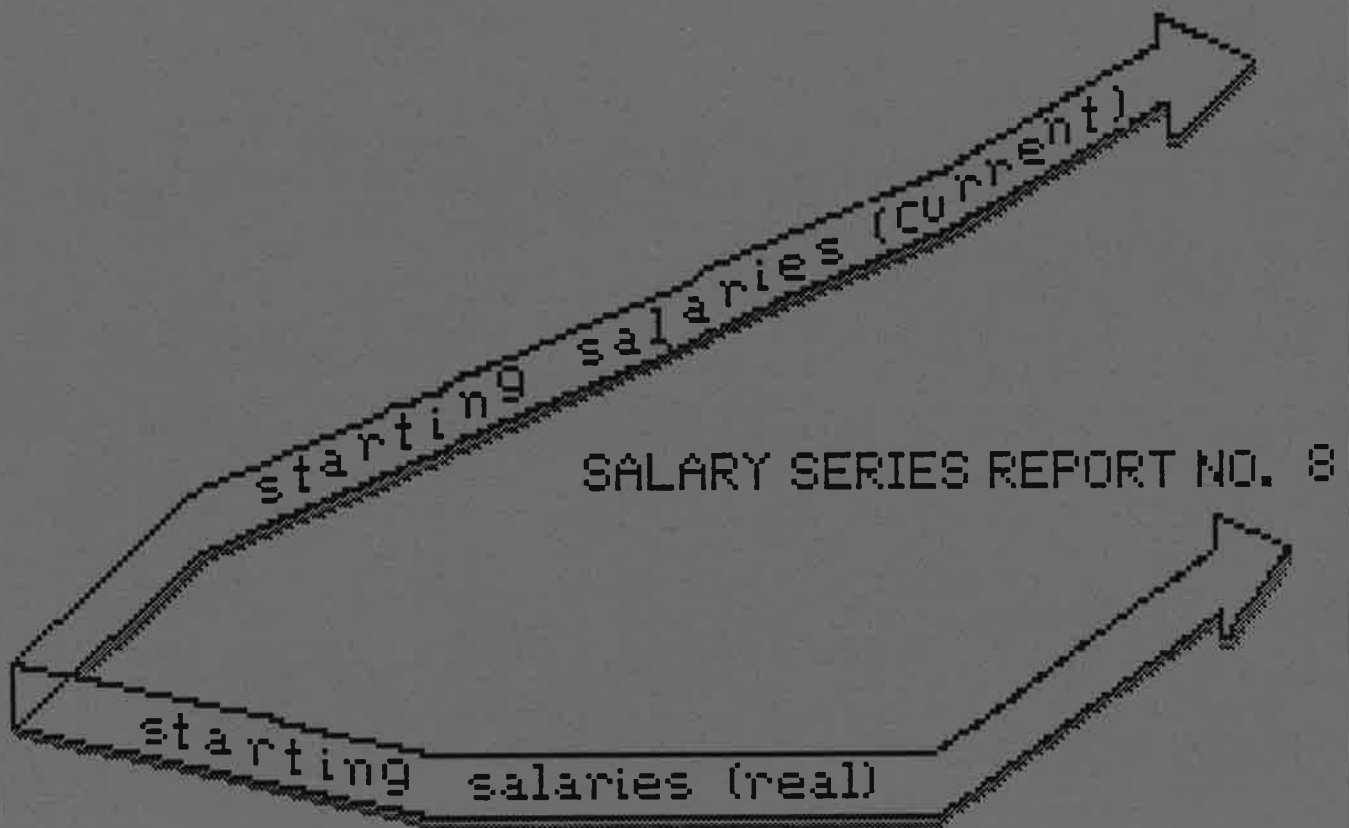


Starting Salary Trends
College of Agriculture and Natural Resources, 1978-1985

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Over the past decade both the national and the Michigan economies have performed poorly, at times, which has affected the starting salaries of college graduates. Inflation has eroded the earning power of new labor force participants, especially during the early 1980's. In an investigation of starting salaries of recent graduates from Michigan State University, inflation and economic conditions were shown to have affected starting salary performance over a seven year period (see Report No. 2). However, the magnitude of the impact varied by college and sometimes between academic programs within a college. This report reviews recent starting salary trends for bachelor degree recipients of the College of Agriculture and Natural Resources from August, 1978, to June, 1985. This analysis examines differences in salary among academic programs within the college. Also, starting salary comparisons are made by gender, race, and job location.

OVERVIEW

The results presented in this study are based on starting salary information reported by 2,018 graduates of the College of Agriculture and Natural Resources (1978-1985). The major findings in this analysis of starting salaries include:

1. Starting salaries have increased at an average of 7% annually since 1978, except for a small decline between 1981-82 and 1982-83. The average starting salary in 1984-85 was \$20,086 as compared to \$13,332 in 1978-79 (current dollars that have not been adjusted for inflation).
2. The high inflation experienced from 1980 to 1983, combined with economic problems in the agricultural sector and slowdown in growth of government employment in the natural resources area, eroded the salary position of graduates who received degrees in this period. After accounting for inflation, the 1984-85 average was \$13,128 (real), approximately 1% below the 1978 average.
3. Real starting salary averages for packaging (\$15,854) and building construction (\$14,289) were significantly higher than averages for all other departments. Departments also displayed variations in response to inflation and economic conditions over time: some experienced cyclical conditions while others went through several years of decreases before showing modest yet steady improvement.
4. Starting salaries offered by manufacturers were higher than all other types of employers. Manufacturing starting salaries averaged \$15,036 (real), approximately \$3,900 more than the next highest group.
5. Location played an important role in starting salary offers with out-of-state positions paying \$2,208 (real) more than in-state positions. The largest differences were found in agricultural business/engineering, building construction, soil science, and public affairs management. Only forestry graduates reported higher salaries in Michigan than outside the state.
6. The average starting salary for men was \$13,283 (real) as compared to the \$12,276 (real) average for women. Interestingly, women from packaging held a slight salary advantage over their male counterparts. In all other departments, men enjoyed an often sizeable salary advantage.

7. A positive correlation between grades and salaries existed for packaging and animal science graduates. For other departments, various GPA groups held the advantage.

GENERAL DESCRIPTION OF THE SAMPLE POPULATION

During the period from August, 1978, to June, 1985, 5,890 bachelor's degrees were conferred by the College of Agriculture and Natural Resources. Approximately, 71% (4,165) of these graduates responded to a questionnaire sent to them by Placement Services. Of those who replied 48% (2,018) were working and reported their starting salaries, 27% (1,122) were working but failed to report their starting salaries, 11% (445) were enrolled in graduate school, and 14% were still unemployed six months after graduation. These numbers correspond to 34%, 19%, 8% and 10% for the total graduate population, respectively.

The number of students graduating from the College of Agriculture and Natural Resources rose from 782 in 1978-79 to 986 in 1982-83. Over the next two years, the number of graduates dropped dramatically to 681 in 1984-85.

The non-response rate was fairly constant over years of the study. The unemployment rate, however, changed sharply, increasing from 8% in 1978-79 to 21% in 1982-83. The drop in number of graduates between 1983-84 and 1984-85 (166) in part, reflected the weak labor market for agricultural employment in the preceding four years. By 1984-85, the unemployment rate had returned to a level of 11%. Interestingly, when unemployment increased, there was not a corresponding increase in the number of graduates pursuing graduate degrees. The numbers going to graduate school increased from 1979 to 1983; but as a proportion of their graduating class, graduate school enrollment remained at approximately 8%.

Women comprised 38% of the total graduating student population. Starting with 36% of the graduates in 1978-79, the number of women increased to 410 or 42% in 1982-83. The number of women fell sharply in 1983-84 by 23% as compared to only 8% for men. In the following year (1984-85), both groups experienced a decline in graduates of approximately 20%. Women seemed to be responding to labor market conditions slightly faster than men, as suggested by this period of rapid decline.

Other evidence further suggests that women may be leaving agricultural majors. The average unemployment rate over the study period was 12% for women, as compared to 9% for men. Women were also less likely to report their salaries; 24% of the women graduates reported working but did not provide salary information, 8 percentage points higher than men. Previous research has shown that a person with an unsatisfactory job is less likely to report salary information than those in positions which are closely associated with their training and involve work they enjoy. For women graduating with degrees in agricultural disciplines, the labor market apparently has not offered satisfactory opportunities for work, or at least may not be meeting expectations.

Men, on the other hand, were more likely to continue in graduate school, 8% as compared to 7% for women, and provide salary information, 37% as compared to 30% for women. With respect to the proportion of men represented in the graduating population, men

were slightly overrepresented in the sample used in the analysis of salary trends.

Response rates by department are presented in Table 1.¹ Packaging dominated the college with 27% of the graduates, followed by animal sciences with 16%. Packaging, soil science, food science/Food Science Management (FSM), and agricultural engineering had the highest response rates while building construction, public affairs management (PAM), and forestry had the highest non-response rates. Packaging's dominance also appeared in the working salary group, representing 34% of this group. Only three other groups, food science, horticulture, and resource development, exceeded 10%. Unemployment rates were highest in packaging and resource development while more graduates from soil science and the animal sciences continued their education. Graduates from resource development, horticulture, and the animal sciences/fisheries and wildlife were more likely not to report salaries, suggesting that appropriate job opportunities in these fields may have been limited over the time period.

While women represented only 37% of the total population, they comprised 62% of public affairs graduates, 56% of the resource development and parks and recreation graduates, 52% of horticulture graduates, and 46% of the animal sciences/fisheries and wildlife graduates (Table 2). Women graduates were noticeably absent in numbers comparable to their proportion of the college from building construction, agricultural engineering/business, and soil science at 7%, 17%, and 21% respectively. Focusing on the salary group, 31% of packaging graduates reporting salaries were women--equalling their percentage of the total population. For all remaining departments, women's responses were below a priori expectations, particularly in horticulture, forestry, and agricultural engineering/business.

Considering only those who responded, 59% were working, still seeking employment, or continuing their education in Michigan. At the beginning of the study period, 65% of the respondents remained in Michigan. The number working in Michigan dropped to approximately 57% over the five years before rising to 61% in 1984-85.

¹ Because of small sample sizes, particularly for the salary group, several departments or programs were grouped together based on commonality of subject matter or similar salaries. Groupings to be used throughout this report are: packaging; agricultural engineering technology, agricultural biochemistry, and agricultural business, building construction, food science and food systems economics and management, resource development, agricultural and natural resources communication, recreation and youth leadership, park and recreation, park and recreation education, and natural resource and environmental education, crop and soil science, forestry, public affairs management, horticulture, and animal husbandry, animal science, poultry science, fisheries and wildlife, and fisheries and wildlife education.

For the group reporting salaries, only 45% were working in Michigan; the rest located outside the state with the northcentral, northeastern, and southwestern regions of the United States being the most popular employment areas. In 1978-79, 61% of the graduates reporting salary remained in Michigan. This pattern quickly changed in 1981-82 when 61% were working outside the state. This figure has gradually decreased to approximately 53% in 1984-85.

Table 2 presents additional information concerning the job location of graduates reporting salaries. Seventy-nine (79) percent of the packaging graduates worked out-of-state while 74% of the soils graduates worked in Michigan. The overall pattern, however, found few graduates reporting salaries and remaining in Michigan. Thus, salaries when location is not held constant will tend to reflect out-of-state conditions rather than in-state where most of graduates reside.

Major employers of those graduates reporting salary were manufacturing (46%), service (20%) and other (22%) which includes consulting firms, volunteer organizations, and self-employed individuals. Packaging and building construction graduates were primarily working in the manufacturing sector; food science/FSM and PAM graduates in manufacturing and service; resource development/parks and recreation in service, government, and other; agricultural engineering/business in education and manufacturing; and forestry, soils, horticulture, and animal science/FW graduates in manufacturing, service, government and other. Graduates can be found working for nearly every type of employer. Popular with graduates were the following types of firms (at least 5% of those reporting in each category):

| | |
|----------------|--|
| Packaging: | Construction, food services, chemical and electrical, electronics, automotive and merchandising/retail sales. |
| Ag. Eng/Bus.: | Elementary/secondary education, automotive, and banking/finance. |
| Food Sci./FSM: | Food services, hotels/motels, chemical, merchandising/retail, and agricultural industries. |
| Res. Dev./PR: | Hotels/motels, government (federal-foreign), agricultural industries, government (state), government (county), medical services, consulting, and art/printing. |
| Soil Science: | Agricultural industries, government (federal-foreign), hotels/motels, chemical and electrical, construction and food, and consulting. |
| Forestry: | Agricultural industries, government (federal), construction, and merchandising/retail. |

Public Affairs: Banking/finance, merchandising/retail, medical services, chemical and electrical, consulting, automotive, and construction.

Horticulture: Agricultural industries, merchandising/retail, and construction and food services.

An. Sci./FW: Agricultural industries, construction and food services, community college, government (federal-foreign), merchandising/retail, and hotels/motels.

Ninety-five (95) percent of the graduates were white. Blacks comprised the largest group of minority graduates at 3%. Other ethnic groups that included Hispanics, Native American, Asian American, and foreigners, shared the remaining 2%, with approximately .5% each. Minorities were represented in all departments with the highest numbers in packaging (7%), food science/FSM (10%), and public affairs management (30%). Very few minorities graduated during this period from horticulture, forestry, soil science, resource development/park and recreation, and building construction.

In responding to the questionnaire, blacks tended to have a lower response rate; only 60% responded. Blacks did provide starting salary information while other minority groups tended to shy away from providing this information. Blacks, however, faced the highest average unemployment rates of all groups, 11% shortly after graduation. The sample sizes for the other minority groups were too small for statistical purposes. Therefore, all minority groups have been aggregated for comparison in subsequent analyses.

In summary, the sample to be used in the following analysis can be considered slightly biased. Women are slightly underrepresented based on their proportion of total graduates. Packaging, not only because of its large enrollment, is overrepresented based on its proportion of total graduates: an indication that packaging majors have found very satisfying jobs. While the majority of graduates reported working in Michigan, the locational distribution pattern was reversed for respondents reporting salaries. These characteristics need to be taken into consideration when interpreting the results.

SALARY TRENDS AND COMPARISONS

The 1978-79 average starting salaries (current dollars are not adjusted for inflation) reported was \$13,332 (Table 3). Starting salaries have annually increased from between 6% and 12%, except between 1981-82 and 1982-83 when there was nearly a 1% decline, from 1978 and 1984. Salaries in 1984-85 showed a more modest gain of 3% over the previous year. The average starting salary (current) in 1984-85 had reached \$20,086.

When salary figures were adjusted for inflation (1978-79=100), the impact of inflation on current salary trends can be discerned. In three periods, salary increases did not keep pace with inflation as indicated by the negative percentages in the real (dollar adjusted for inflation) column of Table 3. Between 1978-79 and 1979-80, salaries fell behind inflation by less than 1% but in

the other two periods, 1979-80 and 1980-81 and 1981-82 and 1982-83, salaries lagged by 4% in each period. The increase experienced between 1983-84 and 1984-85 was equal to the inflation rate (real change was 0).

Salary increases exceeded the inflation rate in two periods, between 1980-81 and 1981-82 and between 1982-83 and 1983-84. There was no pattern to the salary increases. It is not clear whether future salary increases will continue to advance faster than inflation. Salary levels will depend to some extent on the economic conditions prevailing in agriculture and natural resource industries, including government. If the agricultural sector can rebound from recent doldrums, the labor market may continue to improve.

The variable for "years" was found to be an important explanatory descriptor of real starting salaries ($F=3.02$, $p < .006$). Using mean tests, significant differences were found between 1982-83 and two other years, 1978-79 and 1979-80. Lowest starting salaries were offered in 1982-83 as contrasted with the highest salaries offered in 1978-79 and 1979-80. All other yearly comparisons were not significantly different from each other.

Departments

Graduates from different departments within the College of Agriculture have experienced slightly different labor markets that are often reflected in starting salaries. The average starting salaries (real) for each department are listed in Table 4. Packaging graduates dominated the salary structure with an average of \$15,854, nearly \$1,600 higher than building construction majors. Salaries for graduates of packaging which have an engineering emphasis were below the salaries of all other types of engineers (see report no. 4). Agricultural business and food science average starting salaries were approximately \$12,500, followed by soils, forestry, and public affairs management at approximately \$11,000 and resource development and parks and recreation, horticulture, and animal sciences/FW between \$10,100 and \$10,600.

Given the range of average starting salaries, significant differences were not unexpected ($F=172.98$, $p < .0001$). The top four departments were found to be statistically different from those departments with lower averages. Departments with averages below \$11,150 were not statistically different from each other.

Individual departments did experience different salary trends over the study period. A common pattern was for graduates to suffer through several years when salary increases fell noticeably below the inflation rate before improving over the latter years of the study period. Departments in this group included packaging, agricultural business/agricultural engineering, building construction, horticulture and animal sciences. Another observed trend found salary increases falling behind inflation during the early years of the study, improving for several years, before falling off between 1983-84 and 1984-85. Food science/FSM, resource development and parks and recreation, forestry, and public affairs management followed this pattern.

Soils graduates have experienced a continuing decline in starting salaries, except between two early periods, a 1% increase between 1978-79 and 1979-80 and a 5% increase between 1980-81 and 1981-82. For the other periods, yearly salary differences fell 7% to 10% below the inflation rate, suggesting a poor labor market where current salaries were actually decreasing; an indication why more soils graduates may be continuing their education (15%) than other majors. Because of small sample sizes during the latter years of the study period, caution should be extended when interpreting this trend.

Employer

Graduates were represented in varying numbers within each major economic sector as described earlier. Starting salaries offered by manufacturing firms were significantly higher than all other sectors ($F=219.00$, $p < .0001$). The average salary for manufacturing was \$15,036 (real), more than \$3,900 higher than the average (Table 5). Salaries for the remaining sectors were very similar, ranging from \$10,484 to \$11,507.

When examined by year of graduation, each sector experienced periods when salary increases were below the inflation intermixed with periods when salaries increases were well above the inflation rate. Upon comparison of the 1978-79 and 1984-85 averages, government employees fared the best against inflation as salary averages only varied by \$64. Salaries in education also did not fall too far behind, being \$435 lower in 1984-85 than 1978-79. The other three sectors did not fare as well with 1984-85 starting salaries trailing 1978-79 by approximately \$1,200.

Table 6 provides the average salary for each department according to economic sector. Packaging, as expected, has the highest salaries in manufacturing, service, and other. Considering only $n > 20$, agricultural business/agricultural engineering had the highest education salaries (\$11,462) and resource development/park and recreation in government (\$10,921). While manufacturing consistently had the highest salaries across all departments, there was department variation across the other sectors. Reference should be made to Table 6 for specific departmental averages.

Job Location

The decision to accept a position in Michigan versus one outside the state may be a result of differences in salary offers in various locations across the country. The difference in average starting salaries between those working in and out-of-the state was \$2,208 (real), with the advantage to out-of-state (Table 7). This difference was statistically significant ($F=219.2$, $p < .0001$). Salary trends found Michigan positions experiencing a three year decline in starting salaries (adjusted) before rallying with three strong years of increases. Out-of-state positions followed a similar pattern but have not rebounded as strongly as in-state positions. As a result, the salary differences between in- and out-of-state positions have been cut in half over the last several years. The largest overall differences are influenced by substantial variations occurring in 1978-80, 1980-81, and 1981-82.

Several interesting comparisons were uncovered when starting salaries were examined by department, grade point average, gender, and industry according to job location. Salary differences varied widely by department (Table 8). The differences were relatively small for horticulture, animal science/FW, resource development/parks and recreation, and packaging. The other differences exceeded \$1,000, with the largest at \$2,378 for agricultural business/engineering. Only in forestry did graduates working in Michigan receive higher salaries than those working outside the state. There was no strong relationship between salary differences and the percentage of graduates remaining in Michigan, except that departments with a high percentage remaining in-state have larger and negative differences.

By economic sector, Michigan government agencies, including federal employers, have a salary advantage, paying \$335 (real) more than non-state governmental agencies (Table 9). The salary difference observed for educational employers was very small. The largest differences were in manufacturing (\$2,020), service (\$1,127) and other (\$1,137), all in favor of out-of-state positions.

In several colleges, graduates with higher grade point averages received higher remunerations in Michigan and subsequently, the difference in salary averages for these graduates tended to favor Michigan positions. This observation did not hold for College of Agriculture and Natural Resources graduates. Graduates with GPA's above 3.5 received the lowest salaries irrespective of location (Table 10). The salary difference between in- and out-of-state positions was approximately \$2,000 (real) for all groups. Men and women both fared better when taking jobs outside the state, \$2,090 and \$2,505, respectively (Table 13). For women, employment outside Michigan had another advantage because starting salaries were more comparable to those for men with the difference being \$865 as compared to \$1,280 for in-state employment.

In summary, the comparison of average salaries between in- and out-of-state employment showed a strong advantage to out-of-state positions, particularly from 1978 to 1983. These large differences can be attributed to out-of-state manufacturing firms, which employed most of the graduates and which were paying a much higher salary.

Gender

The average starting salary for men was \$13,283 (real) as compared to the \$12,276 (real) average for women; a difference of \$1,007 (Table 11). With other factors not held constant, such as department, this difference proved to be statistically significant ($F=37.51$, $p < .0001$).

Both men's and women's salaries have followed cyclical swings of increases and decreases when measured against inflation. Men's salary levels have been strengthened by two years of steady increases, leaving their salary level in 1984-85 just \$31 below the 1978-79 average. In 1983-84, women's average salaries reached the highest point, \$12,865, before dropping below the inflation rate by 4%. Women's 1984-85 salaries remained \$262 behind the 1978-79 level, and there was no clear indication regarding the direction women's salaries might take in the near future.

The gap between men's and women's salaries has persistently held around \$1,100, though a small difference of \$402 did occur in 1983-84. The two-year decline in the gap that culminated in the \$402 difference did not mark a general trend as the differential tripled to \$1,262 in 1984-85.

Salary differentials can partially be explained by comparing salaries across departments (Table 13). Women actually enjoy slightly higher salaries than men in packaging, with a difference of \$395. For the other nine departments, men enjoyed the salary advantage. The differences were relatively small for food science/FSM and soils at \$247 and \$361, respectively, but exceeded \$1,000 for other departments. Considering only departments with adequate cases (greater than 25), the largest difference occurred in public affairs management.

Women received lower salaries than men irrespective of job location, though the out-of-state difference was \$400 less than Michigan's (Table 14). The in- and out-of-state differential was largest for women. Women remaining in Michigan received nearly \$2,500 less than those women who found job opportunities outside the state. The men's difference just topped \$2,000, favoring out-of-state employment.

The packaging difference was carried into the comparison by economic sector. Women in the College of Agriculture and Natural Resources held an advantage of \$505 in manufacturing; the only college in the University where this comparative advantage materialized (Table 13). In all other sectors, men held a sizeable salary advantage. These differences, which, in three cases, were greater than \$1,400, may be mitigated somewhat by department but men continue to hold a sizeable advantage.

Grade Point Average

Graduates with high grade point averages did not necessarily receive the highest salaries. A positive correlation between grades and salaries existed for packaging and animal science graduates (as GPA increased, salaries increased). However, for other departments various GPA groups held the advantage. Results from several other colleges within the University, found graduates with GPAs below 2.5 holding a decided salary advantage. In the College of Agriculture and Natural Resources, this pattern was only observed in forestry and public affairs management (Table 15).

All GPA groups were buffeted by inflation and poor economic conditions (Table 16). Those graduates with GPAs above 3.0 have recovered strongly from the low point encountered in 1982-83, as 1984-85 salaries exceeded 1978-79 levels. Other groups faced a more cyclical pattern with 1984-85 salaries still below salaries offered in 1978-79 (adjusted for inflation).

Upon examination of salaries (real) for GPA groups by sector of employment, no sector offered the highest remuneration to graduates with grades above 3.5, though this group's average salary was generally near the top (Table 17). Those with higher GPAs tended to receive lower salaries in the service, government, and education sectors. Graduates with grades below 2.5 received higher salaries when compared to other groups in the "other" category. Members of the below 2.5 GPA group were less likely to be employed in low paying fields; only 6% of this group were in government and

education, as compared to 12%, 13%, and 26% in the 2.5-3.0, 3.0-3.5, and greater than 3.5 groups, respectively.

A final comparison of grade points by gender found that men had higher starting salaries across all GPA levels, though the difference for the 3.5 and above group was very small (Table 18). The largest male salary advantages were for 2.5-3.0 and 3.0-3.5 groups, at \$1,344 and \$1,366, respectively. Considering all departments, except packaging, men have enjoyed higher salaries even with comparable academic achievement.

Race

The number of minorities reporting salaries were small, only 85 observations. Black graduates dominated the minority population, representing 69% of the reporting population. The average starting salary for blacks was \$14,164, approximately \$1,228 higher than the average salary for whites. For all other minorities, the average salary was \$13,797. No other comparisons were made using race as a descriptive variable because of small sample sizes.

STARTING SALARY DETERMINANTS

The above comparisons indicate that several factors are important when determining starting salary levels: academic program (department), year, industrial sector, gender and job location. Because of confounding effects caused by relationships between independent variables, the unique contribution of a single factor cannot be specifically determined. However, a final analytical exercise, using hierarchical regression analysis, was performed to identify the key determinants of the starting salary for graduates from the College of Agriculture (real salaries were employed in this analysis).

In order to measure a particular effect, class variables were created for department, year of graduation, industry which distinguished between the major economic sectors, separate industrial variables which accounted for differences between organizations within a major economic sector, grade point average and race. The dummy variables for gender and job location (in-or out-of-Michigan) were also treated as class variables.

Each independent class variable was then regressed separately (alone) onto the dependent variable, starting salary. The R^2 was obtained for each variable, as well as the regression coefficient for each member of the class. Those measures reflected the causal relationship between the independent the dependent variables with all other effects uncontrolled.

The next step was to regress the entire set of explanatory variables whose causal priority (order of entry) had been pre-specified onto starting salary. For example, to test the hypothesis that department did not have a unique effect on starting salary, the explanatory variables were entered as follows: year of graduation, industry, gender, job location, grade point average, race and finally department. The incremental R^2 was then calculated by subtracting the final R^2 from the R^2 for the model obtained prior to the entry of department. Similar tests were made for the other independent variables.

The statistical inference assumed the null hypothesis that in the population there was no increment in starting salary variance accounted for when department, for example, was added to the model. The null hypothesis or incremental R^2 's significance was tested by using the F-test as described by Cohen and Cohen (1983).

Results

About 56% of the agricultural graduates' starting salary variance was accounted for when the complete model containing the entire set of explanatory variables was specified. Using the criterion of $p < .01$ level of significance, the variables year of graduation, department, and manufacturing subsector made a significant incremental (unique) contribution to the overall R^2 . The contribution of each variable can be seen in Table 19 where the R^2 's for each variable alone are listed in column one and the unique R^2 are presented in column two. The general F-tests for each incremental R^2 are presented in column three. The regression coefficient for each variable when it enters last in the final model can be found in Table 20.

When confounding effects are partialled out, the proportion of starting salary variance assigned to each variable decreases, except for year. Department has the largest impact on starting salary with an incremental R^2 of .121; department uniquely explains approximately 12% of salary variance. Year and manufacturing contribute in modest increments of 3% and 2%, respectively. The other variables did not make significant incremental contributions. Gender and location had large F's, which suggest some importance, but because of the large sample size and their status as dummy variables, they were not significant.

Year of Graduation. The unpartialled effect ($R^2=.009$) was smaller than the direct effect ($R^2=.033$) indicating that the year variable was suppressed. Suppression suggests that year is correlated with other independent variables, hiding its real relationship with starting salary. Once the effects of the variables are partialled out, year uniquely contributed over 3% to the explanation of starting salary.

An examination of the regression coefficients from the two models further illustrates the suppression effect before controlling for the other variables. The magnitude of the coefficients were not large and only one year, 1982-83, was significantly different from 1984-85 which had been omitted to avoid collinearity. After controlling for the other variables, the magnitude of the coefficients changed, particularly 1978-79 and 1979-80, which were significantly different from 1984-85. All the other years were not statistically different in salary level. The lowest salaries, as compared to 1984-85, were in 1982-83. In 1984-85, salaries fell slightly from 1983-84 levels.

Department. Without controlling for spurious relationships, department explained 44% of salary variance. After controlling for all other variables, the portion of starting salaries explained by department was 12%. This incremental R^2 was highly significant. Department was clearly the most robust explanatory variable of starting salary.

The size of the regression coefficients remained fairly consistent between models which underscores the strength of department as a descriptor of starting salaries. With animal science/FW omitted to avoid collinearity, the coefficients indicate that all other departments had higher salaries, although horticulture, public affairs management, and forestry were not statistically different from animal science/FW salaries.

Gender. Even though gender did not make a significant unique contribution to starting salaries, the negative sign for the regression coefficient which was significant illustrates the lower salary levels of women within the college. Several interaction effects that included gender were tested and gender with department and industry were found to be significant. These various pieces suggest that women from particular programs whose jobs may be in Michigan are receiving lower salaries than men, all other things being equal.

Employer. Industry failed to explain a significant unique portion of the starting salary variance, approximately one-tenth of a percent. Much of the explanatory power of industry has been captured in other variables such as department. None of the regression coefficients for industry variables were significant.

Further examination within economic sectors revealed that salary levels within manufacturing were important. Small sample sizes may distort these results slightly, though it's clear that employment in the automotive, electronics and chemical sectors returned higher salaries. Many of the graduates working for these organizations were packaging majors, further emphasizing the salary difference between this group and all other graduates.

Location. Salaries were better outside Michigan for agricultural graduates. After controlling for other factors, the regression coefficient of 763 means that a graduate working outside Michigan would earn \$763 more than in Michigan. Location did represent approximately 1% of the variance, although this was not significant according to the criteria used in this study.

Other Factors. Other class variables did not prove to be significant in terms of uniquely explaining the variance of starting salary. Also, none of the variables had regression coefficients that were significant at the level specified in this study.

CONCLUSIONS

After comparing starting salary means by selected characteristics for College of Agriculture graduates and employing regression analysis, several variables were found to be important when determining starting salary levels: year of graduation, department, gender, and job location. Specific employers, especially manufacturing firms, also influenced salaries.

Year of graduation captures the economic conditions prevailing at the time of graduation. From 1978 to 1983, conditions in the economy depressed salary levels such that yearly salary increases (current terms) did not keep pace with inflation. Graduates actually lost ground in terms of their salaries' purchasing power during these years. Improvement has been observed over the last several years with current salary increases equaling or slightly ahead of inflation.

Graduates from certain departments consistently received higher salaries. Packaging and building construction graduates had the highest salary averages. Lower salaries for other graduates may reflect an oversupply of graduates in relation to the number of available jobs, as well as historically low remuneration for this type of training.

A significant finding was the large gap in initial earnings between men and women. At the time of graduation, there appear to be factors which may discriminate against women in terms of salary, even after controlling for all other factors addressed in this study. The exception to this finding involves packaging graduates where women had slightly higher salaries than men. Further investigation into these different patterns is warranted.

Job location also influences salary levels with positions in Michigan paying less than out-of-state positions. Manufacturing firms outside the state pay the highest salaries. In part, this trend may reflect the distribution of jobs for agriculture graduates favoring other locations than Michigan. However, the high numbers of graduates remaining in Michigan, either not reporting salaries or unemployed, indicate what may happen when the state's economy is not performing well and jobs are not created for these graduates.

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Table 1. Response Rates By Category According to Department for Graduates of the College of Agriculture and Natural Resources, 1978-1985.

| Department | TOTAL | | WORKING SALARY | | | WORKING NO SALARY | | | GRADUATE SCHOOL | | | UNEMPLOYED | | | NON-RESPONSE | | |
|------------------|-------|----|----------------|----------|---------|-------------------|----------|---------|-----------------|----------|---------|------------|----------|---------|--------------|----------|---------|
| | n | % | n | Category | % Major | n | Category | % Major | n | Category | % Major | n | Category | % Major | n | Category | % Major |
| Packaging | 1,545 | 27 | 684 | 34 | 44 | 201 | 19 | 13 | 35 | 8 | 2 | 204 | 35 | 13 | 421 | 25 | 27 |
| Ag. Eng./Bus. | 218 | 4 | 83 | 4 | 38 | 37 | 3 | 17 | 24 | 6 | 11 | 16 | 3 | 7 | 58 | 3 | 27 |
| Building Constr. | 313 | 5 | 132 | 7 | 42 | 41 | 4 | 13 | 7 | 2 | 2 | 11 | 2 | 3 | 122 | 7 | 39 |
| Food Sci./FSM | 566 | 10 | 243 | 12 | 43 | 99 | 9 | 17 | 40 | 9 | 7 | 47 | 8 | 8 | 137 | 8 | 24 |
| Research Dev./PR | 763 | 13 | 204 | 10 | 27 | 191 | 18 | 25 | 40 | 9 | 5 | 103 | 18 | 13 | 225 | 13 | 29 |
| Soil Science | 334 | 6 | 119 | 6 | 36 | 70 | 6 | 21 | 50 | 12 | 15 | 25 | 4 | 7 | 70 | 4 | 21 |
| Forestry | 282 | 5 | 77 | 4 | 27 | 54 | 5 | 19 | 36 | 8 | 13 | 24 | 4 | 8 | 91 | 5 | 32 |
| PAM | 195 | 3 | 60 | 3 | 31 | 39 | 4 | 20 | 10 | 2 | 5 | 18 | 3 | 9 | 68 | 4 | 35 |
| Horticulture | 622 | 11 | 214 | 11 | 34 | 144 | 13 | 23 | 39 | 9 | 6 | 45 | 8 | 7 | 180 | 11 | 29 |
| Animal Sci./FW | 899 | 16 | 164 | 8 | 18 | 207 | 19 | 23 | 146 | 34 | 16 | 81 | 14 | 9 | 301 | 18 | 33 |
| Total | 5,737 | | 1,980 | | 34 | 1,083 | | 19 | 427 | | 7 | 574 | | 10 | 1,673 | | 29 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 2. The Percentage of Graduates that are Women and Percentage Working in Michigan for College of Agriculture and Natural Resources, 1978-1985.

| | WOMEN | | MICHIGAN | |
|-------------------|-----------------|------------------|-----------------|------------------|
| | % Total Pop. | % With Salary | % Total Pop. | % With Salary |
| Packaging | 30 | 31 | 39 | 21 |
| Ag. Eng./Bus. | 17 | 8 | 80 | 73 |
| Building Constr. | 7 | 5 | 52 | 42 |
| Food Science/FSM | 39 | 35 | 60 | 51 |
| Res. Dev./PR | 56 | 52 | 68 | 60 |
| Soil Science | 26 | 24 | 71 | 74 |
| Forestry | 21 | 16 | 56 | 55 |
| Public Affairs M. | 62 | 58 | 65 | 63 |
| Horticulture | 52 | 41 | 67 | 59 |
| Animal Sci./FW | 46 | 48 | 70 | 61 |
| Total | 37 | 33 | 59 | 45 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 3. Average Starting Salary, Current and Real, for College of Agriculture and Natural Resources from August, 1978-1985.

| Year | n | Average (Current \$) | % Change | Average (Real \$) | % Change |
|---------|-----|-------------------------|-------------|----------------------|-------------|
| 1978-79 | 284 | 13,332 | | 13,332 | |
| 1979-80 | 300 | 14,975 | 12 | 13,240 | - .7 |
| 1980-81 | 325 | 15,944 | 6 | 12,651 | - 4 |
| 1981-82 | 306 | 17,692 | 11 | 12,917 | 2 |
| 1982-83 | 303 | 17,541 | - .8 | 12,347 | - 4 |
| 1983-84 | 251 | 19,422 | 11 | 13,130 | 6 |
| 1984-85 | 244 | 20,086 | 3 | 13,128 | 0 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 4. Average Starting Salary (Real) for Departments in the College of Agriculture and Natural Resources from 1978-1979 to 1984-1985.

| PACKAGING | | | | AG. BUS., AG. ENG. | | |
|-------------|-----|-------------------|----------|--------------------|-------------------|----------|
| Year | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 49 | 17,645 | | 5 | 14,620 | |
| 1979-80 | 94 | 16,602 | -6 | 17 | 12,969 | -11 |
| 1980-81 | 105 | 15,875 | -4 | 22 | 12,529 | -3 |
| 1981-82 | 121 | 15,643 | -1 | 13 | 13,460 | 7 |
| 1982-83 | 112 | 15,163 | -3 | 13 | 11,685 | -13 |
| 1983-84 | 104 | 15,553 | 3 | 9 | 12,767 | 9 |
| 1984-85 | 99 | 15,595 | .3 | 4 | 13,791 | 8 |
| Overall Av. | 684 | 15,854 | | 83 | 12,845 | |

| BUILDING CONSTRUCTION | | | | FOOD SCIENCE/FSM | | |
|-----------------------|-----|-------------------|----------|------------------|-------------------|----------|
| Year | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 21 | 15,413 | | 25 | 15,078 | |
| 1979-80 | 19 | 15,064 | -2 | 26 | 13,377 | -11 |
| 1980-81 | 19 | 14,273 | -5 | 33 | 12,023 | -10 |
| 1981-82 | 20 | 13,690 | -4 | 33 | 12,342 | 3 |
| 1982-83 | 19 | 12,317 | -10 | 35 | 11,890 | -4 |
| 1983-84 | 18 | 14,467 | 17 | 36 | 11,935 | .4 |
| 1984-85 | 16 | 14,806 | 2 | 55 | 11,782 | -1 |
| Overall Av. | 132 | 14,289 | | 243 | 12,439 | |

| RES. DEV./PR | | | | SOILS | | |
|--------------|-----|-------------------|----------|-------|-------------------|----------|
| Year | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 27 | 11,472 | | 28 | 11,768 | |
| 1979-80 | 36 | 10,619 | -7 | 18 | 11,907 | 1 |
| 1980-81 | 38 | 10,233 | -4 | 16 | 10,710 | -10 |
| 1981-82 | 24 | 10,152 | -8 | 19 | 11,254 | 5 |
| 1982-83 | 42 | 10,615 | 5 | 16 | 10,802 | -4 |
| 1983-84 | 19 | 11,133 | 5 | 11 | 10,565 | -2 |
| 1984-85 | 18 | 10,393 | -7 | 11 | 9,893 | -6 |
| Overall Av. | 204 | 10,632 | | 119 | 11,150 | |

Table 4. (continued)

| FORESTRY | | | | PUBLIC AFFAIRS | | |
|-------------|----|-------------------|----------|----------------|-------------------|----------|
| Year | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 26 | 11,475 | 3 | 6 | 11,321 | 14 |
| 1979-80 | 15 | 11,866 | -4 | 6 | 12,935 | -25 |
| 1980-81 | 13 | 11,389 | -16 | 10 | 9,740 | 7 |
| 1981-82 | 5 | 9,489 | -2 | 11 | 10,384 | -10 |
| 1982-83 | 7 | 9,319 | 10 | 7 | 9,319 | 10 |
| 1983-84 | 9 | 10,240 | -11 | 9 | 10,240 | -11 |
| 1984-85 | 2 | 9,085 | | 2 | 9,085 | |
| Overall Av. | 77 | 11,005 | | 60 | 10,990 | |

| HORTICULTURE | | | | ANIMAL SCIENCE/FW | | |
|--------------|-----|-------------------|----------|-------------------|-------------------|----------|
| Year | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 45 | 11,552 | -12 | 44 | 11,573 | -14 |
| 1979-80 | 38 | 10,169 | 1 | 26 | 10,006 | -4 |
| 1980-81 | 43 | 10,272 | 2 | 19 | 9,614 | -11 |
| 1981-82 | 36 | 10,506 | -12 | 21 | 8,526 | 9 |
| 1982-83 | 22 | 9,209 | 2 | 23 | 9,279 | 8 |
| 1983-84 | 15 | 9,383 | 2 | 17 | 10,072 | 8 |
| 1984-85 | 15 | 9,602 | | 14 | 10,896 | |
| Overall Av. | 214 | 10,344 | | 164 | 10,173 | |

Significant differences between departments at $p < .05$.

Packaging: all other departments
 Building Construction: all other departments
 Ag. Bus./Ag. Eng. and Food Sci./FSM: all other departments

Source: Follow-up report data base, 1978-1985, Placement Services,
 Michigan State University, East Lansing, Michigan 48824.

Table 5. Average Starting Salaries (Real) By Economic Sector from 1978-1985 for College of Agriculture and Natural Resources Graduates.

| Year | MANUFACTURING | | | SERVICE | | | GOVERNMENT | | | EDUCATION | | | OTHER | | |
|-------------|---------------|-------------------|----------|---------|-------------------|----------|------------|-------------------|----------|-----------|-------------------|----------|-------|-------------------|----------|
| | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 102 | 15,985 | | 42 | 12,488 | | 48 | 10,951 | | 20 | 11,154 | | 72 | 12,258 | |
| 1979-80 | 119 | 16,063 | .5 | 57 | 11,691 | -6 | 35 | 11,373 | 4 | 12 | 10,442 | -6 | 78 | 11,335 | -8 |
| 1980-81 | 146 | 14,996 | -7 | 67 | 11,185 | -4 | 22 | 11,006 | -3 | 16 | 10,141 | -3 | 75 | 10,413 | -8 |
| 1981-82 | 154 | 14,799 | -1 | 62 | 11,159 | 0 | 14 | 9,518 | -14 | 15 | 9,904 | -2 | 62 | 11,494 | 10 |
| 1982-83 | 139 | 14,353 | -3 | 82 | 10,809 | -3 | 22 | 11,106 | 17 | 7 | 11,349 | 15 | 54 | 10,154 | -12 |
| 1983-84 | 130 | 14,707 | 2 | 47 | 12,737 | 18 | 9 | 10,568 | -5 | 12 | 9,971 | -12 | 54 | 10,802 | 6 |
| 1984-85 | 135 | 14,748 | .3 | 53 | 11,333 | -11 | 10 | 10,887 | 3 | 6 | 10,719 | 8 | 40 | 10,962 | 1 |
| Overall Av. | 925 | 15,036 | | 410 | 11,507 | | 160 | 10,921 | | 88 | 10,484 | | 435 | 11,104 | |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 6. Average Starting Salary (Real) for Departments According to Employment Sector, 1978-1985.

| Departments | Manufacturing | | | Service | | | Government | | | Education | | | Other | | |
|-------------------|---------------|-------------------|----------|---------|-------------------|----------|------------|-------------------|----------|-----------|-------------------|----------|-------|-------------------|----------|
| | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| Packaging | 563 | 16,059 | | 69 | 14,337 | | 5 | 12,611 | | 1 | 11,679 | | 46 | 16,073 | |
| Ag. Bus./Ag. Eng. | 26 | 15,269 | | 13 | 11,673 | | 3 | 9,996 | | 29 | 11,462 | | 12 | 12,920 | |
| Building Const. | 90 | 14,253 | | 25 | 13,877 | | 5 | 15,117 | | 1 | 15,328 | | 11 | 15,055 | |
| Food Sci./FSM | 114 | 13,360 | | 91 | 11,493 | | 8 | 10,940 | | 4 | 10,904 | | 26 | 12,407 | |
| Res. Dev./PR | 15 | 12,918 | | 75 | 10,336 | | 63 | 10,921 | | 7 | 10,399 | | 44 | 9,981 | |
| Soils | 24 | 12,599 | | 25 | 10,981 | | 23 | 10,723 | | 7 | 9,978 | | 40 | 10,838 | |
| Forestry | 19 | 12,374 | | 7 | 11,398 | | 18 | 9,943 | | 2 | 10,293 | | 31 | 10,741 | |
| Public Affairs | 15 | 12,692 | | 31 | 10,795 | | 6 | 10,760 | | 1 | 8,095 | | 7 | 8,816 | |
| Horticulture | 22 | 13,012 | | 36 | 10,120 | | 8 | 11,480 | | 10 | 9,636 | | 138 | 9,962 | |
| Animal Sci./FW | 30 | 11,700 | | 35 | 9,263 | | 20 | 10,593 | | 26 | 9,688 | | 53 | 9,987 | |

Source: Follow-up report data base, 1978-1985, Michigan State University, East Lansing, Michigan 48824.

Table 7. Average Starting Salary (Real) for Positions Located in Michigan and Outside the State for College of Agriculture and Natural Resources, 1978-1985.

| Year | MICHIGAN | | | OUTSIDE MICHIGAN | | | % Difference (M-O) | | |
|-------------|----------|-------------------|----------|------------------|-------------------|----------|--------------------|-------------------|--------------------|
| | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Difference (M-O) |
| 1978-79 | 173 | 12,442 | -7 | 111 | 14,718 | -7 | | | -2,276 |
| 1979-80 | 139 | 11,632 | -3 | 162 | 14,620 | -6 | | | -2,988 |
| 1980-81 | 143 | 11,294 | -1 | 183 | 13,711 | 2 | | | -2,417 |
| 1981-82 | 120 | 11,162 | 1 | 187 | 14,043 | -6 | | | -2,881 |
| 1982-83 | 140 | 11,308 | 7 | 164 | 13,234 | 5 | | | -1,926 |
| 1983-84 | 102 | 12,073 | 2 | 150 | 13,848 | 0 | | | -1,775 |
| 1984-85 | 116 | 12,357 | | 128 | 13,828 | | | | -1,471 |
| Overall Av. | 933 | 11,760 | | 1,085 | 13,968 | | | | -2,208 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 8. Average Starting Salaries (Real) In and Out of Michigan by Department, 1978-1985.

| Departments | MICHIGAN | | OUTSIDE MICHIGAN | | \$ Difference (M-O) | % Staying In Michigan |
|-------------------|----------|----------------------|------------------|----------------------|---------------------------|-----------------------------|
| | n | Average Salary \$ | n | Average Salary \$ | | |
| Packaging | 144 | 15,181 | 540 | 16,034 | -853 | 21 |
| Ag. Bus./Ag. Eng. | 61 | 12,215 | 22 | 14,593 | -2,378 | 73 |
| Building Const. | 55 | 13,642 | 7 | 14,752 | -1,110 | 42 |
| Food Sci./FSM | 123 | 12,269 | 120 | 12,613 | -344 | 51 |
| Res. Dev./PR | 123 | 10,458 | 81 | 10,896 | -438 | 60 |
| Soils | 88 | 10,752 | 31 | 12,281 | -1,529 | 74 |
| Forestry | 42 | 11,461 | 35 | 10,458 | 1,003 | 55 |
| Public Affairs | 38 | 10,603 | 22 | 11,658 | -1,055 | 63 |
| Horticulture | 127 | 10,281 | 87 | 10,436 | -155 | 59 |
| Animal Sci./FW | 101 | 10,068 | 63 | 10,339 | -271 | 62 |

Source: Follow-up report data base, 1978-1985, Placement Services,
Michigan State University, East Lansing, Michigan 48824.

Table 9. Average Starting Salaries (Real) for College of Agriculture
and Natural Resources Graduates by Different Economic Sectors, 1978-1985.

| Economic Sector | MICHIGAN | | OUTSIDE MICHIGAN | | \$ Difference (M-O) | % In Michigan |
|--------------------|----------|----------------------|------------------|----------------------|---------------------------|------------------|
| | n | Average Salary \$ | n | Average Salary \$ | | |
| Manufacturing | 312 | 13,698 | 613 | 15,718 | -2,020 | 34 |
| Service | 215 | 10,971 | 195 | 12,098 | -1,127 | 52 |
| Government | 88 | 11,072 | 72 | 10,737 | 335 | 55 |
| Education | 71 | 10,475 | 17 | 10,520 | -45 | 81 |
| Other | 247 | 10,613 | 188 | 11,750 | -1,137 | 57 |

Source: Follow-up report data base, 1978-1985, Placement Services,
Michigan State University, East Lansing, Michigan 48824.

Table 10. Average Starting Salaries (Real) for Grade Point Average Groups in the College
of Agriculture and Natural Resources by Location, 1978-1985.

| Grade Point Average | MICHIGAN | | OUTSIDE MICHIGAN | | \$ Difference (M-O) | % In Michigan |
|------------------------|----------|----------------------|------------------|----------------------|---------------------------|------------------|
| | n | Average Salary \$ | n | Average Salary \$ | | |
| < 2.5 | 315 | 11,860 | 289 | 13,734 | -1,874 | 52 |
| 2.5 - 3.0 | 376 | 11,977 | 483 | 14,170 | -2,193 | 44 |
| 3.0 - 3.5 | 180 | 11,295 | 254 | 13,996 | -2,701 | 41 |
| > 3.5 | 62 | 11,280 | 59 | 13,331 | -2,051 | 51 |

Source: Follow-up report data base, 1978-1985, Placement Services,
Michigan State University, East Lansing, Michigan 48824.

Table 11. Average Starting Salary (Real) Trends for Men and Women in the College of Agriculture and Natural Resources Including Yearly Differences, 1978-1985.

| Year | MEN | | | WOMEN | | | \$ Difference (M-W) |
|-------------|-------|----------------------|-------------|-------|----------------------|-------------|---------------------------|
| | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | |
| 1978-79 | 202 | 13,630 | | 82 | 12,599 | | 1,031 |
| 1979-80 | 194 | 13,549 | -.6 | 107 | 12,681 | .6 | 868 |
| 1980-81 | 240 | 12,948 | -4 | 86 | 11,821 | -7 | 1,127 |
| 1981-82 | 208 | 13,397 | 3 | 99 | 11,908 | .7 | 1,489 |
| 1982-83 | 181 | 12,673 | -5 | 123 | 11,867 | -.3 | 806 |
| 1983-84 | 166 | 13,267 | 5 | 86 | 12,865 | 8 | 402 |
| 1984-85 | 153 | 13,599 | 3 | 91 | 12,337 | -4 | 1,262 |
| Overall Av. | 1,344 | 13,283 | | 674 | 12,276 | | 1,007 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 12. Gender Earning Differences (Real) for Departments Within the College of Agriculture and Natural Resources, 1978-1985.

| Department | MEN | | | WOMEN | | |
|-------------------|-----|----------------------|--|-------|----------------------|---|
| | n | Average Salary \$ | | n | Average Salary \$ | \$ Difference (M-W) % Women |
| Packaging | 470 | 15,731 | | 214 | 16,126 | -395 31 |
| Ag. Bus./Ag. Eng. | 76 | 12,997 | | 7 | 11,198 | 1,799 8 |
| Building Const. | 125 | 14,356 | | 7 | 13,089 | 1,267 5 |
| Food Sci./FSM | 157 | 12,526 | | 86 | 12,279 | 247 35 |
| Res. Dev./PR | 97 | 11,165 | | 107 | 10,149 | 1,016 52 |
| Soils | 91 | 11,235 | | 28 | 10,874 | 361 24 |
| Forestry | 65 | 11,207 | | 12 | 9,914 | 1,293 16 |
| Public Affairs | 25 | 12,120 | | 35 | 10,183 | 1,937 58 |
| Horticulture | 127 | 10,775 | | 87 | 9,714 | 1,061 41 |
| Animal Sci./FW | 86 | 10,680 | | 78 | 9,613 | 1,067 48 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 13. Average Starting Salaries (Real) and Gender Differences According to Economic Sector for College of Agriculture and Natural Resource 1978-1985.

| Economic Sector | MEN | | WOMEN | | \$ Difference (M-W) |
|-----------------|-----|-------------------|-------|-------------------|---------------------|
| | n | Average Salary \$ | n | Average Salary \$ | |
| Manufacturing | 660 | 14,892 | 265 | 15,397 | -505 |
| Service | 251 | 12,206 | 159 | 10,402 | 1,804 |
| Government | 91 | 11,238 | 69 | 10,503 | 735 |
| Education | 53 | 11,118 | 35 | 9,523 | 1,595 |
| Other | 289 | 11,586 | 146 | 10,151 | 1,435 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 14. Job Location and Gender Differences in Averages Starting Salary (Real) for College of Agriculture and Natural Resources Graduates, 1978-1985.

| | MEN | | WOMEN | | \$ Difference (M-W) |
|---------------------|-----|-------------------|-------|-------------------|---------------------|
| | n | Average Salary \$ | n | Average Salary \$ | |
| Michigan | 631 | 12,174 | 302 | 10,894 | 1,280 |
| Outside | 713 | 14,264 | 372 | 13,399 | 865 |
| \$ Difference (M-O) | | -2,090 | | -2,505 | |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 15. Average Starting Salaries (Real) for Grade Point Average Groups and Departments in the College of Agriculture and Natural Resources, 1978-1985.

| Departments | < 2.50 | | 2.5 - 3.0 | | 3.0 - 3.5 | | > 3.5 | |
|------------------|--------|-------------------|-----------|-------------------|-----------|-------------------|-------|-------------------|
| | n | Average Salary \$ | n | Average Salary \$ | n | Average Salary \$ | n | Average Salary \$ |
| Packaging | 211 | 15,344 | 322 | 15,860 | 127 | 16,503 | 24 | 16,831 |
| Ag. Bus/Ag. Eng. | 20 | 11,548 | 39 | 12,927 | 16 | 14,032 | 8 | 13,315 |
| Building Const. | 41 | 13,915 | 63 | 14,584 | 24 | 14,049 | 4 | 14,914 |
| Food Sci./FSM | 100 | 11,561 | 87 | 13,042 | 48 | 13,065 | 8 | 13,084 |
| Res. Dev./PR | 41 | 10,892 | 85 | 10,584 | 62 | 10,449 | 16 | 10,932 |
| Soils | 32 | 11,645 | 49 | 11,123 | 23 | 11,432 | 15 | 11,033 |
| Forestry | 19 | 11,658 | 28 | 10,768 | 23 | 11,157 | 7 | 9,685 |
| Public Affairs | 35 | 11,572 | 15 | 10,580 | 6 | 10,108 | 4 | 8,755 |
| Horticulture | 38 | 10,605 | 89 | 10,364 | 68 | 10,170 | 19 | 10,344 |
| Animal Sci./FW | 60 | 10,216 | 66 | 10,024 | 27 | 10,292 | 11 | 10,532 |
| Overall Av. | 597 | 12,794 | 843 | 13,231 | 424 | 12,930 | 116 | 12,331 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 16. Average Starting Salary Trends (Real) for Grade Point Average Groups in the College of Agriculture and Nat. Resources, 1978-1985.

| Year | < 2.5 | | | 2.5 - 3.0 | | | 3.0 - 3.5 | | | > 3.5 | | |
|---------|-------|-------------------|----------|-----------|-------------------|----------|-----------|-------------------|----------|-------|-------------------|----------|
| | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change | n | Average Salary \$ | % Change |
| 1978-79 | 72 | 13,130 | | 124 | 13,691 | | 68 | 13,079 | | 20 | 12,689 | |
| 1979-80 | 87 | 13,401 | 2 | 120 | 13,495 | -1 | 72 | 13,202 | -1 | 22 | 11,344 | -11 |
| 1980-81 | 107 | 12,702 | -5 | 128 | 12,961 | -4 | 70 | 11,981 | -9 | 21 | 12,732 | 12 |
| 1981-82 | 93 | 12,998 | 2 | 133 | 12,749 | -2 | 63 | 13,226 | 10 | 18 | 12,658 | -6 |
| 1982-83 | 97 | 12,188 | -6 | 125 | 12,579 | -1 | 68 | 12,323 | -7 | 14 | 11,498 | -9 |
| 1983-84 | 75 | 12,836 | 5 | 107 | 13,634 | 8 | 55 | 12,872 | 4 | 15 | 11,939 | 4 |
| 1984-85 | 73 | 12,071 | -6 | 122 | 13,482 | -1 | 38 | 13,950 | 8 | 11 | 13,386 | 12 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48823

Table 17. Average Starting Salaries (Real) for Grade Point Average Groups in the College of Agriculture and Natural Resources by Economic Sectors, 1978-1985.

| Economic Sector | < 2.5 | | | 2.5 - 3.0 | | | 3.0 - 3.5 | | | > 3.5 | | |
|-----------------|-------|-------------------|------------|-----------|-------------------|------------|-----------|-------------------|------------|-------|-------------------|------------|
| | n | Average Salary \$ | % (Column) | n | Average Salary \$ | % (Column) | n | Average Salary \$ | % (Column) | n | Average Salary \$ | % (Column) |
| Manufacturing | 271 | 14,551 | 30 | 431 | 15,109 | 50 | 184 | 15,523 | 42 | 39 | 15,311 | 32 |
| Service | 149 | 11,611 | 16 | 155 | 11,761 | 12 | 91 | 10,919 | 21 | 15 | 11,409 | 12 |
| Government | 36 | 10,581 | 4 | 67 | 11,154 | 8 | 35 | 11,165 | 8 | 22 | 10,382 | 18 |
| Education | 23 | 10,140 | 2 | 33 | 10,688 | 4 | 22 | 10,664 | 5 | 10 | 10,203 | 8 |
| Other | 435 | 11,341 | 47 | 173 | 10,057 | 20 | 102 | 10,908 | 24 | 35 | 11,062 | 30 |

Source: Follow-up data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 18. Average Starting Salaries (Real) for Men and Women Graduating from the College of Agriculture and Natural Resources According to Grade Point Average, 1978-1985.

| Grade Point Average | MEN | | WOMEN | | \$ Difference (M-W) |
|---------------------|-----|-------------------|-------|-------------------|---------------------|
| | n | Average Salary \$ | n | Average Salary \$ | |
| < 2.5 | 436 | 12,873 | 168 | 12,455 | 418 |
| 2.5 - 3.0 | 584 | 13,641 | 275 | 12,297 | 1,344 |
| 3.0 - 3.5 | 251 | 13,451 | 183 | 12,085 | 1,366 |
| > 3.5 | 73 | 12,294 | 48 | 12,259 | 35 |

Source: Follow-up report data base, 1978-1985, Placement Services, Michigan State University, East Lansing, Michigan 48824.

Table 19. R^2 (alone) and R^2 (unique) for Variables in Regression Model with Corresponding F-test, College of Agriculture and Natural Resources.

| Variable | R^2 (a) | R^2 (u) | F (a) |
|--------------------|-----------|-----------|-------|
| Year | .009 | .033 | 24.1 |
| Department | .441 | .121 | 58.1 |
| Gender | .018 | .003 | 13.1 |
| Grade Point | .006 | .003 | 4.4 |
| Location | .098 | .010 | 43.8 |
| Industry | .303 | .001 | 1.1 |
| Ind: Manufacturing | .333 | .022 | 19.3 |
| Ind: Service | .047 | .008 | 7.0 |
| Ind: Government | .023 | .002 | 1.7 |
| Ind: Education | .017 | .000 | 0 |
| Ind: Other | .006 | .003 | 6.6 |

*Significant at the .01 level

**Significant at the .05 level

Table 20. Regression Coefficients for Selected Variables from First Step and Final Models for College of Agriculture and Natural Resources Starting ing Salary.

| | B Alone | B Final |
|----------------------------|----------|---------|
| Intercept | | 9,267 |
| Years | | |
| 1978-79 | 209 | 1,798 * |
| 1979-80 | 117 | 935 * |
| 1980-81 | -472 | 176 |
| 1981-82 | -206 | 95 |
| 1982-83 | -6 * | -287 |
| 1983-84 | 7 | 110 |
| 1984-85 (intercept) | 13,123 * | |
| Department | | |
| Packaging | 5,682 * | 4,273 * |
| Ag. Bus./Ag. Eng. | 2,672 * | 2,495 * |
| Building Const. | 4,117 * | 3,190 * |
| Food Sci./FSM | 2,266 * | 2,106 * |
| Res. Dev./PR | 460 | 642 * |
| Soils | 978 * | 924 * |
| Forestry | 833 ** | 279 |
| Public Affairs | 817 ** | 445 |
| Horticulture | 171 | 114 |
| Animal Sci./FW (intercept) | 10,172 * | |
| Gender | | |
| Women | -1,006 * | -439 * |
| Men (intercept) | 13,282 * | |
| Grade Point Average | | |
| < 2.5 | 477 | -481 ** |
| 2.5 - 3.0 | 930 * | -200 |
| 3.0 - 3.5 | 595 | -58 |
| > 3.5 (intercept) | 12,280 * | |
| Job Location | | |
| Out-of-State | 2,207 * | 763 * |
| Michigan (intercept) | 11,760 * | |

Table 20. (con't)

Industry

| | | |
|-------------------|---------|------|
| Manufacturing | 3,932 * | -233 |
| Service | 402 | -33 |
| Government | -183 | -413 |
| Education | -620 | -636 |
| Other (intercept) | 11,104 | |

Manufacturing

| | | |
|---------------------|----------|---------|
| Aerospace/Pet. | 5,907 * | 3,056 * |
| Automotive | 5,211 * | 3,534 * |
| Electronics/P.U. | 4,479 * | 2,177 * |
| Chemical/Electrical | 4,614 * | 2,576 * |
| Construction | 3,083 * | 1,318 |
| Other (intercept) | 11,190 * | |

Service

| | | |
|----------------------|----------|-------|
| Medical Services | -1,569 * | 1,389 |
| Accounting | -1,888 * | 102 |
| Banking - Finance | -1,179 * | 603 |
| Merchandising | -1,142 * | 102 |
| Hotels - Restaurants | -2,891 * | -866 |
| Other (intercept) | 13,277 * | |

Government

| | | |
|---------------------------------------|----------|-------|
| State | -1,422 * | 904 |
| Military | -636 | 1,337 |
| Government: Foreign, City, Federal | -2,495 * | -60 |
| County (Intercept) | 13,081 * | |

Education

| | | |
|-------------------------------------|----------|-----|
| Community Colleges/ Universities | -3,108 * | 158 |
| Elem./Secondary (Intercept) | 13,018 * | |

Other

| | | |
|---------------------------------------|----------|------|
| Research Consulting, Self-Employed | 13 | 845 |
| Volunteer/Other | -2,328 * | -646 |
| Self-employed (intercept) | 12,981 * | |

*Significant at the .01 level

