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Published online: 06 Feb 2013.

To cite this article: Karen F. Parker & M. Kristen Hefner, Justice Quarterly (2013): Intersections of Race, Gender, Disadvantage, and Violence: Applying Intersectionality to the Macro-Level Study of Female Homicide, Justice Quarterly, DOI: 10.1080/07418825.2012.761719

To link to this article: http://dx.doi.org/10.1080/07418825.2012.761719

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Intersections of Race, Gender, Disadvantage, and Violence: Applying Intersectionality to the Macro-Level Study of Female Homicide

Karen F. Parker and M. Kristen Hefner

Intersectionality implies that multiple socially constructed categories (race, gender, and class) interact, but also operate at many levels when contributing to inequality. This paper provides an illustration of the intersection of race, gender, and disadvantage in the study of race-specific female homicide rates. In this research, we are interested in how race- and gender-specific forms of disadvantage differentially influence rates of homicide offending by white and African-American women in cross-sectional and change models. We account for the availability of domestic violence resources and crime control policies, in addition to the structural forces that have been found to influence female offending specifically. Methodological techniques are used to amend caveats in the data, such as the rare nature of female homicide offending. Our findings reveal similarities in the way economic marginalization and divorce influence female homicides across racial groups but a number of differences in the role of crime control policies and availability of domestic violence resources on race-specific female homicides cross-sectionally and over time. Overall, our study produced results which advocate the intersectional framework.

Keywords intersectionality; race; gender; homicide offending; macro-level

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Intersectionality scholars have begun to examine gender in the broader social contexts of individuals’ lives. More specifically, they argue that individuals’ lives vary based on the intersection and connection of multiple social characteristics such as, race, class, and gender, which create different structural arrangements of power and inequality (Baca Zinn & Thornton Dill, 1996; Collins, 2000; Crenshaw, 1991). What differentiates this framework from others is that the influence of various social characteristics is seen as multiplicative, rather than additive (Andersen & Collins, 2006; Collins, 2000; Crenshaw, 1991). That is, instead of viewing characteristics such as, race, class, and gender individually, intersectional theory views the influence of these characteristics as an intersecting process within a structural and historical context (e.g. race and gender, gender and class); therefore, creating pillars of privilege and domination (Baca Zinn & Thornton Dill, 1996).

Such a framework may be particularly beneficial when investigating the relationship between inequality and crime (Best, Edelman, Krieger, & Eliason, 2011; Burgess-Proctor, 2006; Chesney-Lind, 2006; Potter, 2006). Scholars have proposed intersectionality as the next phase in feminist criminology (Burgess-Proctor, 2006), as a mechanism to advance Black Feminist Criminology (Potter, 2006) and as an avenue to better understand the life experiences of disadvantage groups (Richie, 1996, 2012). In a recent examination of litigation cases, Best et al. (2011, p. 998) call for intersectional research by stating, “...quantitative research may be best suited to documenting the aggregate patterns that constitute between group inequalities”. That is, while intersectional research has grown recently, missing is a macro-level examination of female offending that acknowledges the potential intersections of race, gender, and disadvantage.

The aim of the current study is to utilize this framework when examining how gender and race intersect to influence both the type and structure of opportunities and resources available to women, and how those more specific macro-level processes influence homicide rates in US cities. That is, we investigate how race- and gender-specific forms of economic disadvantage, family conditions, domestic violence resources, and formal social control influence the homicide rates of white and African-American women over time. As intersectionality theory asserts, the social experiences of individuals differ based on their unique social positions within society (Baca Zinn & Thornton Dill, 1996; Collins, 2000; Crenshaw, 1991). While scholars have argued for evidence of intersectionality in macro-level studies, research has yet to apply an intersectional framework to race-specific female homicide offending while taking into account recent economic and policy changes in US cities.

Intersectionality and Female Homicide Offending

theorized about the macro-level link between inequality and crime by examining the intersection of race and class inequalities. They developed a macrosocial theory of how structural and cultural characteristics of communities produce different rates of crime between and among racial groups through differential levels of social disorganization, economic conditions, family instability, and childhood socialization.

However, most examinations involving intersectionality at the macro level focus on the commission and consequences of male, as opposed to female, offending (Lauritsen & Heimer, 2010; Spohn & Holleran, 2000; Steffensmeier, Ulmer, & Kramer, 1998). For example, Steffensmeier et al. (1998) examined the intersection of race, gender, and age in judicial decision-making and found that sentencing decisions are the most punitive for individuals who occupy multiple marginalized social locations, namely young black males. The findings illustrate the influence of the intersection of race, gender, and age in sentencing decisions based on systemic social and cultural expectations.

Intersectionality studies that do examine female offending at the macro level are relatively dated (Chilton & Datesman, 1987; Hill & Crawford, 1990; Simpson & Elis, 1995; Steffensmeier & Haynie, 2000a, 2000b). In fact, the most recent intersectional and female crime studies shift the focus to life experiences with crime at the micro level primarily through qualitative analyzes (Jones, 2010a, 2010b; Kruttschnitt & Carbone-Lopez, 2006; Maher, 1997; Miller, 2008; Richie, 1996, 2012). For example, through life-history interviews, Richie (1996) illustrates the link between gender, violence, and crime of black women in low-income neighborhoods. In addition, by juxtaposing the experiences of black women to white, she elucidates the unique macro-level experiences of women who occupy different structural social locations. In her more recent book, Richie (2012) continues this line of intersectional research by examining the threat of violence towards black women in marginalized communities. Richie argues that these women are increasingly at risk as targets of violent behavior, such as rape, sexual assault, and stalking, because of a lack of understanding and attention towards racially and culturally specific sources and consequences of violence against women. Thus, Richie, along with Potter, Burgess-Proctor, and other intersectionality researchers offer important insights into the social locations of women in relation to criminal involvement and victimization.

Yet, as stated, intersectionality studies generally fail to capture the macro-level processes of how race and gender intersect with disadvantage to influence female violent offending with few exceptions. Haynie and Armstrong (2006) provide an example of such work. They examine city-level correlates of homicide offending disaggregated by race, gender, and offender-victim relationship to explain the influence of structural context on violent offending. The researchers conclude that structural disadvantage is a stronger predictor for black female homicide than white female homicide because of their multiple marginalized social locations (i.e. black and female). However, Haynie and Armstrong’s study only uses data prior to 1993, which does not allow them to
account for the drop in violent crime in large US cities since the 1990s (Blumstein & Wallman, 2000). Additionally, their work does not account for the rather unique policy changes that occurred since the early 1990s, such as “Welfare to Work” that removed public assistance from many families with children, and the shifts in domestic violence policies during recent decades.

Our aim, then, is to offer an intersectionality framework of female homicide offending at the macro level. Specifically, we take into account the intersection of gender and race by exploring how contemporary changes in the economy, criminal justice policies and policies directed toward women (e.g. domestic violence policies) have differentially influenced black and white female homicide rates in 1990 and 2000. Moreover, our research employs quantitative analysis by offering statistical techniques to take into account (1) the rare nature of homicide offending among race-specific groups of women and (2) to model the changes in race-specific female homicide rates over time. Below we offer a brief examination of the theoretical ideas behind this study. That is, we offer the first systematic examination of female homicide offending within an intersectional framework, while taking into account economic marginalization, deindustrialization, family constructs, and current trends in conservative crime control and domestic violence policies. Collectively, we argue, these perspectives offer a comprehensive examination of race- and gender-specific homicide offending in line with intersectionality.

Theoretical Considerations

Previous studies have established the importance of economic disadvantage and marginalization to gender-specific homicide rates (Lauritsen & Heimer, 2010; Parker, 2004; Reckdenwald & Parker, 2008, 2010; Steffensmeier & Haynie, 2000a, 2000b), yet less is known about the homicide offending of African-American and white females specifically. Taking into account an intersectional framework, we attempt to examine the role economic disadvantage plays in race-specific female homicide offending, while also accounting for important policy changes surrounding domestic violence or shifts in formal social control that might differentially influence these groups. Thus, the three major conceptual frameworks relevant to this work are: economic marginalization and deindustrialization, family context, and social control and domestic violence policy.

Economic Marginalization and Deindustrialization

While the economic-crime linkage has been well established conceptually and empirically (see Batton & Jensen, 2002; Eitle, D’Alessio, & Stolzenberg, 2006; Lee, 2000; Parker, 2004; Parker & McCall, 1999; Pratt & Cullen, 2005; Rosenfeld, 1986; Wilson, 1987; Wilson, 2003; Worrall, 2009), this linkage
becomes less lucid once scholars disaggregate by race, age, and gender. For example, a review of the rather extensive research examining the relationship between economic disadvantage and race-specific violence reveals mixed results (e.g. see Messner & Golden, 1992; Parker, 2001; Parker & McCall, 1999; Patterson, 1991; Strom & MacDonald, 2007; Velez, Krivo, & Peterson, 2003). That is, studies tend to find stronger and more consistent support for the association between economic disadvantage and homicide offending for whites as compared to blacks (see Harer & Steffensmeier, 1992; Krivo & Peterson, 2000; Phillips, 2002; Shihadeh & Ousey, 1996).

When data are disaggregated by gender exclusively, recent studies illustrate that the effects of economic marginalization on violent offending influence males and females similarly (Steffensmeier & Haynie, 2000a, 2000b). Steffensmeier and Haynie (2000a) compared rates of female and male offending to city-level indicators of structural disadvantage, including poverty, unemployment, income inequality, and female-headed households, finding similarities across groups. In a subsequent study, Steffensmeier and Haynie (2000b) extended their previous analysis to include data disaggregated by age (juvenile and adult). While the effects were stronger for males, indicators of structural disadvantage were not significantly different in the gender-specific models.

Taking a different approach, scholars have explored the impact of disadvantage on different types of crimes committed by females. For example, Reckdenwald and Parker (2008) examine absolute (i.e. poverty and unemployment) and relative (females relative to males) indicators of gender inequality and economic disadvantage on different types of female offending (intimate partner homicide, drug sales, and robbery). They found significant variation in the influence of disadvantage (relative vs. absolute) on types of female offending, indicating that women commit different types of offenses for specific reasons (economic necessity vs. strain/frustration, respectively). Taken together, these studies illustrate that, while indicators of economic disadvantage influence male and female criminality similarly, there is great variation in the types of disadvantage and inequalities that influence female offenders.

Intersectionality further suggests that variations exist by race and gender when it comes to experiences with economic disadvantage. For example, individuals in the labor market often enter specialized jobs that are segregated by both gender and race (Freedman, 2002; Smith & Tienda, 1987). Studies indicate that racial minority women are at the bottom of the labor market, below white women and racial minority men, in terms of wages and occupational position (Browne, 1999; Browne & Misra, 2003) which can increase rates of poverty and a reliance on public assistance. The economic consequences associated with deindustrialization are also differentially experienced along race and gender lines (Smith & Tienda, 1987). Smith and Tienda (1987) find that Latino and black women faced greater declines in jobs than Asian and white women, suggesting that the already high levels of economic marginalization
among women was further concentrated among minorities (Browne, 1999; Ihlanfeldt & Sjoquist, 1989). Adding to the crippling effects of industrial restructuring on women, the elimination of federal welfare entitlements, such as Aid to Families with Dependent Children (AFDC), to black women with children whom were disproportionately represented (US Department of Commerce, 1993), only further guaranteed that African-American women would be vulnerable to shifts in the local economies. By reflecting power hierarchies within society, the segregated labor market is characterized by unequal labor practices, wage gaps, and economic inequalities (Freedman, 2002) that vary based on where different individuals are positioned within society. But studies have generally neglected to take into account these intersections of gender- and race-specific forms of disadvantage when analyzing women’s offending (Simpson, 1991). By combining intersectionality with arguments of economic disadvantage and deindustrialization, we hypothesize that:

H1: Economic marginalization and deindustrialization will be positively related to race-specific female homicide rates.

Family Context

When documenting the consequences of economic restructuring and deindustrialization on residents of urban areas, Wilson (1987) also suggests that marriage trends and single-headed households are greatly impacted within this spatial context of urban areas. In When Work Disappears, Wilson states: “neighborhoods plagued with high levels of joblessness are more likely to experience low levels of social organization: the two go hand in hand. High rates of joblessness trigger other neighborhood problems that undermine social organization, ranging from crime, gang violence, and drug trafficking to family breakups and problems in the organization of family life” (Wilson, 1996, p. 22). He argues also that the loss of manufacturing jobs for low-skilled black males within US cities leads to higher rates of female-headed households by producing a shortage of marriageable men (Wilson, 1987).

Research has linked the disruption in family structure with urban crime when drawing from the social disorganization tradition (Almgren, Guest, Inmerwahr, & Spittel, 1998; Sampson, 1987). Sampson’s (1987) analysis provides an illustration when he finds differences in white and black robbery and homicide rates based on various levels of family disruption. Additionally, studies often include measures of family disruption in examinations of race-specific violence (see Ousey, 2000; Parker & Johns, 2002; Phillips, 2002; Sampson, 1987; Shihadeh & Steffensmeier, 1994). For example, Phillips (2002) found that structural characteristics, such as family structure and economic factors, are significant indicators of homicide across three racial/ethnic groups (white, black, and Latino), but have a larger effect on the homicide offending of minority groups.
In addition to race-specific analyzes, examining the influence of family structure on gender-specific homicide offending is important because family context has historically influenced female criminal involvement (see Broidy & Agnew, 1997). However, few studies examine the effects of family disruption on gender-specific violence (for exceptions, see Schwartz, 2006a, 2006b). Schwartz (2006b) assesses the influence of family structure and other macro-level variables on male and female homicide across various communities. She found that family structure is a robust indicator of differences in both male and female homicide levels across communities. Additionally, for both males and females, family structure is a stronger predictor of homicide than the other structural variables in the study.

Thus, research shows that family structure, in the presence of other macro-level variables, affects homicide offending across categories of race and gender. However, studies have not currently examined the influence of family context on race- and gender-specific homicide rates. In this paper, we include family context to examine the intersection of race and gender on homicide offending over time. Moreover, because previous studies have documented the empirical distinctions between divorce and other measures of family structure, such as male marriage pool index, in studies of urban violence (see Parker & Johns, 2002; Sampson, 1987) and because recent studies have documented the importance of family constructs to female violence specifically (Schwartz, 2006a), we hypothesize that:

H2: As an indicator of family disruption, divorce will be positively related to race-specific female homicide rates. The male marriage pool index, which captures an increase in employed males as viable marriage partners, will be negatively related to race-specific female homicide rates.

Formal Social Control and Domestic Violence Policy

Formal social control, in the form of increased incarceration and police presence, has been shown to increase criminal involvement by weakening organizational and family structures (Rose & Clear, 1998). Moreover, research shows that police presence and rates of incarceration in nonwhite communities are often greater than those of white communities (Jacobs & Carmichael, 2001; Kent & Jacobs, 2005) and, thus, may differentially impact individuals of different racial groups. As Parker (2004) argues, this research is significant because combining the effects of deindustrialization with a dependency on formal social control (particularly increased rates of incarceration) can lead to changes in family and economic structures of urban areas. As shown previously, these factors differentially influence race- and gender-specific offending over time. Therefore, it is important to include measures of formal social control in race- and gender-specific examinations to assess how social control differentially influences black and white female offending over time.
Separate from the issue of national trends toward conservative crime control policies (i.e. the increased use of police and incarceration as forms of social control) is the variation in policies and resources directed specifically towards women, such as those relating to domestic violence. Both types of policy may prove as important considerations in an intersectional analysis.

As a result of groups advocating for women’s rights in the 1970s and 1980s, domestic violence programs gained funding from federal, state, and local levels. Existing research illustrates the importance of domestic violence resources and services, both legal and nonlegal (i.e. legal advocacy, shelters, and hotlines), in reducing female-perpetrated intimate partner homicide (Dugan, Nagin, & Rosenfeld, 1999, 2003). The exposure reduction hypothesis purports that intimate partner homicide will decrease when the abusive exposure is reduced between domestic violence victims and offenders (Dugan et al., 1999, 2003; Reckdenwald & Parker, 2010, 2011). However, scholars also assert that the accessibility of domestic violence resources vary by gender and race. Legal resources, including those relating to domestic violence, are often more accessible to men than women and to whites than blacks (Peterson, 2004). Additionally, evidence suggests that accessibility to nonlegal domestic violence services varies across race and class (Chesney-Lind, 2002; Henning & Klesges, 2002).

While studies have examined the link between access to domestic violence resources and intimate partner homicide (Dugan et al., 1999, 2003; Reckdenwald & Parker, 2010, 2011), even including race (Dugan et al., 2003; Wells & DeLeon-Granados, 2004), many of these studies show mixed results. Our study is not one of intimate partner homicides, but rather an intersectional analysis in which we believe the variation in the availability of domestic violence resources across urban areas is an important consideration. That is, we are interested in the influence of policy shifts (via conservative crime control generally and those directed toward women specifically) on race-specific female homicides in 1990 and 2000.

Previous studies have yet to take into account the recent changes in domestic violence policy/resources that have occurred since the mid-1990s, which are captured in our data. Thus, in our research on race-specific female homicide offending, we hypothesize that:

H3: Conservative crime control policies, via rising police presence and use of incarceration, will be positively related to female homicide offending. A shift to more gender-specific policies, such as increasing access to domestic violence resources and services, will be negatively related to female homicide offending.

Data and Methods

For this study, the unit of analysis is cities with a population of 100,000 or more in 1990. The resulting sample contains 168 cities that meet that criterion. Data were collected on these same cities in 2000 for the purpose of
estimating changes over time.ir Multiple data sources were used for the current study. The dependent variables are based on data from the Uniform Crime Report, Supplemental Homicide Reports (SHR) with multiple imputation for the years 1989-1991 and 1999-2001 (Fox & Swatt, 2009b). US Bureau of Census summary files 1 and 3 for 1990 and 2000 are the sources of data for the independent variables. Uniform Crime Reports: Police Employee (LEOKA) Data are the source of data for police force size (consistent with work by Steffensmeier & Haynie, 2000a, 2000b). Also, the 1991 and 1999-2000 Domestic Violence Service Directory, collected by the National Coalition Against Domestic Violence, is the source for the data on the availability of domestic violence services.

Dependent Variable

The dependent variables are the counts of white and African-American female homicide offending in 1990 and 2000 across our sample of cities, where these counts have been adjusted for missing data on the race of the offender using a multiple imputation procedure. Consistent with other work (Messner, Deane, Anselin, & Pearson-Nelson, 2005; Villarreal, 2004), counts for each city are based on four year sums (1989, 1990, 1991, 1992; and 1999, 2000, 2001, 2002) to control for any fluctuations in reporting and the relative low frequency of offending. Only murders and nonnegligent manslaughters with single victims and single offenders were included.

Independent Variables

While it is important to use measures of economic conditions that are commonly used in the extant literature on urban disadvantage, our efforts to utilize an intersectionality approach lead us to include specific race and gender measures that capture the unique experiences of women in the larger

1. Chattanooga, TN, Citrus Heights, CA, East Los Angeles, CA, Kansas City, KS, Lowell, MA, Metairie, LA, Omaha, NB, Overland Park, KS, Paradise, NV, Springfield, IL, Sterling Heights, MI, Worcester, NY, and all cities in the state of Florida were dropped from the analysis due to not reporting at all during either the period 1989-1991 or 1999-2001. Chicago, IL was the final city dropped due to being an extreme outlier.
2. SHR are a primary source of data for homicide researchers (Fox, 2004; Fox & Swatt, 2009b; Pampel & William, 2000). Although missing data are common, particularly as it relates to race of the offender and victim-offender relationships, the most recent version of the Fox and Swatt SHRs (2009a) employ a multiple imputation technique to address missing data on the race of the offender. The merits of multiple imputation method, over other strategies like dropping cases and use of mean substitutions, have been discussed in the criminological literature (Brame & Paternoster, 2003; Fox & Swatt, 2009b). Thus, the latest Fox and Swatt data with multiple imputation on the race of the homicide offender has been utilized in this study.
3. The authors thank Professor Laura Dugan, University of Maryland, for providing earlier Domestic Violence Service Directories for data collection purposes.
economy. First, we offer a composite measure generated using principal components analysis and includes the following four race-specific indicators: (1) poverty (percentage of persons living below the poverty level); (2) the percentage of female-headed households receiving public assistance payments; (3) the percentage of females employed in the civilian labor force, aged 16 and older; and (4) the percentage of females employed in occupations within the service industry. The first three indicators are commonly found in urban disadvantage indexes, but the final indicator of service/retail employment reflects the reality that women are commonly segregated into these occupational sectors, which often provide little pay and job security (Browne & Misra, 2003; Smith & Tienda, 1987); thus resulting in this indicator loading with other resource deprivation indicators involving women. To reflect this, we refer to this index as the “resource deprivation index”. Importantly, a measure of racial residential segregation (measured with the Index of Dissimilarity with values ranging from 0 to 1) loads with this index in the African-American model, but not the white model.

Deindustrialization is measured by two race- and gender-specific indicators: (1) the ratio (or shift) from manufacturing to service-oriented occupations; and (2) race-specific female employment within professional and managerial occupations. We include these industry-specific indicators because we want to tap both the availability of jobs within these industries at a given time point (1990, 2000) and the potential for changes in employment levels among African-American and white women over time. Thus, our models are able to capture the impact of changes in manufacturing and service-based employment among white and African-American women on their homicide offending rates from 1990 to 2000, separately and in addition to structural levels of resource deprivation facing these distinct groups. Although much of the labor market literature points to sex segregation and differential opportunity structures within the urban economy (Browne, 1999; McCall, 2001; Robinson, Taylor, Tomaskovic-Devey, Zimmer, & Irvin, 2005; Smith & Tienda, 1987) and the impact of deindustrialization on urban violence (Lee, 2000; Ousey, 2000; Parker, 2001; Parker, 2004; Patterson, 1991; Shihadeh & Steffensmeier, 1994), the impact of economic shifts or deindustrialization on women’s offending levels has yet to be systematically examined (Parker, 2008).

The family constructs offered in this study includes one of the most consistent and strongest indicator of homicide rates—divorce. Pratt and Cullen (2005) provide a meta-analysis of 214 different macro-level studies and find that divorce indicators often produce a strong and stable influence on violence/homicide rates. As commonly measured in criminological studies, divorce is calculated by dividing the number of divorced males by the number of males aged 16 and older. Our second indicator—the male marriage pool index—is operationalized as the number of employed males aged 16 and older per 100 females. This measure is designed to capture the availability of “marriageable males” in the area. In 1987, Wilson argues that increasing joblessness among black males is the single greatest factor influencing the
decline in marriageability. Both measures of family constructs are race- and
gender-specific indicators.

Others, however, attribute the decline in marriageability to a "marriage
squeeze"—the point at which women who wish to marry outnumber available
men (see Bennett, Bloom, & Craig, 1992). The imbalance in the pool of poten-
tial spouses has only been exacerbated by high mortality rates among young
black men, incarceration, and military service (Bennett et al., 1992; South,
1992; Staples, 1997). As a result, young black women, for example, have aban-
doned marriage as a viable option for escaping their poverty-stricken surround-
ings (Staples, 1997). Consequently, over half of all children born by 1989 will
spend some time in a mother-only family before reaching age 18—about 45% of
all white children and 85% of all black children (MacLanahan & Garfinkel,
1989). In this study, we include both race-specific measures—percent males
divorce, as indicative of family disruption, and the male marriage pool index
to capture the lack of marriageable males relative to females—as family
constructs are likely to influence race-specific female homicide offending.

Our next set of theoretical arguments attempt to account for the role
formal social control and policy relevant changes might play when attempting
to understand the specific context of urban violence within an intersectional
framework. That is, the intersections of race and gender in homicide offending
might largely be influence by the differential use of social control and access
to city-level resources. Six measures are offered here—two measures of the
presence of formal social control (police and incarceration) and four measures
of resources available to women to reduce their exposure to domestic vio-
lence. First, we include a measure of police force size (the number of sworn
police officers (excludes civilians) in each city per 100,000 population) and a
proxy for the proportion of the race-specific population incarcerated. That is,
the race-specific incarceration measure is based on state-level data of the
proportion of whites (or African-Americans) incarcerated in correctional facili-
ties between 1990 and 2000.

To capture domestic violence service availability and whether policies to
provide resources to women, while reducing the exposure to violent situations
involving partners, in cities have led to a decline in homicide offending, fours
measures are included in this study. These measures include: the number of
shelters offered per 100,000 females, the number of legal services offered per
100,000 females, the number of programs offered per 100,000 females, and
the total number of resources and services listed as available per 100,000
females. Using principal components analysis, these measures were combined
into a composite measure referred to as the "domestic violence resource" index.

Control measures include the percentage of the population with Hispanic
origin (% Hispanic), a dummy code for region (cities located in the southern
region are coded as one and all other cities are coded as zero), and residential
mobility (operationalized as the percentage of residents that reported they
were not living in the same residence for the previous five years).
Tables 1(A) and (B) display the descriptive statistics for the measures used in our study, as well as information on the level of change across our predictors from 1990 to 2000. The information in this table is separate by racial group, where Table 1(A) shows the statistical information for white females and information for the black female sample is shown in Table 1(B). Briefly,

Table 1A  Means, standard deviations (in parentheses) for white female models—1990, 2000 and percent (%) change 1990-2000

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>% change 1990-2000*</th>
</tr>
</thead>
<tbody>
<tr>
<td>White female homicide (counts, average over four years)</td>
<td>12.01 (23.11)</td>
<td>7.02 (12.10)</td>
<td>-41.55</td>
</tr>
<tr>
<td>Economic marginalization and deindustrialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource deprivation index</td>
<td>-23.24 (12.11)</td>
<td>-18.92 (11.11)</td>
<td>-18.59</td>
</tr>
<tr>
<td>% white person below poverty</td>
<td>10.585 (94.086)</td>
<td>11.357 (4.315)</td>
<td>7.29</td>
</tr>
<tr>
<td>% white household on public assistance</td>
<td>8.041 (6.609)</td>
<td>3.034 (1.908)</td>
<td>-62.27</td>
</tr>
<tr>
<td>% white females in service industry</td>
<td>14.459 (3.553)</td>
<td>15.874 (3.584)</td>
<td>9.79</td>
</tr>
<tr>
<td>% white females employed</td>
<td>54.701 (6.276)</td>
<td>54.939 (6.249)</td>
<td>.46</td>
</tr>
<tr>
<td>Racial residential segregation</td>
<td>51.78 (17.78)</td>
<td>47.69 (14.56)</td>
<td>-7.90</td>
</tr>
<tr>
<td>Deindustrialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio white females from manufacturing to service economy</td>
<td>2.10 (.74)</td>
<td>3.84 (1.57)</td>
<td>82.86</td>
</tr>
<tr>
<td>% white females in managerial professional occupations</td>
<td>32.03 (7.02)</td>
<td>41.01 (9.10)</td>
<td>28.04</td>
</tr>
<tr>
<td>Family constructs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% white divorced males</td>
<td>9.95 (5.44)</td>
<td>9.81 (1.94)</td>
<td>-1.41</td>
</tr>
<tr>
<td>White male marriage pool index</td>
<td>1.62 (5.37)</td>
<td>52.29 (7.32)</td>
<td>1.30</td>
</tr>
<tr>
<td>Formal social control and policy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police officer rate (log)</td>
<td>5.29 (.35)</td>
<td>5.36 (.49)</td>
<td>1.32</td>
</tr>
<tr>
<td>White incarcerated population</td>
<td>.42 (.13)</td>
<td>.40 (.17)</td>
<td>-4.76</td>
</tr>
<tr>
<td>Domestic violence resource index</td>
<td>8.48 (6.53)</td>
<td>8.04 (5.37)</td>
<td>-5.19</td>
</tr>
<tr>
<td>Available resources rate</td>
<td>8.356 (8.695)</td>
<td>5.599 (3.987)</td>
<td>-32.99</td>
</tr>
<tr>
<td>Programs rate</td>
<td>1.792 (1.967)</td>
<td>1.694 (1.640)</td>
<td>-5.47</td>
</tr>
<tr>
<td>Legal services rate</td>
<td>.321 (.284)</td>
<td>1.458 (1.077)</td>
<td>354.21</td>
</tr>
<tr>
<td>Shelter rate</td>
<td>.3575 (.261)</td>
<td>1.561 (.946)</td>
<td>336.64</td>
</tr>
<tr>
<td>Structural characteristics/controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Hispanic population (log)</td>
<td>1.96 (1.35)</td>
<td>2.46 (1.13)</td>
<td>25.51</td>
</tr>
<tr>
<td>Population size (log)</td>
<td>12.49 (.78)</td>
<td>12.54 (.83)</td>
<td>.40</td>
</tr>
<tr>
<td>Residential mobility</td>
<td>56.47 (7.02)</td>
<td>48.02 (5.58)</td>
<td>-14.96</td>
</tr>
<tr>
<td>South</td>
<td>.32 (.47)</td>
<td>.33 (.47)</td>
<td>3.13</td>
</tr>
</tbody>
</table>

Note. *Change score: ((t minus (t – 1), divided by (t – 1) and multiplied by 100).
we highlight a few findings here. First, in line with extant literature on the crime drop in US cities, homicide offending by white and black females dropped from 1990 to 2000 (−42, −54% respectively). Our measures of economic deprivation indicate a drop in concentrated disadvantage, where public assistance to female-headed households declined considerably during this time period (−62% among white females, −45% among black females). Browne (1999) discusses the detrimental effects of the removal of the welfare safety net on women, particularly women of color, as welfare policies changed considerably in the 1990s.

### Table 1B Means, standard deviations (in parentheses) for black female models—1990, 2000 and percent (%) change 1990-2000

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>% change 1990-2000*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic marginalization and deindustrialization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black female homicide (counts, average over four years)</td>
<td>10.74 (23.45)</td>
<td>4.93 (11.28)</td>
<td>−54.10</td>
</tr>
<tr>
<td>Resource deprivation index</td>
<td>50.21 (30.21)</td>
<td>37.34 (26.06)</td>
<td>−25.63</td>
</tr>
<tr>
<td>% black person below poverty</td>
<td>27.582 (8.909)</td>
<td>25.149 (7.737)</td>
<td>−8.82</td>
</tr>
<tr>
<td>% black household on public assistance</td>
<td>16.497 (8.212)</td>
<td>9.047 (4.022)</td>
<td>−45.16</td>
</tr>
<tr>
<td>% black females in service industry</td>
<td>25.384 (8.463)</td>
<td>24.055 (6.491)</td>
<td>−5.24</td>
</tr>
<tr>
<td>% black females employed</td>
<td>53.063 (9.110)</td>
<td>54.637 (7.152)</td>
<td>2.97</td>
</tr>
<tr>
<td>Racial residential segregation</td>
<td>51.78 (17.78)</td>
<td>47.69 (14.56)</td>
<td>−7.90</td>
</tr>
<tr>
<td><strong>Deindustrialization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio black females from manufacturing to service economy</td>
<td>2.60 (1.67)</td>
<td>4.38 (3.27)</td>
<td>68.46</td>
</tr>
<tr>
<td>% black females in managerial professional occupations</td>
<td>23.28 (14.38)</td>
<td>30.57 (7.32)</td>
<td>31.31</td>
</tr>
<tr>
<td><strong>Family constructs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% black divorced males</td>
<td>14.66 (18.32)</td>
<td>11.21 (2.97)</td>
<td>−23.53</td>
</tr>
<tr>
<td>Black male marriage pool index</td>
<td>39.28 (13.72)</td>
<td>36.29 (10.63)</td>
<td>−7.61</td>
</tr>
<tr>
<td><strong>Formal social control and policy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police officer rate (log)</td>
<td>5.32 (.34)</td>
<td>5.37 (.47)</td>
<td>.94</td>
</tr>
<tr>
<td>Black incarcerated population</td>
<td>.44 (.15)</td>
<td>.44 (.17)</td>
<td>.00</td>
</tr>
<tr>
<td>Domestic violence resource index</td>
<td>8.74 (7.25)</td>
<td>8.45 (5.57)</td>
<td>−3.32</td>
</tr>
<tr>
<td>Available resources rate</td>
<td>8.356 (8.695)</td>
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<td>336.64</td>
</tr>
<tr>
<td><strong>Structural characteristics/controls</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Hispanic population (log)</td>
<td>1.82 (1.38)</td>
<td>2.44 (1.14)</td>
<td>34.07</td>
</tr>
<tr>
<td>Population size (log)</td>
<td>12.46 (.77)</td>
<td>12.49 (.79)</td>
<td>.24</td>
</tr>
<tr>
<td>Residential mobility</td>
<td>56.24 (6.60)</td>
<td>47.71 (5.57)</td>
<td>−15.17</td>
</tr>
<tr>
<td>South</td>
<td>.35 (.48)</td>
<td>.33 (.47)</td>
<td>−5.71</td>
</tr>
</tbody>
</table>

**Note.** *Change score: ((t minus \((t - 1)\), divided by \((t - 1)\) and multiplied by 100).*
Evidence of deindustrialization, particularly the shift of workers from manufacturing into the service economy, or what Wilson (1987) refers to as "economic restructuring" of urban cities, is present in our data. Both white females (82%) and black females (68%) experienced deindustrialization at high levels, suggesting that women, in addition to males, were impacted by economic restructuring (Browne, 1997). Yet employment in professional and managerial jobs has increased significantly for both groups (28% for white females, 31% for black females), which may reflect the demand for "soft skills" in today's local economy (Moss & Tilly, 1996). According to Moss and Tilly (1996), competitive pressures are pushing employers to seek workers with "soft skills" (that is, "skills, abilities, and traits that correspond to personality, attitude, and behavior rather than to formal or technical knowledge" (Moss & Tilly, 1996, p. 1). Such pressure may benefit women, yet black males face the greatest level of disadvantage, as women are considered to be more adept at interpersonal relations than men (Acker, 1990).

We find also a difference in the family constructs by race- and gender-specific groups over time. For example, divorce declined significantly for black females (−23%) as compared to white females (−1.4%) which led to greater racial parity in levels of divorce in 2000 (9.8% for white females, 11.2% for black females). The availability of marriageable males increased for white females (1.3%) but declined for black females (−7.6%). On the other hand, while police presence increased over time, the proportion of incarcerated individuals declined among whites but did not change for blacks. The availability of domestic violence resources and services declined for both groups. We turn now to our multivariate regression models.

Results

Different estimation procedures are called for in our intersectionality analysis when estimating the race-specific female homicide models decennially and over time. For our cross-sectional models, preliminary analysis revealed a non-normal distribution in our dependent variables, suggesting that ordinary least squares regression estimations were not appropriate. Thus, we utilize count models to take into account the rare nature of female homicide offending, which are further disaggregated by racial groups. Probably, the most cited

4. It is important to note that these two dependent variables can be related, as argued by Steffensmeier and Haynie (2000a). When that happens, the error terms of the regressions are not independently and identically distributed as you would assume if you run them in separate regressions. Failures to account for this dependency could result in both biased standard errors (biased downwards) and larger coefficients. The method commonly used to account for this methodological concern is seemingly unrelated regression (SUR). SUR modeling technique has been used by others examining gender-specific homicide rates (see Steffensmeier & Haynie, 2000a). We estimated SUR models and the results produced are identical to the results presented here. That is, given the non-normal distribution in the dependent variable and the fact that the SUR results are the same, we present the only the results for our negative binomial regression estimates.
work on the topic of count models is by Osgood (2000), who illustrates the appropriateness of Poisson-based regression in criminological research. Poisson estimators use counts as the outcome variable, which are a more useful and potentially reliable method when examining crime events among specific subpopulations. Due to evidence of over dispersion in these data, we use the negative binomial variant of Poisson regression (Greene, 1996). Finally, we converted the homicide counts into the equivalent of a rate by including the logged race- and gender-specific population size variable as an exposure variable in the model and constraining the coefficient to equal 1 (Osgood, 2000). We also obtained robust standard errors for the parameter estimates, as recommended by Cameron and Trivedi (2009), in an attempt to adjust for heterogeneity in our count models.

Table 2 displays the negative binominal estimations for the impact of our three arguments on white and black female homicides in 1990 and 2000. As we interpret our results, we will focus on our conceptual arguments and testing our hypotheses. We also include multiplying the coefficient by a value of exp (bx_k) (Osgood, 2000) for ease of interpretation.

Economic Marginalization and Deindustrialization

The resource deprivation index documents the combined influence of poverty, access to public assistance, and employment patterns within the service industry and more generally for women in urban areas. A measure of racial residential segregation (via index of dissimilarity) forms with black resource deprivation index to signify the degree to which African-Americans occupy separate economic and spatial niches in American cities. We hypothesize that, symptomatic of rising levels of economic disadvantage, women are vulnerable to economic dislocation (e.g. joblessness) and sex occupational segmentation, leading us to expect a positive relationship between resource deprivation and race-specific female homicide rates. As shown in the tables, we find that resource deprivation has a positive impact on white and black female homicide rates in all four models provided. For example, a standard deviation increase in resource deprivation is associated with a 27% increase in white female homicide rates (exp [.020 x 12.11] = 1.2748) and a 39% increase in black female homicide rates in 1990 (exp [.011 x 30.21] = 1.3942). By 2000, a standard deviation increase in resource deprivation involving white females lead to a 65% increase in white female homicide rates (exp [.045 x 11.11] = 1.6486), with a 23% increase found in black female homicide rates (exp [.008 x 26.06] = 1.2318). While racial residential segregation is included in the deprivation index in the black models, racial residential segregation has an independent effect on white female homicide rates. Specifically, a standard deviation increase in racial segregation leads to a 24% increase in white female homicide rates in 1990 (exp [.012 x 17.78] = 1.2378), followed by a 26% increase in 2000 (exp [.016 x 14.56] = 1.2623). Our first hypothesize concerning the detrimental
influence of resource deprivation on female homicide rates within the intersectionality framework has been supported.

Deindustrialization marks the removal of manufacturing jobs as the local labor market transitions into a more service-based, high-technology-oriented economy.

### Table 2: Negative binomial regression estimates with (Z scores) using robust standard errors for white female homicide and black female homicide, 1990 and 2000

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td>Model 4</td>
</tr>
<tr>
<td><strong>Economic marginalization and deindustrialization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource deprivation index</td>
<td>0.20**</td>
<td>0.01**</td>
<td>0.045**</td>
<td>0.008*</td>
</tr>
<tr>
<td></td>
<td>(2.72)</td>
<td>(5.90)</td>
<td>(4.50)</td>
<td>(1.86)</td>
</tr>
<tr>
<td>Racial residential segregation</td>
<td>0.12*</td>
<td>—</td>
<td>0.016*</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>(2.02)</td>
<td></td>
<td>(2.56)</td>
<td></td>
</tr>
<tr>
<td><strong>Deindustrialization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift from manufacturing to service economy (ratio)</td>
<td>0.097</td>
<td>0.011</td>
<td>0.009</td>
<td>0.047*</td>
</tr>
<tr>
<td></td>
<td>(1.17)</td>
<td>(–0.34)</td>
<td>(–0.22)</td>
<td>(–2.17)</td>
</tr>
<tr>
<td>Managerial professional occupations</td>
<td>–0.009</td>
<td>0.001</td>
<td>0.008</td>
<td>–0.000</td>
</tr>
<tr>
<td></td>
<td>(–0.60)</td>
<td>(0.36)</td>
<td>(0.60)</td>
<td>(–0.00)</td>
</tr>
<tr>
<td><strong>Family constructs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% divorced males</td>
<td>0.015*</td>
<td>0.003*</td>
<td>0.099**</td>
<td>0.113**</td>
</tr>
<tr>
<td></td>
<td>(1.85)</td>
<td>(2.11)</td>
<td>(3.22)</td>
<td>(3.55)</td>
</tr>
<tr>
<td>Male marriage pool index</td>
<td>0.003</td>
<td>0.006*</td>
<td>0.030*</td>
<td>–0.018*</td>
</tr>
<tr>
<td></td>
<td>(0.33)</td>
<td>(2.16)</td>
<td>(2.59)</td>
<td>(–2.31)</td>
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<tr>
<td><strong>Formal social control and policy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police officer rate (log)</td>
<td>0.428*</td>
<td>0.069</td>
<td>0.074</td>
<td>0.111</td>
</tr>
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<td></td>
<td>(2.08)</td>
<td>(0.38)</td>
<td>(0.31)</td>
<td>(0.82)</td>
</tr>
<tr>
<td>Incarcerated population</td>
<td>–0.574</td>
<td>–1.18*</td>
<td>0.448</td>
<td>0.356</td>
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<td>(–1.12)</td>
<td>(–2.53)</td>
<td>(1.05)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>Domestic violence resource index</td>
<td>–0.021*</td>
<td>–0.001</td>
<td>0.007</td>
<td>0.008</td>
</tr>
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<td></td>
<td>(–2.24)</td>
<td>(–1.14)</td>
<td>(0.52)</td>
<td>(0.85)</td>
</tr>
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<td><strong>Structural characteristics/controls</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>% Hispanic population (log)</td>
<td>0.124*</td>
<td>0.017</td>
<td>0.209**</td>
<td>–0.035</td>
</tr>
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<td></td>
<td>(2.40)</td>
<td>(–0.43)</td>
<td>(2.84)</td>
<td>(–0.59)</td>
</tr>
<tr>
<td>Population size (log)</td>
<td>–0.086</td>
<td>0.020</td>
<td>0.112</td>
<td>0.106</td>
</tr>
<tr>
<td></td>
<td>(–0.98)</td>
<td>(0.25)</td>
<td>(1.27)</td>
<td>(1.58)</td>
</tr>
<tr>
<td>Residential mobility</td>
<td>0.033*</td>
<td>0.014</td>
<td>–0.013</td>
<td>0.024*</td>
</tr>
<tr>
<td></td>
<td>(2.54)</td>
<td>(1.52)</td>
<td>(–0.83)</td>
<td>(2.06)</td>
</tr>
<tr>
<td>South</td>
<td>0.397**</td>
<td>0.331**</td>
<td>0.032</td>
<td>0.089</td>
</tr>
<tr>
<td></td>
<td>(3.06)</td>
<td>(2.97)</td>
<td>(0.21)</td>
<td>(0.55)</td>
</tr>
<tr>
<td>Maximum likelihood R-square</td>
<td>369</td>
<td>0.256</td>
<td>0.435</td>
<td>0.296</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>–320.85***</td>
<td>–248.76***</td>
<td>–216.26**</td>
<td>–151.01**</td>
</tr>
<tr>
<td>N</td>
<td>113</td>
<td>116</td>
<td>91</td>
<td>101</td>
</tr>
</tbody>
</table>

*Significant at the .10 level | **Significant at the .05 level | ***Significant at the .01 level.
economy (Wilson, 1987). Prior research has shown deindustrialization to be influential in homicide studies involving adults, with differential affects across racial lines (see Krivo & Peterson, 2000; Parker, 2004, 2008; Shihadeh & Ousey, 1996). Few studies have considered the influence of shifting economies on employment patterns involving white and African-American females (for exceptions see Haynie & Armstrong, 2006; Parker, 2004, 2008). Rather, within the urban violence literature, the attention focuses on male joblessness and impact of deindustrialization on males (Lee, 2000; Ousey, 2000; Shihadeh & Steffensmeier, 1994). The urban sociology and labor market literature, on the other hand, has documented the growing availability of managerial and professional occupations to women, particularly women of color. We find that deindustrialization was not considerably important to race-specific female homicide rates during the 1990s and into the 2000s. Looking at Model 4 in Table 2, a one standard deviation increase in the shift from manufacturing to service industry employment among African-American women causes a 14% decrease in homicide offending for this specific group (exp [-.047 × 3.27]) –1.0 = .1425). On the other hand, the availability of professional and managerial occupations was not related to homicide rates among white and African-American women in 1990 or 2000, controlling for a number of other economic and structural features of US cities. That is, deindustrialization appears less relevant to urban female violence, wherein our indicators do not reach statistical significance using conventional standards. Comparably, it is the high levels of resource deprivation facing women over time and by racial group that strongly influence homicide offending.

Family Context

As illustrated in our earlier discussion, family context in gender studies of urban violence is important for three reasons. First, few structural indicators of social and economic conditions produce significant differences along gender line other than family measures (Schwartz, 2006b). Studies have generally shown similarities in the influence of structural predictors on violence across gender groups (Steffensmeier & Haynie, 2000a, 2000b). Second, divorce has been shown to be one of the strongest and most consistent predictors of violence in macro-level research (Land, McCall, & Cohen, 1990; McCall, Land, & Parker, 2010; Pratt & Cullen, 2005). Examining the stability in structural predictors across time and space, Land et al. (1990) found divorce to be one of the strongest predictors of homicide rates from 1960 into 1990 and across different levels of aggregation (cities, Standard Metropolitan Statistical Areas, etc.). Following that research with an investigation of homicide rates through the 2000s, McCall et al. (2010) found “invariance” in the influence divorce had on homicide rates over time and space.

Third, family context is particularly relevant to women who have domestic and child-rearing responsibilities within the home, but who also have pressures
outside of the home in terms of community ties and economic demands. That is, disruption of the family (via divorce) and lack of availability of marriage partners (via male marriage pool index) increases the burden on women both socially and economically to maintain the family. For these reasons, our effort to examine the unique influence of divorce and male marriage pool index on female homicide rates may prove to be an important step in understanding the differences family context makes, but also our intersectional approach will further explore potential differences along race- and gender-specific lines.

The results of our statistical test are displayed in Table 2. Across the four models, divorce has a positive statistically significant effect on white and African-American female homicide rates in 1990 and 2000. In 1990, a standard deviation increase in divorce was associated with an 8.5% increase in white female homicide rates (exp \[.015 \times 5.44\] = 1.085) and a 6% increase in black female homicide rates in 1990 (exp \[.003 \times 18.32\] = 1.057). By 2000, a standard deviation increase in divorce lead to a 21% increase in white female homicide rates (exp \[.099 \times 1.94\] = 1.212), with a 40% increase found in black female homicide rates (exp \ [.113 \times 2.97\] = 1.3988). Thus, while the effects of divorce are consistent over time, it is clear that the influence of divorce becomes stronger over time when assessing parameter estimates and Z-scores. The change models following these analyzes will provide further information on this potential relationship.

On the other hand, the male marriage pool index is statistically significant in three of the four models, and not always in the predicted direction. In Model 2, we find that a standard deviation increase in the male marriage pool index was associated with approximately a 9% increase in black female homicide rates (exp \[.006 \times 13.72\] = 1.086) but by 2000, an inverse relationship is found where black female homicides decreased by 17% (1 - (exp \[-.018 \times 10.63\] = .174)). The male marriage pool index leads to an standard deviation increase of 25% in white female homicide rates in 2000 only (exp \[.030 \times 7.32\] = 1.246).

Formal Social Control and Domestic Violence Policy

We test to see the impact of crime control policies on homicide rates involving white and African-American women during times of considerable changes in crime control policies, such as rising rates of incarceration and police presence. These considerations have proven to be important in previous violence research (McCall, Parker, & MacDonald, 2008; Parker, 2004; Rose & Clear, 1998), but no studies have examined the impact of crime control policies on homicide rates within an intersectional framework. We further our efforts to account for the unique policy changes that involve women in US cities. Specifically, we include a measure of domestic violence resources and services available to women in urban areas as a potential predictor of their involvement as offenders in homicides, particularly given evidence that these policies are
relevant to women’s involvement in intimate partner homicides (Dugan et al., 1999; Reckdenwald & Parker, 2010), including race (Dugan et al., 2003), and evidence that a large proportion of homicide incidents involving women are intimate/family related when compared to male (Browne, 1987; Brown & Williams, 1993; Mann, 1996). To account for the different types of policies we examine in our research, we posit that crime control policies will increase race-specific female homicide rates, while the availability of domestic violence services and resources will decrease homicide rates involving race-specific women.

Our results, however, only provide mixed if not weak support for our claims. Across the four models presented in Table 2, police presence exhibits a statistically significant, positive effect on white female homicides in 1990 and the proportion of blacks incarcerated had an inverse relationship with black female homicide rates in 1990. That is, a standard deviation increase in police presence was associated with a 16% increase in white female homicide rates (exp \([.428 \times .35] = 1.161\) but the level of blacks incarcerated within the state lead to a 16% decrease in black female homicide rates in 1990 (1– \((\exp [-1.18 \times .15] = .1622])\). Domestic violence resources also had an inverse influence on white female homicides, which is in the predicted direction, but reaching statistical significance among white females only in 1990. Nonetheless we found a standard deviation increase in our domestic violence resource index was associated with approximately a 13% decrease in white female homicide rates (1– \((\exp [-.021 \times 6.53] = .1281])\).

Similarly, we find significant regional variations in white and black female homicide rates in 1990 but not in 2000. That is, both white female and black female homicide rates are higher in the south in 1990, but no significant regional effects were found in later decades. While the significant relationship between region (south) and homicide in 1990 supports a rather large body of work that lethal violence has historically been higher in the southern region (Hackney, 1969; Huff-Corzine, Corzine, & Moore, 1986; Messner, 1983a, 1983b just to name a few), the fact that regional differences decline over time may inform the larger structure vs. culture debate. Specifically, because resource deprivation is a robust and consistently strong predictor of race-specific female homicides across our models while region (south) is not, our findings add support for structural arguments over those that claim that Southern culture condones the use of violence when accounting for regional variance (see Lee, Hayes, & Thomas, 2008; Loftin & Hill, 1974; Messner, 1983a, 1983b; Parker & Pruitt, 2000).

Similarly, it appears that policy issues, at least in terms of general crime control policies, are less relevant to race-specific female homicide rates than resource deprivation and family predictors. In fact, the resource deprivation index and divorce indicators were consistently strong and stable across race- and gender-specific groups and over time. Furthermore, access to domestic violence resources and services was influential in reducing white female homicides in 1990, but not in later decades or among black females at any of
the time periods. This finding reveals important differences along race and gender lines, but also over time which is be further investigated in our change models.

Intersectionality and Change

This paper argues for the importance of intersectionality in macro-level analysis of female violence in urban areas, which only becomes more relevant when combined with changes over time. Change matters in several ways. First, female homicides dropped considerably over the 10-year period examined in this study. For example, as shown in Table 1, white female homicides dropped by approximate 42% from 1990 to 2000, while black female homicides declined by 54% or reduced by half. That is, not only has change occurred but at different levels for white females as compared to black females. Second, cross-sectional analysis pointed to invariancy in some predictors over time, such as resource deprivation and divorce, but our cross-sectional models cannot establish whether the change in our predictors are statistically significant contributors to the changes observed in race-specific female homicide rates over time. Scholars are utilizing estimation procedures to estimate change models that can account for the rarity in female homicide rates disaggregated by race and can also establish the nature of the relationships between our predictors and homicide rates over time. Finally, significant changes have occurred since the 1990s in terms of economic and labor market opportunities of women within specific racial groups, but also policy shifts have occurred at the national, state, and local levels. For example, as shown in Table 1, changes in welfare policies have greatly impact women, where we find a 62% decline in access to public assistance for white women with children and a 45% decline for black females. Access to domestic violence resources and services also decreased over time (5% reduction for white females and 3% decline among black females). Significant changes occurred in resource deprivation and family indicators over time, but also across racial lines.

Table 3 displays the results from our pooled, cross-sectional time series estimation procedure using random effect estimation. Model 1 displays the results for the change in white female homicides, followed by black female homicides in Model 2. A quick examination of the two models reveals that our predictors contribute more to the understanding of white female homicides than black female homicides. In fact, the only statistically significant predictor in the black female model is the resource deprivation index. That is, the change (reduction) in resource deprivation among black females led to a significant change (reduction) in black female homicides from 1990 to 2000. While the differences in estimation and statistical power across racial lines, where predictors common to macro-level studies tend to be more influential in white than black models (Harer & Steffensmeier, 1992; Kubrin & Wadsworth, 2003; Parker, 2008), we further believe such a finding reveals the merit of an
intersectional framework. That is, intersectionality has the potential to reveal the causes behind this trend.

When examining Model 1 in Table 3, we find a significant effect for the resource deprivation index on the change in white female homicides, similar to

<table>
<thead>
<tr>
<th>Economic marginalization and deindustrialization</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource deprivation index</td>
<td>.016**</td>
<td>.010**</td>
</tr>
<tr>
<td>Racial residential segregation</td>
<td>.017**</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deindustrialization</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift from manufacturing to service economy (ratio)</td>
<td>.005</td>
<td>-.026</td>
</tr>
<tr>
<td>Managerial professional occupations</td>
<td>-.006</td>
<td>-.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Family constructs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% divorced males</td>
<td>.014**</td>
<td>.002</td>
</tr>
<tr>
<td>Male marriage pool index</td>
<td>-.016*</td>
<td>.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formal social control and policy</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Police officer rate (log)</td>
<td>.102</td>
<td>.018</td>
</tr>
<tr>
<td>Incarcerated population</td>
<td>-.154</td>
<td>-.447</td>
</tr>
<tr>
<td>Domestic violence resource index</td>
<td>-.018*</td>
<td>-.002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural characteristics/controls</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>% Hispanic population (log)</td>
<td>.137**</td>
<td>-.055</td>
</tr>
<tr>
<td>Population size (log)</td>
<td>-.125</td>
<td>.066</td>
</tr>
<tr>
<td>Residential mobility</td>
<td>.029**</td>
<td>.018*</td>
</tr>
<tr>
<td>Year-2000</td>
<td>-.226</td>
<td>-.393**</td>
</tr>
<tr>
<td>Constant</td>
<td>-9.24</td>
<td>3.97</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-558.63</td>
<td>-407.60</td>
</tr>
<tr>
<td>N</td>
<td>204</td>
<td>217</td>
</tr>
</tbody>
</table>

Note. °p < .10 °p < .05 °°p < .01. °°(Stata 12.0); Hausman Test-NS.
that found among black females. Like our cross-sectional models and previous studies, it appears that resource deprivation is one of the strongest and most consistent predictor of female homicide rates, even when we account for racial differences. Deindustrialization and the shift in race- and gender-specific occupations, however, do not appear relevant to white female homicides in our change model.

Of the remaining two conceptual arguments, the family context, more so than shifts in policies and formal social control, finds statistical significance at the conventional standard. We find that the shift (decline) in divorce is a statistically significant predictor of the change (drop) in white female homicide rates over time. On the other hand, the rise in the male marriage pool index involving the growing availability of employed white males relative to white females has an inverse relationship with the change in white female homicide over times, as expected. Finally, we find an inverse relationship between our domestic violence resource index and white female homicide rates as well, suggesting that the availability of domestic violence resources at the city level does matter in terms of rates of white female homicide offending from 1990 to 2000. We now turn to a discussion of our results and the benefits of our intersectional framework as it relates to macro-level studies of urban violence.

Discussion and Conclusion

Intersectionality theory combined with previous empirical research suggests that variations exist in the influences of race- and gender-specific homicide offending in terms of economic disadvantage, family context, and policies surrounding shifts in mechanisms of formal social control and domestic violence. However, studies generally fail to portray how these macro-level processes influence female homicide offending based on the intersection of race, gender, and disadvantage. In this paper, we take into account the intersection of gender and race by exploring how relevant economic, social, and policy changes differentially influence black and white female homicide rates in 1990 and 2000. Thus, this study offers the first systematic examination of female offending at the macro level within an intersectional framework.

The data demonstrate that using race- and gender-specific homicide rates over time elucidate important similarities and differences across categories that cannot be revealed by examining data aggregated by race or gender. Several findings from our examination are particularly important and provide insight into relevant policy implications.

In terms of similarities by race, the current study reveals that both resource deprivation and divorce have a positive influence on white and black female homicide offending in 1990 and 2000. While resource deprivation has a statistically significant and positive effect on white and black female homicides consistently across the cross-sectional and change models, lending support for the robustness of this relationship, it is important to note that the effect size is
much larger in the black female homicide models than among white females based on an examination of the parameter estimates and Z-scores. Furthermore, our study also illustrates that black females generally experience a higher level of deprivation than their white female counterparts. For example, in 1990 the average level of resource deprivation experienced among white females was 23% while black females experienced deprivation at an average of 50%. That is, the level of resource deprivation experienced by black females is double that of white females. Even though deprivation declines from 1990 to 2000 for both groups, suggesting economic improvements over time, the level of deprivation among black females consistently exceeds those levels found among white females. On the other hand, the effects of divorce become stronger over time. These consistently robust findings are not surprising when considering previous research on the effects of economic disadvantage (Batton & Jensen, 2002; Chamlin & Cochran, 2006; Eitle et al., 2006; Jacobs & Richardson, 2008; Lee, 2000; Maume & Lee, 2003; Messner et al., 2005; Parker, 2004; Parker & Mccall, 1999; Pratt & Godsey, 2003; Worrall, 2009) and divorce (Land et al., 1990; Mccall et al., 2010) on homicide offending.

Separate from resource deprivation, we find that racial residential segregation has a statistically significant and positive effect on white female homicide rates consistently across our cross-sectional and change models. This finding is a bit perplexing. Due to high correlations between economic deprivation (poverty, income inequality, etc.) and racial isolation, measures of racial segregation are often combined into a composite measure of urban disadvantage in studies of race-specific homicide rates (see Land et al. 1990; Parker & Johns, 2002). When racial residential segregation (via index of dissimilarity) is offered as a separate predictor, a positive statistically significant effect is often found in studies of black homicide rates (see Massey & Denton, 1993; Messner & Golden, 1992; Parker & Reckdenwald, 2008; Peterson & Krivo, 1993) and the measure rarely reaches statistical significance in studies of white homicide rates (see Krivo & Peterson, 2000). While our finding is consistent with conceptual arguments and existing literature surrounding the detrimental effects of racial isolation in predominantly black communities, literature does not exist with which to explain the positive relationship between racial segregation and white female homicide rates. Nonetheless, consistent with existing conceptual arguments, racial segregation is the “cornerstone of urban inequality” (Massey & Denton, 1993), causing multiple social problems including social isolation, heightened level of disadvantage, and higher rates of violence (Krivo & Peterson, 2000; Massey, 2001; Parker & Mccall, 1999). We argue, similarly, that this measure reflects the disparities and inequalities experienced by disadvantaged groups in urban areas, further exacerbating the level of inequality faced by white females and, thus, contributing to higher levels of homicide offending among this group. Therefore, when examinations fail to disaggregate data based on gender, the overall white male advantage conceals the inequality women experience within society. As a result, we recommend that scholars
further explore how racial residential segregation as a form of urban inequality contributes to criminological outcomes within an intersectional framework.

Consistent with intersectionality theory, our findings also elucidate several differences in factors influencing homicide offending by black and white females. First, in terms of formal social control, the data found that police presence exhibited a statistically significant, positive influence on white female homicides in 1990 with no effect on black female homicides during the same period or on race-specific female homicide offending during the 2000s. We argued previously that formal social control, including police presence within the community, has been shown to increase criminal behavior by weakening organizational and family structures (Rose & Clear, 1998) and that this effect, particularly in terms of increased police presence, may affect members of predominately African-American communities more than white residents (Kent & Jacobs, 2005).

While our hypothesis was confirmed in the sense that the increase in conservative crime control policies, such as increased police presence, is positively associated with female homicide offending, the differential racial effect is not what we would expect based on previous literature. In fact, the only statically significant relationship found is that the increase in police presence was associated with an increase in white female homicide offending. However, based on previous literature (e.g. see Kent & Jacobs, 2005), we would expect to find the opposite.

Second, our findings illustrate that the rate of incarceration was negatively associated with black female homicide rates in 1990 with no statistically significant effect on white female offending in 1990 or on white or black female offending in 2000. This finding for 1990 makes sense given that research consistently demonstrates that black men are incarcerated at higher rates than their white counterparts (Pettit & Western, 2004). These findings are important based on an intersectional framework because black and white women are differentially affected by mechanisms of formal social control in terms of homicide offending.

Given these findings and the fact that conservative crime control policies, particularly mass incarceration, continue to proliferate (Pew Research Center, 2008), we can anticipate that the link between formal mechanisms of social control and female homicide offending will strengthen, particularly for black women. The growing dependency on mechanisms of formal social control, particularly increased police presence, to manage social problems has had significant consequences for the economically disadvantaged and within minority communities (Richie, 2000). As a result, nonwhite men, particularly blacks and Hispanics, are more likely to be imprisoned than their white counterparts (US Department of Justice, Office of Justice Programs, & Bureau of Justice Statistics, 2007), which disproportionately affects their economic opportunities and the stability of black families. In addition, the rising costs of formal control policies, specifically mass incarceration, are overwhelming state budgets and, consequently, deducting financial resources from more progressive social
agendas. For example, the Pew Report (Pew Research Center, 2008) states that approximately 6.8% of state budgets are allocated to corrections and that increases in correctional spending has surpassed increases in expenditures relating to both educational services and medicaid. Future macro-level intersectional research can investigate how conservative crime control policies are differentially impacting race- and gender-specific groups, but also negatively influencing more progressive agendas that emphasize social programs such as welfare, education, and health care.

Third, we also tested for the impact of domestic violence resources and services available to women in urban areas as a potential predictor of their involvement in homicides. Beyond national trends toward conservative crime control policies, we attempt to account for the efforts of urban areas to increase the level of resources and services directed specifically toward women in our intersectional work. To the extent the domestic violence resources adequately service women in these areas, such as by providing shelters to protect them from instances of violence or offering legal services and other programs, we posited that domestic violence services and resources will reduce homicide offending by white and African-American women. Our findings illustrate that domestic violence resources had an inverse effect on white female homicides in 1990, as predicted, but no statistically significant effect on white female homicide offending in 2000 or black female offending in either the 1990 or 2000 models. Based on our findings, then, these resources served to reduce homicides among white women in 1990, but became less influential over time and not relevant to homicide offending of African-American women. This is consistent with prior scholarship that the accessibility of domestic violence resources varies by race and gender. Scholarship suggests that many domestic violence services are inaccessible to minority women because of geographic reasons, lack of financial resources, and transportation constraints (Bent-Goodley, 2004).

In addition, many domestic violence prevention programs and services are criticized by feminist scholars as being based on white, middle-class, female standards. Thus, various scholars call for domestic violence resources that are culturally competent and that take into account the unique structural disadvantages minority women face (Bell & Mattis, 2000; Bent-Goodley, 2005; Donnelly, Cook, Van Ausdale, & Foley, 2005; Gillum, 2008; Macy, Giattina, Parish, & Crosby, 2010; Sokoloff & Dupont, 2005). Given the finding that domestic violence resources differentially influence white and black female homicide offending, thus leaving black women underserved in terms of these services, it is important for domestic violence policy to understand the diverse needs of women who occupy different social locations within society.

In addition, the domestic violence literature suggests that structural disadvantage and discrimination that women face in our society must be taken into account to understand the multiple systems of inequality and oppression under which women’s lives exist (Sokoloff & Dupont, 2005). These structural systems of oppression not only affect physical violence against women, but they shape
the cultural and economic resources available to them. Many of these forms of structural disadvantage and discrimination are linked to factors in this study, including economic marginalization and mechanisms of formal social control.

While this study is important in offering a quantitative, macro-level examination of how race- and gender-specific forms of economic disadvantage, family context, formal social control, and domestic violence policy influence the homicide offending rates of black and white women over time, several limitations do exist. First, existing scholarship has noted the limitations that exist when using certain data sources used, such as the SHR. One limitation of this data source is the inconsistent and often unreliable nature of law enforcement officers’ recording of racial categories, particularly in relation to homicides (see Nelsen, Corzine, & Huff-Corzine, 1994; Parker & McCall, 1999). Thus, it is important to consider the implications that potentially inaccurate data recording of the offender’s race may have on calculating race-specific homicide rates.

The second limitation deals with the relationship of homicide counts, as our independent variable, and domestic violence policy. As stated previously, while research widely notes that a large proportion of female homicides are perpetrated against intimate partners as compared to male homicides (Brown & Williams, 1993; Mann, 1996), or result from long-term abuse (Browne, 1987), not all homicides perpetrated by women occur in this way. Therefore, the possibility exists that our findings involving the influence of domestic violence resources on race-specific homicide rates may not completely capture an exact picture of what is occurring since not all female perpetrated homicides occur as a result of or relating to domestic abuse. Consequently, this limitation produces a call for future research to empirically examine black and white female homicide offending of intimate partners as well as nonintimates to provide a more comprehensive understanding of the patterns of female homicide offending.

In addition, while the current study illustrates that domestic violence resources do have a greater influence on white female homicide offending than black, we are unable to assert the extent to which domestic violence resources are being made available to black and white women. Thus, future research would also benefit from studies examining the race-specific effect of domestic violence resources provided to white and nonwhite women.

Despite these limitations, this study contributes to existing literature on intersectionality, female offending, and urban crime. By incorporating an intersectional framework into an examination of female homicide offending at the macro level, we offer some important findings regarding the ways race- and gender-specific structural variables differentially influence female homicide offending. The findings show that certain structural factors influence homicide offending by black and white women differently, while others do not. Thus, this study illustrates the need for further macro-level examinations of violent crime that incorporate an intersectional framework to fully understand the unique structural experiences of different groups of offenders within society.
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