highly amenable to testing human capital theory, and its implications for job placement, salaries, and mobility. As such, the labor market for economists has been the focus of a nontrivial portion of the economics literature. By and large, most of the literature focuses on the determinants of earnings, initial job placement, and the earnings–experience–seniority profile.[1] Other than a few findings, such as those reported by Gordon et al. (1974), Collins (2000), Hoffman (1976) and Blackaby and Frank (2000), the role of race in the labor market for economists has been relatively unexamined.

That the role of race in the labor market for economists has been relatively neglected is surprising given the severe underrepresentation of racial minorities on the economics faculties of U.S. colleges/universities. Collins (2000) reports that in 1995, black Americans, Hispanics, and Native Americans accounted for 3 percent of the economics doctorates employed by four year colleges and medical institutions. With respect to tenured economics faculty, Collins' (2000) analysis reveals that among all colleges/universities, black Americans and Hispanics account for 1.6 percent and 1.2 percent respectively of tenured faculty in economics.[2] Among colleges/universities with doctoral programs in economics, the underrepresentation of black Americans is more severe, as they constitute .08 percent of tenured economics faculty.[2]

In this paper, we extend the analysis of Collins (2000) by examining the labor market for economists for a particular minority group—black Americans. Instead of reporting on aggregates we provide a detailed census in which we identify both individual black economists and the institutions where they are employed. For Ph.D. granting economics departments, we do the same for both historical and contemporary faculty appointments. A fundamental virtue of explicitly identifying individuals and institutions is that it enables the recovery of informational losses from aggregate data on black faculty to support microeconometric explorations into causal factors of faculty underrepresentation.[3] As such, we exploit the

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[1] See for example Barbezat (1992), Ransom (1993), Singell and Stone (1993), Moore et al. (1998), Bratsberg et al. (2003), and Gallet et al. (2005).

[2] See Table 7 in Collins (2000).

[3] Heckman and Walker (1989) provide an example in which detailed microdata improve the forecasting performance of microeconometric models of fertility. A more practical virtue of identifying individual black economists and the institutions that employ them is that it can assist efforts that monitor institutions and their efforts at diversifying their economics faculties. Indeed the data compiled here will inform the National Economic Association Committee on Racial Diversity in the Economics Profession (NEACODE) in its efforts to promote and monitor racial diversity on economics faculties.

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compiled microdata to examine the notion that the underrepresentation of blacks on economics faculties reflects an inadequate supply of blacks earning economics doctorates—the conventional pipeline explanation. With historical data on black economist hirings in Ph.D. granting economics departments, we estimate the parameters of a supply–demand relationship between hirings and new black economics doctorates to determine if the pipeline explanation has any empirical support.

While our analysis does provide some motivation for the underrepresentation of black economists in terms of gross population demographics, our econometric analysis of the academic labor market for black economists provides insights on a particular, and in our view more precise measure underrepresentation. Our count data parameter estimates of a demand and supply specification in the academic labor market for economics informs the extent to which hiring probabilities are conditioned on available labor supply. This is an approach used in the literature on statistical approaches to employment discrimination (Piette and White, 1999; Cohen and Huffman, 2007), and it casts employment underrepresentation in terms of the extent to which a particular group's employment probability is corresponds sensibly with their share of available labor supply.

The remainder of the paper is organized as follows. Section 2 introduces the census data on black economists, and considers the implications it has for black economist underrepresentation from both a historic and contemporary perspective. In Section 3, we explore whether or not the historical black faculty underrepresentation on economics faculties of Ph.D. granting programs can be explained by a dearth of new black economics doctorates. Our test of the so-called conventional pipeline explanation is based on a plausible supply-demand relationship from which we estimate the parameters with count data estimators given the discrete nature of black economist hiring. The last section concludes.

2. The problem: a color line in economics faculty hiring and appointments

Tables 1 and 2 report respectively, as of January 1, 2006, the number of black economists in academia—on economics faculties, at Federal Reserve Banks, and other disciplinary units—and their representation on the economics faculties of the 106 Ph.D. programs ranked by the National Research Council (NRC) in 1995.[4] In his 1903 book *The Souls of Black Folk*, W.E.B. Du Bois Du Bois (1903) opined that the *problem of the 20th century is the color line*. The data in Tables 1 and 2 suggest that Du Bois' insight was and appears to be relevant in the 21st century. Ever since Du Bois completed all the coursework for a doctorate in economics in 1894 at the University of Berlin—probably making him the first black American with doctoral training in economics—the academic labor market for blacks with economics doctorates has been characterized by a "color line" in hiring for the past 103 years.[5]

The most glaring "color line" in economics faculty hiring over the past century exists at economics departments among the elite private and state research universities. doctoral granting universities. Consider the following sober historical facts regarding black Americans holding tenure track or tenured appointments in economics: (A) In the former States of the Confederacy, since the abolition of slavery only the Universities of Alabama (1), Mississippi (1), North Carolina (2) Texas (3) and Duke (2) have had a black economics faculty member.[6](B) In the former States of the Union and others not in existence at the time of the Civil war, since the abolition of slavery only the Universities of California-Los Angeles (1), Connecticut (1), Indiana (1), Michigan (2), Michigan State (3) Maryland (2) Massachusetts (2), Ohio State University (1), Brown (1), Harvard (2), New York (2), Northwestern (1), Pennsylvania (1), Princeton (2), Stanford (2), Washington University (1), and Yale (2), have had a black economics faculty.[7]

Excluding Howard University, a Historically Black College/University, among the 106 Ph.D. granting economics departments ranked by the National Research Council in 1995, through January 2006, a total of 31 institutions have hired black economics faculty and only 6 in Full Professorships that are endowed and/or named.[8] As far as can be ascertained, in the century since Du Bois qualified for an economics doctorate, approximately 67 black economists managed to get hired, but not necessarily tenured, by an elite private research, flagship state, or economics Ph.D. granting university in the United States.[9]

The current situation among Ph.D. granting economics departments is no less sobering. As of January 1, 2006, among the 106 Ph.D. granting economics departments ranked by the National Research Council (NRC) in 1995, only 44 out of 2785 economics were black—a representation of approximately 1.6 percent. The employment of black is also skewed, as only 30 out of the 106 NRC-ranked economics departments have black faculty. Black faculty are virtually nonexistent as the he median or representative Ph.D. granting economics department has *zero* black economics faculty. Only the University of Massachusetts and Howard University have a percentage of blacks on the economics faculty that is at least equal to the percentage of black Americans in the population.

There also exists what can be characterized as "vulgar" demographic disparities if we consider the representation of black economics faculty at Ph.D. granting economics departments in states with black populations that on the basis of 2000 Census data, average 28.6 percent of the total population. As of January 1 2006, the following universities, all located in southern states have *never* hired a black economist: Emory University, University

[4] The data on black economists in Tables 1 and 2 are based upon the tacit historical knowledge of the author regarding where black economists were employed at historically/currently, and upon data compiled by Agesa et al. (1998, 2000, 2002a,b) Updates were enabled by: (1) surveilling departmental webpages of all the Ph.D. granting economics departments in the United States, and (2) information provided by a network of scholars regarding their knowledge of black economists historically and currently employed in a U.S. college/university. Table 1 also includes some black economists at non-U.S. colleges/universities who were once on, in recent history, the faculty of a U.S. college/university. It is important to note that not all Ph.D. programs were included in the 1995 NRC study either because they did not respond to the 1995 NRC survey, or were not in existence at the time (e.g. the Ph.D. programs at the University of North Carolina-Greensboro, University of Western Michigan, Florida International University, and Virginia Polytechnic University). Some programs ranked by the 1995 NRC study are also no longer in existence (e.g. University of Cincinatti, and Auburn University).

[5] For an account of Du Bois travails pursuing the economics doctorate at Berlin, see Boston (1991) and Crouch and Benjamin (2002).

[6] The number in parentheses represents the number of black economics faculty who were hired historically by a university as of January 2006, and who are not necessarily currently on the faculty.

[7] The total for Maryland includes past joint appointments held by Samuel Myers Jr., and the late Rhonda Williams.

[8] Black economists with endowed/named Full Professorships are Marcus Alexis (Northwestern), Donald Brown (Yale) William Darity Jr., (North Carolina), Glenn Loury (Brown), Caroline Minter-Hoxby (Harvard), and Cecilia Rouse (Princeton). In departments other than economics, Samuel Myers Jr. has a named/endowed Professorship at the University of Minnesota's Hubert H. Humphrey Institute of Public Affairs.

[9] This historical number includes the late Abram Harris who was employed at the University of Chicago in the 1950s, Donald Harris who retired from Stanford, Thomas Sowell at Cornell and UCLA, Alfred Edwards at Michigan State, and Andrew Brimmer at Michigan State. The late Phyllis Wallace, who was on the faculty at MIT-Sloan is not included as it is not clear at this time if she had a joint appointment in the department of economics.

Table 1
Black Ph.D. economists in academia as of January 1, 2006.

Name	Institution	Department/Unit	Degree Year	Alma Mater
Abera Gelan	Wisconsin-Milwaukee	Africology	1993	Wisconsin-Milwaukee
Abera Zegeye	Ball State	Economics	1977	Indiana
Abiodun Ojemakinde	Albany State	Economics	1989	Louisiana State
Abraham Z. Kidane	California State-Dominguez	Economics	1971	UCLA
Addington M. Coppin	Oakland University	Economics	1987	Illinois
Adebayo Adedeji	Congressional Budget Office	Economics	1990	Miami
Ajamu Nyomba	Clark-Atlanta	Economics	1991	Texas
Akorlie Naytep-Coo	Wisconsin-Lacrosse	Economics	1989	Northern Illinois
Albert Okunade	University of Memphis	Economics	1986	Arkansas
Alfred E. Osborne Jr.	UCLA	School of Business	1974	Stanford
Alfred Parks	Prairie View A&M	Agricultural Economics	1973	Illinois
Alvin D. Mickens	SUNY-Old Westbury	Economics	1972	New York University
Alvin E. Headen Jr.	North Carolina State	Economics	1981	MIT
Amata Diabate	Spelman College	Economics	2000	Tennessee
Amon O. Okpala	Fayetteville State	Economics	1984	Louisiana State
Andrew F. Brimmer	Massachusetts	Economics	1957	Harvard
Andrew Ikpoh	Seton Hall	Economics	1988	Columbia
Andrew Muhammad-Washington	Southern University	Economics	2000	Florida
Annan Amegbe	Morgan State	Economics	1977	Catholic University
Anne Hornsby	Spelman College	Economics	1980	Georgia State
Anthony O. Gyapong	Penn State-Abington	Economics	1984	Queens University
Anthony Yeboah	North Carolina A&T	Agricultural Economics	1981	Iowa State
Arthur T. King	Winston-Salem State	Economics	1977	Colorado
Ashagre Yigletu	Southern University	Economics	1972	Belgrade
Augustin Fosu	Economic Commission of Africa	Research	1979	Northwestern
Ayuba J. Sarki	Hampton University	Economics	1984	Georgia
Barbara A.P. Jones	Alabama A&M	Economics	1973	Georgia State
Bartholomew K. Armah	Wisconsin-Milwaukee	Africology	1990	Notre Dame
Basil G. Coley	North Carolina A&T	Economics	1971	Illinois
Bedassa A. Tadesse	Minnesota-Duluth	Economics	2003	Western Michigan
Benaiah Yongo-Bure	Kettering University	Social Sciences	1984	Dalhousie
Benjamin N. Dennis	University of the Pacific	Economics	1996	Harvard
Berhanu Abegaz	William & Mary	Economics	1982	Pennsylvania
Bernard E. Anderson	University of Pennsylvania	Wharton School	1969	University of Pennsylvania
Bernadette P. Chachere	Delgado Community College	Business Studies	1978	California
Bernice deGannes Scott	Spelman College	Economics	1989	Howard
Bichaka Fayissa	Middle Tennessee	Economics	1982	Tennessee
Brahima Coulibaly	Federal Reserve Booard	Research	2004	Michigan
Brian Cooper	SUNY-Oswego	Economics	1995	Harvard
Bridget Terry Long	Harvard	School of Education	2000	Harvard
Carlton G. Davis	Florida	Food & Resource Economics	1970	Michigan State
Caroline M. Hoxby	Harvard	Economics	1994	MIT
Cary Elliott	Congressional Budget Office	Economics	1998	Princeton
Cecilia A. Conrad	Pomona College	Economics	1982	Stanford
Cecilia E. Rouse	Princeton	Economics	1992	Harvard
Charles L. Betsey	Howard	Economics	1976	Michigan
Charlie Carter	Clark-Atlanta	Economics	1975	Illinois
Christopher Jeffries	Stillman College	Economics	1988	Florida State
Cleveland Chandler	Howard	Economics	1969	Maryland
Clifford E. Reid	Colby College	Economics	1973	Princeton
Curtis Haynes	Buffalo State	Economics	1993	Massachusetts
Cyril K. Hunte	Howard	Economics	1993	Ohio State
Dal Didia	Jackson State	Economics	1993	SUNY-Binghamton
Daniel A. Morvey	Piedmont Technical College	Economics	1994	Clemson
Darnell Cloud	Florida A&M	Economics	2000	Wisconsin-Milwaukee
Darrell J. Gaskin	Johns Hopkins	School of Public Health	1995	Johns Hopkins
Darrick Hamilton	New School University	Management & Urban Policy	1999	North Carolina
David Karemera	South Carolina State	Economics	1989	Nebraska
David Poyer	Morehouse College	Economics	1990	SUNY-Buffalo
Debra A. Lindsey	Howard	School of Business	1983	Howard
Dennis Anyamele	Jackson State	Economics	1992	Howard
Djeto Assane	Nevada-Las Vegas	Economics	1988	Colorado
Donald J. Brown	Yale	Economics	1970	Stephens Institute of Technology
Donald R. Andrews	Southern University	Economics	1980	Texas A&M
Donald R. McDowell	North Carolina A&T	Agricultural Economics	1985	Illinois
Donald Nichols	Washington University	Economics	2004	Stanford
Duran Bell	California-Irvine	Economics	1965	California
Ebenge Usip	Youngstown State	Economics	1984	Connecticut
Eboh Ezeani	University of the District of Columbia	Economics	1976	American University
Ebonya Washington	Yale	Economics	2003	MIT
Edward Kutsoati	Tufts University	Economics	1999	Queens University
Edward Montgomery	Maryland	Economics	1982	Harvard
Eiman Zein-Elabin	Franklin & Marshall College	Economics	1993	Tennessee
Elijah Brewer III	Federal Reserve Bank of Chicago	Research	1985	MIT

Table 1 (*Continued*)

Name	Institution	Department/Unit	Degree Year	Alma Mater
Elizabeth Asiedu	Kansas	Economics	1998	Illinois
Ellene Kebede	Tuskegee	Agricultural Economics	1993	Oklahoma State
Emmanuel Nnadozie	Truman State	Economics	1987	Sorbonne
Esther Wangari	Towson State	Women's Studies	1990	New School
Ethiopia Keleta	Texas Southern	Economics	1984	Rice
Fidel Ezeala-Harrison	Jackson State	Economics	1987	Manitoba
Fitzroy Lee	Tulane	Economics	1997	Georgia State
Frank Ekanem	Howard	School of Business	1974	George Washington
Gary Anderson	Federal Reserve Board	Research	1979	Harvard
Gary Hoover	Alabama	Economics	1998	Washington University
Genevieve Verdier	Texas A&M	Economics	2004	University of British Columbia
Geoffrey L. Wallace	Wisconsin	Economics	2000	Northwestern
Geoffrey Warner	Miami	Public Health	1994	CUNY
George B.N. Ayittey	American	Economics	1981	Manitoba
George H. Sherer	University of Dayton	Economics	1998	Columbia
Gerald D. Jaynes	Yale	Economics	1976	Illinois
Gerald Granderson	Miami (Ohio)	Economics	1993	North Carolina
Ghebre Keleta	Grambling	Economics	1981	Colorado State
Gladstone Hutchinson	Lafayette College	Economics	1989	Clark
Glenn C. Loury	Brown University	Economics	1976	MIT
Glenwood Ross	Morehouse College	Economics	1998	Georgia State
Gloria Bromell-Tinubu	Barber Scotia College	Economics	1986	Clemson
Gregory N. Price	Jackson State	Economics	1993	Wisconsin-Milwaukee
Harold A. Black	Tennessee	Finance	1972	Ohio State
Hugh Kelley	Indiana	Economics	1998	California-Santa Cruz
J. Vincent Eagan	Morehouse College	Economics	1986	Georgia State
Jacqueline Agesa	Marshall University	Economics	1996	Wisconsin-Milwaukee
James B. Stewart	Penn State	Labor Studies & Industrial Relations	1976	Notre Dame
James C.W. Ahiakpor	California State-Hayward	Economics	1981	Toronto
James Freeman	Wheaton College (Massachusetts)	Economics	1998	Florida State
James Peoples	Wisconsin-Milwaukee	Economics	1984	California
Jan E. Christopher	Delaware State	Economics	1993	Howard
Jean P. Benoit	New York University	Economics	1983	Stanford
Jean-Claude Assad	Jackson State	Economics	1987	Howard
Jeremiah Cotton	Massachusetts-Boston	Economics	1983	Michigan
Jessica G. Nembhard	Maryland	African-American Studies	1992	Massachusetts
John Baffoe-Bonnie	Penn State-Delaware County	Economics	1985	Dalhousie
John Handy	Morehouse College	Economics	1985	Georgia State
John Hurley	Jackson State	Economics	1971	Illinois
John Ifediora	Wisconsin-Platteville	Economics	1988	Illinois-Chicago
John M Mbaku	Weber State	Economics	1985	Georgia
Joni S. Charles	SouthWest Texas	Economics	1987	Purdue
Joseph C. Augustine	Howard	Economics	2003	Delaware
Joseph Fosu	Western Illinois	Economics	1987	Iowa State
Joseph Onochie	CUNY-Baruch	Economics	1993	New Orleans
Joyce Allen-Smith	Illinois	Agricultural Economics	1980	Illinois
Juliet Elu	Spelman College	Economics	1992	Utah
Kasaundra M. Tomlin	Oakland University	Economics	1998	Oregon
Kathleen Dorsainvil	Winston-Salem State	Economics	1992	Penn State
Kaye G. Husbands	Williams College	Economics	1990	Harvard
Kelfala Kallon	Northern Colorado	Economics	1983	Virginia
Kenneth Daniels	Virginia Commonwealth	Finance	1991	Connecticut
Kerwin Charles	Michigan	Economics	1996	Cornell
Kofi Amoateng	North Carolina Central	Economics	1986	Texas
Kofi Dompere	Howard	Economics	1980	Temple
Kofi O. Nti	University of Ghana	Economics	1977	Yale
Kwabena Gyimah-Brempong	South Florida	Economics	1981	Wayne State
Kwadwo Bawuah	Virginia State	Economics	1980	Virginia Tech
Laurel Adams	Rollins College	Economics	1993	Pennsylvania
Lauren M. Rich	University of Chicago	Chapin Hall Center for Children	1993	Michigan
Leo Upchurch	Tuskegee	Economics	1985	Michigan
Leonard Moite	California State-Dominguez	Economics	1984	UCLA
Leonard Wantchekon	New York University	Department of Politics	1995	Northwestern
Leonce Ndikumana	Massachusetts	Economics	1996	Washington University
Linda Datcher-Loury	Tufts	Economics	1978	MIT
Linwood F. Tauheed	Missouri-Kansas City	Economics	2005	Missouri-Kansas City
Lisa D. Cook	Michigan State	Economics	1997	California
Lisa Saunders	Massachusetts	Economics	1987	California
Louis A. Thomas	University of Pennsylvania	Wharton School	1992	Harvard
Lucas B. Wilson	Mount Holyoke College	Economics	1995	Massachusetts
Lynn C. Burbridge	Rutgers-Newark	Public Administration	1984	Stanford
Macleans A. Geo-Jaja	Brigham Young	Educational Leadership/Foundations	1986	Utah
Mamit Deme	Middle Tennessee	Economics	1990	Texas
Marc Cadet	Grambling	Economics	1991	Kansas State

Table 1 (*Continued*)

Marcellus Andrews	CUNY-Baruch	School of Public Affairs	1986	Yale
Marcus Alexis	Northwestern	Economics	1959	Minnesota
Maria Otoo	Federal Reserve Board	Research	1989	Georgetown
Marionette C. Holmes	Spelman	Economics	2002	Georgia
Martin Williams	Northern Illinois	Economics	1976	SUNY-Binghamton
Maury D. Granger	Jackson State	Economics	1993	Kentucky
Maxwell O. Eseonu	Virginia State	Economics	1983	Howard
McKinley Alexander	Jackson State	Economics	1986	Illinois
Melvin Stephens	Carnegie Mellon	Economics	1998	Michigan
Mesfin Bezuneh	Clark-Atlanta	Economics	1985	Virginia Tech
Michael Simmons	North Carolina A&T	Economics	1979	Washington State
Miles Finney	California State-Los Angeles	Economics	1992	Houston
Mohammed Khayum	Southern Indiana	Economics	1990	Temple
Mudziviri T. Nziramasanga	Washington State	Economics	1974	Stanford
Mwangi S. Kimenyi	Connecticut	Economics	1986	George Mason
Mwangi Wa Githinji	Gettysburg College	Economics	1997	California-Riverside
Nada Eissa	Georgetown	Public Policy	1995	Harvard
Natalie Reaves	Rowan University	Economics	1995	Wayne State
Nelson C. Modeste	Tennessee State	Economics	1976	Florida
Neville Francis	North Carolina	Economics	2001	California-San Diego
Ngina Chiteji	Skidmore College	Economics	1999	North Carolina
Nina Banks	Bucknell University	Economics	1999	Massachusetts
Nii O. Tackie	Tuskegee	Economics	1997	Auburn
Oscar T. Brookins	Northeastern	Economics	1976	SUNY-Buffalo
Osman Suliman	Millersville	Economics	1984	Indiana
Olugbenga Ajilore	University of Toledo	Economics	2002	Claremont
Pascal Ngoboka	Wisconsin-River Falls	Economics	1987	Wisconsin-Milwaukee
Patrice Gordon	Congressional Budget Office	Economics	1990	Maryland
Patricia Freeman	Jackson State	Economics	1988	Louisiana State
Patrick K. Asea	Economic Commission for Africa	Research	1994	Johns Hopkins
Patrick L. Mason	Florida State	Economics	1991	New School University
Peter B. Henry	Stanford	School of Business	1997	MIT
Philip Gayle	Kansas State	Economics	2002	Colorado
Philip N. Jefferson	Swarthmore College	Economics	1990	Virginia
Ralph Christy	Cornell	Applied Economics & Management	1980	Michigan State
Ransford Palmer	Howard University	Economics	1966	Clark University
Rapheal Bostic	Southern California	Policy, Planning & Development	1995	Harvard
Raymond Lee	Benedict College	Economics	1995	Cincinatti
Regis N'Sonde	Northeastern	School of General Studies	1999	Northeastern
Rexford Ahene	Lafayette College	Economics	1983	Wisconsin
Rhonda Gail Grass	Jackson State	Economics	1989	Howard
Rhonda Sharpe	Duke	Economics	1998	Claremont
Richard Agesa	Marshall University	Economics	1996	Wisconsin-Milwaukee
Richard Nyamwange	East Stroudsburg	Economics	1991	Fordham University
Robert D. Sinclair	Syracuse	Economics	1999	Stanford
Robert Singleton	Loyola Marymount	Economics	1983	UCLA
Robert E. Thomas	University of Florida	Department of Management	1989	Stanford
Rodney Smith	Minnesota	Applied Economics	1992	Maryland
Roger C. Williams	Morehouse College	Economics	1983	SUNY-Stony Brook
Roland Fryer	Harvard	Economics (Fellow)	2002	Pennsylvania State
Romie Tribble	Spelman College	Economics	1985	Colorado State
Ronald Ferguson	Harvard	Wiener Center for Social Policy	1981	MIT
Ronald Mincy	Columbia	School of Social Work	1987	MIT
Rucker Johnson	California	School of Public Policy	2002	Michigan
Rudolph Daniels	Florida A&M	Economics	1980	Florida State
Russell E. Williams	Wheaton College (Massachusetts)	Economics	2004	Massachusetts
Sam Q. Ziorklui	Howard	Economics	1986	Howard
Samuel K. Andoh	Southern Connecticut	Economics	1986	New York University
Samuel L. Myers Jr.	Minnesota	Hubert H. Humphrey Institute of Public Affairs	1976	MIT
Satyananda Gabriel	Mount Holyoke College	Economics	1989	Massachusetts
Seth Carpenter	Federal Reserve Board	Economics	1997	Princeton
Seymour Patterson	Truman State	Economics	1980	Oklahoma
Sharon L. Terrell	Univ. District of Columbia	Economics	1993	Notre Dame
Shelley White-Means	Tennessee	Health Sciences	1983	Northwestern
Shiferaw Gurmu	Georgia State	Economics	1992	Indiana
Sisaya Asefe	Western Michigan	Economics	1980	Iowa State
Smile Dube	Sacramento State	Economics	1989	Texas
Stanley J. Lawson	St. Johns University	Economics	1973	New York University
Susan M. Collins	Georgetown University	Economics	1984	MIT
Susan Williams McElroy	University Texas-Dallas	School of Social Sciences	1996	Stanford
Sylvain H. Boko	Wake Forest University	Economics	1996	Iowa State
Tade Okediji	Minnesota	Applied Economics	1996	Oklahoma
Tekie Fessehatzion	Morgan State	Economics	1976	Pittsburgh
Terence Agbeyegbe	CUNY-Hunter	Economics	1983	University of Essex
Tetteh A. Kofi	University of San Francisco	Economics	1970	California

Table 1 (*Continued*)

Name	Institution	Department/Unit	Degree Year	Alma Mater
Thomas D. Boston	Georgia Institute of Technology	Economics	1976	Cornell
TracyAnn Henry	Georgia Southern	Economics	2004	SUNY-Stony Brook
Trevon Logan	Ohio State	Economics	2004	California
Tsehai Alemayehu	Savannah State	Economics	1979	Kentucky
Tyrone Ferdnance	Hampton University	Economics	1999	Notre Dame
Una O. Osili	Indiana University-Purdue University-Indianapolis	Economics	1999	Northwestern
Vereda King	North Carolina A&T	Economics	1984	Duke
Vernon Dixon	Haverford	Economics	1973	Princeton
Vicki Bogan	Cornell	Applied Economics & Management	2004	Brown
Victor A. Whittaker	Morgan State	Economics	1971	Illinois
Victor I. Oguledo	Florida A&M	Economics	1989	Nebraska
Victor Ukpolo	California State-Los Angeles	Economics	1985	American University
Wayne Roy Gayle	University of Virginia	Economics	2006	Pittsburgh
Vincent R. McDonald	Howard University	Economics	1968	Maryland
W. Ernest Gibbs	University of Central Florida	Economics	1977	Rutgers
Walter E. Williams	George Mason University	Economics	1972	UCLA
Walter O. Simmons	John Carroll University	Economics	1994	Wayne State
Warren C. Whatley	Michigan	Economics	1982	Stanford
Willene Johnson	Cornell	Applied Economics	1983	Columbia
William A. Amponsah	North Carolina A&T	Economics	1991	Ohio State
William A. Darity Jr.	North Carolina	Economics	1978	MIT
William D. Bradford	University of Washington	School of Business	1972	Ohio State
William E. Jackson III	Federal Reserve Bank of Atlanta	Research	1989	Chicago
William Horrace	Syracuse	Economics	1996	Michigan State
William Rodgers	Rutgers	Planning & Public Policy	1993	Harvard
William E. Spriggs	Howard University	Economics	1984	Wisconsin
Willie J. Belton Jr.	Georgia Institute of Technology	Economics	1986	Pennsylvania State
Willis Sheftall	Morehouse College	Economics	1986	Georgia State
Winston H. Griffith	Bucknell University	Economics	1981	Howard University
Yaw Nyarko	New York University	Economics	1986	Cornell
Yilma Gebremariam	Southern Connecticut	Economics	1989	Southern California
Zelealem Yiheyis	Clark-Atlanta	Economics	1993	Manitoba

of Georgia, Louisiana State University, Tulane University, Johns Hopkins University, Mississippi State University, University of North Carolina-Greensboro, Clemson University, University of South Carolina, University of Virginia, and Virginia Polytechnic Institute, As for the District of Columbia, where black Americans account for 61 percent of the population, George Washington University has never had a black economics faculty member. Perhaps the most "vulgar" demographic disparity exists in the case of Wayne State University in Detroit, Michigan. The city of Detroit is 83 percent black, yet Wayne State currently has no black economics faculty member, and has only hired one in its history.

The underrepresentation of blacks on the economics faculties of research universities also has a parallel at the National Bureau of Economic Research (NBER) in Cambridge, Massachusetts. The NBER is a private research organization and is very influential, as it houses as faculty research associates, economics professors from elite universities, and commands a disproportionate amount of basic research resources (Feinberg and Price, 2004). As of January 2006, out of 887 NBER research associates, only 13 or approximately 1.5 percent are black American.[10] While the percentage of black economists among the NBER membership approximates their underrepresented share on the faculty of NRC-ranked economics departments, the ranks of black NBER research associates includes no black economics faculty from elite liberal arts colleges, historically black/colleges universities, or from foreign colleges/universities. Black representation at NBER also appears geographically biased, as only two black NBER research associate are on the economics faculty of a college/university below the Mason-Dixon line—a region of the country where a majority of black Americans live.

These historical and current facts all underscore the chronic and in some cases vulgar underrepresentation of blacks on the economics faculties of Ph.D. granting departments in the United States. They are also suggestive of an ongoing "color line" in the economics profession as a whole. Table 2 indicate that the median/typical Ph.D. granting economics department has *zero* blacks on its faculty. The median value of zero black faculty among the NRC-ranked economics departments follows from their rankings based on the number of black economics faculty—Table 2 is sorted on the basis of reputational rank. With respect to all the institutions that would typically hire Ph.D. economists for research and/or teaching, Table 1 reveals that as of January 1, 2006, black economists were employed in 170 institutions with either economics programs or disciplinary units that employ economists as faculty. In the U.S. as a whole, there are approximately 2228 institutions that have either economics or other degree programs that employ Ph.D. economists as faculty.[11] If we view these 2228 institutions as constituting the demand side of the market for academic economists, a stark picture of black underrepresentation emerges. Black economist employment is concentrated at approximately 8 percent of the institutions that constitute the market for academic economists—and this would be lower if one excludes the Historically Black Colleges and Universities that employ black economists. Put another way, approximately

[10] Black American NBER research associates as of January 2006 were Kerwin Charles, Susan Collins, Nada Eissa, Roland Fryer, Peter Henry, William Horrace, Caroline Minter-Hoxby, Trevon Logan, Bridget T. Long, Edward B. Montgomery, Cecilia E. Rouse, Melvin Stephens, and Ebonya L. Washington. See membership list at www.nber.org.

[11] Chris Zimmerman provides data indicating that in the continental United States, as of 1/1/06 there were 49 economics associations/societies, and 379 state/federal agencies that employ economists. There were approximately 2228 institutions that are either standard economics departments, other disciplinary units (e.g, Business), or research institutions (e.g Federal Reserve Bank, private economic research organizations) that employ economists. See http://edirc.repec.org/usa.html.

Table 2
Representation of Black Economists as of January 1, 2006 On Ph.D. Granting Economics Departments Ranked by the National Research Council.

1995 NRC Rank	Economics Department	Total faculty	Total black faculty	Percent black faculty
1	Harvard	52	1	.0192
2	University of Chicago	29	0	0.0000
3	MIT	37	0	0.0000
4	Stanford	39	0	0.0000
5	Princeton	53	1	.0188
6	Yale	53	3	.0577
7	University of California-Berkeley	59	0	0.0000
8	University of Pennsylvania	22	0	0.0000
9	Northwestern	61	1	.0164
10	Minnesota	29		0.0000
11	UCLA	48		0.0000
12	Columbia	43	0	0.0000
13	Michigan	52	2	.0385
14	Rochester	25	0	0.0000
15	University of Wisconsin-Madison	33	1	.0303
16	University of California-San Diego	37	0	0.0000
17	New York University	43	2	.0465
18	Cornell	38	0	0.0000
19	California Institute of Technology	11	0	0.0000
20	Maryland	37	1	.0270
21	Boston University	31	0	0.0000
22	Duke	36	1	.0278
23	Brown	30	1	.0333
24	Virginia	27	0	0.0000
25	University of North Carolina-Chapel Hill	30	2	.0666
26	University of Washington	27	0	0.0000
27	Michigan State	37	1	.0270
28	Illinois	39	0	0.0000
29	Washington University	21	1	.0476
30	Iowa	23	0	0.0000
31	University of Texas-Austin	36	0	0.0000
32	Johns Hopkins	13	0	0.0000
33	Texas A&M	26	1	.0385
34	Pittsburgh	26	0	0.0000
35	Ohio State	40	1	.0250
36	Iowa State	46	0	0.0000
37	Arizona	23	0	0.0000
38	University of California-Davis	26	0	0.0000
39	SUNY-Stony Brook	13	0	0.0000
40	Southern California	36	0	0.0000
41	Florida	18	0	0.0000
42	North Carolina State	28	1	.0357
43	Boston College	28	0	0.0000
44	Indiana	28	1	.0357
45	Pennsylvania State	30	0	0.0000
46	Rice	20	0	0.0000
47	George Mason	26	1	.0385
48	Vanderbilt	34	0	0.0000
49	University of California-Santa Barbara	32	0	0.0000
50	Purdue	25	0	0.0000
51	Massachusetts	24	3	.1250
52	Rutgers	30	0	0.0000
53	City University of New York	61	0	0.0000
54	Georgetown	29	1	.0345
55	Colorado	27	0	0.0000
56	Syracuse	33	2	.0606
57	Houston	25	0	0.0000
58	SUNY-Buffalo	20	0	0.0000
59	Southern Methodist	20	0	0.0000
60	Claremont	5	0	0.0000
61	Oregon	19	0	0.0000
62	Florida State	32	1	.0312
63	Georgia	18	0	0.0000
64	Kentucky	20	0	0.0000
65	South Carolina	16	0	0.0000
66	SUNY-Binghamton	21	0	0.0000
67	Arizona State	23	0	0.0000
68	George Washington	30	0	0.0000
69	Georgia State	33	1	.0303
70	Illinois-Chicago	24	0	0.0000
71	University of California-Riverside	21	0	0.0000
72	American University	23	1	.0435
73	Kansas	22	1	.0454
74	Auburn	14	0	0.0000
75	Clemson	21	0	0.0000

Table 2 (*Continued*)

1995 NRC Rank	Economics Department	Total faculty	Total black faculty	Percent black faculty
76	Wyoming	15	0	0.0000
77	Southern Illinois	10	0	0.0000
78	SUNY-Albany	20	0	0.0000
79	Tennessee	16	0	0.0000
80	Tulane	12	0	0.0000
81	Notre Dame	24	0	0.0000
82	Louisiana State	15	0	0.0000
83	Washington State	30	1	.0333
84	Connecticut	26	1	.0385
85	Hawaii-Manoa	17	0	0.0000
86	Oklahoma State	14	0	0.0000
87	Nebraska	16	0	0.0000
88	University of Wisconsin-Milwaukee	22	1	.0454
89	Lehigh	15	1	.0667
90	Utah	21	0	0.0000
91	Temple	25	0	0.0000
92	West Virginia	17	0	0.0000
93	Missouri	19	0	0.0000
94	Northern Illinois	11	1	0.0000
95	Alabama	15	1	.0667
96	Fordham	16	0	0.0000
97	Cincinnati	13	0	0.0000
98	University of Texas-Dallas	19	1	.0526
99	Howard University	16	6	.3750
100	Colorado State	17	0	0.0000
101	New Hampshire	17	0	0.0000
102	Rensselaer Polytechnic Institute	8	0	0.0000
103	Colorado School of Mines	9	0	0.0000
104	Utah State	21	0	0.0000
105	Clark University	8	0	0.0000
106	Northeastern	15	1	.0667
Total		2785	44	
Average:			.4245	.0158
Median:			0.0000	0.0000

92 percent of institutions in the U.S. that constitute the market for academic economists do not employ black Ph.D. economists.

3. Color line versus pipeline

Competing explanations have been advanced regarding the causes of the historical and contemporary near absence of black economists on the faculties of economics departments. A fundamental question is whether the ongoing underrepresentation reflect demand side factors such as discrimination in hiring, or supply side factors such as an anemic pipeline of black Americans earning economic doctorates? For all academic disciplines there is evidence suggesting that both demand and supply side factors explain the underrepresentation of black Americans on the faculty of U.S. colleges/universities. Cole and Arias (2004) for example, provide evidence showing that in the case of the disciplines that constitute the arts and sciences—which includes economics—there are simply not enough minorities with doctorates available to be hired in sufficient numbers that would reduce their underrepresentation as faculty members. Cole and Arias (2004) base such a conclusion on data from various sources, including the census and Current Population Survey, where they impute the proportion of earned doctorates by race that are likely to make themselves available for jobs in academe. In the case of black Americans, it is concluded that only 227 doctorates in the arts and science are available for faculty positions in some 3700 colleges/universities in a typical year.

On the other hand, Myers and Turner (2004) report that demand side factors explain the underrepresentation of minority faculty. With census data, they estimate a model of racial faculty shares, and find that increases in the number of black doctorates has an inelastic effect on their faculty share. This effect is true for all racial groups—including whites—but is lowest for black Americans. Myers and Turner (2004) also consider the effect of faculty wages, and find that for racial minorities, faculty representation elasticities are larger, suggesting that demand side factors such as academic salaries are more more important in explaining minority faculty underrepresentation. In tandem with the low black racial faculty share elasticity with respect to an increase in the number of black doctorates, the relatively high academic salary elasticity suggests that the underrepresentation of blacks on the faculties of U.S. colleges/universities is primarily a demand side problem. While Myers and Turner (2004) do not explicitly identify what these demand side factors are other than relatively high non-academic wages/salaries, they potentially include salary/employment discrimination whereby universities offer minority faculty lower salaries relative to non-minority faculty, and/or simply recruit minority faculty at a lower rate than non-minority faculty—conditioned on tastes for discrimination either by college/university employers and/or employees.

The data in Table 2 documenting faculty composition of economics departments by NRC rank provide an opportunity to explore the role of demand and supply side factors in faculty underrepresentation. In particular, an interesting question raised by the chronic black faculty underrepresentation evidenced in Table 2 is whether or not it reflects a pipeline problem in that there are simply too few black economics doctorates to hire, or is it a demand side "color line" problem in that U.S. colleges/universities have low demand for black Ph.D. economists as a result of say tastes for discrimination? We consider this question by taking seriously a conventional pipeline justification that attributes the small number of black Americans hired by NRC-ranked economics department to the small number of blacks earning doctorates in economics.

If indeed the underrepresentation of blacks on economics faculty reflects an inadequate supply of blacks earning economics doctorates, then the number of black economists hired in economics departments should be an increasing function of the supply of new black economic doctorates. This is the so-called pipeline explanation of black underrepresentation on economics faculty, and it informs an empirically testable relationship between the demand for black economics faculty and the supply of black economics doctorates.

We examine the demand–supply relationship between the hiring of black economics faculty and the supply of black economics doctorates on variables that measure the total number of black economics faculty hired over the period 1966–2005, and the total number of new economics doctorates earned by black Americans over the period 1966–2004. As Ph.D. granting economics departments typically do not hire their own graduates, we net out each department's own doctoral graduates from the total supply for a measure of net supply. Given the discrete nature of both hiring and doctoral completions, it is posited that over the time period under consideration, for each NRC-ranked economics department the number of black faculty hired is a realization from a Generalized Poisson distribution (Famoye and Singh, 2006; Famoye, 1993).[12] We implement a regression specification where the expected value of the number of black economists (λ_i) hired by NRC-ranked economics departments over the period 1966–2005 is a function of the net supply of new black economics doctorates over the period 1966–2004 or:

$$\ln \lambda_i = \begin{cases} \beta_0 + \beta_1 \times \text{Net Supply of New Black Economics Doctorates}, & \text{if } \alpha = 0 \\ (\beta_0 + \beta_1 \times \text{Net Supply of New Black Economics Doctorates}) \times \exp(\epsilon_i), & \text{if } \alpha \neq 0 \end{cases}$$

where β_0 is a constant, β_1 measures the effect that the net new supply of black economics doctorates has on the expected value (λ_i) of the number of black economists hired (b_i) by an NRC-ranked economics department over the 1966–2005 time period,[13] α is a dispersion parameter measuring the extent to which the mean and variance of λ_i are different, and ϵ_i is an error term. Given $E[\exp(\epsilon_i)] = 1$, the error term in the Negative Binomial specification of λ_i has a Gamma distribution (Greene, 2003).

Our count data parameter estimates will inform the extent to which black economists are underrepresented in the academic labor market. As the probability of being hired/employed is a function of λ_i, specifying λ_i as a function of the available supply of black economists informs the extent to which actual hiring corresponds to available labor supply. If for example $\beta_1 > 0$, and it is significant, an implication is that black economist hiring probabilities are not random, and are conditioned on their availability in the market—the conventional pipeline explanation. On the other hand, if β_1 is insignificant or significantly less than zero, an implication is that black economist representation is not explained by their availability in the market, and their underrepresentation is due to demand side factors—perhaps taste-based race discrimination. As such, our approach is similar to that in the literature on statistical approaches to discrimination (Piette and White, 1999; Cohen and Huffman, 2007), in which discrimination exists in a labor market if employment probabilities for a particular group are not a monotonic and increasing function of their labor supply share.[14]

For either regression specification, if $\beta_1 > 0$, then as the pipeline of black economics doctorates increases, so does $f(b_i = n|\lambda_i, \alpha)$ for $n > 0$. Of course, the decision to hire a black economist may be conditioned on factors not observed or captured in a simple specification such as one that only includes the net supply of black economists. Our simple specification of λ_i is nonetheless consistent with conventional pipeline explanations of the underrepresentation of black economics faculty, and is a plausible equilibrium relationship between the supply and demand of black academic economists. To the extent that there are unobserved and/or omitted factors that condition λ_i, estimates of β_0 and β_1 from our simple univariate specification will be biased, and the effects of the supply of black doctorates on the hiring of black economists will not be identified. We control for these possible biases, and assess parameter sensitivity/identification with Fixed Effects estimators for both the Poisson and Negative Binomial regression specifications.

The presence of excess zero observations in count data, while a natural outcome of a Generalized Poisson process, introduces overdispersion that cannot be attributed to unobserved heterogeneity, rendering a simple Negative Binomial regression specification inadequate (Greene, 2003). Parameter estimates from a either the simple Poisson and Negative Binomial specification—as well as from their Fixed Effects analogues—can also be biased if there is a preponderance of zeros. This is the case for the data on black faculty hires for the 106 NRC-ranked economics departments—74 of them did not hire any black economists during the 1966–2005 time period. If we assume that the zeros in count data are generated by two distinct processes, one that is structural and one due to sampling variability, both conditioned on covariates, count data with excess zeros can be fit to what is known as a zero-inflated generalized Poisson (ZIGP) regression model (Famoye and Singh, 2006).[15]

The ZIGP reduces to particular regression model for different values of the dispersion parameter α. When $\alpha = 0$, the ZIGP reduces to a zero-inflated Poisson (ZIP) regression model (Lambert, 1992). For $\alpha > 0$, the ZIGP reduces to a zero-inflated Negative Binomial (ZINB) regression model (Heilbron, 1994). For the ZIP and ZINB specifications, if zero observations generated by two different distributions—with one being a function of covariates called *inflators*—failing to account for the excess zeros results in upwardly

[12] Let b_i be the number n of black economists hired by economics department i, then for $n = 0, 1, 2, \ldots, N$:

$$f(b_i = n|\lambda_i, \alpha) = \left(\frac{\lambda_i}{1+\alpha\lambda_i}\right)^{b_i} \left[\frac{(1+\alpha b_i)^{b_i-1}}{b_i!}\right] \exp\left[\frac{-\lambda_i(1+\alpha b_i)}{1+\alpha\lambda_i}\right] \quad (1)$$

where λ_i is the expected value of b_i, and α is a dispersion parameter. The variance of b_i is $\lambda_i(1+\alpha\lambda)^2$ (Famoye, 1993). As Eq. (1) describes the probability distribution of b_i, particular regression models result from the value of α, and specifying the mean (λ_i) of b_i as a function of exogenous variables with unknown parameter values. When $\alpha = 0$, a Poisson regression specification results. A Negative Binomial regression specification results when $\alpha \neq 0$.

[13] In particular, our dependent variable b_i is the sum of black economists hired by an NRC-ranked economics department. This poses no problem for our specification of λ_i as from the *addition theorem* (Cramér, 1999, p. 205) the sum of independent Poisson random variables also has a Poisson distribution.

[14] In our case, the academic labor market for black economists is nondiscriminatory and fair if $\beta_1 > 0$, which would also support the conventional pipeline explanation—there are few blacks on economics faculties as a result of their supply being constrained.

[15] Given $f(b_i, |\lambda_i, \alpha)$ from (1), a ZIGP regression specification is:

$$g(b_i|x_i, z_i) = \begin{cases} \varphi_i + (1-\varphi_i)f(b_i|\lambda_i, \alpha), & \text{if } b_i = 0 \\ (1-\varphi_i)f(b_i|\lambda_i, \alpha), & \text{if } b_i > 0 \end{cases}$$

where $\lambda_i = \lambda_i(x_i)$ and $\varphi_i = \varphi_i(z_i)$ satisfy $\ln\lambda_i = \sum \beta_i x_i$ and $\text{logit}(\varphi_i) = \ln(\varphi_i[1-\varphi_i])^{-1} = \sum \beta_i z_i$. Whereas the x_i are the covariates that determine λ_i, the z_i are covariates that determine the zero observations in the two distinct states governed by probabilities φ_i and $(1-\varphi_i)$ respectively. As the z_i condition the distribution and type of zero realizations (e.g. sampling zeros with probability $(1-\varphi_i)$ and structural zeros with probability φ_i.) we can call the z_i *zero inflators*.

Table 3
Mean and standard deviation of variables.

Variable	Mean	Standard deviation
Number of black economists hired: 1966–2005	0.4245	0.8502
Net supply of new black economics doctorates: 1966–2004	515.085	6.129
Total number of faculty	26.2735	11.899
Private institution	0.3396	0.4758
National Research Council rank	53.500	30.743

Number of observations = 106. *Sources:* Data on black economists hired over the period 1966–2005 are based on augmenting the values reported in Table 2 with black economists who were either formally employed at, or retired from an NRC-ranked economics department, with the NRC rank based on that reported by Goldberger, Maher, and Flattau (NRC, 1995) Data on new black economics doctorates conferred over the period 1966–2004 for each NRC-ranked economics department were obtained from the National Science Foundation's WebCASPAR (See: www.webcaspar.nsf.gov). Total Faculty and Private Institution—-a binary variable equal to one if the economics department is a private college/university—are from Table 2.

biased parameter estimates.[16] In light of this possibility, for both the Poisson and Negative Binomial cases (e.g. $\alpha = 0$ and $\alpha > 0$), we estimate a ZIP and ZINB specification where the zero inflators are for a given economics department, total faculty, 1995 NRC rank, and whether or not it is a private institution. The basic idea here is that the process determining which regime the outcome hiring zero black economists is in—structural or sampling zeros—is a function of a an economics department's size, prestige as determined by its NRC rank, and whether or not it is a private instead of state-supported college/university.

In general, our count data model specification permits a determination of how changes in the supply of black economists affect the probability of an NRC-ranked economics hiring a black economists. The estimated coefficients measure the effect the supply of black economists have on the probability of an NRC-ranked economics department hiring a black economist. If the conventional pipeline explanation is true, then increases in the supply of black economists should increase the probability of an NRC-ranked economics department hiring a black economist. To the extent that the supply of black economists has no effect, or reduces the probability of an NRC-ranked economics department hiring a black economists, this would be consistent with black economists facing discrimination in hiring—or a color line.

Table 3 reports on the mean and standard deviation of the dependent and independent variables respectively. Over the period 1966–2005, the 106 NRC-ranked economics department hired less than one black economist—approximately .41—on their faculty. In contrast, each department faced an average net supply of approximately 515 new black economics doctorates over the period 1966–2004. While the variance in the net supply seems small, suggesting little variation across departments, the range of 48 indicates variation is sufficient enough to estimate the effect of the net supply on the hiring of black economists. Notwithstanding the small variance in the net supply of new black economics doctorates, it need not be large as long as it explains variation in the number of black economists hired. The small variance in the number of black economists hired is clearly a consequence of the fact that 74 of the NRC-ranked departments have never hired any black economists resulting in a preponderance of zeros. While zero is a

[16] More generally, as Famoye and Singh (2006) show, the mean and variance of generalized Poisson random variable in a ZIGP regression model is $E(b_i) + (1 - \varphi_i)\lambda_i$, and $\mathrm{Var}(b_i) = E(b_i)[(1 + \alpha\lambda_i)^2 + \varphi_i\lambda_i]$. Thus, if one estimates ZIP parameters on the assumption that $\varphi_i = 0$, when in fact $\varphi_i >$, the estimated mean Poisson parameter will be upwardly biased by a factor of φ_i.

Table 4
Poisson and negative binomial parameter estimates: the effects of the net supply of new black economics doctorates on the hiring of black economics faculty in NRC-ranked doctoral granting economics departments.

Specification:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regressand:	Number of Black Ph.D. Economists Hired: 1966–2005							
Regressors:								
Constant	29.84 (2.52) [a]	–	–	–	29.84 (2.75) [a]	–	–	–
Net supply of new black economics doctorates: 1966–2004	−.059 (.005) [a]	−.049 (.018) [b]	−.056 (.011) [a]	−.064 (.016) [a]	−.059 (.005) [a]	−.050 (.020) [b]	−.050 (.012) [a]	−.064 (.017) [a]
Pseudo-R^2	.103	.604	.161	.314	.073	.598	.135	.298
$\chi^2 : (\sum \beta_i X_i = 0)$	19.30 [a]	7.07 [b]	24.49 [a]	16.09 [a]	13.18 [a]	5.82 [b]	22.26 [a]	14.02 [a]
$\chi^2 : (\alpha = 0)$	–	–	–	–	.02	–	–	–
N	106	72	106	106	106	72	106	106

Standard errors in parentheses. N = Number of observations.
Notes: The estimated specifications are: (1) Simple Poisson, (2) Fixed Effects Poisson across states, (3) Fixed Effects Poisson across institutional type (Public or Private), (4) Fixed Effects Poisson across 11 NRC ranking tiers, (5) Simple Negative Binomial, (6) Fixed Effects Negative Binomial across states, (7) Fixed Effects Negative Binomial across institutional type (Public or Private), and (8) Fixed Effects Negative Binomial across 11 NRC ranking tiers. For the simple Poisson and Negative Binomial parameter estimates, robust standard errors are reported. As robust standard error calculation assumes that observations with the same observed characteristics are likely to be correlated, Fixed Effects versions are not sensible as it is assumed that observations have characteristics that we don't observe, which may be correlated. In the case of Fixed Effects across states, only 72 observations results due to 34 observations having either 1 or zero observations per state. As the (fixed) constant term varies across groupings in Fixed Effects specifications, they are not estimated except for the simple Poisson and Negative Binomialomial estimates in specifications (1) and (5) respectively. The Pseudo-R^2 measure in all cases is that of McFadden (1974), and in the case of the Fixed Effects Poisson and Negative Binomial parameter estimates, the constrained model is the simple Poisson or Negative Binomial specification with just a constant.
[a] Significant at the .01 level.
[b] Significant at the .05 level.

Table 5
Zero-inflated Poisson parameter estimates: the effects of the net supply of new black economics doctorates on the hiring of black economics faculty in NRC-ranked doctoral granting economics departments.

Specification:	(1)	(2)	(3)	(4)
Regressand:	Number of Black Ph.D. Economists Hired: 1966–2005			
Regressors:				
Constant	25.44 (4.19) [a]	24.99 (3.45) [a]	24.83 (3.54) [a]	24.44 (3.96) [a]
Net supply of new black economics doctorates: 1966–2004	−.051 (.008) [a]	−.049 (.007) [a]	−.049 (.007) [a]	−.049 (.008) [a]
Zero Inflators:				
Constant	3.89 (1.98) [b]	7.72 (3.94) [b]	14.64 (9.71)	29.33 (15.74) [c]
Total number of faculty	−.224 (.143)	−.380 (.203) [c]	−.501 (.277) [c]	−.959 (.485) [b]
Private institution	–	−3.22 (1.81) [c]	–	−5.68 (2.76) [b]
National Research Council rank	–	–	−.077 (.065)	−.141 (.116)
Pseudo-R^2	.130	.151	.153	.181
$\chi^2 : (\sum \beta_i X_i = 0)$	34.93 [a]	51.12 [a]	47.96 [a]	37.25 [a]
N	106	106	106	106

Robust standard errors in parentheses. N = Number of observations.
Notes: The variables Total Number of Faculty (as of January 1, 2006), Private Institution, and National Research Council Ranking (as of 1995), are from Table 2. The Pseudo-R^2 measure in all cases is that of McFadden (1974), and the constrained model is the Zero-Altered Poisson with just constants.
[a] Significant at the .01 level.
[b] Significant at the .05 level.
[c] Significant at the .10 level.

natural outcome of an integer-valued random variable that can be accounted for in simple Poisson and Negative Binomial regression specifications, the preponderance of zero black economist hires is an outcome well-suited to explore in ZIP and ZINB regression specifications.

Table 4 reports Poisson and Negative Binomial parameter estimates, both simple and with Fixed Effects for groupings on the states in which the economics departments are located, institution type—whether a college/university is a private or state-supported institution, and NRC ranking tiers.[17] The first four columns report Poisson parameter estimates and columns (5)–(8) report the Negative Binomial parameter estimates. Where relevant, three diagnostic measures are also reported. The explanatory adequacy of each regression is assessed with a Wald chi-square distributed test for the null hypothesis that exogenous explanatory variables have parameters that are jointly insignificant. To discriminate between the adequacy of a Poisson versus a Negative Binomial specification, a likelihood ratio chi-square distributed test for the null hypothesis $\alpha = 0$ is reported for the simple Negative Binomial parameter estimates. For all specifications, Pseudo-R^2 (McFadden, 1974) is reported as a goodness-of-fit measure.

The simple Poisson parameter estimates in column (1) indicate that the coefficient on the net new supply of black economics doctorates is negative and significant. This implies that increases in net supply of new black economics doctorates has the effect of decreasing the expected number of black economists hired by an NRC-ranked economics department. This is counter to the effect one would expect to find if the conventional pipeline explanation was true—the number of black faculty that economics departments hire would be higher if there were more blacks earning economics doctorates. The coefficient remains negative and significant for all three Fixed Effects Poisson parameter estimates in columns (2)–(4). This suggests that the estimated coefficient on the net supply of new black economics doctorates is identified, as it remains negative and significant even after controlling for unobserved effects across states, institutional type, and NRC ranking tiers. In general, all the Poisson specifications have adequate explanatory power as indicated by the Wald tests—notwithstanding the seemingly low and variable goodness-of-fit as indicated by the value of Pseudo-R^2 across the specifications.

The Negative Binomial parameter estimates in columns (5)–(8) of Table 4 are similar to the Poisson parameter estimate in columns (1)–(4). Thus, even after allowing for over dispersion (e.g. $\alpha > 0$) and unobserved effects across states, institutional type, and NRC ranking tiers, increases in the net supply of black economics doctorates still has a significant and negative effect on the number of black economists hired by an NRC-ranked economics department. The estimated Negative Binomial parameters are approximately equal to the Poisson parameters, suggesting that there is no over-dispersion. Indeed, the failure to reject the hypothesis that $\alpha = 0$ strengthens the case that the Poisson parameter estimates in columns (1)–(4) achieve identification of the effects of the net supply of black economics doctorates on the number of black economists hired by NRC-ranked economics departments.

Table 5 reports ZIP parameter estimates. As there is no evidence for over-dispersion—the hypothesis of $\alpha = 0$ could not be rejected in column (5) of Table 4—we refrain from reporting ZINB parameter estimates. The ZIP parameter estimates in Table 5 are reported across 4 specifications of our three hypothesized zero inflators—each one separately, and collectively. In general, the results indicate that the distribution of zero black economist hires is conditioned on the size of an economics department, and whether or not it is a private or state-supported college/university. In general, the significant coefficients on the zero inflators suggest that small economics departments and those in state-supported universities are more likely not to hire any black economists. While the coefficient on NRC-rank is negative, suggesting that low-ranked departments are more likely to not hire any black economists, it is insignificant. For all estimated specifications, the coefficient on the net supply of new black economics doctorates is negative and significant, and approximately similar in magnitude to its estimated values in Table 4. Thus, even after allowing for zero black hires to be conditioned on a zero inflation process—another form of over-dispersion, the effects of increases in the supply of new black economics doctorates still has a negative effect on the number of black economists hired by an NRC-ranked economics department.

Overall, the parameter estimates in Tables 4 and 5 show a remarkable lack of sensitivity to alternative specifications of the process generating the mean and variance of the dependent vari-

[17] In particular, given each economics department's 1995 NRC reputational rank, we created groupings of 11 tiers.

able, the zero observations, and unobserved heterogeneity. This suggests robustness with respect to the Poisson parameter estimates, as there is a lack of evidence for over-dispersion of the mean-variance type suggesting the Poisson parameter estimates identify the true causal effects of increases in the pipeline of new black economics doctorates. In general, the results do not support the conventional pipeline explanation of why economics departments—at least those that are NRC-ranked—have not and do not hire more black economists. If the conventional pipeline explanation were true—increases in the supply of new black economics doctorates would increase the likelihood of an NRC-ranked economics department hiring a black Ph.D. economist—our estimated coefficients would be positive and significant. Instead of a pipeline problem there appears to be a "color line" problem as our parameter estimates suggest that ceteris paribus, increases in the supply of new black economics doctorates actually reduces the likelihood of an NRC-ranked economics department hiring black economists.

To examine the practical significance of our parameter estimates, we can consider as a benchmark, the estimated ZIP parameters in Table 5. Evaluating each coefficient at the sample mean parameter values across all 4 specifications allows a determination of how many more black economists would have been hired over the sample period if economics departments had hired black economists on the basis of their availability in the supply of new economics doctorates—that is if the coefficient were positive instead of its estimated negative value.[18] For the specifications 1–4 in Table 5, the number of black economists that would have been hired are: 46.25, 82.62, 70.40, and (4) 47.67 respectively. Given that the actual number of black economists hired was 45, this suggests that black economists are underrepresented on the economics faculties of Ph.D. granting programs by at least a factor of two. Our computations suggest that there would have been between approximately 46 and 83 more black economists on the faculties of these institutions in addition to the 45 actually hired had hiring been on the basis of black economist availability in the labor market.

4. Conclusion

This paper provided an examination of the labor market for black Ph.D. economists in the United States. Disaggregated census data revealing the identity of both individuals and institutions are reported providing detailed insights into the distribution of employment for black Ph.D. economists, both historically and currently. An examination of the data reveals that approximately 103 years after Du Bois observed a "color line" in the opportunity structures in the United States, it apparently still exists in academic labor markets. Black American Ph.D. economists are chronically, and in many cases vulgarly underrepresented on the economics faculties of Ph.D. granting economics departments in the United States.

We also examined the so-called conventional pipeline explanation for the historic and ongoing underrepresentation of black Ph.D. economists on the faculties of economics departments. Parameter estimates from a demand–supply relationship between black economist hirings by Ph.D. granting economics departments and the supply of new black economics doctorates are provided which fails to support the conventional pipeline explanation. Our results suggest that black economists in the U.S. are underrepresented on economics faculties—at least by a factor of 2—in the sense that their employment share on economics faculties does not correspond with their labor supply share in a way consistent with equal opportunity. In particular, we find that increases in the supply of new black economics doctorates has the effect of decreasing the probability of a Ph.D. granting economics department hiring black Ph.D. economists.[19] If indeed economics departments hire on the basis of available supply, and have no biases, one would expect the employment prospects of black economists to increase when their share of the available labor supply increases. Instead of a pipeline problem, our results are consistent with black underrepresentation on economics faculties being a "color line" problem in that race appears to be the employment barrier.

Two of our findings have implications about the extent to which the Civil Rights Act of 1964 is enforced among institutions that typically hire Ph.D. economists. We find for example, that the hiring of black economics faculty responds negatively to the supply of new black economics doctorates, and 92 percent of the institutions in the U.S. that could hire black Ph.D. economists have not. This suggests that Title VII of the Civil Rights Act, which prohibits employment discrimination on the basis of race, is not enforced among institutions that typically hire Ph.D. economists for research and/or teaching jobs. In this context, improvement in labor market outcomes for black Ph.D. economists may require better enforcement of Civil Rights laws and closer monitoring of employment practices among institutions in the U.S. that typically hire Ph.D. economists for research and/or teaching.

As for limitations, our empirical Poisson and Negative Binomial specification of the demand–supply relationship between black economist hirings and the supply of new black economics doctorates implicitly assumed that each economics department had a Ph.D. program over the entire 1966–2005 time period. As such, our parameter estimates assume equal exposure time. As this is not true, and we were unable to determine the genesis of the Ph.D. program in our sample, the assumption of equal exposure time could impart some bias to our parameter estimates (Reade-Christopher and Kupper, 1991). However, to the extent that these unobserved exposure times introduce a heterogeneity that is controlled for in our Fixed Effects parameter estimates, we are confident that we have identified the causal effect of an increase in the supply of new black economics doctorates on the hiring of black economists by Ph.D. granting economics departments.

While our results suggest black Americans are subject to discriminatory treatment in the U.S. labor market for academic economists, it could be that case that Ph.D. granting economics departments in the U.S. discriminate against economics doctorates from low-quality institutions, and relative to other racial/ethnic groups, blacks are more likely to earn doctorates from institutions ranked lower in quality. As our net supply measure controls for Ph.D. quality, that the parameter estimates in Tables 4 and 5 are con-

[18] This is a characterization of the hiring process if the conventional pipeline explanation is true—black economist hiring is proportional to their availability in the relevant labor market—new economics doctorates for example. The estimated parameter values in Tables 4 and 5 all reveal the coefficient on β_1 to be negative, implying that increases in the net supply of new black economics doctorates reduces the log of the expected number of black economists hired by economics faculties over the 1966–2005 period. If economics departments hired black faculty on the basis of their availability in the market, the coefficient on the net supply variable would be positive. Thus, evaluating the expected value of the number of black economists hired at the mean number of new black doctorates over 1966–2004 provides an estimate of how many black economists *would have been hired* if the conventional pipeline explanation were valid—or if economics departments were nondiscriminatory and hired economists on the basis of their availability. Computationally, estimating this proceeds by exponentiating each estimate in Table 5 and multiplying it times the sample size–which is an estimate of the number of black economists that would have been hired if economics departments hired on the basis of black economist availability in the labor supply.

[19] Price (2008) provides an example of this type of underrepresentation. Over the 1993–2004 time period, black Americans earned 3.8 percent of all economics doctorates whereas black faculty employment shares on economics faculties programs were 1.9 percent.

sistently negative suggest that any mismatches between the quality of the Ph.D. program from which a black Ph.D. economist graduates and the NRC rank of the economics department in the market for new faculty hires does not bias our parameter estimates.

Could our finding of black underrepresentation on Ph.D. granting economics faculties reflect a taste among black economists for heterodox research that is not valued among so-called mainstream orthodox economics departments? We do not think so if one considers the current representation of black economists on the full-time faculties of so-called heterodox Ph.D. granting economics department. As of September 2008, of the 134 economists on the faculties of Ph.D. granting heterodox economics department, 3 or approximately 2.2 percent were black.[20] The 3 black economists on these faculties were all at one institution—the University of Massachusetts-Amherst. Given such skewness in the representation of black economists on the faculties of heterodox economics departments, based on the median the typical heterodox economics department employed zero black economists. As this is a pattern of black representation virtually identical to that of orthodox economics departments, it does not appear that any tendency for black economists to prefer heterodox research programs can explain their underrepresentation on Ph.D. granting economics faculties in general.

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[20] Graduate economics programs recognized as heterodox are: American University, Colorado State University, New School University, University of California-Riverside, University of Massachusetts-Amherst, University of Missouri-Kansas City, University of Notre Dame, and University of Utah. Faculty counts were obtained from departmental webpages.