INTERNATIONAL REGIONAL SCIENCE REVIEW 28, 3: 271–301 (July 2005)

CONTINUITY AMIDST RESTRUCTURING: THE U.S. GENDER DIVISION OF LABOR IN GEOGRAPHIC PERSPECTIVE, 1970 AND 1990

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Research on economic restructuring generally emphasizes change, rather than continuity, in the socioeconomic landscape. That expectation is addressed here by comparing 1970 and 1990 in terms of the gender division of labor for U.S. counties. These years represent poles of the Fordist/post-Fordist transition, an era of cataclysmic change. A subset of counties comprising the Ohio River Valley also is considered. This represents an old industrial region*, the type most affected by the Fordist/post-Fordist transition. Analyses include cartographic comparisons using various spatial analysis techniques and regression analyses using variables related to the gender division of labor. Contrary to the usual expectation, the authors find that the lack of change is far more dominant than its presence, that is, continuity or continuity amidst change. This highlights the important, and generally overlooked, role of inertia effects on socioeconomic landscapes.*

Keywords: *continuity; county employment; economic restructuring; Fordist/post-Fordist transition; gender; inertia effects; Moran's* I*; Ohio River Valley; old industrial region*

Research on economic restructuring generally emphasizes change, rather than continuity, in the socioeconomic landscape. This article challenges that tack by focusing on similarities in comparing 1970 and 1990. These dates encompass the transition from Fordist to post-Fordist economies, which generally is considered an era of unbridled change, as dramatically stated by Bluestone and Harrison (1982).[1] The

DOI: 10.1177/0160017604268789

gender division of labor among U.S. counties is our empirical example. We also look at a subset of these counties in Illinois, Indiana, Ohio, Pennsylvania, West Virginia, and Kentucky—known as the Ohio River Valley. This represents an *old industrial region*, the type thought to be most affected by the Fordist/post-Fordist transition. Analyses include cartographic comparisons to identify spatial change in the gender division of labor between 1970 and 1990, using isorithmic, Moran's *I*, and related spatial analysis techniques.[2] We also present regressions for each year, using principal components derived from independent variables that have proven significant for understanding differences in the gender division of labor—that is, economic sector of employment, educational level, and marital status. In comparing distributional patterns, and the role of each component in 1970 and 1990, we find that the lack of change is far more dominant than its presence.

Continuity, as noted, is contrary to expectations derived from the bulk of work on the Fordist/post-Fordist transition; it also is contrary to expectations from research on gender aspects of the labor force. Change would be the usual expectation given (1) that the Fordist/post-Fordist transition involves a major shift from manufacturing to service activities, (2) that the latter traditionally employ a higher proportion of female laborers, and (3) that post-Fordist *new* economy service and manufacturing activities are often found in different places than Fordist *old* economy activities (as epitomized by the Rust Belt/Sun Belt discussion). But on closer examination, as elaborated below, there are several theoretical-conceptual statements that emphasize continuity amidst change, though this has been given relatively little attention in earlier studies.

In contemplating our empirical findings, it is important to remember that the object of study is *spatial patterns*. While many types of change occurred through the Fordist/post-Fordist transition, they are not necessarily manifest in terms of spatial variation over time. All regions declined early in this transition and, apparently, more or less to the same degree. Yet most of the formerly dominant regions rebounded, albeit with a different economic structure (e.g., service or high-technology industries rather than Fordist-type traditional industry such as assembly-line, vertically integrated manufacturing).

Also relevant is the issue of abstraction versus specificity, geographic scale, and what is actually being portrayed by chosen variables and observational units. For example, early Fordist/post-Fordist transition arguments are based on state-level data, whereas county-level data provide a different portrayal (Brown, Lobao, and Verheyen 1996). Similarly, female participation in the labor force shows little difference between 1972 and 1995 if measured in terms of general, gross occupational categories but noticeable change if broken down in greater detail (Blau, Ferber,

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This research is part of the effort under USDA-NRI Grant 00-35401-9254, "Decentralization, Capital Mobility, and Local Well-Being: Rural Counties in a New Policy Era." That support is appreciated. Thanks also to Yong-Sook Lee and Bae-Gyoon Park, both of the National University of Singapore, and to anonymous reviewers who offered helpful comments on earlier versions.

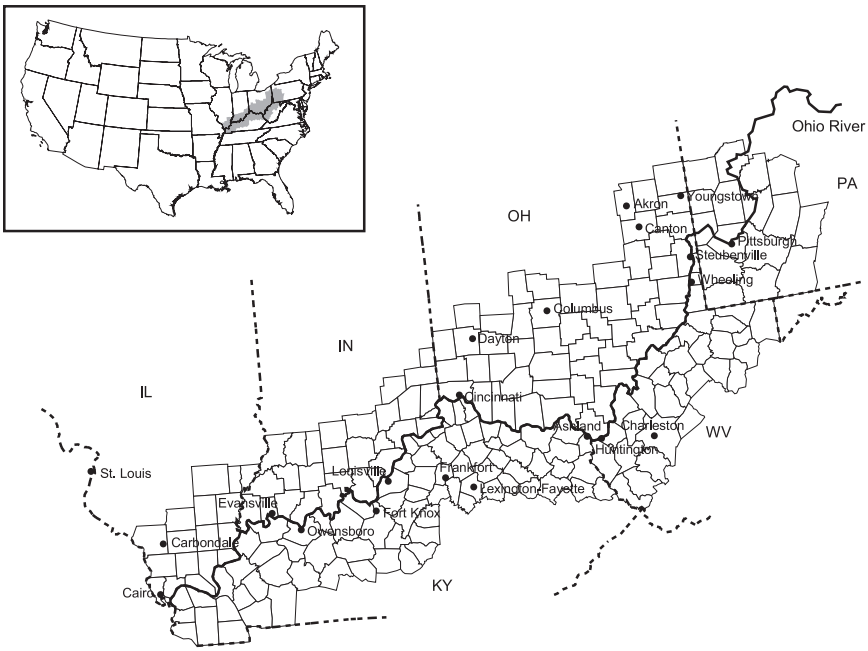


FIGURE 1. The Ohio River Valley: States, Counties, and Selected Cities

and Winkler 1998, 124-29). Finally, examination of productivity increases shows that its spatial differentiation between the Fordist/post-Fordist transition is not marked—similarly for the level of employment.

Use of the Ohio River Valley (ORV) (see Figure 1), in comparison to the continental United States, enables investigating scale differences, that is, the degree to which findings here are scale dependent or independent. In addition, familiarity with the region (e.g., Brown and Lobao 1997; Brown, Lobao, and Digiacinto 1999; Brown, Lobao, and Verheyen 1996) allows us to bring more detailed knowledge to bear in interpreting empirical findings. Finally, as noted, the ORV is appropriate for analysis because it is the type of region thought to be most affected by the Fordist/Post-Fordist transition.[3]

In elaborating these points, the article is divided into five sections. First is a brief summary of conceptual positions that support serious consideration of continuity amidst change. Second, overall growth in female employment, and its variation by economic sector, is presented as background to subsequent empirical analyses. Third, attention turns to geographic aspects of the gender division of labor for the United States and ORV in 1970 and 1990. This includes statistical comparisons, analyses of where significant change took place, and the nature of change. Fourth, variables shown by others to be important determinants of gender participation in the workforce, including economic sector and occupational structure, are restated

as principal components. Finally, the resulting components are used as independent variables in regression to elucidate changes in determinants of gender participation in the workforce between 1970 and 1990. The article concludes with a discussion of findings and final observations. Ultimately, continuity rather than change, or continuity within change, is the dominant message.

Conceptual Underpinnings

Conceptualizations largely visualize space-economy dynamics in terms of change. In fact, however, they also include numerous references to continuity, that is, lack of, or sluggishness in, change. Likewise, in the first author's recent work (e.g., Brown 1999), continuity amidst change has been a strong theme. Elaboration here of this dimension is brief since the primary task of the article is empirical, but indicating its conceptual underpinnings is an important initial step.

One group of space-economy conceptualizations falls under the rubric of political economy. An example is social structures of accumulation (SSA; Lobao, Rulli, and Brown 1999), which, like regulation theory, focuses on the periodicity of socioeconomic well-being. Relevant to this article's argument, SSA reflects *embeddedness* of human capital, competitiveness, supportive social structures, educational opportunity, local capital, and the like—which mediates change. Said another way, the accouterments of one socioeconomic realm (e.g., Fordism) may carry forward to that succeeding it (e.g., post-Fordism), an *inertia*-type effect. In an opposing scenario, characterizing much of the Fordist/post-Fordist debate, *decoupling* would occur. At least for income redistribution across U.S. counties for 1970 and 1990, Lobao, Rulli, and Brown (1999) find strong support for the *embeddedness* thesis.

While SSA is extendable to local areas, this is the explicit focus of another political economy construct by Cox and his associates (Cox 1993, 1995; Cox and Mair 1988, 1989; see also Boyle 1997). At its essence is the concept of *local dependence* by key entities of a community or locale, which leads to strategies and actions that co-opt, build on, thwart, or offset more global, exogenous forces of change. As an example, Cox stated, "The contingent effects of deskilling and transportation change are either overstated, contradictory, or both" (1997a, 179-80) and "[one] has to take into account not just deterritorializing forces, the . . . world of enhanced locational substitutability, but also the territorializing: those conditions, those social relations that result in enduring commitments to particular places, which can in turn be a source of competitive advantage" (1997b, 5). Accordingly, outcomes of broad forces (such as the Fordist/post-Fordist transition or globalization) are contingent on local factors and the outcome might well be a form of continuity rather than change.

Related to political economy more generally is Harvey's (1989) notion of *structured coherence*. This describes inertia derived from a political balance, or system, designed to preserve the joint interests of labor and capital. As Harvey noted, "Cooperation, cooptation, and consent are also a part of class struggle. They have

the advantage, for capital and labor alike, of giving a measure of stability and security to both work and the standard of living. . . . Accommodation plays a vital role in giving a relatively stable structured coherence to production and consumption" (p. 141). Extending this to a broader critique, in a recent interview Harvey (2000, 86-87) stated, "They [the regulation school] were suggesting that one historical regime—Fordism—had given way to another—Flexible Accumulation. . . . But empirically, there is no evidence of such a wholesale change . . . we can't speak of systemic transformation. Fordism plainly persists over wide areas of industry, although of course it has not remained static."

Another group of space-economy conceptualizations emanate from regional science. Markusen (1996, 293), for example, spoke of the "stickiness of places in an increasingly slippery world," asking "why certain places are able to sustain their attractiveness to both capital and labor . . . why hypermobility [a major force of change] cannot completely obliterate production ensembles in space." Four prototypes of *sticky* places are set forth, under the notion that real places are a mixture of these prototypes. Her argument indicates that "some regions can maintain their stickiness by transforming themselves from one [predominant] type of district to another" (p. 308). Empirical examples compare 1970 to 1990 and highlight American Manufacturing Belt locales such as New England, Chicago, Cleveland, Detroit, and Milwaukee. Thus, Markusen puts forth a strong and convincing argument for inertia and harnessing inertial forces to maintain local economic stability in the midst of change.

While Markusen (1996) emphasized an aggregate, regional perspective, Clark (1994) offered a parallel argument focusing on the firm (or, more generally, agency rather than structure). His point of departure is *sunk costs*, that is, investments in material or human capital at a particular place, which puts both geography (i.e., location) and history (i.e., previous investment decisions) into firm decision making, which in turn affects aggregate change in regional profiles. In this regard, he stated that "the restructuring literature . . . has left unarticulated the apparent significance of history and geography in corporate decision making" (p. 10). Clark argued that "structure dependent strategies" (pp. 11-12) have received more attention but that such strategies need to be viewed in terms of "structure limited" or a "variety within limits" (note the parallel between this and Brown's [1981] "decisions within a constraint set"). An important ingredient of this decision making, said Clark, is "inertia and incumbency" or "sunk costs" (p. 13).

Human and social capital concepts also contribute to the argument of this article. Factors such as labor force skills, educational attainment, entrepreneurial values, interaction networks (transportation, communications, etc.), and institutional arrangements promoting these resources have long been seen as a basis for economic development in general and for the rebound of places that experienced economic shock (Blau, Ferber, and Winkler 1998; Yotopolous and Nugent 1976). That labor mobility is considerably less than posited by neoclassical economic models is an important aspect in applying this perspective to explain

socioeconomic continuity—likewise for the immobility of institutional arrangements (both elements of Markusen's [1996] *stickiness*). Recent examples of the recreating (or inertial) effects of human and social capital include rebirth(s) of the American Manufacturing Belt and New England and the persistence of spatial inequality in terms of gross state product for 1977, 1987, and 1996 (Tsionas 2000).

Broadly applicable to both political economy and regional science narratives is the concept of (time- space) *path dependence*. As Storper (1997, 18) said, "Choices are characterized by strong irreversibilities . . . unlike the orthodox [economic] model, it is virtually impossible to predict outcomes from a starting point . . . [they] reflect . . . at best optima which are continually redefined as choices are made and other choices are foreclosed . . . evolutionary economics is path dependent." A specific example is provided above in summarizing Clark's (1994) mention of "structure limited" decisions related to "sunk costs." That this has time-space manifestations is incontrovertible.

The general point, then, is that change occurs "incrementally rather than in a discontinuous fashion" (North 1990, 6). And time horizon becomes critical to detecting change, spatially or otherwise. Hence, the twenty years thought to encapsulate the Fordist/post-Fordist transition, a formulation that emphasizes discontinuity, may be simply too short in many respects, leading to observations of continuity. But *shortness* in itself does not negate the relevance of *continuity*, particularly to the degree it confronts earlier research indicating 1970 to 1990 was in fact a period of major change.

Research on gender aspects of employment, another genre, offers no apparent conceptual view pertaining to continuity as it translates into a broad-scale spatial frame of reference, such as that used here. Work done generally takes a more local perspective such as Worcester, Massachusetts (Hanson and Pratt 1992, 1995); Columbus, Ohio (England 1993); or South Wales and Cornwall (Massey 1984, 1995). As Barnes (1996, 47-48) noted, "Competing discourses and institutions of power from which identities are forged take on certain geographies that then shape the spatial patterns of difference . . . for Pratt and Hanson [those patterns] are very fine-grained and localized . . . follow[ing] Massey's observation that in spite of the process of internationalization . . . most people's lives, especially women's, are lived and shaped locally."

When a broad spatial perspective is used to examine gender aspects of employment, it is generally for one point in time, not for spatial change (e.g., Cotter, Hermsen, and Vanneman 2001; Odland and Ellis 1998). An exception is Kodras and Padavic (1993) who examine U.S. labor markets for 1970 and 1980 in an economic-restructuring framework, but they do this by economic sector (manufacturing, nonprofessional services, professional services), not for the labor force overall.[4] Hence, a woman who remains employed between 1970 and 1980, but changes economic sectors, is calibrated as change, whereas our analysis would calibrate this as continuity.

TABLE 1. Female Percentage in Economic Activity and Occupational Categories

	United States (n = 3,070) Percentage			*Ohio River Valley Region (n = 222) Percentage*		
Category	*1970*	*1990*	*Change 1990/1970*	*1970*	*1990*	*Change 1990/1970*
Economic Sector						
All industries (FEPROLF)	35.0	44.3	26.5	33.4	43.4	29.8
High-benefit manufacturing (HIMAN)	23.0	31.3	36.1	20.5	26.1	27.6
High-benefit other (HIOTH)	9.3	13.5	44.5	8.2	12.2	48.8
Low-benefit manufacturing (LOMAN)	34.3	36.8	7.2	39.6	39.2	–0.9
Low-benefit other (LOOTH)	35.3	42.7	21.0	37.7	45.5	20.8
Social services (SOCSV)	67.6	77.0	13.8	67.4	77.0	14.3
Producer services (PRDSV)	51.5	56.7	10.3	51.6	56.5	9.6
Government (GOVRT)	32.5	45.1	38.8	34.9	45.5	30.5
Occupational Sector						
All occupations (FEPROLF)	35.0	44.3	26.5	33.4	43.4	29.8
High-sheltered occupations (HISHL)	35.2	52.2	48.2	34.8	52.4	50.6
Low-sheltered occupations (LOSHL)	21.9	24.2	10.4	20.7	22.5	8.9
Unsheltered occupations (UNSHL)	45.6	54.4	19.4	46.9	56.0	19.4

Note: See Tables 2 and 3 for details of Economic Sector and Occupational Sector categories.

Female Participation in the Labor Force, 1970 and 1990[5]

As a context for examining the spatial patterning of female participation in the labor force between 1970 and 1990, it is useful to report overall changes between those years—for the entire labor force and for its economic-sector and occupation components. Concerning the former, the percentage of females in the U.S. labor force increased from 35.0 in 1970 (FEPROLF7) to 44.3 in 1990 (FEPROLF9) (Table 1). The ORV is nearly identical, with an increase from 33.4 to 43.4 percent.

To view variation by economic activity, we employ a classification that draws on Lobao and Rulli (1996) and Rulli (1998), which is an expansion of an earlier trifurcation into *core*-sector, *periphery*-sector, and *state*-sector activities (Bloomquist and Summers 1982).[6] To view variation by occupation, we employ a classification that draws on Bagchi-Sen (1995), Jones and Kodras (1990), and Rulli (1998)—*high*-sheltered, *low*-sheltered, and *un*-sheltered occupations.[7] Economic activities and occupations that make up each element of these classifications are shown in Tables 2 and 3. Data is at the county level.

Concerning variations by economic activity (Table 1), the highest level of female participation occurs in Social Services (SOCSV, 67.6 percent in 1970, 77.0 percent in 1990) and the lowest in High-Benefit Other Manufacturing (HIOTH, 9.3 percent in 1970, 13.5 percent in 1990). Falling between are Producer Services

TABLE 2. Classification of Economic Sectors

Economic Segment	*Economic Sector Categories*	*Economic Sectors*
Core	High-benefit manufacturing (HIMAN)	Nondurable: printing/publishing
		Nondurable: chemical & allied
		Durable: primary metal
		Durable: fabricated metal/ordnance
		Durable: machinery, except electrical
		Durable: electrical machinery
		Durable: motor vehicles, transport equipment
		Durable: misc. manufacturing, other durable
	High-benefit other (HIOTH)	Mining
		Construction
		Transport: railroads
		Transport: trucking and warehousing
		Other transport
		Communications
		Utilities and sanitary
Peripheral	Low-benefit manufacturing (LOMAN)	Nondurable: food
		Nondurable: textile/apparel
		Nondurable: paper, petroleum products, misc.
		Durable: furniture, lumber, wood products
	Low-benefit other (LOOTH)	Agriculture, forestry, fishery
		Wholesale trade
		Retail: general merchandise stores
		Retail: food, bakery, dairy stores
		Retail: eating & drinking establishments
		Automotive dealers & gas stations
		Other retail trade
		Repair services
		Private households
		Other personal services
		Entertainment, recreation
	Social services (SOCSV)	Hospitals
		Health services, except hospitals
		Schools: elem. second, coll., public & private
		Other educational services
		Social services
	Producer services (PRDSV)	Banking & credit agencies
		Insurance, real estate, other finance
		Business services
		Legal engineering, other professional services
State	Government (GOVRT)	Public administration & post office

Source: U.S. Census of Population and Housing, Summary Tape File 4B, 1970 and 1990 (http://www.census.gov/).

TABLE 3. Classification of Occupational Sectors

Occupational Segment	*Occupational Sector Categories*	*Occupational Sectors*
Primary	High-sheltered occupations (HISHL)	Professional: health diagnosing & treatment
		Professional & technical: teachers elementary & secondary schools
		Professional & technical: other professional & technical workers
		Managers: all managers & administrators
	Low-sheltered occupations (LOSHL)	Crafts: all
		Operators: except transport
		Operators: transport
		Service: health
		Service: protective
Secondary	Unsheltered occupations (UNSHL)	Sales: all
		Clerical: all
		Laborers: except farm
		Farm: farmers & farm managers
		Farm: other farm & agriculture
		Service: cleaning
		Service: food
		Service: other services
		Service: private household

Source: U.S. Census of Population and Housing, Summary Tape File 4B, 1970 and 1990 (http://www.census.gov/).

(PRDSV), Low-Benefit Other (LOOTH), Low-Benefit Manufacturing (LOMAN), Government (GOVRT), and High-Benefit Manufacturing (HIMAN)—in that order for 1970 but with Government moving to the third position in 1990. Concerning change between 1970 and 1990, High-Benefit Manufacturing, High-Benefit Other, and Government increased noticeably more in female participation than did the labor force overall; Low-Benefit Manufacturing, Social Services, and Producer Services increased noticeably less.

Concerning variation by occupation (Table 1), the highest level of female participation in the labor force occurs in unsheltered occupations (UNSHL, 45.6 percent in 1970, 54.4 percent in 1990), followed by high-sheltered (HISHL, 35.2 percent in 1970, 52.2 percent in 1990) and low-sheltered (LOSHL, 21.9 percent in 1970, 24.2 percent in 1990). Concerning change between 1970 and 1990, especially notable is the increase in high-sheltered occupations for women in an era when economic tendencies were otherwise. Unsheltered increases only slightly less in female participation than did the labor force overall; low-sheltered increased noticeably less. Similar findings occur for the ORV.

Spatial Patterns: Geography of the Gender Division of Labor

Isorithmic maps of the female portion of the labor force for the United States in 1970 and 1990 exhibit strikingly similar spatial patterns—likewise for the ORV.[8] Regression of 1990 as a function of 1970, for example, yields a Pearson's *r* (Beta) of .70 for the United States and .71 for the ORV.

Pearson's *r* is, however, a *point-to-point* measure of association that does not take into account the pattern of spatial clustering. A more appropriate measure is Lee's (2001) bivariate *L*-statistic, which provides a value of .36 for the United States and .26 for the ORV (where the bivariates are 1970 and 1990). Both are significant at the .01 level (Lee forthcoming), but their difference indicates that spatial association between 1970 and 1990 is higher for the United States than for the ORV, even though their point-to-point associations are virtually identical.[9]

To portray this spatial ordering of female participation in the labor force in map form, Local Moran *I* statistics are extracted for each county. Figures 2 and 3 present the results for the United States and ORV, respectively. Procedures used follow Anselin (1995, 1996, 2000) and Tiefelsdorf (1998) for exploratory data analysis. Local Moran *I*s are computed for each county. Since a county within a cluster of high female participation will have a statistic similar in value to that of a county within a cluster of low female participation, a sign (+ or –) is appended to each Moran's *I*. The array is then converted to *z*-scores and mapped with the intervals being less than –1.5 standard deviation, between –0.5 and –1.5, between –0.5 and 0.5, between 0.5 and 1.5, and above 1.5 standard deviation. In Figures 2 and 3, these classes are designated as *very low*, *low*, *neutral*, *high*, and *very high* female participation in the labor force.[10]

For both 1970 and 1990 in the United States (Figure 2), concentrations of high female participation in the labor force occur in the South, particularly in Piedmont, east of the Mississippi, and central Florida; in New England and central New York; and in the D.C.-Baltimore corridor. Concentrations of low female participation are found in Appalachian areas of eastern Kentucky, West Virginia, southeastern Ohio, and southwestern Pennsylvania; in the Great Plains from the Canadian to Mexican borders; and in parts of the Intermontane West, particularly Nevada, Utah, Idaho, and Wyoming.

Concerning major urban areas, some are consistently positive, such as Boston, New York City, Baltimore, Washington, D.C., Tampa, Dallas–Fort Worth, San Francisco, and Seattle. Some become so only in 1990, such as Denver, Cincinnati, Phoenix, Minneapolis, and St. Louis. But some are neutral throughout, such as Chicago, Cleveland, Los Angeles, Miami, Philadelphia, and Pittsburgh. In that we commonly think of urban areas as being a favorable setting for female employment, the variation in observed patterns is surprising.

Turning to the ORV (Figure 3), a low level of female labor force participation again is evident in Appalachian areas of eastern Kentucky, West Virginia, south-

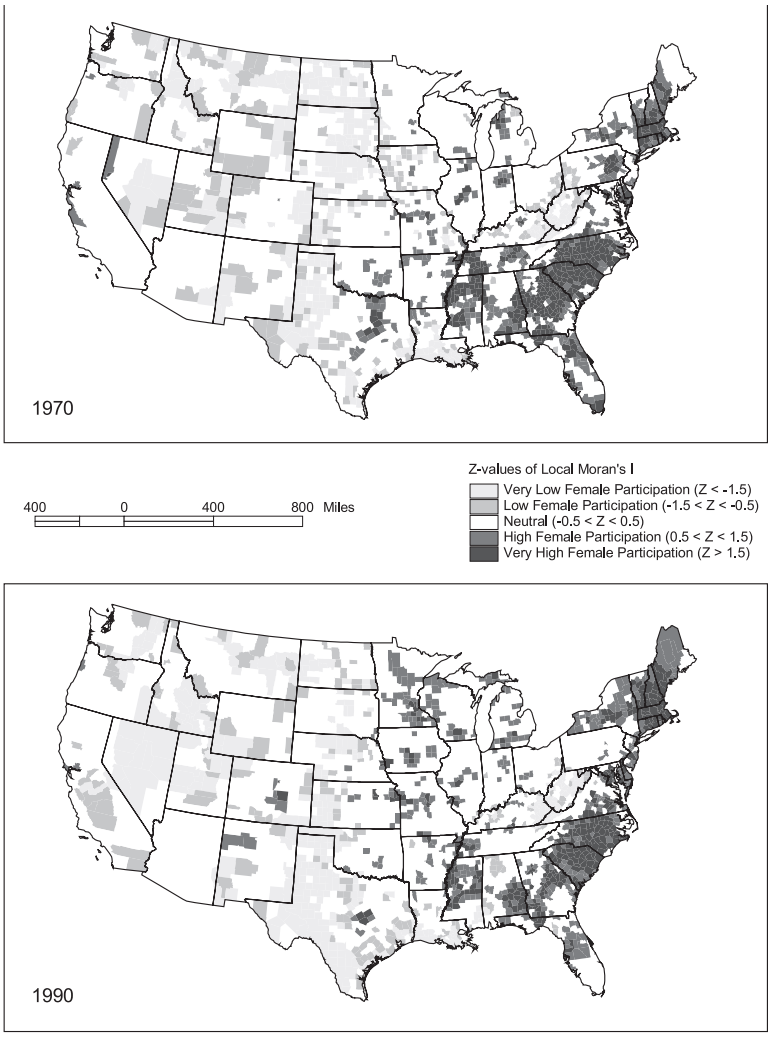


FIGURE 2. ***Z*-Values of Local Moran's *I*, Proportion of Females in the Labor Force, 1970 and 1990 (United States)**

eastern Ohio, and southwestern Pennsylvania. Unlike the U.S. view, however, urban areas are more distinctly associated with high levels of female participation—for example, Columbus, Dayton, Cincinnati-Covington, Lexington-Frankfort, Louisville, and their environs.[11] Furthermore, while the pattern of low female participation changes little between 1970 and 1990, urban areas emerge more distinctly as places of high female participation. Specifically, by 1990, we

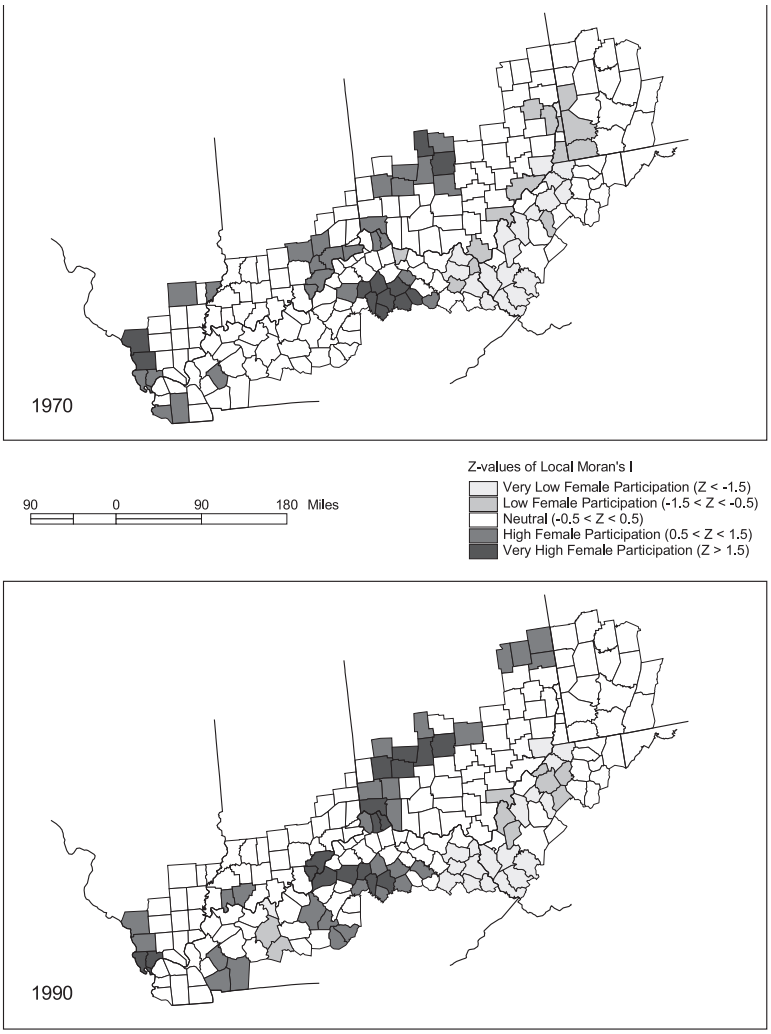


FIGURE 3. ***Z*-Values of Local Moran's *I*, Proportion of Females in the Labor Force, 1970 and 1990 (Ohio River Valley)**

see coalescence into a distinct Columbus-Dayton-Cincinnati corridor, and a distinct Lexington-Frankfort-Louisville corridor. That these urban areas emerge on the ORV, but not the United States, map is testimony to the importance of viewing different geographic scales before generalizing (Brown 1999). Also, places noted as having distinctly high levels of female participation are associated with the post-Fordist *new* economy, whereas those with low female participation levels in 1970

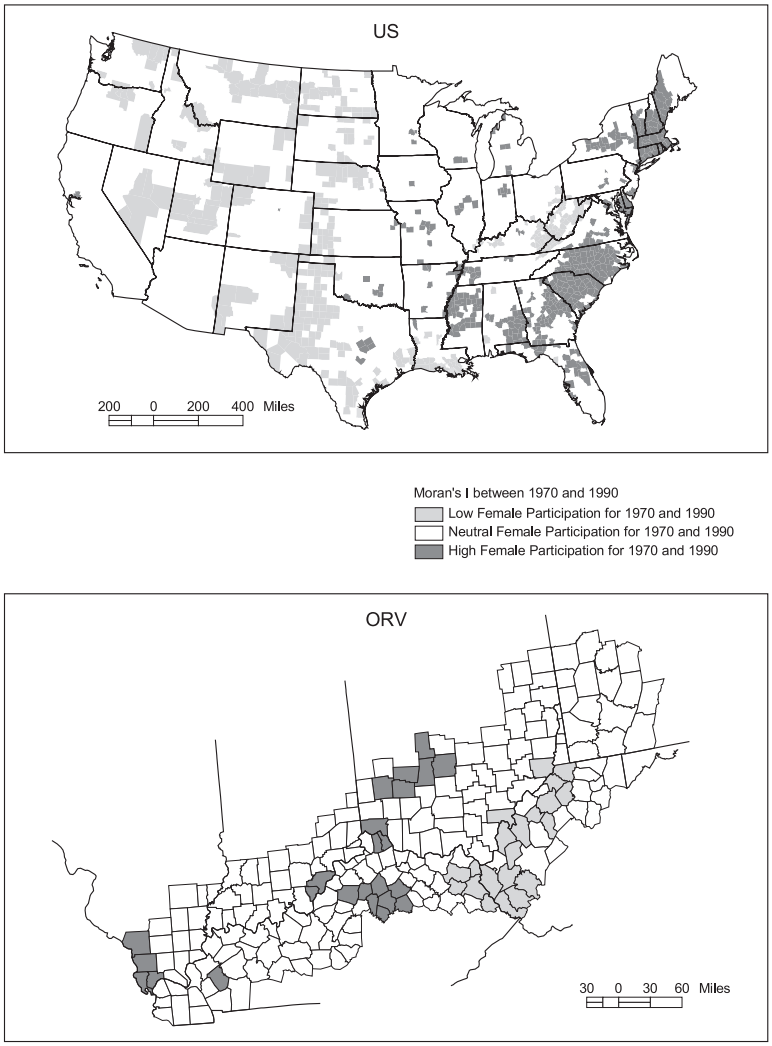


FIGURE 4. Continuity of the Proportion of Females in the Labor Force between 1970 and 1990 (United States and Ohio River Valley)

and low or neutral levels in 1990, such as southeastern Ohio and southwestern Pennsylvania, are associated with the Fordist *old* economy.

To more precisely gauge the continuity of these patterns, and its locus, the 1970 and 1990 Moran *I* maps were compared to identify places of high-high and low-low female participation in the labor force. For the United States (Figure 4), high female participation in the labor force prevails in the South, east of the Mississippi and in

Piedmont, New England, central New York, the D.C.-Baltimore corridor, Dallas–Fort Worth, Orlando, Tampa, San Francisco, and Seattle; low female participation prevails in the Appalachian areas of West Virginia and eastern Kentucky; portions of the Great Plains from the Canadian to Mexican borders; and in parts of the Intermontane West, particularly Nevada, Utah, and southern Wyoming. For the ORV (Figure 4) high female participation in the labor force prevails in urban areas (Columbus, Dayton, Cincinnati-Covington, Lexington-Frankfort, Louisville); low participation prevails in the Appalachian areas of eastern Kentucky and West Virginia. Another important dimension of continuity is the many counties which are neutral for both the United States and ORV in 1970 and 1990 (neutral-neutral). More specifically in terms of numerical counts, 69.2 percent of U.S. counties and 75.7 percent of ORV counties had the same classification in 1990 as in 1970.[12]

From a number of different perspectives, then, we see change did occur but that continuity is the dominant characteristic in the spatial patterning of female participation in the labor force for 1970 and 1990.

Explanatory Variables

Earlier discussion indicates that the female proportion of the labor force varies by economic activity and occupational category (Table 1). Translated into variation among counties, this means that, for example, one with a high proportion of employment in high-benefit manufacturing would have a lower percentage of females in the labor force than a county with a high proportion of employment in social services—similarly for low-sheltered compared to un-sheltered occupations.

Several other variables have been examined in a similar framework, where the variable represents a dimension thought important to variation in genderization of the labor force. Table 4 sets out such variables and dimensions they stand for—Labor Supply–Human Capital–Individual Attributes, Labor Demand–Economic Structure, and Institutional-Cultural.[13] Descriptive statistics of variables are provided in Table 5. These variables are meant to be neutral in the sense of representing the overall socioeconomic backdrop of the Fordist/post-Fordist transition, not one or the other.

Rather than examining the role of these variables individually, we combine them into latent dimensions using principal components analysis (Table 6). This provides four components accounting for 62 percent of the 1970 variance and 65 percent for 1990. Component structure is virtually identical for the two time points.

Component I in 1970 and 1990 provides a continuum on the positive side (+ values) of counties with higher levels of female education (FEDHSG), median family income (MFI), economic activity in social and producer services (SOCSV, PRDSV), high-shelter occupations (HISHL), and percentage urban (URBAN). On the negative side of the continuum (– values) are counties with a high percentage of low-benefit manufacturing (LOMAN) and low-shelter occupations (LOSHL), as

TABLE 4. Dependent Variable and Explanatory Variables for Ordinary Least Squares (OLS) Regression Analysis

Dependent Variable		*FEPROLF*	*Female Proportion in the Labor Force*
Explanatory variables			
Labor supply or individual dimension	Marriage	MARRIED	Percentage of married women
	Family structure	FEHEAD	Percentage of female-headed families
	Motherhood	CWR	Child woman ratio [children (0-4) × 100/women (15-44)]
	Education	FEDHSG	Percentage of female population aged 25+ with high school diploma+
	Male unemployment	MUNEMP	Percentage of male unemployed labor force
	Income	MFI	Median family income ($1,000)
	Race/ethnicity	BLACK	Percentage of black population
	Gender composition	SEXCOMP	Female proportion in population aged 25-44
Labor demand or structural dimension	Economic activity composition	HIMAN	Percentage of the labor force employed in high-benefit manufacturing
		HIOTH	Percentage of the labor force employed in high-benefit other
		LOMAN	Percentage of the labor force employed in low-benefit manufacturing
		LOOTH	Percentage of the labor force employed in low-benefit other
		SOCSV	Percentage of the labor force employed in social services
		PRDSV	Percentage of the labor force employed in producer services
		GOVRT	Percentage of the labor force employed in government
	Occupational composition	HISHL7	Percentage of the labor force employed in highly sheltered occupations
		LOSHL	Percentage of the labor force employed in low-sheltered occupations
		UNSHL	Percentage of the labor force employed in unsheltered occupations
	Job availability	URBAN	Percentage of population living in urban areas
Institutional/cultural dimension	Child care support	AFDC	Aid to Families with Dependent Children (AFDC) payment per person aged 0-18
	Capital-labor relation	UNION	Percentage of unionized at state level

TABLE 5. Descriptive Statistics of Variables

	United States (n = *3,070*)				*Ohio River Valley (ORV) Region* (n = *222*)			
	1970		*1990*		*1970*		*1990*	
Variable	*U.S. Mean*	*County Mean*	*U.S. Mean*	*County Mean*	*ORV Mean*	*County Mean*	*ORV Mean*	*County Mean*
FEPROLF	37.78	34.97	45.79	44.25	35.30	33.42	45.44	43.39
MARRIED	61.15	63.58	55.55	60.50	61.12	63.62	55.98	60.19
FEHEAD	10.84	8.99	15.92	12.70	10.10	9.08	15.30	12.71
CWR	40.38	42.93	31.18	33.55	39.43	41.49	29.36	29.77
FEDHSG	52.73	46.58	74.78	70.10	50.16	42.20	73.06	66.50
MUNEMP	3.88	3.98	6.40	6.56	3.96	4.83	7.33	8.70
MFI	7.45	7.45	28.34	28.34	7.53	7.53	27.28	27.28
BLACK	11.21	9.19	12.12	8.55	6.84	3.60	7.77	3.34
SEXCOMP	51.17	51.05	50.30	49.89	51.61	51.14	50.88	50.38
HIMAN	16.97	10.53	12.99	10.79	24.37	18.96	15.90	15.63
HIOTH	13.54	15.03	13.18	14.44	13.98	17.59	13.35	16.48
LOMAN	9.02	11.30	4.78	7.77	7.56	9.96	3.63	6.07
LOOTH	30.66	38.68	29.97	33.98	27.85	30.81	29.77	29.48
SOCSV	15.10	14.43	18.68	18.50	14.72	13.56	19.97	18.72
PRDSV	9.26	5.16	14.90	9.00	7.11	4.56	12.62	8.58
GOVRT	5.45	4.87	5.50	5.52	4.40	4.55	4.75	5.03
HISHL	23.13	19.09	30.07	22.48	20.87	16.92	27.99	21.68
LOSHL	34.25	35.38	25.83	31.48	38.70	42.48	28.04	35.29
UNSHL	42.62	45.53	44.10	46.04	40.43	40.60	43.97	43.04
URBAN	73.50	34.63	75.17	36.10	66.67	33.10	65.87	32.96
AFDC	65.34	32.51	293.71	172.30	46.80	38.03	269.42	223.45
UNION		23.14		19.68		33.99		32.12

Source: U.S. Census of Population and Housing, Summary Tape File 3A, 4B, 1970 and 1990 (http://www.census.gov/).

TABLE 6. Principal Components Analysis (VARIMAX Rotation)

	1970						*1990*				
	Principal Components						*Principal Components*				
	I	*II*	*III*	*IV*	*Communality*		*I*	*II*	*III*	*IV*	*Communality*
MARRIED7	–.35	**–.70**	.03	–.05	.61	MARRIED9	–.33	**–.71**	–.09	**–.41**	.80
FEHEAD7	.01	**.90**	.18	.11	.86	FEHEAD9	.05	**.88**	.06	.31	.89
CWR7	–.38	.08	–.05	.15	.17	CWR9	–.26	–.22	**–.53**	.00	.40
FEDHSG7	**.66**	**–.56**	–.20	–.10	.80	FEDHSG9	**.69**	**–.52**	–.08	–.07	.76
MUNEMP7	–.05	.06	–.01	**.83**	.70	MUNEMP9	–.28	.20	.05	**.77**	.71
MFI7	**.68**	**–.44**	.36	–.11	.80	MFI9	**.77**	–.19	.39	–.24	.84
BLACK7	–.17	**.80**	.08	–.21	.72	BLACK9	–.03	**.87**	–.04	–.07	.76
SEXCOMP7	–.07	**.41**	–.05	.03	.17	SEXCOMP9	.03	.38	.20	.08	.19
HIMAN7	.21	–.20	**.75**	–.04	.65	HIMAN9	.01	–.07	**.80**	–.01	.65
HIOTH7	–.13	–.09	.05	**.43**	.21	HIOTH9	–.19	–.06	.02	.01	.04
LOMAN7	**–.43**	.38	**.52**	–.11	.62	LOMAN9	**–.50**	**.51**	.30	–.27	.66
LOOTH7	–.20	–.17	**–.85**	–.24	.85	LOOTH9	–.06	**–.41**	**–.78**	–.10	.78
SOCSV7	**.60**	.11	–.34	.25	.55	SOCSV9	.35	.03	–.27	**.58**	.53
PRDSV7 (GOVRT7)[a]	**.78**	.04	.07	–.02	.61	PRDSV9 (GOVRT9)[a]	**.85**	.04	.14	–.02	.75
HISHL7	**.80**	–.06	–.23	.15	.72	HISHL9	**.90**	.05	.09	.16	.85
LOSHL7 (UNSHL7)[a]	–.36	.14	**.87**	.12	.92	LOSHL9 (UNSHL9)[a]	**–.70**	.29	**.58**	–.11	.93
URBAN7	**.75**	.17	.26	–.06	.66	URBAN9	**.71**	.21	.17	.11	.59
AFDC7	.21	**.42**	.06	**.58**	.56	AFDC9	.05	.18	.11	**.73**	.58
UNION7	.21	**–.44**	.34	**.48**	.58	UNION9	.06	–.39	**.53**	**.53**	.71
Eigenvalue	3.87	3.28	2.88	1.73		Eigenvalue	4.29	3.33	2.59	2.22	
Percentage variance	20.37	17.28	15.17	9.10		Percentage variance	22.60	17.51	13.64	11.67	
Commulative percentage	20.37	37.65	52.82	61.92		Commulative percentage	22.60	40.11	53.75	65.42	

Note: Bold indicates loadings greater than .4.
a. Variables are dropped to avoid collinearity.

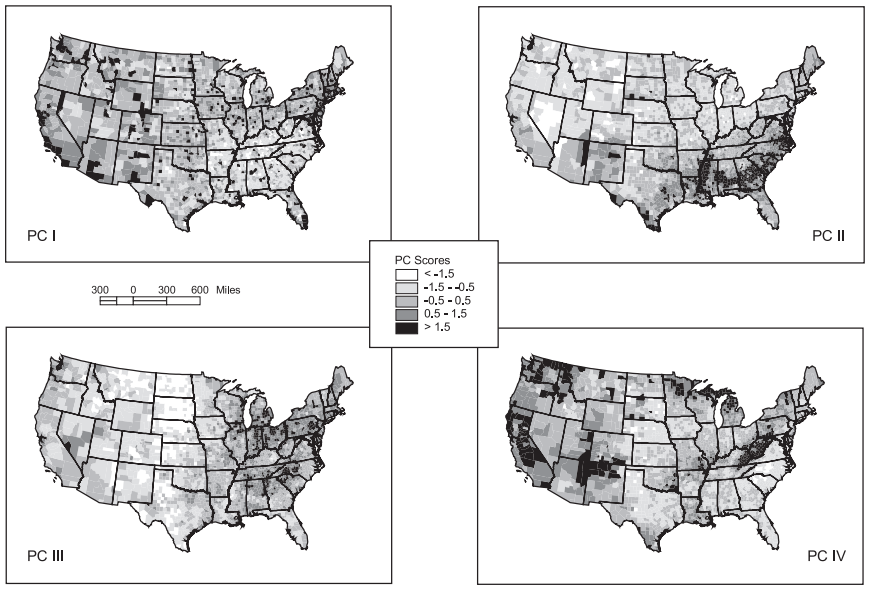


FIGURE 5. Principal Component (PC) Scores for 1970

well as a reasonable representation of percentage married (MARRIED) and the child per woman ratio (CWR). Overall, this component distinguishes urban areas and aspects of them representing well-paid higher-order services (Figures 5 and 6). The mix of variables composing component I suggests it would be positively related to female participation in the labor force.

Component II in 1970 and 1990 provides a continuum on the positive side (+ values) of counties with a high percentage of female-headed households (FEHEAD), African Americans (BLACK), females (SEXCOMP), and low-benefit manufacturing (LOMAN). On the negative side of the continuum (– values) are counties with a high percentage of married women (MARRIED), higher levels of female education (FEDHSG), and a more unionized labor force (UNION). Overall, this component distinguishes areas characterized by single-family heads of household who generally are women, black, and employed in low-benefit manufacturing (+) from areas characterized by relatively more educated, married, white women (–). Figures 5 and 6 show that counties of the former type occur in rural, poorer areas of the South, Southeast, and to some degree the Southwest; negative values are found in the American Manufacturing Belt, Great Plains, and Northwest. The mix of variables comprising component II suggests it would be positively related to female participation in the labor force.

Component III in 1970 and 1990 provides a county continuum on the positive side (+ values) that has greater levels of high-benefit manufacturing (HIMAN), low-benefit manufacturing (LOMAN), low-shelter occupations (LOSHL),

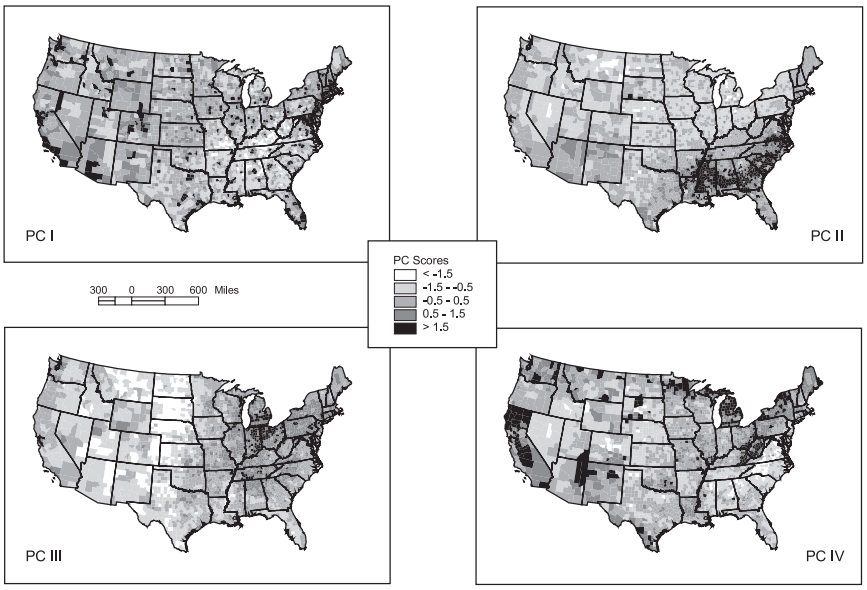


FIGURE 6. Principal Component (PC) Scores for 1990

unionization (UNION), and median family income (MFI). On the negative side of the continuum (– values) are counties with a higher level of low-benefit other economic activity (LOOTH) and (we know from related analyses) unsheltered occupations (UNSHL). Overall, component III distinguishes manufacturing areas characterized by semiskilled occupations and attendant economic activities (+) from areas characterized by agriculture and low-order service occupations (–). Figures 5 and 6 show that counties of the former type occur east of the Mississippi, noticeably in the South's Piedmont and major urban areas in the Midwest and Middle Atlantic; negative values occur west of the Mississippi, particularly in the Great Plains. The mix of variables composing component III suggests it would be positively related to female participation in the labor force.

Component IV in 1970 and 1990 provides a continuum of counties that are (+ values) high in the level of male unemployment (MUNEMP), high-benefit other economic activity (HIOTH) in 1970 switching to social services (SOCSV) in 1990, per capita Aid to Families with Dependent Children payments (AFDC), and unionization of the labor force (UNION). Overall, then, this component distinguishes areas that were economically less robust in 1970 and became even more so in 1990. Figures 5 and 6 show that counties registering high on this dimension are found in Appalachian portions of West Virginia and Kentucky and Western areas with high levels of minority (Indian, Hispanic) populations. The mix of variables composing

component IV suggests it would be negatively related to female participation in the labor force.

Regression Analyses

Proportion of females in the labor force (FEPROLF) is the dependent variable against principal component scores for all continental U.S. counties in 1970 and 1990 separately. In addition, to indicate whether effects differ between the ORV and United States, five dummy variables were employed (where 1 indicates ORV membership), four to record the interaction with each principle component score (D*PCI, D*PCII, D*PCIII, D*PCIV) and one for the ORV overall. Since results for the four PC scores differ little whether dummies are included or not, the entire analysis is presented together in Table 7.[14]

For the United States in both 1970 and 1990, components I and II are most important. The former indicates that higher levels of female participation in the labor force occur in counties with greater median income, economic activity in social and producer services, high-shelter occupations, and higher percentage urban. By contrast, component II indicates that high levels of female participation also occur in counties with female-headed households, African Americans, females, and low-benefit manufacturing. In both instances, a higher percentage of women married discourages female participation. What we see, then, is a distinction between better, higher-wage employment in urban areas (component I, Figures 5 and 6) and lower-wage employment among single-headed households (particularly African American ones) and spatially, south of the Mason-Dixon line and/or Sun Belt (component II, Figures 5-6). It also is noteworthy that component II is stronger in 1970 (Beta = .49 versus .38 for component I) but in 1990 is equal in importance (.41, .39). This underscores the increasing importance of urban areas in the post-Fordist transition and women in those areas becoming more likely to enter the labor force.

Component III is third in importance, but this drops noticeably between 1970 and 1990. Here, female participation in the labor force is linked with manufacturing, unionization, median family income, and low-shelter occupations. Map patterns (Figures 5 and 6) indicate this relationship reflects a strong regional effect (east versus west of the Mississippi), and we take the drop in importance from 1970 to 1990 to reflect socioeconomic changes between these years related to the Fordist/post-Fordist transition and decentralization of wage-based economic activity.

Component IV effects are weaker than others, but noteworthy is that its negative value in 1970 indicates female participation was greater where male unemployment, high-benefit other economic activity, AFDC, and unionization was high; whereas by 1990, high-benefit other had been replaced by social services, which involves a high percentage of females. This appears, then, to be a prototypical Fordist/post-Fordist transition scenario. Map patterns (Figures 5 and 6) indicate

TABLE 7. Regression Analysis with Principal Components Scores and Ohio River Valley (ORV) Dummy Variables

	United States (n = *3,070)*							
	1970				*1990*			
	r	b	*Beta*	T	r	b	*Beta*	t
PC I	.38	1.66	.38	29.05**	.42	1.08	.39	27.56**
PC II	.50	2.12	.49	37.72**	.42	1.14	.41	29.65**
PC III	.30	1.47	.34	25.55**	.20	0.63	.23	15.86**
PC IV	–.10	–0.31	–.07	–5.29**	.12	0.45	.16	11.10**
D*PC I		–0.41	–.02	–1.47		0.50	.05	3.02**
D*PC II		0.11	.01	0.22		0.17	.01	0.46
D*PC III		–1.95	–.12	–4.88**		–0.88	–.09	–2.80**
D*PC IV		–1.03	–.08	–4.64**		–1.06	–.12	–6.38**
ORV effect overall		0.58	.04	1.48		0.68	.63	2.02*
Intercept		35.08		609.84**		44.33		1,120.50**
R^2		.511				.426		

Note: D = 1 if a county is in the ORV, 0 otherwise.
*Significant at alpha = .05. **Significant at alpha = .01.

low female participation related to component IV occurs in areas such as Appalachia, Indian reservations, and more remote areas of the West.

Relevant to this article's theme of continuity, it is noteworthy that regressions for 1970 and 1990 are nearly identical in terms of the magnitude and role of each component. Also, r^2s are comparable and respectable (1970 = .72, 1990 = .65).

Turning to the ORV, dummy variables are interpreted in the following manner. If we assume an ideal PC score of 1.0 or –1.0 (i.e., D*PCI = D), the *b* or beta coefficient associated with the dummy indicates the degree to which the *b* or beta coefficient associated with the PC would increase or decrease as the result of ORV effects (Brown 1991, chaps. 4, 5, 6).

The dummy variable representing the ORV overall is not significant in 1970 and just barely so in 1990. The manifestation of ORV effects, then, is seen through individual components. In this regard, the ORV effect on PCI is negligible for 1970 but significant and positive for 1990, indicating a stronger urban effect in 1990 on female participation in the labor force. This corresponds with the cartographic portrayals in Figures 2, 3, and 4. The ORV effect on PC II is not significant for 1970 and 1990, indicating that this factor works similarly at both the national and regional scale. The ORV effect on PCIII is significant in both 1970 and 1990, with negative signs indicating that ORV female participation in the labor force was less affected by the presence of manufacturing, unionization, and low-shelter occupations or, more broadly, the Fordist/post-Fordist transition. The ORV effect on PCIV also is significant and negative in both 1970 and 1990. The transition here is from a local regime characterized by unionization and more typical Fordist social and economic accouterments to a post-Fordist regime where economic activity has not revived as in other places and social services are a more important element of the economic landscape. That the ORV dummy is negative in both 1970 and 1990 suggests, then, that the ORV generally was not as heavily invested in the Fordist regime in 1970 and experienced a more healthy transition to 1990.

Relevant to this article's theme of continuity, then, it is noteworthy that regressions for 1970 and 1990, for the United States and ORV, are largely identical in terms of the magnitude and role of each component. At the same time, there are some differences, albeit not large, in the role of components I, III, and IV. One reason is because variation among ORV counties is not as great as among the entire set of U.S. counties. But more substantively, we believe that the Fordist/post-Fordist transition was somewhat muted for the entire region, relative to the United States, because the ORV generally contains a greater proportion of counties with *new age*, more contemporary economic activities and attendant socioeconomic structures (e.g., Cincinnati, Columbus, Louisville in contrast to Cleveland, Chicago, Detroit). The role of post-Fordist new age economies is further underscored by the role of component I, which increases significantly between 1970 and 1990, reflecting its

strong urban aspect and the significant growth of new age economic areas over that twenty-year span. At the same time, the effects at an even more local scale varied, as in the significantly lagged recovery of strongly Fordist bastions such as Pittsburgh, southwestern Pennsylvania, and southeastern Ohio (Brown, Lobao, and Digiacinto 1999).

Discussion and Concluding Observations

This article examines spatial aspects, or spatial patterning, of the gender division of labor for 1970 and 1990. Given that these years represent poles of the Fordist/post-Fordist transition, one might expect considerable change. In fact, however, continuity or continuity amidst change is highly dominant. A similar finding characterizes the role of explanatory factors for those two years, which are essentially identical.

One might of course question our measurement of continuity versus change. For example, that the 1970 spatial distribution of the proportion of women in the labor force statistically explains 50 percent of the 1990 distribution can be seen as either continuity or change (a "glass half full" or "glass half empty" dichotomy). But given the emphasis of earlier research on change rather than continuity, and the argument of this article, it is clear that our findings at least indicate continuity within change and/or strong inertial effects. A similar argument applies to Lee's bivariate *L* statistic comparing 1970 and 1990, which is significant at the .01 level. Our interpretation of regression results are more circumstantial but certainly lend credence to the argument of continuity within change.

These findings, then, support a number of perspectives put forth in conceptual or theoretical discussions. Examples here include SSA concepts that bring out *embeddedness* and *inertia* effects, rather than *decoupling*; Cox's evocation of *local dependence* as a force thwarting or slowing change; Harvey's *structured coherence* wherein inertia derives from a political balance, or system, designed to preserve the joint interests of labor and capital; Markusen's focus on the *stickiness* of socioeconomic change; the role of *sunk costs* that lend inertia to firm decision making; and human and social capital as a place-based resource that provides inertia effects and/or a basis for returning to past prosperity or lack thereof.

In regard to these aforementioned constructs, two quotes seem particularly germane to the argument of this article and are repeated for emphasis. Harvey (2000, 86-87) stated, "They [the regulation school] were suggesting that one historical regime—Fordism—had given way to another—Flexible Accumulation . . . empirically, there is no evidence of such a wholesale change . . . we can't speak of systemic transformation. Fordism plainly persists over wide areas of industry, although of

course it has not remained static." And North (1960, 6) stated that change occurs "incrementally rather than in a discontinuous fashion."

As noted, however, this is not a "no change" argument. In looking at production and distribution processes, for example, 1990 is very different from 1970—similarly for economic mix such as the shift from manufacturing to services and the overall (i.e., nonspatial) role of women in the labor force. How then can our findings be explained in a broad context?

One perspective is the time horizon, which is obviously critical to detecting change, spatial or otherwise—a dimension that entwines itself through the conceptual-theoretical arguments we cited. In this regard, the twenty years thought to encapsulate the Fordist/post-Fordist transition, a formulation that emphasizes discontinuity, may simply be too short in many respects. This is illustrated by repeating for 2000 the 1970 and 1990 analyses of the spatial distribution of the proportion of females in the labor force, done in the course of revising this article on the basis of reviewer comments. For the entire United States, this shows a 1970 versus 2000 r of .49 and Lee's bivariate L as .21, compared to the 1970 versus 1990 r of .70 and bivariate L of .36. Over time, then, there is evidence of a dampening of continuity, but having noted this, one cannot forget that these statistics remain significant at the .01 level—similarly for the ORV. For informational purposes, maps of Moran's I for the United States and the ORV in 2000 are presented in the appendix, which may be compared with Figures 2 and 3. From a change perspective for the United States, we see a shift toward higher levels of female participation in the upper Midwest and New England, a lessening of high female participation clusters in the south, and a lessening of the low female participation in the Great Plains states and Intermontane West.

Scale effects also are relevant. Early arguments concerning de-industrialization, formation of the Rust and Sun Belts, and onset of the Fordist/post-Fordist transition often used state-level data, and this provides a very different picture than, for example, county data (Brown 1999; Brown, Lobao, and Digiacinto 1999; Brown, Lobao, and Verheyen 1996). This also is illustrated here in comparing the United States and ORV.

From a space-economy perspective, we can generalize that there are essentially two prototypes of female participation in the labor force. One features high participation in areas with higher quality employment opportunities, higher income, and more urban characteristics. Call this the *Urban Prototype*. The second prototype features higher female participation in areas with lower quality employment opportunities, lesser income, often female-headed households, and below the Mason-Dixon line. Call this the *Southern* or *Sunbelt Prototype*.

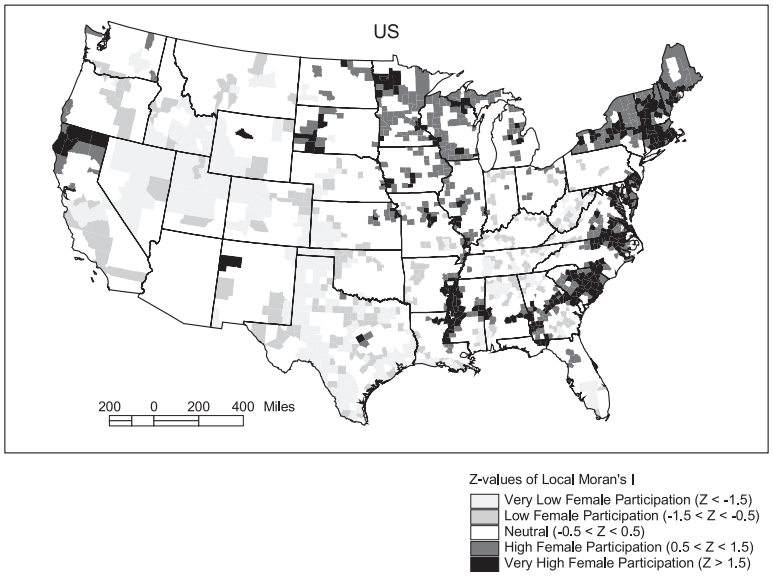
These perspectives aside, what might this research say directly concerning women in the labor force in 1970 and 1990?

One explanation could be that change occurs in spatially parallel fashion. For example, shifts from manufacturing to service, or shifts in factors underlying female participation in the labor force (e.g., explanatory variables used here), could occur at a similar rate in all (or the majority of) places. On its surface, this seems unlikely. But parallel shifts of this sort are not inconsistent with conceptual and empirical arguments drawn on for this article. Accordingly, further investigation is in order.

A second explanation relates to an embeddedness thesis such as that found in SSA arguments. This would hold that the social-economic-cultural-human-resource-etc. conditions that promoted more or less female participation in the workforce in 1970 persist through 1990. Under this scenario, change occurs in the economic landscape, but it is coped with more or less successfully, reflecting spatial aspects of embeddedness. This argument is consistent with findings of Lobao, Rulli, and Brown (1999) in examining income inequalities.

Overall, findings of this article must be taken as provocative. Spatial similarity in gender division of the workforce, and the role of its explanatory variables, between 1970 and 1990 is contrary to commonly held expectations. There is, however, a solid conceptual underpinning to this finding, including Brown's (1999) emphasis on continuity or continuity amidst change. Accordingly, findings here should provide an important stimulus to future research that better illuminates issues of continuity or inertia effects and their importance relative to change.

APPENDIX
Z-VALUES OF LOCAL MORAN'S *I*, PROPORTION OF FEMALES IN THE LABOR FORCE, 2000 (UNITED STATES AND OHIO RIVER VALLEY)



NOTES

1. Fordism refers to the style of economic activity and its attendant socioeconomic structure that characterized midcentury North America until about 1970. Dicken (1998, 165-66) said, "The Fordist system was characterized by very large-scale production units using assembly-line manufacturing techniques and producing large volumes of standardized products for mass market consumption . . . especially characteristic of industrial sectors, notably automobiles . . . this Fordist system of production (and its associated organizational structures) entered a period of 'crisis' from about the mid-1970s . . . has been replaced by new [post-Fordist] modes of production . . . the most important characteristic [of which] is flexibility: of the production process, of its organization within the factory and of the organization of relationships between customer and supplier firms. The key to production flexibility lies in the use of information technologies." Accompanying the Fordist/post-Fordist transition was a dramatic shift from manufacturing to service activity such that by 1990, service employment well exceeded that in manufacturing and gross domestic product (GDP) from services equaled that of manufacturing in the United States, as reported by the Bureau of Economic Analysis (Industry Accounts Data: Gross Domestic Product by Industry; see http://www.bea.gov/bea/dn2/gpoc.htm).

2. The use of spatial statistics to address academic issues is strongly promoted by the Center for Spatially Integrated Social Science (CSISS), the culmination of a number of earlier efforts (Goodchild et al. 2000). Nevertheless, Brown (2000) argued that the use of these tools to address general academic issues with conceptual and/or theoretical significance (as compared to applied uses) in geography is much less than expected given the centrality of geographic information systems (GIS)–spatial analysis to the discipline.

3. The Ohio River Valley (ORV) region is defined as counties three-deep on each side of the Ohio River, from its head in Allegheny County, Pennsylvania, to the Mississippi. Also included are counties making up a metropolitan statistical area (MSA) where only a portion was included under the original criteria, that is, Canton, Columbus, Dayton- Springfield, Lexington-Fayette. The result is 222 counties in six states (Illinois, Indiana, Kentucky, Ohio, West Virginia, Pennsylvania). This region has both historic (Reid 1991) and contemporary importance. It is anchored at one end by Pittsburgh-Wheeling-Youngstown; encompasses Cincinnati-Louisville and a multitude of smaller cities, towns, mineral extraction, and rural areas as far west as the Mississippi; and epitomizes the Midwest's industrial heartland and agricultural-energy reserve described by Page and Walker (1991).

4. Kodras and Padavic (1993) found noticeable spatial change between 1970 and 1980 for manufacturing, nonprofessional, and professional services. By contrast, also in terms of gross economic sector categories but not with a spatial frame of reference, Blau, Ferber, and Winkler (1998, 125-26) found that change in male and female employment between 1972 and 1995 is more or less parallel, segregation indices for each year are nearly identical, but most change was between manufacturing and services as expected. The implication is that spatial shifting occurred, but this is neutralized in the aggregate.

5. Female participation in the labor force is measured here as the percentage of employed persons who are women. This should be distinguished from the *labor force participation rate*, sometimes found in official statistics, which is calibrated as the percentage of women in the labor force among all economically active persons, including those looking for work and others not immediately employed.

6. Broadly referred to as an industrial segmentation approach, our classification distinguishes *Core* (high wage, mainly durable manufacturing) from *Peripheral* (lower wage, mainly nondurable manufacturing), indicated as *High Benefit* and *Low Benefit* in Table 2. Each category is further divided according to Manufacturing and Other (nonmanufacturing activities such as mining, transport, communication, utilities). In addition, reflecting the full employment range for women and characteristics of the era being studied, we add Social Services and Producer Services under peripheral, and Government separately as a state economic sector.

7. Division of occupations into *high-sheltered*, *low-sheltered*, and *unsheltered* categories reflects the degree of protection and benefits that accrue to each. Concerning an occupation's location on the continuum, forces related to more highly sheltered occupations include capital-labor arrangements such as

unionization or tenure, accouterments such as health and retirement packages, and the societal prestige associated with particular occupations. These dimensions are not independent, of course.

8. County-level data were converted to isorithms for generalization purposes, utilizing the inverse distance weighted (IDW) interpolation method applied with county centroids.

9. To elaborate the distinction between Pearson's *r* and Lee's *L*, the former suggests that if county levels of female participation in the labor force were converted to *z*-scores, the distribution between the United States and ORV would be similar because they have a similar Pearson's *r*, and if mapped, a random pattern would as likely prevail as not. That Lee's *L* is higher for the United States than the ORV indicates greater spatial clustering in the United States, so that if mapped differences in the level of clustering would be apparent.

10. Isorithmic mapping provides similar information as the result of smoothing and interpolation procedures, but without statistical calibration. Furthermore, we employ the entire range of Moran *I* values, rather than only those significant under a standard inferential test, because inferential tests for local measures differ from ones for global measures and, more important, are exploratory in nature, not confirmatory. As Getis and Ord (1992) and Anselin (1995) pointed out, an alpha level for a global measure must be lowered when applied to its local counterparts. While statistical approaches, such as a Bonferoni bounds procedure, have been proposed, the problem is not resolved, especially when dealing with a large number of observations and comparing different samples with different sample size. As Tiefelsdorf (1998) showed, the use of *z*-scores or *p*-values of local Moran's *I* in an exploratory fashion is statistically acceptable, especially for the purpose of pattern detection.

11. Pertinent to this urban (and post-Fordist "new" economy) effect is the high female participation in areas of southwest Illinois along the Mississippi. This appears related to the labor market of St. Louis and its environs.

12. Actual numbers provide a fuller appreciation of the cartographic display provided by Figure 4. Among United States counties, 43.1 percent are neutral in gender participation in the labor force for both 1970 and 1990, 14.3 percent are high-high, 11.8 percent are low-low, and 30.8 percent switched between these years, all between neutral and high or low (i.e., none high-low or low-high); overall, then, 69.2 percent of U.S. counties remained in the same classification. Among ORV counties, 55.4 percent are neutral in gender participation in the labor force for both 1970 and 1990, 10.8 percent are high-high, 9.5 percent are low-low, and 24.3 percent switched between these years, all between neutral and high or low (i.e., none high-low or low-high); overall, then, 75.7 percent of ORV counties remained in the same classification.

13. Variable choice was guided by previous studies of women's labor force participation. These include Abrahamson and Sigelman (1987); Blau, Ferber, and Winkler (1998); Cotter, Hermsen, and Vanneman (2001); Deseran, Li, and Wojtkiewicz (1993); Haynie (1996); Jones and Resenfeld (1989); Kodras and Padavic (1993); Lorence (1992); Odland and Ellis (1998); Semyonov and Scott (1983).

14. A continuing debate is how best to represent multifaceted composites such as the overall socioeconomic backdrop of the Fordist/post-Fordist transition. Some prefer to use individual, representative variables; others prefer multivariate scales, as represented here by principal components. Those favoring particular variables often consider scales to be arbitrary in definition, amorphous, and inappropriate for evaluating theory or gauging policy impacts. We disagree, noting that scales embody a broad range of socioeconomic characteristics, take into account that aspects of the space economy are highly interrelated, better capture its gestalt or holistic character, are more stable in statistical performance than single variables, and are, therefore, deemed preferable for both description and generalization. Pragmatically, "independent variables are almost always intercorrelated, that is, multicollinear . . . [such that] parameter estimates become unreliable" (Lewis-Beck 1980, 58). In a similar vein, Daultrey (1976, 45) noted, "[Using principal components scores in a multiple regression] obviates the need to use stepwise multiple regression with its often unsatisfactory criterion that the independent variable having the largest correlation with the dependent variable is the most 'important' predictor of the dependent variable." Finally, the use of principal components and other such techniques is a time-honored tradition in creating multivariate/dimensional scales or indices, being explicitly embodied in package programs such as, for

example, SPSS. Nevertheless, as an experiment, we ran multiple regressions using all variables from our principle components analyses as independent, against the proportion of the labor force who are females for 1970 and 1990, United States and ORV. As expected, there is sharp variation in the Beta coefficients and *t*-scores of one variable relative to another, even when their zero-order correlations are similar in strength or reversed in sign, or when they load (more or less) equally on a given principal component.

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