Introduction

In the context of rising income inequality nationally, states within the different regions of the United States have been converging on higher levels of inequality since the late 1970's (Levernier 1995). Regional differences in inequality, such as the historically high income inequality in the South as compared to other regions, have declined as increases in inequality within states in other parts of the country have begun to close the gap. These trends have been taken by many to be indicative of substantial and pervasive changes in the forces shaping income distribution in the U.S. generally and within its constituent regions. A number of diverse and often overlapping accounts have emerged attributing the recent upsurge in inequality, in part or whole, to forces such as economic restructuring, globalization, the policies of conservative political actors in the 1980's, demographic changes and beyond.

The majority of work on the current rise in income inequality either explores the contribution of a particular factor (i.e. deindustrialization, immigration) to rising inequality, or provides an overview of a laundry list of the demographic, institutional, labor force, or global factors that have been theorized or demonstrated to impact income inequality. Recent changes in income inequality are argued to be the outcome of a number of different changes in the constellation of forces that shape the income distribution (e.g. Ryscavage 1999, Morrill 2000; Nielsen & Alderson 2001). For example, summarizing a review of factors contributing to rising income inequality Ryscavage (1999) states,

Consequently, these economists viewed the rise in income inequality in recent years as a combination of events taking place in the labor market and in the household.”(Ryscavage 1999:129)

While it is acknowledged that the phenomena of rising income inequality appears to be a result of combinations of changes, the majority of studies of income inequality in U.S. states or counties consist primarily of some form of cross-sectional regression analysis within the years of the decennial census (i.e. 1970, 1980, etc.) (Fan & Casetti 1994, Levernier et al. 1995, Nielsen & Alderson 1997, Lobao et al. 1999, Morrill 2000). While informative, these studies provide only a sense of the average impact of a particular factor upon income inequality and constrains interpretations to a particular type of conclusion (i.e. Since manufacturing employment significantly decreases income inequality, we expect states with greater decreases in manufacturing employment to experience greater increases in inequality.) These types of analysis provide a sense of the direction of effects and, if compared over time, a rough sense of the change in magnitude or prominence of particular factors over time. Little leverage, however, is gained on the manner in which factors or changes in factors may combine, and potentially combine differently, to produce higher levels of inequality. This deficit is particularly glaring in works that attempt to describe or
explain regional variations in income inequality.

While a body of theory exists which attempts to explain regional dynamics of stability and change in regional income inequality, empirical support consists largely of descriptive studies which note, in some cases visually, the temporal concurrence of institutional changes such as decreases in manufacturing employment or unionization with particular regional increases in income inequality (i.e. Fan & Casetti 1994) or alternatively simply extrapolate from regression analysis the assumed regional impact of each variable individually identical to the manner described above (i.e. we expect regions with greater decreases in manufacturing to experience greater increases in inequality.) (Bishop et al. 1992; Levernier et al. 1995; Morrill 2000). It remains difficult to get a sense of, or definitively test theories that expect, distinct regional dynamics or combinations of factors as the source of rising regional inequality. A primary reason for this appears to be methodological, specifically that regression analysis is ill-suited to exploring regional dynamics of income inequality. A prohibitively small $N$ discourages analysis of regions separately, while inclusion of multiple regional interaction effects quickly results in unmanageable collinearity problems.

This study attempts to avoid these issues by using qualitative comparative analysis (QCA) which allows the identification of multiple and conjunctural causes of an outcome (Ragin 1987, 2000). The assumption of causal complexity allows the possibility of multiple paths to a particular outcome and the identification of causal factors that are necessary or sufficient to produce that outcome. This study will explore the different combinations of conditions that have resulted in higher levels of income inequality in the U.S. since the 1970s and attempt to discern the extent to which these combinations may describe regional paths to increasing inequality.

**Previous Research**

Interrelated but distinct literatures address different aspects of dynamics in income inequality. One concerns itself primarily with exploring the causes of *systemic* fluctuations in income inequality, changes in the overall level of inequality in a system, in this case factors contributing to rising inequality in the U.S. generally. The second concerns itself with explaining fluctuations in *regional* income inequality recognizing that regions may experience distinct patterns of growth or change in the context of (and in conjunction with or despite) transformations at the national, systemic, level. It should be stressed that theories of regional income inequality are not offered in place of, or as challenges to, theories developed at the systemic level. Rather, they are an attempt to explain regional fluctuations within what may be system-wide transformations.

**Systemic Dynamics**
Given the voluminous nature of research into this issue, only a brief overview of the major factors that are argued to have contributed to the recent rise in income inequality and which are considered in this analysis will be provided (see Ryscavage 1999; Nielsen & Alderson 2001 for a thorough review). Factors that have been implicated in discussions of the recent upswing in income inequality in the U.S. may be divided into two basic camps: those that focus on transformations that have impacted the distribution of wages and earnings within the labor market and changes which have altered the distribution of income between families and households.

Factors Affecting the Distribution of Wages and Earnings

Accounts that are concerned with transformations within the labor market focus primarily on changes in institutional mechanisms affecting wages and the impact of fluctuations in the supply of, and demand for, particular types of labor on earnings. In terms of institutional mechanisms, a large body of empirical literature has identified deunionization as a significant factor contributing to the recent rise in income inequality (Freeman 1993; Blau & Kahn 1996) (Blackburn, Bloom, & Freeman 1990) (Fortin & Lemieux 1997). High unionization rates reduce inequality both through union’s direct effect of improving wages locally and more generally through the benefits secured from employers and the state as a result of a strong bargaining position (Freeman 1993). The presence of unions has traditionally been an institutional constraint on widening wage differentials as unions tend to decrease differences in earnings among and differences between blue and white collar workers (Nielsen & Alderson 2002). As a result of the erosion of these multiple mechanisms decreases in unionization contributes to increasing income inequality.

Secondly, institutional arrangements embodied primarily by a variety of social welfare programs are thought to provide a safety-net for citizens and to be a mechanism through which governments can moderate income inequality and poverty. Welfare transfers have been demonstrated to impact income inequality (Lobao 1990) and state poverty (Kodras 1990) and have become increasingly variable following deregulation under the Reagan administration and the 1996 welfare reforms. Consistent decreases in the amount of income transfers from a variety of state programs are argued to have contributed to increasing inequality (Tilly 1987).

A number of accounts focus on the consequences of particular sectoral shifts in labor supply and demand since the late 1970s. A classic explanation popularized by Bluestone and Harrison (1982) focuses on deindustrialization, or the decline in the manufacturing sector, that has occurred in the U.S. in response to increasing international competition. Deindustrialization impacts income inequality primarily by decreasing the number of manufacturing jobs which generally have higher average wages and a more
equitable internal income distribution than jobs within the service sector. While the deindustrialization thesis has been critiqued for being inadequate as a complete explanation of the rising in income inequity (Danziger and Gottschalk 1995), the results of a number of empirical studies have supported this hypothesis (Lorence & Nelson 1993; Nielsen & Alderson 1997; Nielsen & Alderson 2002). Simultaneously, the rapid expansion of employment in the service sector is a central factor in rising income inequality. The service sector is characterized by a high disparity in earnings, embracing high-salaried professionals and low-skill poorly paid workers, and generally low paying jobs both of which increase income inequality. Concomitant decreases in manufacturing and increases in service employment will be referred to as economic restructuring.

Another primary account for increasing inequality concerns itself with changes in the supply and demand for skilled, or more educated, and unskilled workers. Specifically, the relative demand for more educated workers has increased since the 1970s, coupled with a decrease in the expansion in the supply of skilled workers in the 1980s, resulting in a dramatic increase in earnings for more educated workers while earnings for less educated workers have stagnated or decreased over this period (Murphy & Welch 1992; Freeman & Katz 1995; Blank 1997). Larger dispersions in levels of educational attainment have been argued to increase income inequality as differences in educational attainment result in increasingly divergent returns (Blank 1997).

**Factors Affecting Distribution Between Household and Families**

In addition to institutional and labor market factors, there have been changes that have impacted the distribution of income within households that are unrelated to shifts in wages and earnings. It has been demonstrated that the increase since the 1970s of single-parent households, particularly female-headed households, has contributed in part to the observed rise in income inequality between households (Ryscavage, Green, & Welniak 1992; Nielsen & Alderson 1997).

**Regional Dynamics**

A great deal of the literature on regional patterns of income inequality is concerned with exploring the impact of regional economic development on income inequality expected by Kuznets’ inverted U-hypothesis in which inequality is expected to increase and subsequently decrease as nations experience economic development (Kuznets 1955, Williamson 1965, Fisch 1984, Amos 1988). The recent resurgence of income inequality in a number of advanced industrial societies including the U.S. has called into question the utility of the Kuznets hypothesis for explaining fluctuations in income inequality in industrialized societies (Fan & Casetti 1994, Alderson & Nielsen 2002). Further, Fan & Casetti (1994)
argue that development of theory concerning regional income inequality has been stymied by a myopic focus on testing and debating aspects of the inverted-U hypothesis.

Fan & Casetti (1994) argue that the regional dynamics literature offers a more powerful framework for explaining regional income inequality. Instead of economic development, this perspective focuses on the flows of factors of production which are thought to drive the selective growth and decline of regions that in turn impact levels of regional income inequality. Following this perspective, transformations in levels of regional income inequality in the U.S. have occurred in three distinct phases: polarization, reverse polarization, and spatial restructuring.¹

Polarization: process refers the emergence of a core sector (manufacturing) and a concomitant influx of capital and labor from the periphery. In the U.S., polarization resulted in the emergence of the Manufacturing Belt in Northeast and Midwest which was nation’s economic core until the late 1960s.

Reverse Polarization: slower growth in former core region and new growth in former periphery. (1960s & 1970s). New advantages in periphery, less unions, lower labor & land costs attracted new growth in periphery (Bluestone & Harrison 1982). “In the U.S. polarization reversal coincided with the well known Snowbelt-Sunbelt shifts, which describe the migration of firms, capital and population from the Northeast and Midwest toward the South and West (Fan & Casetti 1994:180).

Spatial Restructuring: Changes within nation and world have prompted new directions of capital flow 1) manufacturing relocating within or outside of U.S. 2) new leading sectors of technology and producer services have emerged in the traditional core.

Less clear how this has played out regionally.

The maps in Figure 1 display the Gini coefficient, a measure of income inequity between households, for each decennial year between 1970 & 2000 for the continental U.S.². The pooled state-decade measures of inequality are broken into three arbitrary categories Low (Gini<.371), Moderate (.371<Gini<.3959), and High (Gini>.3959). “Moderate” scores are those within .5 standard deviations of the pooled mean. Polarization is evident in the 1960s with a core in the Northeast and one in the West with corresponding low levels of income inequality. The process described as reverse polarization is evidenced in the convergence of most regions on lower levels of income inequality by the 1980s. Finally, inequality increases nationwide during the 1980s and 1990s.

Data and Methodology

Dependent Variable

Decennial state-level estimates of the dependent variable, the Gini coefficient of income inequality,¹² (ignore the values on AK & HI)
were computed by Langer (1999), for 1970, 1980, & 1990, using data provided by the U.S. Census Bureau. Thomas Volscho kindly provided estimates for 2000 which were generated in the same manner as that used by Langer (Voscho forthcoming). The Gini coefficient provides a measure of how unevenly income is spread across households. A Gini coefficient equal to 0 would indicate an equal distribution of income between households, while a coefficient of 1 would represent the unlikely situation in which all income was earned by a single household.

**Independent Variables**

**Institutional Arrangements**

In order to tap into the impact of the unraveling of the organized labor changes in union density are examined. This figure is the percentage of each state's nonagricultural wage and salary employees who are union members. Additionally, as the erosion of progressive welfare state arrangements has been identified as contributing to increasing inequality changes in welfare transfers, in terms of AFDC payments per recipient, are examined.

**Economic Restructuring**

Transformations in the composition of the labor force, particularly those as a result of deindustrialization and the shift to a service-based economy, are prime suspects as factors contributing to rising inequality in both systemic and particularly regional accounts. % Manufacturing employment, which is the annual number of manufacturing employees in a state expressed as a percent of the total non-farm labor force, is examined as a contributing factor as is the % Service employment.

**Returns to Education and Female-Headed Households**

In order to assess the impact of changes in returns to education a measure of state educational heterogeneity was calculated using Theil’s (1972:6) entropy formula. This formula provides a measure of dividedness, in this case, between proportions of the adult population without a high school degree, with
only a high school degree, and with a college degree or higher. This maximum value on this measure is achieved when the population is divided evenly between the three categories and its minimum when the entire population is in a single category. Finally, the % of families that are female-headed is included in order to assess the impact of changes in household composition.

The mean, standard deviation, and coefficient of variation for each variable are found in Table 1.

An analysis of Table 1 reveals a number of important patterns in terms of trends in state income inequality and related state characteristics. A decrease in the standard deviation of state Gini coefficients between 1960 (not shown) and 1990 has been noted as evidence of convergence across states in levels of inequality (Levernier 1995). While small, the increase in the standard deviation for the Gini coefficient in 1990 and 2000 suggest that states have not continued this trend of convergence since the 1980s. In the context of
consistently declining manufacturing employment, the coefficient of variation suggests that states have been converging on similar levels of manufacturing employment until the 1990s. Similarly, states appeared to be converging upon more similar degrees of educational heterogeneity until the 1990s, at which point states increase in their degree of variation along these two measures. States also have been experiencing consistent increases and convergence in both service employment and female-headed households, although convergence is substantially more pronounced in rates of service employment. Conversely, as union density and AFDC payments have decreased steadily, increases in their coefficients of variation suggest that states have become increasingly divergent in their levels of both of these factors.

**Construction of Fuzzy Sets**

As this analysis is exploring the combinations of changes in particular factors leading to increases in income inequality, all of the variables, save one, are coded in terms of their degree of change. The dependent variable, for example, is the degree of change in the Gini coefficient for each decade (i.e. 1980-1970 for the 1970s value) for each state. The degree of change was calculated for each variable except educational

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heterogeneity. The income distribution influencing mechanism behind this variable is not change in educational heterogeneity per se, but rather changes in returns to education. As such, states with higher levels of educational heterogeneity would be expected to experience more substantial increases in inequality as a result of changes in earnings. Educational heterogeneity then is the average degree of educational heterogeneity for that decade. Descriptive statistics for these change scores are provided in Table 2 and provide both a sense of the average magnitude of change in each factor and the degree of variation between states in the degree of change experienced. One noteworthy aspect is that the while the average increase in income inequality in the 1980s is over twice as large as that in the 1990s the variation in those changes is substantially larger in the 1990s.

These change scores were then translated into fuzzy scores. A degree of income inequality increasing change in a variable above the mean was considered sufficiently large for that change to have full membership in the set of state-decades experiencing substantial inequality increasing change in that variable. For example, if a state’s manufacturing employment decreased more than the mean of all the decreasing changes (increases in manufacturing would be coded as fully excluded and are not included in the calculation of the mean used as the full membership threshold) then it is coded as having full membership in the set of substantial inequality increasing changes in manufacturing. All variables are coded so that full membership, or presence, of that variable indicates an inequality increasing change in that factor regardless of the direction of the change in that variable. Full exclusion from the set of changes in a variable was set differently on a number of variables. In some cases full exclusion was simply no change in a variable, but in most exclusion was reached at 1.5 standard deviations below the mean of the inequality increasing changes for that variable. Change scores neither fully excluded or included were scaled to their position between these two threshold.

Lastly, two sets of fuzzy scores were calculated for each state-decade. First, scores were calculated in which changes were scaled in terms of their magnitude relative to the entire 1970-2000 period, that is, substantial change is a change greater than the mean of all inequality increasing changes in that variable over the entire time period. This first set of scores will be utilized in the pooled analysis. As the magnitude of changes in the different variables varies a great deal between decades full membership in
these scores captures the largest changes over the three decade period. Second, scores were calculated that are relative to the average change within each decade. This will allow assessments to be made about the contribution of factors relative to the degrees of change within that decade.

**Results and Discussion**

**Pooled Analysis:**

The pooled analysis, containing 147 state-decades\(^3\), give us a sense of the most prominent factors influencing income inequity over the entire 1970–2000 period. The following analysis utilizes only combinations which were .80 consistent or greater and which contained more than one state. The first analysis, which involves no simplifying assumptions, produces three combinations:

**MANUFACT SERVICE EDHET female**  
**SERVICE UNION EDHET FEMALE**  
**manufact SERVICE UNION WELFARE FEMALE**

Additionally, an analysis was run in which the zero values (indicating below .5 membership in that variable) in the combinations with >.80 consistency were set to “don’t care” unless there was an existing instance of that possible combination below .80 consistency. This allows a combination such as, 110110, to be considered by the program as either 111111, 111110, 110111, or its original manifestation as 110110. FsqCA will use whichever combination results in the most parsimonious result. The analysis with these simplifying assumptions reproduces the above result and adds an additional combination:

**MANUFACT SERVICE UNION EDHET**

The combinations, with the state-decades that they describe, are provided in Table 1.a. Broadly speaking, the factors present in these combinations suggest a few things. First, it appears that increases in employment in the service sector has been a factor contributing to rising inequality throughout the last three decades in the majority of states experiencing substantial increases in income inequality. Decreases in union density appear to be nearly as ubiquitous a contributing factor with the notable exceptions of Vermont in the 1980s and Arizona, Connecticut, Georgia, New Hampshire, and North Carolina in the 1990s. Additionally, the most substantial increases in income inequality appear to have occurred nearly exclusively in states characterized by high levels of educational heterogeneity with the exceptions of Utah and Wyoming in the 1980s. Decreases in manufacturing employment appears influential in a majority of the states in both the 1980s and 1990s and increases in female headed-households, which were experienced by roughly half of the described state-decades, is suggested to be more influential in the

\(^3\) Alaska is excluded because of missing data.
1980s. Finally, decreases in welfare state generosity is a factor for a handful of Western states and Alaska and Louisiana primarily in the 1980s.

A more fine-grained analysis of these general trends will be explored by examining each decade in turn. The 1970s are barely represented by these combinations which is to be expected as very few states experienced substantial increases in income inequity in the 1970s relative to the 1980s and 1990s, consequently, this discussion will focus on the 1980s and 1990s. Map 1 displays the states described by the six possible, (given overlap between the four combinations) combinations of factors produced by the pooled analysis for the 1980s. As indicated above, it appears that in the 1980s increases in service employment and decreases in unionization occurred in nearly all states experiencing substantial increases in income inequality and, additionally, with the exception of two states (UT & WY) all were characterized by high levels of educational heterogeneity. Decreases in manufacturing were influential in (the blue) Northeastern, eastern and southern Mid-West, and Southern states and in the Southwest border states of California and Arizona. The (yellow) states located primarily in the West and Northern Midwest are characterized by the absence of manufacturing losses as a contributing factor and the presence of a decrease in AFDC transfers. Additionally, all of these states experienced increases in female-headed headed households as did the majority of states experiencing decreases in manufacturing employment.

This analysis suggests that in the context of nationwide inequality increasing trends including the expansion of the service sector, decreasing labor power, changes in returns to education, and a rise in female headed households states with larger manufacturing sectors were influenced more, as one would intuitively suspect, by deindustrialization in the 1980s. Additionally, decreases in welfare payments may have been more substantial in Western and Midwestern states or perhaps decreases in welfare payments hit harder in these states given their lack of strong inequality reducing institutions such as labor unions and manufacturing sectors. An examination of Map B, which displays the degree of change in the Gini coefficient for each state in the 1980s, in conjunction with Map 1 suggests (with some exceptions), again intuitively, that states with the largest number of inequality increasing changes (i.e. blue crosshatched states) also experienced the largest increases in income inequality. We will return to these issues in the decade specific analysis of the 1980s.

Turning now to the 1990s, an examination of Map 2, which displays the states in the 1990s described by the combinations in the pooled analysis, is also revealing. With the exception of Hawaii, all of the combinations which lead to substantially higher income inequality with a consistency of .80 or better include the change in the composition of the labor market embodied by decreases in manufacturing and increases in service employment and occur in states with high levels of educational heterogeneity. In
addition, the majority of the states described by these combinations experienced decreases in union density with the exceptions of Arizona, Georgia, North Carolina, Connecticut, and New Hampshire. Finally, only a handful of these states experienced increases in female-headed households as a factor contributing to rising inequality suggesting that this demographic change, while prominent in the 1980s, may be declining as a primary factor contributing to income inequity. Similarly, only Hawaii includes a decrease in welfare transfers as a contributing factor also suggesting a decrease in the relevance of changes in social welfare transfers to increasing inequality in the 1990s. A fairly counter-intuitive finding given the major reform, dismantling, of the AFDC program following the 1996 PRWORA legislation.

Overall, this analysis suggests that changes in factors which impact the distribution of earnings (i.e. sectoral shifts involved in economic restructuring, unions, and returns to education) continue to play a primary role in increasing income inequity during the 1990s. These factors may be increasing in importance as the impact of demographic shifts and changes in welfare state generosity recede in influence. This also may only be true for the most consistent combinations identified by this analysis. While these combinations of factors appear to describe the experience of the Eastern United States well, a glance a Map C, displaying the change in Gini coefficients for the 1990s, indicates that these combinations give us little leverage on what has been contributing to rising income inequality in the Western half of the U.S. I will refrain from speculating more on this until after the decade specific analysis.

Decade Specific Analysis:

As mentioned, the pooled analysis only provided a rough view of the combinations leading to the most substantial changes in income inequality since the 1970s. During the 1980s most states experienced a substantial degree of change in, on average, four of the six conditions in this analysis. This is informative in and of itself, but it does not provide us with a good sense of what combinations of changes were sufficient to substantially increase income inequality for particular states in the 1980s. In order to get a closer look at what was actually going on in each decade an analysis is conducted of each decade using decade specific means for each variable as the full membership thresholds. As indicated by the descriptive statistics, fluctuations in some factors were much more pronounced in particular decades. Full membership in the decade specific analysis then indicates substantial change in a variable relative to changes in that variable occurring during that decade. Consequently, more leverage can be gained on the different paths to rising inequality within the 1980s vs. the 1990s. The following analysis, presented in Table 2a., utilize only combinations which were .80 consistent or greater and which contained more than one state.
1970s

Only one path, describing three states (DE, MI, SC), results from the 1970s specific analysis. This is not surprisingly given that only a few states experienced at worst very moderate increases in income inequality in the 1970s while most states actually experienced decreasing income inequality over the decade. Low consistency and coverage scores in the analysis indicate that distinct patterns of changes had not yet emerged which, again, is not surprising given that the majority of the suspect factors contributing to income inequality are argued to begin having an impact, primarily, in the late 1970s. The same analysis, if run with the remainders set to “don’t care”, results in the following solution:

SERVICE +
UNION +
FEMALE

Substantial increases in service employment, decrease in union density, or rise in female-headed households appear to be sufficient to result in a substantial increase, relative to changes in this decade remembering that the threshold for “substantial” is rather low. Map 2a. displays the change in manufacturing employment over the 1970s. The concentration of manufacturing loss in the Great Lakes states and Mid-Atlantic and Northeast is consistent with the manufacturing outflow described by reverse polarization, as is the much smaller decreases in the Southwestern states, Texas, and Florida. Additionally, a comparison with Map A, which displays changes in the Gini coefficient over the 1970s, is highly suggestive that manufacturing losses contributed to rising, albeit moderate, inequality in the Rustbelt States in the 1970s. However, it is interesting to note that the heavy losses in manufacturing employment in the Southeast occurred while a majority of these states actually experienced decreasing
income inequality. It is conceivable that the overall influx of investment and capital from a diverse body of industries into the Southeast experienced during reverse polarization may have benefited the region and outweighed the inequality exacerbating impact of heavy losses in the manufacturing sector. Alternatively, it is possible that in the largely Right-to-Work Southeastern states losses of poorly paid manufacturing employment would not be expected to substantially impact income inequality as workers transition to poorly paid jobs in the service sector.

1980s

The analysis specific to the 1980s produces four combinations of factors (see Table 2a.). It is noteworthy that a substantial decrease in union density and an increase in female headed-households are present in all combinations. A separate analysis allowing simplifying assumptions\(^5\), results in a single path “UNION FEMALE” which suggests that in the 1980s decreases in unionization and the increase in female headed-households in conjunction were sufficient to cause substantial increases in income inequality. This appears to confirm the conclusion suggested by the pooled analysis that within the 1980s these changes were nationwide trends. It was also suggested that increases in service employment and changes in returns to education may have been nationwide in the 1980s. Increases in service employment appears to be influential in states although there are some notable exceptions (AL, AK, IA, MS, NV, WA, & WI) that defy any regional characterization.

In terms of education, since the educational heterogeneity variable only indicates degrees of educational heterogeneity within each state assessments cannot be made as to whether changes in returns to education were regional or national, although there is evidence to suggest that these trends were national (Blank 1997). Assuming changes in returns to education are widespread, these changes would be expected to impact income inequality the most in states with high educational heterogeneity and less so in states with low educational heterogeneity. An examination of Map 3a, which shows the educational heterogeneity fuzzy scores for the 1980s, in conjunction with the Map B suggests a strong relationship between higher levels of educational heterogeneity and the most substantial increases in income inequality. Regardless, it can be stated that (the blue) states with substantially higher levels of educational heterogeneity, particularly Northeastern, Mid-Atlantic and a few Southwestern border states, also experienced the most substantial increases in inequality suggesting a prominent role of changes in earnings relative to education as an inequality increasing factor in the 1980s.

Returning to Map 3, the most distinct regional trend is that only the (blue) states described by

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\(^5\) These assumptions were made using the same criteria as in the pooled analysis. Zero values within each passing (> .80) combination were set to “don’t care” unless there was an existing instance of that possible combination below .80 consistency.
Combination 4, include decreases in manufacturing as a contributing condition. With the exception of Arizona, Texas, and Georgia the remaining states are concentrated in the Northeast and Eastern Midwest. This suggests that deindustrialization as a factor explaining rising inequality in the 1980s was relevant primarily in Northeast and Great Lakes States.

A handful of states experienced increasing inequality in the absence of substantial changes in the composition of their labor market and with little impact of changes in returns to education. At least one (yellow) state, Mississippi, confirms the previous suggestion that increases in female-headed households and decreases in unionization were sufficient in conjunction in the 1980s to cause substantial increases in income inequality although the majority of these states also experienced substantial decreases in welfare transfers as a contributing factor. Of all states described in this analysis, the majority of the (striped and crosshatched) states experienced substantial reductions in welfare transfers suggesting a widespread trend although there are notable exceptions (AZ, CT, GA, MD, RI, TX, AK, MS).

1990s

The results for the 1990s specific analysis utilizes the same type of simplifying assumptions made in the pooled analysis and results in four combinations (see Table 2a.). The first thing to note is the similarity of these combinations. In contrast to the combinations produced by the 1980s specific analysis which reveal some differentiation between combinations, nearly every state described by these combinations experienced income inequality as a result of sectoral shifts between manufacturing and service employment, decreases in union density, and decreases in welfare transfer payments. An examination of Map 4, which indicates the states described by the combinations produced by the 1990 specific analysis, in conjunction with Map C, displaying the Change in the Gini coefficient over the 1990s, reveals a rather unsatisfying coverage of the states experiencing the greatest increases in income inequality. This is primarily a result of the inclusion of “female”, the absence of an increase in female-headed households, in the first combination. Map 4b. displays the states described by the following combinations:

MANUFACT SERVICE UNION
MANUFACT SERVICE UNION WELFARE

These combinations provide substantially better coverage of the states experiencing the greatest increases in income inequality. This analysis suggests that the primary factors driving increasing income inequality in the 1990s are changes in the composition of the labor market and continuing decreases in labor power. In contrast to the 1980s in which rising inequality was driven in part by changes in manufacturing employment in some states, changes in service employment in others, and neither in some states,
decreases in manufacturing employment and increases in service employment are contributing factors in the majority of the states experiencing substantial increases in income inequality. Deindustrialization and the expansion of the service sector have become widespread in the context of a continuing, and undoubtedly interrelated, nationwide decrease in union power.

In terms of changes in welfare payments, this analysis appears to contradict the suggestion of decreasing importance implied by the pooled analysis. Substantial decreases in welfare payments are a contributing factor in all but the first combination of factors and this change is present in nearly half of the states described by these relaxed, excluding “female”, combinations. That sectoral shifts and declining unions are only sufficient for substantially increasing income inequality in conjunction with decreases in welfare transfers in these states implies the increasing importance of social welfare transfers for reducing income inequality. In the context of substantial erosion of institutions such as manufacturing employment and labor unions, a decreasing minimum wage, and falling returns to the least educated since the 1980s this perhaps is unsurprising.

It remains difficult to assess the contribution of changes in returns to education, however, an examination of Map 4a with Map C, suggests, once again, that the majority of the states with substantial increases in income inequality are characterized by high levels of educational heterogeneity. This relationship appears to be less consistent than it was in the 1980s suggesting perhaps that as would be expected highly disparate returns to education will increase inequality more in areas with higher educational heterogeneity, however, perhaps more of the increase in the disparity of returns occurred in the 1980s accounting for the closer fit between states experiencing greater increases in income inequality and higher levels of educational heterogeneity within the 1980s.

Finally, while a contributing factor in nine states, increases in female-headed households appears to be on the wane as a primary factor contributing to rising income inequality.

**Conclusion**

Overall, it appears that sectoral shifts embodying economic restructuring, decreases in labor power, and changes in returns to education have played a prominent and consistent role in increasing income inequality nationally since the 1970s. Increases in female-headed households impacted states nationwide in the 1980s, but appears to be declining in prominence as an inequality increasing factor in the 1990s. Changes in welfare state generosity may have become more influential as inequality increases nationally. In the context of systemic transformations, the regional dynamics perspective appears to have fared well in explaining variations in regional income inequality in the 1970s and 1980s. However, it appears that by the 1990s states have experienced substantial convergence in terms of the factors driving
increasing income inequality. In other words, by the 1990s there appear to be no regionally specific flows driving inequality, rather economic restructuring with concomitant decreases in unions has become a national phenomena presumably in response to increased international competition. This is consistent with Levernier et al. (1995) who found that regional controls in models between 1960 and 1990 reveal no significant regional differences by 1990.

Lastly, it seems that fluctuations in income inequality can be appropriately conceived of as a distinctly combinatorial phenomena. Generally speaking, states experiencing the largest increases in income inequality also suffered the greatest confluence of inequality increasing changes and in very few cases were less than three changes in conjunction sufficient to result in a substantial increase in inequality. While this analysis has focused on combinations resulting most consistently in increasing inequality, it is important to note that a number of Plains states, Utah, Wisconsin, Iowa, Indiana, Vermont, New Hampshire, and Maine have all maintained relatively low levels of income inequality throughout this period. It remains an open question as to how some states have weathered the storm of what appear to be mostly national inequality increasing trends since the 1970s.

Works Cited


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