OPPORTUNITIES AND STATUS OF BLACKS IN THE AGRICULTURAL ECONOMICS PROFESSION

Occasional Paper No. 4

American Agricultural

Economics Association

June 1986

OPPORTUNITIES AND STATUS OF BLACKS IN THE AGRICULTURAL ECONOMICS PROFESSION

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A Report Based on a Study Sponsored by the

AMERICAN AGRICULTURAL ECONOMICS ASSOCIATION

and funded in part by the

Ford Foundation and Farm Foundation

JUNE 1986

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FOREWORD

This special report on the status of Blacks in the agricultural economics profession represents the culmination of five years of effort. The process of completing this document has accomplished two important goals: (1) development of a knowledge based on the realities of the labor market for black agricultural economists in the United States, and (2) fuller participation of black agricultural economists in the activities of the American Agricultural Economics Association (AAEA) as writers of papers for the professional journal, speakers at the AAEA annual meeting, and as members of national committees, among other types of involvement.

Prior to 1980, black agricultural economists were rarely invited to present papers at professional meetings of the AAEA and they were noticeably absent from the full range of activities of their national professional association. Many of these Blacks were faculty members at predominantly black universities in the South, known widely as the 1890 schools, as distinct from the 1862 Land Grant Universities. Admittedly, part of the problem of underrepresentation stemmed from the relatively small number of professional black agricultural economists. Black agricultural economists tend also to have a higher proportion with Masters' degrees as the highest earned degree, a factor which mitigated against heavy involvement in AAEA activities.

In 1980, the AAEA Executive Board, under the leadership of President Luther Tweeten, authorized the first Committee on the Status and Opportunities for Blacks in Agricultural Economics. President Tweeten appointed an Ad Hoc Committee in September of 1980 and charged the committee with the task of determining the opportunities, role and status of Blacks in agricultural economics. Each of the subsequent AAEA Boards and Presidents provided strong support for the accomplishment of the objectives of the committee. An abbreviated chronology of the significant steps of AAEA leadership toward the completion of the initial committee charge includes the following:

- AAEA Executive Board created an Ad Hoc Committee on Blacks in Agricultural Economics, August 1980 AAEA Meeting.

- AAEA President Luther Tweeten appointed Ad Hoc Committee members, September 15, 1980.

- Ad Hoc Committee met at the Southern Agricultural Economics meeting to discuss research strategies, February 4, 1981.

- Committee member Carlton G. Davis developed a draft research proposal to accomplish their objectives using survey research, February 1981. Committee members refined research proposal, 1981-1982.

- Executive AAEA Board and President G. Edward Schuh upgraded committee from Ad Hoc to Special Committee Status, August 1982. Partial funding of this research project was obtained from Farm Foundation ($4,000) and the AAEA ($8,000).

- Executive AAEA Board and President Leo C. Polopolus obtained grant of $12,000 from the Ford Foundation to complete funding package of $24,000 to begin survey research, September 1982. In November 1982,

an invited paper proposal is approved for the 1983 AAEA meetings at Purdue University. Three journal articles and one discussion paper regarding preliminary findings of the research were published in the December 1983 issue of the American Journal of Agricultural Economics.

- Professor Neil E. Harl provided continuous service to the committee as first AAEA Board representative and then later as President of AAEA.

- Executive AAEA Presidents C. B. Baker, N.E. Harl, and W. G. Tomek approved Committee proposal for a Symposium on the "Needs and Strategies for Improving the Status of Blacks in the Agricultural Economics Profession", March 1985. The Symposium was held at the AAEA meetings in August of 1985.

This special report provides the panaromic account of the status and role of Blacks in agricultural economics. It expands upon the preliminary discussions at the 1983 AAEA meetings at Purdue University by including additional data analysis and policy implications of the survey research. This document also contributes to the limited, albeit, growing stock of academic literature on the labor market for minorities in professional fields. Moreover, this comprehensive document provides the foundation for subsequent dialogue and debate regarding future policies and actions of individuals and professional associations, such as AAEA.

A special note of gratitude is expressed to the pioneering groups of black agricultural economists who have carried out the inquiry as to the who, what, why, when, and where of Blacks in the profession; Sidney H. Evans and Richard D. Robbins of North Carolina A&T State University, Joyce E. Allen of the Economic Research Service, USDA, Carlton G. Davis of the University of Florida, Leroy Davis and DeWitt Jones of Southern University, Alfred L. Parks of Prairie View A&M University, and Mack C. Nelson of Fort Valley State College. They have individually and collectively added to our understanding of the subtleties and concerns of the present labor market for black agricultural economists, as well as a notion of future opportunities. Hopefully, their efforts will lead to equal status for future generations of black agricultural economists.

Leo C. Polopolus
Past President
American Agricultural
Economics Association,
1982 - 83

ACKNOWLEDGEMENTS

The Committee on Opportunities and Status of Blacks in Agricultural Economics extends its appreciation to the AAEA Board of Directors and the Presidents of the Association for their support of this research project and other activities of the Committee. Special appreciation is extended to the Ford Foundation and the Farm Foundation and the AAEA for their generous contributions to this project. The Committee also extends a deep gratitude to all the individuals, departments and agencies who took time to respond to the questionnaire. A special thanks is due to reviewers of the document. The Committee, however, bears responsibility for any errors or deficiencies in the report.

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CHAPTER I

INTRODUCTION

Background

Traditionally, the agricultural economics profession has been dominated by white males. In recent years, however, the American Agricultural Economics Association (AAEA) has registered increased sensitivity to minority representation in agricultural economics. This awareness, although long in coming, is appropriate for the profession since the AAEA occupies a strategic and pivotal position between the production oriented agricultural sciences and the social sciences within the land grant complex. Recent interest and activities of the Association in minority related issues can be traced back more than a decade. Concern regarding the manpower characteristics of black agricultural economists was expressed by Hathaway in his 1969 presidential address to AAEA. He argued that it was ironic that so few of the resources controlled by economists have been allocated to recruit and train young people in economics who are from disadvantaged groups, particularly since economists have emphasized resource allocation. As policy analysts, economists have long described the inadequate resources allocated to educating the disadvantaged in our society. Hathaway (1969, p. 1015) further contended that "it is imperative that we should move rapidly to meet these demands with new resources and new concepts, much as we have done in training foreign students".

At the joint American Agricultural Economics Association/ Canadian Agricultural Economics Society/ Western Agricultural Economics Society Meeting held at Edmonton, Alberta, Canada in 1973, a section was devoted to "Minority Problems and Agriculture". Over the years, dialogue has continued and the interest of the Association has extended beyond the general problems of minorities to labor market characteristics of Blacks within the agricultural economics profession.

Recent interest of the AAEA in Blacks within the profession has been further demonstrated in a nondiscrimination resolution passed and inserted into the association's policy manual in 1980 (AAEA, p. 1143). Moreover, the president of the AAEA appointed an Ad Hoc Committe in 1980 and charged it with the responsibility of analyzing the "opportunities, role, and status of blacks in agricultural economics". This report summarizes the committee's findings.

Statement of the Problem

Historically, employment opportunities for Blacks trained at the M.S. and Ph.D. levels in agricultural economics have been limited. These opportunities were limited to a great extent to predominantly black land grant institutions. Following World War II, a small number of Blacks obtained graduate degrees in agricultural economics and formed what could be called "one man departments" in the 1890 institutions. These departments grew virtually at a zero rate for a number of reasons, including the lack of demand for students by graduate schools and employers, and the lack of funds and activities other than teaching. Research and extension were virtually non-existent in most of these institutions. For the most part, Departments of Agricultural Economics existed primarily as service units for other departments within colleges of agriculture and

produced very few graduates in the area of agricultural economics.

Many studies have documented that few black students study agricultural economics. Davis (1973) using survey data found that of a total of 5,271 students enrolled in agricultural economics programs, only 178 or 3.4 percent were Black. Eight or 4.5 percent of the Blacks were enrolled in Ph.D. programs, compared to 13.7 percent of non-Blacks. A National Research Council (1978) survey of earned doctorates during the period 1973 to 1976, showed that only five permanent[1] U.S. Blacks, compared to 353 permanent U.S. Whites, earned the doctorate degree in agricultural economics. From 1977 to 1982, 21 Blacks and 484 Whites earned doctorates in agricultural economics (NSF, 1983).

Data from the National Science Foundation (NSF) showed that as of 1982 the number of black scientists, including agricultural economists, was far below parity with respect to the non-Black population (NSF, 1984). According to these data, Blacks constituted only 3.1 percent of all scientists and black economists represented 3.8 percent of all economists. These NSF figures did not make a distinction between the various types of economists. There are reasons to believe, however, that the proportion of black agricultural economists is less than that for all economists. Davis and Allen (1983), reported that Blacks constituted 1.8 percent of all agricultural economists in 1982.

Demand and Supply for Black Agricultural Scientists

Relative to the growing demand, serious concern has been expressed over the shortage of black agricultural scientists with advanced training. This concern was voiced over a decade ago at a 1972 conference of selected personnel of the 1890 and 1862 Land Grant Colleges and other organizations concerned with agricultural research and extension programs in the southern region. Agricultural economics is one area where the demand is greatly in excess of supply, particularly at the post-baccalaureate level (Southern Regional Education Board, 1972). The demand for black agricultural scientists can be explained by economic theory. Factor demand theory asserts that the marginal value productivity of a factor (black scientist) defines its demand. Factor demand is in turn "derived" from the demand for the product. In the case of black agricultural economists, the product would likely take the form of: (1) problem solving research competence, (2) effective teaching and extension related activities, and (3) administrative and consultative functions. The demand for such professionals with advanced training has increased significantly in the last two decades. Expansion in demand is attributed to factors such as: (1) an increase in the marginal productivity of the factor as a result of more highly qualified black agricultural economists, and (2) an increase in the demand for services performed by such scientists. The latter is, in large part, due to the reduction in barriers to equal employment opportunities and the desire to achieve some degree of equality between black and white professional agricultural scientists.

A number of institutional factors are also associated with the increased demand for black agricultural scientists, including agricultural economists, with advance training. One major factor is the opening of additional employment

[1] Permanent means U.S. citizens or permanent residents.

opportunities in the agri-business sectors of private industry via equal employment and affirmative action policies. In addition, there is an increasing demand for such professionals by private and public agencies involved in agricultural development work in Africa and other lesser developed areas. In particular, black agricultural economists with M.S. and Ph.D. level training are underrepresented in the agricultural economics profession, and are far below the requirements to meet the demand for available positions in the discipline. The problem is particularly acute at the Ph.D. level and raises among others, the following questions:

1. Are there disincentives for Blacks, compared to non-Blacks to pursue agricultural economics careers?

2. Are there disincentives for Blacks in agricultural economics to continue to the Ph.D. level, compared to non-Blacks?

The relatively small number of black Americans with recent degrees in agricultural economics has meant that the major way for employing agencies to hire Blacks has been to attract professionals from other agencies. This behavior leads to a zero sum game. In particular, academic institutions as major employers of agricultural economists must compete with other agencies for the limited pool of black agricultural economists.

Objectives and Hypotheses

The objectives and hypotheses of the study are as follows:

Objective 1:

To assess the general characteristics of black Americans within the agricultural economics profession and to determine any uniqueness in the status of black agricultural economists.

Hypotheses relating to Objective 1:

1. Proportionately, black Americans are less likely to have terminal degrees in agricultural economics than white Americans and this is related to the following factors:
   a. The lack of undergraduate and graduate programs in agricultural economics at predominantly black institutions.
   b. Existence of barriers to entry of Blacks to agricultural economics graduate programs at 1862 institutions.
   c. The relatively high transfer costs of training for Blacks in good agricultural economics programs outside the South.

2. Black agricultural economists with advanced degrees are concentrated at predominantly black institutions because of the following factors:
   a. The institution where the first degree was received by Blacks is a major determinant of the locational preference of black agricultural economists after receiving higher degrees.
   b. Entry level salaries for black agricultural economists at predominantly black institutions are competitive with salaries at other institutions.
   c. The differences in job responsibilities of agricultural economists at predominantly black and white institutions result in limited mobility between the types of institutions.

Objective 2:

To assess university commitment to graduate training of black agricul-

tural economists and determine factors that affect the demand and supply of black agricultural economists.

Hypotheses relating to Objective 2:

1. No significant differences exist between the fields of concentration in agricultural economics selected by black and white students at the graduate level.

2. The range of specialized employment options in education, government, and private business is narrower for black agricultural economists than for white agricultural economists.

3. Employment opportunities for black agricultural economists at predominantly white institutions have not changed significantly during the past twenty years.

4. Attrition rates for Blacks enrolled in predominantly White agricultural economics graduate programs are significantly higher than for Whites.

5. Conventional wisdom within the profession regarding the magnitude of excess demand for highly qualified black agricultural economists is illusory.

6. The supply for black agricultural economists is relatively inelastic and demand is relatively elastic.

Organization of the Report

This report encompasses the third phase of the AAEA project. Phase one of the project was reported at the August, 1983 AAEA meeting. Three papers were presented at that meeting and were published in the American Journal of Agricultural Economics, Vol. 65 (Dec., 1983) pp. 981-998. The papers presented at that meeting were primarily preliminary but provided background information, both theoretical and descriptive, of the current status of Blacks in the agricultural economics profession.

Phase two of the project was reported at the August, 1985 AAEA meetings held at Iowa State University. Five papers were presented at the symposium on "Needs and Strategies for Improving the Status of Blacks in the Agricultural Economics Profession." The papers addressed issues in educational attainment of black agricultural economists, and barriers to advancement.

This report is divided into five chapters; Chapter II presents the theoretical issues and conceptual framework of Blacks in the labor market context. Chapter III provides a descriptive overview of Blacks within the agricultural economics profession. Chapter IV treats primarily those data that lend themselves to statistical analysis. Chapter V integrates the preceding sections and provides a summary, conclusions, and policy implications.

CHAPTER II

THEORETICAL ISSUES

There is unanimity among labor economists that the labor market prospects of participants depend very much on the participants' characteristics. In the United States, the basic dividing line between labor market participants is between male and female workers on the one hand, and between black and white workers on the other (Reynolds, 1974).

The primary areas of concern in this study are those relating to the status of Blacks within the agricultural economics profession. Conceptually, the labor market for black agricultural economists can be examined within the framework of alternative economic paradigms. By definition, a paradigm is a practical example which illustrates an abstract principle. As such, its intrinsic property is the correspondence between theory and praxis (Piore, 1983). Questions relating to agricultural economics labor market paradigms must address the correspondence between the mode of this area of economic research and the practice of conventional economic theory. Piore (1983, p. 249) argues that any disjunction between what constitutes a legitimate mode of economic inquiry or plausible explanation of economic phenomenon will create the potential for a scientific revolution in the discipline.

The aforementioned property of economic paradigms has important implications for assessment of the labor market prospects of black agricultural economists. One implication is that meaningful conceptual structures are those that recognize observable labor market practices as they affect Blacks in the agricultural economics profession. In other words, economic paradigms that fail to recognize the correspondence between labor market structure, conduct, and performance as they might impact black professionals, are unlikely to advance understanding of the problems and key issues. To varying degrees, the alternative paradigms discussed in the following section meet the two functional tests of an economic model: descriptiveness and predictiveness. That is, they attempt to offer an accurate picture of the economic relationships in question, while also making reasonably correct forecasts.

Overview of Economic Theories of Earnings

Many theories have been developed to explain black-white occupational and earnings differentials. These differentials have been found to be large and persistent in both adult males and females, in youth, and in all regions of the United States (Becker, 1971, 1975; Reynolds, 1974; Mincer, 1974; Thurow, 1969; Schultz, 1961; Smith and Welch, 1977). The most widely accepted economic theory of black-white earnings is the neoclassical human capital theory. This theory attributes black-white employment differentials and/or prospects to (a) differences in productivity, and (b) subordination of Blacks by limitation of their socioeconomic opportunities (discrimination). An underlying assumption of the human capital theory is that the process of acquiring skills is under the control of the individual and that it is costly to acquire those skills (Duncan, 1984, p. 106).

In contrast, segmented labor market theories assert that earnings are determined largely by the labor market in which an individual works. Thus, these theories emphasize the characteristics of jobs and job

markets and not the skills (human capital) of the individual worker (Hoffman, 1979 p. 857). Alternative theories of black-white earnings differentials such as the dual (primary, secondary) labor market theory, the "job competition" theory, and the "radical" theory have been developed within the segmented labor market framework.[2]

In this chapter, we briefly review the human capital and seggmented labor market paradigms in terms of their relevance to the status and opportunities of Blacks in the agricultural economics profession. Then we summarize studies that provide empirical tests of those theories, emphasizing the studies that examined the agricultural economics labor market. Given the paucity of a formalized and empirically tested body of literature on the segmented labor market theories, the focus is on the dual labor market theory. This theory is the most prominent and rigorously tested of all segmented labor market theories.

Human Capital Theory

Human capital theorists contend that earnings are a function of productivity which, in turn, depend on the worker's investment in schooling and on-the-job training. The investment decision reflects both the explicit and implicit costs of acquiring skills (i.e., schooling and/or training) and the number of years over which the returns to the investment can be accured.

Human Capital Accumulation

In terms of black-white earnings and occupational differences, the relevant issue is whether the parameters of the human capital model vary significantly by race (Hoffman, 1979 p. 856). Studies show that Blacks have real opportunity costs of human capital accumulation that are different from Whites. Data from the 1960s suggest that not only are Blacks' returns to education lower than for Whites, but they decrease relative to the white rate of return with increasing years of schooling. More recent studies indicate that returns to education for Blacks educated in the 1950s and 1960s increased sharply at all educational levels, but still remain low relative to Whites. Welch (1973) hypothesizes that this trend is due to a vintage effect, since the more recent black entrants to the labor force have higher quality of schooling than those who entered earlier[3]. Alexis and Medoff (1982) hypothesize that the trends simply reflect the life cycle pattern of human capital accumulation. They argue that during schooling, individuals forego potential earnings and acquire educational human capital. Individuals also compare the costs and benefits of additional human capital investment.

Since Blacks have less capital than Whites and restricted access to low cost funds, their investment costs are greater than those of Whites. Thus, Blacks would be expected to devote a smaller portion of their potential earnings to the accumulation of additional human

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[2] For a discussion of the various segmented labor market theories, see the discussion by Cain, (1973, 1976).

[3] Vintage or cohort effects refer to the differences resulting from the various socio-economic conditions prevalent during a person's life cycle. For example, earnings differentials between older black and white workers may indicate long lasting effects of economic conditions existing when they were born or effects of market discrimination that existed when they entered the labor market (Duncan, 1984).

capital. As such, it can be expected that over time the stocks of black human capital would grow more slowly (or decline more rapidly) than the stocks of white human capital. The increase in the relative returns from education for Blacks in more recent times may reflect, among other things, the vintage and life cycle effects of human capital accumulation (Alexis and Modoff, 1982). These effects are directly related to supply and demand characteristics for black human capital.

Discrimination

Some proponents of the human capital model suggest that the acquisition and monetary value of human capital may be affected by discrimination, nepotism, and changing labor market opportunities (Duncan, 1984 p. 47). For example, Thurow (1969) concluded that lower human capital investment of Blacks is the result of labor market discrimination.

The basic conceptual structure of a simplified labor market discrimination model within the human capital framework includes, (a) a "discrimination coefficient", or "taste for discrimination" in labor market transactions, (b) two sector "trade" between black and white labor force participants, and (c) job reserving (crowding) in occupational categories (Becker, 1971; Reynolds, 1974; Smith and Welch, 1977; Reich, 1971). The concept of the theoretical discrimination coefficient is used to assign a monetary value to the discrimination endured by Blacks in labor market transactions. A high discrimination coefficient reduces the income potential of Blacks relative to Whites. Also, given a higher level of capital ownership by Whites, some black labor would be hired by Whites to work with this large capital stock. This type of labor employment is represented as a trade flow between the black and white sectors of the labor force. However, in the presence of labor market discrimination fewer Blacks are hired by Whites than would have been in the absence of discrimination. Blacks, who in general are unable to find employment in the relatively capital abundant white sector, experience disparity in income, since a correspondingly lower wage will be paid to their capital-constrained contribution to production. Finally, the accumulated effects of discrimination are manifested in the observable phonomenon of job reserving or "crowding" of Blacks into occupational categories with lower median income than those of Whites. Hence, persistent and large income differentials would tend to exist between Blacks and Whites.

Implications of the Human Capital Model

Critical assessment of the policy dimension of the human capital models must explicitly recognize correspondence between black-white employment disparities, racial productivity differences, and labor market discrimination. To the extent that past discrimination affects the distribution of productivity characteistics, treating current distributions as exogenous understates the impact of total discrimination on employment differentials between Blacks and Whites (Alexis and Modoff, 1982). According to Ashenfelter and Taussig (1971), estimates of the effects of productivity and discrimination on black-white employment differentials must be addressed whithin the context of simultaneity and time lags in decision-making. Discrimination has an interactive impact on the stocks of human capital and this interaction is generally not taken into account when returns to current black-white human capital stocks are

estimated. If the accumulation of human capital stocks (education) is treated as intermediate inputs available for production of a final product, then these inputs must be treated as endogenous factors having real opportunity costs (Plant and Welch, 1982).

Within the context of this study, an important theoretical issue relating to the employment prospects of black agricultural economists is the possibility of correspondence between their accumulated human capital stocks, labor market discriminatory practices, and their underrepresentation in the agricultural economics profession. Davis and Allen (1983) presented empirical evidence showing that Blacks are underrepresented in the agricultural economics profession relative to their proportion in the general population. Furthermore, they present evidence indicating that (a) there is a relatively small number of black Ph.D. level professionals in the discipline, and (b) there is a concentration of black professionals at predominantly black educational institutions. These findings raised a number of questions. To what extent are the labor market characteristics of black agricultural economists a reflection of the interactive effects of human capital differences and discriminatory practices? To what extent are these factors manifested in what might be viewed as job reserving in the agricultural economics profession, particularly among educational institutions? Furthermore, if job reserving exists for black professions in the discipline, is such a phenomenon taking place through the mechanism of segregated markets, with black professionals primarily restricted to institutions serving predominantly black clients? These questions will be addressed in the following chapters.

Segmented Labor Market Theory

Labor market segmentation theories such as the dual labor market model assert that the labor market is divided into two sectors with limited work mobility between the sectors. Primary sector jobs are commonly characterized as "jobs with a future" implying steady employment, high wages, and "good" promotion opportunities (Hoffman, 1979; Duncan, 1984). According to proponents of this hypothesis, these jobs have evolved in stable, high-wage industries via a formalized set of rules and practices that established a separate market for those individuals already employed. In contrast, jobs in the secondary sector are referred to as "dead-end jobs". These jobs may be characterized as follows: low wages, poor working conditions, high turnover, limited advancement opportunities, and arbitrary supervision (Duncan, 1984).

One hypothesis of the dual labor market theory is that Blacks are disproportionately concentrated in the secondary sector relative to their skills because of labor market discrimination. Furthermore, it is agrued that Blacks who can find employment in the primary sector face discrimination in promotion (Hoffman, 1979).

An important concern in this study is whether labor market segmentation paradigms as descriptive and predictive constructs can further our understanding of Black-White employment disparities, in spite of their conflicts with neoclassical economic theory. To address this issue, it is important to identify the areas of agreement and conflict to the two alternative paradigms and to review empirical tests of these paradigms as they pertain to the agricultural economists' labor market.

Human Capital Versus Segmented Labor Market Models

Segmented labor market models are generally contrasted with the neoclassical human capital explanation of employment disparities among labor force participants. However, there are some similarities between the two models. On-the-job training plays a key role in both models although dual labor market theorists intepret it differently from human capital theorists. Proponents of the dual labor market model believe that "training is largely a matter of technological determinism which influences the design of all jobs so that any given job will involve some specified amount and period of training" (Duncan, 1984 p. 108). Dual labor market theorists emphasize that human capital accumulation on the job is determined by the jobs to which a worker gains access. They go on to assert that access to jobs with a future (i.e., primary sector jobs) is limited for Blacks because of labor market discrimination (Duncan, 1984).

Further, not all segmented labor market models are necessarily in conflict with the human capital approach. Piore (1983) points out that the neoclassical human capital approach does recognize labor market segmentation for various demographic groups and associated income disparities. However, in the neoclassical framework labor segmentation is based on the precept of (a) discontinuities between labor force attachment of demographic groups and (b) continuous variability in labor demand across industrial and occupational categories. However, segmented labor market models that incorporate the dual labor market paradigm are not well accepted by neoclassical economists. This antagonism with conventional economics stems from the labor market segmentation concept of internal labor market which reflects institutional imperfections in the market place. These institutional imperfections allegedly give rise to market place behavior (job allocation and pricing) that are not linked to rational instrumental behavior or to competitive forces (Piore, 1983). Within such a framework, the importance of human capital in determining wage rates and job opportunities is heavily discounted (Huffman, 1984). This discounting is based on the notion of institutional abridgement of competitive forces in the market place. It is argued that competitive abridgement introduces discontinuities and heterogeneity in labor force characteristics that are unrelated in human capital stock.

Labor market segmentation models assert that behavior differs systematically across market strata. In constrast, conventional theory assumes that all labor force participants are rational and that their labor market behavior is instrumental. Piore (1983) argues that this assumption implies that the internal rules of firms and the internal philosophy of individuals are (a) stable and (b) constrained by the external labor market. He argues that under these assumptions, that neoclassical model is based on the principle that those phenomena explaining the behavior of general labor markets will also explain internal labor markets.

Proponents of the labor market segmentation explanation argue that in large areas of the labor market, (a) individual internal psychology is unstable and (b) internal market behavior is not tightly constrained by the external environment (Piore, 1983). Under these conditions "institutional imperfections" exist. Furthermore, these institutional imperfections arise from social pheonmena rather than individual phenomena. Conventional theory does not adequately address market imperfections stemming from social

phenomena. Becker's (1975) theory of nonmarket processes is an attempt by conventional theorists to deal with these issues.

The labor market segmentation paradigms would suggest observable black-white employment disparities. For example, if some of the phenomena governing the labor market prospects of black agricultural economists are social, as opposed to competitive, then knowledge of these phenomena would facilitate the development of viable policy instruments. In this regard, one might ask whether the concentration of black agricultural economists at predominantly black institutions is the result of institutional phenomena (Davis and Allen, 1983). Is it possible that job reserving exists within the agricultural economics profession, particularly within the academic labor market and that the reserving mechanism operates through institutionalized segregated markets, such as 1890 and 1862 land-grant institutions? Empirical research is needed to answer such a question. However, if meaningful answers are to emerge from the labor market segmentation models, fundamental changes will have to occur in the approach. First, the approach will have to eliminate some of its historical political baggage that has been a major source of conflict with conventional economic theory. Second, there must be articulated structural links between social behavior and individual behavior (Piore, 1983). Third, paradigms will have to be tested empirically.

Empirical Studies of Earnings Differentials

Duncan (1984) and Hoffman (1979) argue that it is quite difficult to empirically distinguish between the two parameters of the human capital model (i.e. educational or skill differences and discrimination) or between the human capital and the dual labor market theories, especially with cross-sectional data.[4] Duncan bases his assertion on the fact that data for on-the-job training, a key factor in the human capital explanation, are generally unavailable. Moreover, lack of consensus in determining whether jobs are primary or secondary has affected empirical testing of the dual labor market theory (Duncan, 1984). According to Hoffman (1979, p. 857), the problem in empirically testing alternative paradigms of black-white earnings differentials is "that only the outcome (an experience-earnings profile) rather than the postulated underlying processes (investment in on-the-job training or the mechanisms of occupational segregation) are directly observable."

In recent years, several studies have analyzed black-white earnings differentials. This section reviews those studies relating directly to the agricultural economists' labor market. In general, empirical studies of the dual market model have found no evidence to support this model (Duncan, 1984; Leigh, 1976). However, we could not find any studies that applied the dual labor market model to the agricultural economics profession. Thus, the following review is limited to empirical studies of the human capital model as put forth by Schultz (1961) and Becker (1975).

Typical productivity variables in most studies of black-white earnings differentials include educational achievement, experience, and age. These variables reflect differential returns to variation in

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[4]The human capital and dual labor market theories both make predictions about the temporal patterns of earnings but economists, in general, have tested these theories using data on a cross-section of workers (Duncan, 1984).

accumulated human capital stocks of Blacks and Whites, while residual differentials provide a rough upper measure of labor market discrimination (Duncan, 1984). Empirical estimates attribute between 20 and 60 percent of the black-white employment differentials in the United States to labor market discrimination (Alexis and Medoff, 1982).

Broader and Ziemer (1982), Lee (1981), Melichar (1969) and Strass and Tarr (1982) applied the human capital model in their empirical studies of the agricultural economists' labor market. However, only Strauss and Tarr (1982) specifically included labor market characteristics for black professionals in their model. Studies by Broader and Ziemer (1982) and Lee (1981) indicate that productivity significantly influences salaries of academic agricultural economists. Specifically, scholarly publicattions, post-Ph.D. experience, grantmanship, employment mobility and faculty rank were found to be positive salary determinants. Border and Ziemer (1982) showed that teaching activities have a negative effect on salaries, supporting the notion in the profession that publishing is more financially rewarding than teaching.

In their analyses of salary patterns for agricultural economists, Strauss and Tarr (1982) found that research productivity and rank were the primary determinants of salary for faculty members. Also, their estimates showed that being black had no significant effect on: (a) the "quality" of academic employer, (b) academic rank, and (c) salary. Estimates for employment groups indicate that being black had no discernible effect on salary, except in the state and local government sector, where Blacks had significantly lower salaries compared to Whites.

The findings of Strauss and Tarr (1982) must be questioned in light of a number of considerations. First, their results might have been biased by the underrepresentation of Blacks at 1890 institutions in their data base. Second, the use of professional experience as a proxy for productivity might have biased their results in light of the importance of this variable, as indicated by Broader and Ziemer (1982). Third, the coefficients for black agricultural economists were negative in all of the structural equations, except for educational institutions, which strongly suggests that being black was associated with lower rewards.

It is clear from previous empirical studies that research productivity is an important criterion for reward distribution, particularly within the educational institution labor market. It is also clear that research productivity is a function of the stock of human capital. Are the acquired human capital stocks of black agricultural economists significantly different from those of their white counterparts? If so, are these black-white human capital stock variations associated with different demand elasticities (less elastic for Blacks) among employment groups? Can these elasticity differences be explained by conventional economic factors such as nonsubstitutability and tacit or explicit behavior which restricts price competition in the market (Scitovsky, 1951)? To what extent does the strong teaching orientation of predominantly black educational institutions affect the human capital stocks and associated factor substitutability among different types of employment groups? If there are differences in the human capital factors, are they large enough to explain the labor market characteristics of black agricultural economists? Are other factors interactive with human capital stocks, to explain differen-

ces in labor market prospects? These are some of the questions that have not been addressed by previous empirical studies.

Synthesis

The key theoretical issues relevant for analysis of the labor market prospects of black agricultural economists are: (a) the descriptive precision and internal consistency of labor market paradigms and (b) the predictive potency of observable behavior which follows logically from paradigmatic assumptions and propositions. Recent data indicate that (a) black agricultural economists are seriously underrepresented in the profession, (b) the pool of Ph.D. level black professionals is small, relative to the preponderance of this level of training in the profession, and (c) limited progress has been made in improving the labor market prospects of black agricultural economists in the profession in the last decade (Davis and Allen, 1983). In short, there are significant differences in the labor market prospects of black agricultural economists vis a vis the profession. The neoclassical human capital model of black-white employment differentials is a useful framework for analysis of economic disparity issues. This framework should be rigorously applied and empirically tested for the agricultural economics discipline. However, to the extent that "institutional" factors condition the final market behavior and prospects of market participants, these phenomena must also be integrated and rigorously analyzed in economic models of labor market behavior. A sincere and vigorous effort should be made by the economics profession to streamline and empirically validate labor market segmentation models.

A number of interesting questions were raised in the context of alternative labor market paradigms. Also, few definitive answers were given to the questions raised. At best, many of the answers to the questions raised are intuitive or speculative. The fact is, given the paucity of knowledge of the dynamics of the agricultural economics labor market, many answers could be nothing other than speculative. However, to the extent that the economic paradigms are internally consistent description of labor market behavior, they provide a framework for labor market validation studies. The material reported in chapters III and IV of this report is one such attempt. It is hoped that the findings will act as a catalyst for further analysis and dialogue within the agricultural economics profession.

CHAPTER III

LABOR MARKET CHARACTERISTICS: SURVEY RESULTS

A review of the literature reveals that much attention has been given to the supply and demand for economists and agricultural economists (Boddy, 1962 and 1973; Harmon, 1971; Clague and Levine, 1962; Helmberger, 1973; and Strauss and Tarr, 1982). However, only recently has attention been given to racial or sexual differences for agricultural economists (Redman, 1981; Lee, 1981; Lane, 1981; Strauss and Tarr, 1982). The AAEA appointed committees on women in agricultural economics and Blacks in agricultural economics have made significant contributions to the recent efforts.

The Committee on Blacks in Agricultural Economics recently documented that relatively few Blacks were agricultural economists, even fewer with terminal degrees (Robbins and Evans, 1983; Davis and Allen, 1983). Further, the potential to increase the number in the near future appears slim (Jones, Nelson, and Parks, 1983). The evidence for these studies come largely from surveys (conducted by the Committee) of black agricultural economists and black graduate students in agricultural economics. Most of the Blacks employed in universities were employed in the predominantly black institutions, with only five employed in 1862 institutions in the 1982-83 academic year. Questions remain, however, on why more black agricultural economists have not obtained employment in 1862 institutions, as well as in the private sector.

Data Base

The data used for the analysis in this study were collected in the spring and summer of 1983 by survey procedures. The survey instrument used was a mail questionnaire, with questionnaires directed to specific populations. The first population surveyed was the universe of black agricultural economists. The second population was the universe of black graduate students in agricultural economics and a comparative sample of non-black graduate students in agricultural economics. The third population category was the universe of: (1) academic units providing training for agricultural economists (supply component), and (2) a sample of educational institutions and agencies that have historically employed agricultural economists (demand component).

The questionnaires sent to agricultural economists and graduate students were oriented toward a comprehensive assessment of the characteristics and status of Blacks identified as belonging (or potentially belonging) to the agricultural economics profession. The particular samples were constructed from a wide array of published and unpublished material as well as from personal knowledge of the professional market-place. The questionnaire covered age, sex, geographic location, levels of academic training, areas of specialization, institutional affiliations, work experience and salary, to name a few. The data provide a partial assessment of the existing pool (supply) of black agricultural economists at various levels of expertise. In addition to the basic supply configuration assessment, data were generated with respect to: (1) perceptions regarding barriers to entry into the profession, (2) labor market segmentation, (3) occupational opportunities and professional mobility, and (4) facilitating mechanisms within the profession for entry of Blacks into the discipline. Data collected were used to address objective 1, and more generally

objective 2 of the study. Secondary data from the National Science Foundation and other sources were used as baseline data for comparing some of the characteristics of other respondents with economists in general to further accomplish the goals of objective 1.

The committee surveyed black agricultural economists listed in the National Economics Association Directory of Black Economists and others identified by committee members. In addition, each person surveyed was asked to identify other black agricultural economists not on the mailing list. A total of 66 Blacks returned the questionnaire.

A control group of 90 agricultural economists were selected from the Directory of the AAEA, using a systematic random sample. Forty of the economists (44 percent) surveyed from the directory returned the questionnaire. Since the sample consisted only of AAEA members, it was bias towards those with earned doctorates (Robbins and Evans, 1983).

Information from graduate students was obtained with the cooperation of the heads of agricultural economics programs at universities. We requested that the department give the questionnaire to all black American students and four white American students. White American students were to be selected from their list of graduate students, using a random sampling procedure. The sampling procedure was detailed in the cover letter to the department. A total of 141 students responded to the survey, of which 25 were black.

The questionnaires sent to universities and firms and agencies were oriented toward an assessment of the professional opportunities available to agricultural economists, and the specific nature of the opportunities. This survey of employers was intended to: (1) approximate the aggregate level of current and projected demand for black agricultural economists and (2) evaluate the existence and effectiveness of supply-augmenting policies within the profession. With respect to demand assessment, it was assumed that traditional employment sources are best able to gauge the human resources requirements of the market place. As such, academic units and public and private agencies who traditionally employ agricultural economists were asked to provide data relating to: (1) the number of positions filled, (2) the reason(s) for non-selection of black applicants, (3) equal employment opportunities and affirmative action program implementation, and (4) projected vacancies to be filled by Blacks as a proportion of total projected vacancies over selected time periods. With respect to supply-augmenting policies within the profession, data were requested from academic training units regarding: (1) past and current pools of black trainees in agricultural economics, (2) funding policies, and (3) retention programs.

All land grant institutions,[5] others identified as having programs in agricultural economics, some Canadian institutions, private firms and government agencies that employ agricultural economists were included in the survey of employers. Approximately 80 questionnaires were mailed to universities, and 75 were mailed to firms and agencies. The questionnaire for the two groups was slightly different. The questionnaire for universities included questions on enrollment by race and sex, admission criteria, financial assistance available, faculty

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[5]There are 50 1862 Land Grant Institutions and 17 1890 Institutions. In addition, some U.S. territories have land grant institutions, eg. Puerto Rico and Guam.

characteristics (sex, race, rank, tenure status), subject matter specialty and criteria used to select faculty. The questionnaire to firms requested information on race and sex, job titles, and criteria used to select employees.

Seventy-five percent of the universities responded to the survey. However, some did not complete the questionnaire because they stated that there were no black students or faculty in their program. A total of 46 of the 60 questionnaires (77 percent) were complete enough to provide data for analysis. However, the limited number of Blacks enrolled, and the small number of black faculty reported limited rigorous statistical analysis.

The response was poor for firms and agencies, and most respondents were government agencies. Given the nature of the selection of firms and agencies, and the responses from them, rigorous "test of hypothesis" is not possible. Thus, the analysis of data from firms and agencies was essentially descriptive.

Sample Group Profile

Demand Factors

Firms and Agencies

We received 28 responses from private firms or government agencies although many of the responses were incomplete. However, the majority of the respondents (75 percent) were federal government agencies. Although it is not known why the private firms elected not to respond, an examination of the returned questionnaires suggests that these firms employed very few agricultural economists. Apparently, the USDA, through its involvement in various agricultural activities, has hired more agricultural economists than any of the other respondents. Moreover, only the USDA employed any appreciable number of black agricultural economists.

Less than half (42.9 percent) of the firms and agencies reported having Blacks in agricultural economics and related positions. Furthermore, most Blacks employed in firms and agencies tended to hold B.S. and M.S. degrees while most Whites held M.S. and Ph.D. degrees (Table 1). The most popular field was marketing, followed by production and forecasting. Other fields of employment included policy analysis, program/project evaluation, extension service and computer programming.

Agencies were requested to respond to questions about job openings and salary levels. The average annual projected opening per agency was 7 for B.S., 3 for M.S., and 3 for Ph.D. level entrants. Starting salaries in 1982 averaged $17,125, $20,956, and $34,255 for B.S., M.S., and Ph.D. recipients, respectively.

The primary recruiting mechanisms used by most of the firms and agencies are college campus visitations by recruiters, referrals by schools, and direct application by candidates. Other methods of recruiting included advertisement and referrals by employees. Sixteen (57 percent) of the firms and agencies reported having a written or verbal commitment to affirmative action programs for Blacks and other minorities. Approximately 65 percent of the firms and agencies pointed out that the greatest difficulty in employing black agricultural economists was the shortage of qualified Blacks.

University Faculty Dimension

Employment of Blacks at the Ph.D. level in universities is for all practical purposes limited to the predominantly black institutions. Only five Blacks were identified as being employed at the 1862 predominantly white institutions. Interestingly, four of the five Blacks were employed at southern institutions. Intuitively, one would

Table 1. Agricultural Economists and Statisticians Employed by Firms and Agencies by Race, 1982[a]

Item	Total		Blacks	
	Number	Percent	Number	Percent
Number of Employees by Job Class	1347	100	66	4.9
Agricultural Economists	794	58.9	33	4.2
Statisticians	553	41.1	33	6.0
BY DEGREE				
B.S.	655	48.6	50	7.6
M.S.	338	25.1	7	2.1
PH.D.	243	18.0	5	2.1
No Resp.	111	8.2	4	3.6

[a]Many agencies hired agricultural economists with quantitative backgrounds as statisticians in the 1950's and 1960's because this category was exempt from civil service exams.

have expected the opposite, based on historical employment patterns. Current and past employment opportunities have been limited for Blacks with Ph.D. degrees at non-black institutions. Thirty-eight of the institutions (63 percent) indicated that they have never employed Blacks.

Generally, Blacks employed at predominantly white universities have been employed in teaching and research activities, as opposed to administrative activities. A majority of the institutions reported that they were willing to hire Blacks if qualified ones could be found. According to the responses, regardless of whether the institutional needs were in the areas of teaching, research, or extension, the primary criteria were levels of academic training. Specifically, twenty-eight of the universities listed academic training as the number one qualification used for filling teaching positions. Twenty-nine rated academic training as the number one criteria for research positions and 17 listed it for extension positions. Relative weights assigned to different factors varied according to type of position. For teaching and extension positions, recommendations and experience were ranked second and third, respective-

ly behind academic training. However, for teaching positions, experience was ranked above recommendations.

Blacks should have a reasonably good chance at competing for positions at predominantly white institutions, if academic training is in reality the dominant criteria for employment. Although the pool is still relatively small, Blacks have expanded their stocks of human capital in agricultural economics in the last two decades by obtaining Ph.D. degrees. The responses of universities, however, suggest that factors other than academic training might be mitigating against the employment of Blacks at predominantly white institutions. Some universities responded that they did not hire Blacks because applicants had poor research skills. This statement appears somewhat contradictory to the reported employment criteria, since research skills and teaching experience were ranked below academic training and recommendations for teaching and extension positions. Yet when asked to make comparisons of academic training and recommendations of white and black applicants for teaching and research positions, by a four to one ratio, the universities reported that both groups of applicants generally had equivalent skills. The responses strongly suggest that predominantly white institutions may be applying different employment criteria or standards for white and black applicants.

Supply Dimension Factors

Graduate Students Dimensions

The graduate student profile was diverse. The ages of graduate students ranged from 23 to 42, with an average age of 30 years. A majority of the students were males (71 percent) and 56 percent were married. Table 2 presents the racial composition of the group.Blacks including black resident aliens represented 19 percent of the survey pespondents.

Of all the graduate students, 87 percent had received their bachelor's degrees from a predominantly white institution, while the remaining 13 percent did their undergraduate study at a predominantly black institution. However, when classified by race, only 1 percent of the non-black students received their degrees from predominantly black institutions, while 60 percent of the black students received their bachelor's degrees from a predominantly black institution. Clearly, black institutions are important in the supply of future black agricultural economists.

Thirty-three percent of the students earned bachelor's degrees in agricultural economics, 17 percent had their degrees in economics and the remainder in other fields. However, a higher proportion of Whites (35 percent) had an undergraduate degree in agricultural economics as compared to black students (25 percent). However, a higher proportion of black students had bachelor's degrees in economics, (21 percent), compared to 15 percent for Whites.

The majority (81 percent) of the white graduate students were pursuing M.S. or M.A. degrees and the remainder were in Ph.D. programs. However, a slightly higher percent of the black students (21 percent) were pursuing Ph.D. degrees.

Seventy-five percent of the students were enrolled full-time in course work, while most of the remaining 25 percent had either finished their course work or were enrolled as part-time students. Black students reported broad areas of specialization, with agricultural marketing (20 percent), international trade and development (20 percent), and farm management/ prod-

Table 2. Racial Composition of Graduate Agricultural Economics Students in the Survey

Race	No. of Students	Percentage
Caucasian	103	73.0
Black American	25	17.7
Black Resident Alien	2	1.4
Hispanic	1	0.7
Native American	3	2.1
Oriental	3	2.1
Other	1	0.7
No Response	3	2.1
Total[a]	141	100.0

[a]The percent may not sum to 100 due to rounding.

uction economics (20 percent) being the most popular. For white students, the most popular specialization areas were farm management/production economics (20 percent), agricultural marketing (18 percent) and natural resource (15 percent). Approximately one-third of the students had a farm background, which might have influenced their choice of academic endeavors. Twenty-four percent of the black students reported farm background as a reason for becoming an agricultural economist compared with 36 percent of the white students. The most frequently reported reason for black students (32 percent) was good job prospects. In terms of employment goals, the predominant choice of white students was university teaching and research, followed by developing a professional career in private industry and ownership of a private business such as a consulting firm (Table 3). Black students also ranked university teaching and research as their primary goal but followed with positions in international development and private industry as employment goals. Interestingly, no Blacks wanted to pursue careers in agricultural extension or university administration. When asked what were motivating incentives to pursue higher graduate degrees, 68 percent of the black students and 78 percent of the white students responded that the primary motivation was to achieve their career goals.

Black M.S. level students seemed to view future employment opportunities with some skepticism, while those at the Ph.D. level appeared to be more optimistic in terms of job availability, demand, and mobility of agricultural economists. For black M.S. students, 45 percent felt job opportunities were not good, 21 percent felt future demand was not good and 42 percent felt mobility was not good. For black Ph.D. students, the percentages were 13, 0, and 6,

Table 3. Goals of Graduate Students

Employment	Black	White
	Percent[a]	
University Teaching & Research	29.2	23.5
Research in Government Agency	12.5	8.8
Private Business and/or Consultant	8.3	18.4
Professional in Private Business	16.7	19.8
Agricultural Extension	0	5.9
University Administration	0	0
Government Administration	12.5	2.9
Professional in International Development	20.8	16.9
Other	0	3.7

[a]Percent does not sum to 100 because of rounding.

respectively. White M.S. students were more optimistic than black M.S. students. Approximately one-fourth felt job availability, demand, and mobility were not very good. The white Ph.D. students were more pessimistic than black Ph.D. students, with 22, 13, and 7 percent for each category, respectively. Most of the students had not held employment interviews at the time of the survey. Thus, it was unlikely that their perceptions about employment were affected by recruiters.

The majority of students received some form of financial aid. Fellowships and teaching or research assistantships were the most frequent sources of financial support. However, the amount of financial support per student varied from $300 to $13,000, with an average of $5,722. Some students reported using loans to support their education. In such cases, the loans averaged about $5,340 per year. Other sources of funds included personal savings, veterans benefits, and wages earned by spouses. Only small differences in financial support occurred when the data were examined by race, with the most notable difference being that white students relied on spouse's income to a much greater degree than did black students.

Students were asked to rank the major problems associated with obtaining their graduate degrees. The major factors listed were financial cost, opportunity cost, length of time, difficulty of study, and lack of incentive (Table 4). With the exception of difficulty of study and inadequate educational background,

Table 4. Major Problems in Obtaining Ph.D.'s: Views of Current Graduate Students, 1982

Problem	Black Graduate Students		White Graduate Students	
	Number who Ranked Problem			
	1st	2nd	1st	2nd
Financial	6	1	6	1
Responsibililty to Family	4	3	4	3
Time	4	4	7	4
Lack Incentive	5	1	5	2
University Politics	2	4	4	5
Race	0	1	1	2
Location of University Granting Degree	3	2	3	2
Opportunity Cost	5	1	5	4
Inadequate Educational Background	6	3	7	4
Passing Prelims	0	3	1	4
Difficulty of Study	6	5	7	5

most problems relate to costs, such as financial, opportunity costs, and time. Black students and non-black students had similar rankings. It is interesting to note that race was not listed by many students as a major problem. Only five of 51 students (10 pecent) who ranked their problems listed race higher than the fourth problem, but three of the five were black. It seems reasonable to assume that given the major problems that relate to costs, coupled with the stringent academic admission policies of graduate programs, the number of black graduate students in agricultural economics at any point in time will be limited. The long term supply of black agricultural economists would also be affected since the matriculation rate would be low. This proposition appears to be reasonable based on the low percentage of Blacks enrolled in graduate degree programs (Table 2).

University Dimensions

The number of Blacks in undergraduate agricultural economics programs is low. Only a few black colleges and universities offer degrees in agricultural economics, and most of these institutions have small enrollments. To the extent that the pool of black B.S. level agricultural economics majors is a potential pool for graduate degree programs, the low undergraduate pool will affect the supply of graduate degree recipients. A recent study by the United States Department of Education (1983) shows a decline in the B.S. and M.S. degrees awarded to Blacks in the discipline by 9.6 percent and 16 percent, respectively, from 1976 to 1981. The relative declines were 4 percent for the two degree cate- gories for Whites over the same period.

Universities were asked to report the number of black students enrolled in both M.S. and Ph.D. level programs, as well as the bachelor's program. The number of Blacks enrolled in these programs was very small, relative to the total number enrolled. Specifically, 36 black students were reported enrolled in M.S. degree programs and only 15 students in Ph.D. programs.[6] The reported number of black graduate students excluded black nonresidents. However, some are likely to remain in the U.S. upon completion of the degree program. At the undergraduate level, the majority of the black agricultural economics students was enrolled in predominantly black universities. At the undergraduate degree level, 150 black students were enrolled in programs at the 46 institutions. In contrast, almost 5,000 non-black undergraduates enrolled in the programs. Thus, black undergraduate agricultural economics majors represented only 3 percent of the total. At the M.S. level, the 36 Blacks enrolled were in programs consisting of 1,000 students, representing 3.6 percent of the total. The 15 black Ph.D. students were enrolled in programs consisting of 800 students, representing 1.9 percent of the total. Thus, the university data for black graduate and undergraduate students document the low proportion of Blacks available to meet current and future demand of the profession.

Table 5 presents a summary of the reported test scores required for admission to the B.S., M.S., and Ph.D. degree programs. Only six schools reported a minimum score requirement for admission to the undergraduate program. This requirement may be somewhat deceiving, however, since for most universities, undergraduate admission is often outside the control of the academic department.

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[6]This figure is different from the 25 presented above. Presumably, some black students failed to complete and return the questionnaire.

Table 5. Test Score Admission Requirements

Score	SAT B.S. Level	Combined[a] GRE M.S. Level	Combined GRE PH.D. Level
	-No. of Institutions		
Required but no minimum score	5	7	6
Not required	5		1
Required with minimum score			
400		1	
500		2	
570			1
800		2	2
900		1	
1000		2	4
1200		1	1
No response	30	29	29

[a]Combined GRE scores are the total of the verbal and quantitative portions of the test.

Thus, departments and universities may have a particular set of admission requirements that they are enforcing that may not be identical, and as such may not be showing up in the departmental admission records. Seven of the institutions indicated that they require a Graduate Record Examination (GRE) score for the M.S. and six for the Ph.D. program. However, no minimum score was indicated. In cases where the GRE was required, but no minimum was stipulated, the philosophy appears to be that the GRE score was but one part of the admission criteria. Only one institution reported that the GRE was not required for admission to the Ph.D. program. The remaining institutions tended to be scattered throughout the test score range with only one requiring a minimum of 400 on the GRE and only one requiring a score of 1200 on the GRE.

In practice, however, most schools will not admit students who have low scores on the GRE. They may place greater emphasis on the quantitative portion, thus the student will be at a disadvantage if he/she does not score as well on that portion of the test. A substantial number of the institutions felt that GRE scores should be a major factor in the admission decision.

The undergraduate grade point average (GPA) requirements for admission varied considerably from a low of 2.4 to a high of 3.5 (on the 4 point scale) for a Ph.D. program. Generally, most schools indicated a minimum GPA of 3.0 or better to be admitted into the graduate program. Some institutions require slightly higher GPA for students with M.S. degrees, who seek admission to Ph.D. programs. Very few Ph.D. programs were willing to admit students with less than a 2.75 GPA in the undergraduate major. However, many institutions reported that they did bend the rules slightly in this regard when considering minority students. In many instances they would admit

minority students who had relatively poor GRE scores or GPAs. Some universities report bending rules for nonminorities on an individual basis.

In light of the "bending of rules" policy, we were curious about the attrition rates for black students in graduate agricultural economics program, given the strong feeling by university administrators that test scores are good predictors of academic success. Overall, there was no significant difference between Blacks and non-Blacks in attrition rates. Most institutions reported attrition rates of less than 10 percent for all groups, including Blacks. Thirty-seven of the 46 institutions (80 percent) reported that Blacks had attrition rates of less than 10 percent. In contrast, only 21 of the 46 institutions (46 percent) responded that the white attrition rate was less than 10 percent.

The findings suggest that there was little difference in attrition rates of Blacks and non-Blacks. It should be noted, however, that the interpretation of attrition rates must be handled with caution, since some respondents apparently did not know how to interpret "attrition." For example, many students may temporarily discontinue graduate programs for financial or other nonacademic reasons. These students may or may not have been reported. Also, estimates of attrition rates at the M.S. and Ph.D. levels can be misleading if interpreted outside of the context of the relative degree of black representation (or underrepresentation) in the two program levels. Specifically, the rates might appear high, simply because the base is small (i.e. the small number of Blacks studying in graduate programs). For instance, at the Ph.D. level only five schools reported the attrition rates for Blacks and the rate varied from five to fifty percent. Only eight of the 46 institutions reported the attrition rates among Blacks at the M.S. level. The reported rates seem to indicate a slightly lower rate of attrition at the M.S. level than at the Ph.D. level. The lower rate could simply reflect the fact that black Ph.D. students represented only 1.9 percent of Ph.D. candidates, while black M.S. students accounted for 3.6 percent of their group.

Profile of the Stock of Black Agricultural Economists

Blacks comprise about 11 percent of the U.S. population, 9 percent of the total work force (1982) and 6 percent of the professional work force (Washington Post). Only 1.8 percent of the agricultural economists in 1981 AAEA job registry were Black (Strauss and Tarr, 1982). The underrepresentation of black agricultural economists is most acute at the Ph.D. level. In 1981, Blacks represented 1.3 percent of the AAEA registered agricultural economists with Ph.D.'s, a slightly higher proportion (1.9 percent) of the Ph.D. candidates were Black. Similarly, 2.7 percent of the agricultural economists with master's degrees were Black, 3.5 percent of those with bachelor's degrees and 50 percent of those with no degree were Black (Strauss and Tarr, 1982).

Black agricultural economists were found to be highly educated. Of the 47 in the survey who provided information on their educational background, 55 percent had Ph.D. degrees. Slightly more than one-third had master's degrees and about one-tenth had bachelor's degrees. Survey results indicate that black agricultural economists may be less likely to have Ph.D.'s than their white counterparts. Eighty-one percent of white agricultural economists held Ph.D.'s. However, this finding may be due to differences in the population surveyed. The white agricultural economists surveyed

were all members of the AAEA compared with 66 percent of the Blacks. AAEA members tend to have Ph.D.'s.

There are significant differences among black agricultural economists when controlling for education. One of the most obvious differences is the level of formal training exhibited by black male agricultural economists compared with their female counterparts. As expected, men were much more likely to have Ph.D.'s. In fact, 62 percent of the men earned Ph.D.'s compared with 25 percent of the women. While women represented 17 percent of the black agricultural economists, they comprised a much higher proportion of those without doctorates. Women accounted for 40 percent of the black agricultural economists with bachelor's degrees, 25 percent of the agricultural economists with master's degrees and 8 percent of the agricultural economists with Ph.D. degrees.

The level of education that an agricultural economist obtains could be influenced by when he or she decided to become an agricultural economist and the reasons for making that career choice. Using data collected by the AAEA Committee on Opportunities for and Status of Women in Agricultural Economics, Redman (1981) found that most agricultural economists decided on the discipline before or during college. Redman's study consisted primarily of Ph.D.'s.

There are major differences in when Blacks with Ph.D.'s decided to become agricultural economists versus when those below the doctoral level made this decision. One out of every six black agricultural econoists with a Ph.D. made their career choice before or during high school. About 67 percent made their decision when they were college students --42 percent as undergraduate students and about 25 percent as graduate students. Another 17 percent made their career choice while employed. In contrast, black agricultural economists without Ph.D.'s were more likely to make the choice during employment. For example, 38 percent of the black agricultural economists with master's degrees and 60 percent of those with bachelor's degrees decided to become agricultural economists while employed.

In making career choices, black agricultural economists who pursued Ph.D.'s appeared to be influenced by different factors than their counterparts who did not pursue Ph.D.'s. Having a farm background was a major reason for becoming an agricultural economist for Blacks with Ph.D.'s. One-half of all black Ph.D. agricultural economists chose the occupation because of their farm background, compared with about two-fifths of those without Ph.D.'s. A motivating factor for the latter group was the availability of "good" job prospects. Conversely, the former group was more likely to be motivated by interest in the subject area. Further, Blacks who earned Ph.D.'s were likely to be influenced by professors in choosing agricultural economics as their field of study.

Suprisingly, the professional employment goals of black agricultural economists (at the time of study for highest degree received) were similar regardless of educational background. University teaching and research in a government agency were the most frequently cited career goals of Blacks with graduate training. Slightly more than 60 percent of black agricul- agricultural economists with Ph.D.'s and master's degrees, aspired to be university teachers and/or researchers while 11 percent aspired to be government researchers (Table 6). A comparison of the career goals of the existing stock of black agricultural economists and current black graduate students

Table 6. Career Goals of Black Agricultural Economists by Degree Level[a]

Career Goals	Doctorate	Masters	Bachelors
		(Percent)	
University Teaching and Research	61.11	62.50	0.00
Researcher in Government Agency	11.11	25.00	33.33
Industry/Business Consultant	5.56	0.00	0.00
Agricultural Extension	0.00	0.00	0.00
University Administration	5.56	0.00	0.00
Government Administration	0.00	0.00	0.00
International Development Agency	5.56	0.00	33.33
Other	11.11	12.50	33.33

[a]Total number of observations: doctorate = 26, masters = 16 and bachelor = 3.

indicates that both groups have the same primary goal. However, there are some differences in other choices. International development and private industry/businesses were the second and third most frequently cited employment goals of black graduate students. Perhaps lack of opportunities affected the aspirations of earlier graduates while current students forsee better employment alternatives in international development and the private sector.

The majority of black agricultural economists obtained their undergraduate degree in disciplines other than agricultural economics. This characteristic is not suprising given the relatively small number of 1890 colleges that offer a degree in agricultural economics. In general, the agricultural economics profession consists of a low proportion of persons who entered graduate programs in agricultural economics from other fields (Redman, 1981).

About 40 percent of the black agricultural economists with Ph.D.'s majored in agricultural economics as undergraduates. Another 13 percent majored in other disciplines. Black agricultural economists below the doctoral level were more likely to have undergraduate degrees in economics and consequently less likely to have degrees in fields other then economics or agricultural economics. Not suprisingly, the majority of the black agricultural economists who did not have graduate degrees received their bachelor's degrees in agricultural economics.

The distribution of black agricultural economists by institution of bachelor degrees indicates that Blacks with Ph.D.'s were more likely to graduate from predominantly black colleges and universities. In fact, 80 percent of black agricultural economists possessing Ph.D.'s received their undergraduate degrees from predominantly black institutions compared with 63 percent of black agricultural economists with master's degrees and 60 percent with bachelor's degrees. Lack of access to predominantly white colleges and universities could partially explain why the overwhelming majority of Ph.D. trained black agricultural economists graduated from predominantly black institutions. Historically, many predominantly white colleges in the southern and border states did not admit Blacks. It was not until the late sixties and early seventies that barriers to entry for Blacks were eased. The average age of black agricultural economists with Ph.D.'s was 40.9 years which was slightly higher than the average age of black agricultural economists with bachelor's degrees (38.0 years). These averages suggest that many Blacks with Ph.D.'s attended college during the period of dual (i.e., segregated) systems of higher education. Approximately 77 percent of the black Ph.D. agricultural economists in the survey who were born before 1950 received their B.S./B.A. degree from predominantly black colleges. There were only 3 black Ph.D. agricultural economists in the survey who were born during the fifties or later, and each of them had a bachelor's degree from a predominantly black college.

It would appear that black colleges tend to provide a supportive environment for black students which could also explain why many black agricultural economists with Ph.D.'s receive their bachelor's degrees from black colleges. A recent study by Baratz and Ficklen (1983) found that black graduates of traditional black institutions are an important part of the graduate and professional school pool. Another study (Martin, 1984) concluded that "patterns of intellectual development are consistently more positive" for Blacks at predominantly black colleges than for Blacks at predominantly white

college. The same study found that Blacks at predominantly black colleges "exhibit stronger personal attachments to faculty, enhanced involvement in the career process... and maintenance of higher occupational aspirations" (Martin, 1984).

Black agricultural economists possessing Ph.D.'s were most likely to specialize in farm management/ production economics (23 percent) or agricultural marketing (19 percent). General economics (15 percent) and community resource economics (13 percent) were also listed as primary areas of specialization. Blacks with master's degrees tended to concentrate in agricultural marketing (19 percent), international agricultural trade and development (19 percent), and general economics (19 percent). According to a study by Stanton and Farrell (1981), commercial agricultural production and marketing are priority research areas. Thus, black agricultural economists have the specialized training needed to conduct research in the high priority areas as identified by agricultural economics department chairmen and administrators.

Black agricultural economists who earned Ph.D.'s faced different problems in their doctoral studies than their non-black counterparts. Blacks were more likely to cite financial problems as their major barrier in pursuing a doctorate. Two-thirds of the black economists reported financial problems compared with 14 percent of the non-black economists (Table 7). Another 13 percent of black agricultural economists listed opportunity costs as the major problem involved in obtaining a Ph.D. Only a few cited other problems such as inadequate educational background, location of university granting degree, internal politics within university, or lack of incentives as the major problem.

Black agricultural economists pursuing their doctorates reported as their second major problem opportunity costs (29 percent), followed by time (14 percent) and family responsibilities (10 percent), lack of incentives (10 percent), internal politics within university (10 percent), race (10 percent), and inadequate educational background (10 percent). Five percent cited financial problems and the remainder cited other problems. A high proportion of non-Blacks (29 percent) listed opportunity costs as the second major problem in obtaining a Ph.D. while 24 percent listed financial problems. About 20 percent reported that the amount of time involved in obtaining a Ph.D. was the second major problem, 14 percent reported inadequate educational background, and 5 percent reported other problems.

A large number of black agricultural economists with Ph.D.'s reported that race was a problem in obtaining their degree but did not rank their responses in order of importance (Robbins and Evans, 1983). However, of those who did provide a numerical rating, no one listed it as the number one problem. Race was most frequently cited as the sixth major problem.

Availability of financial assistance for students in a doctoral program could be an important determinant of Ph.D. completion. This is especially true for Blacks given that they have lower income, and the financial problems discussed previously. Black and non-black agricultural economists received different financial support during their Ph.D. study. Fellowships were the most important source of financial support for about 30 percent of the black agricultural economists compared with 13 percent of their non-black counterparts. Conversely, 63 percent of non-Blacks listed research or teaching assistantships as the most important source of financial support compared with 46 percent of

Table 7. Major Problems of Agricultural Economists in Obtaining Ph.D. Degrees

Problem ranked first	Black Agricultural Economists	Nonblack Agricultural Economists
	(Percent)[a]	
Financial	66.7	14.3
Family responsibilities	0.0	9.5
Time	0.0	19.0
Lack of incentives	4.2	9.5
Internal politics within university	4.2	0.0
Race	0.0	0.0
Location of university granting degree	4.2	0.0
Opportunity costs.	12.5	28.6
Inadequate educational background	8.3	9.5
Other	0.0	9.5

[a]Figures do not add to 100 because of rounding.

Blacks. In general, Blacks were much more likely than non-Blacks to cite salary from a source unassociated with the department of graduate study as a major source of financial support.

It is interesting to compare the problems of present students with those of existing Ph.D.'s. The problems ranked somewhat similarly. However, current black students' opinions of problems are less different from current white students compared with those Blacks with earned Ph.D.'s. Perhaps the increased financial aid provided by government, foundations, research grants, and efforts to desegregate the universities have provided more financial aid for black graduate students.

CHAPTER IV

EARNINGS DIFFERENTIALS: EMPIRICAL RESULTS

Black agricultural economists with training at the graduate level are found to be underrepresented in the agricultural economics profession. Further, the potential to increase the number of Blacks in the near future appears to be slim. Only a small percent of the students entering agricultural economics programs at any level are Black. In 1973, Davis found that 3.4 percent of the undergraduate student majors in Agricultural Economics were Black. Only eight Blacks were in Ph.D. programs. The situation since 1973 has changed little. Our 1983 survey found only 15 Blacks in Ph.D. programs in agricultural economics in the United States.

Questions are often raised as to factors contributing to such a shortage. Is it because of disinterest on the part of Blacks towards agricultural economics as a career or because of relatively low salary for Blacks in agricultual economics? In other words, are there sufficient incentives for Blacks to pursue a careers in the agricultural economics profession?

The purpose of this section is to look at the question of incentives for Blacks to enter the profession of agricultural economics. Specifically, we wish to determine if earnings differentials exists between Blacks and Whites in the agricultural economics profession. Although this procedure may not answer questions of opportunities outside of agricultural economics, it will reflect to some degree, how Blacks fare economically when compared to Whites within agricultural economics.

The analysis in this section is also based upon the 1983 survey of black and white agricultural economists conducted by the AAEA committee on Black Agricultural Economists. The sample of white agricultural economists is somewhat biased toward academe because membership in the AAEA draws heavily on academic institutions. Nevertheless, a representative number of nonacademic members was included in the survey which facilitate meaningful comparison.

Earnings Profile

Data analysis indicates that Blacks and women have slightly lower starting salaries in nonacademic settings (Table 8). Seventy-nine percent of Blacks and 86 percent of females started at salaries below $10,000 annually, compared with 73 percent of Whites who started below $10,000. On the other hand, 6.7 percent of the Whites had annual starting salaries above $25,000, while no Blacks or females reported salaries above $25,000 annually in any employment sector. There was no attempt to control for the time that one began work. Thus, some of the differences in earnings may be due to different employment starting times.

The results for academic agricultural economists are somewhat different. About 70 percent of the Blacks started at less than $10,000 annually, while 84 percent of the Whites and 80 percent of the women started at less than $10,000 (Table 8). At the upper end of the scale 9.3 percent of the Blacks and 10 percent of the women started with salaries from $20,000 to $24,999, compared to 5.3 percent of the Whites who began at that level.

In terms of present salaries (1983) the earnings gap appears to be wider between the races and sexes, especially at the university level. Fewer earnings differentials appear to exist for non-university employees. Specifically, 13.5 percent of Whites and 10.5 percent of Blacks employed outside the university earned over $50,000 annually.

TABLE 8. Annual Starting Earnings of Agricultural Economists

Characteristic	Annual Salary Range (dollars)					
	<5,000	5,000 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 24,999	25,000 and over
	Percent					
NON-UNIVERSITY						
Race						
Black	73.7	5.3	5.3	5.3	10.5	0.0
White	60.0	13.3	13.3	0.0	6.7	6.7
Sex						
Male	65.5	10.3	10.3	3.4	6.9	3.4
Female	85.7	0.0	0.0	0.0	14.3	0.0
UNIVERSITY						
Race						
Black	58.1	11.6	7.0	14.0	9.3	0.0
White	68.4	15.8	5.3	5.3	5.3	0.0
Sex						
Male	57.7	15.4	5.8	13.8	7.7	0.0
Female	80.0	0.0	10.0	0.0	10.0	0.0
TOTAL						
Race						
Black	62.0	9.7	6.5	11.3	9.7	0.0
White	64.7	14.7	8.8	2.9	5.9	2.9
Sex						
Male	60.5	13.6	7.4	9.9	7.4	1.2
Female	82.4	0.0	5.9	0.0	11.8	0.0

However, at the university level there were no Blacks or Whites reporting salaries above $50,000 anually (Table 9). Only 9.3 percent of Blacks employed at universities received annual salaries greater than $30,000, compared with 42 pecent of Whites.

One must view these descriptive earnings data with caution, however, since there were no adjustments for differences in degree, age, experience, or other factors that affect earnings. To adjust for these factors, an earnings regression model was developed and estimated for agricultural economists.

Earnings Model

The earnings model was a single equation regression model relating earnings to variables expected to affect earnings. A more complex model was not attempted largely because of data limitations given the relatively few black Ph.D holders, and even fewer women in the sample.

The specific model estimated was as follows:

$$Y = a + b_1 X_1 + b_2 X_2 \ldots + b_n X_n + U$$

Where,

Y = natural log of annual earnings

X_1 = months unemployed

X_2 = field of specialty (High demand fields = 1, 0 otherwise)

X_3 = publications (number of books, journal articles, and chapters in books)

X_4 = teaching assignment (75% or more = 1, 0 otherwise)

Y_5 = years on present job

X_6 = education (1 = Ph.D., 0 otherwise)

X_7 = administration assignment (1 = 25 percent or more administration, 0 otherwise)

X_8 = race (1 = black, 0 otherwise)

X_9 = total work experience (years)

X_{10} = school where employed (1 = 1890, 0 otherise)

X_{11} = school times experience (X_9 X_{10})

X_{12} = race times experience (X_8 X_{10})

X_{13} = sex (1=female, 0 = male)

X_{14} = sex times experience (X_{13} X_{10})

X_{15} = educational institution (1 = employed in education, 0 otherwise)

U = error term

Earnings: This variable was defined as all earned income for the year, including salaries, consultation fees, and honorariums. No attempt was made to measure unearned income such as rental, interest, etc.

Months unemployed: This variable was introduced to isolate the effects of

TABLE 9. Annual Earnings of Agricultural Economists, 1982

Characteristic	Annual Salary Range (Dollars)							
	<5,000	5,000 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 24,999	25,000 to 29,999	30,000 to 39,999	40,000 to 49,999	50,000 and over
	Percent								
NON-UNIVERSITY									
Race									
Black	10.5	0.0	10.5	5.3	5.3	10.5	26.3	21.1	10.5
White	0.0	0.0	6.7	6.7	6.7	20.0	40.0	6.7	13.5
Sex									
Male	3.4	3.4	10.3	3.4	3.4	13.8	31.0	17.2	13.8
Female	14.3	0.0	14.3	14.3	14.3	14.3	28.6	0.0	0.0
UNIVERSITY									
Race									
Black	41.9	2.3	7.0	9.3	11.6	18.6	2.3	7.0	0.0
White	10.5	0.0	5.3	10.5	26.3	5.3	15.8	26.3	0.0
Sex									
Male	21.2	3.8	5.8	11.5	19.2	17.3	7.7	13.5	0.0
Female	90.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL									
Race									
Black	32.3	1.6	3.2	6.5	8.1	11.3	21.0	8.1	8.1
White	5.9	0.0	2.9	5.9	8.8	23.5	20.6	11.8	20.6
Sex									
Male	14.8	3.7	3.7	4.9	8.6	17.3	22.2	11.1	13.6
Female	58.8	0.0	5.9	11.8	5.9	5.9	11.8	0.0	0.0

unemployment, a time in which earnings did not accumulate, on income. A negative relationship was expected between income and months unemployed.

Field of speciality: This variable was selected to isolate the effects of employment in high growth specialities. Earnings in these fields may be rising faster because of increased demand. High growth fields included: Farm Management/Production Economics, Marketting, International Trade/Development, Agricultural Finance, Natural Resources/Environmental Economics, General Economics, and other specialties such as Law, Sociology, and Research Management. A positive relationship was expected between field of speciality and earnings.

Publications: This variable was included as a proxy for research productivity. It was defined as total number of books, journal articles, and chapters in books. A positive relationship between number of publications and earnings was hypothesized.

Teaching assignment: Faculty members who teach 75 percent or more have less time for research and administrative duties. This variable was designed to detect the effect of these differences on earnings. Given the shorter work year for teachers, and the emphasis on research at many institutions, one might expect teaching load to be negatively related to earnings.

Years on present job: Holding other factors constant, the more experience one has, the better he/she performs the job. This variable was designed to measure those effects. A positive relation- ship was expected between earnings and years on present job.

Education: One expects that higher education leads to greater earnings, since increased benefits would be needed to offset increased costs of investment in education. Moreover, increased education increases one's productivity, thus, a positive relationship was hypothesized between earnings and education.

Administration: Administrators generally have different responsibilities than other personnel. Further, they often are selected from among the best researchers and teachers. Administration was measured as the percent of time allocated to administrative activities. A positive relationship was expected between administrative responsibilities and earnings.

Race: The impact of discrimination on income of minorities in the United States is well documented (see Chapter II). Inclusion of this variable allows us to measure the effects of race on earnings, when other factors are held constant. We hypothesized that, **ceteris paribus**, black agricultural economists have lower earnings than non-Blacks.

Total work experience: As one becomes more experienced, he/she expects increased earnings because he/she makes greater contributions and is more productive for the employer or prospective employer. A positive relationship is hypothesized for total work experience and earnings.

School where employed: Employment at an 1890 institution may lead to a lower earnings profile over the life of an agricultural economist than employment outside an 1890 institution. A negative relationship was hypothesized for employment at an 1890 university and earnings.

School-experience and race experience interactions: It has been observed by some agricultural economists that starting salaries are

often competitive regardless of employer. However, over time, differences in salaries arise because of differences in the nature of work assignments, quality of work, and race. These variables were included to test for interactions of race and experience on earnings and school-experience on earnings. A negative relationship was predicted for both interactions.

Sex and sex-experience: As is true for race, women are often the victims of discrimination, leading to lower earnings over their life cycle. These variables were included to measure the impact of sex and sex-experience interaction on earnings. A negative relationship was hypothesized for both variables.

Educational institutions: It has been argued that salaries of personnel in educational institutions lag behind that of people in the private sector. The relationship between government and university salaries is less clear. This variable was included to capture differences in salaries by sector. However, given the large number of government employees to the exclusion of many private sector employees, a specific prediction of the direction of the relationship is not being made.

Three variations of the earnings model were estimated. One model was estimated for all agricultural economists, one for those employed at educational institutions, and one for those employed in non-academic settings. For each variation of the model, sex and sex-experience interaction variables were omitted (equation 1) and included (equation 2), alternatively making a total of six equations estimated. Estimates are reported in Tables 10,11, and 12.

The results reveal that when all agricultural economists are included in the two estimated equations, factors such as teaching load, length of unemployment, field of speciality, number of publications, sex, and sex-experience interaction were not significantly related to earnings (Table 10). Work experience, and race-experience interaction were positively significant at the 1 percent level in both equations. All other variables, except 1890 schools were significant in both equations, although some were significant at different probabilities. The variable for 1890 schools was not significant in equation 1, but was significant at the 10 percent level in equation 2. Employment in educa- tional institution, and years on present job were significant at the 10 percent levels in both equations. Race and educational institution employment had negative effects on earnings, while years on the present job had a positive effect. All significant variables had the expected signs. Therefore, it appears that being black, and employed for a long time at an 1890 institution reduces earnings. Also, employment in universities reduces earnings. As one would expect, increased experience and tenure on present jobs tend to have positive effects on earnings (Table 10).

Two equations were also estimated for the earnings model for agricultural economists employed outside of the university. In these equations, employment in an 1890 institution, percent teaching, and the interaction of 1890 employment with race were omitted. Interestingly, in these estimates, only race and race-experience interaction were significant for both estimates; race had a negative effect while race experience interaction had a positive effect (Table 11). Sex, sex-experience and publications were not significant at the 10 percent level, but have large "t" values, with probabilities of less than 14 percent in equation 2. These results

TABLE 10. EARNINGS REGRESSION RESULTS FOR ALL AGRICULTURAL ECONOMISTS

VARIABLES		EQUATION 1	EQUATION 2
Months Unemployed	(X_1)	-782.50	-692.50
		(-0.84)	(-0.73)
Field of Speciality	(X_2)	135.52	194.47
		(.08)	(.11)
Publications	(X_3)	416.99	381.58
		(1.05)	(0.94)
Teaching Load	(X_4)	-4309.44	-6068.38
		(-0.91)	(-1.30)
Years on Present Job	(X_5)	436.50***	419.14***
		(1.94)	(1.83)
Education	(X_6)	8297.75*	6744.07**
		(3.14)	(2.42)
Administration	(X_7)	6387.66**	5835.65***
		(2.14)	(1.91)
Race	(X_8)	-7430.04***	-10040.89**
		(-1.82)	(-2.17)
Work Experience	(X_9)	460.79*	519.40*
		(2.78)	(3.14)
1890 School	(X_{10})	5084.71	9236.96***
		(0.99)	(1.80)
School-Experience	(X_{11})	-948.92**	-1252.90*
		(-2.15)	(-2.68)
Race-Experience	(X_{12})	1301.85*	1531.12*
		(3.52)	(3.60)
Sex	(X_{13})		835.47
			(.16)
Sex-Experience	(X_{14})		-447.60
			(-0.66)
Education Institution Employment	(X_{15})	-4891.92***	-5284.84***
		(-1.67)	(-1.77)
Constant		12488.09	10427.49
R^2		.67	.68

* Significant at the 1% level

** Significant at the 5% level

*** Significant at the 10% level

(T Values are in parentheses)

TABLE 11. Earnings Regression Results for Non-Academic Agricultural Economists

Variables		Equation 1	Equation 2
Months Unemployed	(X_1)	-1328.46 (-1.08)	-1432.10 (-1.16)
Field of Speciality	(X_2)	-1077.32 (-0.28)	-2177.36 (-0.57)
Publications	(X_3)	-755.27 (-1.09)	-1078.28 (-1.52)
Years on Present Job	(X_5)	402.54 (0.85)	528.55 (1.11)
Education	(X_6)	2907.06 (0.50)	213.50 (0.04)
Administration	(X_7)	7262.81 (1.23)	6873.14 (1.16)
Race	(X_8)	-14398.12*** (-1.72)	-24988.72** (-2.33)
Work-Experience	(X_9)	79.71 (0.29)	21.54 (0.08)
Race-Experience	(X_{12})	1424.88* (2.81)	1957.39* (3.20)
Sex	(X_{13})		34460.57 (1.69)
Sex-Experience	(X_{14})		-3920.58 (-1.57)
Constant		25503.95	29073.47
R^2		.30	.32

* Significant at the 1% level
** Significant at the 5% level
*** Significant at the 10% level
(T Values are in parentheses)

TABLE 12. Earnings Regression Results for Agricultural Economics in Educational Institutions

Variables		Equation 1	Equation 2
Months Unemployed	(X_1)	920.33	1035.04
		(0.59)	(0.67)
Field of Specialty	(X_2)	-293.52	-998.44
		(-0.18)	(-0.59)
Publications	(X_3)	271.82	169.00
		(0.62)	(0.38)
Teaching Load	(X_4)	-10711.38**	-8223.32***
		(-2.52)	(-1.87)
Years on Present Job	(X_5)	218.02	183.98
		(0.94)	(0.80)
Education	(X_6)	10130.28*	7768.24**
		(2.87)	(2.09)
Administration	(X_7)	1822.90	2157.00
		(0.52)	(0.62)
Race	(X_8)	-877.16	-1498.19
		(-0.21)	(-0.32)
Work Experience	(X_9)	1049.17*	1081.70*
		(5.20)	(5.42)
1890 School	(X_{10})	12187.56**	12751.58**
		(2.04)	(2.04)
School-Experience	(X_{11})	-1340.56*	-1801.15*
		(-2.75)	(-3.11)
Race-Experience	(X_{12})	917.60**	1385.30*
		(2.45)	(2.78)
Sex	(X_{13})		-1281.09
			(-0.28)
Sex-Experience	(X_{14})		-1208.11
			(-1.59)
Constant		670.92	2606.84
R^2		.78	.78

* Significant at the 1% level
** Significant at the 5% level
*** Significant at the 10% level
(T Values are in parentheses)

ings, however, Blacks relative to Whites have positive earnings when combined with experience. This finding does not appear to be true for females. There appears to be a negative relationship for women with experience. Perhaps these results reflect limited opportunities for advancement of women in the profession or reflect the unique dimensions relating to labor market characteristics of women that significantly affect their long term earnings potentials.

The results from the earnings model for agricultural economists employed at educational institutions differed from those of non-academic agricultural economists (Table 12). Unemployment, field of speciality, publications, and sex remained insignificant. However, years on present job, administration and race were no longer significant as in the model for all agricultural economists. Employment at 1890 schools was significant at the five percent level. Work experience and school-experience interaction were significant at the one percent level. Education, teaching load, and race-experience interactions were significant but at different levels in the two equations. All signs were as expected, except 1890 schools. Intuitively, a negative sign was expected, rather than a positive one. Perhaps the positive sign is picking up competitive starting salaries at the 1890 institutions, and the negative school-experience interaction is picking up slower growth of salaries for black agricultural economists. Moving into administration by blacks may mitigate but not eliminate race related earnings differential.

The data suggest that the 1890 colleges and universities have not been able to maintain competitive salary levels as professionals receive promotions. Since most 1890 institutions are, in fact, state supported and funded, policies that set salaries will have to be changed often by governing boards and/or legislative actions to rectify slower growth in salary. In North Carolina, for example, salaries are based upon the classification category of the academic institution receiving state funding. "Research Ph.D. Granting Institutions" receive the greatest funding for salaries, books, library and other support. The "Comprehensive Institutions" (M.S. granting) receive lower funding, and "Other Institutions", the lowest funding. The 1862 institution is in the research class, while the 1890 institution is in the comprehensive class. Thus, salary differentials are likely to continue in North Carolina. One long run implication of these factors for many 1890 institutions has to do with their ability to attract and maintain quality faculty. As more opportunities for Blacks become available in 1862 institutions and the private sector, the 1890 institutions will find it difficult to attract the top Ph.D. candidates. Yet, as research funds begin to flow to the 1890 institutions, and as they seek to develop more graduate programs in the agricultural sciences, there will be an increasing need for quality faculty. Without question, salaries and opportunities will have to become competitive and remain competitive for Blacks in agricultural economics.

These explanatory results of earnings differentials must be treated with some caution. This analysis was based on a rather small sample and may not have considered all relevant factors. For example, quality of publication and degree quality, among others, have not been accounted for in this model. Nevertheless, the results imply that Blacks and women face limited opportunities in terms of earnings potential within the agricultural economics profession.

CHAPTER V

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

The preceding chapters presented descriptive and analytical results of the survey. In this chapter we analyze these results in light of the objectives and hypotheses outlined in Chapter I. Some discussion of each of the hypotheses and the relevant findings are presented below. Further, we discuss the implications of the findings for Blacks within the profession. First, we review some of the relevant environmental changes impacting the profession.

Meaningful discussion of the policy issues stemming from the study must take place within the context of the environment in which the profession operates. The discussion of environmental changes is based on a recent study by Blank focusing on agricultural economics programs in the United States and Canada over the 1975-1984 period.

Undergraduate enrollment in U.S. agricultural economics programs increased 61 percent from 1975 to 1984, while graduate enrollment remained fairly constant. The southern region reported the lowest rate of undergraduate increase (27 percent). The undergraduate enrollment trend in the South was a reversal of the trend from 1970-75, as reported in a study by Beck et al. According to the earlier 1970-75 data, the South registered the fastest rate of undergraduate agricultural economics enrollment.

At the graduate level, one-half of the geographic regions experienced an increase in average year-to-year enrollment in agricultural economics programs, while one-half experienced a decline. These counter movements resulted in no change in graduate enrollment over the period. One interesting trend was the direction of graduate and undergraduate enrollment in the Northeast and South. Specifically, the Northeast, which experienced the highest rate of growth (86 percent) in undergraduate enrollment, concurrently experienced the highest rate of decline (32 percent) in graduate enrollment over the period. Also, the South, which experienced the lowest rate of growth (27 percent) in undergraduate enrollment, concurrently experienced the highest rate of growth (92 percent) in graduate enrollment over the period.

The significant changes observed in the last two decades in the composition of agricultural economics students continued over the 1975-1984 period. Some of the major changes are (1) an increasing proportion of agricultural economics students with nonfarm background, (2) an increasing proportion of female students entering agricultural economics programs, particularly at the graduate level, (3) an increasing proportion of graduate students with nonagricultural economics majors at the undergraduate level, and (4) an increasing proportion of graduate level foreign students. Student composition changes are important dimensions of the supply and demand components of the future agricutural economics labor market. These changes undoubtedly will impact the status and opportunities for Blacks.

The first objective was to assess the general characteristics of black Americans within the agricultural economics profession. Two hypotheses were advanced in relation to this objective. These were: (1) Blacks are concentrated below the terminal degree levels, and (2) they are concentrated primarily at the predominantly black institutions. Certain factors were postulated to be related to the hypotheses. These factors will be discussed below.

The results of the survey clearly indicate that black Americans are disproportionately concentrated below the terminal academic degree in the agricultural economics profession. Only a few Blacks in the U. S. have terminal degrees (approximately 35). The results also indicate that very little potential exists for future increase in the supply of practicing black agricultural economists, particularly at the Ph.D. level. This is cause for serious concern since the trend within the agricultural economics profession is one of a sustained movement towards a high proportion of Ph.D. degree holders. Furthermore, the data indicate that black graduate students have not been a significant part of the changing enrollment composition observed over the 1975-1984 period. Blacks have not been a significant factor in the changing gender composition of graduate agricultural economics programs. Of particular interest is the fact that the proportion of black female graduate students in agricultural economics programs is minimal, particularly at the Ph.D. level. The pool of black female Ph.D. agricultural economists currently numbers about three and it is clear that there is limited potential for augmenting this pool in the near future from the ranks of graduate students.

As the results of this study indicate, many of the employers of agricultural economists, especially the nonacademic employers, have only hired Blacks at below the Ph.D. level. According to survey results, 32 of the 66 Blacks working in firms and agencies in agricultural economics and statistics, were employed by one agency. All of these 32 employees were at the B.S. level. In other firms and agencies some reported having a few Blacks with M.S. and Ph.D. degrees.

One factor that was expected to heavily affect the employment pattern of black agricultural economists was the lack of undergraduate and graduate agricultural economics programs at predominantly black institutions. In the past, most agricultural economics programs at black institutions were very limited. These departments were essentially service oriented, providing farm management, introductory agricultural economics, and marketing courses for majors in other agricultural sciences. At the undergraduate level it is obvious that black undergraduate agricultural economics majors were not an integral part of the increased undergraduate agricultural economics enrollment observed over the 1974-1984 period. The survey on black agricultural economists reported that in 1983, black undergraduate majors accounted for 150 of 5000 (3 percent) of the undergraduate agricultural economics majors at 46 academic institutions. Most of these black undergraduates were enrolled at predominantly black institutions. Currently, there are six predominantly black institutions that provide B.S. agricultural economics programs and three that provide graduate level programs. All of these institutions are located in the South. As indicated earlier, the South experienced the slowest rate of undergrduate agricultural economics enrollment over the 1975-1984 period. Thus, there are a very limited number of black institutions providing training in agricultural economics, relative to predominantly white institutions, and it does not appear that Blacks were a major part of the growth in agricultural economics experienced in the 1862 institutions. Given these trends, it would seem that there would be some concomitant negative effects on the level of black undergraduate agricultural economics enrollment over the 1975-1984 period, given their concentration in the South. This

appears to have been the case. A U.S. Department of Education (1983) study indicated a 1.6 percent decline in the number of B.S. agricultural economics degrees awarded to Blacks over the 1976-1981 period.

What are the major factors associated with declining black undergraduate agricultural economics enrollment in the face of significant increases in aggregate undergraduate agricultural economics enrollment? A number of possible explanations are offered. First, the retrenchment of agricultural related programs, including agricultural economics, at many 1890 institutions in the 1970s might have resulted in a dramatic decline in aggregate black undergraduate agricultural economics enrollment, since these institutions produce the bulk of such students. Many such institutions were mandated under court ordered Equal Employment Opportunity and Affirmative Action decrees to expand the range of subject matter offerings to attain parity with 1862 institutions and to attract a wider cross-section of students. Under such decrees, many of these institutions consolidated their agricultural programs and established a wide variety of technical and business-related options. These changes might have resulted in shifts away from agricultural economics areas. Second, many of the potential black undergraduate agricultural economics majors at 1890 institutions might have elected to attend predominantly white institutions and major in higher demand areas rather than agricultural economics. The second factor might have been significant, since over the period many predominantly white institutions were also mandated to increase their black student enrollment. Many were able to attract black undergraduate students through lucrative financial aid ans scholarship packages.

At the graduate level, black graduate enrollment represents a small proportion of total graduate agricultural economics enrollment. The 1983 survey data from 46 graduate agricultural economics programs indicate that at the M.S. level there were 36 Blacks of an total enrollment of 1000 students (3.6 percent). At the Ph.D. level, there were only 15 Blacks in an enrollment of 800 students (1.9 percent). These enrollment figures indicate a relatively small pool and a stagnant rate of growth in the supply of graduate level black agricultural economists. The question of effective barriers to entry in graduate agricultural economics programs at the 1862 institutions is a relevant one. Many 1862 institutions view black applicants as "academically suspect", especially those coming from 1890 institutions. It is clear that applicants from the 1890 institutions must perform well on quantitative portions of the GRE to gain graduate admission to many 1862 institutions. Although many schools indicated that they did not require a GRE score or that no minimum score was required, many students report that they were not able to gain admission because of low quantitative scores on the GRE.

Some schools admitted that they "bend" the admissions rules slightly for Blacks and other minorities. Generally, the so-called "rule bending" tended to help those students who had done relatively well on the GRE, had an excellent GPA average, or those who had strong ties with faculty members who were graduates of those institutions. The indications are strong that academic mentorship is an important dimension of admission decisions.

Other barriers also affect the ability of black students to attend school, namely that of cost. Most Blacks come from families with income well below the median for the country. Thus, virtually in all

cases, the need for financial assistance for black students is substantially greater than that for Whites. If assistantships and fellowships are not available, many Blacks will not be able to attend graduate school. In some cases, institutions that admit black students to their graduate programs do so without awarding financial assistance at the time of admission. Financial assistance is forthcoming only after the student has demonstrated the ability to be academically competitive. This delay makes it difficult for black students who have been admitted to bear the first year costs of graduate training.

The committee's study found that Blacks faced different problems in their pursuit of Ph.D. degrees than non-Blacks. Blacks were almost five times as likely as their non-black counterparts to cite financial problems as a major obstacle to completion of a Ph.D. degree. The source and level of financial assistance were also significantly different for black and non-black Ph.D. candidates. While research and teaching assistantships were the primary source of financial support for non-black Ph.D. students, black students on the other hand, relied heavily on fellowships and salary from positions away from the parent department for support. This discrepancy in sources of financial support might be related to the high priority given to the GRE scores in awarding teaching and research assistantships, and the tendency for Blacks to be noncompetitive with Whites on this test. Findings suggest, however, that serious reconsideration be given to the use of GRE scores as the primary criterion for granting graduate admission or financial assistance to Blacks. Some graduate agricultural economics departments reported innovative programs for granting graduate admission or financial supports to black students based on criteria other than GRE scores. In such cases, these departments reported no significant difference in the attrition rates of black and white graduate students, irrespective of GRE test scores. This finding suggests that the GRE score might not be a good predictor of success rate for black graduate students.

The agricultural economics profession must find innovative and pragmatic ways of providing increased financial assistance to black graduate students if it is genuinely concerned about increasing the supply of black professionals. The paucity of adequate financial support for black Ph.D. candidates is probably interacting with other factors to make the opportunity costs of possessing a Ph.D. degree extremely high for black agricultural economists. Opportunity costs were ranked second by Blacks as a major obstacle to completing the Ph.D. degree. In recent years, the rate of return to accumulated human capital for Blacks has risen sharply at all educational levels, but still remains low relative to Whites. Since black Ph.D. agricultural econmists are "crowded" into predominantly black academic institutions, with lower average salaries than non-blacks institutions, this institutional factor could mitigate against increasing rates of return for accumulated black human capital stocks. Thus, in addition to providing increased and competitive financial support to black Ph.D. candidates, the agricultural economics profession should seek ways of "widening" the market for these professionals. Such efforts would include "good faith" and aggressive efforts to eliminate artificial entry barriers to Blacks qualified to fill faculty positions at predominantly white institutions. In undertaking these efforts, the profession should focus on the long-

term benefits of a fuller participation of Blacks in the profession. In short, it should not retreat from the philosophy of Equal Employment Opportunity and Affirmative Action because of the short-term political expediencies.

It is recognized that a reduced agricultural economics budgets could pose a major constraint to increased and competitive financial support for black graduate students. However, joint venture support programs between public and private organizations could be explored as a means of financing graduate programs for Blacks. Such a program could be developed within the content of a National Needs Fellowship Program similar to the recently funded USDA program in the areas of marketing. Such a fellowship program would, in the long run, assist in reducing the high opportunity costs of accumulated human capital stocks for black agricultural economists.

In addition to the cost of graduate training presenting barriers to entry, many Blacks have had to move out of the South to pursue graduate training which further increased the cost of schooling. Prior to the mid 1960s, very few, if any 1862 southern schools were admitting black students. Many faculty members at predominantly black southern schools were forced to develop ties to midwestern and northeastern universities as an alternative avenue for their graduate training. Often-times they also sent their students to those institutions for graduate training. This pattern was quite evident in the agricultural economics profession and has persisted in spite of the reduction in racial barriers at southern 1862 institutions. This historical pattern has resulted in some reluctance on the part of Blacks to seek graduate training in agricultural economics at southern 1862 institutions. The additional cost associated with pursuing higher education goals outside of the South must certainly pose a barrier to entry for Blacks into the profession.

Perception of career opportunities is another factor which could be associated with the presently low enrollment of Blacks in agricultural economics programs. The committee did not collect data on black students' perceptions of opportunities for career advancement in agricultural economics, but the perceptions of black agricultural economists could contribute to our knowledge of factors which influence the supply and status of black agricultural economists. In general, black agricultural economists felt that they have been able to pursue their career objectives. There is a strong indication, however, that Blacks have not been able to pursue the full range of career objectives within the limits of the wider professional labor market (i.e., employment at 1862 institutions outside the South, positions with increasing responsiblities at USDA agencies, in the state and local government, and with private firms).

It is important to determine if there are major divergencies between the training of black agricultural economists and non-black agricultural economists with respect to the skills demanded by potential employers. The study by Blank suggests that at the undergraduate level, the agribusiness option is projected to remain the high growth area over the next decade. The trend would suggest that, ceteris paribus, Blacks with undergraduate degrees in this area should find lucrative employment opportunities in firms and agencies seeking this type of expertise. There are some indications that this has indeed occurred. Agricultural economics department chairmen at 1890 institutions report that black agribusiness majors with B.S. degrees are heavily recruited by agribusiness firms. Furthermore, the

entry level salaries offered to outstanding undergraduates are in some cases competitive with the starting salaries of many M.S. and Ph.D. level agricultural economists. Undoubtedly, this trend will continue to adversely affect the pool of black undergraduate agricultural economics majors electing to pursue graduate degrees. At these relatively high B.S. salary levels, the opportunity costs are simply too high for them to pursue graduate level degrees. In addition, given the projected high growth demand in the South for undergraduate degree holders in marketing and farm management/production, these two specializations could offer excellent additional employment opportunities for Blacks holding B.S. degrees in these fields, who would prefer to reside in the South. Given these trends, it would appear that the current subject-matter orientation of black undergraduate agricultural economics students are in line with the high demand undergraduate areas. This is an economic factor that will mitigate against efforts to recruit these students into graduate agricultural economics programs.

At the graduate level, there is a high projected demand for the traditional agricultural economics areas. It was suggested that the differences in the demand characteristics of graduate and undergraduate areas reflect differences in the projected demand for types of human capital stocks (Blank). An important policy question is whether black agricultural economists at the M.S. and Ph.D. levels are specializing in those subject-matter areas that exhibit high demand potential. The Committee's study found that black agricultural economists at the M.S. and Ph.D. levels are specializing in those subject-matter areas with high growth demand potential. Specifically, black Ph.D. agricultural economists were more likely to specialize in farm management/ production economics, marketing, and community resources. The study also found that Blacks at the M.S. level were more likely to specialize in marketing and international trade and development.

The second hypothesis relating to the first objective relates to the concentration of black faculty at predominantly black institutions. The data show that black agricultural economists are concentrated at the black institutions. This concentration strongly suggests that Blacks with Ph.D. level training were forced through institutionalized segmented academic labor markets to pursue their career objectives at predominantly black institutions. In an earlier period, this pattern was clearly associated with legally mandated segregated education systems. Many of the black agricultural economists who graduated in the 1940s and 1950s, and even in the 1960s, had little choice but to work at a predominantly black institution. Alternative employment options simply did not exist. Since that time, educational and employment options for Blacks have widened. These options created mobility for Blacks, leading to the possibility of employment at the 1862 institutions. However, many Blacks feel strong loyalty to the institution where they received their undergraduate degree. This loyalty is reinforced by a strong sense of pride in the role and accomplishments of the historically black institutions in the American society. Many Blacks might be receiving substantial "psychic" income from employment at their undergraduate or other historically black institutions. The findings indicate that among black Ph.D. agricultural economists, 80 percent received their degrees at predominantly black institutions. The figures for M.S/M.A degrees were 63 percent.

On the other hand, the concentration of black Ph.D. agricultural economists at the 1890 colleges could actually be de facto job reserving among academic institutions, whereby black professionals are restricted to institutions serving black clients. This proposition is further supported by the fact that four of the five black Ph.D. agricultural economists who were employed at predominantly white educational institutions (at the time the survey was conducted) were employed in the South, the region with the greatest concentration of Blacks. As such, their employment might also be directly related to their employer's desire to utilize their training in service to black clients.

It could be argued, however, that the supply orientation of black Ph.D. agricultural economists is simply a reflection of major differences in the stocks of human capital that they possess, vis-a-vis non-black Ph.D.'s. This does not appear to be the case, however, since black Ph.D.s were equally likely as non-black Ph.D.s to specialize in the traditionally popular areas of farm management/ production economics, marketing, international trade and development. In short, black Ph.D.s appear to have the specialized training needed to conduct research in high priority agricultural economic areas. As such, other factors must be influencing the size of the academic labor market with respect to the utilization of high levels of black human capital stocks. To the extent that institutional factors are in part responsible for the narrowness of the labor market for black Ph.D.s, these factors would act as long term disincentives to the acquisition of improved human capital. Data indicate that Blacks were somwhat less optimistic than non-Blacks regarding career opportunities. Practicing black Ph.D.s were significantly less optimistic regarding career opportunities.

Salary levels in general, for agricultural economists at predominantly black institutions are competitive, especially at the entry level. The earnings regression results in Chapter IV suggested that race was not a significant determinant of earnings. However, when employment at 1890 schools and experience were considered, there was a significant difference in earnings attributed to the school and the school-experience interaction variables. Thus, we believe that entry level salaries at the 1890 institutions are competitive and is an important factor in attracting new Ph.D. graduates. However, they lag behind those of 1862 and other institutions when combined with experience at the 1890 institutions.

The differences in job responsibilities may also limit employment mobility between 1890 and 1862 institutions. Most predominantly black institutions were exclusively teaching institutions up until the late 1960s. In 1967 the first organized federal appropriation for research at the 1890 institutions was made through USDA under Public Law 89-106. However, these funds were rather meager, relative to those of 1862 institutions. Furthermore, these funds were not appropriated as "hard" money until 1977. Thus, the research component of 1890 institutions is a relatively recent phenomenon. The absence of a historically strong research tradition at 1890 institutions has undoubtedly affected the lack of mobility of black agricultural economists between 1890 and 1862 institutions. Immobility resulted because research experience and scholarly publications are given high priority for employment at 1862 institutions. It seems reasonable to expect that these criteria would be more stringently applied to open-

ings for more senior positions. In light of these tendencies, black agricultural scientists, including agricultural economists, have sought employment mobility by gravitating toward administrative positions within the 1890 institutions. One would assume, however, that some Blacks at 1890 institutions would be attracted to 1862 institutions based on their administrative experience. This attraction has not been the case, however, since research experience and publication record are also highly ranked criteria for administrative positions at 1862 institutions.

With increased research support going to 1890 institutions since the 1970s, one would also expect that some of the more recently hired black agricultural economists at these institutions would have a research support base that would increase their competitiveness for positions at 1862 institutions. Since black faculty at 1890 institutions are heavily involved in teaching in addition to research, the transfer of Blacks from 1890s to 1862 institutions may not happen. Relatively few of these faculty members have graduate students or adequate technical support personnel to assist in carrying out the objectives of the research program or projects. As such, they are required to assume all the technical and administrative responsibilities associated with their research projects. Furthermore, the standard teaching load is often four courses per semester. If faculty members are released for research activities they are released in proportion to a standard number of teaching credit hours, which on the average, is very high. It is also commonplace for Blacks holding administrative positions at 1890 institutions to concurrently hold two to three administrative positions covering widely different responsibilities. To the extent that the work experiences of Blacks employed at 1890 institutions are different from those in demand by 1862 institutions, this could, among other things, explain the lack of mobility between the two types of institutions. It would appear, however, that intra-institution job mobility among black agricultural economists at 1890 institutions does not offer comparable earnings benefits to that of inter-institution mobility. The earnings model, indicated that the institutional job experience of black agricultural economists had a negative impact on their earnings.

The second objective of the study was to evaluate the role of institutions of higher education in the training of black agricultural economists and other factors affecting their labor market demand and supply conditions. Survey data tend to support the hypothesis that no significant differences exist between the fields of agricultural economics concentration selected by black and white students at the graduate level. Specifically, black agricultural economists possessing Ph.D's tended to specialize in farm management and production economics (23 percent). Other areas of specialization listed were: agricultural marketing (19 percent), general economics (15 percent) and community resource (11 percent). Blacks with masters degrees tended to specialize in agricultural marketing (19 percent), international trade and development (19 percent), general economics (19 percent), and agricultural finance (13 percent). According to a study by Stanton and Farrell (1981), commercial agricultural production and marketing are priority research areas. Thus, black agricultural economists have the specialized training needed to conduct research in high priority areas as identified by agricultural economics department chairmen and administrators.

The hypothesis that the employment options for black agricultural economists are much narrower than those of whites appears valid. The following situation describes the sectoral employment distribution of black agricultural economists: (1) very few are employed by private firms and agencies, (2) the few Blacks employed by private firms are employed at the B.S. and M.S. levels while Whites tend to be hired at the M.S. and Ph.D. levels, (3) Ph.D. level Blacks are concentrated at predominantly black institutions and are heavily involved in teaching, (4) next to the 1890 universities, the USDA is the only other public institution employing any appreciable number of M.S. and Ph.D. level black agricultural economists. The southern 1862 institutions are the only predominantly white academic institutions registering any appreciable employment of black agricultural economists in the last two decades.

It should be expected that the historically small pool of black agricultural economists would, to some degree, account for their underrepresentation in the various employment sectors. The most frequently given reason by employers for not hiring black agricultural economists was their inability to find "qualified Blacks". However, the small pool of Blacks notwithstanding, it appears plausible to assume that since black agricultural economists possess the necessary skills for high demand areas, their sectoral employment distribution would be less concentrated than the data indicated. In particular, an important policy question is: why have black Ph.D. agricultural economists failed to secure employment at academic institutions other than predominantly black institutions? Perhaps predominantly white academic institutions tend to view black Ph.D. agricultural economists as a differentiated product. As such, they might be applying different employment criteria for black and white applicants, which might mitigate against the hiring of black applicants.

The Committee's study found that predominantly white institutions assigned the highest priority to "levels of academic training" when making hiring decisions on Ph.D. agricultural economists, regardless of whether the position was for teaching, research or extension positions. However, many predominantly white universities which received applications from black Ph.D. agricultural economists for teaching, research and extension positions, rejected such applicants on the basis of "poor research skills". This appears inconsistent, however, with their stated ranking of employment criteria, since research skills and teaching experience were ranked below academic training and supportive references for teaching and extension positions. Data strongly suggest that black Ph.D. agricultural economists have acquired high levels of subject-matter training comparable to their white counterparts. Thus, to the extent that they are viewed as a differentiated product, and are subjected to different hiring criteria by predominantly white academic institutions, their employment opportunities are limited at such institutions.

The findings that there were no significant differences in the attrition rates for black and white graduate agricultural economics students suggest that Blacks are competitive in graduate degree programs. Also, if Blacks tend to specialize in subject matter areas in proportions comparable to those of Whites, then factors other than the quality of human capital stocks must explain the differences in black-white employment patterns.

The agricultural economics

profession must first exhibit courage in publicly recognizing the institutional impediments to increasing the supply of black agricultural economists. Second, the profession should invest some of its intellectual resources in seeking innovative and pragmatic ways of removing supply and demand constraints on the employment of black professionals. These are necessary steps to the improvement in the status and opportunities for black agricultural economists in the years ahead. Further, we suggest that the AAEA conduct periodic studies to ascertain the opportunities and status of black agricultural economists.

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