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ABSTRACT

The impact of the Health Professions Educational Assistance Act of 1976 (P.L. 94-484) on the supply of physicians for the armed services was assessed. As background to the survey findings, information is presented on conditions of three federal programs and differences in their benefit structures and implications for program participation. These programs are the Armed Forces Health Professions Scholarship Program (AFHPSP) of the Department of Defense (DOD), the National Health Service Corps (NHSC) scholarships of the Department of Health, Education, and Welfare, and the Federal Loan Insurance Program. The 1977 survey of a sample of first and second year medical students evaluated their preferences regarding the alternative financing methods, using the conditional logit model to simulate future choices. The demographic variables included race, sex, marital status, and family contribution, and policy variables included the discounted present value of income in each life-cycle period. Attention is directed to implications of the results for current and future anticipated changes in AFHPSP participation, given no program changes, and cost effective program changes to attain a goal of about 1,200 physicians per year. The results suggest that the DOD will fall short of its requirements for medical AFHPSP accessions by about 400 per year after 1978 if there were full NHSC funding for all its qualified applicants. The analysis suggests that increasing service compensation by about \$7,500 (1978 dollars) would eliminate. the shortfall and will probably be more cost effective than offering a stipend beyond that offered by NHSC. Adjustment strategies for the AFHPSP program benefits are outlined, and a sample questionnaire and description of the survey procedures are appended. (SW)

R-2414-HA

Medical Student Financing and the Armed Forces Health Professions Scholarship Program

Victoria Daubert, Daniel Relles, Charles Roll, Jr.

January 1982

Prepared for the Office of the Assistant Secretary of Defense/Health Affairs

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PREFACE

The research described in this report sought to assess the impact of the Health Professions Educational Assistance Act of 1976 (P.L. 94-484) on the supply of physicians for the armed services.

The principal source of physician procurement for the Department of Defense is the Armed Forces Health Professions Scholarship Program (AFHPSP) authorized by the Uniformed Services Health Professions Revitalization Act of 1972 (P.L. 92-426). The intent of this scholarship program was to replace the draft and the Berry Plan, as well as other scholarships for selected health professionals. (The Berry Plan was a draft-motivated deferment plan for medical school graduates. It allowed them, at the services' option, to enter and complete residency training in return for two years of active duty military service following their residency training.) From its inception, the program proved to be successful in attracting the desired number of medical students, largely because AFHPSP was competitive with alternative methods of financing a medical school education. The Health Professions Educational Assistance Act changed this situation dramatically by offering equally (or more) attractive scholarships to medical students on a sufficiently large scale. As a result, the continued success of the AFHPSP in meeting DoD physician requirements was seriously jeopardized.

The research reported here provided a basis for estimating the type, direction, and magnitude of adjustments in AFHPSP benefits necessary to maintain the program on a competitive level with other scholarship programs. The research should also be of use in providing a method for gauging the effects of policy changes where historical data can provide no evidence. In 1980 the Special Pay Bill for Health Professionals (PL-96-286), incorporating many of the recommendations resulting from this research, was signed into law.

This work was sponsored by the Assistant Secretary of Defense for Health Affairs (Contract No. MDA903-77-C-0273).

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• The principal source of physician procurement for the Department of Defense since the end of the draft has been the Armed Forces Health Professions Scholarship Program (AFHPSP), authorized in 1972. As a result of subsequent legislation authorizing HEW's National Health Service Corps (NHSC) scholarships, the competitive position of the AFHPSP has been eroded. This report describes the analysis of a sample survey of medical students, carried out in late 1977. The purpose of the research was to analyze survey responses to recommend benefit changes to ensure that AFHPSP would remain a viable source of physician procurement. The empirical results derived from the survey of first and second year medical students suggested that DoD would, after the transition to full NHSC funding, fall short of its requirements for medical AFHPSP accessions by about 400 students per year. The analysis also suggested that increasing service compensation by about \$7,500 (1978 dollars) per year would fill the shortfall. As the empirical evidence has testified, the prediction was accurate.

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ACKNOWLEDGMENTS

This work was initiated and carried through survey stages by former Rand colleagues William H. Albright and David S. C. Chu. The authors wish to thank them for their efforts. John J. McCall and Susan D. Hosek provided helpful comments on the final draft of this report.

Lieutenant Commander Eleanor S. Matheson was project monitor for this research effort. Throughout the life of the project, her support, encouragement, and constructive review were deeply appreciated.

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I. INTRODUCTION

In late 1972 the Congress passed the Uniformed Services Health Professions Revitalization Act (P.L. 92-426) and thereby established the Armed Forces Health Professions Scholarship Program (AFHPSP). The AFHPSP was directed at one of the most difficult problems to face the military services because of the end of the draft—the procurement of physicians.

Through the AFHPSP, the military departments are authorized to award scholarships to medical students and students in specified allied health fields who will accept a year of obligated active-duty service for each year of scholarship support. The AFHPSP has become one of the most important sources of physician manpower for the Department of Defense. From its inception to 1977, the program was to be successful in attracting the desired number of medical students. AFHPSP's initial recruiting success, however, took place in an environment where the financial alternatives available to medical students, although better than in the early 1960s, were limited. This situation changed dramatically when, in 1976, the Congress passed the Health Professions Educational Assistance Act (P.L. 94-484). The financing alternatives for medical education now available to students under this Act—through the expanded National Health Service Corps Scholarship Program (NHSC) and the new federally insured student loan program—were offered on a scale large enough to potentially affect the market for medical school financing.

What were the future prospects for the AFHPSP in this new situation? How should DoD react? What changes might DoD consider for the AFHPSP? To help answer these questions, The Rand Corporation conducted, in late 1977, a sample survey of first and second year medical students. The survey was designed to assess the effects of P.L. 94-484 on the AFHPSP and to identify changes in the program which would restore its attractiveness at least cost. We found that, in the long run, AFHPSP faced a significant shortfall in its recruiting objectives. Our results suggested that increasing service compensation was the most cost effective policy option to achieve the desired number of AFHPSP 'recruits.' This report describes the survey and presents these findings.

Following a problem statement in Section I, Section II describes the conditions of the AFHPSP, NHSC, and federally insured student loan programs and discusses their potential impact on the market for medical school financing. Section III describes the survey instrument and the survey methodology. The methodology described in this report is potentially applicable to analyzing a wide set of program change effects where historical data are not able to provide insight. Section IV presents the analysis and results of the survey. Based on these results, Section V outlines alternative adjustment strategies for the AFHPSP program benefits. Appendixes A through D describe the medical student survey procedures and the survey itself.

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II. CONDITIONS OF THE PROGRAMS AND CHANGES IN THE MARKET FOR MEDICAL SCHOOL FINANCING

This section describes the conditions of the three federal programs—AFHPSP, NHSC, and federal loans—and identifies those differences in their benefit structures likely to affect student preferences: the effective level of the stipend and the postgraduate training opportunities. Finally, we consider the resulting implications for participation in AFHPSP, and indicate how our research sought to address these implications.

PROGRAM DESCRIPTIONS

The AFHPSP Program

Public Law 92-426, the Uniformed Services Health Professions Revitalization Act of 1972, established the Armed Forces Health Professions Scholarship Program in order to generate an adequate supply of active-duty commissioned officers who are qualified in designated health professions. At any one time the program provides for a total of 5,000 scholarships in the fields of medicine, osteopathy, dentistry, veterinary medicine, optometry, podiatry, and clinical psychology (at the Ph.D. level). Most scholarships are awarded to medical students. Participants in the program are appointed as commissioned officers in the reserve components of the Armed Forces.

Eligibility. To be eligible for participation in the AFHPSP a candidate must (1) be a United States citizen; (2) meet the requirements for appointment as a reserve commissioned officer; and (3) be enrolled or accepted for enrollment at an accredited educational institution in the United States or Puerto Rico in a designated health professions training program. In addition, the candidate must sign a contractual agreement which binds him (or her) to (1) complete his education as a member of the program; (2) accept an appropriate reappointment or designation in the health professions; (3) participate, if selected, in an internship of the sponsoring military service; (4) participate, if selected (based on his speciality choice), in a military residency program, or be released from active duty for the period required to undertake a civilian residency if selected by the sponsoring military service for such training; (5) participate in prescribed military training; and (6) complete the military active duty obligation.

Military Active Duty Obligation. For program participation of two years or less there was a military obligation of two years. Participation in excess of two years resulted in an additional active-duty obligation of six months for each additional six months or less of scholarship support.

The period of time during which an internship and/or residency training is completed does not count toward the obligated service period.

Regardless of any higher reserve^{*} grade held, program participants must serve on active duty in the grade of second lieutenant/ensign with full pay and allowances for 45 days during each 12-month period of participation in the program. The salary during the obligated service period averaged \$22,000 per year in 1977.

The new physician pay bill (P.L. 96-284, 28 June 1980) revised the pay provisions for medical officers in the Armed Forces. It increased the salary for HPSP physicians with one year of postgraduate training to \$33,000 per year, including bonuses and allowances. The

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salary for HPSP physician specialists with three or four years of residency training is about \$38,000 per year for the first one or two years and about \$43,000 for the remaining years of obligated service. All graduates are entitled to complete one year of postgraduate training, and about 50 percent may complete their residency training before beginning their activeduty obligation.

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Stipend and Educational Expense. The original legislation authorized a stipend of \$400 per month for 10.5 months per year. As of 1 June, 1981, the stipend was raised to \$530. In addition to the stipend, program benefits cover all educational expenses such as tuition, fees, books, laboratory and educational service expenses, and equipment rental.

Students in the AFHPSP during AY 1973-1974 and AY 1974-1975 originally incurred a federal tax and social security liability on the stipend of \$40 to \$60 per month. This liability was removed by temporary legislation enacted by the Congress on 24 October 1974, which expired on 31 December 1975. Subsequent temporary legislation has been passed four times to maintain the tax exempt status of the scholarship for students entering the program prior to January 1980. In 1980 the Congress enacted legislation to permanently resolve the tax status of the AFHPSP. It called for taxation of the stipend only, and only for students entering the program after 31 December 1980. To compensate these students for the tax, legislation is now pending to increase the amount of the stipend by the amount of the tax liability.

The NHSC Program

The Public Health Service's National Health Service Corps (NHSC) is competitive with the AFHPSP. It provides financial support for full-time students enrolled in any nationally accredited U.S. school of medicine, osteopathy, dentistry, or (1977-1978) baccalaureate nursing. NHSC participants are employed by the federal government for a period of obligated service to help relieve the professional staffing needs of Public Health Service direct patient-care programs in medically underserved areas of the United States.

Eligibility. Applicants to the program must (1) be citizens of the United States; (2) be enrolled or accepted as full-time students in an accredited educational institution for medical, osteopathic, dental or nursing education in the United States or any of its possessions or trust territories; and (3) have no competing service obligation.

Service Obligation. Scholarship recipients are obligated for one full year of service for each academic year or part of an academic year for which scholarship support was received, with a minimum service obligation of two years. Participants serve as NHSC employees in federally designated Health Manpower Shortage areas in the United States and are assigned to urban or rural areas, public or private non-profit medical facilities, or population groups at the discretion of the NHSC. In 1977, the salary during the obligated service period averaged \$22,000 per year, including allowances. At present, the initial salary, which is inflation protected, has increased to about \$38,000 for General Medical Officers with one year of postgraduate training. Board-certified specialists receive an additional \$2,000. All graduates may elect to complete up to three years of postgraduate training before beginning their service obligation.

Stipend and Educational Expenses. In 1977, participants in the program received a stipend of \$429 per month for twelve months each year. This stipend is protected against inflation by a cost of living increase provision. (The stipend was \$530 as of 1 June 1981.) In addition to the stipend, the program covers tuition, fees, equipment rental, and other reasonable educational expenses.

In 1977, the tax status of the scholarship was uncertain. Students who entered the program prior to January 1977 (our sample) were to be exempt from federal taxation on all scholarship funds through 1979. Beginning in 1980 students would very likely be liable for federal, and in some cases, state income taxation on the full amount of their scholarships (stipend, tuition,

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and fees). In 1980, the tax status of NHSC scholarships was resolved to permanently exempt all fees and tuition. The stipend will be taxed beginning in 1981.

The Loan Insurance Program

The Federal Program of Insured Loans aids graduate students in Health Professions Schools who can demonstrate exceptional financial need. The program provided a maximum of \$10,000 per year, up to \$50,000 per student. Loan funds were available to cover tuition, plus a maximum of \$2,500 to cover other reasonable educational expenses, including fees, books, and laboratory expenses. Loan funds did not cover living expenses.

Loan principal is repayable over a period of 10 to 15 years, starting 9 to 12 months after completion of training (including internship and residency training), except during service in the Armed Forces, the National Health Service Corps, or the Vista Volunteer Program. Interest is payable by the recipient throughout the life of the loan at a rate not to exceed 10 percent. Students may elect to have their loans plus interest forgiven at a rate of up to \$10,000 per year for each year of service in the National Health Service Corps or in private practice in a designated Health Manpower Shortage Area. Students who elect this option must serve a minimum of two years.

DIFFERENCES IN BENEFIT STRUCTURES

Competitive Status of the AFHPSP

At the time of the study, the National Health Service Corps Scholarship Program had more attractive features than the AFHPSP in at least two of its benefit provisions: the stipend and the postgraduate education provisions. They were equal in the length of the required obligated service period. The difference in the stipend has since been eliminated, and the postgraduate training provision, which guarantees students only a 50 percent chance of entering and 'completing residency training, has in fact proved to be far more liberal as the services' demand for specialists increased.

Through the Health Professions Educational Assistance Act, the NHSC scholarship program expanded significantly. Funding of the Public Health Service scholarships (PHS), which NHSC programs are designed to replace, had been limited and had not been a serious threat to the AFHPSP. In addition, PHS scholarships had been awarded primarily to students in their third year of medical school, whereas AFHPSP participants were generally first or second year students at the point of entry into the program. In FY 1978, the first full year of the NHSC scholarship program, \$60 million were appropriated. Of this, \$48.6 million (81 percent) were set aside for medical and osteopathic students, with selection priority given to applicants entering their first and second year of medical school. At an average annual amount of \$10,000, this new level of funding could provide for 4,860 scholarships.

The Senate-House Conference Agreement on HEW Health Appropriations for FY 1979 included \$75 million for NHSC scholarships, of which \$60.75 million could go to medical and osteopathic scholarships. (P.L. 94-484 authorized up to \$75 million in FY 1978, \$140 million in FY 1979, and \$200 million for FY 1980.) In the extreme, this could have resulted in funding for 16,000 medical and osteopathic scholarships in 1980, or 25 percent of the student population. As a result, AFHPSP was competing for participants against a program which had superior benefits and the ability to absorb, at the 1978 funding level, all scholarship recipients under the old PHS program as well as all potential AFHPSP applicants.



At present, however, the status of the NHSC program is being reviewed by the Reagan Administration. Although the new proposed budget would fund those students already in the program, it would award no new scholarships for the coming year.

The loan insurance program also clearly had the potential to affect the medical school financing market, although to a lesser extent because of its restrictions and inferior benefits. It was very different from NHSC and HPSP, neither offering a stipend nor tying participation to exceptional financial need or a service obligation.

The Effective Level of the Stipend

Investment in education differs from other types of investments in the difficulty of capitalizing its potential earnings. For the medical student this means that, while he (or she) can look forward to many years of high earnings capability, he must satisfy current monetary demands (living and education) out of current assets. For many this is difficult. The AFHPSP allows future earnings to be converted into current assets by the obligation of future services.

The AFHPSP is attractive because it offers coverage of living as well as educational expenses. However, while the nominal value of its stipend has remained constant, the effective value was decreasing because of inflation. The purchasing power of \$400 (1978 dollars) is about \$265 (1972 dollars). Thus, the effective before-tax value of the stipend had declined to 66 percent of its original value and, given the rate of inflation in 1978, it was expected to decline still further. (Recent changes in the stipend are discussed in Sec. II.)

The NHSC stipend has always been protected against inflation by an annual cost of living increase.

A second (potential) factor in the decline of the effective value of the stipend was the tax provision which might apply to both the AFHPSP and the NHSC program. This provision would have had a differential impact, hitting hardest those students who attend high tuition schools. As described above, this uncertainty has been resolved.

Opportunity for Graduate Medical Education

If chosen, AFHPSP participants are obligated to enter military service upon graduation from medical school. Since at least one year of graduate medical training (GME f or internship) is prerequisite for independent medical practice, this training will have to be provided through either military or civilian training programs. Entry to active duty may be deferred for students completing a civilian internship.

Since training beyond GME 1 (residency) is not necessarily required, the military departments have the following three options:

- 1. The AFHPSP physician may be chosen for a military or military-sponsored residency, with the time spent in training not counted against his active-duty service commitment.
- 2. The AFHPSP physician may, at the services' option, defer entry to active duty until after completion of a civilian residency.
- 3. The AFHPSP physician may be required to serve his active-duty service commitment immediately upon completing GME 1.

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From the viewpoint of the military services, allowing all AFHPSP physicians to take residency training immediately after internship would have exacerbated the physician supply problem in the short run. The most severe physician shortage was expected for the end of the seventies, when most Berry Plan enrollees would have completed their obligated service period. (The Berry Plan was a draft-motivated deferment plan for medical school graduates. It allowed them, at the services' option, to enter and complete residency training in return for two years of active duty military service following their residency training.) Allowing all AFHPSP participants to complete residency training would mean that the first AFHPSP physicians would not start full medical practice until three to five years after graduation from medical school; i.e., well after 1980. Furthermore, because of the way Berry Plan deferments for graduate medical education worked, the ratio of specialists to general practice physicians in the military services was expected to increase until the end of the decade. (The actual experience differed because of the civilian procurement program for volunteer physicians, which primarily provides general practitioners.) Consequently, the services had adopted a policy of allowing residency training before serving the AFHPSP commitment only in those specialties for which a requirement existed.

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From the perspective of the AFHPSP student, at least some residency training is prerequisite to medical practice, as evidenced by the fact that nearly all medical school graduates pursue some postgraduate medical training beyond internship (GME 1). This investment in graduate training partly reflects the belief that GME 1 training alone does not adequately prepare physicians for independent practice.¹ Moreover, the practice of a physician without residency training differs from that of the specialist. By being able to deny the AFHPSP participant the opportunity to complete residency training before entering active duty, the services can force the young physician either to interrupt his training or to temporarily accept a type of practice that he might not have chosen for himself. Thus, one would expect participation in the AFHPSP to be sensitive to the program's stated residency policy.

In contrast to the AFHPSP, the NHSC scholarship program guarantees each participant the opportunity to pursue up to three years of postgraduate training before beginning the obligated service period. This provision, in addition to allowing the physician to complete a significant portion of his medical school training, eliminates a great deal of uncertainty and facilitates career planning and family life. It is more likely to affect those students planning to enter specialties with shorter residency requirements (e.g., family practice, general practice).

Other Attractive NHSC Provisions

The NHSC program offers a number of options to scholarship recipients which are not available to the AFHPSP members. These include:

- 1. The option to enter into an alternative agreement, after completion of training, to serve all or part of the service obligation in private practice (or as an employee of an entity providing health services) in a Health Manpower Shortage Area which has a priority for assignment of NHSC personnel, has a sufficient financial base to sustain such a practice, and provides an income at or above the income of a NHSC member.
- The opportunity for recipients who demonstrate exceptional promise for medical
 research to fulfill their service obligation under the the National Research Service Award Program.
- 3. For scholarship recipients who complete their full service obligation with the NHSC, special one-time grants to aid in starting a private practice in a Health Manpower Shortage Area which has a priority for assignment of NHSC personnel, has a suffi-



¹G. M. Carter et al., Federal Manpower Legislation and the Academic Health Centers: An Interim Report, The Rand Corporation, R-1464-HEW, April 1974, p. 33.

cient financial base to sustain such a practice, and provides an income at or above the income of a NHSC member.

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4. Recipients will not be subject to military duty in the event of a national emergency during their period of obligated service as commissioned officers of the NHSC.

COMPETITIVENESS OF AFHPSP

In the face of its successful history, was concern for HPSP's continued role as the major source of physician manpower to the armed services justified?

In 1974, Rand conducted two surveys under Air Force auspices. All Air Force AFHPSP participants in their first or second year of medical school were questioned about their attitudes toward the program and the information they had received about it.

A second survey was administered to a random sample of first and second year medical students. This survey focused on students' attitudes toward military service compared with civilian practice, their knowledge of the AFHPSP, and their potential response to the AFHPSP as currently authorized and under alternative conditions. The findings were that participation in the AFHPSP was sensitive to the effective level of the stipend, the opportunity for postgraduate medical education, and the length of the obligated service period.

The need for the survey which is the basis of this report arose from the changed medical school financing market facing scholarship students. This second survey was necessarily more complicated than the first, for the analysis had to take account of more options. Because our results are based on survey data, whatever predictions are made must be tested against reality.

It is useful to indicate where this survey study falls along the spectrum of empirical research.² At one end there is the "back of the envelope" analysis on which most policy decisions are probably justified. In the best of circumstances, this type of analysis is based on economic theories that have been subjected to repeated tests, and the predicted sign of the changes resulting from the recommended policy should be correct. At the next level are decisions that require more than qualitative guidance even when there are no historical data. A survey is conducted and with good luck a careful study emerges. Now we have quantitative estimates, but they must be treated gingerly until the appropriate historical data are collected, especially when the survey data are based on answers to hypothetical rather than retrospective questions. Next, there are studies based on historical data that are, as a rule, superior to studies that rely on hypothetical survey data. Finally, there are the "experimental studies" that are presumably the most informative of all empirical research in the social sciences.

The present study is one of survey responses and attempts to provide experimental data where no historical data were available. This experimental method predicted very well and should be of use in other applications. In addition, such analyses have the benefit of data that are uncontaminated by side constraints as are historical data.

²The authors are indebted to J. J. McCall for this categorization of our research.

III. SURVEY METHODOLOGY

In 1977, Rand conducted the medical student survey to generate a body of data which could be used to evaluate student preferences regarding several alternative financing methods the AFHPSP, the NHSC Scholarship Program, and the Federal Loan Insurance Program. In particular, we wanted to study how modifying the conditions of these programs might affect the relative participation rates in the AFHPSP and NHSC programs.

The survey was mailed to 3,400 medical students expected to graduate in FY 1980 and FY 1981. The sample was supplied to Rand by the American Medical Association. Its sociodemographic characteristics match closely those of the general medical student population.¹ In addition, a sample of osteopathic students was surveyed.²

The survey was designed to answer four questions regarding the future of the AFHPSP:

- 1. If the conditions of AFHPSP had remained unchanged, what would have been the effect of the Health Professions Educational Assistance Act on AFHPSP participation? Each respondent was asked to rank simultaneously four alternatives for financing his (or her) medical school education: AFHPSP, NHSC, the loan program (LOAN), and the student's current method of financing (OTHER).³ Evaluation of these simultaneous rankings allowed estimates of AFHPSP participation for alternative funding levels of the AFHPSP and the NHSC Scholarship Program.
- 2. Which conditions in the AFHPSP should be changed to keep the AFHPSP as a major source of physician manpower for the military services? Twenty-six alternative structures of the AFHPSP were evaluated by first and second year medical students. The alternatives included modifications in (a) the level of the stipend, (b) the service compensation, and (c) the postgraduate training policy. Each student was asked to rate a subset of 4 of these modified benefit structures. To accomplish this, 12 separate versions of the survey were distributed.
- 3. Just as conditions of the AFHPSP might change in the future, so might changes occur in the NHSC Scholarship Program or the loan program. To ensure that the results of this survey would not be invalidated by these changes, the third question concerned the effect of possible changes in these programs on participation in the AFHPSP. Respondents were asked to evaluate potential alternative benefits in these programs compared with the AFHPSP, again in a stratified manner so that each respondent evaluated only four alternatives.
- 4. The final question was on the relationship of individual characteristics to student preferences for financing their education. These data on respondent demographic characteristics provided information on potential procurement problems and sources of applicants. Respondents' medical practice intentions indicate the kinds of medical specialties which may be most difficult to man in the future. Respondents' views of military medical practice provide the Services with an opportunity to initiate positive changes or to alleviate misconceptions through recruiting efforts.



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¹Excluding undeliverables, the response rate was $\beta 2.25$ percent.

²A total of 792 osteopathic students at 10 colleges were given questionnaires through their schools. The response rate was 25 percent.

³For approximately 6 percent of respondents the current method of financing was expected to be AFHPSP.

In the following section, we describe our analysis of the survey data. The analysis attempts to estimate program participation as a function of program and demographic characteristics. Because the data were derived from a survey, we estimated unconstrained supply curves, uncontaminated by demand constraints which often confuse historical data. Inherent in such analysis is the fundamental assumption that medical students would choose programs of financing on a life-cycle basis. That is, not only would participation be conditional on financial incentives during medical school years, but also on the anticipated earnings to be received after residency training.

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IV. STATISTICAL MODELS AND METHODOLOGIES

THE CONDITIONAL LOGIT MODEL

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The problem of analyzing the choice behavior of individuals confronted with a finite set of mutually exclusive alternatives arises in a wide variety of contexts. The conditional logit technique, recently popularized by McFadden,¹ has become a widely accepted approach. Recent applications include studies of choice among institutions of higher education (Radner and Miller),² transportation modes (Charles River Associates),³ and occupations (Schmidt and Strauss).⁴

The conditional logit model focuses on dependent variables that identify which of a set of alternatives was chosen by each individual in a group. It postulates that every individualfirst evaluates the utility of each alternative available to him, then selects the alternative for which the utility is largest. In practice, the utility function is assumed to be linear in parameters that describe the individual and the alternatives; it also includes an additive random disturbance term from a specific family of distributions. Such restrictions are necessary for tractible estimation procedures.

In our case, there are four alternatives, each defining a different method for medical school financing: NHSC, HPSP, LOAN, and OTHER. The utility functions depend on the projected income streams under each program, additional program incentives, and the individual's wealth, race, sex, and marital status:

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$$\mathbf{U}_{ii} = \mathbf{b}' \mathbf{X}_{ii} + \mathbf{e}_{ii},$$

where i = an index of individuals,

j = an index of alternatives, identifying NHSC, HPSP, LOAN, and OTHER,

 U_{ii} = utility (or score) of jth alternative to ith person,

b = (p by 1) vector of unknown coefficients,

 $X_{ii} = (p by 1)$ vector of attributes of jth alternative to ith person,

 e_{ii} = random error.

The goal of the analysis is to estimate b, thereby identifying the attributes of alternatives that affect choices and quantifying the magnitude of their effects. We also seek a method for simulating future choices which is consistent with the above formulation.

General principles of statistical analysis prescribe that one first write down the likelihood function of the observed data. The maximum likelihood estimates generally have good classical and Bayesian properties, and the inverse of the log likelihood function's second derivatives matrix approximates the estimates' variances and covariances.

In conditional logit estimation, the only distribution on the random disturbances that leads to a closed form and tractible likelihood function is the Weibull distribution:

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¹Daniel McFadden, "Conditional Logit Analysis of Qualitative Choice Behavior," in P. Zaremba (ed.), Frontiers in Econometrics, New York: Academic Press, 1973, pp. 105-142.

²Roy Radner and Leonard S. Miller, *Demand and Supply in U.S. Higher Education* New York: McGraw-Hill, 1975.

³Charles River Associates, Inc., A Disaggregated Behavioral Model of Urban Travel Demand, Final Report to U.S. Department of Transportation, Contract No. FH-11-7566, March 1972.

⁴Peter Schmidt and Robert P. Strauss, "The Prediction of Occupation Using Multiple Logit Models," International Economic Review, Vol. 16, June 1975, pp. 471-486.

The class of Weibull distributions is quite rich, admitting a variety of error density function shapes for various choices of A and B.

Given the Weibull assumptions, McFadden⁵ derives an expression for the probability that individual i chooses alternative j:

$P_{ij} = Prob(individual i chooses j)$

$$= \exp(b'X_{ij}) / \sum_{k} \exp(b'X_{ik}) .$$

Hence, a sample of n students making choices $c(1), c(2), \ldots, c(n)$ yields the closed-form likelihood function

$$L(b) = \prod_{i=1}^{n} \left[\exp(b'X_{i,c(i)}) / \sum_{k} \exp(b'X_{ik}) \right].$$

This function has been studied extensively by many authors besides McFadden (cf. Theil,⁶ Haberman,⁷ Nerlove and Ness),⁸ and its numerical properties are well-known. It has a unique maximum, and the Newton-Raphson iteration technique generally finds the maximum quickly. Inference statistics include the maximum likelihood values themselves, the log likelihood function (useful in tests of hypotheses), and the inverse of the second derivatives matrix (for confidence intervals).

In our empirical work, we postulated several alternative formulations for the X's, fit the parameters by the maximum likelihood methods, and tested for the importance of terms using likelihood ratio tests. We examined signs of fitted coefficients to verify that the fits were compatible with theory; for example, income elasticities had to be positive. Finally, we used the fitted models to simulate choices of individuals, and verified that the percentages predicted for each option were roughly compatible with empirical flows. These steps are described in the subsections below.

ESTIMATING CONDITIONAL LOGIT PARAMETERS

Choice of Variables

We assume that utility levels depend on two kinds of variables: demographic characteristics of the person and attributes of the choices. The demographic characteristics include race, sex, marital status, and wealth. The choice attributes consist of each program's pecuniary and nonpecuniary incentives. The latter are obviously related to program choice: the greater the incentive, the higher the probability of participation. The demographic characteristics generally serve as intercept variables to set overall levels of program participation: for



⁵McFadden, op. cit.

⁶Henri Theil, "A Multinomial Extension of the Linear Logit Model," International Economic Review, Vol. 10, October 1969, pp. 251-259.

October 1969, pp. 251-259. ⁷Shelby J. Haberman, "The General Log-Linear Model," Ph.D. dissertation, The University of Chicago, September 1970.

Marc Nerlove and S. James Press, Univariate and Multivariate Log-linear and Logistic Models, The Rand Corporation, R-1306-EDA/NIH, December 1973.

example, one might expect that the greater one's wealth, the less likely be is to choose any program with an obligated service requirement.

The demographic variables race, sex, and marital status were entered into the model as dummy variables indexed by program. This essentially sets intercept terms for the probability of participation in each program. The demographic variable "family contribution" was also indexed by program, accounting for the tendencies of wealthier persons to prefer one type of program over another. As in ordinary linear regression, it is necessary to control for the demographic variables to insure that the estimated responses to policy-controlled parameters are not simply measuring general levels of preference for a specific financing method.

Policy variables included in the model were the discounted present value of income in each life-cycle period, plus indicators of whether the programs with obligated service periods payback were offering nonpecuniary incentives during the residency and obligated service periods. Estimating separate coefficients by life-cycle stage allows for a varying evaluation of the value of money. This would be necessary to test the view that medical students are willing to suffer financially during their tenure in medical school—more important are the large monetary rewards in later years.

The Data Matrix

In the conditional logit approach, the specification of the data matrix requires a complete description of each alternative available to each student. Thus, the matrix of independent variables is dimensioned 4 by p, where p is the number of elements in the vector b. To accommodate an intercept term that fixes the level of participation for each alternative, three rows in the X matrix are required. The first row indicates whether the alternative is of the NHSC type; it is (1,0,0,0) if the current method of financing is not NHSC, and (1,0,0,1) otherwise. The second row indicates whether the alternative is of the HPSP type; it is (0,1,0,0) if the current method of financing is not NHSC, and (1,0,0,1) otherwise. The second row indicates whether the alternative is of the HPSP type; it is (0,1,0,0) if the current method is not HPSP, and (0,1,0,1) otherwise. The third row indicates whether the alternative is of the LOAN type; it is (0,0,1,0) if the current financing method does not include a loan, and (0,0,1,1) otherwise. A fourth row indicating whether the alternative is of generality, its coefficient is set to zero (i.e., the variable is excluded from the model). Similarly, to set intercept values that may depend on personal characteristics, one would identify an indicator of the personal characteristic and interact it with program indicators above.

Table 1 defines the list of variables used in fitting the first and second year students' models, respectively. The first year student variables are as described above. The second year list of variables contains these, plus others indicating which program the student is currently enrolled in. This controlled for an expected tendency of students to support their current program.

Tables 2 and 3 contain fitted conditional logit coefficients for the first and second year students. The coefficients may be interpreted as yielding the log-odds for preferring one program over another: for example, if the vectors x(N) and x(H) describe options for certain variants of NHSC and HPSP programs, predicted log-odds for NHSC versus HPSP would be b'(x(N) - x(H)). The demographic variables allow these odds to mimic actual variations in the sampled population. The program parameter variables (INCSCH, INCOBL, INCPOST, N.BENFIT, and H.BENFIT) indicate how program offerings affect log-odds: for example, Table 2's INCOBL coefficient of 3.8784D-05 implies that a \$10,000 difference in obligatory service compensation would increase the log-odds between two programs by 0.387, or an odds increase of 1.47.

There are several interesting facts to observe. First, all program income coefficients are positive, compatible with the notion that more generous programs will increase the likelihood of participation. For both first and second year students, the first period income coefficient is



VARIABLES IN MODELS OF CHOICE BETWEEN MEDICAL SCHOOL FINANCING ALTERNATIVES

Variable	Definition (NHSC, AFHPSP, LOAN, OTHER)	
NHSC	(1,0,0,0) if the current method of financing does not include a public health services fellowship, $(1,0,0,1)$ otherwise	
AFHPSP	(0,1,0,0) if the current method of financing does not include an AFHPSP scholarship, $(0,1,0,1)$ otherwise	
LOAN	(0,0,1,0) if current method of financing does not include a loan, $(0,0,1,1,)$ otherwise	
OTHER	(0,0,0,1) if current method of financing is none of the above, $(0,0,0,0,0)$ otherwise	
BLACK	indicator of race, interacted with NHSC, AFHPSP, LOAN	
FEMALE	indicator of sex, interacted with NHSC, AFHPSP, LOAN	
MAR	indicator of married, interacted with NHSC, AFHPSP, LOAN	
WEALTH	income from own earnings and savings, from spouse, and from family gifts and loans, interacted with program indicators NHSC, AFHPSP, LOAN, OTHER	
INCSCH	value of the scholarship during medical school tenure—tuition, educa- tional expenses, and stipend, by program alternative	
INCOBL	income during obligated service period after graduation, by program alternative	
INCPOST	projected income during postservice period, by program alternative	
N. BENFIT	indicator of whether program offers NHSC nonpecuniary benefits during postgraduate period, interacted with (1,0,0,0)	
H.BENFIT	indicator of whether program offers AFHPSP nonpecuniary benefits during postgraduate period; interacted with $(0,1,0,0)$	
	Second Year Students Only	
OWN.NHSC	indicator of which programs are of the NHSC type, and whether the student is enrolled in such a program: $(1,0,0,1)$ if currently holding a public health services scholarship, $(0,0,0,0)$ otherwise	
OWN.AFHP SP	indicator of which programs are of the AFHPSP type, and whether the student is enrolled in such a program: $(0,1,0,1)$ if currently hold- ing an AFHPSP scholarship, $(0,0,0,0)$ otherwise	
OWN.LOAN	indicator of which programs are loan programs, and whether the student is currently holding a loan: $(0,0,1,1)$ if yes, $(0,0,0,0)$ otherwise	

rather small, and considerably smaller than either the second or third period coefficients. This result held for a number of alternative specifications under a variety of statistical tests, and, as we discuss below, it has some important implications for policy. If additional monetary incentives are being contemplated, they should probably be in the form of additional compensation during the obligated service period rather than in additional stipend income during medical school. Finally, the nonpecuniary options seem to induce strong responses toward the armed services program: offering the students the opportunity to shape their obligated service period more than doubled their participation probabilities. The policy relevance of such a finding is clear: service-related inducements should be more broadly advertised so as to make students aware of the various options available during military service.

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MAXIMUM LIKELIHOOD ESTIMATES OF COEFFICIENTS IN THE CONDITIONAL LOGIT MODEL OF MEDICAL STUDENT CHOICES: FIRST YEAR STUDENTS

	Variable	Coefficient	Estd. Std. Dev.	т
1	N.WEALTH	2.1209D-05	1.8661D-05	1.1365
2.	H.WEALTH	1.2440D-05	1.9503D-05	0.6378
3.	L.WEALTH	1.8184D-05	1.9156D-05	0.9492
4.	O.WEALTH	1.8904D-05 [*]	1.9293D-05	0.9798
5.	INCSCH	9.1940D-06	6.9681D-06	1.3195
6.	INCOBL	3.8784D-05	4.7901D-06	8.0966
7.	INCPOST	5.9421D-05	1.1554D-05	5.1430
8.	N.BENFIT	9.9947D-03	1.7710D-01	0.0564
9.	H.BENFIT	9.8779D-01	2.5177D-01	3.9235
10.	N.BLACK	1.3720D+00	_ 5.4586D-01	2.5135
11.	H.BLACK	1.3109D+00	5.9548D , 01	2.2014
12.	L.BLACK	7.7580D-01	5.7089D-01	1.3589
13.	N.MAR	5.4838D-01	5.7704D-01	0.9503
14.	H.MAR	5.1060D-01	6.5588D-01	0.7785
15.	L.MAR	3.0036D-01	6.0862D−01	0.4935
16.	N.FEMALE	-5.8752D-02	\3.1458D−01	-0.1868
17.	H.FEMALE	-1.9493D-01	5886D-01	-0.5432
18.	L.FEMALE	-1.6233D-01	3.2493D-01	-0.4996
19.	NHSC	-1.5412D-01	3.4573D-01	-0.4458
20.	AFHPSP	-1.7039D+00	3.8639D-01	-4.4098
21.	LOAN	-9.0080D-01	2.3499D-01	-3.8334

SOURCE: Rand, 1977, Medical Student Survey of First Year Students.

NOTE: Sample size, 900; number of parameters, 2]. The coefficients (b) provide fitted probabilities for preferring each of the four programs NHSC, HPSP, LOAN, and OTHER. To obtain these probabilities, describe each program in a length-21 vector (x) of student and program attributes, compute $\exp(b'x)$ for each of the four programs, then rescale these numbers to sum to one.

Numerous other models were fitted to the data. We tried many different ways to enter the income variables, including the insertion of separate income coefficients for each program type in each period. Observing statistically different coefficients within a time period would imply that the value of money varies by monetary source; in fact, tests of the equality of such coefficients tended to reject that hypothesis, and none of these models significantly improved the fits. We stayed with the present model partly for this reason, partly because it contains relatively few parameters and their patterns are plausible, and partly because the results of simulation were plausible and consistent with reality.

PREDICTION VIA THE CONDITIONAL LOGIT MODELS

Given the characteristics of a student and the attributes of available alternatives, the fitted coefficients may be used to estimate the probabilities that each alternative will be selected. To predict program participation for the first year, of course, we would use the first year coefficients; the probabilities of second year participation would be computed using the second year coefficients and conditioning on first year choices. Consistent with what is observed

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MAXIMUM LIKELIHOOD ESTIMATES OF COEFFICIENTS IN THE CONDITIONAL LOGIT MODEL OF MEDICAL STUDENT CHOICES: SECOND YEAR STUDENTS

	Variable	Coefficient	Estd. Std. Dev.	T'
1.	N.WEALTH	1.9497D-05	3.0610D-05	0.6390
	H.WEALTH	4.5586D-05	3.2219D-05	1.4149
3.	L.WEALTH	1.6385D-05	3.1108D-05	0.5267
- 4.	O.WEALTH	2,4225D-05	3.4527D-05	0.7016
5.	INCSCH	2.0204D-05	1.3749D-05	1.4695
6.	INCOBL	2.9532D-05	7.1171D-06	4.1495
° 7.	INCPOST	7.0462D-05	1.2065D-05	5.8401
8.	N.BENFIT	7.8887D-01	2.4242D-01	3.2541
9.	H.BENFIT	1.8226D+00	3.6794D-01	4.9536
10.	N.BLACK	-4.8892D-01	9.0661D-01	-0.5393
11.	H.BLACK	-9.4640D-01	9.8420D-01	-0.9616
12,	L.BLACK	-1,3939D+00	- 9.5025D-01	~1.4669
13.	N.MAR	-5:3258D-01	7.9779D-01	-0.6676
1 4 .	H.MAR	-8.8697D-01	9.0990D-01	-0.9748
15.	L.MAR	-7.5436D-01	8.2532D-01	-0.9140
16 . '	N.FEMALE	4.1073D-01	4.4045D-01	0.9325
17.	H.FEMALE	-2.0854D-01	5.3019D-01	-0.3933
18,	L.FEMALE	2.4473D-01	4.6570D-01	0.5255
19.	NHSC	-1.5799D+00	5.7968D-01	-2.7256
20.	AFHPSP	-3,3742D+00	6.8633D-01	-4.9162
21.	LOAN	-1.9923D+00	5.3512D-01	-3.7231
22.	OWN NHSC	1.7610D+00	1.4787D+00	1.1909
23.	OWN AFHPSP	1.7311D+00	4.4911D-01	3.8546
24.	OWN LOAN	9.4475D-01	3.5740D-01	2.6434

SOURCE: Rand, 1977, Medical Student Survey of Second Year Students.

NOTE: Sample size, 666; number of parameters, 24. The coefficients (b) provide fitted probabilities for preferring each of the four programs NHSC, HPSP, LOAN, and OTHER. To obtain these probabilities, describe each program in a length-24 vector (x) of student and program attributes, compute $\exp(b'x)$ for each of the four programs, then rescale these numbers to sum to one.

in practice, we assume that transitions may occur into, but not out of, NHSC and AFHPSP programs in the second year.

We are not interested in predicting the behavior of one or two students but rather of populations of students. Therefore, we must define each population of interest, quantifying the demographic characteristics of all of its members. This yields a matrix of independent variables describing student characteristics (i.e., the X's). The fitted probabilities are summed over the variables in the matrix to yield the expected number of students choosing each alternative. In constructing this matrix, we assumed that the demographic characteristics of the total population of medical students resembled those of our samples—plausible, since we chose a random sample of students for our surveys. Our projection population was 8.3 percent black, 38.0 percent married, 24.7 percent female, and average wealth within each group (by race, marital status, and sex) was equal to the sampled population average for that group.

Because the level of first period scholarship income depends on tuition, and the first period coefficients are positive, we know that the model will predict higher participation in the higher tuition schools. Because our coefficients on second period income are positive, we know also that greater participation will be predicted for higher compensation programs. Our simulation results are broken down by compensation levels, tuition, and stipend generosity. The main goal of the prediction investigation is to quantify these differences.

One other step in the prediction process is to derive uncertainty estimates for the quantities estimated. After all, the coefficients (b's) produced by the maximum likelihood fitting algorithm have considerable variation due to random response error. We quantify this uncertainty by adopting a formal Bayesian approach: approximating the posterior distribution of b, simulating b, and computing the simulation's averages and standard errors of predicted participation rates.

We performed a crude empirical test of our model, comparing our best estimate of NHSC and AFHPSP accessions with the predicted supply. According to the Office of the Assistant Secretary of Defense for Health Affairs, there were about 1,000 AFHPSP medical student accessions, and just over 3,000 medical student applicants for NHSC, from first and second year classes. Assuming an eligible base of 14,000 first year and 14,000 second year students in four year programs, and 2,130 first year students in three year programs, our base case predictions are 822 and 2,976 respectively, with standard errors of about 200 and 500 respectively.⁹ Both predictions are well within the range of uncertainty, but there are enough comparability problems that we still do not consider this a strict test. First, actual AFHPSP accessions included about 66 third year students in four year programs, but did not distinguish between medical and osteopathic students; we estimated that 50 students were included, and accordingly subtracted them from the reported AFHPSP total of 1,046. Second, despite the more than 3,000 applicants to NHSC, only about 2,700 were enrolled in NHSC-what happened to the other 300 + students? Some certainly must have enrolled in AFHPSP, but we have no information on their number. If a third to half of them enrolled (plausible, because those students demonstrated interest in financial aid), much of the difference would be made up. Finally, the NHSC was new in 1977, and participation during that period is unlikely to resemble steady-state participation, to which our model is geared.

In Table 4, we show the base case participation rates across medical school tuition levels. We see that as tuition goes up, so do the probabilities; owing to the rather small coefficient on medical school income, however, we see little variation in participation rates as tuition levels increase. The standard errors of the participation rates are also reported in the table. Generally, we find them to be small, but in considering policy alternatives, we always consider their magnitude. Policy recommendations are generally based on prediction contrasts (i.e., how many more participants do we expect when compensation levels are increased by \$5,000 per year?), and we note that the standard errors of contrasts are usually much smaller than standard errors of absolute levels themselves. A useful rule of thumb is to trust prediction contrasts much more than the prediction levels; their value is anywhere from a factor of two to a factor of ten less.

This ends our discussion of empirical results. In Section V, we reconsider the policy alternatives suggested by our prediction model and explore the options available to AFHPSP sponsors.

⁹Stahdard errors of predicted enrollments assume that each student's enrollment decision is a Bernoulli random variable; the computations incorporate errors arising from uncertainty in the estimated probabilities as well from the future Bernoulli choice realizations.

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PREDICTED PARTICIPATION RATES, BY TUITION LEVEL

Type of	Tuition Grouping (\$)	Participation Rates (%)	
School		Estimate	Std. Error
Public	1,445	4.8	<u>1.1</u>
Private	3,007	5.0	1.1
	4,756	5.3	1.2
	5,825	5.5	1.2
	6,785	5.6	1.3
· ·	9,727	6.1	1.4
	All	5.4	1.2
All	_	5.1	1.1

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V. LONG RUN PARTICIPATION IN AFHPSP

In the previous section we presented the results of our modeling effort to predict AFHPSP participation. In this section we spell out the implications these results had for (1) current and future anticipated changes in AFHPSP participation, given no program changes, and (2) cost effective program changes to attain an accessions goal of about 1,200 physicians per year.

STEADY STATE PARTICIPATION

Our projection of new participation of medical students in AFHPSP for the long run (based on 1978 benefits) is presented in Table 5, along with our forecast for NHSC participation and the standard errors of the estimates.

Table 5

PREDICTED STEADY STATE AFHPSP AND NHSC PARTICIPATION: NEW OBLIGORS,⁴ AY 78/79

Program	Goal	Predicted
AFHPSP	1,200	822 (177)
NHSC	3,000	2,976 (532)

NOTE: Prediction assumed current program conditions in real values. Standard errors are in parentheses.

^aFirst year students in three and four year programs; second year students in four year programs.

The projections were derived from unconstrained supply curves that assume no demand effects (e.g., quotas for NHSC specialty participation). In addition, the predictions are characterized as steady state because they assumed the transitory effects discussed in the previous section are no longer present.

What was the outlook for the AFHPSP in future years? If we assume no taxation of stipend or scholarship, no increase in the entering medical student class, and no change in program characteristics, Table 5 shows our long run prediction for AFHPSP participation: chronically short of the goal of 1,200 by about 400 students. However, one exception should be noted. In 1978, the AFHPSP stipend was not inflation protected, whereas the NHSC stipend was. The above projection assumes the real values of both NHSC and AFHPSP stipends would not change. If the AFHPSP stipend had declined in real terms by about 6 percent per year, participation in AFHPSP would have declined by about 1 percent in each succeeding year. This implies that the chronic shortfall would become increasingly larger over time. Moreover, if stipend and tuition were taxed, the shortfall would become even more severe and would involve a distributional shift in private school participation.

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We next discuss the taxation issue, and then turn to^t the question of the relative efficacy of various alternatives to achieve the recruiting goal of roughly an additional 400 AFHPSP accessions per year.

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TAXATION OF STIPEND AND TUITION

Scholarship participants in both the AFHPSP and the NHSC programs were not subject to federal income tax on the stipend, the tuition, or the other educational expenses, although the possibility of taxing both programs was often discussed until the tax status was permanently resolved in 1980. Such a tax would have differentially affected students in public low tuition schools and private high tuition schools. At the average 1978 tuition level of public schools (\$1,445 per year), the tax for an unmarried student would have lowered the value of the scholarship by approximately \$750 per year (\$63 per month). At the average level of private a_{i} school tuition (\$5,511 per year), the value of the scholarship would have been reduced by approximately \$1,170 per year (\$97 per month). Thus the effective value of the monthly stipend would have been reduced to \$337 per month and \$303 per month, respectively, relative to the \$400 per month stipend in the absence of the taxation. In spite of these reductions in the effective value of the stipend of 16 percent and 25 percent, the impact of removing the tax liability on the rate of participation was not large. Taxation of both stipend and tuition led to roughly a 4 percent overall reduction in participation. Thus, the survey results suggested that the taxation issue was not one which would significantly affect AFHPSP participation. In addition, had the tax provision for AFHPSP been added, it probably would also have been added for the NHSC program.

However, our results suggested that taxation of tuition would have redistributed the share of scholarship participants from private schools to public schools. Table 6 displays these distributional changes. Taxation implies a larger percentage reduction in private school AFHPSP participation, especially at the higher tuition schools.

However, even if AFHPSP and NHSC scholarships were not taxed and AFHPSP stipends were inflation protected, the Department of Defense would still face a chronic shortfall of AFHPSP participants.

Table 6

PREDICTED PARTICIPATION RATES, BY TUITION LEVEL

Type of	Tuition	Participation Rates (%)	
School	Grouping (\$)	, No Tax	Tax
Public	1,445	4.8	4.7
Private	- 3;007 4,756	5.0 5.3	4.9 5.1
• •	5,825 · 6,785	5.5 5,6	5.2 , ₅5.3 ·
	. 9,727 All	。6.1 5.4	5.7 5.2
All	—	5.1	4.9

PECUNIARY OPTIONS TO INCREASE AFHPSP PARTICIPATION

The Department of Defense essentially had two pecuniary options to increase participation in AFHPSP: increase the stipend or increase military compensation. Due to our life-cycle approach, we were able to model the separate effects of increasing either or the joint effects of increasing both. Table 7 presents the results of our simulation on stipend and service compensation increases.

Table 7

PREDICTED PERCENTAGE OF AFHPSP PARTICIPATION AT FOUR LEVELS OF SERVICE COMPENSATION AND FOUR LEVELS OF STIPEND (First and Second Year Students)

Compensation	Stipend			
	\$400	\$500	\$600	\$700
\$22.000	5.1	5.3 -*	5.5	5.7
\$27,000	6.6	6.9	7.1	7.4
\$32,000	8.6	9.2	9.2	9.5
\$37,000	11.1	11.6	11.9	12.3

As is not surprising given our coefficient estimates, the table reveals that participation is more sensitive to the level of service compensation than to the stipend. We believe that these empirical results reflect a differing evaluation of income in the two time periods; i.e., the students apparently were not indifferent to equivalent present discounted value dollar amounts in different time periods. Students indicated a preference for high incomes after completion of training. One explanation for this may be found in a life cycle income utility that is not completely associated with physical consumption. Many medical students expect to forgo luxuries and high incomes during their medical school years in return for expected high earnings once they complete their training. In many cases they move almost immediately into a very high paying job. A 1977 physicians' earnings profile in Medical Economics¹ reported that 90 percent of all physicians, 81 percent of general practitioners, and 93 percent of family practitioners had incomes over \$30,000 after expenses. Median income for physicians in 1977 was \$65,430. These figures imply that the AFHPSP physicians during their obligated service are at the low end of the lowest 10 percent of physicians in terms of their earnings, in addition to the relatively low status many of them enjoyed because service residency policies limited their training. The prospect of moving into a low paying and possibly low status job for three or four years while one's peers were earning high fees probably contributed to low AFHPSP participation rates.

The empirical results suggested that increasing active duty service compensation was a more cost-effective means for increasing AFHPSP participation. To achieve an increase of roughly 400 new students per year requires an increase in the level of military compensation to about \$7,500 per year for AFHPSP participants during their obligated period of service. This figure was remarkably close to the 1978 physician bonus level. We estimated the budgetary impact of such a change (Table 8 below) under the assumption that all participants

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¹"Doctors' Earnings: Inflation Edges Ahead," Medical Economics, September 18, 1978, pp. 226-235.

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ILLUSTRATIVE BUDGET IMPACT OF AN ANNUAL PAYMENT OF \$7,500 TO AFHPSP PARTICIPANTS DURING OBLIGATED SERVICE

Fiscal Year	Expenditure (\$ millions)
1979	0
1980	- 0 -
1981	0
1982	0
1983	2,9
1984	12.2
1985 🤜	21.4
1986	30.0
1987	34.0
1988	34.0

NOTE: Assumes entrance to active duty after one year of internwhip, and that 392 three year obligors and 840 four year obligors join AFHPSP each year.

would begin to serve their obligation after one year of internship. Of course, actual residency policy and residency lengths would not have yielded such a stream, but would have delayed reaching the steady state expenditure of \$34 million for a number of years.

NONPECUNIARY CHANGES IN AFHPSP CONDITIONS

In addition to increasing the income of scholarship participants during medical school or obligated service, there are several options which could be used by the Department of Defense to affect participation in the AFHPSP. The specific options examined in the survey are the following:

- 1. A 100 percent residency opportunity.
- 2. The opportunity to complete residency training in a civilian hospital.
- 3. The guarantee to serve in the area of specialization.
- 4. The guarantee not to be moved during the obligated service period.
- 5. Assignment through a matching program similar to the National Internship and Residency Matching Program.
- 6. Joint assignment with spouse, if both are health professionals.

In our modeling efforts we entered separate dummy variables for each AFHPSP nonpecuniary option listed above. Unfortunately, we did not have enough joint variation on two or more options together to estimate the additive effects of each option being available in the program. Consequently, we collapsed the variables into one indicator of whether or not a nonpecuniary benefit of the type listed above was offered. We could not estimate the added participation to be gained by offering each one of these options, but can only indicate that the effect of offering them is significantly positive.

Some options may be judged by specific individuals to be extremely important; for example, provision 2 allows NHSC physicians to complete a two-year residency following their one year internship, which qualifies them to serve as family practitioners during their obligated service period.

An Association of American Medical Colleges' (AAMC) study found that among 1976 graduates from medical school, 70 percent of those who as applicants had planned to enter primary care practice took first year residencies in a primary care field.² In a survey of 1976/77 U.S. medical school applicants, Gordon and Johnson found that 57 percent of those who had decided on a career were planning to enter the primary care field.³ The proportion of medical students planning to enter primary care careers has been relatively large. In addition to the three year postgraduate training provision offered to NHSC participants, the program has also provided participants with opportunities to go into private practice in a designated shortage area, and in addition it has offered a start-up grant to open such a practice after completion of obligated service. This provision has given a great deal of flexibility to students enrolled in the NHSC scholarship program.

All of the nonpecuniary options we found to be important were related to students' professional development. Residency training has become a necessary prerequisite for nearly all types of medical practice and was perceived as such by the medical students. To deny them this opportunity was viewed as a disruption in their professional development. In addition, it deprives students of the assistance given by medical schools to their students in placing them into residency programs and providing general support. Once a student has been out of the academic system for three or four years, he (or she) may expect to encounter greater difficulty in finding a first-rate residency than at the time of graduation, especially if his training was interrupted after completing only an internship.

The results of this survey suggested that medical students have a strong preference for continuity in their education and for practicing in their area of specialization. The 1974 Rand survey of first and second year medical students also supported our survey findings that the opportunity for postgraduate training is important in determining, participation in the AFHPSP.

From the point of view of the military services in 1978, allowing all AFHPSP physicians to take their residency training immediately after their internship would have exacerbated the physician supply problem in the short run; AFHPSP physicians would not have started full active-duty medical practice until three to five years after graduation. In addition, it would have made control over the specialty mix in the services difficult. Still the residency option was probably the most powerful of all the nonpecuniary options open to the military services.

ELIMINATION OF INFORMATION GAPS REGARDING AFHPSP. SCHOLARSHIPS

To participate in a scholarship program, it is important that potential applicants be adequately informed about the provisions of the programs, their benefits as well as their requirements. We found that many students were uninformed about practice conditions in the military. Many students had problems obtaining information about the scholarship provisions as well. Some of them stated they received conflicting information regarding scholarship provisions. Other students stated that they never received their scholarship awards until late in the summer, and by then had made other provisions for financing their education. Yet

²J. M. Cuca, Career Choices of the 1976 Graduates of U.S. Medical Schools, Washington, D.C.: Association of American Medical Colleges, 1977.

³Travis L. Gordon and D. S. Johnson, "Study of U.S. Medical School Applicants, 1976-1977," Journal of *Medical Education*, Vol. 53, No. 11, November 1978, pp. 873-897.

others reported that they had never heard of the AFHPSP scholarship program, but would have applied had they known. The frequency with which such comments appeared in the surveys and the number of uncompleted answers to questions regarding military practice led us to believe that there was a substantial information gap among students about the AFHPSP and military medical practice. Given the absence of the draft, this was not surprising. However, we felt that the Department of Defense should attempt to eliminate this gap and to increase their recruiting efforts. Medical students need to know, at the very least, that the AFHPSP is available and should receive adequate and timely information regarding the scholarship provisions and the military practice conditions. Students should have access to recruiters, and recruiting efforts should begin early enough for students to become familiarized with the AFHPSP as an alternative for financing their medical school education.

VI. CONCLUSIONS

The principal source of physician procurement for the Department of Defense since the end of the draft has been the Armed Forces Health Professions Scholarship Program. As a result of legislation authorizing National Health Service Corps scholarships administered by HEW, the competitive position of the AFHPSP scholarship has been eroded. The empirical results derived from the survey of first and second year medical students which are presented in this report suggested that the Department of Defense would fall short of its requirements for medical AFHPSP accessions by about 400 per year after 1978 if there were full NHSC funding for all its qualified applicants.

The analysis suggested that increasing service compensation by about \$7,500 (1978 dollars) per year would eliminate the shortfall and would probably be more cost effective than offering a stipend beyond that offered by NHSC. Another benefit of such action might be an increase in career retention. Although increasing the residency opportunity would also increase AFHPSP participation, serious thought should be given to such a policy's impact on short-run physician shortfalls and specialty mix. In addition, although we find the effects of taxation on participation to be not large, it is nevertheless significant that taxation brings about a reduction in the share of private school medical students. Finally, we recommended that AFHPSP stipend provisions remain competitive with, but not exceed, the NHSC stipend provisions. Our results showed that participation is relatively insensitive to increases in the stipend, but that AFHPSP must be inflation-protected or the gap between the stipends of the two programs will widen.

Our recommendation to increase compensation was incorporated into the 1980 Physicians Pay Bill (P.L. 96-284). The qualitative information also suggested that increasing opportunities for graduate medical education could have a significant effect on participation. Although officially the residency policy was not changed, the services generally allow residency training which is consistent with their increased demand for specialists. This has resulted in a much larger proportion of AFHPSP participants completing residency training before entering active duty. Lastly, the survey has shown that many of the respondents knew very little about medical opportunities in the military, and we recommended that some administrative attention be given to this. These additional recommendations were implemented and AFHPSP is a viable program today.

Appendix A

THE MEDICAL STUDENT SURVEY

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This appendix describes the Medical Student Survey instrument used to gather the basic data for the research reported in this paper. A description of the sample is given, followed by a description of the survey content.

THE SAMPLE

The sample of medical students to whom this survey was addressed was given to Rand by the American Medical Association. It consisted of 3,397 randomly selected medical students enrolled in U.S. medical schools.

Three groups of students were included:

- 1. First year students enrolled in four-year programs; expected to graduate in 1980.
- 2. First year students enrolled in three-year programs; expected to graduate in 1979.
- 3. Second year students enrolled in four-year programs; expected to graduate in 1979.

Table A.1 shows the response rate for the survey. Of the 3,397 surveys mailed, 1,916 were returned by students and an additional 410 surveys were returned to the post office as undeliverable. The overall response rate (excluding undeliverables) was 64 percent.

Table A.1

SURVEY RESPONSE RATE

Category	Number of Surveys Returned '
First year students/4-year program	1,000
Second year students/4-year program	753
First year students/3-year program	70
Fourth year students/4-year program	. 1
Third year students/4-year program	· 40
Second year students/3-year program	11
Unknown	41
(64% response rate)	1 916

THE SURVEY CONTENT

The medical student survey consisted of a 44-item questionnaire designed to gather information on:

- 1. The student's socio-demographic characteristics.
- 2. The student's preferences for his/her future career environment (location, type of practice, leisure, etc.).
- 3. The student's perception and relative ranking of practice conditions in the military, the National Health Service Corps, and private practice.
- 4. The student's current and prospective educational and living expenses and sources of funds to meet these expenses.
- 5. The student's evaluation of the AFHPSP, NHSC Scholarship and federal loan programs as alternative methods of financing their medical school education.



The full 44 survey questions make up Appendix B. Questions 1 through 8 and questions 17 through 44 provide information on categories one through four. Questions 9 through 16 formed the core section of the survey, and are discussed below.

In questions 9 and 13 students were given a description of the three federal programs (AFHPSP, NHSC, federal loan) now offered to medical students to finance their medical school education. Each student was then asked to rank these three alternative methods of financing medical school education and his own current financing scheme on a scale from 1 to 100. In question 9 students were asked restrospectively how they would have rated these programs if they had been available for their current academic year (AY 76/77). Question 13 asked students to rate the programs prospectively as a medical school financing alternative for the coming year (AY 77/78).

Several changes in the benefits of the three federal programs (AFHPSP, NHSC, and loan) were introduced. Students were asked to compare the modified program benefits with the benefit structure now mandated by federal law. Each student was asked to rate four modified versions of the NHSC (questions 10 and 14) and the AFHPSP (questions 11 and 15) and two of the loan program (questions 12 and 16). Changes in program benefits were both pecuniary and non-pecuniary in nature. In questions 10 through 12 students were asked for retrospective ratings and in questions 14 through 16 for prospective ratings of the modified programs.

The following hypothetical changes in benefits for the three programs were made:

A. The AFHPSP

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- 1. Changes in the monthly stipend (currently \$400).
 - a. Increase the stipend to \$600 per month.
 - b. Increase the stipend to \$800 per month.
 - c. Remove the annual cost of living increase.
- 2. Changes in the service compensation (currently \$20,000 per year).
 - a. Increase the service compensation to \$29,000 per year.
 - b. Increase the service compensation to \$37,000 per year.
- 3. Changes in the residency policy (currently 50 percent of program participants may complete specialty training before beginning their service obligation).
 - a. Increase the residency opportunity to 100/percent. /
 - b. Residency training may be completed in civilian programs.

4. "Changes in obligated service provisions.

- a. Guarantee participants the opportunity to serve in their specialty.
- b. Guarantee participants will remain in one location for the first four years of obligated service.
- c. Assignment to active duty through a matching program.
- d. Joint assignment with spouse if both are serving on active military duty.

B. The NHSC Scholarship

- 1. Changes in the monthly stipend (currently \$400).
 - a. Increase the stipend to \$600 per month.
 - b. Increase the stipend to \$800 per month.
 - c. Remove annual cost of living increase.
- 2. Changes in the service compensation (currently \$20,000 per year).
 - a. Increase the service compensation to \$29,000 per year.
 - b. Increase the service compensation to \$37,000 per year.



- 3. Changes in residency policy (currently three year limit on postgraduate training).a. Remove three year limit on postgraduate training.
- 4. Changes in obligated service provisions.
 - a. Participant may serve as a private physician in a shortage area for the entire length of the obligated service period.
 - b. Joint assignment with spouse when both are completing an NHSC obligated service requirement.
 - c. Participant to assume that 75 percent of obligated service positions are in isolated rural areas with little professional peer contact and 25 percent in densely populated low income urban areas.
 - d. Participant to assume that 25 percent of obligated service positions are in isolated rural areas with little professional peer contact and 75 percent in densely populated low income urban areas.
 - e. Participant has no choice in service obligation site.

C. The loan program.

- 1. Changes in interest payment provisions.
 - a. Interest payments to be deferred until graduation from medical school.
 - b. Interest payments to be deferred until three years after graduation from medical school.

These changes in benefits and conditions were substituted for one or more of the currently prevailing benefits or added to the existing scholarship provisions.

Because of the large number of possible options and benefit structures, each student was asked to rate only four alternatives. To rate all benefit combinations which resulted from changes in the programs, twelve versions of the survey were developed. Versions 1 through 12 of the survey differed only in questions 10, 11, 14, and 15, which asked students to rate the modified benefit structures of the NHSC and AFHPSP programs. A complete list of the alternative options to be rated by the respondents for each of the three programs (NHSC, AFHPSP, LOAN) appears as Appendix C. This list also indicates in which of the survey versions the specific option appears.

The next step in the preparation of the questionnaire was the random assignment of the above AFHPSP and NHSC options to 12 groups of four questions each. These 12 groups formed the basis for the 12 versions of the survey. The two loan options were identical for each of the 12 versions.

Questions 13 through 16 of the 12 versions of the survey questionnaire are in Appendix D.

DISTRIBUTION OF THE SURVEY

Following a pretest of the survey at UCLA Medical School, the survey was mailed to 3,397 medical students.

Each of the 12 versions was distributed to one-twelfth (1/12) of the 2,618 male students (77 percent) in the sample. The 782 female students (23 percent) were divided into two equal groups. One group was given version 4 of the questionnaire, the other group version 5. Each of these versions included the joint assignment option, which reflected concerns voiced by many students during the pretest. These students felt that unless there was a provision for joint assignment, the possibility of being separated from their spouses during the obligated service period would prevent them from accepting a scholarship.

The first mailing of the 3,397 surveys took place on August 12, 1977. On September 19, a followup survey was mailed to 2,411 students. This was followed by a Mailgram (October 13) stressing the importance of returning the survey and a third mailing of a survey packet to 1,865 students on October 14. A final letter asking students to return a previously mailed survey was sent on November 7, 1977, to 1,391 students.

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As of January 18, 1978, a total of 1,916 students had completed and returned the survey to Rand.

The individual surveys were then coded and keypunched and a codebook was prepared. The codebook reproduces each question in the survey instrument, lists the question's authorized response code, and gives the item name used to identify the corresponding response field in the machine readable file. Finally, it provides question-by-question response counts (i.e., marginals).

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Appendix B

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SAMPLE MEDICAL STUDENT SURVEY QUESTIONNAIRE

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GENERAL INSTRUCTIONS

Please write your answers directly in this booklet in the spaces provided next to each question. $\ensuremath{,}$

If the exact response you would like is not one of the available choices, please check the one response that is closest to your desired response. If you wish, feel free to make a comment in the margin or at the end of the survey.

The survey asks your assessment of a number of options for financing medical education and for subsequent medical practice. Inclusion of an option in this survey does not necessarily imply endorsement by the federal government.

Please return your completed survey booklet in the enclosed postpaid and preaddressed envelope.

At the time you return your completed survey, please return <u>separately</u> the enclosed postcard to indicate you have completed the survey. You are not requested to identify yourself on the survey.

Participation in this survey is voluntary and you may decline to answerany question if you do not wish to provide the information requested.



13-22/

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59 Washington, St. Louis ▲ 60 Kansas City Osteopathic, Kansas City 61 Kirksville Osteopathic, Kirksville Osteopathic, 122 Medical College, Milwaukee 123 Other (SPECIFY above)	•	57 58	Saint Louis, St. Louis		118	Eastern Virginia
Kansas City WVA 120 West Virginia, Morgantow 61 Kirksville Osteopathic, Wis 121 Wisconsin, Madison 122 Medical College, Milwaukee 123 Other (SPECIFY above)		59	Washington, St. Louis Kansas (ity Osteonathic	Wash	119	Washington, Seattle
61 Kirksville Osteopathic, Wis 121 Wisconsin, Madison Kirksville 122 Medical College, Milwaukee 123 Other (SPECIFY above)		- 00	Kansas City	WVA	<mark>ب 1</mark> 20 م	West Virginia, Morgantown
123 Other (SPECIFY above)		61	Kirksville Usteopathic, Kirksville	Wis	121	Wisconsin, Madison Medical College, Milwaukee
		· .	· · · · · · · · · · · · · · · · · · ·		123	Other (SPECIFY above)

·] ·].	Which medical school do you attend?
	Number School or College
 Which medical school do you attend? Number	
 1. Which medical school do you attend? Number2²⁷⁻²⁵Schqol or College Use the preceding list to determine the number which corresponds to your school or college. 2. If you attend a public medical school are you paying out of state tuition? 1. Yes2 2. If you attend a public medical school are you paying out of state tuition? 1. Yes2 2. No	
1. Which medical school do you attend? Number 23-23/School or College Use the preceding list to determine the number which corresponds to your school or college. 2. If you attend a public medical school are you paying out of state tuition? 1. Yes 26/ 2. No 3. Not applicable 3. Not applicable 3. Not applicable 3. What was your medical student status for the 1976/77 school year? If Four-Year Medical Program Y. First Year 3. Third Year 4. Fourth Year 5. First Year 6. Second Year 7. Third Year If other Medical Program: Specify: 4. Mhat were your Medical College Admission Test (MCAT) scores in Verbal Ability and Science? Percentile Raw Score Image: Specify: 4. What were your Medical College Admission Test (MCAT) scores in Verbal Ability and Science? Percentile Raw Score Image: Specify: Science score	
 Which m Number Use the school If you 1. 2. 3. What wa If Four 2. 3. What wa If Three 5. 6. 7. If other Spec What we Ability Percer 	2. No
Ĩ,	3. Not applicable
. 3.	What was your medical student status for the 1976/77 school year?
	If Four-Year Medical Program
•	First Year 27/
	2. Second Year
· •	3. Third Year
	4. Fourth Year
	If Three-Year Medical Program
	5. First Year
•	6. Second Year
	7 Third Year
 1. Which medical school do you attend? Number2^{23-25} School or College	If other Medical Program.
ť	Specify.
Δ	What were your Medical College Admission Test (MCAT) second in Verbal
· · ·	Ability and Science?
· •	Percentile Raw Score
	$\square OR \square Verbal ability score$
1. Which medical school do you attend? Number 123-25 School or College Use the preceding list to determine the number which corresponds to yo school or college. 2. If you attend a public medical school are you paying out of state tuit 1. Yes 26/ 2. No 3. Not applicable 3. Not applicable 3. Not applicable 3. Mot applicable 3. Third Pear 1. Second Year 27/ 2. Second Year 3. Third Year 3. Third Year 27/ 3. Second Year 3. Third Year 4. Fourth Year 4. Fourth Year 7. Third Year 3. Third Year 8. Second Year 3. Third Year 9. Secify: 4. What were your Medical Program 5. First Year 4. Source Year 6. Second Year 7. Third Year 7. Third Year 1. Third Year 8. What were your Medical College Admission Test (MCAT) scores in Verbal Ability and Science? Percentile Raw Score 10. 1. Year 3. Science score 11. Science score 33-37/	
1. Which medical school do you attend? Number ²³⁻²⁵ School or College Use the preceding list to determine the number which corress school or college. 2. If you attend a public medical school are you paying out of 1. Yes 26/ 2. No 3. Not applicable 3. What was your medical student status for the 1976/77 school If Four-Year Medical Program 7. First Year 27/ 2. Second Year 3. Third Year 6. Second Year 7. Third Year 1. First Year 1. First Year 4. What were your Medical College Admission Test (MCAT) scores Ability and Science? Percentile Raw Score 28-327 29 30 31-377 3. Science score	Science score -
 Which medical school do you attend? <pre>Number</pre>	
1. Which medical school do you attend? Number 23-23/2 School or College Use the preceding list to determine the number which corresponds to your school or college. 2. If you attend a public medical school are you paying out of state tuition? 1. Yes 26/ 2. No 3. 3. Not applicable 3. 3. Not applicable 3. 3. Mot applicable 3. 3. Mot applicable 3. 1. Yes 27/ 2. Second Year 3. 3. Third Year 4. 4. Fourth Year 4. 5. First Year 6. 6. Second Year 3. 7. Third Year Yerbal ability scores in Verbal Ability and Science? Percentile Raw Score 10-37 Science score 13-37/ Sc	
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In Questions 5 thru 16, "this year" refers to academic year 1976-1977 (September 1976 thru August 1977), and "next year" refers to academic year 1977-1978 (September 1977 thru August 1978).

5. Please estimate your total expenses for this academic year including the summer. Include expenses for which you are reimbursed.

1	Mує	estimated expenses for this year are:	11-12/
•	ļ.	Tuition \$	13-17/
2	2.	Lab fees S	18-22/
	3.	Books \$	23-27/
	4.	Other medical school fees or expenses \$	28-32/
Ę	5.	Rent or lodging and utilities \$	33-37/
جور (5,	Food, beverages, etc.	38-42/
-	7.	Medical, dental \$	43-47/
8	8.	Transportation (including commuting expenses) \$	48-52/
ļ	9.	All other regular expenses \$	53-5 7 /
How	are unt	e you financing your expenses for <u>this year</u> ? Please estimate the from each source of income.	
	1.	Own earnings and savings \$	58-62/
	2.	Spouse's earnings	63-67/
	3.	Gifts/loans from family	68-72/
, - 1	4.	Armed Forces Health Professions	11 -12/ 1 3-17/
Ę	5.	Public Health Service Scholarship \$	18-22/
6	5.	Other federal scholarship	23-27/
į	7.	Veterans benefits \$	28-32/
, 8	8.	Grants from school funds \$	33-37/
. <u>ç</u>	9.8-	Other grants or scholarships \$	38-42/
. 10). ₁	Federal Health Professions Loan \$	43-47/
11	ı.)	Federally guaranteed loan (through school s	48-52/
12	2,	Other guaranteed loan (through school or private bank) \$	53-57/
13	3.	Private bank loan (not guaranteed) \$	58-62/
14	I.	Other loans \$	63-67/
15	5. _.	Other (\$	68-72/

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next si	ummer. Include expenses for which you will be	reimbursed.	
My	estimated expenses for next year are:	CARD 04)	11-12/
1.	Tuition	\$	13-17/
2.	Lab fees	\$	18-22/
[,] 3.	Books	\$	23-27/
4.	Other medical school fees or expenses	\$	- 28-32/
 5.	Rent or lodging and utilities	\$	33-37/
6.	Food, beverages, etc.	\$	38-42/
7.	Medical, dental	\$	43-47/
 8.	Transportation (including commuting expenses)	\$	48-52/
9.	All other regular expenses	\$	53-57/
How ar estima	e you planning to finance your expenses for <u>nex</u> t e the most likely amount from each source of i	<u>t year</u> ? Please ncome.	
١.	Own earnings and savings	\$	58-62/
2.	Spouse's earnings	\$	63-67/
3.	Gifts/loans from family	\$	68-72/
4.	Armed Forces Health Professions	\$	13-17/
5.	Public Health Service Scholarship	\$ 1	18-22/
6.	Other federal scholarship	\$	23-27/
7.	Veterans Benefits	\$	28-32/
8.	Grants from school funds	\$	33-37/
9.	Other grants or scholarships	\$	38-42/
10.	Federal Health Professions Loan	\$	43-47/
11.	Federally guaranteed loan (through school or private bank)	\$	48-52,
12.	Other guaranteed loan (through school or private bank)	\$	53-57
13.	Private bank loan (not guaranteed)	\$	58-62
14.	Other loans	\$	63-67
15.	Other	\$ CARD 0	68-72, 4/05

Repse estimate your total expenses for next academic year including next summer. Include expenses for which you will be reimbursed.

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		PROGRAM BENEFITS	PROGRAM REQUIREMENTS	
р 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u>HHSC SCHOLARSHIP</u> (National Health Service Corps Scholarship Program)	Tuition, fees and direct medical school expenses (books, etc.)* Monthly stipend - \$400 per month for 12 months. (\$4,800 per year)* You may pursue post-graduate training (Internship/Residency) for up to 3 years prior to beginning service obligation. Internship/Residency training may be available for up to 10% of NHSC scholarship holders in PHS hostials at an annual	Requires 1 year of practice as an NHSC physician in a designated shortage area for each year of scholarship support. (Practice while taking intern or resi- dency training does not count toward this obligation.) A shortage area may be: a) an area in an urban or rural location which the Secretary of HEW deter- mines has a health manpower shortage. b) a population group which the Secretary determines has such a	
14 J. -	• 	salary of approximately \$20,000.	c) a public federal or nonprofit pri- vate medical facility.	:
•	•		Compensation will average approximately \$22,000 per year while serving in a shortage area.	•
	AFHPSP <u>SCHOLARSHIP</u> (Armed Forces Health Profes- sions Scholar- ship Program)	Tuition, fees and direct medical expenses (books, etc.)* Monthly stipend - \$400 per month for 10-1/2 months (\$4,200 per year); and \$1,400 for 45 days active duty summer service.* In many cases this duty may be served at your medical school upon re- quest from the institution.	Requires 1 year of practice as an active duty military physician for each year of scholarship support. (Active duty service while taking intern or residency training does not count towards this obligation.) Compensation will average approximately \$22,000 per year while on active duty.	
4		Provides for completion of 1 year of internship for all partici- pants at either military or civ- ilian hospitals and for completion of specialty training for 50% of participants prior to beginning service obligation. Most resi- dency positions will be in military hospitals. Intern/resident posi- tions in military hospitals will pay approximately \$20,000 per year.		
	NEW FEDERALLY INSURED LOANS (Federally Insured Loans for Health Professions Students)	Loan insured by the Federal Gov- ernment of up to \$10,000 per year to cover tuition, fees and direct medical school expenses (books, etc.) Maximum total amount bor- rowed during medical school is \$50,000. Eligible lenders could include schools, state agencies, and financial or credit institu- tions.	Repayment of <u>principal</u> may be deferred until 3 years after graduation from medical school and spread over a 15 year period. Interest (and fees) on loan not to exceed 12% per annum. Interest payments must be made during medical school. (At 12% interest this equals \$1,200 per year for <u>each</u> \$10,000 borrowed.)	
1			At the discretion of the Secretary of HEW the borrower may be partially or fully released from the principal and interest obligation if he or she agrees to serve in shortage area. (See NHSC Scholarship.)	,

Assume all payments will be adjusted annually for cost of living increases, and that all stipend, tuition, fees and medical school expense benefits are taxable. Total federal income tax liability will depend on the level of your tuition and fees. The following table illustrates the approximate annual tax liability, including tax owed on the stipend, for two levels of tuition and fees (\$1,000 and \$5,000):

		Annual Tuiti	on and Fees
	Tax Status	\$1,000	\$5,000
	Single	\$ 575 tax	\$1.450 tax
	Married, no children, spouse not working	375 tax	1,050 tax
۹	Married, no children, spouse earns \$5,000 per year	1,225 tax	2,100 tax

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13-14 CARD 06 11-12/ Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100? 100 0 50 least Most Destrable Desirable RATING A. NHSC Scholarship 15-17/ Armed Forces Scholarship (AFHPSP) Β'. 18-20/ New Federally Insured Loan C. 21-23/ D. Your present method of finance 24-26/ How would your ratings in Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make</u> your ratings relative to those in Question 9: (Ratings may exceed 100) 10. How would you rate the NHSC Scholarship: -- If the 3 year limit on post graduate training were removed? 27-29/ - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year? 30-32/ - If the monthly stipend were increased to \$600 and the service compensation were increased to \$37,000/year? 33-35 - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year? 36-38/ 11. How would you rate the AFHPSP Scholarship: - If there were no annual cost of living adjustment in the stipend? - If the residency opportunity were increased to 100% and the monthly stipend were increased to \$600? - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year? 45-47/ - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year? 48-50/ 12. How would you rate the New Federally Insured Loan:

If interest payments were deferred until graduation from medical school?

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- If interest payments were deferred until 3 years after medical school?

CARD 06

51-53/

54-56/

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CARD 06 11-12/ 13-14 Consider the three programs for financing your medical school education described on 9 the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100? 100 50 Most Least Desirable Desirable RATING 15-17/ NHSC Scholarship Α. 18-20/ Armed Forces Scholarship (AFHPSP) R . 21-23/ New Federally Insured Loan С. 24-26/ D. Your present method of finance How would your ratings in Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make</u> your ratings relative to those in Question 9. (*Ratings may* exceed 100) 10. How would you rate the NHSC Scholarship: 27-29/ - If the 3 year limit on post graduate training were removed? - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year? 30-32/ - If the monthly stipend were increased to \$600 and the service 33-35/ compensation were increased to \$37,000/year? - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year? 36-38/ 11. How would you rate the AFHPSP Scholarship: - If there were no annual cost of living adjustment in the stipend? 39-41/ - If the residency opportunity were increased to 100% and the monthly stipend were increased to \$600? 42-44 - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year? - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation 48-50/ were increased to \$37,000/year? How would you rate the New Federally Insured Loan: . 12. If interest payments were deferred until graduation from medical 51-53/ school? - If interest payments were deferred until 3 years after medical school? 54-56/ CARD 06

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		PROGRAM BENEFITS	PROGRAM REQUIREMENTS
	NHSC SCHOLARSHIP	Tuition, fees and direct medical school expenses (books, etc.)*	Requirés 1 year of practice as an NHSC physician in a designated shortage area
	(National Health Service Corps Scholarship Program)	Monthly stipend - \$400 per month for 12 months (\$4,800 per year)*	for each year of scholarship support. (Practice while taking intern or residency training does not count toward this obligation)
		training (Internship/Residency)	A shortage area may be:
		for up to 3 years prior to beginning service obligation.	a) an area in an urban or rural location which the Secretary of HEW deter-
	•	may be available for up to 10% of NHSC scholarship holders in PHS hospitals at an annual salary of approximately \$20,000.	mines has a health manpower shortage. b) a population group which the Secretary determines has such a shortage, or
`	•	(c) a public federal or nonprofit pri- vate medical facility.
	•		Compensation will average approximately \$22,000 per year while serving in a shortage area.
•	AFHPSP SCHOLARSHIP	Tuition, fees and direct medical expenses (books, etc.)*	Requires 1 year of practice as an active duty military physician for
	(Armed Forces Health Profes- sions Scholar-	Monthly stipend - \$400 per month for 10-1/2 months (\$4,200 per year); and \$1,400 for 45 days	each year of scholarship support. (Active duty service while taking intern or residency training does int count towards this obligation)
· ·	ship Program)	active duty summer Service." In many cases this duty may be served at your medical school upon re- quest from the institution.	Compensation will average approximately \$22,000 per year while on active duty.
	ан 1917 — 1917	Provides for completion of 1 year of internship for all partici- pants at either military or civ- ilian hospitals and for completion	
	7	of specialty training for 50% of participants prior to beginning service obligation. Most resi-	
•		<pre>dency positions will be in military hospitals. Intern/resident posi- tions in military hospitals will pay approximately \$20,000 per year.</pre>	
	NEW FEDERALLY INSURED LOANS	Loan insured by the Federal Gov- ernment of up to \$10,000 per year	Repayment of <u>principal</u> may be deferred until 3 years after graduation from
·.	(Federally Insured Loans for Wealth	to cover tuition, fees and direct medical school expenses (books, etc.) Maximum total amount bor-	year period.
	Professions * Students)	rowed during medical school is \$50,000, Eligible lenders*could include schools, state agencies,	Interest (and fees) on loan not to exceed 12% per annum.
		and financial or credit institu- tions.	Interest payments must be made during medical school. (At 12% interest this equals \$1,200 per year for <u>each</u> \$10,000 borrowed.)
			At the discretion of the Secretary of HEW the borrower may be partially or fully released from the principal and interest obligation if he or she arrear to serve in chostabe area. (See

Assume all payments will be adjusted annually for cost of living increases, and that all stipend, tuition, fees and medical school expense benefits are taxable. Total federal income tax liability will depend on the level of your tuition and fees. The following table illostrates the approximate annual tax liability, including tax owed on the stipend, for two levels of tuition and fees (\$1,000 and \$5,000):

		Annual Tuiti	on and Fees
Tax Status		\$1,000	\$5,000
Single	•	\$ 575 tax	\$1,450 tax
Married, no children, spouse not , working	•	375 tax],050 tax
Married, no children, spouse earns \$5,000 per year		1,225 tax	2,100 tax

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13. Now assume that each of the three alternatives for financing your medical education described again on the opposite page <u>and</u> your projected method of finance will be available to you for financing <u>next year's medical school expenses</u> (77-78). How would you rate these four alternatives on a scale from 0 to 100?



D. Your present method of finance

How would your ratings in Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make</u> your ratings relative to those in Question 9. (Ratings may exceed 100)

- 14. How would you rate the NHSC Scholarship:
 - If the 3 year limit on post graduate training were removed?
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?
 - If the monthly stipend were increased to \$600 and the service compensation were increased to \$37,000/year?
 - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year?
- 15. How would you rate the AFHPSP Scholarship:
 - If there were no annual cost of living adjustment in the stipend?
 - If the residency opportunity were increased to 100% and the monthly stipend were increased to \$600?
 - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year?
 - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year?
- 16. How would you rate the New Federally Insured Loan:
 - If interest payments were deferred until graduation from medical school?

- If interest payments were deferred until 3 years after medical school?



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CARD 07

11-12/













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13.	Now assume that each of the the described again on the opposite available to you for financing you rate these four alternative	ree alternatives e page <u>and</u> your p <u>next year's medi</u> as on a scale fro	for financing yo rojected method cal school exper n 0 to 100?	our medical of finance I <u>ses</u> (77-78)	education will be . How would
	0	50		Þ	100
			1 1	1	1 1
L √Des	east linable			1	Most Desirable
			N	•	RATING
	A. NHSC Scholarship	,			15-17/
	B. Armed Forces Scholarship (A	AFHPSP)			18-20/
	C. New Federally Insured Loan	·			21-23/
	D. Your present method of fina	ince		,	24-26/
	How would your ratings in Quest respective programs were made? your ratings relative to those	ion 9 change if <u>Please consider</u> in Question <u>9</u> .	the following mo <u>these changes i</u> (Ratings may exc	odifications individually ceed 100)	in the and make
14.	How would you rate the NHSC Sch	olarship:	•		
	- If the 3 year limit on post g	raduate training	were removed?		27-29/
	- If the monthly stipend were i compensation were increased t	ncreased to \$800 o \$29,000/year?	and the service		30-32/
	- If the monthly stipend were i compensation were increased t	ncreased to \$600 to \$37,000/y e ar?	and the service		33-35/
7	 If the 3 year limit on post g the monthly stipend were incr compensation were increased t 	raduate training eased to \$600, ar o \$37,0 00/yr ar?	were removed, ad the service		36-38/
15.	How would you rate the AFHPSP S	cholanship:	:	1	 .
· ·	- If there were no annual cost	of living adjustr	ment in the stip	end?	39-41/
`	 If the residency opportunity stipend were increased to \$60 	were increased to 0?	100% and the T	ion th 1y	42-44/
	- If the residency opportunity stipend were increased to \$60 were increased to \$29,000/yea	were increated to 0, and the servic r?	0 100%) the mont compensation	hly	45-47/
:	 If the residency opportunity stipend were increased to \$60 were increased to \$37,000/yea 	were increased to 0, and the servio r?	o 100%, the mont ce compensation	hly	f 48-50/
16.	How would you rate the New Fede	rally Insured Loa	in:		
	- If interest payments were def school?.	erred until gradu	uation from medi	cal	51-53/
	- If interest payments were def	erred until 3 yea	urs after medica	1 school?	54-56/
,					CARD 07
			·	•••	
1	•				• .
	<i>b</i> `	·			•

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17.

Compared to a group private practice, how would you rate the following conditions of medical practice for a National Health Service Corps (NHSC) physician in a federally designated health manpower shortage area?



18. How would you rate the following conditions of medical practice in the military as compared with group private practice?

	÷ ∫ t	Military Better	Little or No Difference	Private Better	Not Sure	
	0	1	2	3	4 -	
a.	Hours					24/
b.	Support personnel		. Ц			26/
с.	Range of cases		. 🛄			27/
d.	Paper work					201
ė.	Salary and benefits		` 🗋			20/
f.	Family life				Ц	29/
a. 1	Professional developme	nt 🗌				30/
h.	Consultation support					31/
1	Facilities					32/
	Status and privileges			<u> </u>		33/
· k.	Overall rating				, 	34/
	•	15				j.

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CARD 08

19. How would you rate the following conditions of medical practice in the military as compared with practice in a shortage area as an NHSC physician?

	8	NHSC Better	Little or No Difference	Military Better	Not Sure	
		1	2	3	4	
a.	Hours ,		Ċ	· 🗖		. 75
b.	Support personnel			Ē	П	36
ç.	Range of cases			Π		30
d .	Paper work	Ē	П	П	H	
e.	Salary and benefits	Π		П		· 30
f.	Family life	П				39
g.	Professional development		П			40
h.	Consultation support	П				41
i.	Facilites					42
. j.	Status and privileges					43
k.	Overall rating					44 45

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Indestradie	Undesirable	Indifferent	Desirable	Desirable	
	2	3	4	J 5	
Please try t desirability family (if a your career	o spread your an you place on ea pplicable) may b in medicine.	nswers along the ach item. Please ave on the decis	scale to show t consider the i ions you will m	he relative nfluence your ake concerning	
Enter your r	ating for each	item in the box 1	ollowing the it	em.	
A. Practice	in or very near	r a large city (c	over 100,000 pop	ulation)	\Box
B. Practice (25,000	in or very near - 100,000 popula	r a suburban sett ation)	ing or a small"	city	
C. Practice	in a town (500	- 25,000 populat	:ion)		
D. Practice	in a rural are	a, small town or	village (under	500 population)
E. Practice	in the militar	y		•	
F. Private	practice, solo	er group	.67	2 3	
G. Prepaid	group practice	b			
H. Practice	for a large or	ganization			
I. (Opportun	ity to engage i	n research	,		
J. Opportur	nity to teach	<i>и</i>			
K. Opportur	ity to work in	medical administ	ration or manage	ement	
L. Opportur	nity to provide	outpatient care/	consultations .	A . //	
M. Opportur	nity to provide	inpatient care/c	onsultations		Ļ
N. Opportur ages, de	nity to see a we egrees of illnes]]trounded paties	nt-mix (both se	xes, varying	
0. Opportu	n <mark>ity</mark> to see same	patients on sub	sequent or foll	ow-up visits	
P. Opportu	nity for graduat	e specialty trai	ning of your ch	oice	r
(resider	ncies, feilowsni	ps)	s monace on most	inge *	
Q. Upportui	nity to attend p	inoressional cont	erences or meet	locations	
R. Upportu	nity to travel,	The and practic	dia di la contra d	rocat rons ,	
S. Practice	e in one locatio	n for at least o	years		
I. Practice	e in one locatio	n permanentry	s of work		
U. Upportui	TILY TO SET OWN	nours and/or day	d dvoce	- -	
v. Upportu	Tity for indeper		u uress		

CARD 08

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2 1.	Which one of the following areas are you	considering most	seriously at the
- - -	1. General Practice or Family Practice	13/	· · · ·
	2. Medical Specialties		
	3. Syrgical Specialties		
	4. Other Specialties		
	5. Undecided		•
A. A		and the second s	•

If you checked "1," "2," "3," or "4" above and are seriously considering a specific specialty, please indicate below which specialty. <u>PLEASE DO NOT CHECK MORE THAN ONE</u>.

6.	Undecided on specific specialty		14-15/
7.	General Practice		
8.	Family Practice		
9.	Allergy		ן
10.	Cardiology		
11.	Dermatology		4 5 7
12.	Gastroenterology		
13.	Internal Medicine		HEDIONE SPECIALTIES
14.	Pediatrics and Subspecialties		• • • •
15.	Pulmonary Disease		
16.	General Surgery		J .
17.	Neurosurgery		
18.	Obstetrics and Gynecology	П	
19.	Ophthalmology .		· · · · · · · · · · · · · · · · · · ·
20.	Orthopedic Surgery	Ē	
21	-Otolaryngology	- 1	SURGICAL SPECIALTIES
22.	Plastic Surgery		•
23.	Colon and Rectal Surgery	· [7]	
24.	Thoracic Surgery		
25.	Urology	Ē	J

(Continued on next page)

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CARD 09

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11-12/

· · ·	26. Aerospace Medicine		
	27. Nuclear Medicine		• · · ·
	28. Submarine Medicine		•
	29. Anesthesiology		
	30. Psychiatry and Subspecialties	•	
	31. Radiology		
x .	32. Pathology		
· · ·	33. Neurology	· ·	*
1.	34. Occupational Medicine		··· ·
	35. Physical Medicine	7	·
	36. Preventive Medicine		
	37. Other (Specify)' 🔲 🕽		
22.	Do you hold a Ph.D or equivalent degree?		
	Yes 7		-
•	Year received	17-20/	· · · · ·
	Major Field		21-22/
	School		23-25/
· · · ·	State and Zip Code	26-30/-	
* ^ ^ ^		- · .	
23.	Do you note an ma, ms or equivalence degree:	5g	
			· ·
		.	
	Year received	32-35/	
	Major Field		36-37/
	School		38-40/
ч ¹ — — — — — — — — — — — — — — — — — — —	State and Zip Code	41-45/	··· ·
•	н		
24.	Do you hold a bachelor's or equivalent degree?	1	6
	No 46/	· ·	•
6	Yes		
N,	Vear received	47-50/	
4	Major Field		, 51-52/
	School \		53-55/
	State and Zin Code	56-60/	
			' .
CARL	<i>,</i> 07	·	• • · · ·

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25.	How old were you on your last birthday?	k
	Years 13-14/	
26.	What is your sex?	- -
•	1. Male 🔲 15/	· ,
	2. Female	•
27.	What do you consider yourself?	
	1. White (other than Spanish or Mexican Surname) [16/).
	2. Black	. 8 .
	3. Uriental	LAN .
• .	5. Spanish or Mexican Surname	· · ·
	6. Other (Specify:	· ·
28.	What is your marital status?	•
	1. Single	
•	2. Divorced/Separated	
· · .	3. Widowed	
	4. Married	· ·
	IF MARRIED, does your spouse attend school?	
	I. Undergraduate [] 18/	
•	3. Professional	
	4. Other	
	5. Does not attend school	
•	Does your spouse work?	
f	\` 1. No □ 19/	· · · ·
	Z. Yes	
	Hours	20-21/
	How many weeks did he/she work last year?	20 21/
	" Weeks	22-23/
•••.2	What were his/her earnings last year? (Answer only one)	
	• Per Hour \$	24-27/
	Per Week \$	28-30/
	Per Month \$	31-34/
	Per Year \$	35-39/
	, in the second s	CARD 10

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29.	How many children do you have?
•	Children (write "O" if none)
30.	How many persons - excluding yourself, your spouse, and your children (if any) - are financially dependent on you?
	1. None 41/ 2. One
	5. Four or more
ગં	What was the setting where you spent most of your childhood?
31.	what was the setting where you spent most of your chirdhood:
	1. 'Rural, small town, or village (under 500 population) 42/
	2. Town (500 - 25,000 population)
· · · ·	3. Suburb or small city (25,000 - 100,000 population)
	4. Large city (over 100,000 population)
•	5. Other (Specify:)
32.	Do you have any brothers and/or sisters who now attend college? How many?
	(Write "0" if none) 43/
33.	What is your parents' combined annual income before taxes?
	1 jess than \$10,000 1 44/
	2 \$10,000 - \$14,999
•	3 \$15 000 - \$19 999
1	4 \$20 000 - \$29 999
	5 \$30,000 or more
	5. Not applicable
· ~	
S	a
•••	
	· · · ·

CARD 10

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	1.	Physician	· · · ·		15 1101
	2.	Other professional		[] [_]	45-46/
	3.	Owner, manager, proprietor	(including farm)		
	4.	Salesperson	(including furmy	لیا f آ	
	5.	Clerical worker		+ []	
	6."	Crafts, skilled worker	· ·		
	7.	Unskilled			
•	8.	Military			.1
	9.	Other (Specify:			
	10.	Father deceased			•
35.	Wha	t is the occupation of your	mother?	•	
	1.	Physician	· ·		47-481
	2.	Other professional			
	' 3.	Owner, manager, proprietor	(including farm)		
	4.	Salesperson	, , ,		
	, 5.	Clerical worker		П	
	6.	Crafts, skilled worker			,
x	7.	Unskilled			
	8.	Military	•	П	
	9.	Homemaker	· ·		
	10	Other (Specify			· · ·
	10.	conce (opeoring)			

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CARD 10

•		
36. Have Schol	you ever been contacted regarding a Public Health S arship?	Service or NHSC
1. No	49/	
2. Yes		•
•	1. by HEW 50/	· · · · · · · · · · · ·
	• 2. by the medical school 51/	
	3. by some other institution/ person (Specify) [_] 52/	
37. Have	you ever applied for a Public Health Service or NH	SC Scholarship?
1. No	53/	· , ·
2.Yes	· · · · · · · · · · · · · · · · · · ·	N. 1.
6	Were you ever offered a Public Health Service or NHSC Scholarship?	
	1. No	54/
	2. Yes, and I accepted the Scholarship 🔲	4
:	3. Yes, but I declined the Scholarship 🗌 🚬	L
•	If you have declined a Public Health Service or NHSC Scholarship, what was the <u>principal</u> reason;	
	1. Received a better Scholarship (which one?)	55/
•	2. Made a better loan arrangement	
	3. Could not change other arrangements	
•	4. Stipend too low	× • •
	5. Obligated service too long	· · · ·
	6. Did not like the type of	
л., ў.	7. Residency training restrictions	
	8. Other (Specify:)	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
· · ·		

CARD 10

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38. Have you	ever been contacted regarding an AFHPSP Scholarship?
2. Yes	
	I. By the Army 57/ 2. By the Air Force 58/ 3. By the Navy 59/ 4. By the Medical School 60/ 5. By some other institution of person (Specify) 61/
39. Have you 1. No 2. Yes	ever applied for an AFHPSP Scholarship? 62/
40	Were you ever offered an AFHPSP Scholarship? No
	 41. Which service offered you the AFHPSP Scholarship? 41. Army 64/ 2. Navy 3. Air Force
-	42. Did you accept the Scholarship? 1. Yes 65/ 2. No
	 43. If you did not accept the Scholarship, what was your principal reason for declining? 1. Received a better Scholarship (which one?) [] 66/ 2. Made a better loan arrangement [] 3. Could not change other arrangements [] 4. Stipend too low [] 5. Length of obligated service too long [] 6. Did not like the type of obligated service assignment [] 7. Residency training restrictions' [] 8. Other (Specify)

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Please add any comments that you would like to make (including desirable changes in federal programs for financing medical education, desirable changes in military or NHSC practice conditions, etc.): 44

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Appendix C

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HYPOTHÈTICAL OPTIONS FOR THE AFHPSP AND NHSC SCHOLARSHIP AND THE FEDERALLY INSURED LOAN PROGRAM

	•	Appears in version no.:
low v	would you rate the AFHPSP Scholarship:	1 2 3 4 5 6 7 8 9 10 11 12
<u>)</u> ,	If the monthly stipend were increased to \$600?	
2.	If the service compensation were increased to \$37,000/year?	
3.	<pre>if the stipend were increased to \$600 and the service compensation were increased to \$29,000/year?</pre>	
4.	If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?	
5.	If the monthly stipend were increased to \$600 and the service compensation were increased to \$37,000/year?	
6.	If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year?	
7.1	If the residency opportunity were increased to 100% and the monthly stipend were increased to \$6007	
8.	If the residency opportunity were 100% and the monthly stipend were increased to \$8007	x
9.	If the residency opportunity were 100% and the service compensation were increased to \$29,000/year?	
0,	If the residency opportunity were 100% and the service compensation were \$37,000/year?	
۱.	If the residency opportunity were increased to 1003, the monthly stipend were increased to	
	\$000, and the service compensation were in- creased to \$29,000/year?	x x x x
2.	If the residency opportunity were 100%, the mohthly stipend were increased to \$800, and the service compensation were increased to	• • • • • • • • • • • • • • • • • • •
	\$27,000/year1 ⁿ *This option is due to a typographical error (\$27,000 rather than \$29,000).	
3. ,	If the residency opportunity were 100%, the monthly stipend were increased to \$800, and the service compensation were increased to \$20 000/wear?	

10.11 14 15 14 Medical Student Survey AFHPSP Options 10

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- . 14. If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year?
 - 15. If the residency opportunity were 100%, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?
 - 16. If there were no annual cost of living adjustment in the stipend?
 - 17. If the residency opportunity were 100%, the service compensation were increased to \$37,000/year, and you were guaranteed the opportunity to practice in your specialty during your obligated service period?
 - 18. If the monthly stipand were increased to \$600, and your assignment to active duty in a geographic area were-made through a matching program like that now used for interoship and residency positions (the NIRMP)?
 - 19. If the monthly stipend were increased to \$800, the service compensation were increased to \$29,000/yeer, and you were guaranteed the opportunity to serve in your specialty?
 - 20. If the residency opportunity were 100%, the service compensation were increased to \$37,000/ year, end your assignment to active dity in a geographic area were made through a matching program like that now used for internship and residency positions (the NIRMP)?
 - 21. If the monthly stipend were increased to \$800 end if the military guaranteed essignments to the same locality when both husband and wife are serving on active military duty?
 - 22. If the militery guerantaed essignments in the same locality when both husband and wife are serving on active military duty?
 - 23. If those permited to complete residency training were guerenteed the option of doing so in civilian programs?
 - 24: if, for your oblighted service, you were assigned to a geographic area through a matching program similar to the one now used for internship and residency programs (the HIRMP)?
 - 25. If you were given a guarantee that you would not be moved during your first four years of obligated_duty?
 - 26. If you were guaranteed the opportunity to serve in your specialty?



"Medical Student Survey NHSC Options (Questions: 10,11,14,15, Versions 1-12) Appears in version no.: How would you rate the NHSC Scholarship: 1 2 3 4 5 6 7 8 9 10 11 12 1. If the monthly stipend were increased to \$600? 2. If the monthly stipend were increased to \$800? If the monthly slipend were increased to \$600 .
 and the service compensation were increased to \$29,000/year? 4. If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year? x x If the monthly stlpend were increased to \$600 and the service compensation were increased to \$37,000/year? X If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year? 7. If the 3 year limit on post graduate training were removed? If the 3 year limit on post graduate training were removed and the monthly stipend were increased to \$600? 9. If the 3 year limit on post graduate training were removed and the monthly stipend were Increased to \$800? 10. If the 3 year limit on post graduate training were removed and the service compensation were increased to \$29,000/year? 11. If the 3 year limit on post graduate training* were removed and the service compensation were increased to \$37,000/year?

- were increased to \$29,000/year?

6.3

- 12. If the 3 year limit on post graduate training were removed, the monthly stipend were in-creased to \$600, and the service compensation were increased to \$29,000/year?
- If the 3 year limit on post graduate training were removed, the monthly stipend were in-creased to \$800, and the service compensation

14. Note that a sear limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year?

- 15. If the 3 year limit on post-graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?
- 16. If the monthly stipend were increased to \$600 and you could serve your obligated period as a <u>private</u> physician in a shortage area?
- 17. If the 3 year limit on post graduate training were removed, the monthly stipped were increased to \$800, and you could serve your obligated period as a <u>private</u> physician in a shortage area?
- 18. If the National Health Service Corps guaranteed assignments to the same locality when both husband and wife are completing an NHSC obligated service requirement?
- If you could serve your total obligated period as a <u>private</u> physician in a shortage area?
- 20. If <u>75</u> percent of the obligated service positions were isolated, rural areas with little professional peer contect, and 25 percent were in densely populated, low-Income urban areas?
- If <u>25</u> percent of the obligated service positions were in isolated, rurel areas with little professional peer contact, and 75 percent were in densely populated, low-income urban areas?
- 22. If you had no choice in service obligation site?

-64





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LOAN OPTIONS (Versions 1-12)

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How would you rate the New Federally Insured Loan:

1. If the interest payments were deferred until graduation from emical school?

• 2. If interest payments were deferred until 3 years after medical school?

VERSIONS I THROUGH 12 OF QUESTIONS 9 THROUGH 16

Appendix D

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5.)

•	(CARD 06)	1-12/ 6 13-14/
9	. Consider the three programs for financing your medical school educatic the opposite pate and the way you are financing your medical school education year (76-77). Assume that you were eligible and that each of these all been available to you at the beginning of this academic year. How wou rated them on a scale from 0 to 100?	n described on lucation <u>this</u> ternatives had ld you have
	0 50	100
Des	Least sirable	Most Desirable
		RATING
	A. NHSC Scholarship	15-17/
\$	B. Armed Forces Scholarship (AFHPSP)	18-20/ 0
ж	C. New Federally Insured Loan	21-23/
	D. Your present method of finance ⁺	. 24-26/
•	How would your ratings in Question 9 change if the following modificati respective programs were made? <u>Please consider these changes individua</u> your ratings relative to those in Question <u>9</u> . (Ratings may exceed 100)	ons in the lly and make
10.	How would you rate the NHSC Scholarship:	
	- If the monthly stipend were increased to \$600?	27-29/
	 If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year? 	
	- If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and you could serve your obligated period as a <u>private</u> physician in a shortage area?	30-32/
•	- If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$29,000/year?	36-38/
11.	How would you rate the AFHPSP Scholarship:	١
•	 If the residency opportunity were 100% and the service compensation were increased to \$29,000/year? 	39-41/
×	 If the residency opportunity were 100% and the monthly stipend were increased to \$600? 	• 42-44/
	- If the monthly stipend were increased to \$800, the service com- pensation were increased to \$29,000/year, and you were guaranteed- the opportunity to serve in your specialty?	45-47/
	- If the residency opportunity were 100%, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?	48-50/
12.	How would you rate the New Federally Insured Loan:	3
	- If interest payments were deferred until graduation from medical school?	51-53/
· .	- If interest payments were deferred until 3 years after medical school?	
		CARD 06
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6 13-14/ 11-12/ CARD 07 13. Now assume that each of the three alternatives for financing your medical education described again on the opposite page and your projected method of finance will be available to you for financing next year's medical school expenses (77-78). How would you rate these four alternatives on a scale from 0 to 100? 100 Most Least Desirable . Desirable RATING NHSC Scholarship Α. 15-17 Armed Forces Scholarship (AFHPSP) 18-20/ **R** . 21-23/ С. New Federally Insured Loan 24-26/ D. .Your present method of finance How would your ratings in Question 9 change if the following modifications in the respective programs were made? Please consider these changes individually and make your ratings relative to those in Question 9. (Ratings may exceed 100) 14. How would you rate the NHSC Scholarship: - If the monthly stipend were increased to \$600? 27-29/ - If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year? 30-32/ - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and you could serve your obligated period as a private physician in a shortage area? 33-35 - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation - 38. were increased to \$29,000/year? 15. How would you rate the AFHPSP Scholarship: - If the residency opportunity were 100% and the service compensation were increased to \$29,000/year? - If the residency opportunity were 100% and the monthly stipend 44 were increased to \$600? - If the monthly stipend were increased to \$800, the service compensation.were increased to \$29,000/year, and you were guaranteed 47/ 45 the opportunity to serve in your specialty? - If the residency opportunity were 100%, the monthly stipend were t. x increased to \$800, and the service compensation were increased to 48-50/ \$37,000/year? How would you rate the New Federally Insured Loan: 16. 2. - If interest payments were deferred until graduation from medical 51-53/ 1. 1 school? - If interest payments were deferred until 3 years after medical school? 54-56/ CARD 07

 $\mathcal{C}\mathcal{S}$

11-12/ Consider the three program for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100?

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с. · ,	A.	NHSC Schol	larship	ν. N		,		· -				, C	15-17/
	8,	Armed Ford	ces Schol	arship ((AFHPSF	;)	•	P		· ·	, . •		18-20/
	C,	New Federa	ally İnsü	red Loar	۰ ۱			•	•	•	۵ ۱		21-23/
	D.	Your prese	ent metho	d of fir	ance	•		u		u.			24-26/

How would your ratings in Question 9 change if the following modifications in the respective programs were made? Dease consider these changes individually and make your ratings relative to those in Question 9. (Ratings may exceed 100)

- 10. How would you'rate the NHSC Scholarship;
 - If the 3 year. Timit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year?
 - If the National Health Service Corps guaranteed assignments to the same locality when both husband and wife are completing an NHSC obligated service requirement?
 - If the 3 year light on post graduate training were removed and the service compensation were increased to 29,000/year?
 - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?*

1] How would you wate the AFHPSP Scholarship:

- If the monthly stipend were increased to \$800 and if the military guaranteed assignments to the same locality when both husband and wite are serving on active military duty?
- If the residency opportunity were 100% and the monthly stipend were increased to \$600? + 1
- If the residency opportunity were 100; the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year?
- If the residency opportunity were 100, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?

12. How would you rate the New Federally Insured Loan:

- If interest payments were deferred until graduation from medical school?

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.If interest payments were deferred until 3 years after medical school?

27-29/

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(CARD 06)



36-38/







CARD 06

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•	13. '	No de ab	w assum scribed	e that again ou for	each of on the o financin	the thro pposite g next	ee alter page <u>an</u> vear's m	natives <u>d</u> your edical	for fi project school	hancing ed metho expenses	your med d of fin (77-78)	ical edu ance wi '. How	ucation 11 be ava would you	ail- u
•		ra	te thes	e four	alternat	aves on	a scale	from O	to 100	?	· · · ·			1.000
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	L .		*		•				;				RATIN	G
,		Å.	NHSC	Scholar	ship 🛓				• .		đ		Ļ	15-17/
`	۰ *	В.	Armed	Forces	Scholar	ship (A	FHPSP)			•				18-20/
		C.	New F	ederall	y Insure	d Loan			•		•			21-23/
		D.	Yourr`	present	method	of fina	ince			-	,	,		24-26/
•		Ыс	blune er	vour r	atings i	in Quest	ion 9 ch	ance if	the fo	llowing	modifica	itions i	n the re	spec-
.)	•	ti re	ive prog lative	rams we to thos	re madei e in Que	Pleas	e consid . (Ratir	ler thes igs may	<u>e chang</u> exceed	les indiv 1007	vidually	and mak	e your r	<u>atings</u>
•	14.	Hċ	ów woµld	you ra	te the M	HSC Sch	nolarship):						
			If the stipend increas	3 year were i ed to \$	Timit or hcreased 29,000/j	n post o 1 to \$6 0 year?	graduate)0, and 1	trainir the serv	ig were vice con	removed pensati	, the mon on were	nthly		27-29/
		•	If the localit service	Nationa y when requir	1 Health both hus ement?	band an	e Corps d wife a	guarant i re c omp	eed ass leting	ignments an NHSC à	s to the obligate	same d		30-32/
		÷	If the service	3_year comper	limit or sation w	n post g were ind	raduate reased 1	tra [®] inir to \$29,0	ig were 100/year	removed	and the	į		33-35/
		-	If the stipenc increas	3 year I were i ed to 1	limit or ncreased 37,000/y	n post g d to \$80 year?	graduate)0, and 1	trainir the serv	ig were vice con	removed npensati	, the mon on were	nthly		36-38/
	15.	.He	would	i you ra	te the /	AFHPSP S	cholarst	nip:			•			
		-	If the guarant wife ar	monthly eed ass e servi	stipend ignments	iw <mark>ere i</mark> to th e	ncreased same lo litary d	to \$80 gality uty?	0°and i when bo	f the mi th husba	nd and			39-41/
• 43		-	If the increas	resider	icy oppoi	rtunity	were 10	0% and 1	the mio n	tĥ]y sti	pend wer r.	e : *		42-44/
••••• •		-	If the increas \$29,000	resider ed to 1 /year?	icy oppoi 600, and	rtunity d the se	were 100 ervice co	D%, che ompersat	monthly tion we	y`stipen re_incre	d were ased to		с	45-47/
	•	20	If the increas \$37,000	resider ed to \$ / year ?	icy oppoi 800, and	rtunity 1 the se	were [°] 100 ervice co)%, the mpensat	monthly ion wei	/ stipen re incre	d≋were ased to			48-50/
· •	16.	Н		l you ra	ite the M	lew Fede	erally Ir	sured ["] L	oan:			, i		· · · · · ·
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, P _ 3	¢	-	If, inte	erest pa	ymen ts	were det	ferred u	stil 3 y	vears a	fter med	ical sch	001?		54-56/
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9.	Consider the three programs for financing your medical sch on the opposite page and the way you are financing your me this year (76-77). Assume that you were eligible and that had been available to you at the beginning of this academi have rated them on a scale from 0 to 100?	ool education dical school e each of these c year. How w	described education e alternatives would you	
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L	east / / / / / / / / / / / / / / / / / / /		Most	
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			KATING	
	A. NHSC Scholarship	, °		,
	B. Armed Forces Scholarship (AFHPSP)			,
	C. New recerting insured Loan		21-23/	,
	How would your estings in Question Q shares if the fallende	I <i>c</i> ı	24-26/	,
*	respective programs were made? <u>Please consider these change</u> your ratings relative to those in Question 9. (Ratings may	ig modificatio <u>les indivually</u> (exceed 100)	ns in the and make	
10.	How would you rate the NHSC Scholarship:	· ·	• •	
	- If the monthly stipend were increased to \$800 and the set compensation were increased to \$29,000/year?	rvice	27-29/	
4	- If the 3 year limit on post graduate training were remove monthly stipend were increased to \$600, and the service of were increased to \$37,000/year?	ed, the compensation =	x 30-32/	
•	 If the 3 year limit on post graduate training were remove monthly stipend were increased to \$600, and the service of were increased to \$29,000/year? 	ed, the compensation	33-35/	
	- If the 3 year limit on post graduate training were remove monthly stipend were increased to \$800, and the service of were increased to \$29,000/year?	d, the compensation	36-38/	
.11.	How would you rate the AFHPSP Scholarship:			·
,	- If the military guaranteed assignments in the same locali both husband and wife are serving on active military duty	ty when	39-41/	
	- If the residency opportunity were 100% and the monthly st were increased to \$800?	ipend	42-44/	
	- If the residency opportunity were 100%, the monthly stipe increased to \$800, and the service compensation were incr to \$37,000/year?	nd were eased	45-47/	,
· .	- If the residency opportunity were 100%, the monthly stipe were increased to \$800, and the service compensation were increased to \$29,000/year?	nd ,	48-50/	,
12.	How would you rate the New Federally Insured Loan:	l		
	 If interest payments were deferred until graduation from school? 	medical	51/53	
. · · · ·	 If interest payments were deferred until 3 years after me school? 	dical	54-56	
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Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100? 100 Least Most Desirable Desirable RATING NHSC Scholarship Α. Β. Armed Forces Scholarship (AFHPSP) New Federally Insured Loan С. 23. Your present method of finance D. -26/ How would your ratings in Question 9 change if the following modifications in the respective programs were made? Please consider these changes individually and make your ratings' relative to those in Question 9. (Ratings may exceed 100) 10. How would you rate the NHSC Scholarship; - If the 3-year limit on post graduate training were removed and the service compensation were increased to \$29,000/year? - If the monthly stipend were increased to \$600 and the service compensation were increased to \$37,000/year? - If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year? 3-75/ - If the 3-year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year? -38 11. How would you rate the AFHPSP Scholarship: - If the residency opportunity were 100% and the service compensation were increased to \$37,000/year? i- If the residency opportunity were 100%, the monthly stipend were in- \circ creased to \$800, and the service compensation were increased to \$27,000/year? - If the residency opportunity were 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/

- If the residency opportunity were 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year.
- 12. How would you rate the New Federally Insured Loan:

year?

- If interest payments were deferred until graduation from medical school?
- If interest payments were deferred until 3 years after medical school?







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11-12/ 3 13-14/ 5 CARD 07 13. Now assume that each of the three alternatives for financing your medical education described again on the opposite page and your projected method of finance will be avail-able to you for financing next year's medical school expenses (77-78). How would you rate these four alternatives on a scale from 0 to 100? 100 Most Least Desirable Desirable RATING 15-17/ NHSC Scholarship Α. 18-20/ Armed Forces Scholarship (AFHPSP) Β. 21-23 New Federally Insured Loan Your present method of finance D. How would your ratings in Question 9 change if the following modifcations in the respective programs were made? <u>Please consider these changes individually and make your</u> ratings relative to those in Question 9. (Ratings may exceed 100) 14. How would you rate the NHSC Scholarship: - If the 3-year limit on post graduate training were removed and the 27-29/ service compensation were increased to \$29,000/year? If the monthly stipend were increased to \$600 and the service com-0-32/ pensation were increased to \$37,000/year? - If the monthly stipend were increased to \$800 and the service com-77-35 pensation were increased to \$37,000/year? - If the 3-year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were 36-38/ increased to \$37,000/year? 15. How would you rate the AFHPSP Scholarship: - If the residency opportunity were 100% and the service compensation 39-41% were increased to \$37,000/year? - If the residency opportunity were 100%, the monthly stipend were in-creased to \$800, and the service compensation were increased to 42-44 \$27.000/year? - If the residency opportunity were 100%, the monthly stipend were in-creased to \$600, and the service compensation were increased to \$29,000/ year? - LF the residency opportunity were 100 , the monthly stipend were increased to \$600, and the service compensation were increased to 48-50/ \$37,000/year. How would you rate the New Federally Insured Loan: 51-53/ " - If interest payments were deferred until graduation from medical school? - If interest payments were deferred until'3 years after medical school?-54-56/ CARD 07

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9. Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were elipible and that each of these alternatives had been available to you at the beginning of> this academic year. How would you have rated them on a scale from 0 to 100?



How would your ratings in Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make</u> your ratings relative to those in Question 9. (Ratings may exceed 100)

- 10. How would you rate the NHSC Scholarship:
 - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year?
 - If the monthly stipend were increased to \$600 and you could serve your obligated period as a <u>private</u> physician in a shortage area?
 - If the 3 year limit on post graduate training were removed and the service compensation were increased to \$37,000/year?
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?
- 11. How would you rate the AFHPSP Scholarship:
 - If the monthly stipend were increased to \$600 and your assignment to active duty in a geographic area were made through a matching program like that now used for internship and residency positions (the NIRMP)?
 - If the residency opportunity were 100% and the service compensation were \$37,000/year?
 - If the service compensation were increased to \$37,000/year?
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year?
- 12. How would you rate the New Federally Insured Loan:
 - If interest payments were deferred until graduation from medical, school?
 - If interest payments were deferred until 3 years after medical school?







13. Now assume that each of the three alternatives for financing your medical education described again on the opposite page and your projected method of finance will be abailable to you for financing next year's medical school expenses (77-78). How would you rate these four alternatives on a scale from 0 to 100? 100 Most Least Desirable Desirable RATING NHSC Scholarship Α. Armed Forces Scholarship (AFHPSP) **R** . New Federally Insured Loan С. 24-26/ present method of finance D. Your

How would your ratings in Question 9 change if the following modifications in the respective rograms were made? <u>Please consider these changes individually and make</u> your ratings relative to those in <u>Question 9</u>. [Ratings may exceed 100]

14. How would you rate the NIISC Scholarship:

If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year?

- If the monthly stipend were increased to \$600 and you could serve your obligated period as a private physician in a shortage area?

- If the 3 year limit on post graduate training were removed and the service compensation were increased to \$37,000/year?
- If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?
- 15. How would you rate the AFHPSP Scholarship:
 - If the monthly stipend were increased to \$600 and your assignment to active duty in a geographic area were made through a matching program 🛩 like that now used for internship and residency positions (the NIRMP)?
 - If the residency opportunity were 100% and the service compensation were \$37,000/year?
 - ~ If the service compensation were increased to \$37,000/year?
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year?
- 16. How would you rate the New Federally Insured Loan:
 - If interest payments were deferred until graduation from medical school?
 - If interest payments were deferred until 3 years after medical school?



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CARD 06 13-14 11-12/ 9.' Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100? 'n $\mathbf{N}0$ 50 Least Most Destrable Desirable RATING NHSC Scholarship Α. 15-17/ Armed Forces Scholarship (AFHPSP) Β. 18-20/ C. New Federally Insured Loan 21-23/ D. Your present method of finance 24-26/ How would your ratings 'n Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make</u> your ratings relative to those in <u>Question 9</u>. (*Ratings may* exceed 100) 10. How would you rate the NHSC Scholarship: - If the 3 year limit on post graduate training were removed? 27-29/ - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year? 30-321 - If the monthly stipend were increased to \$600 and the service compensation were increased to \$37,000/year? 33-35/ If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year? 36-38 11. How would you rate the AFHPSP Scholarship: - If there were no annual cost of living adjustment in the stipend? 79. If the residency opportunity were increased to 100% and the monthly stipend were increased to \$690?- If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$29,000/year? - If the residency opportunity were increased to 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year? 48-50 12. How would you rate the New Federally Insured Loan: - If interest payments were deferred until graduation from medical school? - If interest payments were deferred until 3 years after medical school? 54~56/

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	13.	Now assume that described again available to you you rate these	each of the on the oppo for financ four alterna	three altern site page <u>and</u> ing <u>next yea</u> tives on a so	natives for d your pro r <u>'s medical</u> cale from (r financir jected met <u>school e</u> to 100?	ng your m thod of f expenses	edical edu inance wil (77-78).	cation l be How would
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		A. NHSC Schola	rship					[15-17/
		B. Armed Force	s Scholarshi	p (AFHPSP)	6			. [18-20/
-		C. New Federal	ly Insured L	oan	Ý				
	in the	D. Your presen	t method of	finance	\mathcal{C}			ĺ	24-26/
ď		How would your respective prog	ratings in Q rams were ma lative to th	uestion 9 ch de? <u>Please</u> ose in Ouest	ange if th <u>consider t</u> ion 9. (R	e followi hese chan atings ma	ng modifi ges indiv y exceed	cations i idually a 100)	n the nd make
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Ţ,	J4.	How would you r	limit on po	Scholarship	: training w	ere remov	ed?	1. P. 1.	27-29/
4		- IT the S year	Unit on po	sc graduate re increased		nd the se	rvice		
		compensation	were increas	ed to \$29,00	0/year?	*	e -entity		30-32/
		- If the monthl compensation	∮ stipend we were increas	re increased ed to \$37,00	to \$600 a 0/year?	nd the se	rvice		33-35/
	× •	- If the 3 year the monthly s compensation	limit on po ti pe nd were were increas	st graduate increased to ed to \$37,00	training w \$600, and 0/year?	ere remov the serv	ed, ice		36-38/
	15.	How would you r	ate the AFHP	SP Scholarsh	ip:	1			►
		- If there were	no annual c	ost of livin	g adjustme	nt in the	stipend		39-41/
	-	- If the reside stipend were	ncy opportun increased to	ity were inc \$600?	reased to	100% and	the month	ly	42-44/
		- If the reside stipend were were increase	ncỳ opportun increased to d to \$29,000	ity were inc \$600, and t //year?	reased to he service	100%, the compensa	monthly tion	x	45-47/
•	·	- If the reside stipend were were increase	ncy opportun increased to d to \$37,000	ity were inc \$600, and t)/year?	reased to he service	100%, the compensa	monthly tion	,	48-50/
	16.	How would you r	ate the New	Federally In	isured Loan	:			
		If interest p school?	ayments were	e deferred un	itil gradua	tion from	n medical		51-53/
		- If interest p	ayments were	e deferred un	ntil 3 year	s after m	nedical s	chool? 👃	54-56/
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9.	Consider the three programs for financing your med on the opposite page and the way you are financing this year (76-77). Assume that you were eligible had teen available to you at the beginning of this rate them on a scale from 0 to 1002(ical school ed your medical and that each academic year	ucation de school edu of these a . How wou	scribed cation lternatives ld you have
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	B. Armed Forces Scholarship (AFHPSP)			· .]18-20
	C. New Federally Insured Loan	5		21-23
-	D. Your present method of finance)		24-26
	How would your rating in Question 9 change if the pective programs were made? <u>Please consider these ratings relative to those in Question 9</u> . (<i>Ratings</i>	following modi <u>changes indiv</u> may exceed 10	fications idually an 0)	in the res- d make your
10.	How would you rate the NHSC Scholarship:			
	- If the 3 year limit on post graduate training we	re removed?		27-29
14	- If the 3 year limit on post graduate training we monthly stipend were increased to \$600?	re removed-and	the 💡	30-32
.*	- If the 3 year limit on post graduate training we service compensation were increased to \$37,000/y	re removed and ear?	the	33-35
	- If the 3 year limit on post graduate training we the monthly stipend were increased to \$800, and compensation were increased to \$29,000/year?	re removed, the service	•	36-38
11.	How would you rate the AFHPSP Scholarship:	0		
•	- If the stipend were increased to \$600 and the second compensation were increased to \$29,000/year?	rvice		39-41
	- If the residency opportunity were 100% and the most stipend were increased to \$600?	onthly		42-44
	- If the stipend were increased to \$800 and the se compensation were increased to \$37,000/year?	rvice	Ň	45-47
	- If the residency opportunity were 100%, the stip increased to \$800, and the service compensation to \$37,000/year?	end were were increased		48-50
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12.	How would you rate the New Federally Insured Loan:	-		i
	- If interest payments were deferred until graduat	ion from medica	al school?	51-53
	- If interest payments were deferred until 3 years	after medical	school?	54-56
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	13.	Now assume described a available t you´rate th	that each of th gain on the opp o you for fin <u>an</u> ese four altern	e three alternat osite page and y cing next year's atives on a scal	tives for fin your projecte medical sch e from O to	ancing your m d method of f lool expenses 100?	edical ed inance wi (77-78).	ucation 11 be How wou	ld	K
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	,	A. NHSC Sc	holarship	• •	· .	.•	. r		j15-17/ 1 '	
		B. Armed F	orces Scholarsh	in (APHPSP)	,	, 0 ,	L		18-20/ 1	مسمو
		C. New Fed	erally Insured	Loan	• •		· [21-23/	
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		How would y respective your rating	our ratings in programs,were m s relative to t	Question 9 chang ade? Please cor hose in Question	ge if the fol nsider these n 9. (Ration	llowing modifi changes indiv ngs may exceed	cations i idually a (100)	in the und make		
	14.	How would y	où rate the NHS	SC Scholarship:		•	÷	· ·"	1	
		- If the 3	year limit on p	oost, graduate tr	aining were 1	removed?	Ĺ		27-29/	
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		<pre>_ If the B _ service d</pre>	year limit on propensation we	post graduate tr re increased to	aining were 1 \$37,000/year	removed and th ?	ne []33 -3 5/	
- N - N - N		- If the 3 the month compensa	year limit on p ly stipend were tion were increa	post graduate the increased to \$ ased to \$29,000/	aining were 800, and the year?	removed, • service	~ر . ا]36-38/	•
	15.	How would j	ou rate the AFI	IPSP Scholarship	:	•			12	
		- If the st	tipend were incl tion were increa	reased to \$600 <i>%</i> a ased to \$29,000/	nd the servi year?	ce	[39-41/	••••
	•	- If the resting	esidency opport were increased	unity were 100% to \$600?	and the mont	hľy ,	` [42-44/	
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9,	Consider the three programs for financing your medical school education on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these had been available to you at the beginning of this academic year. How we rated them on a scale from 0 to 100?	described ducation alternatives ould you have	
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	B. Armed Forces Scholarship (AFHPSP)		18-20/
,	C. New Federally Insured Loan		21-23/
	D. Your present method of finance	Ĩ.	24-26/
	How would your ratings in Question 9 change if the following modificatio respective programs were made? <u>Please consider these changes individual</u> make your ratings relative to those in Question 9. (Ratings may exceed	ns in the <u>ly and</u> 100)	
10.	How would you rate the NHSC Scholarship:	· ·	· ·
	- If the 3 year limit on post graduate training were removed and the service compensation increased by \$37,000/year?		27-29/
	- If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$600, and the service compensation were increased to \$37,000/year?		30-32/
۹.	- If the monthly stipend were increased to \$800?		33-35/
	- If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$37,000/year?	"	36-38/
11.	How would you rate the AFHPSP Scholarship:-	r ne	~
	 If the residency opportunity were 100% and the service compensation were increased to \$37,000/year? 		39-41/~
-	- If the monthly stipend were increased to \$800 and the service com- pensation were increased to \$37,000/year?		, .
.*	- If the residency opportunity were 100% and the monthly stipend were increased to \$800?		45-47/
•	- If the residency opportunity were 100% and the service compensation were \$29,000/year?		48-50/
12.	Mould you rate the New Federally Insured Loan:	B a	
	- If interest payments were deferred until graduation from medical (school?		51-53/
* *	- If interest payments were deferred until 3 years after medical school?		54-56
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	13.	Now assume that each of the three alternatives for financing your m described again on the opposite page and your projected method of f available to you for financing next year's medical school expenses would you rate these four alternatives on a scale from 0 to 100?	edical inance (77-7)	education will be 8). How	0
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	vues	Tradie		RATING	
	•	NHSC Scholarship			15-17/
*	•	B. Armed Forces Scholarship (AFHPSP)			18-20/
		C New Federally Insured Loan	•		21-23/
		D. Your present method of finance			24-26/
		How would your ratings in Question 9 change if the following modif respective programs were made? <u>Please consider these changes individuals</u> make your ratings relative to those in Question 9. (Ratings may estimated or the second sec	ficatio viduall xceed 1	ns in the <u>y and</u> 00)	b x
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e se		 If the 3 year limit on post graduate training were removed and/th service compensation increased to \$37,000/year? 	1e -		27-29/
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•	~	 If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensa- were increased to \$37,000/year? 	tion] 36-38/
	15.	How would you rate the AFHPSP Scholarship:			-
		- If the residency opportunity were 100% and the service compensat were increased to \$37,000/year?	ion 🧯		39-41/
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		- If the residency opportunity were 100% and the service compensativere \$29,000/year?	ion _	· K	48-50/
÷i	16.	How would you rate the New Federally Insured Loan:			ĩ
	· ·	- If interest payments were deferred until graduation from medical school?		·	51-53/
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9.	Consider the three programs for fin opposite page and the way you are f Assume that you were eligible and t you at the beginning of this academ from 0 to 100?	ancing your medical inancing your medic hat each of these a ic year. How would	school education al school education lternatives had be you have rated the	described on the n this year (76-77). en available to em on a scale
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د ه	B. Armed Forces Scholarship (AFHPS	P)		18-20/
	C. New Federally Insured Loan			21-23/
	D. Your present method of finance			• 24-26/
·	How would your ratings in Question respective programs were made? <u>Ple</u> <u>your ratings relative to those in Q</u>	9 change if the fol ase consider these uestion 9. (Rating	lowing modification ch <u>anges individual</u> s may exceed 100}	ns in the y and make
10.	How would vou rate the NHSC Scholar	ship:	A	
	 If you could serve your total oblight in a shortage area? 	igated period as a <u>p</u>	<u>rivate</u> phys <u>i</u> cian	27-29/
د بن بن	 If <u>75</u> percent of the obligated se rural areas with little professio were in-densely populated, low-in 	rvice positions wer nal peer contact, a come urban areas?	e in isolated, nd 25 percent	30-32/
	 If <u>25</u> percent of the obligated se rural areas with little professio were in densely populated, low-in 	rvice positions wer nal peer contact, a come urban areas?	e in isolated, nd 75 percent	33-35/
•	- If you had no choice in service o	bligation site?		36-38/
11. ⁷	How would you rate the AFHPSP Schol	arship: *	, , ,	\sim
	the option of doing so in civilia	sidency training we n programs?	w /	39-42
•	 If, for your obligated service, you through a matching program simila and residency programs (the NIRMP) 	ou were assigned to r to the one now us)?	a geographic area ed for internship	1 42-44/
3	- If you were given a guarantee tha your first four years of obligate	t you would not be i d duty?	moved during ' 🤉	45-47
	- If you were guaranteed the opport	unity to serve in y	our specialty?	48-50/.
]2,	How would you rate the New Federall	y Insured Loan:	<i>ی</i> د ۱	
•	- If Anterest payments were deferred school?	i until graduation i	rom medical	51-53/
67	 If interest payments were deferred school? 	⊡until 3 <u>y</u> ears afte (er medical	54-56/
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		(CARD 07) 11-12/	110 11-147
13.	Now assume that each of the three alternatives for fin described again on the opposite page and your projecte available to you for financing next year's medical sch	ancing your medical e d method of finance w ool expenses (77-78).	ducation ill be How world
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	а 	-	RATING .
н. 1 Н	A NUSC Scholarship		15-17/
•		ť	18-20/
ъ.	B. "Armed Forces Scholarship (AFHPSP).		
0	C. New Federally Insured Loan		2,1-23/
	D. Your present method of finance	, 14	24-26/
a	How would your ratings in Question 9 change of the fol respective programs were made? Please consider these your ratings relative to those in Question 9. (Rating	lowing modifications changes individually s may exceed 100)	in the and make
]4.	a How would you rate the NHSC Scholarship:	0	•
•	 If you could serve your total obligated period as a in a shortage area? 	<u>private</u> physician	27-29/
	 If <u>75</u> percent of the obligated service positions were rural areas with little professional peer contact, a were in densely populated, low-income urban areas? 	e in isolated, nd 25 percent	30-32/
	 If <u>25</u> percent of the obligated service positions were rural areas with little professional peer contact, a were in densely populated, low-income urban areas? 	e in isolated, * Ind 75 percent	33-354
.	- If you had no choice in service obligation site?	•	36-38/.
· 15.	. How would you rate the AFHPSP Scholarship:		
۲	 If those permited to complete residency training we the option of doing so in civilian programs? 	re guaranteed	39-41/
· .	 If, for your obligated service, you were assigned to through a matching program similar to the one now us and residency programs (the NIRMP)?) a geographic amea ed for internship	42-44/
	- If you were given a guarantee that you would not be your first four years of∝obligated duty?	moved during	45-47/
· · ·	- If you were guaranteed the opportunity to serve in y	our specialty?	48-50/
`··· ` 16,	. How would you rate the New Federally Insured Loan:	r	*
4 1 1	 If interest payments were deferred until graduation school? 	from medical	51 53/.
- 	- If interest payments were deferred until 3 years af school?	cer medical. "	54-56/
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	13.	Now assume that each of the three al described again on the opposite page available to you for financing next	ternatives for a and your project year's medical s	financing your ted method of school expenses	medical ec finance wi (77-78).	لیت lucation ill be How would	1
		you rate these four alternatives on	a scale from 0 t	to 100?	,	100	
2	•	0 .	· 50			100 l	
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						RATING	
		A. NHSC Scholarship		•]15-17/
		B. Armed Forces Scholarship (AFHPSF	P)				18-20/
		C. New Federally Insured Loan	· .		° 0		21-23/
		D. Your present method of finance	•				24-26/
•		How would your ratings in Question S respective programs were made? <u>Plea</u> make your ratings relative to those	9 change if the t ase consider thes in Question 9.	following modif se changes indi {Ratings may o	ications i vidually a xceed 100)	in the and	
, *	14.	How would you rate the NHSC Scholars	ship:				
н. 	. * .*	- If the monthly stipend were increased to \$25	ased.to \$6 00 and 9,000/year?	the service	7		27-29/
nide:		- If the monthly stipend were increased to \$3	ased to \$6 00 and 7,000/year?	the service	,		30-32/
	ч	- If the 3 year limit on post graduate the monthly stipend were increased	ate training were d to \$800?	e removed and	L	$[_],$	33-35/
		 If the 3 year limit on post graduation monthly stipend were increased to sation were increased to \$37,000/ 	ate training wer \$600, and the s year?	e removed, the ervice compen-			36-38/
	15.	How would you rate the AFHPSP Schola	rship: °				
		- If the monthly stipend were increased to \$3	ased to \$6 00 and 7,000/year?	the service	•`		39-41/
		- If the monthly stipend were incre compensation were increased to \$3	ased to \$800 and 7,000?	the service] 42-44/
		- If the residency opportunity were pensation were increased to \$29,0	100% and the se 00/year?	rvice com-			45-47/
	•	 If the residency opportunity were increased to \$800, and the servic to \$37,000/year? 	100%, the stipe e compensation w	nd were ere increased			48- 50/
			*		**	··	
	16.	A Now would you rate the New Federall	y Insured Loan:			·	
		If interest navments were deferre	d until graduati	ion from medica	l school?		51-53/
	ж.	- If interest payments were deferre	ed until 3 years	after medical	school?]5 4 -56/
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CARD US 11-12/ 13-14 9. Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100? 100 50 'n Least Most Desirable Desirable RATING A. NHSC Scholarship 15-17/ Armed Forces Scholarship (AFHPSP) 18-20/ Β. 21-23/ C. New Federally Insured Loan 24-26/ Your present method of finance D. How would your ratings in Question 9 change if the following mddifications in the respective programs were made? Please consider these changes individually and make your ratings relative to those in Question 9. (Ratings may exceed 100) 10, How would you rate the NHSC Scholarship? * If the monthly stipend were increased to \$600 and the service 27-29/ compensation were increased to \$37,000/year? - If the monthly stipend were increased to \$600 and the service 30-32/ compensation were increased to \$29,000/year? - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were 33-35 increased to \$37,000/year? - If the 3 year limit on post graduate training were removed and the monthly stipend were increased to \$800? 36-38/ 11. How, would you rate the AFHPSP Scholarship? - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year? -41/ If the residency opportunity were 100%, the service compensation were increased to \$37,000/year, and your assignment to active duty in a geographic area were made through a matching program like that now used for internship and residency positions (the NIRMP)? - If the monthly stipend were increased to \$600? - If the monthly stipend were increased to \$600, and the service 48-50 compensation were increased to \$37,000/year? 12. How would you rate the New Federally Insured Loan: - If interest payments were deferred until graduation from medical school? 51157 - If interest payments were deferred until 3 years after medical school? 54-56. CARD 06

8 13-14/ (CARD 07) 11-12/ Now assume that each of the three alternatives for financing your medical education , 13. described again on the opposite page and your projected method of finance will be available to you for financing <u>next year's medical school expenses</u> (77-78). How would you rate these four alternatives on a scale from 0 to 100? 100 ۵ Most Least Desirable Desirable RATING 15-17/ NHSC Scholarship Α. Armed Forces Scholarship (AFHPSP) -201 Β. -23/ New Federally Insured Loan C. 24-26/ Your present method of finance D. How would your rating in Question 9 change if the following modifications in the respective programs were made? Please consider these changes individually and make your ratings relative to those in Question 9. (Ratings may exceed 100) ,14. How would you rate the NHSC Scholarship? - If the monthly stipend were increased to \$600 and the service 27-29/ compensation were increased to \$37,000/year? If the monthly stipend were increased to \$600 and the service , 30-32/ compensation were increased to \$29,000/year? - If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were 33-35/ increased to \$37,000/year? - If the 3 year limit on post graduate training were removed and the 36-38/ monthly stipend were increased to \$800? 15. How would you rate the AFHPSP Scholarship? - If the monthly stipend were increased to \$800 and the service 39-41/ compensation were increased to \$29,000/year? - If the residency opportunity were 100%; the service compensation were increased to \$37,000/year, and your assignment to active duty in Ъ. a geographic area were made through a matching program like that now used for internship and residency positions (the NIRMP)? 45-47/ - If the monthly stipend were increased to \$600? - If the monthly stipend were increased to \$600 and the service 48-50/ compensation were increased to \$37,000/year? 16. How would you rate the New Federally Insured Loan: - If interest payments were deferred until graduation from medical school? 51 - 53- If interest payments were deferred until 3 years after medical school? 54-56/ CARD 07

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9. Consider the three programs for financing your medical school education described on the opposite page and the way you are financing your medical school education this year (76-77). Assume that you were eligible and that each of these alternatives had been available to you at the beginning of this academic year. How would you have rated them on a scale from 0 to 100?

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Α,	NHSC Scho]arship			•	15-17,
8.	Armed Forces Scholarship (AFH	IPSP)			18-20,
Č.	New Federally Insured Loan			-	21-23,
D.	Your present method of financ	<u>م</u>			24-26

How would your ratings in Question 9 change if the following modifications in the respective programs were made? <u>Please consider these changes individually and make your ratings relative to those in Question 9</u>. {Ratings may exceed 100}

10. How would you rate the NHSC Scholarship:

- If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?
- If the 3 year limit on post graduate training were removed, the monthly stipend were increased to \$800, and the service compensation were increased to \$29,000/year?
- If the 3 year limit on post graduate training were removed and the service compensation were increased to \$37,000/year?
- If the 3 year limit on post graduate training were removed and the monthly stipend were increased to \$800?
- 11. How would you rate the AFHPSP Scholarship:
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$37,000/year?
 - If the residency opportunity were 100%, the monthly stipend were increased to \$600, and the service compensation were increased to \$79,000/year?
 - If the monthly stipend were increased to \$800 and the service compensation were increased to \$29,000/year?
 - If the residency opportunity were 100%, the service compensation were increased to \$37,000/year, and you were guaranteed the opportunity to practice in your specialty during your obligated service period?
- 12. How would you rate the New Federally Insured Loan:
 - If the interest payments were deferred until graduation from medical school?
 - If interest payments were deferred until 3 years after medical school?













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