University of Michigan Medical School
Gender Salary Study

Summary of Initial Findings
April 2005

Paul N. Courant
Mary Corcoran
Marilyn Knepp
Patricia Wolff

Acknowledgement

This report reflects the combined efforts of a number of individuals from across the University. In particular, we would like to recognize the contributions of representatives from the Medical School, who provided invaluable assistance in gathering and clarifying the necessary data.

Introduction

This report presents a summary of the findings of a statistical analysis of University of Michigan Medical School faculty salaries. This study was conducted as a follow-up to an earlier analysis of University of Michigan tenured and tenure-track faculty. The original salary study omitted faculty whose primary appointment was in the Medical School. Because the compensation structure of Medical School faculty salaries differs significantly from that of other University faculty, combining the Medical School with other units could lead to misleading results. Therefore, the decision was made to conduct a separate analysis of Medical School faculty upon completion of the University-wide study.

Both salary analyses were sponsored by the Office of the Provost and Executive Vice President for Academic Affairs, and were conducted by a group of faculty and staff . , The Medical School study included representatives with extensive knowledge of the Medical School organizational structure. Professor Mary Corcoran, who authored the original University study, provided expert guidance in study design and analysis. Laura Klem, Senior Research Associate at the Institute for Social Research (retired), provided statistical analysis and expertise. A complete list of the advisory group and administrative staff is included in the appendices.

Methodology

The population included in this study are full-time faculty members who had met both of the following criteria: (1) at least one Medical School appointment (paid or unpaid) as Professor with tenure, Associate Professor with tenure, or Assistant Professor, and (2) had at least one paid, active Medical School appointment in the University's central human resources system as of November 1, 2001. Faculty with Veterans Affairs Medical Center (VAMC) appointments were included if the combination of VAMC and University of Michigan appointments equa lled full-time status and all other study criteria were fulfilled. Faculty on the following selected leave types were excluded: public service, personal, extended sick, retirement or disability. Also excluded were faculty who held only clinical-titled appointments, and faculty with primarily administrative duties. (Department chairs, for instance, were excluded from the study unless their chair appointments were made on an interim basis, in which case they were included in the study.)

Appendix A presents a set of tables (1a, 2a, 3a, and 4a) that provide further details about the methodology.

Salary data included the following components (1):

Base salary rate (as of 6/1/02)

Academic Supplement salary rate (as of 6/1/02)

Clinical Supplement A amount

Clinical Supplement B actual payment made (9/1/01 – 8/31/02)

Clinical Supplement B limit (2)

(Administrative differentials and lump sum payments are not included in any of the components.)

The statistical analysis of salary data used the technique of multiple regression, in which the following factors were used to predict 12-month salary equivalents: gender, race and / ethnicity, years at the University of Michigan, type of degree(s) held, departmental unit affiliation (3), administrative appointment designation, VAMC appointment , non-medical appointment, sabbatical marker status, "market ratio" (the purpose of which was to capture outside market forces by measuring the average

relative pay by field in a national set of institutions compiled by the Association of American Medical Colleges), current rank, years in rank, the interaction of rank and years in rank , and market ratio. (The purpose of the market ratio variable was to capture outside market forces by measuring the average relative pay by field in a national set of institutions compiled by the Association of American Medical Colleges) . . When computing market ratios for University of Michigan Medical School faculty, AAMC statistics for “Ph.D. or Other Doctoral Degree” were used to compare our seven basic science departments, and salary data were mapped to the Basic Science Departments national data. All other UM departments were mapped to the AAMC Departmental Salary Statistics Report for “M.D. Degree/Clinical Sciences.”

It should be noted that a review of included variables in the original University-wide study and the Medical School will reveal that the lists are not identical. The lists of included variables are not identical for the original University-wide study and the Medical School study. Though the intent at the outset of this study was to match the original study’s premises and methodology whenever possible, there are some structures within the Medical School that needed to be accommodated and a study customized to the Medical School was the result. For instance, though “degree date” and “years of experience” were variables included in the University-wide study, they were deemed not necessary in the current study, as faculty in the various medical specialty groups tend to share similar lengths of training. Also, “number of appointments” was considered not relevant to this analysis. And as noted earlier, the salary component structure is unique to the Medical School. Detailed information on the included variables is provided in the appendix tables.

It is important to note that this type of analysis considers only some of the variables that should predict salary. It omits important factors that account for individual salary differentials, including measures of performance, scholarly reputation, quality and quantity of an individual’s contributions to the institution and to their academic profession. Though we use a regression model to predict salaries, we expect to see variation around those salaries because individuals who are identical in terms of rank, medical specialty and other variables are likely to be different in terms of their specific academic contributions. Therefore, this analysis is most useful when used in conjunction with other data relating to measures of academic performance and contribution to the institution.

Results of the Analysis

Table 1 presents mean salaries of faculty at the University of Michigan Medical School by gender and rank. A total of 595 faculty (106 women and 489 men) were analyzed in this study. The table shows that the average salary for women Medical School faculty is less than that of men, both overall, and at every rank. The average salary for women faculty in the Medical School was $138,994; the average for male faculty was $179,296. Table 1 shows that part of this difference is clearly due to rank and time since degree. Women are less likely than men to be professors. Only 26 percent of women are professors, while 46 percent of men are professors. The average female faculty member received her degree eleven years ago; the average male faculty member received his degree fourteen years ago. However, even within ranks men’s average salaries are consistently higher than those of women.

Part of the remaining differences in the average of men’s and women’s salaries is due to factors such as departmental unit affiliation within the Medical School. Table 2 reports results of regression models that predict the natural logarithm of annual salary. Annual salary is defined as the sum of the base salary plus the academic salary plus clinical supplement A plus clinical supplement B. Model (1) reports results of a regression equation that uses gender, race / ethnicity, degrees (Ph.D., M.D./D.O., both, neither), years at the University of Michigan, departmental unit affiliation, administrative appointments, VAMC appointments, non-medical appointments, market ratios and whether on sabbatical. Model (2) reports results when rank and years in rank are controlled and added as explanatory variables. The coefficients on the gender variable are roughly equal to the proportion less or more that women are paid relative to men, holding constant all the other variables in the regression.

In reviewing Table 2, we see that Model (1) shows an average 7.5% pay disadvantage for women; this gender-based differential is statistically significant at conventional levels. When we add controls for rank and time in rank, the wage disadvantage of women faculty drops to 4.7% and remains statistically significant (4).

The literature on pay differentials by gender and race contains extended discussions of how to appropriately control for rank and years in rank. On the one hand, rank is clearly an important indicator of professional accomplishment, and it is plainly the case that rank is and should be a powerful predictor of salary level. On the other hand, if the processes that determine salary levels treat women and men differently, it is plausible that there is differential treatment in the processes that determine rank. There is evidence that women are promoted more slowly than men, and thus, many economists working in this area have argued that if one controls for rank and years in rank, one is over-controlling, with the result that the measured effect of gender on salary is understated in the model reported in Model (2). It is the view of the authors of this report that the actual difference in salary that can be attributed to gender lies between Model (1) and Model (2). Some of the difference that the models attribute to gender may be explained by the amount and type of clinical work and research projects pursued by individual faculty members. If there are systematic differences between men and women faculty in the kinds of clinical or research work they do, and how generously that work is compensated, then the differences will show up as gender differences. The Medical School may want to perform further analysis to understand whether clinical and research activities account for some part of the differences in compensation between men and women faculty, and, if so, whether the Dean’s office can identify and eliminate

barriers that prevent women faculty members from having the same opportunities to perform highly compensated work that men enjoy.

In addition to the differential in salary related to gender, the coefficients of the control variables in the regressions indicate that:

- Faculty with both a medical degree and a Ph.D. earn 11.4% less, on average, than those with only a medical doctorate (M.D. or D.O.). Faculty with only a Ph.D. earn 53.2% less, on average, than those with only a medical doctorate and individuals with neither a Ph.D. nor medical doctorate earn 29.8% less, on average, than those with only a medical doctorate.
- Individuals with administrative appointments earn 6.1% more, on average, then those without such appointments.

Patterns of wage differences can be further explored by identifying individuals who have unusually high or unusually low salaries. One way to do this is to print out o f the names of individuals whose actual salaries are much higher (or much lower) than their predicted salaries given their measured qualifications. For each faculty member in our sample, we predicted a salary based on race / ethnicity, degrees, rank, years in rank, years at the University of Michigan, departmental unit affiliation, market ratio, current sabbatical status, and type of appointment (administrative, VAMC, or non-medical). Sex was not included as a predictor of earnings because we wanted to predict earnings using only productivity measures. We then subtracted predicted earnings from actual earnings. When this difference is positive, actual earnings are higher than predicted. When this difference is negative, actual earnings are lower than predicted.

Table 3 reports the numbers and proportions of men and women whose actual salaries are much higher (or lower) than their predicted salaries. The distributions of actual minus predicted salary differ significantly by sex (5). Women's salaries are more tightly clustered around their predicted salaries than are men's salaries: 56.1 percent of women's salaries, but only 43.6 percent of men's salaries fall within one-half standard deviation of their predicted salaries. Less than 5% of women have salaries that are one or more standard deviations above their predicted salaries and no woman has a salary that is more than two standard deviations above her predicted salary. Fourteen percent of men have salaries that are one or more standard deviations above their predicted salaries, and 3.2 percent have salaries that are two or more standard deviations above their predicted salaries. Sex differences in the chances of having salaries that are much lower than predicted are relatively small. Women are slightly more likely than men to have salaries that are one or more standard deviations below their predicted salaries: (13 .1% of women vs. 10.8% of men), while men are slightly more likely than women to have salaries that are two or more standard deviations below their predicted salaries (3.4% of men vs. 1. 9 8% of women).

These patterns are also displayed graphically in Figure 1, Figure 2, and Figure 3, where differences in the distributions of residuals by rank and gender are illustrated.

Next Steps

The next step in the analysis of gender differentials in salary rates for tenured and tenure-track faculty at the University of Michigan Medical School is to combine the information generated by this multiple regression analysis with assessment of individual faculty performance using the indicators outlined above in concert with other measures. Once those additional analyses are accomplished, this will allow individual salary adjustments to be made, taking into account the regression analysis as well as informed evaluations of individual performance and contribution. The University of Michigan is committed to replicating this regression analysis on a periodic and continuing basis.

---

(1) The Base component is the faculty member's salary for performing the basic continuing requirements of the appointment. The Academic Supplement is the portion of a faculty member's salary that recognizes particular academic efforts, in either teaching or research, and can vary from year to year. The Academic salary, which is the individual's full-time salary rate in University systems, is the sum of the Base and the Academic Supplement. The Clinical Supplements are the at-risk portions of faculty members' salaries that are funded through the clinical efforts of the departmental faculty. Clinical Supplement A for any faculty member is typically based on that individual's departmental activities in research, teaching, and administration, and is set annually. Clinical Supplement B is usually based on individual clinical productivity and is subject to an annual departmentally-set limit that defines the maximum amount an individual could earn based on productivity. Clinical Supplement B is more variable than Clinical Supplement A, both across departments, and year to year variations for an individual.

(2) Clinical Supplement B limit was not used in the regression formulas which predict the natural logarithm of annual salary and standardized residuals for individual faculty members.

(3) Appendix A, Table 3A shows the correspondence between departments and unit affiliations . In the regression formulas, appointments were weighted based on actual faculty FTE in each of the relevant departments.

(4) We also ran regressions predicting four alternative definitions of annual salary. Results of these alternative specifications are reported in Appendix 1A.

(5) A chi square test of grouped differences is significant at the .05 level.

Summary of Initial Findings
April 2005

Paul N. Courant
Mary Corcoran
Marilyn Knepp
Patricia Wolff

Acknowledgement

This report reflects the combined efforts of a number of individuals from across the University. In particular, we would like to recognize the contributions of representatives from the Medical School, who provided invaluable assistance in gathering and clarifying the necessary data.

Introduction

This report presents a summary of the findings of a statistical analysis of University of Michigan Medical School faculty salaries. This study was conducted as a follow-up to an earlier analysis of University of Michigan tenured and tenure-track faculty. The original salary study omitted faculty whose primary appointment was in the Medical School. Because the compensation structure of Medical School faculty salaries differs significantly from that of other University faculty, combining the Medical School with other units could lead to misleading results. Therefore, the decision was made to conduct a separate analysis of Medical School faculty upon completion of the University-wide study.

Both salary analyses were sponsored by the Office of the Provost and Executive Vice President for Academic Affairs, and were conducted by a group of faculty and staff . , The Medical School study included representatives with extensive knowledge of the Medical School organizational structure. Professor Mary Corcoran, who authored the original University study, provided expert guidance in study design and analysis. Laura Klem, Senior Research Associate at the Institute for Social Research (retired), provided statistical analysis and expertise. A complete list of the advisory group and administrative staff is included in the appendices.

Methodology

- The population included in this study are full-time faculty members who had met both of the following criteria: (1) at least one Medical School appointment (paid or unpaid) as Professor with tenure, Associate Professor with tenure, or Assistant Professor, and (2) had at least one paid, active Medical School appointment in the University's central human resources system as of November 1, 2001. Faculty with Veterans Affairs Medical Center (VAMC) appointments were included if the combination of VAMC and University of Michigan appointments equa lled full-time status and all other study criteria were fulfilled. Faculty on the following selected leave types were excluded: public service, personal, extended sick, retirement or disability. Also excluded were faculty who held only clinical-titled appointments, and faculty with primarily administrative duties. (Department chairs, for instance, were excluded from the study unless their chair appointments were made on an interim basis, in which case they were included in the study.)

Appendix A presents a set of tables (1a, 2a, 3a, and 4a) that provide further details about the methodology.

Salary data included the following components (1):

Base salary rate (as of 6/1/02)

Academic Supplement salary rate (as of 6/1/02)

Clinical Supplement A amount

Clinical Supplement B actual payment made (9/1/01 – 8/31/02)

Clinical Supplement B limit (2)

(Administrative differentials and lump sum payments are not included in any of the components.)

The statistical analysis of salary data used the technique of multiple regression, in which the following factors were used to predict 12-month salary equivalents: gender, race and / ethnicity, years at the University of Michigan, type of degree(s) held, departmental unit affiliation (3), administrative appointment designation, VAMC appointment , non-medical appointment, sabbatical marker status, “market ratio” (the purpose of which was to capture outside market forces by measuring the average relative pay by field in a national set of institutions compiled by the Association of American Medical Colleges), current rank, years in rank, the interaction of rank and years in rank , and market ratio. (The purpose of the market ratio variable was to capture outside market forces by measuring the average relative pay by field in a national set of institutions compiled by the Association of American Medical Colleges) . . When computing market ratios for University of Michigan Medical School faculty, AAMC statistics for “Ph.D. or Other Doctoral Degree” were used to compare our seven basic science departments, and salary data were mapped to the Basic Science Departments national data. All other UM departments were mapped to the AAMC Departmental Salary Statistics Report for “M.D. Degree/Clinical Sciences.”

It should be noted that a review of included variables in the original University-wide study and the Medical School will reveal that the lists are not identical. The lists of included variables are not identical for the original University-wide study and the Medical School study. Though the intent at the outset of this study was to match the original study’s premises and methodology whenever possible, there are some structures within the Medical School that needed to be accommodated and a study customized to the Medical School was the result. For instance, though “degree date” and “years of experience” were variables included in the University-wide study, they were deemed not necessary in the current study, as faculty in the various medical specialty groups tend to share similar lengths of training. Also, “number of appointments” was considered not relevant to this analysis. And as noted earlier, the salary component structure is unique to the Medical School. Detailed information on the included variables is provided in the appendix tables.

It is important to note that this type of analysis considers only some of the variables that should predict salary. It omits important factors that account for individual salary differentials, including measures of performance, scholarly reputation, quality and quantity of an individual’s contributions to the institution and to their academic profession. Though we use a regression model to predict salaries, we expect to see variation around those salaries because individuals who are identical in terms of rank, medical specialty and other variables are likely to be different in terms of their specific academic contributions. Therefore, this analysis is most useful when used in conjunction with other data relating to measures of academic performance and contribution to the institution.

Results of the Analysis

Table 1 presents mean salaries of faculty at the University of Michigan Medical School by gender and rank. A total of 595 faculty (106 women and 489 men) were analyzed in this study. The table shows that the average salary for women Medical School faculty is less than that of men, both overall, and at every rank. The average salary for women faculty in the Medical School was $138,994; the average for male faculty was $179,296. Table 1 shows that part of this difference is clearly due to rank and time since degree. Women are less likely than men to be professors. Only 26 percent of women are professors, while 46 percent of men are professors. The average female faculty member received her degree eleven years ago; the average male faculty member received his degree fourteen years ago. However, even within ranks men’s average salaries are consistently higher than those of women.

Part of the remaining differences in the average of men’s and women’s salaries is due to factors such as departmental unit affiliation within the Medical School. Table 2 reports results of regression models that predict the natural logarithm of annual salary. Annual salary is defined as the sum of the base salary plus the academic salary plus clinical supplement A plus clinical supplement B. Model (1) reports results of a regression equation that uses gender, race / ethnicity, degrees (Ph.D., M.D./D.O., both, neither), years at the University of Michigan, departmental unit affiliation, administrative appointments, VAMC appointments, non-medical appointments, market ratios and whether on sabbatical. Model (2) reports results when rank and years in rank are controlled and added as explanatory variables. The coefficients on the gender variable are roughly equal to the proportion less or more that women are paid relative to men, holding constant all the other variables in the regression.

In reviewing Table 2, we see that Model (1) shows an average 7.5% pay disadvantage for women; this gender-based differential is statistically significant at conventional levels. When we add controls for rank and time in rank, the wage disadvantage of women faculty drops to 4.7% and remains statistically significant (4).

The literature on pay differentials by gender and race contains extended discussions of how to appropriately control for rank and years in rank. On the one hand, rank is clearly an important indicator of professional accomplishment, and it is plainly the case that rank is and should be a powerful predictor of salary level. On the other hand, if the processes that determine salary levels treat women and men differently, it is plausible that there is differential treatment in the processes that determine rank. There is evidence that women are promoted more slowly than men, and thus, many economists working in this area have argued that if one controls for rank and years in rank, one is over-controlling, with the result that the measured effect of gender on salary is understated in the model reported in Model (2). It is the view of the authors of this report that the actual difference in salary that can be attributed to gender lies between Model (1) and Model (2). Some of the difference that the models attribute to gender may be explained by the amount and type of clinical work and research projects pursued by individual faculty members. If there are systematic differences between men and women faculty in the kinds of clinical or research work

they do, and how generously that work is compensated, then the differences will show up as gender differences. The Medical School may want to perform further analysis to understand whether clinical and research activities account for some part of the differences in compensation between men and women faculty, and, if so, whether the Dean's office can identify and eliminate barriers that prevent women faculty members from having the same opportunities to perform highly compensated work that men enjoy.

In addition to the differential in salary related to gender, the coefficients of the control variables in the regressions indicate that:

- Faculty with both a medical degree and a Ph.D. earn 11.4% less, on average, than those with only a medical doctorate (M.D. or D.O.). Faculty with only a Ph.D. earn 53.2% less, on average, than those with only a medical doctorate and individuals with neither a Ph.D. nor medical doctorate earn 29.8% less, on average, than those with only a medical doctorate.
- Individuals with administrative appointments earn 6.1% more, on average, then those without such appointments.

Patterns of wage differences can be further explored by identifying individuals who have unusually high or unusually low salaries. One way to do this is to print out o f the names of individuals whose actual salaries are much higher (or much lower) than their predicted salaries given their measured qualifications. For each faculty member in our sample, we predicted a salary based on race / ethnicity, degrees, rank, years in rank, years at the University of Michigan, departmental unit affiliation, market ratio, current sabbatical status, and type of appointment (administrative, VAMC, or non-medical). Sex was not included as a predictor of earnings because we wanted to predict earnings using only productivity measures. We then subtracted predicted earnings from actual earnings. When this difference is positive, actual earnings are higher than predicted. When this difference is negative, actual earnings are lower than predicted.

Table 3 reports the numbers and proportions of men and women whose actual salaries are much higher (or lower) than their predicted salaries. The distributions of actual minus predicted salary differ significantly by sex (5). Women's salaries are more tightly clustered around their predicted salaries than are men's salaries: 56.1 percent of women's salaries, but only 43.6 percent of men's salaries fall within one-half standard deviation of their predicted salaries. Less than 5% of women have salaries that are one or more standard deviations above their predicted salaries and no woman has a salary that is more than two standard deviations above her predicted salary. Fourteen percent of men have salaries that are one or more standard deviations above their predicted salaries, and 3.2 percent have salaries that are two or more standard deviations above their predicted salaries. Sex differences in the chances of having salaries that are much lower than predicted are relatively small. Women are slightly more likely than men to have salaries that are one or more standard deviations below their predicted salaries: (13 .1% of women vs. 10.8% of men), while men are slightly more likely than women to have salaries that are two or more standard deviations below their predicted salaries (3.4% of men vs. 1. 9 8% of women).

These patterns are also displayed graphically in Figure 1, Figure 2, and Figure 3, where differences in the distributions of residuals by rank and gender are illustrated.

Next Steps

The next step in the analysis of gender differentials in salary rates for tenured and tenure-track faculty at the University of Michigan Medical School is to combine the information generated by this multiple regression analysis with assessment of individual faculty performance using the indicators outlined above in concert with other measures. Once those additional analyses are accomplished, this will allow individual salary adjustments to be made, taking into account the regression analysis as well as informed evaluations of individual performance and contribution. The University of Michigan is committed to replicating this regression analysis on a periodic and continuing basis.

---

(1) The Base component is the faculty member's salary for performing the basic continuing requirements of the appointment. The Academic Supplement is the portion of a faculty member's salary that recognizes particular academic efforts, in either teaching or research, and can vary from year to year. The Academic salary, which is the individual's full-time salary rate in University systems, is the sum of the Base and the Academic Supplement. The Clinical Supplements are the at-risk portions of faculty members' salaries that are funded through the clinical efforts of the departmental faculty. Clinical Supplement A for any faculty member is typically based on that individual's departmental activities in research, teaching, and administration, and is set annually. Clinical Supplement B is usually based on individual clinical productivity and is subject to an annual departmentally-set limit that defines the maximum amount an individual could earn based on productivity. Clinical Supplement B is more variable than Clinical Supplement A, both across departments, and year to year variations for an individual.

(2) Clinical Supplement B limit was not used in the regression formulas which predict the natural logarithm of annual salary and standardized residuals for individual faculty members.

(3) Appendix A, Table 3A shows the correspondence between departments and unit affiliations . In the regression formulas, appointments were weighted based on actual faculty FTE in each of the relevant departments.

(4) We also ran regressions predicting four alternative definitions of annual salary. Results of these alternative specifications are reported in Appendix 1A.

(5) A chi square test of grouped differences is significant at the .05 level.

TABLE 1

SUMMARY STATISTICS FOR FACULTY BY GENDER

	WOMEN	MEN	ALL
Number	106	489	595
Mean Years at UM	11	14	14
Mean Salary (*)	$ 138,994	$ 179,296	$ 172,116
Rank			
Assistant Professor	34%	24%	26%
Associate Professor	40%	29%	31%
Professor	26%	46%	43%
Mean Salary by Rank			
Assistant Professor	$ 120,737	$ 141,490	$ 136,670
Associate Professor	$ 148,037	$ 173,571	$ 167,781
Professor	$ 148,904	$ 202,747	$ 196,830

(*)Includes Base, Academic Supplement, Clinical A and Clinical B actual income

TABLE 2

EFFECTS OF GENDER ON FACULTY SALARIES

	MODEL	
	1	**2**
	coefficient	*coefficient*
	(standard err.)	*(standard err.)*
INDEPENDENT VARIABLES		
Female	-0.075 **	-0.047 *
	(0.024)	(0.021)
Asian or Pacific Islander	-0.032	-0.023
	(0.031)	(0.028)
Black, American Indian, Alaskan Native, Hispanic	-0.002	0.034
	(0.043)	(0.039)
Gender and race are predictors	**X**	**X**
Controls for years at UM and type of degree(s)	**X**	**X**
Controls for department, market ratio, non-medical appointment, VAMC appointment, administrative appointment, and sabbatical	**X**	**X**
Controls for rank and years in rank		**X**
Adjusted R2	0.725	0.781
(n)	595	595

* p<.05

** p<.01

TABLE 3
Number of Appointments with Unusually High or Low Salaries

	Distribution of actual vs. predicted salaries, by sex		
	Men	**Women**	**ALL**
TOTAL N [a] =	**498**	**107**	**605**
Salary residual >2 standard deviations above the mean			
Category N=	16	0	16
% of TOTAL N	3.2%	0.0%	2.6%
Salary residual 1-2 standard deviations above the mean			
Category N=	54	5	59
% of TOTAL N	10.8%	4.7%	9.8%
Salary residual 0.5-1 standard deviation above the mean			
Category N=	72	12	84
% of TOTAL N	14.5%	11.2%	13.9%
Salary residual 0.5 above to 0.5 standard deviations below the mean			
Category N=	217	60	277
% of TOTAL N	43.6%	56.1%	45.8%
Salary residual 0.5 below to 1 standard deviation below the mean			
Category N=	85	16	101
% of TOTAL N	17.1%	15.0%	16.7%
Salary residual 1-2 standard deviations below the mean			
Category N=	37	12	49
% of TOTAL N	7.4%	11.2%	8.1%
Salary residual >2 standard deviations below the mean			
Category N=	17	2	19
% of TOTAL N	3.4%	1.9%	3.1%
	100.0%	100.0%	100.0%

(a) This table details residual data for the 595 individuals in the study. Because a few people have multiple Medical School appointments, the N=605 reflects the total number of residuals.

Figure 1

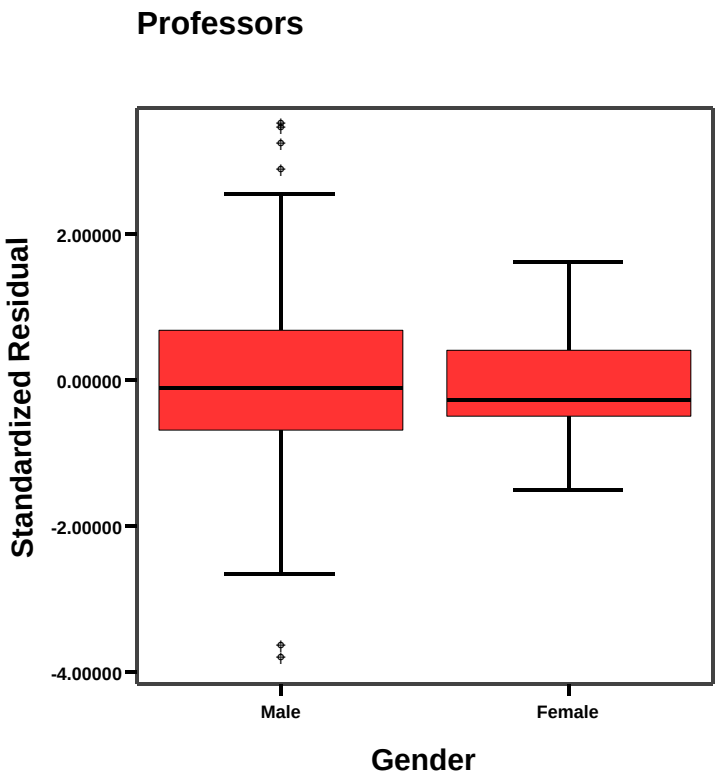

Professors
Standardized Residual
2.00000
0.00000
-2.00000
-4.00000
Male
Female
Gender

Figure 2

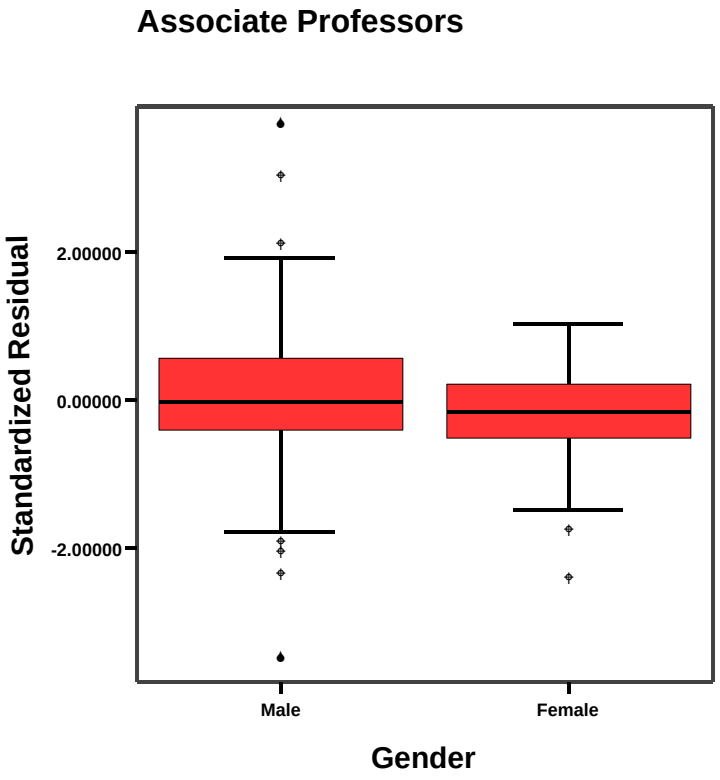
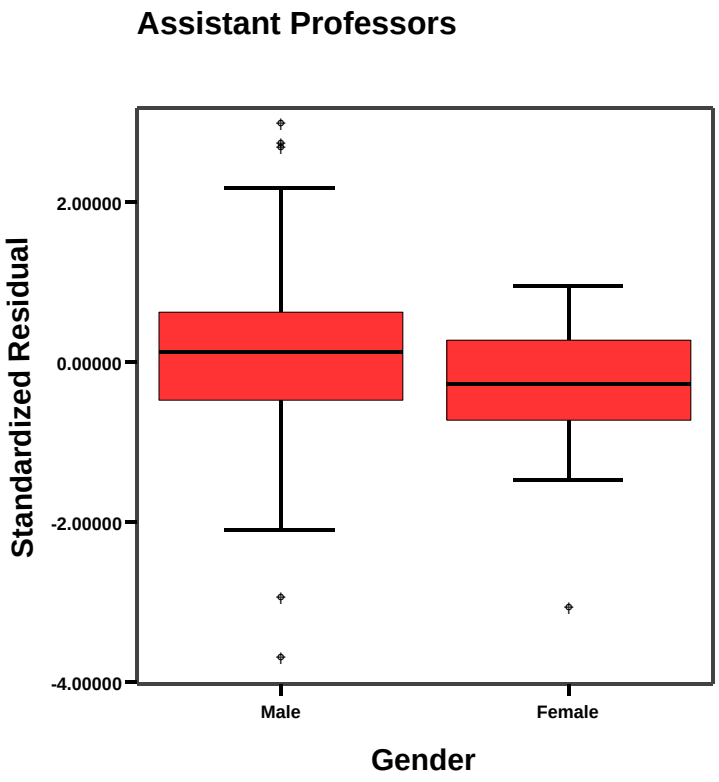

Associate Professors
Standardized Residual
2.00000
0.00000
-2.00000
Male
Female
Gender

Figure 3


Assistant Professors
Standardized Residual
2.00000
0.00000
-2.00000
-4.00000
Male
Female
Gender

APPENDIX A - Table 1a

SALARY MEASURES

We constructed five alternative salary measures: (1)base salary, (2)base salary plus academic salary, (3)base salary plus academic salary plus clinical A supplement, (4)base salary plus academic salary plus clinical B supplement, and (5)base salary plus academic salary plus clinical A supplement plus clinical B limit. Table 1A reports the coefficients on the sex dummy and the R^2s from regression equations predicting each of these five salary measures as a function of the predictor variables. The first table below is based on the variables in Model 2 (rank variables are included); the second table is based on variables in Model 1 (rank variables are not included).

Results in Table 1A show that estimates of the magnitude of gender-based earnings differentials and R^2s rise sharply when clinical pay supplements are included in the earnings measure. Estimates of gender-based earning differentials and R^2s are relatively similar in regressions predicting earnings measures 3,4, and 5, each of which contains information on clinical supplements.

TABLE 1A

	Model 2		
	Including rank variables as predictors:		
DEPENDENT VARIABLE	*Adjusted R^2*	*Coefficient for Sex*	*Sig. Of Coefficient*
SUM5 = ln(base + academic supplement + clinical A supplement + clinical supplement B limit)	0.795	-0.047	0.040
SUM4 = ln(base + academic supplement + clinical A supplement + clinical supplement B)	0.781	-0.047	0.029
SUM3 = ln(base + academic supplement + clinical A supplement)	0.776	-0.041	0.043
SUM2 = ln(base + academic supplement)	0.580	0.004	0.828
SUM1 = ln(base)	0.514	-0.022	0.379

	Model 1		
	Not including rank variables as predictors:		
DEPENDENT VARIABLE	*Adjusted R^2*	*Coefficient for Sex*	*Sig. Of Coefficient*
SUM5 = ln(base + academic supplement + clinical A supplement + clinical supplement B limit)	0.752	-0.076	0.003
SUM4 = ln(base + academic supplement + clinical A supplement + clinical supplement B)	0.725	-0.075	0.002
SUM3 = ln(base + academic supplement + clinical A supplement)	0.708	-0.072	0.002
SUM2 = ln(base + academic supplement)	0.491	-0.020	0.394
SUM1 = ln(base)	0.425	-0.055	0.042

APPENDIX A - Table 2a
DEFINITIONS OF VARIABLES USED IN THE REGRESSIONS [a]

Sum4	The natural logarithm of the sum of four components of salary: base salary, academic supplement, clinical A supplement , and clinical B supplement. The base and the academic supplement were calculated full-time rates. Salary was as of November 1, 2001 [b].
Gender	Male = 1 Female = 2
Race	Asian, Pacific Islander = 1 Under-represented minority = 1 Black, American Indian, Alaskan Native, Hispanic [White is the excluded category]
Non-Medical Appointment = 1 **Administrative Appointment = 1** **VAAppointment = 1**	
Market Ratio	The natural logarithm of the ratio of mean salary by subspecialtiy and rank to mean salary of all fields by rank. The means were based on AAMC data.
Rank	Professor = 1 Associate Professor 1-6 Years = 1 Associate Professor 7 or more years = 1 [Assistant Professor is the excluded category]
Rank by Years in Rank Interactions	Professor by Years in Rank = 1 Associate Professor 1-6 Years by Years in Rank = 1 Associate Professor 7 or more years by Years in Rank = 1 [Assistant Professor by Years in Rank is the excluded ca
Departmental Units	Dummy variables were constructed for nine Departmental Unit Affiliation Categories. Appendix Table 3A shows affiliation categories. Members of that department = 1 [Category 6 is the excluded category]
Sabbatical	Fraction of year not on sabbatical
Highest Degrees	M.D. or D.O and Ph.D. = 1 Ph.D. only = 1 No doctorate = 1 [M.D. or D.O. only was the excluded category]
Years at UM	Based on Employee Hire Date
Years in Rank	Based on Job Entry Date

(a) Dummy variables are used to capture the information in categorical variables. A categorical variable with j categories requires j-1 dummy variables in order to capture the information in the original variable. Each dummy variable corresponds to one category of the original variable; if a respondent was a member of that category, he or she is a "1" on that dummy variable. Otherwise, he or she is a "0"

(b) For faculty members with more than one eligible Medical School appointment, each appointment was entered separately into the dataset. Each appointment in the dataset was weighted by its appointme fraction.

APPENDIX A - Table 3a
DEPARTMENTAL UNIT AFFILIATION CATEGORIES

Category	N	% of Sample	Units Included
1	82.2	13.8%	Anesthesiology, Int Med-Cardiology, Radiology, Radiation Oncology
2	93.4	15.7%	OB/GYN, Ophthalmology, Otorhinolaryngology, Kresge Hearing Research Inst., Surgery, General Surgery, Urology
3	17.0	2.9%	Peds-Cardiology, Peds-Neonatal/Perinatal, Peds-Intensive Care
4	45.2	7.6%	Dermatology, Pathology, Emergency Medicine
5	76.8	12.9%	Family Medicine, Int Med-General Medicine, Peds-Ambulatory Care, Physical Medicine & Rehabilitation, Psychiatry, Psychiatry Admin-Central
6	129.2	21.7%	Internal Medicine, Int Med-Allergy, Int Med-Rheumatology, Int Med-Endocrine and Metabolism, Int Med-Gastroenterology, Int Med-Hematology/Oncology, Int Med-Geriatric Medicine, Int Med-Hypertension, Int Med-Infectious Diseases, Int Med-Molecular Med. & Genetics, Int Med-Pulmonary/Critical Care, Int Med-Nephrology, Neurology
7	41.0	6.9%	Cardiac Surgery, Neurosurgery, Orthopaedic Surgery, Pediatric Surgery, Plastic Surgery, Thoracic Surgery, Vascular Surgery
8	27.4	4.6%	Pediatric & Communicable Diseases, Peds-Endocrinology, Peds-Genetics, Peds-Hematology/Oncology, Peds-Neurology, Peds-Gastroenterology, Peds-Infectious Diseases, Peds-Nephrology, Peds-Pulmonary Medicine
9	82.9	13.9%	Medical School Administration, Cell and Developmental Biology, Biological Chemistry, Human Genetics, Microbiology and Immunology, Pharmacology, Molecular and Integrative Physiology, Medical Education
Total	**595**	**100%**	

APPENDIX A - Table 4a
INDEPENDENT VARIABLES - MEANS

VARIABLE	MEAN
Sex	1.18
Asian and Pacific Islander	0.09
Black, American Indian, Alaskan Native, Hispanic	0.05
White	[0.86]
Professor	0.43
Associate Professor 1-6 yrs	0.25
Associate Professor 7 or more yrs	0.06
Assistant Professor	[0.26]
Professor * years in rank	3.74
Assoc Professor 1-6 yrs * years in rank	0.67
Assoc Professor 7 or more yrs * years in rank	0.68
Asst Professor * years in rank	[0.93]
Years at UM	13.51
Years in rank	6.01
M.D. or D.O. and Ph.D. degrees	0.10
Ph.D. only	0.26
No doctorate	0.01
M.D. or D.O. only	[0.62]
Non-Medical School Appointment	0.13
Administrative Appointment	0.23
VAMC Appointment	0.16
Sabbatical	0.99
Market Ratio	0.09
Departmental Unit Affiliation Categories	
1	0.14
2	0.16
3	0.03
4	0.08
5	0.13
6	[0.22]
7	0.07
8	0.05
9	0.14

Bracketed figures represent the means for categories omitted from the equation

Appendix B

Medical School Gender Salary Study
Advisory Committee Members

Mary Corcoran, Professor – Gerald R. Ford School of Public Policy, Political Science, Women's Studies, Social Work, Survey Research Center

Laura Klem - Senior Research Associate (retired)

Marilyn Knepp - Associate Vice President for University Budget, Planning and Administration, Office of the Provost and Executive Vice President Academic Affairs

David Bloom - Associate Dean and Professor of Urology, Medical School

Valerie Castle - Professor and Chair of Pediatrics, Medical School (Advisory Committee Member 2002-03)

Pamela Raymond - Professor of Cell and Developmental Biology, Medical School (Advisory Committee Member 2001-02)

Jayne Thorson - Assistant Dean, Medical School

Debra Komorowski - Director, Human Resources Financial Systems and Analysis, Medical School

Deborah Boyd - Medical School Human Resources Advisor

Patricia Wolff - Senior Research Associate, Office of Budget and Planning