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Sharing the Wealth: Movement Toward Gender Parity in Managerial & Professional Specialty Occupations from 1950 to 1980

D. Leeann Jolly

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SHARING THE WEALTH: MOVEMENT TOWARD GENDER PARITY IN
MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
FROM 1950 TO 1980

A Thesis

Presented to

the Faculty of the Department of Sociology

Western Kentucky University

Bowling Green, Kentucky

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

D. Leeann Jolly

December 1986

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SHARING THE WEALTH: MOVEMENT TOWARD GENDER PARITY IN
MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
FROM 1950 TO 1980

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SHARING THE WEALTH: MOVEMENT TOWARD GENDER PARITY IN
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D. Leeann Jolly

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82 pages

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Data on the managerial and professional specialty occupations that were specified by the United States Census of the Population for the years 1950 through 1980 were used to analyze the influence of occupational sex ratios, growth rates, and male and female salary levels on the ability of females to move into those occupations. An analysis of the change in the Standardized Occupational Sex Ratio (SSR) showed that, over the thirty year period studied, growth rates became more important than salary levels in influencing movement toward parity in high status occupations.

Before the 1980 census year, occupational growth rates were found to interact with both male and female salary levels. During all four census years, slowly growing occupations experienced the smallest movement toward parity regardless of salary level. The lack of movement toward parity in slowly growing occupations shows evidence of gender division. In rapidly growing fields, lower salary levels for both males and females led to greater movement toward parity for females. Movement toward parity in rapidly growing fields that offered lower salaries was taken as evidence of less sheltering. In declining fields, occupations with above

median female salaries allowed greater female entry than did those with below median female salaries. The opportunity for women to move into declining fields showed evidence of chain mobility.

By 1980, females were moving into managerial and professional specialty occupations at every salary level and growth rate; however, the greatest movement toward parity occurred in those occupations that were rapidly growing. Movement toward parity in rapidly growing occupations provided evidence of structural mobility. By 1980, rapidly growing occupations were experiencing fair sharing of occupational opportunity. The slowly growing occupations, though experiencing some female growth, still showed evidence of male sheltering.

INTRODUCTION

Throughout the history of the United States Census, males have outnumbered females in the managerial and professional specialty occupations. During the last two decades, increasing numbers of women have entered all sectors of the occupational structure, including the managerial and professional specialty occupations. An analysis of the processes that have affected women's ability to move into the male dominated fields would help to explain the change in gender composition.

In the past, most studies of changes in the gender composition of occupations have not taken into account the structural causes of such fluctuations, particularly within the spectrum of managerial and professional specialty occupations. The managerial and professional specialty sector of the labor force has been the major source of higher level occupational rewards and influence. An understanding of the factors that have affected the changes in gender composition in the managerial and professional specialty occupations would help to establish the types of entry opportunity that have been experienced by women in higher level fields.

Presented in this thesis is evidence to suggest that

certain factors may have led to sizeable fluctuations in the gender composition of higher status fields over time. Specifically, the evidence presented demonstrates that several factors have influenced the rate of change in the gender composition of managerial and professional specialty occupations. Within a field, the interaction of two factors--occupational growth rate and salary levels--will be shown to have influenced gender composition. The initial standardized occupational sex ratio of a field, along with its interaction with occupational growth rates, will also be shown to be a factor that has affected the change in gender composition over time.

Female entry into rapidly growing fields may be associated with increased sharing of occupational growth. In particular, the evidence presented will indicate that rapid growth of a field, when associated with a lower male salary level, allowed females to begin a process of invasion. In addition, the evidence to be reviewed indicates that, in the past, in declining fields, the invasion process has been associated with male abandonment.

Gross (1968) and Grimm (1985) both alluded to occupational growth rates as a factor that may have allowed women to move into previously male dominated areas, but neither study explored the role of growth in relation to salary levels, and hence, the desirability of the field to males. The Synder et. al. (1978) study implied that primariness of occupational sectors, which has been

associated with higher salaries, may have been more important than gender dominance in explaining changes in gender composition. An analysis of the possible interactions between growth rates and salary may lead to greater understanding of the changes that have taken place in the gender composition of occupations over time. The apparent movement toward greater parity in higher status fields may have been the result of movement toward parity in all managerial and professional specialty occupations; or, of equal importance, it may have been the result of female entry into relatively less rewarding professional fields.

Over the last thirty years, the processes outlined above seem to have led to a greater chance for women to move into male dominated occupations. If this trend continues, it could lead to a more equitable balance of males and females in the managerial and professional specialty occupations. The information within this thesis supports the conclusion that the greater gender balance will be brought about primarily by the processes that affect the structure of occupations.

Review of the Literature

Previous studies of change in the gender composition of occupations have involved significant omissions. Most research has not studied the dynamic and interrelated processes that occur in broad sectors of the labor force, including managerial and professional specialty occupations. The traditional research on higher status occupations has emphasized the process of sheltering, which occurs when the job slots in male dominated occupations are restricted from increased female entry (Epstein, 1970:55; Gross, 1968:207; Madden, 1973:77-78). The process of sheltering may have been offset by the countereffects of occupational growth and/or the abandonment of fields by men.

Although the overall rate of female entry into managerial and professional specialty fields has been increasing, the interactive effects of occupational growth, sheltering, and abandonment upon the gender composition of particular fields have not been systematically studied. Most researchers have assumed that the sheltering process has protected the fields dominated by men. As a result, female professions, which have been avoided by men, would have been the major source of employment opportunity for women. A study of the relative impact of change in occupational

structure on long term trends in the gender composition of higher status fields is focused on in this thesis.

A number of studies have interpreted evidence collected about change in gender composition in a way that has suggested little change in the distribution of women in the work force over the years. Although more women have gained employment --between 1947 and 1978 their participation rates increased by an average of eighteen percent-- some researchers have interpreted the evidence to mean that females have not yet achieved parity. Smith (1979) defines parity as an approximately equal number of males and females in each occupational field. The interpretation of the evidence that indicates that women entering the labor force have not achieved parity can be explained by the contention that women have continued to enter female fields.

According to some reseachers, the group of occupations that women enter has not changed in over seventy years (Schreiber, 1979:14; Hartmann and Reskin, 1982:53). The index of occupational segregation, the number of women who would have to change occupations for the gender composition of the work force to be balanced, has been above .60 throughout the century (Chartos et al., 1982:1). Barrett (1979:36), for example, concluded that the distinction between women's work and men's work was not changing. She observed that women were still being relegated to dead-end jobs in female dominated occupations. In 1982, seventy-one percent of male white collar workers were in professional or

technical fields, but only thirty-eight percent of female white collar workers were. Some authors have stressed that in the professions most women are concentrated in traditional female fields (Blau, 1984:304-306). These studies, however, evaluated the advancement of females in terms of the gross number of females employed in various occupations or in terms of the overall index of segregation rather than on the changing sex ratios of specific occupations.

Williams (1979) found that studies that revealed no improvement in the relative position of females in the work force tended to rely on data indicating the number of women in an occupation instead of the ratio of men to women in that occupation. When he examined the changing proportions of women in various occupational sectors, Williams (1979) found more optimistic results. He suggested that, since 1970, there has been modest improvement in the proportion of women represented in all occupations. His analysis showed the improvement to be cyclical in nature. The 1900 to 1910 and the 1960 to 1970 decades brought vast improvement in the representation of women in the work force; while in the periods 1920 to 1930 and 1950 to 1960, women lost ground. William's related this improvement to changing societal mores rather than structural components of occupational change.

Other studies have suggested that structural factors are of potential importance in influencing the changes in occupational gender composition. Previous case study research has alluded to the interrelated issues of male

abandonment of a field and the subsequent female takeover of it, especially in managerial and professional specialty occupations. The previous studies, however, have tended to deal with only one or two occupations instead of the full range of managerial and professional specialty fields. Examples of selected occupational fields that have reached their "tipping point" are clerical work (Glenn and Feldburg, 1984) and public school teaching (Mason, 1984:159). Both were originally male dominated fields that subsequently became female dominated. To some authors, both sectors represent fields that have been deprofessionalized and deskilled through the years (Mason, 1984:159). Carter and Carter (1981) also suggested that women's apparent gains in the professions have not been gains in professional areas but entry into deprofessionalized and over-staffed areas such as college and university teaching, medicine and allied health fields, and law. Such a process of deprofessionalization could easily have resulted in abandonment of these fields by males who were qualified for more lucrative jobs.

The potential importance of sheltering in the managerial and professional specialty occupations has been evidenced by women who were found primarily in the less prestigious, less remunerative fields. When one approached the top of the occupational ladder, the proportion of men increased and the proportion of women decreased (Epstein, 1970:968). The process of sheltering has also been evident in professions where women were moving into the less powerful, deskilled

sectors (Reskin and Phipps, 1985:6; Epstein, 1970:968). Grimm (1985:9-10), in a study of managerial and professional specialty occupations, found that a number of slowly growing professions have shown elements of sheltering.

Historically, sheltering has been possible because the sheltered occupation has had the autonomy to set its own licensure and entry requirements. Case studies suggest that the men who have been in top positions in sheltered fields have not sponsored female proteges and have often prevented women from joining their associations (Epstein, 1970:968). Such occupations have also had a strong sense of collegueship that may have prevented women from moving into them. Sheltered fields appear to have reduced sheltering only when they experienced reductions in status (Reskin and Phipps, 1985:21).

Male abandonment of fields for more lucrative fields has also been mentioned in previous studies as being of potential importance in influencing changing gender composition. The managerial and professional specialty occupations represent a group of occupations that have traditionally been male dominated. Yet, as the more lucrative professions have expanded and opened, men may have left the less rewarding professions thereby clearing the way for an invasion of women into them. The process by which women have moved into these "male" professions may be referred to as a type of occupational invasion-succession (Chartos, 1982:15).

Gross (1968), in his study of the sexual structure of

labor markets, used the ecological invasion-succession analogy. His analysis suggested that gender segregation had not declined appreciably in the sixty year period he studied.

Gross indicated that one reason for continued gender segregation might have been rapid growth in sectors that did segregate or in sectors that were involved in "switching" gender based dominance. The invasion-succession hypothesis was supported by results that showed that when women began to invade a male occupation their presence eventually reached a "tipping point." After the "tipping point" was reached female take-over occurred. According to Gross, after the invasion process was completed the result was as much overall occupational segregation as before.

One of the strongest allusions to the abandonment process appeared in a study by Strober (1984). Her argument had two tenets. The first was that male workers decided in which occupations they would be involved. The jobs that they rejected were made available to women. The second tenet stated that male workers sought occupations in which they could maximize their economic gain. It is assumed that men choose those occupations with the best wages, hours, and working conditions. Women are consequently relegated to the abandoned occupations.

Strober's analysis presupposes that men will get first choice of job opportunities. Whether or not an occupation is dominated by one gender or remains free of dominance depends not only on its wages and working conditions but also on

those in alternative occupations. Overall, Stober's (1984) study found that sex segregation occurred when men moved into the better jobs and left the less desirable jobs for women. The tenets of Stober's analysis point to an interaction between the processes of sheltering and abandonment. Males shelter the fields that they prefer and abandon the fields that they do not find as desirable.

The part that differential growth rates may play in the changing gender composition of professions has been suggested by several previous studies. Snyder et. al. (1978) suggested that growth has been a potentially relevant issue in influencing gender composition. Their research suggested that rapidly growing secondary fields, the fields that require fewer credentials to enter and offer fewer financial and job mobility rewards, may have resulted in the greatest accessibility to both males and females. In regard to the consequences of growth, Snyder et. al. also stressed the role of the tipping effect, which occurs when an occupation that has been gaining women suddenly reaches a point at which men begin to leave and the field rapidly becomes female dominated. The Snyder et. al. research further suggested that female dominated occupations may eventually experience increases in their domination by women. These assertions raise the possibility that occupational growth may enhance the invasion-succession process posited by Gross.

Though not stressed in studies of professions, except for the research by Gross, the role of occupational growth is

clearly evident in social mobility literature. Rapid growth of existing professions and/or creation of new professions can lead to structural mobility (Piore, 1973:128).

Opportunities in some high status professions seem to have been caused by the increased structural mobility provided by new or expanding career opportunities (Vanfossen, 1979:184). Rapidly growing fields exhibit more job opportunities for both men and women, and the benefits of growth for women have been at least twofold. Women have been in a position to benefit not only from new positions in the expanding fields but also from the opportunities created as men's occupational choice patterns change. As men have left fields in order to take advantage of the rewards offered by rapidly growing and/or new fields, women may have been used to fill those jobs. Fuchs (1975) noted over ten years ago that the index of sex segregation had decreased in professional fields. Although he attributed at least half of this decrease to "true" declines in segregation, he also acknowledged the importance of growth rates in changing gender composition.

Hiestand (1964:29), in a study of minority segregation, also suggested that as occupational fields grow there is an alteration in their appeal to different population groups. According to Hiestand (1964), rapid growth has a particularly strong effect on female entry. Increased female entry, particularly in the white collar sector, was a function of such rapid growth. Declines in occupational membership were also found to lead to increased opportunities for minorities,

especially women. In twenty of the occupations studied by Hiestand (1964), the number of black men increased in the face of an overall occupational decline; in five, the number of white women increased in the face of an overall occupational decline; and in seven of the cases, the number of men decreased in face of a slight overall increase. In an analysis of 156 occupations, there were only 37 cases in which growth rates were not directly related to the rate of minority growth (Hiestand, 1964:59-60).

In the only other study of the potential effects of differing growth rates on the sex composition of professional and managerial occupations, Grimm (1986) focused on differing growth rates in relation to the changes in gender composition. His study attempted to assess the relationship of rapid occupational growth in specific fields to an increase in the accessibility of such fields to women. Like Hiestand (1964), Grimm noted an expected relationship between high growth fields and accessibility, but he also noted that there were fields in which women shared at least equally in growth even though the fields were slowly growing or declining in number. Men in these fields were decreasing in numbers; in reference to this phenomenon, Grimm (1986:6) used the term "male abandonment."

The specific role of salary levels in relation to male abandonment has not been studied by those who study professions. The inference found in such studies as Snyder et. al. (1978) is that salary levels in professional fields

may be an important factor behind the observed decrease in men and the increase of women in various higher status fields. Lower salaries may contribute to increased female entry. Conversely, higher levels of salary may enhance the processes of sheltering and of making fields less available to women. Some research has suggested that women need less money than their husbands, since they are secondary wage earners (Treiman and Terrell, 1975:186 & 192; Madden 1973:9).

Other studies have shown that many women now make human capital investments in employment that are similar to those of men (Blau and Jusenius, 1976:185-187, Treiman and Terrell, 1975:198; Treiman and Hartman, 1981:47-51). Women's careers are rapidly becoming more continuous, for example.

Nevertheless, the role of salary level remains an important component of the male abandonment and female entry processes (Strober, 1984:146-147, Reskin and Phipps, 1985:1).

There are two major problems evident in the studies that have purported to analyze the movement of women into male dominated sectors of the work force. First, many of these studies did not attempt to analyze the trend in gender composition over time. The occupations were analyzed at only one point in time, giving the impression that the gender composition of the occupations studied was static. Second, previous studies did not use a set of occupations that allowed conclusions about an entire sector of the workforce. Some researchers discussed the evidence and possible causes of change in only one or two occupations; therefore these

studies cannot be generalized to other occupations. Other researchers attempted to analyze all of the occupations listed by the United States census, and thus did not allow investigation of smaller, more manageable sectors. There has been little attempt to analyze the dynamic growth processes of a manageable set of occupations over a relatively long period of time using several interrelated structural variables.

The conclusions reached by the previously completed studies suggest that females are moving into at least some of the male dominated managerial and professional specialty occupations. Some studies have attempted to look at the processes that have led to this movement. Studies such as those of Gross and Grimm imply that the growth processes that the fields are undergoing affect the accessibility of those fields to females. Snyder et. al. indicated, at least implicitly, that salary structures affect female movement into occupations. When these processes are analyzed in combination, a more complete view of factors that affect the accessibility of occupations for females may occur.

STATEMENT OF THE PROBLEM

The literature on changes in the gender composition of occupations has suggested that women may have had the opportunity to move into two types of fields. Females may have the opportunity to move into fields that expand rapidly or they may move into fields that lose male members, tip, and become more female. In both cases, the structural processes that influence the number of available positions within one field in relation to other fields appear to play a key role in determining changes in gender composition. Over the years, fields that experience growth could be expected to move toward greater parity of gender composition. Occupational growth rates are therefore presumed to be one of the major contributors to movement toward female parity.

Under certain circumstances, declining fields, those in which there are fewer relatively lucrative jobs, seem to offer increased opportunity for female entry. Males who traditionally shelter the fields that are experiencing declines may be less anxious to protect them by preventing women from entering. Men may be leaving these fields at a rate that allows increased female entry even though the field is not growing. This points to a loss of either the means or the desire to shelter professional territory.

At least part of women's advancement in the professions may be in fields in which men are less interested. As a result, an important part of women's progress in managerial and professional specialty fields may be in occupations that are no longer as desirable to men as are other occupational fields. As men abandon fields, the openings may be filled by women. The immediate result would be a higher proportion of women in those occupations that are abandoned by males.

In the rapidly growing professional fields, the growth opportunities that are shared by women are also a result of the changing structure of occupations. More available employment in rapidly growing fields has resulted in greater opportunities for both sexes. These fields may offer increased opportunity for females; because, there may be more jobs than there are qualified males to fill them. The result would be a larger proportion of females in occupations that show rapid growth, even when there is a previous history of sheltering.

If it is true that men abandon certain fields for more lucrative ones, then the overall wage differential between males and females may continue to exist in part because women's opportunities come from fields that are relatively less rewarding. By the same token, the rapidly growing fields into which females move may be those that are less desirable to men because they are less rewarding when compared to other opportunities available to men. If women are profit maximizing, they will move into fields with the

highest female salary levels relative to other possible female employment. As a result, the fields that have the greatest potential to move toward parity would be those in which male salary levels are relatively lower while female salary levels are relatively higher.

Men, on the other hand, may be moving disproportionately into growing fields that offer higher wages to men without requiring a substantial investment in extensive education. Even in the fields that have higher female salaries, the job openings may be filled by males if the male salaries are also higher. These fields may make smaller moves toward gender balance, or they may move away from balanced gender composition.

Previously neglected effects of several structural processes on the gender composition of professions will be examined in this thesis. The role of occupational growth in the managerial and professional specialty occupations will be evaluated in an attempt to determine whether the proportion of women increases as these fields either decline or grow rapidly. The effect that male and female salary levels have on movement toward parity will also be studied. Initially, education was also considered as a variable; but, because there was so little variability in educational levels throughout the professions, education was dropped.

The ways in which occupational growth, male and female salary levels, and initial gender composition are expected to influence changes in the gender composition of managerial and

professional specialty occupations are indicated in the following hypotheses.

Hypothesis 1: Females are more likely to experience shifts toward occupational parity in fields that are declining or growing rapidly than in fields that are growing slowly.

Hypothesis 2: Fields that experience larger moves toward female parity yield lesser financial rewards to males relative to male salaries in other fields than those that do not move toward parity.

Hypothesis 3: Fields that experience larger moves toward parity offer greater financial rewards to females than those fields that do not move toward parity.

Hypothesis 4: The greatest moves toward parity occur in occupations with the highest initial proportions of males.

If these hypotheses are supported, the following outcomes might be anticipated. Men, in an effort to maximize their income, abandon declining fields, which offer lesser monetary rewards, for the fields that are more rewarding. In growing professions, more slots in less rewarding fields will be available to women while men will fill the slots in more rewarding fields. The profit maximizing female will choose, from those available to her, the occupation with the highest female salary levels. Fields that provide the greatest rewards may be accessible primarily to males. As a result of male domination of the financially rewarding managerial and professional specialty occupations, less rewarding professions will become designated as "women's work," thus

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relegating the advancement of women to the less rewarding higher status occupations. On the other hand, rapid occupational growth may be expected to provide a real opportunity for sharing in the wealth of higher status fields.

METHODS

The occupations included in this research were those listed under the 1980 sub-heading: "Managerial and Professional Specialty Occupations." The data on these occupations were gathered from the Census of Population, Subject reports, Occupational Characteristics, for the three census periods 1950, 1960, and 1970¹. In the 1980 census,

¹U.S. Department of Commerce, Bureau of the Census, United States Census of Population: 1950, Vol. IV, Special Reports, Pt. 1 Chr. B, Occupational Characteristics, Tables 1 & 19, Washington D.C.; U.S. Department of Commerce, Bureau of the Census, United States Census of Population: 1960, Subject Reports, Occupational Characteristics, Final Report PC(2)-7A, Table 25, Washington D.C.; U.S. Department of Commerce, Bureau of the Census, United States Census of Population: 1960, Vol. 1, Pt. 1, Table 201, Washington D.C.; U.S. Department of Commerce, Bureau of the Census, United States Census of Population: 1970, Subject Reports, Occupational Characteristics, Final Report PC(2)-7A, Table 1, Washington D.C.; U.S. Department of Commerce, Bureau of the Census, United States Census of Population: 1970, Vol. 1, Sec. 2, Table 221, Washington, D.C.

the information that, in earlier census years, was found in the subject report on occupational characteristics was contained in the Census of the Population, U.S. Summary, Section D and in Census of Population, Subject Reports, Earnings by Occupation and Education². The data from two tables from each census period were used. These tables include: (1) Detailed occupation of the experienced civilian labor force and employed persons, by sex, for the United States; and (2) Income in the preceding year of the experienced civilian labor force, by detailed occupation and sex, for the United States. Although the data for 1950 were not as detailed as the data in later census periods, the period between 1950 and 1960 was used as the baseline for determining whether subsequent increases occurred in the proportion of females entering higher status fields.

By the 1980 census, the sub-headings of occupational groups had undergone major changes. Technical and support occupations, that in 1970 were a part of the professional

²U.S. Department of Commerce, Bureau of the Census, Census of the Population: 1980, Vol. 2, Subject Reports, Earnings by Occupation and Education, Final Report PC80-2-8B, Table 1, Washington D.C.; U.S. Department of Commerce, Bureau of the Census of the Population: 1980, Detailed Population Characteristics, Section A, Table 276, Washington, D.C.

and technical occupations heading, were shifted into a number of other major occupational categories. Furthermore, a few fields, such as insurance underwriters, were moved from other major occupational categories into the Managerial and Professional Specialties category. For the purposes of this study, any occupation that was found under the Managerial and Professional Specialties heading, or the comparable heading for 1950, 1960, or 1970, was treated as a continuing field within the occupations under study. As a result of these changes, a small subset of the technical and support related occupations was also analyzed. The rationale behind this decision was the assumption that this subset of occupations was similar to those occupations that were still included in the managerial and professional specialty occupations census category.

Those instances in which the name of a particular occupational field was changed during the course of the four census years represented some difficulty because these changes made it difficult to analyze such occupations over time. The Classified Index of Industries and Occupations³

³U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population Classified Index of Industries and Occupations, Washington, D.C.; U.S Department of Commerce, Bureau of the Census, 1980 Census of the Population Classified Index of Industries and Occupations, Washington, D.C.

was used to discover exactly which sets of occupations were included by the census coding system in each occupational title during each census period. The changes that were made in occupational titles were determined using this index.

No occupational field was included in the analysis unless there were complete data available for at least three of the four census periods. One hundred eleven of the 170 managerial and professional specialty occupations could be directly compared over at least three census periods. Of the fifty-nine occupations that were not comparable, forty-six were combined with other occupational titles according to the Classified Index of Industries and Occupations. The vast majority of these were combined simply because the 1980 census broke occupations down in greater detail than in previous census periods. The occupations that were dropped because they could not be combined with any occupational field included: (1) research workers, (2) tool programmers, (3) medical scientists, (4) educational counselors, (5) technical writers, (6) business and promotion agents, (7) urban planners, (8) announcers, (9) computer specialists, (10) computer programmers, (11) computer systems analysts, (12) operations and systems researchers, and (13) air traffic controllers.

Of the 111 occupations for which comparable historical data were available, there were no data available for one of the four census years in twenty-seven cases. In 1980, these included credit men, farm and home management advisors and

officials of lodges and societies. In 1950, there were twenty-four occupations for which no data were available. These twenty-four occupations included: (1) six specialties in the natural and mathematical sciences, (2) thirteen teaching specialties, (3) psychologists and economists, (4) public relations specialists, and (5) two technical specialties. For the purposes of this research, an estimate of the number of employed males and females in 1950 was calculated for those twenty-four occupations. The estimate was created by determining the mean growth rate of males and of females between 1950 and 1960 for the remaining eighty-seven fields. Using the mean growth rate, value estimates for the missing data for males were created by using the equation: $ME=MO-.3194(MO)$ where ME was the estimated male employment for any one of the twenty-four occupations missing in 1950, MO was the male employment of that occupation in 1960, and .3194 was the percentage growth in male employment in the managerial and professional specialty occupations between 1950 and 1960. For females, a similar equation was used: $FE=FO-.4113(FO)$ where FE was the estimated female employment for one of the twenty-four occupations missing in 1950, FO was the female employment of the occupation in 1960, and .4113 was the percentage growth in female employment in the managerial and professional specialty occupations between 1950 and 1960. It should be noted that this type of estimation procedure has a leveling effect on the employment changes that occurred between 1950

and 1960. In fact, some of the occupations for which an estimate was calculated may have actually had higher and some lower numbers of employed males and females in 1950. However, these estimates were only made for twenty-four of the one-hundred eleven occupations; and, taken as a group, the estimated numbers of males and females should be near the actual number.

Median values were reported for earnings level. The estimates of earnings for the twenty-four occupations missing in 1950 were made using the same type of formula that was used to estimate male and female employment. To obtain the 1950 estimate, the 1960 earnings of the occupation for which salary was missing in 1950 were multiplied by the average percentage increase in earnings between 1950 and 1960 and then subtracted from the 1960 value.

In addition to analysis of the entire category of managerial and professional specialty occupations, several sub-divisions of the category were analyzed separately. These sub-sectors included: (1) managers and administrators, n=33, (2) engineers and natural scientists, n=20, (3) health care workers, social scientists, and social workers, n=17, (4) teachers, n=16, (5) artists, entertainers, and athletes, n=11, and (6) technicians and support occupations, n=14. These sub-sectors were examined individually in order to determine whether the structural processes that applied to the overall category varied across

sub-sectors.

The dependent variable in this study was the observed movement of any occupation toward or away from gender parity. Movement toward or away from parity was measured by the percentage change in the standardized occupational sex ratio over a given ten year census period. The independent variables were occupational growth rate over each ten year period, each census year's initial standardized occupational sex ratio, male salary, and female salary.

The dependent variable was operationalized in terms of the change in the gender composition of occupations as it was measured by movement toward or away from parity. Parity in an occupation was defined as being obtained if the proportion of females in the occupation was equal to the proportion of females in the entire category of managerial and professional specialty occupations for that census year.

Movement toward or away from parity was determined by calculating the percent change in the Standardized Occupational Sex Ratios (SSR) from one census year to another. The Standardized Sex Ratio was created using the formula: $SSR = sr^2 / sr^1$ where sr^2 was the sex ratio (m/f) of any occupation in a certain census year, and sr^1 was the sex ratio of the entire category of managerial and professional specialty occupations for that census year.

Given the standardization procedure used here, parity is represented by a standardized sex ratio of 1.00. An SSR greater than 1.00 therefore represents a larger proportion

of men in the occupation than in the managerial and professional specialty category as a whole. For example, an SSR of 2.00 for a given census year would represent an occupation in which the proportion of men is twice as great as that in all of the managerial and professional specialty occupations. An SSR less than 1.00 for a given census year represents a larger proportion of women in the occupation than in the entire sector of managerial and professional specialty occupations.

Measurement using the SSR produced four possible growth situations. First, the occupation may have an SSR greater than one that declines over time. This type of SSR indicates a movement toward greater parity that results from female entry. Second, the occupation may have an SSR greater than one that increases over time. An increasing SSR indicates a movement away from parity that results from increased male domination. Third, the occupation may have an SSR less than one that declines over time. A low SSR that declines indicates a movement away from male parity. Finally, the occupation may have an SSR less than one that increases over time. A low increasing SSR indicates a movement toward male parity. The third and fourth situations occur less frequently and are different from the first two in that they represent female dominated occupations. The occupations that are female dominated and have an SSR that is decreasing are treated as though they are moving away from parity. The occupations that have an

SSR below one that is increasing, are treated as though they are moving toward parity. The percentage change in SSR is given a negative sign; thus, movement away from parity in these occupations occurs when female dominated occupations become more female dominated.

In 1950 the sex ratio of physicians was 1401.71 and the sex ratio of the entire category was 280.83, this gives physicians a SSR of 4.99. The ratio of male to female physicians was five times what it would have been if women were represented among physicians in the same proportion as they were represented in the entire category of managerial and professional specialty occupations. In 1950, the sex ratio of social workers was .16, meaning that male social workers were underrepresented by eighty-four percent for that census year. Such a standardization procedure allows the sex ratios of different census periods to be directly comparable. The SSR takes into account the changes that have occurred in the sex composition of the managerial and professional specialty category as a whole during the three census periods studied.

The occupational growth rate was divided into three categories: (1) rapid growth, (2) slow growth, and (3) decline. The growth rate was calculated for each occupation during the census periods of 1950-1960, 1960-1970, and 1970-1980. These figures were then compared to the overall growth rate in the category of Managerial and Professional Specialty Occupations during each of these periods. Rapidly

growing occupations were defined as those fields in which the growth was equal to or greater than the growth rate for the managerial and professional specialty sector as a whole.

Slowly growing occupations were defined as those in which growth was greater than zero but less than the growth rate for managerial and professional specialty occupations as a whole. Declining occupations were those occupations in which there was a net decrease in the total number of persons employed in that occupation.

Standardized occupational sex ratio, male salary, female salary, male education, and female education, were divided into dichotomous categories. Each variable was divided at the median to create two levels, above median and below median. When these independent variables are analyzed, the values for the first year of the growth period are used. For example, when the relationship between male salary and movement toward parity between 1970 and 1980 is analyzed, 1970 values for male salaries are used. The earlier values are used because it is assumed that the change in parity is based on the values of the independent variables that exist before the change takes place.

Analysis of variance tests were employed to determine whether there were any differences between movement toward or away from parity for differing occupational growth rates, standardized occupational sex ratios, male salary levels, and female salary levels. Such analyses also permitted examination of the interactions between the independent

variables. Because there is an expected interaction between growth rate and salary levels, this is a vital component of the statistical analysis. Results were considered statistically significant if the p value was .05 or less. While analysis of variance was the most efficient way to determine these differences, it was deemed that a test of statistical significance was appropriate because only one hundred eleven of the original one hundred seventy occupations could be compared over all four census years. The selection of only the comparable occupations makes the data gathered a sample of all managerial and professional specialty occupations.

RESULTS

Within the category of managerial and professional specialty occupations, the absolute number of occupations that experienced movement toward parity indicates that women have made strides toward greater equity in this job market. In this study, occupational growth rate was presumed to be a major factor associated with movement toward parity. Also considered was the effect of the interaction between occupational growth rate and three variables: (1) standardized sex ratio, (2) median male salary level, and (3) median female salary level.

As is clearly indicated in Table 1, the percentage of managerial and professional specialty occupations moving toward parity increased between the first decade studied and the last. In the 1950-1960 period, sixteen of the occupations studied experienced no change in the SSR. One field in the 1960-1970 period experienced no change. When the occupations that experienced no change in SSR were included, fifty-one percent of the one hundred eleven occupations under consideration moved toward parity between 1950 and 1960. Between 1960 and 1970, this percentage increased to sixty-seven; and between 1970 and 1980 seventy-six percent of all managerial and professional

TABLE 1.
 Percentage of Occupations Moving Toward Parity
 by Occupational Sector and Census Period

<u>Occupational Sector</u>	CENSUS PERIOD		
	<u>1950-1960</u>	<u>1960-1970</u>	<u>1970-1980</u>
Total (N=111)	51%	67%	76%
Managers and Administrators (N=33)	54%	67%	75%
Engineers Natural Scientists (N=20)	40%	60%	80%
Health Workers Social Scientists (N=17)	50%	72%	77%
Teachers (N=16)	75%	69%	81%
Technicians Support Workers (N=14)	28%	78%	64%
Entertainers (N=11)	55%	64%	54%

specialty occupations moved toward parity. The increase in the percentage of occupations moving toward parity indicates that, for the group as a whole, women experienced increased movement toward parity, at least in terms of the number of different occupations they were entering.

The overall category of managerial and professional specialty occupations was also broken down into six occupational sub-sectors. In five of these sub-sectors, the thirty year trend toward parity was still evident. In the sub-sectors of Managerial and Administrative Occupations (N=33), Engineering and Natural Science Occupations (N=20), and Health Care and Social Science Occupations (N=17), the percentage of fields that experienced movement toward parity was almost identical to that of the total occupational category.

In the sub-sector that included primary, secondary, and postsecondary teaching occupations (N=16) seventy-five percent of the occupations moved toward parity during the 1950-1960 period. There was a slight decline to sixty-nine percent during the 1960-1970 period, but by the 1970-1980 period eighty-one percent were again moving toward parity. Fifty-six percent of the occupations in this sub-sector experienced a decline in the absolute number of persons employed during the 1970-1980 period; nevertheless, these occupations still experienced movement toward parity. Using the percentage of occupations moving toward parity as the only criterion, this sub-sector offered the most opportunity

for female entry.

Initially only twenty-eight percent of fields in the sub-sector of Technical and Support Occupations (N=14) moved toward parity. This figure more than doubled to sixty-four percent by the most recent census period. The sixty-four percent movement toward parity was slightly lower than in the other sub-sectors. In the 1980 census year, the fields in this sub-sector were moved to the census heading of Kindred and Technical workers. These occupations did not offer as much opportunity for female entry.

The sub-sector containing Entertainment fields (N=11) was the only one that experienced a decline in the number of occupations that moved toward parity. Sixty-three percent moved toward parity in the 1950-1960 census period but only fifty-four percent in the 1970-1980 period. Using the percentage of fields moving toward parity as the criterion for determining the accessibility of a sub-sector to females, this sub-sector offered less opportunity for females than other sub-sectors.

The percentage of fields that have experienced movement toward parity seems to indicate that managerial and professional specialty occupations have become increasingly accessible to females over the last thirty years. Taken alone, this information suggests that women have made strides toward a more equitable gender balance within all of the sub-sectors of the managerial and professional specialty occupations. However, such a breakdown does not provide

information on the initial status of women within each of these occupational sub-sectors nor does it indicate the magnitude of these changes. Consequently, further analysis was necessary in order to determine the initial status of women in the managerial and professional specialty occupations and the amount of movement toward parity that these occupations have experienced.

Despite the fact that large numbers of managerial and professional specialty occupations have moved toward parity, the standardized occupational sex ratio has remained relatively high for some sub-sectors of the managerial and professional specialty occupations. In Table 2, the standardized occupational sex ratio is shown for the overall category of managerial and professional specialty occupations. The total SSR for the six sub-sectors that form the category is also shown. In 1950, the standardized occupational sex ratio of all fields in the managerial and professional specialty occupations was 2.808. An SSR of 2.808 means that in 1950 there were roughly 2.81 males for every female in the managerial and professional specialty occupations. In 1960, the sex ratio was 2.625, and by 1970 it dropped to 2.259. By 1980, the sex ratio had dropped dramatically to 1.543. An SSR of 1.54 shows that even in 1980 there were 1.54 men for every woman in the managerial and professional specialty occupations.

When the SSRs of the six occupational sub-sectors that make up the managerial and professional specialty occupations

Table 2.
Standardized Occupational Sex Ratios
for Occupational Sector and Census Year

<u>Occupational Sector</u>	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>
Total (n=111)	2.808	2.625	2.259	1.543
Managers and Administrators (n=33)	2.202	2.176	2.128	1.493
Engineers and Natural Scientists (n=20)	8.388	11.247	9.205	6.373
Health Workers and Social Scientists (n=17)	.429	.452	.490	.594
Teachers (n=16)	.169	.185	.245	.332
Technicians and Support Workers (n=14)	7.915	4.470	2.860	2.084
Entertainers (n=11)	.603	.917	.9791	.861

were calculated, there was a major increase in the standardized occupational sex ratio in the sub-sector of Engineers and Natural Scientists between 1950 and 1960. This increase indicates that women in this sub-sector experienced substantial movement away from parity. Several individual occupations in this sub-sector experienced almost 200 percent movement away from parity. Between 1950 and 1980, however, the SSR moved toward greater gender parity overall in all six of the sub-sectors. In sub-sectors where the SSRs were below one, the low SSRs occurred primarily because of the inclusion of the few female dominated occupations such as nursing and elementary school teaching.

Though the trend toward gender parity occurred across all sub-sectors, the sub-sectors of Engineers and Natural scientists and of Technicians and Support occupations had much higher SSRs. As was previously shown in Table 1, large numbers of occupational fields in these sub-sectors experienced movement toward parity; nevertheless, these sub-sectors remained male dominated because they initially had very high SSRs. Figure 1 graphically illustrates the continuing male domination of the sub-sectors of Engineers and Natural Scientists and of Technicians and Support Occupations. As a result, larger numbers of occupations in these sub-sectors can move toward parity without making major changes in the gender composition of these fields. Because the entertainment sub-sector was near parity in 1950, the evidence in Table 1 suggests that the entertainment

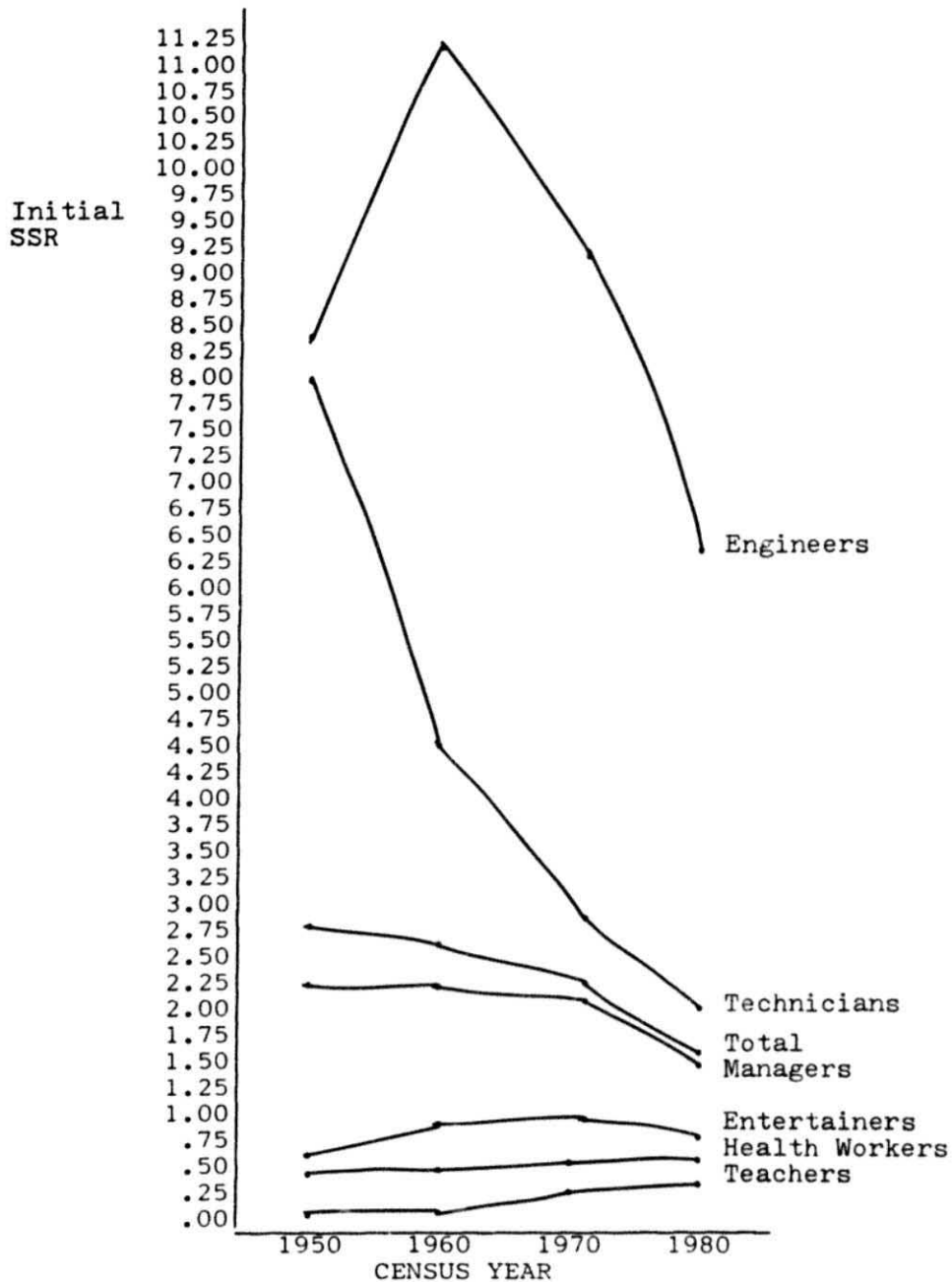


FIGURE 1.
Standardized Occupational Sex Ratios of
Occupational Sectors for Census Years 1950-1980

sub-sector did not make large moves toward parity; but the SSRs presented in Table 2 indicate that the entertainment sub-sector already approached parity in 1950.

Occupational growth rates were hypothesized to have a significant effect on movement toward parity. The percentages presented in Table 3 illustrate that the percentages of occupations that were moving toward parity over the thirty year period increased for all three growth categories. All three occupational growth categories showed similar increases in the proportion of occupations that experienced movement toward parity over the thirty year period. In general, nearly fifty percent of the occupations in all three growth categories were moving toward parity during the 1950-1960 period. Approximately sixty-five percent moved toward parity in the 1960-1970 period and seventy-five percent moved toward parity during the 1970-1980 period. The proportion of occupations moving toward parity in each growth category suggests that growth itself may not be an important factor in determining the number of occupations experiencing movement toward parity.

The results of the three one-way ANOVAs shown in Table 4 revealed no statistically significant differences among occupational growth rate groups in their movements toward or away from parity in the 1950-1960 or 1960-1970 periods. However, in the 1970-1980 census period, the differences among the occupational growth rate groups were statistically significant ($p .05$). Occupations that grew rapidly made the

TABLE 3.

Percentage of Occupations Moving Toward Parity
by Occupational Growth Rate for Census Period

<u>Occupational Growth Rate</u>	<u>CENSUS PERIOD</u>		
	<u>1950-1960</u>	<u>1960-1970</u>	<u>1970-1980</u>
Rapid	54% (N=44)	68% (N=56)	75% (N=48)
Slow	50% (N=48)	64% (N=33)	77% (N=35)
Declining	47% (N=19)	68% (N=22)	71% (N=28)

TABLE 4.
 Mean Percentage Movement Toward or Away From Parity
 by Occupational Growth Rate
 for Census Period

Occupational Growth Rate	Census Period		
	*1950-1960	1960-1970	1970-1980
Rapid	-4.17 (N=44)	14.01 (N=56)	39.51 (N=48)
Slow	-9.97 (N=46)	10.41 (N=32)	18.93 (N=35)
Declining	-0.64 (N=18)	15.86 (N=22)	19.47 (N=28)

RESULTS OF ANOVA

F=.274	F=.191	F=4.56
P=n.s.	P=n.s.	P<.05

* In the 1950 to 1960 decade three occupations experienced atypically large changes in SSR. Because a mean was being determined it was felt that these changes would skew the results. These occupations were: (1) Mining engineers, (2) Civil engineers, and (3) Ships Officers.

largest moves toward parity ($\bar{X}=39.50$). Declining ($\bar{X}=19.47$) and slowly growing occupations ($\bar{X}=18.93$) made substantially smaller moves toward parity.

Although the growth rates for the 1950-1960 and 1960-1970 census periods were not statistically significant, they did indicate the emergence of a trend. The pattern that was observed in the 1970-1980 period was somewhat evident in all three census periods. Slower growth was associated with less movement toward parity. In the 1950-1960 census period, both rapid growth ($\bar{X}=-4.17$) and decline ($\bar{X}=-0.64$) were less detrimental to opportunity for female entry than slow growth ($\bar{X}=-9.97$). The negative signs in the 1950-1960 period represent movement away from parity. The movement away from parity in the 1950-1960 period can be accounted for by the very high percentages of movement away from parity experienced by some occupations in the Engineering and Natural Sciences sub-sector. As shown in Table 2, this sub-sector moved from an SSR of 8.388 to an SSR of 11.247. In the 1960-1970 period, both declining ($\bar{X}=15.86$) and rapidly growing occupations ($\bar{X}=14.01$) offered more opportunity for female entry than did slowly growing occupations ($\bar{X}=10.41$).

Though differences in movement toward parity for the three occupational growth rate groups were not found to be statistically significant during the first two census periods, the results of the analysis illustrate two important concepts and partially support hypothesis one. First, the results support the contention that rapidly growing

occupations may allow movement toward parity by virtue of a larger number of jobs available for qualified females and males. Rapidly growing occupations appeared to experience sharing of occupational growth. Qualified women may have had the opportunity to move into managerial and professional fields in part because there were more jobs available than there were qualified men to fill them.

Second, it may be presumed that slowly growing occupations experienced less movement toward parity primarily because they were being sheltered as a domain for males. It may be that because there were fewer jobs available, males were making every effort to maintain control of them. The sheltering process appears to have occurred in slowly growing occupations throughout the thirty year period.

In the 1950-1960 and 1960-1970 periods, decline, as well as rapid growth, led to greater opportunity for women. The movement toward parity that occurred in declining fields during these periods may have occurred because such fields were being abandoned by males. Such an abandonment process would leave positions for women to fill. In the 1970-1980 period, declining fields, while they did offer some opportunity for female entry, offered less opportunity than did the rapidly growing fields. The rate of movement toward parity in declining fields was similar to that found in slowly growing occupations. The occurrence of sheltering in declining fields points to a relatively recent historical change in the effect of occupational decline on female

opportunity for entry. It suggests that the abandonment process may have once occurred in declining fields but that they now experience sheltering.

Three two-way analyses of variance were used to determine the interaction between occupational growth rate and male salary levels as they affect movement toward parity.

These ANOVAs, shown in Table 5, support hypothesis two that females will move into the fields that offer lower male salaries. Male salary levels had a statistically significant main effect ($p < .05$) on movement toward parity during the 1950-1960 period. Overall, occupations in which male salary levels were below the median had higher mean movement toward parity than did those in which male salary levels were above the median (See Figure 2a). The occupations that were most open to females were those that did not offer higher salary levels to males. Though the interaction was not statistically significant during the 1950-1960 period, Figure 2a shows not only the main effect of male salary but also shows that differing salary levels have the greatest effect on movement toward parity in rapidly growing fields. The greatest movement toward parity occurred in rapidly growing occupations with below median male salaries ($\bar{X}=14.37$); and the greatest movement away from parity occurred in rapidly growing occupations in which males' salaries were above the median ($\bar{X}=-18.27$).

There was no statistically significant effect in the 1960-1970 period, but as Figures 2b and 2c show, the trend

TABLE 5.

Mean Percentage Movement Toward or Away From Parity
by Occupational Growth Rate and Male Salary Levels
for Census Period

Occupational Growth Rate	CENSUS PERIOD					
	1950-1960		1960-1970		1970-1980	
	Male Salary Level		Male Salary Level		Male Salary Level	
	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median
Rapid	-18.27 (N=25)	14.37 (N=19)	11.10 (N=31)	17.61 (N=25)	26.49 (N=22)	49.85 (N=26)
Slow	-16.61 (N=27)	-0.53 (N=19)	14.10 (N=15)	7.15 (N=17)	24.41 (N=21)	10.72 (N=14)
Declining	8.97 (N=2)	-1.84 (N=16)	14.66 (N=10)	16.86 (N=12)	20.66 (N=13)	18.43 (N=15)

RESULTS OF ANOVA

	F	P	F	P	F	P
MAIN EFFECTS: Occupational Growth rate	.168	n.s.	.148	n.s.	4.50	<.05
Male Salary	4.50	<.05	.068	n.s.	.698	n.s.
INTERACTION:	1.29	n.s.	.391	n.s.	3.18	<.05

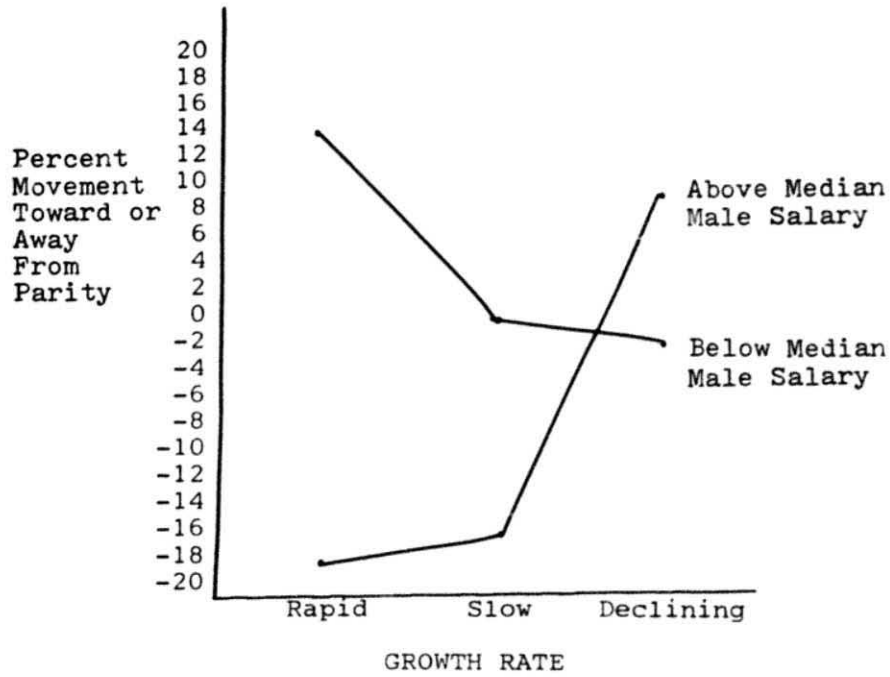


FIGURE 2a.

Interaction of Male Salary
and Growth Rate
1950-1960

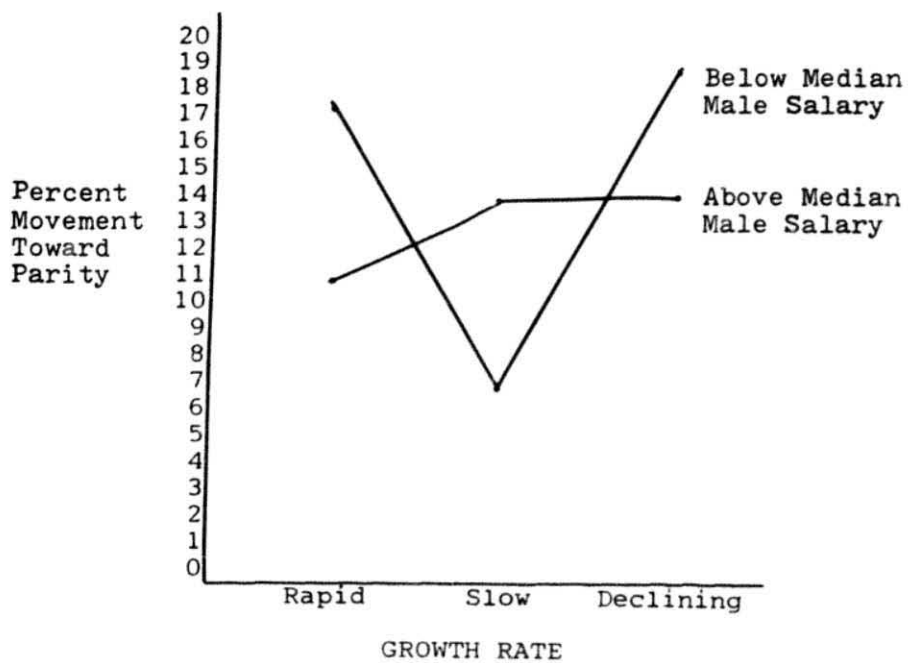


FIGURE 2b.

Interaction of Male Salary
and Growth Rate
1960-1970

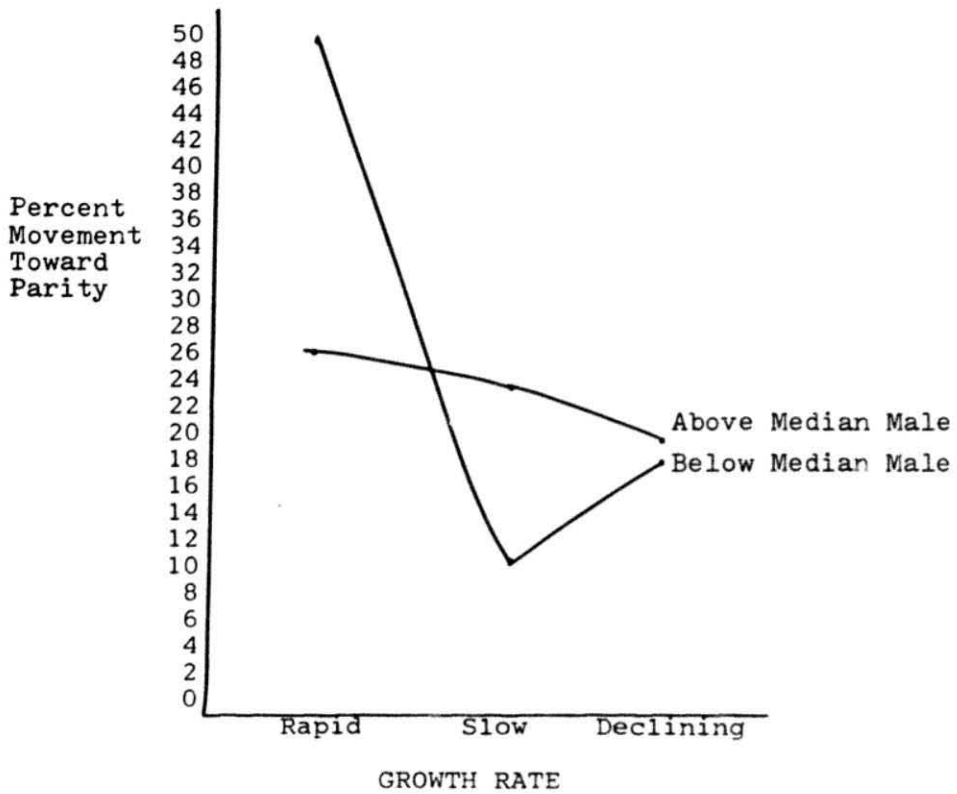


FIGURE 2c.

Interaction of Male Salary
and Growth Rate
1970-1980

was similar in the 1960-1970 and 1970-1980 periods. The interaction of occupational growth rate and male salary levels was statistically significant only in the 1970-1980 period. Figure 2c shows that male salary levels affected rapidly growing and slowly growing occupations, but not declining occupations. From 1970 to 1980, the greatest movement toward parity ($\bar{X}=49.85$) occurred in occupational fields in which growth was rapid and male salary levels were below the median male salary level of the entire category of managerial and professional specialty occupations. For rapidly growing occupations, below median salaries led to larger moves toward parity; while for slowly growing occupations the opposite was true, below median salaries led to smaller moves toward parity ($\bar{X}=10.72$).

The above results partially substantiate the hypothesis that females enter the rapidly growing or declining fields that offer smaller financial rewards to males. Rapidly growing occupations in which male salary was lower appeared to offer greater opportunity for women because they were less rewarding to men relative to other rapidly growing managerial and professional specialty occupations. Females appeared to move disproportionately into the occupations that were not as rewarding to males. In the 1950-1960 and 1960-1970 periods, the rapidly growing occupations with above median male salaries did not offer women as much opportunity to enter. Like the slowly growing occupations, they appear to have been sheltered.

By the 1970-1980 period, however, the rapidly growing occupations that offered male salaries above the median also made large moves toward parity. These results indicate that a greater sharing of opportunity for entry into managerial and professional specialty occupations occurred during the 1970-1980 period. The trend for women to move into rapidly growing occupations at both salary levels may constitute an historical change in that women now may have a greater structural opportunity to share in growth.

In general, slowly growing occupations in which male salary was below the median made the smallest moves toward parity during all three census periods. Such results suggest that the sheltering process may have been taking place in these occupations. This instance of sheltering may represent male protection of fields in which female entry could be seen as contributing to further decline of wages.

Declining fields, at both male salary levels, experienced relatively large movement toward parity in both the 1950-1960 and 1960-1970 periods. This suggests a process of abandonment by males. There was little evidence of the abandonment process in the 1970-1980 period. During this period, declining fields at both salary levels showed less movement toward parity than did other fields. These results suggest that, in the 1970's, most of the declining occupations were not undergoing the process of abandonment.

As can be seen in Table 6, the three two-way analyses of variance also suggest some interaction between occupational

TABLE 6.
 Mean Percentage Movement Toward or Away From Parity
 by Occupational Growth Rate
 and Female Salary Levels
 for Census Period

Occupational Growth Rate	Census Period					
	1950-1960		1960-1970		1970-1980	
	Female Salary Level		Female Salary Level		Female Salary Level	
	<u>Above Median</u>	<u>Below Median</u>	<u>Above Median</u>	<u>Below Median</u>	<u>Above Median</u>	<u>Below Median</u>
Rapid	-20.55 (N=23)	13.77 (N=21)	7.79 (N=34)	23.61 (N=22)	37.19 (N=22)	40.80 (N=26)
Slow	-5.78 (N=25)	-14.95 (N=21)	10.54 (N=13)	10.32 (N=19)	21.35 (N=20)	15.70 (N=15)
Declining	4.20 (N=5)	-2.50 (N=13)	31.84 (N=9)	4.80 (N=13)	15.19 (N=14)	23.74 (N=14)

RESULTS OF ANOVA

	<u>F</u>	<u>P</u>	<u>F</u>	<u>P</u>	<u>F</u>	<u>P</u>
MAIN EFFECTS: Occupational Growth Rate	.190	n.s.	.216	n.s.	4.36	<.05
Female Salary	.959	n.s.	.147	n.s.	.089	n.s.
INTERACTION:	2.27	n.s.	3.17	<.05	.342	n.s.

growth rate and female salary level. The interactions of occupational growth rate and female salary level do not support hypothesis three. Hypothesis three suggests that females will move into fields that offer the highest female salaries. Although the results of the ANOVA were statistically significant only in the 1960-1970 period ($p < .05$), the largest movements toward parity in all three census periods occurred in rapidly growing fields where female salary levels were below the median female salary of the managerial and professional specialty category. During the 1950-1960 period, the SSR indicating a movement toward parity for these occupations increased by 13.77 percent; in the 1960-1970 period there was a 23.65 percent increase; and in 1970-1980 the increase was 40.80 percent. During the 1960-1970 period greater movement toward parity also occurred in those declining occupations in which female salaries were above the median ($\bar{X}=31.84$). As can be seen in Figures 3a and 3b, female salary levels had the opposite effect on rapidly growing and declining occupations. In 1960-1970 this effect was a statistically significant interaction.

During the 1970-1980 period, there was no statistically significant interaction; but there was a main effect for occupational growth rate, as shown in Figure 3c. During the 1970-1980 period, occupational growth became the primary factor in determining the amount of movement toward parity. Rapid growth led to much greater movement toward parity than did either of the other two growth rates.

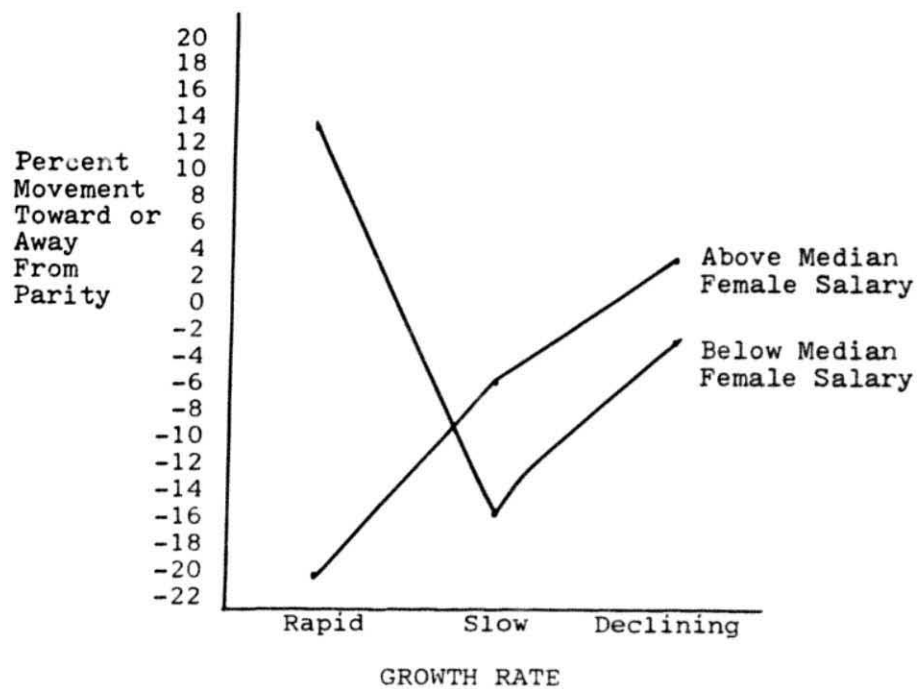


FIGURE 3a.

Interaction of Female Salary
and Growth Rate
1950-1960

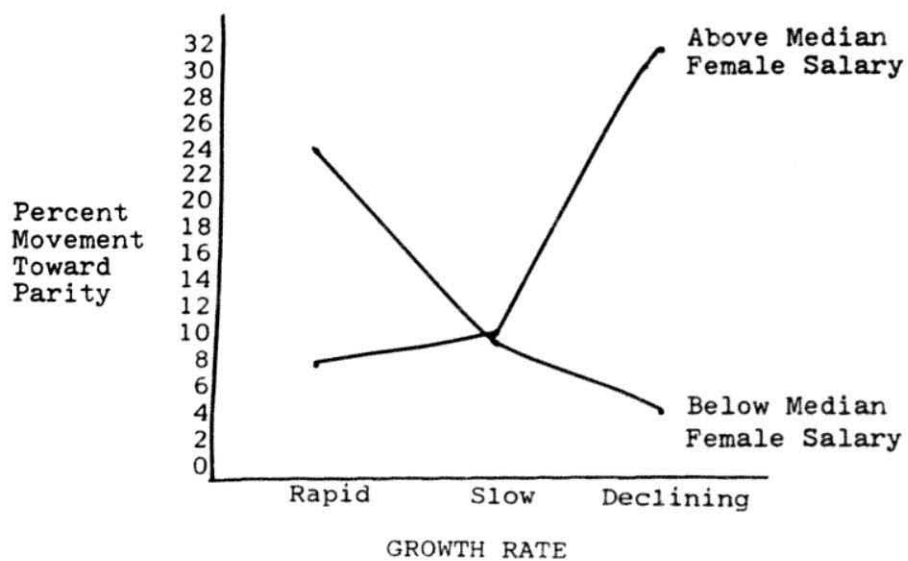


FIGURE 3b.

Interaction of Female Salary
and Growth Rate
1960-1970

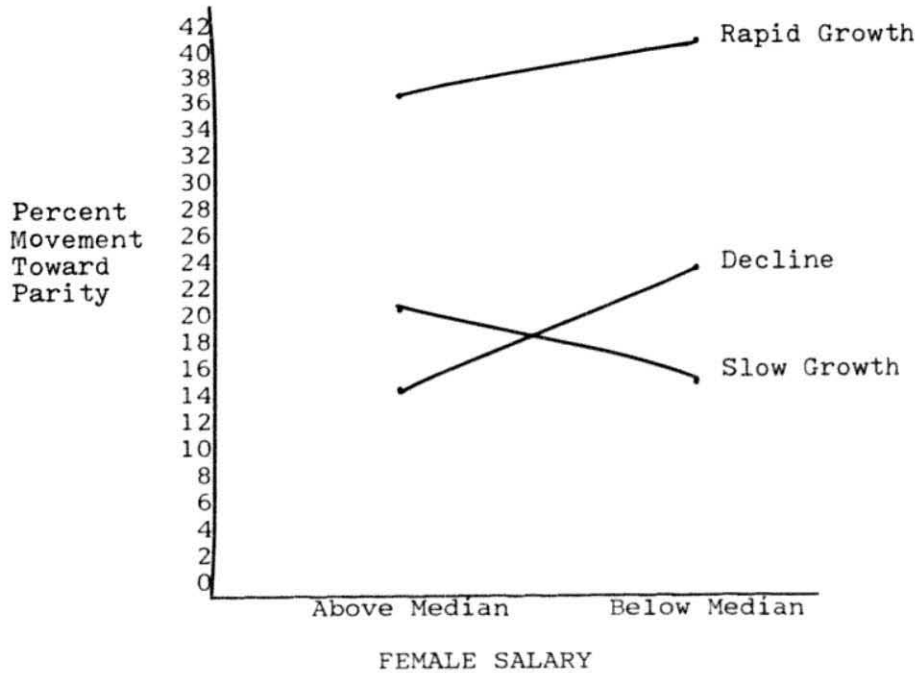


FIGURE 3c.

Interaction of Female Salary
and Growth Rate
1970-1980

During the first two periods, when interactions of growth rate and female salary level seemed to be occurring, the smallest movement toward parity occurred in the rapidly growing occupations in which female salary levels were above the median. In the 1950-1960 period the mean percentage change was -20.55, by the 1960-1970 period it had increased to a change of 7.79 percent. By the 1970-1980 period, rapid growth in occupations in which female salary was either above the median ($\bar{X}=37.19$) or below the median ($\bar{X}=40.80$) led to greater movement toward parity. In the 1970-1980 period, the most important factor was the growth rate of the occupation. Female salary level no longer had an impact on movement toward parity.

The results of the examination of the interaction between occupational growth rate and female salary indicate that, in the past, females moved into two types of occupations. First, women entered occupations in which female salary levels were below the median but rapid growth provided them with an opportunity for easier entrance. Second, in the first two census periods, females also entered occupations as a result of a process that might be called enlightened self-interest. Females moved into fields that were declining but still offered higher than median salaries to females. Female movement into declining fields that offer higher female salaries is consistent with the abandonment hypothesis. Slowly growing fields and rapidly growing fields with above median salaries appear to have sheltered against

female entry. By the 1970-1980 period, however, the rapidly growing occupations were making the largest moves toward parity, regardless of female salary level.

The results of the three two-way ANOVAs of the interaction between standardized occupational sex ratio and occupational growth rates presented in Table 7 show only partial support for hypothesis four. Hypothesis four suggests that the greatest movement toward parity occurs in the occupations that have the highest initial proportions of males. During the 1950-1960 census period, there was a statistically significant main effect for SSR, as shown in Figure 4a. Standardized occupational sex ratios below the median were associated with movement toward parity while SSR's above the median standardized sex ratio were associated with movement away from parity. This main effect suggests that female fields were open to male entry but male fields were not open to female entry. A slightly different pattern can be seen in the 1960-1970 period as shown in Figure 4b. Above median SSR's in slowly growing occupations led to large moves toward parity while below median SSR's in rapidly growing occupations led to large moves toward parity.

The 1970-1980 period was the only period in which the interaction of SSR and growth rate was statistically significant ($p < .05$). Figure 4c shows that the standardized occupational sex ratio made a difference both in occupations that were experiencing decline and in those that were growing slowly, but not for rapidly growing occupations. During the

TABLE 7.
 Mean Percentage Movement Toward or Away From Parity
 by Standardized Occupational Sex Ratio and
 Occupational Growth Rates
 for Census Period

Occupational Growth Rate	CENSUS PERIOD					
	1950-1960		1960-1970		1970-1980	
	Occupational Sex Ratio		Occupational Sex Ratio		Occupational Sex Ratio	
	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median
Rapid	-23.16 (N=16)	6.68 (N=28)	11.10 (N=31)	17.61 (N=25)	35.13 (N=17)	41.35 (N=31)
Slow	-21.88 (N=28)	8.57 (N=18)	14.10 (N=15)	7.15 (N=17)	26.57 (N=22)	6.01 (N=13)
Declining	-5.19 (N=9)	3.91 (N=9)	14.66 (N=10)	16.86 (N=12)	34.22 (N=17)	-3.34 (N=11)
	RESULTS OF ANOVA					
MAIN EFFECTS:	<u>F</u>	<u>P</u>	<u>F</u>	<u>P</u>	<u>F</u>	<u>P</u>
Occupational Growth Rate	.145	n.s.	.520	n.s.	6.41	<.05
Initial SSR	7.44	<.05	3.80	n.s.	4.32	<.05
INTERACTION:	.341	n.s.	.310	n.s.	3.88	<.05

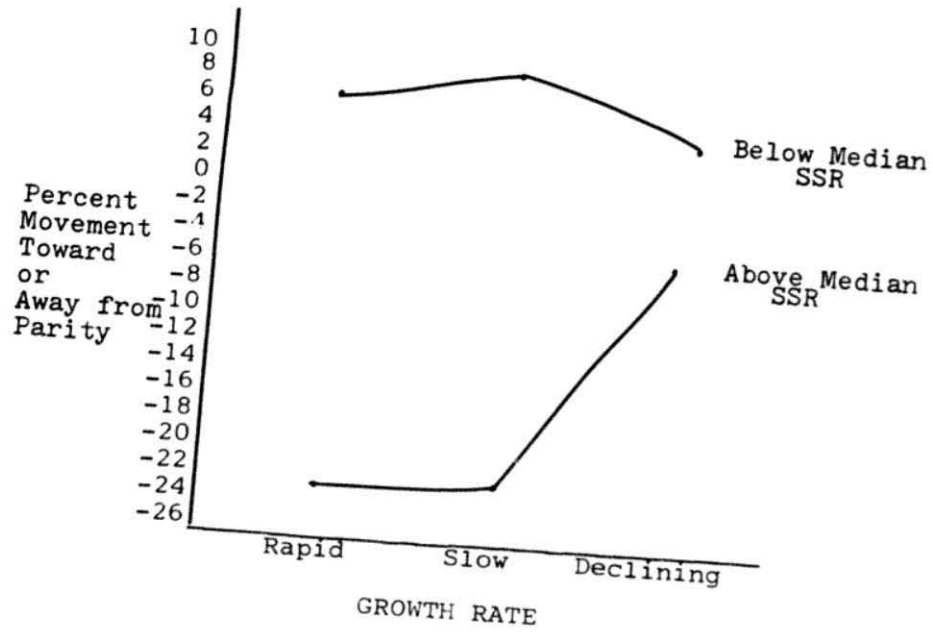


FIGURE 4a.

Interaction of SSR
and Growth Rate
1950-1960

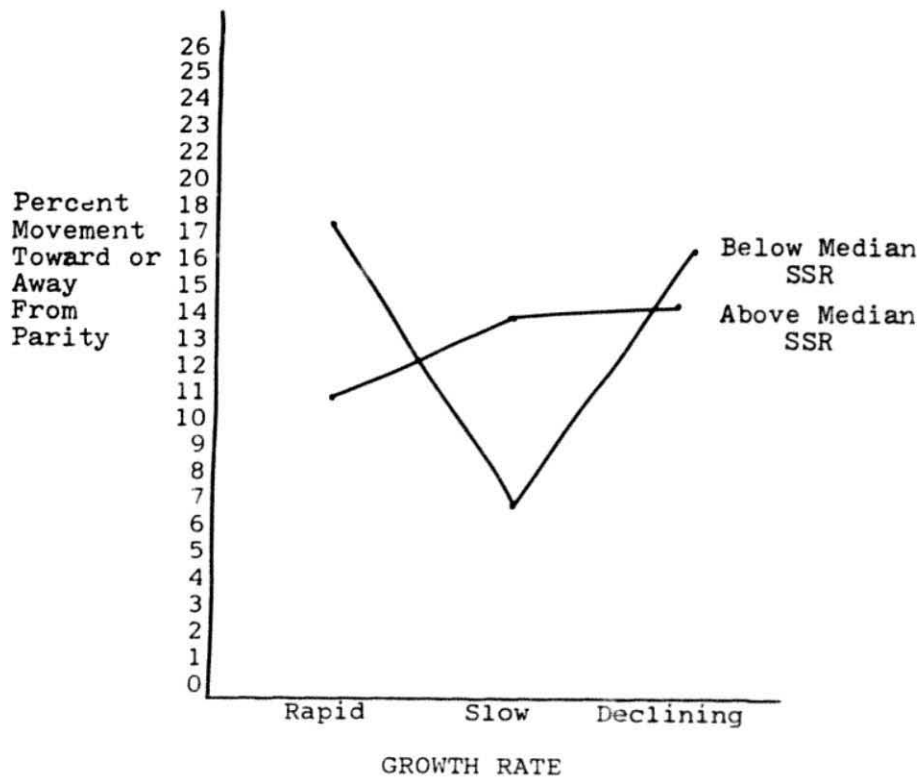


FIGURE 4b.

Interaction of SSR
and Growth Rate
1960-1970

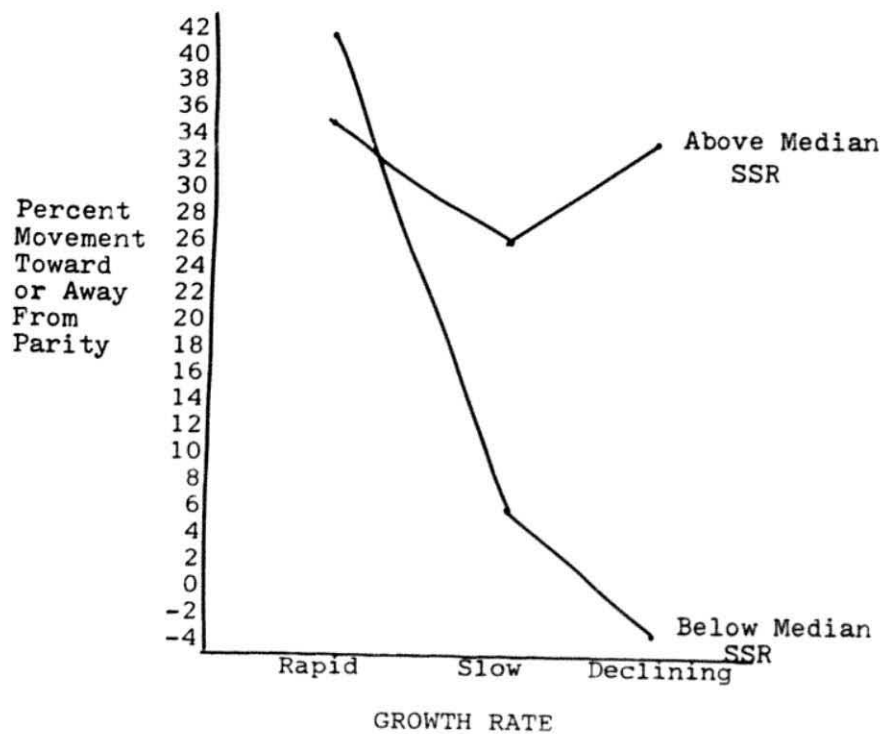


FIGURE 4c.

Interaction of SSR
and Growth Rate
1970-1980

1970-1980 period, rapidly growing occupations both above ($\bar{X}=36.15$) and below ($\bar{X}=41.35$) the median SSR experienced the greatest movement toward parity.

In the 1950-1960 period, the results indicate two patterns. First, occupations that already had a more equitable balance of males and females gained more females. Second, occupations that were already heavily male dominated became even more so. Instead of making moves into male dominated fields, women continued to gain in the fields in which they had already been more proportionately represented.

By the 1960-1970 and 1970-1980 periods, however, women were making somewhat larger gains in the occupations in which the SSR was above the median. Females were gaining in male dominated fields. Such gains did not occur at the expense of female abandonment of occupations that were more equitable toward women. These occupations also moved toward parity but at a lesser rate than that observed for male dominated occupations. Should these trends continue, the result will be a gradual lowering of the standardized occupational sex ratios toward one. Whether or not these changes are real gains for women, however, depends upon the degree to which this lowering results from male abandonment of less desirable occupations.

Though most of the occupations studied have not yet reached parity, and many are still heavily male dominated, it is clear that the professions are not static. The processes

that are occurring could lead to an overall movement toward more equitable gender balance. Occupational growth seems to be important in determining the types of fields in which females receive the greatest opportunity for entry.

In the most recent census period, rapidly growing fields have offered females the greatest opportunity for sharing of growth. Further, the interaction of occupational growth rate and salary levels of both males and females has been seen to have significant effects on the movement of women into higher status occupations. Overall the findings indicate that, until the 1970-1980 period, there was a continued male domination of the occupations offering the greatest rewards to males. During the 1970-1980 period, women began to enter some of the more financially rewarding fields. This model of entry represents a more equitable sharing of occupational growth than has been seen in the past.

CONCLUSIONS

The number of managerial and professional specialty occupations that experienced movement toward greater gender parity increased dramatically over the thirty year period studied. The Standardized Occupational Sex Ratio moved toward gender parity in eighty-one of the one hundred eleven occupations examined during the thirty year period. These changes have taken place throughout all sub-sectors of the managerial and professional specialty occupations. Even those sub-sectors that have been extremely male dominated have allowed more women into their ranks. Though the Engineering and Natural science and the Technical and Support Occupations sub-sectors are still male dominated, they too have experienced substantial decreases in male domination since the 1950 census year.

There seems to be at least some support for hypothesis one that occupational growth rate affects the rate of movement toward parity that is experienced by these occupations. During the 1950-1960 and 1960-1970 periods, both decline and rapid growth seemed to be associated with more opportunity for female entry. These differences in opportunity for female entry were not statistically significant. Greater movement toward parity in declining

fields seemed to be a strong indicator that male abandonment was occurring in those fields. Movement toward parity in rapidly growing fields was attributed to more jobs' becoming available to females as the result of an insufficient supply of qualified males to fill them.

Throughout the thirty year period, the least movement toward parity was associated with slowly growing occupations.

In the 1970-1980 period, however, the declining fields' movements toward parity were also nearly as small as the slowly growing fields' movements. By the 1970-1980 period, the abandonment process did not seem to affect the ability of females move into male dominated fields. During the 1970-1980 period, only rapid growth was associated with large amounts of movement toward parity; sharing seemed to be the dominant model of female entry.

Hypothesis two suggested that greater movement toward parity occurs in occupations that offer smaller financial rewards to males. Hypothesis two has been partially supported by the results observed. Throughout the three census periods observed, rapid growth in fields with below median male salary levels was associated with the largest movement toward parity. Male salary levels had a very different effect on slowly growing occupations. Slowly growing occupations with male salary levels below the median made the smallest moves toward parity. By the 1970's, however, growth rate had a far greater effect on movement toward parity than did salary levels. In the 1970-1980

growth period, rapidly growing occupations both above and below the median male salary level made by far the largest moves toward parity.

The interaction between female salary levels and occupational growth rates did not support hypothesis three. Hypothesis three suggested that female salary levels are the highest in occupations that make the greatest moves toward parity. Female salary levels had opposite effects for rapidly growing and declining fields. The greatest movements toward parity occurred in rapidly growing occupations in which female salary was below the median and in declining occupations in which the female salary was above the median. The results of the analysis of variance do support the contention that level of reward and male abandonment influence female entry rates. By the 1970-1980 census period, the pattern could still be seen; but only occupational growth had a statistically significant main effect. Rapid growth of occupations was the major contributor to larger movements toward parity.

The results of the analysis address three models of changing gender composition in the managerial and professional fields. These models are: (1) sharing, (2) sheltering, and (3) abandonment. In occupations that have allowed increased female entry, evidence for the sharing model is seen when female entry occurs at a level that is high enough to allow the occupational balance of the field to move toward gender parity. Evidence for the sheltering model

exists when female entry is restricted as a result of processes that limit the number of job slots and have the consequence of preserving higher salary levels. The sheltering model therefore includes mechanisms that restrict movement toward parity. Evidence for the abandonment model exists when there is disproportionate female entry into the fields that males are leaving. In the past, the abandonment model may have been responsible for increased female entry into declining fields. In the most recent census period, abandonment did not seem to be a major influence on women's entry into these fields. Over the course of three ten year periods, there was evidence to suggest that the sharing model increased in importance in explaining movement toward parity in managerial and professional specialty fields. During the 1970-1980 period, a large part of the movement toward parity seemed to be explained by this model.

As expected, the sharing model was most evident in the rapidly growing occupations. Rapidly growing occupations offered a larger number of job opportunities for both men and women. In the past, only the rapidly growing occupations that offered below median salaries offered substantially increased opportunity for female employment. Women's market gains were taking place at higher levels than women had been allowed in female dominated occupations but were not at the upper levels of the higher status occupations. Females were receiving a larger share of growth in occupations that were not as rewarding as were the fields that were being entered

disproportionately by males. By the 1970's, rapidly growing occupations at both the higher and lower levels of salary were experiencing more sharing of entry opportunity. Women's market gains in the 1970's were at both the higher and the lower levels of the managerial and professional specialty fields.

Throughout the three decades studied in this thesis, the sheltering model was evident in slowly growing occupations. Slowly growing occupations at both salary levels did not make large moves toward parity. Opportunity for female entry was particularly poor in those occupations in which salary levels for both males and females were below the median. Sheltering of these fields by males appears to occur because females have traditionally worked for lower wages than males. Increased female competition would appear to depress the wages even further in the less rewarding fields. In the slowly growing fields in which salaries were above the median, males may have tended to shelter job openings because the number of available jobs would not support the addition of female competition. Large numbers of female entrants into slowly growing occupations would take jobs away from qualified, interested males. While all occupational growth categories experienced more movement toward parity in the 1970-1980 period, slowly growing occupations were still among the most sheltered fields. It must be remembered that less structural opportunity in these fields also contributed to this long term trend.

In the first two periods studied, sex domination also seemed to occur in the rapidly growing occupations that offered above median salaries. This group of occupations experienced very small moves toward parity in the first two census periods. These occupations offered greater financial rewards and therefore were particularly desirable to men. Rapidly growing, highly paid fields may have had the tendency to shelter themselves in the interest of male profit maximization. The advancement that females made in rapidly growing, highly paid fields in the last census period is clear. In the 1970-1980 period, fields offering above median salary and experiencing rapid growth appeared to be less sheltered from women than in the past.

The abandonment model appears to be a major explanation of women's movement into the declining professions only during the first two periods studied, though there is some evidence that it continued into the 1970-1980 period. During the two earlier periods, occupations that experienced declines but had above median female salary made greater moves toward parity than did other occupations. Movement toward parity in declining fields was the apparent effect of the loss of males. Due to such losses, females seem to have had the opportunity to move into the jobs of males who had left the field or had chosen to make their initial entrance in other fields. By the 1970-1980 period, the declining occupations were reacting more like the slowly growing occupations in that slower movement toward parity occurred at

both salary levels. Slow movement toward parity in declining occupations seems more representative of the sheltering model. Despite the apparent change in the processes effecting movement toward parity, movement toward parity in the 1970-1980 period was still greater than in the two previous periods.

The changes in the standardized occupational sex ratios point to significant changes in the occupations into which women are moving. During the 1950-1960 period, women moved mainly into occupations that were dominated by females. In the 1960-1970 and 1970-1980 periods, women moved into the occupations that were more heavily male dominated. The change in the type of fields entered by females seems to indicate the increased importance of the sharing model of movement toward parity in the managerial and professional specialty occupations. By the 1960-1970 period, there seems to have been more equitable sharing by the sexes in all occupations, instead of female entry only into female dominated occupations.

During the 1970-1980 period, occupational growth rate interacted with the standardized occupational sex ratio. Greater movement toward parity occurred in occupations that were declining and had an above median occupational sex ratio. This provides evidence to suggest that there was still at least some male abandonment occurring during the 1970-1980 period. Women were gaining entry into fields that had previously been male dominated but were losing in

absolute numbers. Therefore, females appear to have been replacing males who were leaving or perhaps women were leaving at a slower rate. In this interaction, the SSR seems to make a difference only for declining and slowly growing occupations.

The sheer number of occupations that moved toward parity in the 1970-1980 period would indicate that females were making strides toward equity in most of the managerial and professional specialty occupations. When the various managerial and professional specialty fields were analyzed by occupational growth rate, standardized occupational sex ratio, male salary levels, and female salary levels, it appeared that the pattern of movement toward parity was changing. In the 1950-1960 and 1960-1970 periods, all three models of movement toward parity were evident; but, by the 1970-1980 census period, the results of the statistical analysis indicated that substantial moves toward parity had occurred in all occupational groups. The sharing model had become the most important model in explaining movement toward parity. Managerial and professional specialty occupations at all growth rates were generally moving toward parity between 1970 and 1980, but rapidly growing occupations were making the greatest overall moves toward parity.

In conclusion, women seem to have experienced substantial movement toward parity in the managerial and professional specialty fields during the last thirty years. The processes of sheltering and abandonment still seem to

occur in the managerial and professional specialty occupations, but the model that best describes the type of movement that they have most recently experienced is that of sharing. Sharing of occupational entry in the next thirty years could lead to major changes in the gender structure of managerial and professional specialty occupations. Gender parity in the occupations may or may not represent equity. If women continue to be employed in the "semi-professions" or in the lowest rungs of the professions, equity has not been reached. However movement toward gender parity in the managerial and professional occupations, even at the lowest rungs, may offer women positions from which they may have the opportunity to advance.

APPENDIX A

Standardized Occupational Sex Ratio of
Occupational Fields for Census Years 1950-1980

Occupational Field	1950	1960	1970	1980
Administrators and Officials	1.84	1.74	1.37	1.18
Financial Managers	2.58	2.24	1.84	1.42
Credit Men	1.50	1.20	1.2	1.16
Property Managers	.68	.62	.66	.93
Postmasters	.44	.61	.95	.84
Funeral Directors	5.18	5.85	6.07	6.81
Salaried Construction Managers	15.51	11.20	13.83	5.11
Salaried Manufacturing Managers	4.90	5.11	6.60	4.40
Salaried Transportation Managers	7.69	7.92	3.16	3.71
Salaried Communication Managers	3.32	2.87	3.35	1.92
Salaried Wholesale Managers	6.22	5.20	5.51	3.38
Salaried Retail Trade Managers	1.86	2.06	2.58	1.32
Salaried Insurance Managers	1.65	1.89	2.09	1.22
Salaried Business Managers	2.94	1.94	2.74	1.78
Salaried Personal Managers	.70	.73	1.22	.94
Salaried Managers Other Industry	1.05	.83	1.12	.85
Self-Employed Construction	26.63	29.73	22.22	12.30

Self-Employed Manufacturing	5.12	5.36	4.37	3.02
Self-Employed Transportation	7.41	5.63	4.08	3.49
Self-Employed Communication	6.01	3.61	6.31	4.28
Self-Employed Wholesale	8.49	6.57	5.06	3.14
Self-Employed Retail	1.71	1.70	1.80	1.16
Self-Employed Insurance	2.19	2.25	3.02	2.02
Self-Employed Business	5.60	4.04	3.28	2.68
Self-Employed Personal	.91	.76	.98	1.05
Self-Employed Other Industry	2.08	1.37	1.32	1.10
Accountants	2.04	1.73	1.24	1.05
Insurance	3.52	3.51	3.10	1.81
Personnel Specialist	.90	.88	.99	.85
Purchasing Agent, Farm	18.40	20.39	16.90	7.53
Buyers, Except Farm	1.01	1.26	1.05	.81
Purchasing Agents, N.E.C.	3.40	3.63	2.79	1.59
Inspectors Public Administration	7.79	7.60	6.77	3.79
Architects	9.03	16.63	12.01	7.16
Aerospace Engineers	15.93	24.77	25.26	19.38
Metallurgical Engineers	16.37	25.58	33.11	11.81
Mining Engineers	33.27	220.57	35.78	18.47
Chemical Engineers	17.51	27.21	33.34	11.74
Civil Engineers	24.92	83.90	33.00	21.41
Electrical Engineers	30.58	43.09	25.94	12.31
Industrial Engineers	28.32	15.77	14.18	5.87
Mechanical Engineers	49.66	105.10	45.13	31.08
Engineers, N.E.C.	25.69	62.23	31.37	16.01
Surveyors and Mapping Scientists	13.30	9.20	13.90	14.90

Chemists	3.51	4.28	3.20	2.58
Forestry/Conservation Scientists	8.48	12.90	9.87	5.80
Physicists	8.53	8.52	10.45	11.31
Geologists	16.36	16.32	11.49	5.18
Agricultural Scientists	6.88	6.87	4.97	2.22
Biological Scientists	1.04	1.04	.82	1.19
Physical Scientists, N.E.C.	2.11	2.89	2.57	2.32
Statisticians	.86	.86	.72	.88
Mathematical Scientists	1.14	1.14	1.51	2.78
Physicians	4.99	5.22	4.35	4.20
Dentists	10.81	17.65	12.22	9.07
Veterinarians	8.14	20.50	8.02	4.24
Optometrists	5.77	8.64	10.45	7.20
Chiropractors	2.07	3.80	3.69	4.55
Registered Nurses	.01	.01	.01	.03
Pharmacists	3.74	4.28	3.25	2.05
Dieticians	.01	.03	.04	.07
Therapists	.37	.38	.25	.24
Postsecondary Teachers, General	1.23	1.38	1.11	1.13
Biology Teachers	1.92	1.92	1.67	1.36
Chemistry Teachers	2.74	2.74	3.23	2.53
Physics Teachers	9.39	9.39	8.94	5.96
Natural Science Teachers	24.26	24.07	6.97	3.32
Economics Teachers	5.34	5.33	5.43	2.59
Social Science Teachers	.94	.94	1.55	1.48
Engineering Teachers	16.84	16.87	7.21	5.04
Math Teachers	2.02	2.02	1.87	1.43

Postsecondary Teachers, N.E.C.	.95	.85	1.03	.59
Postsecondary, Not Specified	1.20	1.20	1.00	1.02
Teachers, Except Postsecondary	1.34	.24	.13	.24
Elementary Teachers	.06	.06	.09	.21
Secondary Teachers	.43	.43	.46	.50
Teachers, N.E.C.	.24	.24	.13	.23
Librarians and Archivists	.04	.60	.12	.16
Economists	2.22	2.22	3.44	1.54
Psychologists	.84	.84	.71	.73
Social Scientists N.E.C.	.72	1.14	1.47	1.05
Social Workers	.16	.22	.26	.35
Recreation Workers	.43	.51	.61	.31
Clergy	7.69	16.97	14.89	10.53
Religious Workers, N.E.C.	.15	.24	.35	.48
Lawyers and Judges	8.42	10.48	8.58	4.00
Actors and Directors	.56	.67	.64	1.24
Authors	.62	.87	1.07	.81
Designers	.98	1.67	1.39	.65
Musicians and Composers	.34	.60	.83	1.55
Athletes	6.58	1.33	1.11	2.08
Painters and Sculptors	.61	.95	.77	.70
Photographers	1.85	2.81	2.68	2.11
Dancers	.14	.06	.10	.22
Artists and Performers, N.E.C.	.78	.60	1.32	1.01
Editors and Reporters	.75	.65	.65	.67
Public Relations Specialists	1.25	1.25	1.21	.68
Farm/Home Management Advisors	.42	.42	.45	.43

Sales Engineers	120.45	120.75	59.62	19.46
Medical Technicians	.26	.23	.19	.24
Draftsmen	5.56	6.11	5.08	3.25
Electrical Technicians	7.56	7.55	7.31	5.00
Engineering Technicians	1.22	3.37	2.54	3.06
Technicians, N.E.C.	2.12	1.21	1.79	1.54
Airplane Pilots	16.33	43.51	28.40	46.97
Broadcast Equipment Operators	3.12	3.34	1.27	.83
Ship's Officers	11.46	103.83	24.30	32.63
Railroad Conductors	108.24	121.20	40.59	39.60
Officials, Lodges and Societies	2.90	3.38	2.29	2.30
Farmers	12.47	7.77	9.12	5.94
Farm Managers	5.10	11.15	9.74	5.72

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