The Demand for Female Labor[1]

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A number of theorists identify the demand for female labor as a central determinant of gender inequality. The authors construct a measure of the demand for female labor and test its impact on labor market inequality, educational attainment, family structure, political representation, and gender role attitudes across 261 metropolitan areas. Areas with more traditional female occupational structures have less labor market and educational gender inequality. However, there is little evidence of a relationship between demand for female labor and family, politics, or gender attitudes. Macrolevel gender stratification theories may therefore have a scope that is too broad. Different gendered outcomes depend on different sets of causal influences.

Social theorists have identified many possible determinants of macrolevel variation in gender stratification. These explanations of gender inequality vary from ideological systems (Sanday 1981) to unbalanced sex ratios

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(Guttentag and Secord 1983), and from modernization processes (Boserup 1970) to human capital investments (Mincer and Polachek 1974). A number of theorists (Dunn, Almquist, and Chafetz 1993; Blumberg 1978, 1984; Chafetz 1984, 1990; Collins et al. 1993; Huber 1991) identify the demand for *female* labor (i.e., the demand for women to work in occupations labeled as female) as a central determinant of the degree of gender inequality in society. This demand for female labor has received less empirical attention than have other causes of gender stratification, and rigorous empirical tests are especially lacking for contemporary industrial societies. Our purpose in this article is to develop a measure of the demand for female labor in the United States and test its impact on a broad scope of gendered outcomes. To do this we compare metropolitan areas (MAs) in 1990 on labor market outcomes, education, family status, political representation, and gender attitudes. This range of dimensions of gender stratification allows us to examine whether or not the demand for female labor has broad macrolevel effects on gender inequality as demand theories suggest.

THEORY

The demand for female labor is central to many of the complex multicausal theories of gender stratification that have emerged in the past several decades. Although there is considerable variation from one theorist to another, most treat the relative degree of economic power allocated to women and men as critical to gender inequality, and the overall demand for female labor as the important determinant of that economic power.

In identifying a demand for *female* labor as central to explaining gender stratification, these theorists assume (1) that there is a gender segregation of tasks in society that specifies some tasks as exclusively or generally performed by women, (2) that the importance of these female tasks varies over time and across societies in association with exogenous factors such as technology, and (3) that this variation determines the relative autonomy or subordination of women across a wide range of political, economic, demographic, and ideological outcomes.

Rae Lesser Blumberg's (1984) macrostructural theory is perhaps the strongest formulation of the centrality of the demand for female labor in determining gender stratification. She contends that without economic power, women have very limited, if any, access to other forms of power, including macrolevel political power and ideological power (Blumberg 1984) and control over microlevel household and fertility decisions (Blumberg 1991). Among hunting-gathering and horticultural societies, women's participation in what their societies view as "productive work" increases women's status while exclusion from such productive work in

more advanced agrarian societies reduces their status. And about contemporary societies, she asserts that "it has been the *demand* for their labor, rather than a sudden upsurge in the supply of women wanting to enter the labor force that has been the [most important] factor in explaining U.S. women's rising labor force participation" (Blumberg 1978, p. 101; emphasis added) and that "women have done best in developing countries where there has been a demand for labor that they could best fill" (Blumberg 1978, p. 112). Thus, Blumberg (1984) claims that women's labor must have an element of "strategic indispensability"; it is not merely women's *ability* to supply labor that determines gender inequality but also the *demand* for their labor that does so.

Similarly, Janet Saltzman Chafetz (1984) argues that the degree of gender equality is greater where women produce those things that are highly valued in their society and where their work is not easily replaced. Where the demand for female labor is high, gender stratification will be low if the supply of women is low (i.e., women are not replaceable). Like Blumberg, Chafetz recognizes that the supply of women is not the critical factor in increasing women's status relative to men's; it is the demand for women's labor in productive work that is important in diminishing gender inequality. For example, there may be a great supply of women to contribute to the productive work in a society, but if their labor is not "needed" to sustain the society, they are kept out of productive work and their status does not increase. Chafetz (1984, p. 53) argues, "It is likely that where females are relatively highly disadvantaged because of their minimal contributions to important productive activities, barriers might be erected by the powerful (males) to prevent or make it difficult for women to engage in highly valued work, thus protecting male access to valued jobs." Thus, the demand for female labor in important productive roles is essential to decrease gender inequality; the supply of women alone will not increase women's status. Taken together, a short supply of women *and* a high demand for female labor is the best formula to increase women's status relative to men's.

Valerie Kincade Oppenheimer's (1973) work focuses more narrowly on how the demand for female labor played the crucial role in expanding women's labor force participation in the postwar United States. "The continued economic development in our society has increased the demand for female labor, which combined with demographically induced shifts in the supply of women, has resulted in a considerable" rise in women's labor force participation (Oppenheimer 1973, p. 186). The rapid increase in the demand for female labor from 1950 to 1969 resulted from women workers dominating occupations that "were destined to expand enormously with the industrial growth of our society" (Oppenheimer 1973, p. 189) such as nurses, teachers, and secretaries (Oppenheimer 1970, p. 152). Together

with a sharp decline in the usual pool of female labor (young single women), the rising demand for female labor pulled older and married women into the labor market.

Joan Huber (1990) has extended Oppenheimer's work to argue that women's increased labor force participation, which resulted from the growth of clerical and service work, also led to broader gender equality. She traces, for instance, the growth of the women's movement in the 1960s and 1970s to these changes in the labor force. And at the individual level, "Women's labor force participation will be the major variable explaining attitudes and behaviors relevant to sex stratification" (Huber and Spitze 1983, p. 50). Huber and Spitze (1983, pp. 25, 34) trace the growth in women's labor force participation to, among other factors, the development of the modern service sector and the effects of corporate expansion and the larger bureaucracies on the growth of "paper shuffling"—a task that had become defined as women's work. But, more than Chafetz and Blumberg, Huber considers other causal mechanisms as equally important, especially fertility and mortality patterns, women's education, and family technology (e.g., infant formula).

CONSEQUENCES OF THE DEMAND FOR FEMALE LABOR

Most macro theories emphasizing the demand for female labor suggest that its impact spreads over multiple dimensions of gender stratification ranging across economic, family, demographic, ideological, political, and educational systems (Oppenheimer's concentration on labor force participation is the exception here). Multiple feedback mechanisms typically tie these various dimensions together "in a fishnet of causal arrows" (Collins et al. 1993, p. 203). Table 1 reviews outcomes considered in the main theories focused on the demand for female labor. Each considers between 16 and 24 of the 28 categories.[2] The most important factors across these four theories can be described in five broad categories: (1) family structure (household division of labor and lineality and inheritance), (2) education, (3) economic outcomes (income and property and labor force participation), (4) locality and geographic mobility, and (5) values, beliefs, and attitudes. All of the theories summarized here point to these factors as important gender stratification outcomes.

[2] This multidimensionality is not unique to gender theories emphasizing the demand for female labor. Brinton (1988, p. 329), who emphasizes educational and training institutions, includes 14 of the factors in advocating the union of "institutions of family, education, and work . . . into one theory of gender stratficiation." Collins (1975), who emphasizes kinship and control of sexuality, includes 19, and Mason (1986), who is more interested in explaining fertility, lists 16 of these categories among her oft-cited list of women's status factors.

TABLE 1

GENDER STRATIFICATION OUTCOMES ACROSS MACROSTRUCTURAL THEORISTS

	Blumberg	Chafetz	Huber	Collins et al.
Breastfeeding	X		X	X
Childcare	X		X	X
Divorce	X		X	X
Dowry/bride-price	X			
Education	X	X	X	X
Family decision making	X	X		X
Fertility	X		X	X
Household division of labor	X	X	X	X
Income and (consumption) property	X	X	X	X
Labor force participation	X	X	X	X
Legal regulations		X	X	
Lineality and inheritance	X	X	X	X
Locality and geographic mobility	X	X	X	X
Marital partners (choice/exogamy/etc.)	X		X	X
Marital status/age at marriage	X		X	
Market versus household base of economy	X			X
Mortality (and sustenance: food, shelter)	X	X	X	
Movements/protests			X	X
Occupational/labor segregation	X		X	X
Political office and power		X		X
Productive property/ownership and control	X	X	X	
Psychic gratification	X	X		X
Sex ratio		X	X	X
Seclusion/physical mobility	X		X	X
Social control of sexuality	X		X	X
Time (discretionary)	X	X		
Values, beliefs, and attitudes	X	X	X	X
Violence (interpersonal)	X	X		X
Total	24	16	21	22

In addition to these theoretical justifications, the timing of empirical changes in gender inequality over the past several decades also suggests that many consequences of gender stratification may be related to a common causal origin. Trends for many indicators of gender inequality reveal substantial improvement in women's status since about 1970 with little change before. For example, women's share of men's earnings increased steadily from 59% in 1970 to 71% in 1992 (Spain and Bianchi 1996, p. 111) despite almost no change in the decades prior to 1970. Similarly, occupational integration began to improve in the 1970s and continued through the 1980s. This pattern of improvements has not been limited to labor market outcomes. Some gender role attitudes, for instance, did not

change much in the 1950s and 1960s but began their upward climb around 1970 (Ferree 1974). College completion rates started becoming more equal somewhat earlier, in the 1960s (Spain and Bianchi 1996, p. 56). Divorce rates began climbing in the late 1960s and age at marriage in the mid-1970s. Female share of state legislators increased from 8% in 1975 to 16.9% in 1989 (Taeuber 1991, p. 346). Although the exact timing of the changes in gender stratification varies somewhat across indicators, there is a narrow time span in which an earlier pattern of relative stagnation is interrupted and steady change commences. The similarity in the trends suggests a common causal element that had multiple consequences across the social structure. Empirical tests of causes of gender stratification therefore need to take into account these possible multiple consequences.

Our research focuses on a subset of the factors in table 1 relevant to gender inequality in U.S. MAs. We group those factors into five conceptual categories: economic outcomes, educational attainment, family structure, politics, and attitudes. While separate studies focusing on each outcome might offer somewhat greater depth of model specification, our aim is to match the breadth of scope typical of macrolevel gender theories with a similar breadth of empirical study. Despite its theoretical importance, relatively few empirical analyses investigate the demand for female labor, especially across multiple dimensions of gender inequality. While Blumberg (1984) has used the Human Relations Area Files to test portions of the theories on preliterate societies, studies of contemporary societies have only occasionally measured the demand for female labor. More often included are factors such as the size of the service sector from which the effect of the demand for female labor might be inferred. Frequently, rates of women's labor force participation are treated as independent variables despite the endogeneity resulting from the greater supply of female labor caused by many other elements in the gender stratification system (e.g., lower fertility, higher divorce, more educational equality, gender equity legislation, changing attitudes). Below we review the theoretical and empirical linkages between the demand for female labor and each of our dimensions of gender stratification.

Labor Market Outcomes

Women's position relative to men in the labor market represents perhaps the most direct and obvious connection between the demand for female labor and gender equality. Three labor market variables have been examined across time and place—women's participation in the paid labor force, occupational gender segregation, and gender differences in earnings. As argued by Chafetz (1990), increases in the demand for women's labor, whether due to demographic, technological, or economic factors, should

result in increased labor force participation for women. In addition to Oppenheimer's (1973) landmark study noted above, Jones and Rosenfeld (1989) show that employment in public administration (a factor plausibly linked to the demand for female labor) increases women's share of the local labor force across 50 MAs between 1950 and 1980.

Similarly, increases in the demand for female labor should raise the price offered for that labor and thus reduce gender earnings inequality (Collins et al. 1993, p. 192). Indeed, it is the rise in women's earnings that is a main *cause* of the increases in their labor force participation (Smith and Ward 1984, 1986). However, there are also contradictory consequences of a higher demand for female labor: since that demand is generated by a larger share of the labor force in predominantly female occupations, more women will be found in those *lower paying* occupations (England 1992). Thus the structural effect of increased demand will be to increase the gender earnings gap while, within occupations, the greater demand should lead to higher wages for women and a smaller earnings gap. Which effect predominates is an empirical question.

Empirically, also, it is doubtful that the increased demand for female labor can explain the recent trends in gender earnings equality. The growth in the demand for female labor in the third quarter of this century was not accompanied by any noticeable decline in the gender earnings gap (Bianchi 1995). And the subsequent narrowing of the gender earnings gap after the mid-1970s has been more often attributed to the increased supply of more experienced and educated female workers (O'Neill and Polachek 1993) or to the decline in wages for less skilled male workers (Bernhardt, Morris, and Handcock 1995; Bianchi 1995; Oppenheimer 1994; Blau and Kahn 1997) rather than to the increased demand for female labor.

The consequence of the demand for female labor for occupational segregation is even more uncertain. When the demand for female labor is measured by the extent to which the occupational structure is skewed toward typically female occupations (Oppenheimer 1970), this index is, by definition, *positively* related to what Blau and Hendricks (1979) identify as the structural component in occupational segregation (see also Charles 1992; Bianchi 1995): when the gender compositions within occupations are held constant, a labor market with more female occupations will have more women concentrated in those segregated occupations and thus will have higher occupational segregation.

Empirical comparisons of MAs have found that occupational segregation is *higher* where the labor force is skewed toward occupations or industries that tend to be predominantly female at the national level (Abrahamson and Sigelman 1987; Lorence 1992). Similarly, Charles's (1992) cross-national analysis found that factors related to the demand for female

labor (e.g., larger service sectors and more bureaucratized work) were associated with greater occupational segregation. And countries with higher rates of women's labor force participation had especially large overrepresentations of women in traditionally female occupations such as clerical, service, and sales work. Over time, there also may be little empirical relationship between the demand for female labor and occupational integration. While women's labor force participation has increased steadily in the postwar United States, occupations have become more integrated only since 1970 (Bianchi 1995).

For the demand for female labor to be associated with more *integration* (gender equality), this structural relationship must be offset by desegregation within each occupation. In fact, over the last couple of decades, most of the increasing occupational integration has been accomplished by this within-occupation desegregation, in particular by women entering previously male occupations (Cotter et al. 1995*a*). The fact that predominantly male occupations are integrating in the face of increased demand for female labor from female occupations suggests that the female demand–integration relationship cannot be explained within a simple supply and demand framework. The demand for female labor must stimulate egalitarian pressures leading to integration within occupations, which more than compensates for the segregating impact of the growth in female occupations.

Educational Outcomes

It is more common to think of women's gains in education as a cause rather than a consequence of their improved status (e.g., Huber 1990). But when the demand for female labor is high, one might anticipate that young women would pursue more education to compete in the labor market. In contrast, when there is low demand for female labor and young women do not expect to spend much of their lives in the labor market, it may seem less rational to invest heavily in human capital. Mare (1995), for instance, argues that the educational attainments of men and women have reflected the opportunities for employment and the economic benefits of education. Thus, women's historically lower rates of college attendance and graduation reflect weaker direct benefits from increased education.

On the other hand, one could also predict that an increased demand for female labor would encourage women to drop out of school because of the more favorable economic climate and the increased earnings available. Since both the opportunity costs of continuing school and the rewards of human capital are raised by higher demand, the theoretical prediction is indeterminate. The behavioral consequences may depend on the *type* of female labor demand: are the greater number of female jobs found more

in professional and managerial occupations, which require more education, or are they found in clerical and service work, which would encourage earlier entry into the labor market?

Long-term empirical trends show increasing proportions of men and women completing high school and college (Mare 1995). Among recent cohorts, more women than men now graduate from high school, go on to college, and finish their college degrees. These secular trends are consistent with the steady increase in the demand for female labor, but there is little macrolevel research investigating this relationship (Jacobs 1996). Most educational research focuses on individual and familial predictors of individual educational attainment (e.g., Sewell, Hauser, and Wolf 1980). Macrolevel studies of educational attainment primarily describe participation trends by gender (Karen 1991; Moore 1987; Stromquist 1989). However, the studies that do analyze the factors associated with women's enrollments do not examine the demand for female labor, although other indicators of labor market conditions are included. For the period 1952–80, higher U.S. women's enrollments are associated with higher rates of women's labor force participation, a larger share of the labor force in service occupations, especially professional and technical occupations and clerical occupations, and lower unemployment rates (Walters 1986). State-level data from 1900 show women's enrollments in higher education were positively associated with female teaching opportunities (Durbin and Kent 1989).

Family Structure

Women's employment has long been recognized to have important consequences for family structure. Joan Huber and Glenna Spitze (1983, p. 43) make the causal linkages clear: "A high demand for women workers triggers a rapid rise in women's labor-force participation. Such a labor shortage in 'female occupations' occurred in the United States after World War II. In turn, increased rates of women's labor-force participation are associated with a lower proportion of persons ever marrying, a later age at first marriage, a higher probability that the marriage will end in divorce, and lower fertility. These trends tend to increase women's labor-force participation still further." The endogeneity of women's labor force participation is well recognized in the last sentence. But it is the exogenous increases in the *demand* for female labor that triggers the sequence of family changes. Others have also argued that women's higher earnings increases their economic independence and thereby reduces women's need to marry (Becker 1981; England and Farkas 1986).

On the other hand, while women's own income may reduce the value of marriage for women, it may enhance the value of marriage for men

(Moffitt 1992). Moreover, while the coincidence in the 1960s and 1970s of increasing women's labor force participation and rising divorce rates suggested a causal relationship, the recent leveling of divorce rates but continued increases in women's labor force participation questions the empirical linkage (McLanahan and Casper 1995). So while most gender stratification theories predict an effect of the demand for female labor on higher divorce and lower marriage rates, it is neither theoretically nor empirically certain.

Women's participation in the modern labor force is usually seen as incompatible with high rates of fertility, especially in the absence of adequate child care. Much of the microlevel empirical research here has focused on the direction of causation since an incompatibility of child rearing and work outside the home implies causal influences in both directions (Cramer 1980; Felmlee 1993). The problems of reciprocal causation and simultaneity are, if anything, more severe at the macro level. However, our focus on the *demand* for female labor escapes the worst of these problems since it is less plausible (but not inconceivable) that the factors that determine demand for female labor (e.g., industrial shifts, business organization) are themselves consequences of trends in marital status or fertility.

While much of the research examining the influence of women's economic conditions on fertility and marriage patterns uses individual-level data (e.g., Esterberg, Moen, and Dempster-McCain 1994), there is a growing body of macro and contextual research that highlights the importance of women's economic conditions on fertility and marriage outcomes (e.g., South and Lloyd 1992*a*, 1992*b*). For example, research shows that young women's marriage rates are lower in MAs where the local industrial structure is skewed toward women's employment (Preston and Richards 1975; Cox and Hermsen 1996). In addition, across labor market areas, higher rates of women's labor force participation are associated with lower proportions of currently and recently married women (Lichter, LeClere, and McLaughlin 1991) although cause and consequence cannot be easily separated here.

Macrolevel analyses of marriage and fertility are especially sensitive to differences by race. Lichter et al.'s (1991) study of 382 labor market areas finds that, while greater employment opportunities (as measured by women's labor force participation rates) are related to lower proportions of currently married young African-American women, there is no relationship with white women's marriage rates. However, McLanahan and Casper (1995), in an analysis of the 100 largest MAs in 1990, find that the proportion of women employed full-time is associated with a lower proportion of young white women currently married but has no effect on the

marriage rate of young African-American women. Neither of these studies investigates demand for female labor. A relationship between participation rates and marriage patterns does not necessarily imply an effect of female labor demand on marriage since it may be the marriage patterns that are causing the participation rates. However, the *lack* of an empirical relationship between labor force participation and marriage patterns makes it unlikely that the demand for female labor is important for explaining family patterns.

Politics

Several theorists have discussed the relationship of political variables to gender stratification (Chafetz 1990; Blumberg 1984; Sanday 1981). Women's presence in political office is dependent upon their degree of economic power, although women's political power at the local or state level may be "discounted" by men's power at the national level (Blumberg 1984). One of the major factors affecting women's political representation is the size and composition of the "eligible pool" of candidates from which politicians are selected. The eligible pool is determined by three main variables: occupation, income, and education. Candidates are recruited from certain high-status occupations, such as managerial and professional occupations, particularly lawyers; they usually have high incomes and often graduate-level education. Since all of the above factors vary by gender, Darcy, Welch, and Clark (1994, p. 108) argue that "a substantial part of the under-representation of women in public office in the United States is because of their under-representation in this eligible pool." To the extent that this eligible pool is determined by the demand for female labor, we would expect women's political power to vary with the demand for female labor. However, the impact is indirect and may be mediated by changes in education, occupation, and income that follow from the increased demand for female labor.

Dunn and Almquist (1991) find that most variables suggested by macro-level gender stratification theories have no direct effect on women's share of seats in state legislatures. However, one variable was found to have an extensive impact on women's representation: the higher the share of women in managerial and professional occupations in a state, the greater the share of women in state legislatures. This empirical finding supports Blumberg's idea that economic power precedes political power. Darcy et al. (1994) also found support for links between the occupations women hold, their educational attainment, and the extent of their political representation. In a cross-national analysis, Oakes and Almquist (1993) found that the most important factor predicting the proportion of women in 150

national legislatures is the women's labor force participation rate. However, women's share of managerial occupations had no effect on women's political representation, contrary to the eligible pool theory.

Ideological Systems

Both Blumberg and Chafetz treat belief systems as consequences of the economic power women are able to wield in society. In times and places where the demand for female labor is high, women's increased labor force participation will influence a society's ideas about appropriate roles for women (Huber 1990). First, women's greater participation in paid labor may change their attitudes (and, perhaps, the attitudes of the men around them—husbands, coworkers, fathers, etc.). "The rapid rise in women's labor-force participation, coupled with the constant relationship of men's and women's wages, made a critical mass of women become aware that the ideology of equal opportunity didn't apply to them" (Huber and Spitze 1983, p. 35). Second, powerful ideological institutions (e.g., religion, education, the mass media) also influence attitudes about gender equality. Greater economic power should translate into women's increased influence over these ideological institutions and the ideas these institutions generate; thus new ideas about women can be expounded that could lead to changes in attitudes.

While no studies examine the effect of demand for female labor on gender role attitudes, a few macrolevel investigations of gender role attitudes do address the influence of women's labor force participation rates. Alwin, Braun, and Scott (1992), for instance, conclude that attitudes favoring women's participation in the paid labor force are associated at the individual level with labor force participation within each of the three countries they studied. However, country-level differences in women's labor force participation *rates* do not account for much of the observed country-level differences in attitudes. Haller and Hoellinger (1994) also find that higher employment rates of women in a particular country do not predict more egalitarian gender role attitudes of that population. Banaszak and Plutzer (1993), in a cross-national multilevel analysis, show that while regional labor force participation rates have no effect on the feminist attitudes of employed women, higher rates of labor force participation are associated with *less* feminist attitudes among nonemployed women. These macrolevel findings differ from microlevel results, which consistently find relationships between women working and more progressive gender role attitudes (Mason, Czajka, and Arber 1976; Mason and Lu 1988; Tallichet and Willits 1986; Thornton 1989; Thornton and Freedman 1979). This suggests that there may not be a relationship between the demand for female labor and gender role attitudes.

Summary

While macro theories of gender stratification are consistent in predicting broad consequences of the demand for female labor, more detailed theoretical and empirical considerations paint a more ambiguous picture. Except for women's labor force participation rates themselves, it is not yet clear that a higher demand for female labor explains many of the gender and family changes we have witnessed over the last quarter century.

METHODS

We use a cross-sectional design to test the macrolevel effects of the demand for female labor across U.S. MA labor markets. Thus, we shift the question somewhat from why gender inequality has declined since the 1970s to a question of why gender inequalities are lower in San Francisco than in Detroit. MA labor markets offer several advantages for addressing the macrolevel questions we have raised. First, our sample is larger: we compare 261 MAs in 1990.[3] Second, MAs show substantial variation in gender inequality. In 1990, annual labor force participation rates of 25–54-year-old women varied from 58% in Houma, Louisiana, to 89% in Madison, Wisconsin. Third, in comparison with cross-national data (e.g., Charles 1992; Rosenfeld and Kalleberg 1990; South and Trent 1988; Treiman and Roos 1983; Roos 1985), the MA data are more consistent and detailed. This detail is especially important to measure the demand for female labor where single-digit occupation codes miss much of the differential demand.

[3] New England County Metropolitan Areas (NECMAs) are used in those six states rather than the more common town- and city-based MAs; the county definitions make those MAs more comparable to MAs elsewhere, and some of our data are available only at the county level. We collapse six small MAs with other MAs in the same state in order to incorporate data from the 1% Public Use Microdata Sample (PUMS) in which these areas are not separately identified. These MAs are Kokomo, Indiana (collapsed with Indianapolis); Dubuque, Iowa (collapsed with Iowa City); Lawrence, Kansas (collapsed with Kansas City); Lewiston-Auburn, Maine (collapsed with Bangor); Bismarck, North Dakota (collapsed with Grand Forks); and Sheboygan, Wisconsin (collapsed with Green Bay). One MA, Jacksonville, North Carolina, has been dropped from the analysis because of extreme scores on several variables due to the predominance of the military installation there. This leaves 261 MAs in the analysis. These areas follow the June 30, 1993, definitions (U.S. Bureau of the Census 1993*a*) that incorporate population totals and commuting patterns from the 1990 census; they are preferable to the MA indicators included in most 1990 census products, which are based on earlier population and commuting data. The PUMS data report the work location of each worker in county groups known as Public Use Microdata Areas (PUMAs). Some PUMAs include both MAs and nonmetropolitan areas, and a few include counties from more than one MA. PUMAs were assigned to an MA if more than 40% of the population in the PUMA lived in the MA (U.S. Bureau of the Census 1995).

Our strategy is to use a reduced-form model in which we look at the relationship between the demand for female labor and its possible consequences, controlling for other exogenous MA-level variables but not tracing out the intervening variables that link the female labor demand with each of the consequences. We adopt this simplifying strategy for two reasons. First, theory suggests multiple intervening linkages: an increased demand for female labor raises women's earnings, increases labor force participation rates, puts women in contact with each other in public arenas that increases their social capital, changes their expectations of their life course, and may affect many aspects of women's lives that we could not specify in this study. Second, virtually all of these intervening variables are themselves potential consequences of the outcomes we are trying to explain, so endogeneity problems become severe in tracing these linkages. We avoid most of these endogeneity problems by restricting our interest to a measure of the demand for female labor whose origins are traced most often to the changing economy (e.g., the growth of the service sector and increasing bureaucratization) not to the outcome variables we are trying to explain.

The Demand for Female and Male Labor

Following Oppenheimer (1970), we measure the demand for female labor as the extent to which the occupational structure is skewed toward predominantly female occupations. She reasoned that when employment increased among historically female occupations such as clerical and service work, the demand for female labor would grow and more women would be pulled into the labor market.

Oppenheimer's measure was based on the number of women employed in occupations that were at least 70% female. We extend her methods in three ways. First, rather than using an arbitrary 70% cutoff to separate male from female occupations, we construct a weighted average of all occupations with the weights given by the women's share of the occupation in the national labor force. Second, we use total employment not just women's employment because we want a measure of the overall occupational structure of the labor market; a measure based on women's employment incorporates aspects of women's labor force participation and occupational segregation, which we want to measure independently. Third and more important, we follow her more recent work (Oppenheimer 1994), which argues that gender inequalities are determined by how labor markets affect *both* men and women—too often, the assumption is made that gender changes reflect only the changing situation of women. We interpret this warning to mean that empirical analyses should include *independent* measures of the demand for female and male labor. For exam-

ple, a measure based on the proportion of the labor force in predominantly female occupations could result from either a high number of clerical workers in a labor market or a low number of truck drivers and skilled crafts workers. We separate these two components to test which has the greater impact on gender inequalities. A labor market can then be categorized as having a high demand (relative to supply) for both male and female labor, a low demand for both, or a high demand for only one type of labor.

Our measure of the demand for female labor is

$$\text{Demand}_{fa} = \sum_{i=1}^{501} P_{fi} . E_{ia}, \tag{1}$$

where

Demand_{fa} = the demand for female labor in MA a;
P_{fi} = the female share of occupation i for the entire country;
E_{ia} = the number of workers (both men and women) in occupation i in MA a.

This number represents the expected number of women in the labor force given the occupational structure of the MA but assuming that the female share of each occupation reflects the (constant) national average.[4] A similar measure can be calculated for men. The measure varies across MAs according to their occupational structures, not the observed rate of women's participation in the labor force.[5]

However, by themselves, these estimates of demand for female and male labor can tell us little about the gender-specific effects of labor demand since they mainly reflect the overall size of the labor force (i.e., they are large in the New York City MA and small in the Enid, Oklahoma, MA). Their effects on gender stratification systems depend on the available supply of women (and men) in the labor force. Where demand for

[4] Blau and Kahn (1997), following a procedure developed by Katz and Murphy (1992), construct a demand index that is analogous to the one used here. Theirs uses a 24-category occupation and industry cross-classification, not the three-digit occupation codes; it compares time periods, not MAs; and it separates demand for skill levels (education and work experience) as well as gender. Nevertheless, the principle is the same: to what extent do differences in the occupation/industry structure favor women's vs. men's employment.

[5] However, the overall occupational structure is not independent of factors affecting the supply of women in the labor market. Where other characteristics would lead to higher women's labor force participation, e.g., lower fertility, the increased number of women in the labor force are more likely to be in female occupations and therefore will distort the occupational structure accordingly. Thus, endogeneity questions cannot be completely eliminated, even with this design.

female labor is high, *relative to the available supply,* women's labor has more of the element of strategic indispensability that theory suggests is necessary to reduce gender inequalities. We estimate the expected supply of women and men in the labor force as a weighted average of the number of men or women in all combinations of age, education, and race/ethnicity categories where the weights are defined as the national probability of that category being in the labor force. So, for example, an MA in which most women were between 26 and 54 years of age would have a higher expected supply of women workers than an MA where most women were over 65 or under 16.

$$\text{Supply}_{fa} = \ln\left(\sum_{j=1}^{30}\sum_{k=1}^{5}\sum_{l=1}^{4}\lambda_{fjkl}\,N_{fjkla}\right), \tag{2}$$

where

Supply_{fa} = the expected supply of women workers in MA *a;*
λ_{fjkl} = the labor force participation rate of women in age group j of racial-ethnic group k, and education level l for the entire country; and
N_{fjkla} = the number of women in age group j of racial-ethnic group k and education level l for the population of MA *a.*

(For the analyses of educational attainment, the supply measure is based on the distribution across 150 cells defined only by age and racial or ethnic group.)

In the multivariate analyses that follow, we include all four measures (female demand, male demand, female supply, male supply) so that we always estimate the effect of the demand for female labor, controlling for the expected supply. In a univariate framework we could look at the *ratio* of demand to supply.[6] This ratio measure of the *relative* demand for female labor ranges from a low of 74% in Houma, Louisiana, to a high of 116% in Honolulu. In other words, in Houma, the number of female occupations is 74% of the expected supply of women workers; in Honolulu, the number of female occupations is 116% of the expected supply of women. Theory suggests that a wide range of outcomes should be better for women in Honolulu than in Houma. The ratio of demand for

[6] We have, in fact, calculated all the multivariate analyses using the two ratio variables (one for female labor, one for male) rather than the four separate measures. The results are quite similar, since the ratio variable is determined more by variation in labor demand (the numerator) than in labor supply (the denominator). The models with ratio variables are, however, less informative since they cannot distinguish between demand and supply effects.

male labor to supply ranges from 87% in the Huntington-Ashland, West Virginia/Kentucky/Ohio MA to 118% in the Elkhart-Goshen, Indiana, MA. The two ratio measures are only weakly correlated (+0.13) across MAs, and the female demand ratio has a higher variance (.0025) across MAs than does male demand (.0016).

Alternatively, we could take the ratio of the demand for female labor to the demand for male labor to construct a single index of the degree to which the occupational structure is skewed toward female occupations and away from male occupations. This ranges from a low of 64% in Houma, Louisiana, to 102% in Columbia, Missouri (where there are slightly more female jobs expected than male jobs). Again, we would expect a wide range of gendered outcomes to be more favorable to women in Columbia than in Houma—although we could not specify with this index whether it was the availability of female work or the lack of male work that gave Columbia its greater gender equality. The advantage of the multivariate analyses in which all four variables are entered is that it can disaggregate the effects tied to the numerators and denominators of these ratios.

Dependent Variables

Most measures of gendered outcomes are computed from the 1990 census PUMS, combining both the 1% and 5% samples (see appendix table A1 for definitions and descriptive statistics). Unless otherwise noted, we limit the universe to persons 25–54 years old. Rates are measured by logged odds (rather than percentages) because of their advantage in measuring proportional rather than absolute differences. Where appropriate, the dependent variable is the difference between female and male rates in order to capture gender inequalities, not simply women's statuses. In these difference models, we include the male rate as a control variable that allows us to examine the variation in gender inequalities independent of the male rate.[7]

Separate measures for non-Hispanic white women, non-Hispanic black women, and Hispanic women are also calculated where possible. We use white men as the constant comparison group when calculating these gender inequalities to ensure that any differences in the results can be attrib-

[7] Statistically, these models with the gender difference score as the dependent variable, and the male rate as a control variable, are not very different from models in which the female rate is taken as the dependent variable. Both identify gender inequality in a MA as the extent to which female rates (e.g., average log earnings) are above or below what would be expected based on the male rates.

uted to differences in the effects of the demand for female labor on the three women's groups (and not on the men).

Labor Market Outcomes

As discussed above, we divide labor market outcomes into three areas: labor force participation, occupational gender segregation, and gender differences in earnings. The labor force participation rate is measured as the logged odds of participation at any time in 1989. We define gender inequality in labor force participation as the difference between women's participation rate and men's participation rate. The resulting measure shows the proportional difference in women's and men's participation rates, with scores closer to zero indicating relative parity in labor force participation rates.

Occupational segregation is usually measured by the dissimilarity index (D-statistic; Duncan and Duncan 1955). The D-statistic has a readily understood interpretation as the percentage of workers of either gender who would have to change occupations in order for the two occupational distributions to match. The index is computed for each MA from county-level detailed occupational distributions (U.S. Bureau of the Census 1992). Since these occupational distributions are not disaggregated by age, we use the entire labor force for the occupational segregation measures. Because of distortions introduced by comparing MAs with relatively small numbers of people in particular occupations (Cortese, Falk, and Cohen 1976), we utilize an adjusted D-statistic with the slightly altered interpretation that it measures the percentage of workers of either gender who would have to change occupations in order for the two distributions not to differ by any more than would be expected by chance variations (see Cotter et al. [1997*a*] for a full definition and discussion of this measure). For consistency with our measures of gender equality, we reverse the segregation statistic, turning it into a measure of *integration,* by subtracting the adjusted D-statistic from one.

We measure gender earnings equality for each MA as women's minus men's mean log annual earnings for full-time year-round workers with positive earnings.[8] A high score, closer to zero, indicates greater earnings

[8] The mean of log earnings is not the same value as the log of mean earnings, but across MAs, the two are highly correlated. Thus mean log earnings for women is correlated +0.99 with the log of women's mean earnings. Similarly, the difference between men's and women's mean log earnings, the variable used in this analysis, is highly correlated (+0.93) with the ratio of women's mean earnings to men's mean earnings. While we focus here only on the difference in women's and men's earnings at the mean, it is also possible, and in light of our results may prove profitable, to decompose the earnings differences in several ways. First, earnings of occupations may be analyzed for both *within* and *between* occupational differences, allowing the

equality. Log earnings are now customary in microlevel analyses because they measure proportional differences throughout the income spectrum, rather than absolute dollar amounts whose meaning is quite different at low and high income levels. In these models we use male earnings as a control variable.

Educational Attainment

Three variations of educational attainment are measured in this analysis, gender differences in the logged odds of (1) earning at least a high school diploma, (2) completing at least some college, and (3) earning at least a bachelor's degree. The education analysis is restricted to persons aged 25–34 in order to capture the effect of local labor market conditions on recent educational attainment. As with the other difference measures, men's educational level is included in the model as an additional control variable.

Marriage and Fertility

Marriage rates are measured as the logged odds of 25–54-year-old women having ever married. Divorce is indexed by the logged odds of 25–54-year-old women being *currently* divorced or separated versus being currently married; this odds ratio thus reflects not only divorce rates but the lack of remarriage. Fertility rates are total fertility rates (TFRs) calculated from birth data (National Center for Health Statistics 1993) and age distributions of women reported by the census (U.S. Bureau of the Census 1992). The birth data are reported by MAs as defined in 1989 and 1990; we adjust these where possible to the 1993 definitions we use elsewhere but have data for only 252 MAs. We average the 1989 and 1990 TFRs for all MAs in which data are available for both years.

Political Representation

Data from the census of governments (U.S. Bureau of the Census 1987) are used to measure the representation of women in elected office. For each MA, we calculate the percentage of women in three types of local elected office: county governing bodies (e.g., county councils), municipal governing bodies (e.g., city councils), and other municipal officials

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examination of the degree to which demand effects earnings equality through occupational desegregation (Cotter et al. 1995*b*). Second, earnings differences may be examined at various points on the income distribution (Bernhardt et al. 1995; Cotter et al. 1997*a*), further exploring class-specific effects of the demand for female labor.

(e.g., mayors). The three percentages are averaged together (Cronbach's alpha = 0.56).

Gender Role Attitudes

Our gender role attitudes measure is similar to those used in previous research (Mason et al. 1976). We aggregate individual-level 1972–94 data from the General Social Surveys (GSS; Davis and Smith 1994) to construct an MA-level measure of egalitarian attitudes toward women's roles. Because the GSS samples are drawn only from some areas, we limit our investigation to the 103 MAs with at least 50 respondents. MA averages of dichotomized responses to eight items (FEWORK, FEPRES, FEHOME, FEPOL, FECHILD, FEHELP, FEFAM, and FEPRESCH) were factor analyzed and found to load on two factors, thus measuring two dimensions of gender role attitudes. One dimension is constructed from three items (FEPRES, FEHOME, and FEPOL) that describe attitudes regarding women's roles in governing the country. The Cronbach's alpha for this three-item scale is 0.92. The second dimension is constructed from the remaining five items reflecting attitudes regarding women's work and family roles. The Cronbach's alpha for this scale is 0.89.

In addition to measures based on GSS data, we also include a measure from the National Election Studies (NES; Miller and the NES 1994). The NES measure is a single indicator of attitudes about equal roles for women ranging from "1" to "7" with a high score indicating egalitarian attitudes. The question was asked in even years (except for 1986) between 1978 and 1992. As with the GSS, we limit the sample to MAs with at least 50 respondents.

Control Variables

To compare the effects of the demand for female labor across these various outcomes, we need to specify broadly similar multivariate models so that any differences in results are not a simple function of different sets of control variables. Each of these outcomes has its own substantial research tradition that identifies quite different sets of causes. To incorporate all of these considerations into one model is not feasible. We try to strike a balance with a list of variables that cover a wide range of factors but neither exhaust our limited degrees of freedom nor run too high risks of multicollinearity. The control variables include MA characteristics (labor force size, region, net migration during the previous five years, age of MA), demographic factors (female-male sex ratio, age structure, racial/ethnic

composition), measures of economic inequality (male income inequality, level of state Aid to Families with Dependent Children [AFDC]) and cultural factors (proportions with college education, military workers, religious composition). These MA-level variables are aggregated from county-level data from a variety of sources (definitions are given in appendix table A2).

RESULTS

Labor Market Outcomes

The results of our analysis of labor market outcomes are presented in table 2. The demand for female labor has strong positive effects on all three labor market outcomes: it increases women's relative share of the labor force; it increases the ratio of women's to men's earnings; and it increases occupational integration. The effect is particularly important for women's labor force participation. A 1% increase in the demand for female labor is related to a 3% increase in the odds of women's participation in the labor force. A high demand for *male* labor also increases women's labor force participation, holding constant the actual rate of men's labor force participation; however the effect of demand for male labor is only about half of the effect of the demand for female labor, as we would expect given segregated labor markets. The potential supply of women workers also affects women's labor force participation; holding constant the demand, where there are more women with the usual characteristics of labor force participants, the actual rate of participation will be lower.

The effect of the demand for female labor on occupational integration, while the smallest of the three effects, is remarkable because it is positive. Thus, labor markets with more female occupations are, paradoxically, more integrated, not more segregated as we would expect from the high concentration of (segregated) female occupations. These labor markets must also have more within-occupation integration, that is, more women in male occupations, to counterbalance the structural segregation effects. On the other hand, the demand for male labor has no effect on occupational integration.

The integrating effect of the demand for female labor is paradoxical because, if allowed to continue, it would undermine the demand for female labor itself. We can speak of a demand for specifically *female* labor only because of segregated labor markets (Oppenheimer 1970). Thus, to the extent that a growth in the demand for female labor ends up creating egalitarian pressures to integrate occupations, that integration will reduce the demand for female labor because female labor is no longer such a separate market.

The separate analysis in the bottom rows of table 2 shows the results

TABLE 2

LABOR MARKET OUTCOMES

	Occupational Integration	Earnings Ratio	Gender Difference in Labor Force Participation
R^2	.823	.848	.907
Intercept	−1.543****	−1.756****	−.256
Male rate[a]		−.251****	−.993****
Demand for female labor	.197****	.226****	2.951****
Demand for male labor	.034	−.141*	1.601****
Supply of female labor	−.114*	−.035	−1.498****
Supply of male labor	.023	.231	−2.339****
Female to male sex ratio	.126****	−.006	−.411
Log of population size	−.145****	−.271***	−.752****
(Log of population size)^2	.003****	.000	−.006**
Region:			
North central	.009***	−.033****	.039***
South	.010**	−.011	.142****
West	.016***	−.029***	.085****
Net migration	.157****	.345****	.506****
Age of MA (÷100)	.013****	.011	−.020
Military	−.058	.026	−.282
AFDC	−.002	.027****	.014
% with college education	.107****	.198****	.703****
% aged 16–24	.271****	−.083	−.581**
% aged 65 and over	.127**	.086	.484*
% African-American	−.017	.120***	−.332***
% Hispanic	.049****	.202****	−.488****
% Native American	.161	.362	−1.120**
% Asian	.052***	.168****	−.150
Religion:			
Conservative	−.061**	−.070	.172
Moderate	−.058**	−.053	.421***
Missing data	−.008**	−.008	−.005
Male income inequality	−.082	.059	−.428
Separate analysis by race:			
White women/white men:			
R^2	.837	.788	.914
Demand for female labor	.187****	.232****	2.755****
Black women/white men:			
R^2	.808	.709	.794
Demand for female labor	.257****	.284*	3.587****
Hispanic women/white men:			
R^2	.883	.821	.823
Demand for female labor	.234****	.205	3.926****

[a] Male rate represents the control for men's levels of the dependent variable where this is a difference measure.

* $P < .10$.
** $P < .05$.
*** $P < .01$.
**** $P < .001$.

for the demand for female labor separately for whites, African-Americans, and Hispanics. Overall, these results are quite similar, with the coefficients varying in magnitude rather than direction. The demand for female labor raises all women's labor force participation rates, with Hispanic and African-American women's differences being even more strongly affected than white women's. For the earnings ratio, the demand for female labor increases gender earnings equality for white and African-American women, but the effect for Hispanic women is smaller and not more than twice its standard error. For occupational integration, women in all three racial/ethnic groups are more integrated with white males where there is a high demand for female labor; the coefficients are moderately larger for minority women than for white women.

Educational Outcomes

The findings for gender differences in educational attainment are presented in table 3. A greater demand for female labor significantly increases women's educational position relative to men's at each educational level. That is, when the demand for female labor is high, the logged odds of women being at least high school graduates, having at least some college, or being college graduates are higher compared to those of men. The demand for female labor has the largest impact on the gender difference in the logged odds of completing at least high school. Thus, while demand certainly contributes to women's relative education at the some college and college graduate levels, it is in spurring women to complete high school at higher rates that the effect is strongest.[9]

Similar analyses were completed for white, African-American, and Hispanic women. These results are presented in the bottom panel of table 3 and show that the results for all women mask some racial/ethnic differences in the effect of the demand for female labor. The demand for female labor performs as expected for white and Hispanic women, significantly increasing the odds of completion at each education level. For African-

[9] Separate analyses were performed to assess if the type of demand for female labor is important in determining educational attainment. We developed measures for the demand for middle-class female labor defined, as professional and managerial occupations, and the demand for working-class female labor. The demand for middle-class female labor significantly increases women's logged odds of attaining all levels of education, although, as expected its estimated effect is weaker for high school graduation (+.44), than for entering college (+.69) or graduation from college (+1.35). In contrast, the demand for working-class female labor significantly increases only the logged odds of women completing at least a high school diploma (+.47; $P < .10$), and the estimate of its effect on higher levels is negative (−.22 and −.38), although not statistically significant.

TABLE 3

GENDER DIFFERENCES IN EDUCATIONAL ATTAINMENT (25–34 YEARS OLD)

	High School Graduate	Some College	College Graduate
R^2	.472	.510	.413
Intercept	5.032	9.438***	−7.755*
Male rate[a]	−.175****	−.137****	−.245****
Demand for female labor	1.200****	.398**	.738****
Demand for male labor	−.500*	−.083	.316
Supply of female labor	−.718	.105	−.188
Supply of male labor	−.248	.282	−.256
Female to male sex ratio	−.893	−.181	−.457
Log of population size	−.240**	−.736***	−.627*
(Log of population size)^2	−.005	−.003	.003
Region:			
North central	−.035	−.030*	−.097****
South	.010	.048**	−.044
West	−.054	.029	−.112****
Net migration	.028	−.030	.033
Age of MA (÷100)	−.023	.007	.042
Military	−.819**	.668**	.184
AFDC	.029	.062***	−.022
% aged 16–24	−.675	−.418	−.088
% aged 65 and over	.156	.528	−.070**
% African-American	.583****	.389****	.269**
% Hispanic	−.565****	−.010	.003
% Native American	.234	−.491	.526
% Asian	−.034	.056	.340**
Religion:			
Conservative	−.135	.112	−.230
Moderate	.043	.174	−.125
Missing data	.009	.031	−.015
Male income inequality	.086	−.056	.477
Separate analysis by race:			
White women/white men:			
R^2	.491	.541	.385
Demand for female labor	1.814****	.515***	.568***
Black women/white men:			
R^2	.721	.646	.467
Demand for female labor	.450	.049	1.237*
Hispanic women/white men:			
R^2	.791	.816	.766
Demand for female labor	2.807**	1.918**	2.605***

[a] Male rate represents the control for men's levels of the dependent variable where this is a difference measure.

* $P < .10$.
** $P < .05$.
*** $P < .01$.
**** $P < .001$.

American women the demand for female labor only increases the odds of completing a college degree.

Marital and Fertility Outcomes

Table 4 reports the results of analyses of women's current marriage and divorce ratios, TFRs, and the incidence of households headed by women. In contrast to the previous two tables, the effects of the demand for female labor are scattered and not often statistically significant. For the logged odds of women being ever married, the female labor demand coefficients have the expected negative sign for the whole sample and for the three racial/ethnic groups separately, but they are never more than twice their standard errors.

The demand for female labor raises the odds of being divorced only among Hispanic women. Interestingly, the demand for male labor has a more consistent, although negative, impact on women's divorce. When potential partners are in a good labor market, divorce is less common (or remarriage more common). This is especially true for African-American and Hispanic women.

There is some weak evidence that a high demand for female labor reduces fertility rates. Unfortunately, because of data limitations, we were not able to disaggregate this effect by race.

Finally, there is little evidence that high demand for female labor is related to a higher proportion of households headed by single women; good labor markets do not encourage women to form their own households. However, a high demand for *male* labor *reduces* the incidence of single-mother households, at least among white and Hispanic women. Where potential partners have good economic opportunities, women are less likely to risk single parenthood (Wilson 1987).

Political Representation

The results of the analysis of women's representation in political office are shown in table 5. The demand for female labor has no significant impact on women's share of government offices. We were unable to perform these analyses separately by race/ethnicity due to limits in the data. While there are interesting characteristics of MAs with more women in public office, the demand for female labor does not seem to increase women's access to political positions.

Gender Role Attitudes

The results of our analyses of gender role attitudes are reported in table 5. The demand for female labor is not a significant predictor of any of

TABLE 4

FAMILY STRUCTURE OUTCOMES

	Ever Married	Currently Divorced	Total Fertility Rate	Single Female Head of Household
R^2	.937	.740	.895	.838
Intercept	26.143***	−12.921***	64.851	−8.563**
Demand for female labor	−.319	−.056	−.079	−.253
Demand for male labor	−.085	−.656**	.537*	−.683***
Supply of female labor	−2.102****	.824	−4.641****	−.161
Supply of male labor	.816	.779	−.673	.176
Female to male sex ratio	.156	−.018	.436*	1.096**
Log of population size	1.660****	−.912***	4.914****	.895****
(Log of population size)^2	.011***	−.007**	.007*	−.011****
Region:				
North central	.075****	.009	.043*	.031*
South	.134****	−.007	−.037	−.047*
West	.087**	.103**	.057	.047
Net migration	−.066	.606***	.302	−.065
Age of MA (÷100)	−.057**	−.004	.009	−.005
Military	.268****	.724**	−3.192****	−.516*
AFDC	−.168****	.007	.078**	.046**
% with college education	−.434**	.103	.589***	.044
% aged 16–24	−2.760****	−.667*	−3.307****	−.480
% aged 65 and over	−2.709****	1.173***	−3.436****	−.430
% African-American	−1.833****	1.286****	.492****	1.709****
% Hispanic	−.820****	.771****	.416****	.524****
% Native American	1.875**	2.224**	−.021	2.015***
% Asian	−1.112****	.080	−.270	−.364***
Religion:				
Conservative	.190	−.505**	.534**	.128
Moderate	−.283	−.645***	.385*	.097
Missing data	.027	−.040	.042	.006
Male income inequality	−.226	.310	.912	−.164
Separate analysis by race:				
White women/white men:				
R^2	.925	.753	N.A.	.737
Demand for female labor	.426*	−.095	N.A.	−.158
Black women/white men:				
R^2	.764	.564	N.A.	.730
Demand for female labor	−.126	−.123	N.A.	−.613
Hispanic women/white men:				
R^2	.818	.858	N.A.	.905
Demand for female labor	−.726	1.298***	N.A.	.749

* $P < .10$.
** $P < .05$.
*** $P < .01$.
**** $P < .001$.

TABLE 5

FEMALE POLITICAL REPRESENTATION AND GENDER ROLE ATTITUDES

		GENDER ROLE ATTITUDES		
	FEMALE POLITICAL REPRESENTATION	Women in Government	Women's Work Role	Equal Rights for Women
R^2	.640	.448	.329	.688
Intercept	−5.809	6.253	−1.925	−4.484
Demand for female labor	−.158	−.085	−.195	.338
Demand for male labor	.057	−.004	.321	2.105
Supply of female labor	.423	−.012	.599	−13.25
Supply of male labor	.124	−.288	−.507	10.21
Female to male sex ratio	−.314	−.598	−.429	12.726
Log of population size	−.450**	.374	−.233	.674
(Log of population size)^2	.002	.000	.004	−.079
Region:				
North central	.071****	.019	.008	−.337*
South	.046**	.002	−.016	−.077
West	.079****	−.023	−.004	−.516
Net migration	.011	.303	.243	−4.357
Age of MA (÷100)	.000	.057*	.033	−.010
Military	.245	−.637	.323	−5.976
AFDC	.098****	.048	.009	.433
% with college education	−.074	.375*	.073	5.380
% aged 16–24	.432*	.058	.664	−.714
% aged 65 and over	1.025****	−.206	−.162	2.684
% African-American	.258***	.010	.158	.554
% Hispanic	.209***	.071	−.010	.364
% Native American	1.269**	−.106	−.692	1.698
% Asian	−.013	−.532	−.115	−.383
Religion:				
Conservative	−.324***	−.299	−.338	−.270
Moderate	−.321**	−.231	−.170	−1.701
Missing data	−.037**	.026	−.008	.550
Male income inequality	−.438*	−.003	.507	−3.453

* $P < .10$.
** $P < .05$.
*** $P < .01$.
**** $P < .001$.

the gender role attitudes across MAs. As with political representation, analyses were unable to be completed by race/ethnicity due to small sample sizes within MAs. But in this table, there are few statistically significant effects at all. The smaller number of MAs may have created problems of multicollinearity, but even in other analyses not reported here with smaller subsets of variables, the coefficient for the demand for female labor is never more than twice its standard error.

DISCUSSION AND CONCLUSIONS

This analysis of how the demand for female labor shapes dimensions of gender inequality has yielded mixed results. We find that the demand for female labor has strong effects on some dimensions of gender stratification but weaker or nonexistent effects on others. On the one hand, our analysis gives substantial evidence for the theoretical assertion that the demand for female labor is a direct causal determinant of macrolevel gender inequality of labor market outcomes. Those MAs with more female occupational structures have greater levels of women's labor force participation, smaller wage gaps, more occupational integration, and less gender inequality in education. These cross-sectional comparisons thus reinforce Oppenheimer's conclusions about the importance of demand for female labor for explaining increases in women's labor force participation. Moreover, our results show that the demand for female labor affects not only participation rates, but extends to earnings, occupational integration, and education as well. For each of these outcomes, there are theoretical reasons for effects in both positive and negative directions, so it is interesting that on balance, areas with a high demand for female labor end up with more egalitarian labor markets and educational attainment.

On the other hand, our empirical analyses did not support the prediction that the demand for female labor would consistently affect marriage, divorce, fertility, women's political representation, or gender role attitudes. In short, the explanatory power of the demand for female labor varies depending on the outcome.

These empirical results suggest that the scope of macrolevel gender stratification theories may have been too broad. Everything is not tied together in a "fishnet of causal arrows." Instead, there may be more specificity in linkages between exogenous causes and the elements of the gender system listed in table 1. This empirical complexity suggests that the demand for female labor is a partial theory of gender stratification, which would best be treated as part of a larger set of explanations (Chafetz 1991).

Mason (1984, 1987, 1993, 1995) has been urging this multidimensionality of gender stratification on demographers for over a decade. Her early warnings were based in part on Martin Whyte's (1978) results showing surprisingly little covariation in gender measures across societies in the Human Relations Area Files. This has since been supplemented by developing country surveys that have reinforced her original concern. Women's autonomy within the household on one measure of activities does not necessarily imply autonomy in other areas (Mason 1995; Malhotra and Mather 1997). Increased education and a better financial situation often bring more, not fewer, restrictions on women. Labor force participation may not raise women's relative standing unless they can control the fruits

of that participation; otherwise their labor just represents another way in which women are exploited (Blumberg 1978). So, treating education, labor force participation, household power, marital choice, and other gendered outcomes as if they were merely different aspects of one underlying dimension of gender inequality dangerously oversimplifies the empirical complexity of gender relations.

We have not addressed the many other statistically significant effects in tables 2–5. Some of these effects are as strong as the demand for female labor over at least as broad a range of outcomes. Partisans for other theoretical perspectives can find as much confirmation in these results as we have found for the demand for female labor. Religion seems a particularly promising direction to pursue. But the implication is that there cannot be one theory of gender stratification but many theories; each gendered outcome depends on a somewhat different set of causal influences.

This theoretical smorgasbord will not suit the taste of many gender theorists. Parsimony is lost for the sake of empirical complexity. Moreover, advocates for the multidimensionality of causal relations in gender stratification still have to explain the remarkable contiguity in changes over time in gender relations during the last quarter century. If each of the changes that have occurred in this time has its own set of causes, why is it that they all began to change in a similar way in such a narrow span of time? Could it be just coincidence that all the different causal factors happened to coincide to produce this general reversal in gender relations? That seems empirically implausible and theoretically unsatisfying.

Defenders of the importance of the demand for female labor can point to several limitations in our data that preclude its too hasty dismissal as a general causal factor. Our measures of politics and attitudes are probably less reliable and complete than our measures for labor market and educational outcomes. It might be that better measures would indeed show an impact of demand for female labor. And it would be better to study family and fertility behavior with multilevel event history models that investigate the contextual impact of labor market situations on individual behaviors controlling for other individual level characteristics.

Statistically significant demand effects might also emerge from more nuanced models that examine the *indirect* effects of demand for female labor. For instance, if we know that the demand for female labor directly increases both women's labor force participation and occupational integration, then these in turn should increase the number of women in the eligible pool of political candidates. But this effect is only indirect and therefore likely to be weaker (because it represents the multiplicative product of two paths rather than the single path for labor force participation) and perhaps more delayed (because the eligible pool does not immediately translate into more candidates).

Similarly, longitudinal designs may be more appropriate for studying many of the effects of the demand for female labor. For instance, long held cultural attitudes about gender would be affected by the demand for female labor partly through people observing the consequences on actual labor market outcomes and partly through increases in influence within cultural institutions. Thus, attitudes about women and work may change only slowly in response to women's greater representation in the labor force. But that causal sequence suggests that there are temporal dimensions to the effect of the demand for female labor that are not well captured in this cross-sectional design. Increases in the demand for female labor might be a better predictor of *changes* in systems of gender inequality.

A related problem stems from the fact that our analyses treat the macrolevel labor markets as closed systems. In much the same way that the macrolevel formation of gender role attitudes may be a process that takes place over time, so too is the formation of individual-level attitudes and behaviors. Many of the individuals in these MAs formed their attitudes and began behaviors in *other* areas and later migrated to the areas we observe in 1990. In fact it may be that a demand for female labor, or level of gender equality actually *pulls* individuals to some labor markets and *pushes* them from others. Some women may migrate to labor markets with greater levels of opportunity, less sexist cultures, less segregation, and so forth. These problems pose interesting empirical and theoretical questions, which might be sorted out only with longitudinal multilevel designs (endeavors fraught with technical complexity beyond the broad base of this initial research).

Finally, we have argued throughout this article that the demand for female labor is the critical causal component of gender inequality, an interpretation consistent with a substantial body of sociological theory. There is, however, the possibility that the supply of women in a labor market can cause the skewing of the occupational structure in favor of female occupations—that is that the supply can cause the demand and in fact be generating the variation in gender equality across MAs. This problem of endogeneity is difficult at best to sort out in a cross-sectional analysis such as ours and might be better addressed using longitudinal designs. It is, however, not entirely clear that such analyses will completely solve the problem, as causal ordering at the macro level is even less certain than at the micro level where it has presented substantial empirical and theoretical problems (Cramer 1980; Felmlee 1993).

Each of these possibilities suggests research beyond this initial empirical analysis, including multilevel analyses, model respecification, and longitudinal designs, all of which may help to further illuminate which dimensions of gender inequality are or are not affected by the demand for female

labor. Even if more limited than what gender theory suggests, the economic and educational effects of the demand for female labor are clearly demonstrated in these comparisons of U.S. labor markets. At least these aspects of gender systems vary in unison with the occupational structure. This is an important exogenous link that helps us understand how gender stratification evolves in response to economic changes in society.

APPENDIX

TABLE A1

DEFINITIONS AND DATA SOURCES FOR DEPENDENT VARIABLES

Variable	Mean (SD)	Minimum (Maximum)	Data Source	Definition
Labor market outcomes:				
Gender difference in labor force participation	−1.263 (.170)	−2.283 (−.031)	PUMS	Female − male log odds of being in the labor force, ages 25–54 [ln(women in the labor force/women not in the labor force) − ln(men in the labor force/men not in the labor force)]
Earnings ratio	−.401 (.055)	−.665 (−.220)	PUMS	Difference between women's and men's mean log annual earnings, for full-time, year-round workers aged 25–54
Occupational integration	.500 (.024)	.390 (.596)	EEO	Adjusted D-statistic
Gender differences in educational attainment:				
High school graduate	.208 (.127)	−.416 (.779)	PUMS	Female − male log odds of having graduated from high school [ln(women high school graduates/women not high school graduates) − ln(men high school graduates/men not high school graduates)]
Some college	.151 (.092)	−.351 (.735)	PUMS	Female − male log odds of having had some college education [ln(women with some college/women with no college) − ln(men with some college/men with no college)]
College graduate	−.019 (.103)	−.589 (.944)	PUMS	Female − male log odds of having graduated from college [ln(women college graduates/women not college graduates) − ln(men college graduates/men not college graduates)]

Family status outcomes:				
Ever married	1.709 (.312)	1.264 (2.928)	PUMS	ln(women aged 25–54 ever married/women aged 25–54 never married)
Currently divorced	−1.230 (.159)	−2.001 (−.888)	PUMS	ln(women aged 25–54 currently divorced/women aged 15–54 currently married)
Total fertility rate	2.059 (.261)	1.125 (3.407)	NCHS (1993, 1994) and PUMS	Expected total births for women based on 1989 and 1990 births
Single female head of household	−2.068 (.166)	−2.837 (−1.409)	STF3C	ln(not currently married women with own children/all other women)
Female political representation	.197 (.081)	.000 (.493)	U.S. Bureau of the Census (1987)	Average of proportion of local elective offices held by women in county governing bodies and municipal governing bodies and as municipal other officials
Gender role attitudes:				
Women in government	.781 (.054)	.440	1972–94 GSS	Sum of MA-level average on attitudes about women's political participation (FEPRES, FEHOME, FEPOL)
Women's work role	.697 (.053)	.392 (.860)	1972–94 GSS	Sum of MA-level average on attitudes about women's domestic and nondomestic work roles (FEWORK, FECHILD, FEHELP, FEFAM, FEPRESCH)
Equal rights for women	5.430 (.293)	3.600 (5.846)	1978–92 NES	MA-level average of responses on a seven-point scale, from 1 = "women's place is in the home" to 7 = "women and men should have an equal role"

NOTE.—EEO = 1990 Equal Employment Opportunity File (U.S. Bureau of the Census 1992); PUMS = 1990 Public Use Microdata Samples (U.S. Bureau of the Census 1993*b*); STF3C = 1990 Summary Tape File, 3, County-Level (U.S. Bureau of the Census 1991)

TABLE A2

DEFINITIONS AND DATA SOURCES FOR INDEPENDENT VARIABLES

Variable	Mean (SD)	Minimum (Maximum)	Data Source	Definition
Demand for female labor	−.0055 (.0501)	−.304 (.152)	PUMS	See text
Demand for male labor	.0057 (.0401)	−.145 (.169)	PUMS	See text
Female to male sex ratio	1.026 (.039)	.863 (1.148)	STF3C	Ratio of women to men
Log of population size	14.564 (1.481)	10.946 (16.784)	PUMS	ln(no. of persons in MA) − 14.56
(Log of population size)^2	214.31 (42.75)	119.81 (281.70)	PUMS	[ln(no. of persons in MA) − 14.56] squared
Region:				
North central	.221 (.415)	0 (1)	PUMS	Dummy variable, 1 = North central region; 0 = else
South	.318 (.466)	0 (1)	PUMS	Dummy variable, 1 = South region; 0 = else
West	.228 (.420)	0 (1)	PUMS	Dummy variable, 1 = West region; 0 = else
Net migration	−.000 (.040)	−.154 (.261)	PUMS	No. of migrants into an MA from 1985–90 − no. of migrants out of the MA from 1985–90, as a proportion of the 1990 MA population
Age of MA (÷100)	1.069 (.546)	.00 (195.0)	State and Metropolitan Area Data Book	(No. of years since population reached 50,000)/100
Military	.015 (.037)	.0003 (.411)	PUMS	Ratio of no. in the armed forces/no. in the labor force
AFDC	5.727 (.435)	4.477 (6.623)	Moffit (1992)	Log of the minimum monthly benefits for a family of four (AFDC + food stamps + Medicare)

% with college education	.482 (.070)	.238 (.661)	STF3C	The total no. of persons over age 25 with some college, an associate's degree, a bachelor's degree, or a graduate or professional degree, divided by the total no. of persons over age 25 with a coded educational attainment level
% aged 16–24	.173 (.025)	.086 (.421)	STF3C	No. of persons aged 16–24 divided by the no. of persons 16 and over
% aged 65 or older	.154 (.034)	.049 (.393)	STF3C	No. of persons over age 65 divided by the no. of persons 16 and over
% African-American	.126 (.083)	.0003 (.455)	STF3C	Percentage of population non-Hispanic black
% Hispanic	.101 (.121)	.002 (.939)	STF3C	Percentage of population Hispanic
% Native American	.005 (.007)	0 (.067)	STF3C	Percentage of population non-Hispanic Native American
% Asian	.033 (.049)	.001 (.600)	STF3C	Percentage of population non-Hispanic Asian
Religion:				
Conservative	.244 (.136)	.021 (.874)	Kosmin (1990)	Dummy variable: 1 = conservative religions; 0 = else. Conservative religions include Mormon, Baptist, Fundamentalist
Moderate	.584 (.118)	.077 (.888)	Kosmin (1990)	Dummy variable: 1 = moderate religions; 0 = else. Moderate religions include moderate Christians, Catholics
Missing data	.097 (.295)	0 (1)	Kosmin (1990)	MAs that are missing on the religion data
Male income inequality	.381 (.280)	.299 (.461)	STF3C	Gini coefficient of inequality for annual earnings of men, ages 25–54, working full-time year round

NOTE.—PUMS = 1990 Public Use Microdata Samples (U.S. Bureau of the Census 1993*b*); State and Metropolitan Area Data Book = various years, U.S. Census; STF3C = 1990 Summary Tape File, 3, County-Level (U.S. Bureau of the Census 1991).

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