

HUMAN CAPITAL AND THE GENDER EARNINGS GAP

A response to feminist critiques

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INTRODUCTION

Throughout history numerous books and articles have been written on women's economic roles. Whether they deal with women at work, women in the household, women as volunteers, or women in other economic roles, the writings on women appear to parallel women's activities of their particular historical period. With the onset of the industrial revolution in the mid-1850s and the ensuing growth in female labor force participation, more writings appeared pertaining to women at work in the for-pay sector.

It is hard to tell when economists began to consider feminist issues. Perhaps it started in earnest with classical economist John Stuart Mill's *The Subjugation of Women* (1870), or perhaps, as Pujol (1992) indicates, with Barbara Leigh Smith Bodichon's *Women and Work* (1857). Earlier volumes such as Catherine Beecher's *A Treatise on Domestic Economy* (1841), Asenath Nicholson's *The Intellectual Housekeeper* (1835), Frances Byerley Parkes's *Domestic Duties* (1829), publisher G. Smith's *The Oeconomy of Female Life* (1751), or Gervase Markhams's *The English Housewife* (1631) deal with household management as an occupation, but it is not clear that these are feminist since they do not appear to view women as the victims of exploitation, even though they deal with important women's issues of the time.

Whenever economists began recognizing feminist concerns, the late 1980s and early 1990s witnessed a clear resurgence of interest in economics from a feminist perspective. The main point of feminist economics is that economics infrequently deals with women's issues, and when it does, it does so incorrectly because inherent "male" biases are deeply ingrained in economic practitioners, at this time mostly men. Some feminist economists are rather harsh in their criticisms of modern mainstream economics, others are milder, merely seeking to apply current economic principles to topics particularly of interest to women.

One topic with a long economic history concerns male and female roles

in the economy. As was indicated above, early literature on women appears to deal with women in household roles. Later literature (beginning with Bodichon 1857) looks at women as workers in the labor market. More modern literature integrates women's labor market and family activities (Mincer 1962), while the most recent works (beginning with Mancor and Brown 1980 and McElroy and Horney 1981) embed these home and market decisions into a game theoretic framework. In addition, a long literature from Charlotte Perkins Stetson (1898) through Gary Becker's *Treatise on the Family* (1981) and beyond analyzes the social evolution of the male-female economic relation.

Much of my own research concentrates on one gnawing aspect of the labor market: Why do women earn less than men?¹ In this research, I apply the human capital model to explain how lower lifetime labor force participation (in the paying market) causes women to invest less in market-oriented human capital, thereby preventing women from obtaining the better jobs, while at the same time lowering their market wages. This work has come under heavy criticism by feminist scholars.

Since male-female wage differentials have public policy implications, getting the logic straight has more than pedagogical benefits. At issue is which societal institutions are responsible for this wage disparity. Are they the global international corporations, country governments, or simply societal structures embedded within our culture? Indeed if one knew where within the economy discrimination lies, one would be able to formulate appropriate policies to eradicate such disparities. For example, if firms blatantly discriminate in hiring, promotion and pay practices, then equal opportunity laws (possibly including quotas) might be warranted. On the other hand, if the wage gap emerges because of differences in human capital brought on by differences in lifetime labor supply (either because of tax laws unsympathetic to women, or societal forces giving rise to divisions of labor in the home), then policies making it cheaper for women to work for pay, such as making daycare more readily available or eradicating marriage taxes, might be in order. As I shall show, a careful look at the data strongly indicates that labor supply differences dominate and that the human capital model provides the most cogent explanation.

The purpose of this chapter is to review my research in light of feminist criticisms. I divide the chapter into four parts. First in part one (pages 63–4), to ground these criticisms within the feminist framework, I present my understanding of the principle ideas of feminist economics, and show that much of feminist economics is consistent with aspects of the scientific method. In part two (pages 64–9), to deal with feminist critiques of my work on gender differences, I review the feminist models of the late 1960s (and early 1970s) when I began my research. I show how in reality I employed a scientific method similar to feminists. I did then what feminists do now: I found fault with both the theoretical and empirical

implications of the then prevailing feminist models, only I came up with an alternative model by adopting the life cycle human capital paradigm to analyze investments from what I thought would be a woman's perspective. The model is consistent with the data and explains phenomena feminists consider. Despite this, feminists have criticized the approach – so I devote part three (pages 69–74) to illustrating the model's power in explaining the facts, and to addressing feminist critiques of this human capital approach. Finally, in part four (pages 74–5) I look at policy implications, addressing how human capital is the empowering mechanism to emancipate women.

FEMINIST THEORY

Doing justice to women in the economic system is the main underlying theme espoused by feminist economists. Sounds simple and indeed consistent with present-day economic mores which deal with gender, race, poverty, taxation, and earnings redistribution in gender neutral terms. But feminists argue that androcentric mainstream economics² fails on many counts: from the subject matter defining the topics economists study, to the language and rhetoric describing the issues, to the methodology regarding whether statistically oriented econometrics or more laid-back story telling is appropriate, and even to the very philosophical underpinnings questioning whether agents are really rational or "imaginatively rational" instead (Nelson 1993: 33). Indeed the feminist critique is far reaching. Yet not all feminists agree on the issues. In describing feminist views on the equal pay for men and women debate taking place in the early 1900s (see, for example, Webb 1914; Rathbone 1917; Fawcett 1918) Pujol (1992: 9) argues that there is "not a single coherent feminist position." The same appears to be true today. For example, see Jennifer Roback's (1986) *A Matter of Choice: A Critique of Comparable Worth by a Skeptical Feminist*.

At issue is how to incorporate gender in order to do justice to women in the economy. Some feminists advocate ridding economics of rationality and efficiency, the currently prevailing paradigms. The most radical feminists seek either to demolish or throw out economics and start anew, while the more moderate seek to modify some standard economics assumptions so that economics can be more attuned to women, and hence become more realistic, accurate and bias free. In contrast, other feminists advocate using the current methodology to study topics germane to women: childcare, women in the labor market, women's role in the family, gender wage disparities, women's productivity in non-market activities, and many other topics.

Is the feminist approach any different from other research methodologies? I claim not. Science always progresses by finding fault with the status quo. Questioning the status quo can be done empirically by finding idiosyncratic anomalous results such as a new virus in medicine, a black

hole in astronomy, a quirk in physics; or an unexplained wage differential such as a large gender gap for married men and married women yet a relatively small one for singles in the economy. By the same token, finding fault with the status quo can be done logically by questioning the validity of the very axioms and assumptions upon which a science is based: that not all quadratic equations could be factored led to the quadratic formula; that not all integrals could be solved analytically led to numerical integration; or that the elasticity of substitution restrictions in the Cobb-Douglas production function led to the CES, CPES, CRESH, VES, and other flexible forms. Indeed virtually every group of economists critical of neoclassical economics derided the emphasis on logic, rigor, quantification, abstraction, precision and objectivity, just as do the feminists (see e.g. Nelson 1992). Yet I find it strange that feminists apparently fail to cite their predecessors: the radicals, the institutionalists, the post-Keynesians, and others³. What possibly makes feminism unique is that it takes a woman's perspective and concentrates predominantly on issues dealing with gender. But clearly mainstream economists such as Jacob Mincer, Gary Becker, and others concentrate on gender issues as well.

GENDER IN THE MARKETPLACE

Refuting feminist occupational theories of the 1960s

My own excursion into studying women's issues began as a graduate student in the late 1960s. At the time the US had just gone through two decades of excruciatingly difficult political turmoil with the civil rights movement. Since there was little work on women's wages, I thought I could fill a void. The "new" home economics had still not been developed, but its beginnings were there, known then as the "Morningside Heights" model. Based on what I had learned from the US Civil Rights Movement, market discrimination must be rampant, or why else would women be so disadvantaged in the marketplace?

The prevailing model of demographic group wage differentials was that of occupational segregation popularized by Barbara Bergmann. Her (1971) original work related to blacks; her article on women (Bergmann 1974) was still not in print. The model made eminent sense, as it was based on accurately depicted facts: (a) women earned less than men; (b) women were occupationally segregated in what appeared to be less well paid occupations. Indeed these observations were consistent with dual labor market theory, a popular paradigm prevalent at the time. The occupational segregation model simply related both these facts: women earned less because women were segregated into low-paying jobs. Barbara Bergmann's (1974) innovation was to illustrate how blatant employer discrimination in hiring practices could cause both occupational segregation, and at the same

time be responsible for the observed wage gap. Simply put, Bergmann's approach applied the concept of a neoclassical multi-market equilibrium. If firms discriminate by refusing to hire women in the so-called "good" jobs, then the supply of these women would shift to the "poor" low-paying jobs, thereby causing wage disparities among equally productive workers.

At the time, no one used data to test the validity of this theory⁴. Thus my first task was to devise an index measuring the explanatory power of occupational segregation. To do this, I asked: How much would the wage gap change if women were assigned a male occupational distribution? (I also asked how much the wage gap would change if males were assigned a female occupational distribution.) The results (reported in Chiswick *et al.* 1975 and repeated with different data in Treiman and Hartmann 1981) were in stark contrast to my expectations: at most only 35 per cent of the aggregate male-female wage differential could be explained. Indeed most experiments yield an explanatory power of less than 10 per cent. Other research using regression analysis found an even smaller explanatory power⁵. In summary, I did then (back in the early 1970s) what feminists do today: I questioned the prevailing model (but within a statistical framework) and found that the prevailing literature had significantly less explanatory power than expected. I must admit that the results puzzled me for well over a year, as it seemed that the Bergmann model appeared logical in every detail. In retrospect, I now realize that supply forces were completely neglected.

Demographics and the gender wage gap: a supply side approach

For me the big breakthrough in trying to understand the male-female wage differential came about more or less by accident. Rather than follow the procedure usually used to estimate discrimination (i.e. to estimate a gender categorical dummy variable coefficient in a standard earnings function), I interacted gender with marital status. This yielded one gender discrimination measure for marrieds and another for singles (Polachek 1975b). The results were startling: what was a 35 per cent gap diminished to about 18 per cent for single-never-married males and females, but increased dramatically to over 60 per cent for married-once-spouse-present males and females. Further, children exacerbated the gap. Each extra child less than 12 years old widened female-male pay disparity by 10 per cent. In addition, large spacing intervals between children widened wage disparity further. Even now, Blau and Kahn (1992) show that these differences hold, and are not unique to the US. These same marital status effects are exhibited across various countries in Table 4.1. Using data for Germany, the UK, the US, Austria, Switzerland, Sweden, Norway and Australia, Blau and Kahn found single women to earn 90 to 101 cents on the dollar, yet married women

Table 4.1 Female/male earnings ratios by marital status corrected for hours

Country (earnings measure)	Married workers	Single nonmarried workers
Germany (monthly)	0.57	1.03
UK (annual)	0.60	0.95
USA (annual)	0.59	0.96
Austria (monthly)	0.66	0.97
Switzerland (monthly)	0.58	0.94
Sweden (annual)	0.72	0.94
Norway (annual)	0.72	0.92
Australia (annual)	0.69	0.91

Source: Blau and Kahn 1992: 534

earn about 65 cents on the dollar. In short, marital status, marriage duration, children and child spacing affect female and male wages.

The evidence is clear: were corporate hiring and promotion discrimination responsible for gender wage disparities as advocated by feminist occupational segregation models, then corporate discrimination would have to explain why single women have approximate wage parity with single men, while married women do not. Were corporate hiring and promotion discrimination responsible for gender wage disparity, then corporate discrimination would have to be responsible for children widening the wage gap. Corporations also would have to be responsible for large child spacing intervals exacerbating the gap. No doubt, as invasive as is the current corporation, it is not obvious that these demographic variables form the basis for hiring, pay and promotion policies. Indeed, were one really to understand gender-pay differentials, one would need a theory to explain these demographic patterns of pay disparity. Clearly, demand-driven market discrimination of the type advocated by the 1960s feminists did not fit the bill. For this reason I tried a human capital supply side approach.

The human capital approach

The human capital model argues that earnings are directly related to human capital stock acquired by investing in oneself. These investments take the form of education, health, on-the-job training, job search, geographic mobility, and other activities that enhance market earnings. How much one invests depends on costs and benefits. Costs consist of direct expenditures as well as foregone earnings. Benefits accrue over one's whole lifetime through enhanced wages, and are crucially dependent upon expected lifetime labor force participation. Those who expect to work long hours, and those who foresee the greatest number of years of work have the highest expected returns. This is why young workers with a lifetime of work ahead invest more and have steeper age-earnings profiles than older workers. It is

also why the young exhibit more geographic mobility, and why the young have higher job turnover (Hartog 1992; Polachek and Siebert 1993). In addition, it is a potential reason why women have lower and flatter age-earnings profiles than men (Polachek 1975a).

For the US the biggest change in the labor market this last century has been the rapid rise of married female participation rates (Mincer 1962). Despite this, women's labor force participation still lags behind men's. It is well known that lifetime labor force participation varies by gender, marital status, and number of children as well as child birth spacing intervals. Married-spouse-present men have the highest labor force participation; married-spouse-present women have the lowest; single men and single women participate at rates in between. Lower lifetime labor force participation implies lower gains from human capital investment, and less lifetime investment. In turn, lower investment levels imply lower and flatter age-earnings profiles⁶.

The human capital hypothesis was initially tested by fitting a segmented earnings function that incorporates intermittent labor force participation especially exhibited by married women with children (Mincer and Polachek 1974). Although there is some debate about magnitudes (see Sandell and Shapiro 1978; Mincer and Polachek 1978), these analyses consistently show earnings potential to depreciate (or atrophy) $\frac{1}{2}$ percent to $4\frac{1}{2}$ percent for each year out of the labor force, independent of one's gender (Kim and Polachek 1994). Indeed atrophy rates vary according to consistent patterns. The more educated who have higher amounts of human capital exhibit the largest depreciation rates, as do those in more technical and managerial type occupations.

More importantly, differing atrophy rates have implications concerning occupational segregation. One can minimize losses associated with intermittent labor market behavior by choosing to work in an occupation that minimizes the costs of labor market intermittency. Despite criticisms by

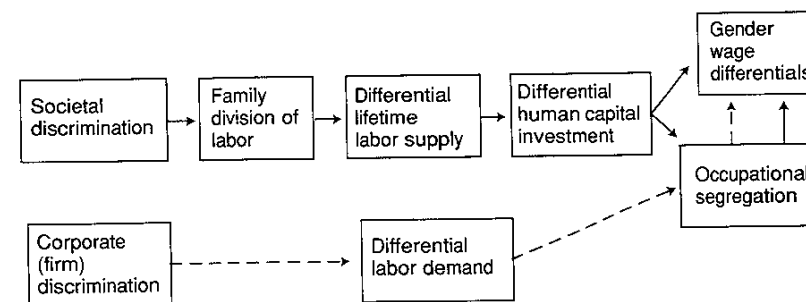


Figure 4.1 The human capital approach contrasted with the theory of occupational segregation

feminist sociologist Paula England (1982) which have already been addressed in the literature (Polachek 1984, 1985 and 1987), I argue that one aspect of this decision to minimize the costs of intermittent labor force participation entails choosing lower atrophy occupations. But clearly other job attributes such as hours flexibility and working conditions are also important (Polachek 1981). If this is the case, then at least some occupational segregation can be explained using a supply side approach. In short, supply side factors explain both occupational segregation and gender wage differences. These aspects of the human capital model are pictured in the top right half of Figure 4.1. (The role of societal discrimination also pictured in Figure 4.1 will be discussed later, page 71.)

The empirical power of the human capital approach

Dropping out of the labor market explains up to 93 percent of the gender wage gap. Let me illustrate: the typical intermittent worker's earnings profile can be depicted as OABF (Figure 4.2)⁷. OA reflects earnings growth during the initial work segment (e_1). During time out of the labor force (H), earnings power typically declines. Finally upon re-entering the labor market

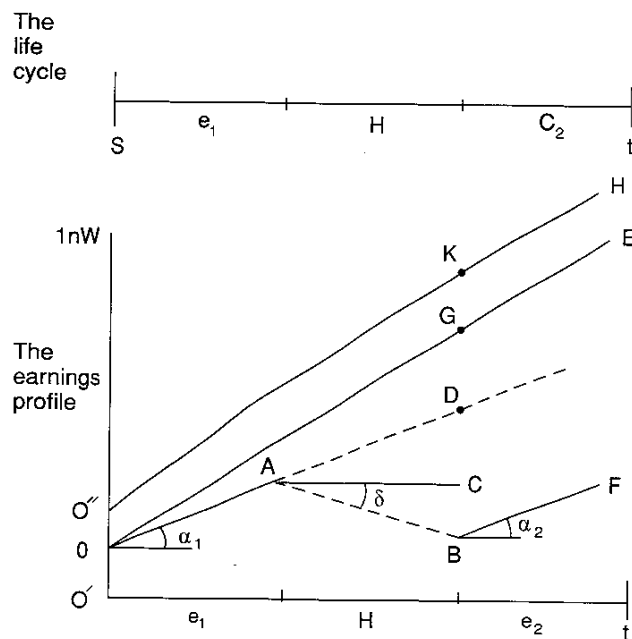


Figure 4.2 Labor force intermittency and its effect on earnings
Source: Polachek and Siebert (1993: 161)

(period e_2), earnings again rise. The typical continuous worker has profile O''H. This implies a wage gap of BK.

To estimate discrimination it is often asked what the intermittent worker would earn were there no intermittency? Most studies project the initial earnings function to point D. As such earnings are enhanced by the components: BC and CD. BC represents the depreciation of earnings and CD represents the loss in earnings potential attributable to lost seniority. The problem, however, is that BD understates the amount by which earnings would rise. Were one to have zero home time, one would have greater lifetime work expectations, a higher marginal gain from investment, and hence a higher rate of investment even before one drops out of the labor force at point A. This usually manifests itself by selecting⁸ jobs entailing greater on-the-job investment potential, such as management trainee type positions. Alternatively one can select a job requiring a specific market-oriented curriculum such as medicine or law (Paglin and Rufolo, 1990). Thus were one not to drop out of the labor force the earnings profile initially would rise at a steeper rate (to reflect greater training) and at the same time be higher to reflect more market oriented education. DG and GK represent these biases in the original estimate.

One set of studies tries to account for these biases by adjusting for the lower rates of human capital acquisition caused by expected labor market intermittency (see Polachek 1975a; Goldin and Polachek 1987; Kao *et al.* 1994). These results, summarized in Table 4.2, analyze gender wage differences for Taiwan and the US. For the US between 30 percent and 48 percent of the gap is explained by schooling and experience (age minus education minus six) while between 63 percent and 93 percent of the gap is explained by expected lifetime labor force participation⁹. For married men and women in Taiwan in 1989, there is a NT\$9,760 wage differential. Adjusting for schooling and experience (measured as age minus education minus six) explains only 24 percent of the gap. However, adjusting for lifetime labor force expectation explains 84 percent of the gap.

FEMINIST CRITIQUES OF THE HUMAN CAPITAL MODEL

The human capital model explains upwards of 90 per cent of the male-female wage gap, a far greater explanatory power than any other model (recall that occupational segregation explained at best 35 per cent). Yet of all explanations for male-female differences the human capital model appears to be the most subject to feminist criticism. I am not sure why, but suspect three main reasons and shall deal with each in turn:

- 1 that feminists interpret the human capital model as blaming women for their own plight;

OUT OF THE MARGIN

Table 4.2 Gender wage differentials: the explanatory power of the human capital model

	United States			
	Married men and married women			
	1960		1980	
	Wage gap \$	Explanatory power (%)	Wage gap \$	Explanatory power (%)
Raw earnings differentials	4,740		11,059	
Wage gap: adjusted for schooling and experience	3,032	36	7,741	30
Wage gap: adjusted for anticipated intermittent labor force participation	324	93	1,717	84
	Single men and single women			
	1960		1980	
	Wage gap \$	Explanatory power (%)	Wage gap \$	Explanatory power (%)
Raw earnings differentials	1,300		4,141	
Wage gap: adjusted for schooling and experience	671	48	2,424	41
Wage gap: adjusted for anticipated intermittent labor force participation	486	63	1,378	67
	Taiwan			
	Married men and married women			
	1987		1989	
	Wage gap NT\$	Explanatory power (%)	Wage gap NT\$	Explanatory power (%)
Raw earnings differentials	7,539		9,760	
Wage gap: adjusted for schooling and experience	5,776	23	7,437	24
Wage gap: adjusted for anticipated intermittent labor force participation	1,917	75	1,549	84

Sources: Polachek 1975a; Goldin and Polachek 1987; Kao *et al.* 1994

ECONOMIC THEORY

- 2 that feminists claim that demand side discrimination is not considered;
- 3 that empirical predictions concerning narrowing of the male-female pay gap are not upheld by the data.

Societal discrimination and division of labor in the home

Many misinterpret the supply side human capital approach. It is true that I claim that had women invested in more market oriented human capital, they would have achieved higher levels of economic success. However, I do not claim that it is women's own fault for investing less, as feminists argue (e.g. Bergmann 1986: 81). Investment must be motivated by economic returns. Being shackled with home responsibilities, either by one's own choice or for some other external reason, does not bode well for providing sufficient economic incentives for women to invest at levels comparable to men. Whereas I have not researched why there is a division of labor in the home which causes this gendered dichotomy, I do note societal and governmental forces at work.

From the societal perspective women are invariably younger, and at least in the past less educated, than their husbands, thereby causing a male comparative advantage towards specialization in labor market activities (Polachek 1975b). Some very promising and innovative work on allocation within the family and hence on the division of labor adopts a game theoretic approach (Mincer and Brown 1980; McElroy and Horney 1981). Indeed work in this area is beginning to blossom (see McElroy 1990; Dassgupta 1993; Ott 1993). In addition, this game theory approach is being used to explain other market areas in which bargaining may put women at an economic disadvantage (Sap 1993).

From the perspective of government forces, women have consistently been subjected to marriage taxes, restrictive work rules, and the unavailability of daycare. Even in 1994 Daniel Feenberg and Harvey Rosen (1994) find that 52 per cent of American couples will pay an average of \$1,244 in marriage taxes, and that some couples may pay marriage taxes in excess of \$10,000.

As such I have consistently emphasized societal as opposed to market discrimination (Polachek 1984). Figure 4.1 (top half) illustrates the link between societal discrimination, family division of labor in the home, human capital investment, occupational segregation and wages. This should be contrasted with the bottom half which illustrates Bergmann's occupational segregation theory.

Causality

One cannot help but note the direction of causality implied in Figure 4.1. I argue that societal discrimination causes a division of labor in the home,

which in turn causes differential human capital investments, manifested by women being in less prestigious, lower-paying jobs. Critics rightfully argue that causality may be the reverse: lower women's wages (perhaps caused by market discrimination) decrease women's incentives to invest thereby causing lower women's labor force participation which results in a division of labor in the home.

Back in 1973, Jacob Mincer and I knew that causality would be an issue with which researchers would have to deal. Indeed our 1974 paper addresses this question (Mincer and Polachek 1974). Basically, there are two ways to test for causality. One can use cross-sectional simultaneous equations estimation, or one can use time-series Granger causality tests. Frankly, I have reservations about both. In cross-sectional analysis the necessary identification restrictions are often ad hoc. In time-series analysis, it is not clear there is causality just because one event follows another. Nevertheless, the Mincer and Polachek paper (1974) explicitly used a cross-sectional instrumental variables technique. We found that our original depreciation parameters hold when one assumes that the time out of the labor force is motivated by economic considerations. Later work applies panel data techniques which follows individuals over time (Mincer and Polachek 1978; Mincer and Ofek 1982). It establishes "that real wages at reentry are, indeed, lower than at the point of labor force withdrawal, and the decline in wages is greater, the longer the interruption" (Mincer and Ofek 1982: 3). Finally my latest work combines panel estimation techniques with cross-sectional methods (Kim and Polachek 1994). The results are unambiguous. The unexplained male-female wage gap declines from 40 per cent to 20 per cent when one uses panel data. When further adjusting for simultaneity using cross-sectional approaches, this 20 percent panel data estimate of the gender earnings gap falls and approaches zero per cent. These results hold for two separate subsamples of the University of Michigan Panel Study of Income Dynamics data.

Landes (1977), Lazear and Rosen (1990), and Kuhn (1993), as well as others show that it is efficient for firms to discriminate (a form of statistical discrimination) in hiring and pay practices if they expect intermittent labor force participation, even for women who themselves expect never to drop out. Despite the rationale they provide for such corporate behavior, my empirical work finds stronger support for supply differences. While I do not deny the possibility of demand forces, I believe strongly that neglecting supply forces in devising policies to combat gender inequality runs the risk of putting women at a strong future economic disadvantage. I believe many feminists have come around to realize the importance of supply side considerations (see e.g. Blau and Kahn 1993). More on these policy issues later.

Time trends in the male-female wage gap

Given the rapid increases in female labor force participation, the human capital model predicts that women's earnings should be rising secularly. From 1960 to 1980 the male-female wage gap barely changed at all. Women in 1960 earned 59 cents on the dollar, yet in 1980 women barely earned 63 cents on the dollar. Clearly, if the human capital model were to be accurate, one should see wage convergence rather than a stable male-female wage gap. Indeed many believe that the 40 per cent wage gap exists over all recorded history¹⁰.

As it turns out, the decades from 1960 to 1980 are an anomaly. In October 1992 an article appeared in the *New York Times* with the headline "Women's Progress Stalled? Just Not So," based on work by Claudia Goldin, June O'Neill and myself, as well as Francine Blau and Marianne Ferber (Nasar 1992), indicating the overall convergence in the wage gap between 1890 and 1990. Clearly, from this article, one sees that the time period 1960 to 1980 is atypical. Female relative wages were rising before 1950 and since 1980. Indeed my own recent research (Figure 4.3) indicates the differing rates of male-female pay convergence between the 1970s and the 1980s. The 1970 to 1980 wage gap narrowed very slowly, while from 1980 on the wage gap narrowed more quickly at about 1.7 per cent per year.

In a sense this more rapid wage convergence of the 1980s compared to the 1970s is strange because female labor force participation rose dramatically in the 1970s, yet the rise in female labor force participation tapered off in the 1980s. This 1980s wage convergence trend is equally startling for advocates of strong Equal Employment Opportunity policies, since in the

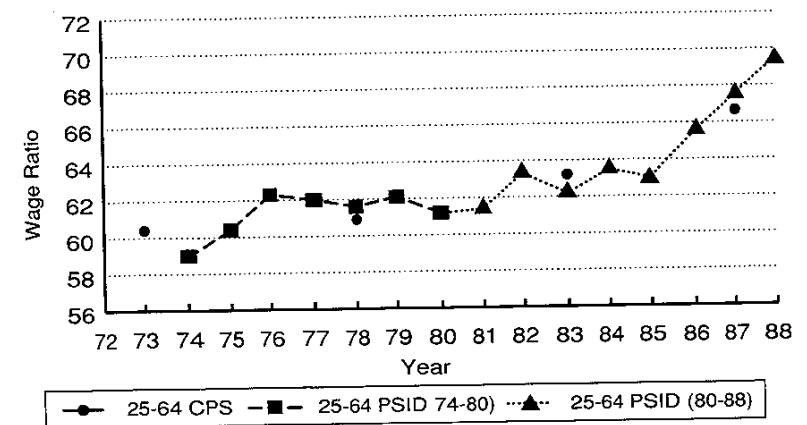


Figure 4.3 Female-male wage ratios: white full-time workers
Source: Polachek (1990)

1970s enforcement of anti-discrimination laws increased twenty-fold, while in the 1980s affirmative action activities actually fell. Yet women's wages rose relative to men's in the 1980s but hardly appreciated in the 1970s.

My recent research indicates that these exceedingly paradoxical trends are consistent with the human capital model (Polachek 1990). The rapidly rising female labor force participation of the 1960s and the 1970s actually brought down female wages because new inexperienced workers earned less than older more senior workers, thereby making female wage growth appear less rapid. The decline played itself out in the 1980s as the relative growth in female labor market entrants diminished, and as the proportion of women's years actually worked increased. If one were to adjust appropriately for labor market joiners and labor market leavers, the male-female wage convergence is actually the same in both decades. Indeed the findings by Blau and Kahn (1993) indicate that current research understates male-female wage convergence in the 1970s and 1980s, as well. Using statistical techniques that account for changes in the earnings structure, they find that women's progress is far greater than previously thought. Thus skepticism concerning the human capital model is clearly unwarranted.

GOVERNMENT POLICY AND THE EMPOWERMENT OF WOMEN

Some have argued that I claim that demand side discrimination does not exist. This is as far from the truth as imaginable. Yes, there is a tendency for long-run competitive forces to drive out any business enterprises engaging in discrimination. However, not all economic sectors are competitive. Enterprises such as government, public institutions, and regulated monopolies do not compete in the marketplace. They need not minimize costs, nor maximize profits. As such, these entities are indeed capable of discriminating. In fact, past studies have illustrated this point for regulated monopolies (see e.g. Alchian and Kessel 1962)¹¹. Since non-competitive forces are the prime cause of unequal opportunity, promoting economic competition is the greatest weapon in preventing discrimination.

Government policies have not concentrated on opportunity, but instead on outcome measures. Outcome measures are defined as the level of economic success observed for various demographic groups. It has been alleged that an unequal economic outcome among women is prima facie evidence for discrimination to have resulted. Obviously, based on the model of wage determination just presented, unequal economic outcomes in society need not result from unequal economic opportunities, though some studies clearly imply this to be the case¹². It has just been illustrated that division of labor within the home is at least partially responsible. Thus even the most stringent anti-discrimination legislation cannot eradicate sex differences, if differences in human capital investment incentives remain.

Whereas it is not up to the state to legislate how many children families should have or whether the husband or wife must take responsibility in raising children, it is the state that helps set up the costs for these decisions. High marginal tax rates on wives' earnings decrease their labor market incentives. Unavailability of low-cost daycare centers do the same. Indeed government tax policies, especially marriage taxes, have exacerbated family division of labor which has been responsible for the empowerment of women and the resulting gender wage differences. I refer to the empowerment of women by governmental and other societal forces that diminish women's incentives to participate fully in the labor market as societal discrimination. I argue that societal discrimination far exceeds what some term to be market discrimination, and that this societal discrimination is the type of discrimination that has to be eliminated. I argue that investing in human capital is the empowering mechanism to emancipate women.

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NOTES

- 1 Not at issue here is whether men or women should work, or whether women's (or men's) non-market activities in the home or elsewhere are appropriately valued. See Marilyn Waring (1988) for a description of these issues.
- 2 Pejoratively referred to as "malestream" by Pujol (1992: 200). It is hard to rationalize how *ad hominem* criticism leads to scientific discourse. I suspect personifying the "enemy" psyches one up just as ball players get psyched up by singing team chants.
- 3 I thank Nancy Wulwick for pointing this out to me.
- 4 The Becker book (1957) introduced some skepticism because in the long run competition should drive out discrimination.
- 5 For example, Hallerstein and Neumark (1993: 18), one of the latest papers containing a test of occupational segregation, find that "the coefficient on percent female in the occupation is positive" (not negative as would be expected) "and insignificant." Johnson and Solon (1986) get explanatory power of about 3 per cent. The explanatory power inferred from England (1982) is less than 5 per cent, and that of Fuchs (1971) is between 0 per cent and 6 per cent.
- 6 In addition for the US, gender labor force participation differences are smaller for non-whites than whites, implying a smaller predicted gender wage difference for blacks than whites, which incidentally is observed in the data. Other implications include initially flatter earnings profiles for those intending to be more intermittent in the labor force (Sandell and Shapiro 1980), and a tendency towards steeper earnings profiles when, after a long hiatus,

intermittent workers permanently re-enter the labor market (Mincer and Ofek 1982).

- 7 This diagram and explanation appear in Polachek and Siebert (1993: 161).
- 8 Critics espousing the demand side such as Landes (1977), Goldin (1986) and Kuhn (1993) rightfully argue that women might not be "free to choose" their job. In anticipating high job turnover among women job incumbents, firms might fear making a commitment to pay for firm specific training. As such, they may shy away from employing women in "good" jobs (Landes), or they may require more stringent standards among women incumbents (Lazear and Rosen 1990; Kuhn 1993). Indeed this might be why surveys indicate that women in better jobs claim to have faced greater discrimination levels. It is also the basis of statistical discrimination theories beginning with Phelps (1972) which argue that because of the high costs of identifying those with the greatest work expectations, firms stereotype all women as "non-workers." Later I present evidence against these demand side approaches.
- 9 The US computations were done before release of the 1990 US Census, and as yet the procedures were not replicated for these newer data.
- 10 Perhaps Victor Fuchs was the first to point to Leviticus containing the first known estimate of male-female discrimination (Chapter 27, verses 2-5): "Speak unto the children of Israel and say unto them: When a man shall clearly utter a vow in person unto the Lord, according to thy evaluation, then thy evaluation shall be for the male from 20 years old even unto 60 years old, even thy evaluation shall be 50 shekels of silver, after the shekel of the sanctuary. And if the speaker be a female, then the evaluation shall be 30 shekels. And if it be some five years old even unto twenty years old, then thy evaluation shall be for the male 20 shekels, and for the female 10 shekels. And if it be from a month old even unto five years old, then thy evaluation shall be for the male 5 shekels in silver, and for the female thy evaluation shall be 3 shekels in silver."
- 11 Also see Cymrot (1985) on how elimination of Major League Baseball's reserve clause decreased discrimination against non-whites.
- 12 Studies assessing the effects of government policies find mixed results. For example Blau and Ferber (1986) state that "a review of the trends in the male-female pay gap . . . gave no indication of a notable increase in women's economic status . . . that might be attributable to the effects of government's anti-discrimination effort." For the UK, Zabalza and Tzannatos (1985) explain about 15 per cent wage convergence through the enactment of the Sex Discrimination Act.

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