

OCCUPATIONAL SEGREGATION: AN ALTERNATIVE HYPOTHESIS

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It is no secret that sex differences in the occupational distribution exist. Such patterns are revealed in numerous data sets and have been the focus of much attention by social scientists.

Understanding the occupational structure is important for more than academic reasons alone. In fact, awareness of sex discrimination has become so acute that government policy makers have legislated regulations to combat any inequality that may exist. One impact of these laws has been to set up implicit race and sex quotas for occupations within given firms and industries. Thus, firms such as At&T and universities such as MIT have been required to make concerted efforts to integrate all occupations sexually. If discrimination by firms in their hiring practices does exist, then these government efforts may stimulate greater efficiency within business and the economy. On the other hand, if not all existing occupational segregation stems from outright discrimination on the part of firms, then such policies implementing quotas may yield inefficiencies within the production process. In either case, governmental policy affects efficiency within the firm. For this reason, business executives should take an interest in understanding the causes of observed occupational segregation. In this paper, we explore reasons for the observed sex differences in the distribution of occupations.

To date, most theories of occupational segregation rely heavily on the existence of labor market discrimination. Such discrimination as described by dual labor market theorists implies an explicit job-sorting within firms on the basis of race and sex. The dual labor market theory is popular and provides the justification for much

governmental policy. However, as will be illustrated, there is little empirical support for outright discriminatory hiring practices. Therefore in this paper we develop an alternative *supply* oriented approach and illustrate how occupational choice varies among women on the basis of expected lifetime labor force commitment. Those women with little labor force commitment tend to be in menial jobs, while those women with continuous work histories tend to be in the more prestigious and skilled jobs. This pattern of job distribution is explained in terms of lifetime optimization behavior. In addition, corroborative data on sex difference in education are presented.

OCCUPATIONAL SEGREGATION: THE PROBLEM RESTATED

Occupational segregation implies the existence of "good" and "bad" jobs. Those discriminated against would fall into bad or secondary jobs; others would obtain good or primary jobs. Such job classifications are difficult to define; however, most people would agree that bad jobs are characterized as low paying and menial with little chance for advancement. Does such job segregation exist between men and women?

Table 1 presents data on sex differences in occupational distribution. Although it is difficult to ascertain with precision which jobs are good and bad on the basis of nine occupational classifications,¹ patterns emerge illustrating sex differences, even in broad occupational categories. Men have a higher probability of being in professional (with the exception of teachers), managerial, craft and operative occupations. Women have a higher probability of being in clerical, household and service jobs. Whereas I hesitate to call male jobs "good" and female jobs "bad," it is obvious that different patterns of employment exist and that the prestige levels of female jobs differ from those of males. This paper seeks to provide explanations for such an observed labor market dichotomy.

A DEMAND-ORIENTED ANALYSIS

Most existing models of discrimination are demand-oriented with discriminatory behavior emanating from two possible sources. Either firms have tastes for certain kinds of workers, or nonminority groups themselves express preferences regarding their coworkers. Both cases result in minority workers being relegated to the least desirable jobs at the lowest possible wages. In the former case, when firms themselves

Table 1
Occupational Distribution by Sex
(Data are in Percentages)

	1960 ¹		1960 ²		1967		1970 ³		1970 ⁴	
	Male	Female	Male	Female	Male ⁵	Female ⁶	Male	Female	Male	Female
Professional	12	15	14	13	17	14	19	17	16	15.5
Teachers	[1]	[6]	[2]	[5]	[3]	[6]	[2]	[9]	[2]	[9]
Residual		[9]		[8]	[14]	[8]		[7]		[6.5]
Managers	13	4	13	4	17	3	14	4	12	4
Clerical	9	29.5	8	32	7	46	7	34.5	8.5	35
Sales	8	7.5	8	8	6	7	7	6.5	8	7.5
Craft	25	1.5	26	1	26	1	25	2	24	2
Operative	25	19.5	25	21	22	15	21	17	22.5	15
Household	-	7	-	6	-	1	-	3	-	4
Service	8	16	6	15	5	13	7	16	9	17
	100	100	100	100	100	100	100	100	100	100

1, 1960 Census of Population.

2, 1960 Census of Population for ages 30-44.

3, 1970 Census of Population for ages 30-44.

4, 1970 Census of Population

5, 1967 SEA (Survey of Economic Data) for ages 30-44 for whites only.

6, 1967 NLS (National Longitudinal Survey) for ages 30-44 for whites only.

explicitly discriminate, nonminority white male workers are paid premiums for their services so as to eliminate blacks, women and others from the firm. When employees themselves discriminate, then employers must pay wage premiums to nonminority employees so as to induce discriminating groups to work with others. This latter form of discrimination leads to worker segregation within and across firms. If wage premiums represent a certain fraction of worker output, then integration of primary sector jobs becomes more costly relative to jobs in the secondary sector, and occupational segregation would result.

Several crucial problems exist against demand-oriented interpretations of occupational segregation. Clearly, firms would not be behaving within a long-run profit maximization context. Wage premiums reduce profits; hence, they would induce competition. Nondiscriminating firms would enter the market at a competitive advantage. As such, either discriminators would be driven out of business forcing complete integration or, alternatively, firms made up solely of minority workers and solely of majority workers would emerge. As a rule, such long-run prognoses are not consistent with data.² Therefore an alternative, supply-oriented theory is proposed to aid in explaining observed sex discrimination in occupational attainment. Such an approach need not imply that demand-oriented discrimination does not exist. Rather, the alternative theory to be presented is a supplement serving to illustrate that other factors may affect sex differences in occupational distribution.

AN ALTERNATIVE HYPOTHESIS: A LIFE CYCLE APPROACH TO OCCUPATIONAL DISTRIBUTION

In this section we develop an alternative approach to occupational segregation. It is known from both casual observation as well as detailed study that labor market behavior differs dramatically between men and women. Men (especially married men) typically enter the labor force upon completion of schooling and, barring any health difficulties, remain there until retirement. The work behavior of married women usually deviates from this pattern. On the average, women take about 10 years out of the labor force to fulfill family responsibilities. In fact, only about 15 percent of those women surveyed by the National Longitudinal Survey (NLS)³ work throughout their lifetime with little interruption. In this paper, we wish to examine the effect of such labor force intermittency on occupational choice.

In our analysis, the primary interest is not to compare occupational choice of men and women; rather, we concentrate solely on women. As such, issues of market discrimination do not enter. Only the variation in occupational distribution within a discriminated group is studied and compared under conditions of differing labor force commitments. The point is to show that although the aggregate male-female occupational distributions differ, women enter all occupations. However, as will be illustrated, those women with the most labor force commitment tend toward the professional-type occupations, and those with the greater intermittency tend toward the more menial occupations.

In this paper we theorize that reasons for such a pattern exist. To preview the results, it is hypothesized that associated with each occupation is a rate of atrophy that measures the speed at which one's particular job skills depreciate when not in use. Further, women with little labor force commitment enter jobs with the least depreciation. Such behavior minimizes the losses associated with intermittent labor force participation. To present additional corroborative evidence, we illustrate that sex differences exist in educational choices. Since such choices are made long before occupational decisions occur, this additional evidence reiterates male-female supply differences in the labor market.

Life Cycle Labor Force Behavior

Life cycle labor force participation can be measured in several ways. Here, we choose to look at two measures. First, the percent hometime (PCHT) is defined to be the ratio of years out of the labor force to the total possible years one could have worked. Typically the average married woman devotes more than 10 years to bearing and raising children and is, thus, out of the labor force close to 50 percent of her working life. Second, the percent of women who work full time (PCFT) represents the relative number of women who work at least 6 months or more in every year since finishing school. Only 17 percent of the women (both married and single, black and white) between ages 30 and 44 worked almost every year since leaving school.⁴

Despite the fact that most women do not devote full time to work, much variation exists across women. By and large, married women have the least labor force commitment. Only 14 percent of those married are

continually in the labor force compared to 53 percent of those single-never-been-married.⁵ Similarly, the higher one's level of education, the higher the probability of continuous labor force behavior and the smaller the amount of intermittency.

Table 2
Life Cycle Work Behavior and Atrophy
Rates by Occupation

	PCHT*	PCFT**	Atrophy***
Teachers	56	2	13
Other professional	54	2	19
Managers	47	5	59
Clerical	57	3	40
Sales	68	1	17
Craft	61	0	64
Operative	63	2	6
Household Service	70	0	-56
	64	2	21

SOURCE: NLS Data, 1967.

KEY: *PCHT	≡	Mean percent of years out of the labor force leaving school (see text)
**PCFT	≡	Percent of women in occupation who worked 6 months or more in <i>every</i> year since leaving school.
***Atrophy	≡	Percent depreciation in earnings power for each additional one percent of time out of the labor force.

Not only does labor force commitment differ by marital status, education, race and other demographic variables, but also labor force behavior varies according to occupation. Table 2 indicates that those women with the strongest labor force commitment tend to be in professional, managerial and white collar jobs. Up to 5 percent of women in these occupations worked *each* year since leaving school. Those with the weakest commitment tend to enter the more menial professions. In contrast to those in professional-type occupations, they are characterized as being out of the labor force almost at least 50 percent more over their lifetime.

We speculate that such patterns of work behavior across jobs are no accident but, instead, evolve through optimization processes. We hypothesize that unique characteristics are associated with each occupation that makes these jobs more or less attractive depending on one's expected work commitment. In particular, each occupation requires a different skill mix. Some skills depreciate more quickly when not used; others depreciate more slowly. The point of this paper is to show that those women with the least labor force commitment tend to be in such jobs as household work, elementary school teaching and operative and sales work where skills depreciate more slowly. The importance of such a finding is that it illustrates a systematic pattern of occupational choice based not on demand discrimination but, rather, on supply factors. Measurements of such depreciation by occupation now are presented.

Atrophy: Depreciation of Skills During Labor Force Intermittency

Upon re-entry to the labor market after periods of intermittency, real wages are often lower than before one's work interruption. Such a depreciation in earnings power is defined as atrophy.⁶ In this paper, we measure atrophy from the National Longitudinal Survey (NLS) by calculating the implicit wage losses for women with intermittent labor force participation.⁷ According to these estimates (Table 2), atrophy of skills differs by occupation. In blue collar type occupations, such depreciation is lowest. Not surprisingly, for household work atrophy is negative but not significantly different from zero. In contrast, for white collar professional and managerial jobs, atrophy rates are higher for these latter occupations.

The Relationship between Life Cycle Labor Force Participation and Atrophy

As illustrated, several relationships emerge from the data. First, patterns of labor force participation differ by occupation. In professional, managerial and white collar jobs, the percent of women with a full labor force commitment is highest. In the more menial occupations, the percent of women with full labor force participation is lowest. Women in these latter occupations also have the highest amount of labor force intermittency (PCFT). Second, professional-type occupations are characterized by higher rates of atrophy than the more menial occupations.

From these observations, one important pattern dominates. Women with the least labor force commitment enter jobs in which skills depreciate most slowly. Figure I illustrates this relationship. A negative correlation exists between mean percent hometime (PCHT) and atrophy (skill depreciation). A positive correlation exists between percent of women working fully over their lifetime and atrophy.

These patterns are consistent with optimization behavior. Those women with expectations of the greatest amounts of labor force intermittency would minimize their skill losses by entering occupations with the lowest depreciation rates. Conversely, those women with expectations of continuous life cycle labor force participation would choose jobs with high investment. Since women in these professional, managerial and white collar jobs do not drop out of work, their investments would not be lost. Each of these results implies a certain rationality within the process of occupational choice. Namely, expectations of certain labor force behavior are of paramount importance.

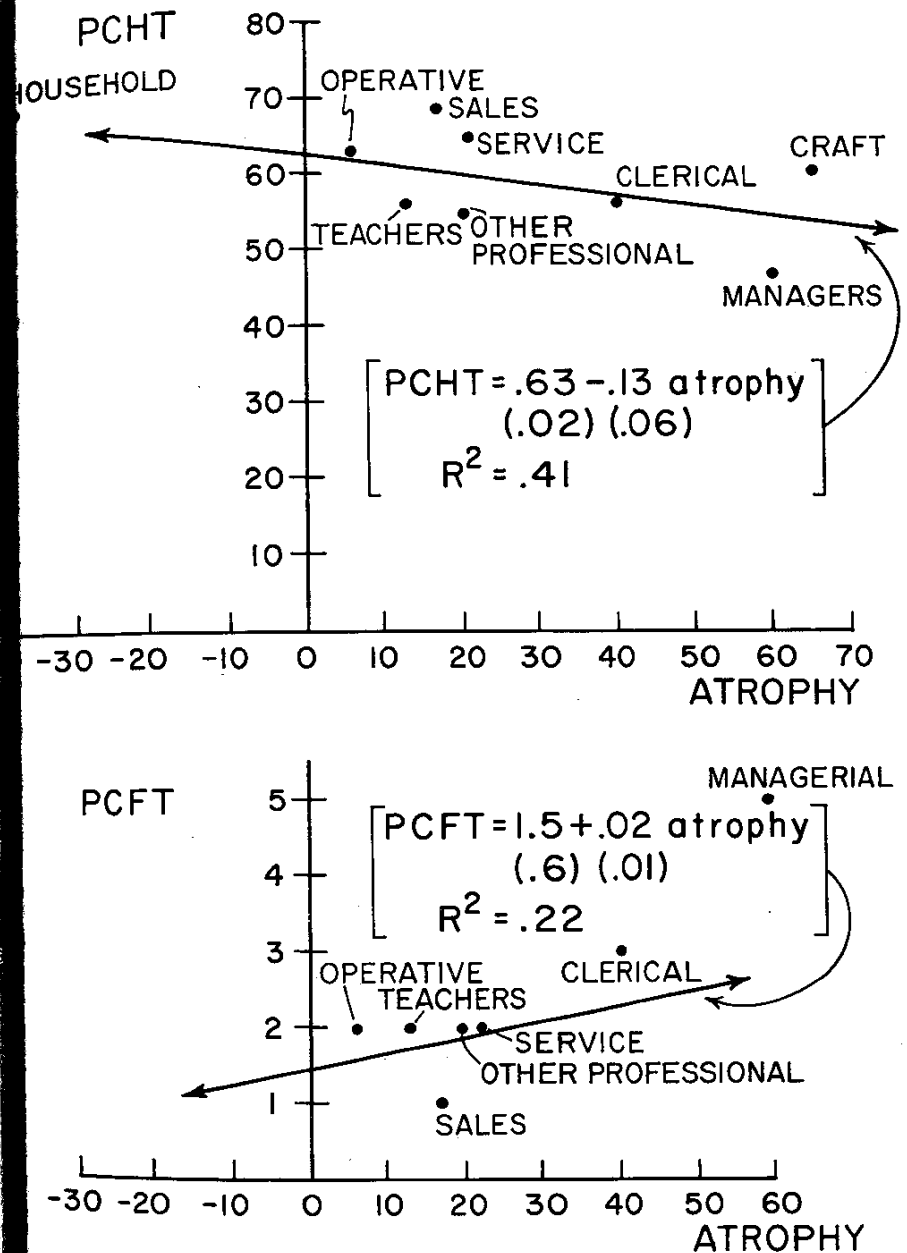
This relationship was obtained using sample data only for women. We observe that women appear in all occupations. Those women with the least labor force commitment were most prevalent in menial jobs. Those women with the most labor force commitment had the highest probability of entering white collar occupations. Wherease these results were obtained with data solely on women, the findings are applicable to understanding male female differences in occupational choice.

Unlike women, males are characterized by a full life cycle labor force commitment. Generally only health reasons keep the married male from entering the labor force. Given this full participation and the finding that one's life cycle labor force commitment is related to occupational choice, one should expect sex differences in the occupational distribution. Thus, we claim that at least part of the occupational differences illustrated in Table 1 stem from sex differences in labor force commitments.

Corroborative Evidence: Sex Differences in Education

Given that sex differences in labor market attitudes are related to occupational choice, can one expect sex differences to prevail within other markets? In particular do such differences exist in markets especially related to the labor market? While in this paper we neither illustrate nor present proof of each possible intermarket link, we show

Figure 1
The Relationship Between Life Cycle Labor Force Participation and Occupational Choice



the existence of sex differences in educational choices. Presumably educational attainment and educational choices within high school and college affect one's labor market capabilities. Hence if men and women have the same market aspirations and the same lifetime labor force expectations, the same kinds of schooling should be demanded. Yet sex differences abound (Table 3). Women tend to major in humanities, education, nursing and home economics. Men choose social science, engineering, business and other professional and technical fields.⁸

Table 3
Aggregated Distribution of College Major

Major	Number of Males	% Male	Number of Females	% Females
Humanities	56	13.7	64	20.8
Social Sciences	43	10.5	20	6.5
Engineering and Physical Science	23	30.0	28	9.1
Fine Arts	15	3.7	13	4.2
Education	20	4.9	91	29.5
Business	95	23.2	21	6.8
Medicine	6	1.5	29	9.4
Home Economics	0	0.0	17	5.5
Other Professional and Technical	52	12.7	25	8.1
TOTAL	410		308	
		718		

Source: Eckland Data (1970 followup survey of adult college graduates who were high school students in 1955).

We present this evidence only to underscore the presumption that supply differences cannot be ignored when studying sex differences within the labor market. Women tend to have a lesser life cycle labor force commitment. Such differences in labor supply make being in certain occupations more costly, thereby affecting schooling choices as well.

Whereas we would not deny that possible market discrimination in the hiring practices of firms can cause observed differences in life cycle labor force participation and educational choices of women compared to men, we wish to emphasize that an alternative supply approach is

plausible and cannot be ignored. Those women with the least labor force commitment end up in the most menial jobs.

Similarly observed sex differences in labor force participation and education may stem from implicit societal discrimination taking such forms as marital obligations. If such societal discrimination exists, the same scenario holds. Females tend to participate in the labor force less over their lifetimes. Expected time out of the labor force due to family responsibilities causes differences in educational and occupational choices. If, as indicated, such supply differences occur because of societal discrimination, then the implementation of quotas on firm hiring practices represents an unfair and inefficient policy. If sex differences in labor supply stem not from market or societal discrimination but, instead, from family choices based on the division of labor within the household maximization process,⁸ then the inefficiency of quotas holds *a fortiori*.

SUMMARY AND CONCLUSION

In recent years much awareness has developed concerning the economic plight of minority groups. This paper concentrates on the occupational position of women. Whereas most theories of sex discrimination center on demand aspects of the problem, we pose an alternative theory based on supply differences within the labor market. What we claim is that other forces besides those of market discrimination in part account for differences in occupational distribution. Those forces--namely, expectations of being out of the labor force--are correlated with occupation. Females with long periods out of the labor force tend to be employed in menial occupations; females with little time out of the labor force tend to be employed in professional and managerial jobs. Such behavior is consistent with life cycle optimization. The more menial jobs have the lowest rates of skill atrophy during periods of labor force intermittency. Thus those with expectations of long periods out of the labor force maximize wealth (minimize human capital losses) by choosing occupations where skill depreciation is least. Further corroborative evidence is presented indicating that sex differences begin within the educational system, chronologically much before entry in the labor market.

The importance of this paper lies beyond the presentation of an alternative view of occupational segregation. Rather, the implications regarding governmental policy are important. If, as dual labor market theorists

claim, occupational segregation arises from blatant demand discrimination on the part of firms, then a policy of quotas in hiring may be viable. But if, as we suggest, supply considerations play a role, then much of equal employment opportunity legislation may be yielding gross inefficiencies within the production process. It is because of the social losses associated with the inefficiencies in choosing an inappropriate policy that this paper was written.

FOOTNOTES

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¹Farm workers and laborers are excluded from the analysis.

²An exception occurs in monopolistic markets. Under such circumstances [as documented by Armen Alchian and Reuben Kessel, "Competition, Monopoly, and the Pursuit of Pecuniary Gain," in *Aspects of Labor Economics*, Universities National Bureau of Economic Research, ed. (Princeton: Princeton University Press, 1962)], lack of competition and possible government regulations on profits could cause discrimination.

³For a description of the data, see: H. Parnes, J. Shea, R. Spitz and F. Zeller, *Dual Careers*, Vol. 1, Manpower Research Monograph no. 21, (Washington: Department of Labor, 1970).

⁴This percent was generated by computing (from the NLS data) the number of women who took no more than 3 years out of the labor force.

⁵These data were calculated in the same manner as above.

⁶In a sense this definition is akin to muscular atrophy. Skills not used for periods of time depreciate.

⁷The exact methods of computation are given in S. W. Polachek, "Occupational Segregation Among Women: A Human Capital Approach," paper presented at the Third World Congress of the Econometric Society (Toronto, Canada: 1975), and J. Mincer and S. Polachek, "Family Investments in Human Capital: Earnings of Women," *Journal of Political Economy* (March-April 1974) pp. S76-S108.

⁸A more detailed analysis of the division of labor within the household maximization process is given in S. W. Polachek, "Potential Biases in measuring Male-Female Discrimination," *Journal of Human Resources* (Spring 1975) pp. 205-229.

THE CONSEQUENCES OF EQUAL OPPORTUNITY FOR WOMEN

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Much is being written about the lack of equal opportunity for women in the American economy, about the obstacles to achieving it and about means of overcoming the resistance. However, very little is being said about what will happen to this man's world when equal opportunity happens. One reason nobody says much about it is that it has never been tried, at least not in any large organization, so there is no evidence. Nevertheless, we do know something about people and about organizations and the ways these influence one another, so it should be possible to make some educated guesses about what will happen when both of these have changed in all the ways necessary to make equal opportunity a reality.

MEN IN THEIR WORLD

What we know about people is that they are potentially many different things. They can be rational and emotional; they can be tough and tender; they can be ambitious and dependent. The cultural setting can enhance or suppress any of these tendencies and, thus, shape the kinds of personalities that develop. It can make women rational, tough and ambitious while it makes men emotional, tender and dependent. It also can do the opposite, or it can make men and women very similar temperamentally.¹

People naturally think that whatever traits their culture produces are innate human nature, including the sex differences. Often, they interpret the structure of their society as being the effect rather than the cause of these traits. Thus it is argued that men are naturally better suited to going out of the home to earn a living because they are ambitious and rational while women belong at home