



Variable links within perceived police legitimacy?: Fairness and effectiveness across races and places



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ABSTRACT

This work examines connections between two threads of community residents' perceptions of local police legitimacy, effectiveness and procedural fairness, and how those links depend on race, place, and race/place combinations. Previous works have connected these two threads, but have failed (a) to explore the variability of that connection by race, place, and race/place combinations across communities spanning the urban to suburban to rural continuum or (b) to model mutual influence. An extension of the group position thesis and work on minority views of police practices suggest how these variations might be patterned. Data were derived from a 2003 probability-based sampling survey of household respondents across Pennsylvania ($n = 1289$). Generalized confirmatory factor analysis models built procedural fairness and effectiveness indices for four groups: whites in urban core counties, non-whites in urban core counties, whites in non-urban core counties, and non-whites in non-urban core counties. Non-recursive structural equation models revealed variable impacts of perceived police effectiveness on perceived police fairness and, to a lesser extent, of fairness on effectiveness. Implications for a more structurally and contextually aware understanding of links in police legitimacy models are developed.

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1. Introduction

People's perceptions of their local police prove both practically important and theoretically complex. On the practical side, views link to behaviors such as willingness to report crime or criminals to police, willingness to obey or cooperate with the police, or to serve as witnesses in criminal justice procedures; and attitudes such as maintaining confidence not only in police agencies and actions, but also in agents throughout the broader criminal justice system (Kochel, 2011; Kochel et al., 2013; Sunshine and Tyler, 2003; Tankebe, 2008, 2009, 2013; Taylor and Lawton, 2012; Tyler, 1990; Tyler and Fagan, 2008). That work, particularly questions about the net impacts of perceptions of agencies acting in procedurally fair ways, is not without controversy (Taylor and Lawton, 2012: 417). On the theoretical side, citizens' views of local police contain numerous threads. These include, for example, residents' satisfaction with police generally, their satisfaction or lack thereof arising from specific encounters, and their perceptions of police effectiveness and procedural fairness. The dynamics behind the personal, experiential, and contextual factors that shape these views also have proven complex and multi-threaded. The literature is clear that

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both race/ethnicity and contextual factors shape these perceptions (MacDonald et al., 2007; Schuck et al., 2008; Stewart et al., 2009). Whites and nonwhites perceive that they are policed differently, even in places where minorities are few in number (Stewart et al., 2009). Regarding location, in addition to community racial composition (Smith, 1986; Stewart et al., 2009) urban vs. non-urban context shapes perceptions as well (Boggs, 1971; Taylor and Lawton, 2012).

The current investigation seeks to extend the work in this area in the following ways. First, the recent repositioning of procedural justice dynamics into a broader legitimacy frame (Bottoms and Tankebe, 2012) has highlighted the simultaneous relevance of and connections between perceived procedural fairness and perceived effectiveness of local police (Tankebe, 2013; Jackson et al., 2012). In different works that relationship has been modeled in different ways, but no work to date has argued for or examined the possibility of mutual influences. Building on previous works, arguments are developed for *both* impacts of effectiveness on fairness and of fairness on effectiveness. Second, the current work examines whether those links might depend on race, place, and *simultaneously* on race and place. A further extension of the group position thesis, already elaborated by Weitzer and Tuch (2005a), and recent qualitative work with urban nonwhite adolescents in high violent crime neighborhoods (Carr et al., 2007) suggest specific predictions about these connections. These arguments also have implications for the patterning of mean perceived effectiveness and fairness across race/place combinations. These average differences are considered as well.

1.1. Factors shaping views of local police

Research underscores the crucial and intertwined roles that race and community context play in forming citizens' views of the police (Brunson and Miller, 2006; Carr et al., 2007; Stewart et al., 2009; Taylor and Lawton, 2012).¹ Aggressive policing in low income, minority urban neighborhoods can lead to direct and retold negative experiences (or highly publicized events) with police and especially among young black males. For the latter, these often lead to consistent negative appraisals of the police (Brunson, 2007; Weitzer, 2002). Even among black adolescents, community racial composition, and changes such as increasing black population in white neighborhoods, shape reported experiences of discriminatory police practices (Stewart et al., 2009). In addition, in urban settings more broadly, how individuals feel about their treatment during their face-to-face police encounters similarly shapes their police appraisals (Brunson and Miller, 2006; Carr et al., 2007; Fagan and Davies, 2000; Tyler, 2005). Urban individuals perceiving procedurally unfair treatment – believing they have been stopped without cause, been treated rudely, or not been listened to – are less satisfied with police and view them as less legitimate (Brunson and Miller, 2006). Of course, local police functioning and organization vary across rural, suburban, and rural contexts; so too do residents' perceptions of and expectations about police (Cordner and Scarborough, 1997; Garcia and Cao, 2005; Taylor and Lawton, 2012). Work to date, however, has not considered how connections between different threads of resident's police views might depend on such a broader context.

Despite a negative disposition toward police based on “lived experience of negative interactions,” many urban residents still view the police as playing a “vital role for them in crime-reduction efforts” (Carr et al., 2007: 469; see also Brunson and Miller, 2006). Since police are held somewhat responsible for crime levels, it is not surprising that many residents of urban and high crime neighborhoods see local police as ineffective and report less satisfaction with them (Reisig and Parks, 2000; Weitzer and Tuch, 2005b). Broadly then, citizens' views of the police reflect who is policed, how they are policed, surrounding levels of crime and disorder, and where they are policed, that is, the neighborhood and city contexts and the racial changes taking place there (Brown and Benedict, 2002; Brunson and Miller, 2006; Cao, 2011; Schuck et al., 2008; Sharp and Johnson, 2009; Stewart et al., 2009; Sunshine and Tyler, 2003; Tyler, 1990; Taylor et al., 2010; Taylor and Lawton, 2012; Tyler and Huo, 2002).

1.2. Two themes: Perceived procedural justice/fairness and perceived effectiveness

Getting more specific about citizens' views of local law enforcement and, separate from broader assessments like overall satisfaction or confidence, two themes have emerged as important: perceived fairness of citizens' treatment at the hands of local police, and perceived effectiveness of local law enforcement. These two threads connect to broader views, to some contextual conditions, and also to one another.

Considering the broader views first, satisfaction with police contact has been linked to perceived fairness and crime prevention effectiveness (Huang and Vaughn, 1996). Further, less legitimacy is accorded to police by those perceiving police delivering procedurally unfair treatment (Brunson and Miller, 2006; Hinds and Murphy, 2007; Sunshine and Tyler, 2003; Tyler, 1990; Tyler and Huo, 2002). Perceived procedural justice also enhances confidence in local police which, in turn, enhances confidence in the broader criminal justice system (Taylor and Lawton, 2012). Alternatively, if police are perceived as treating people in one's neighborhood unfairly, then police may be viewed as less effective in their ability to reduce crime since the police are going to get less cooperation and intelligence from the public.

Context proves important for perceived ability of the police to control crime (Weitzer and Tuch, 2005b; Sun et al., 2013). As an example of contextual influences, residents living in high crime urban neighborhoods view the police as less effective

¹ Of course, numerous additional personal and contextual features also affect views about local police (Brown and Benedict, 2002). Context features at both the city and neighborhood level prove relevant (Schuck et al., 2008; Sharp and Johnson, 2009).

crime fighters, as less responsive to social disorder, and are less satisfied with them (Reisig and Parks, 2000; Taylor et al., 2010). Schuck et al. (2008) found a combined racial composition/SES indicator linked to police being perceived as treating some racial groups unfairly and unjustly. Perhaps more relevant to this specific project, Stewart et al. (2009: Fig. 2) found black adolescents living in metropolitan communities (census tracts) with higher proportions of white residents reporting more frequent experiences with biased policing. Although perceptions of police fairness were not elicited from these black adolescents, it certainly seems plausible given the links seen by Huang and Vaughn (1996) that those more likely to experience discriminatory policing would view the police as less fair. The feature of context considered in the current study, large urban core counties vs. non-core counties, links to both the contextual variables highlighted by previous work: violent crime levels and racial composition. Thus race and place should each affect perceived levels of local police effectiveness and fairness.

Turning to the psychological links between perceived police effectiveness and perceived police fairness/procedural justice, these too might vary by race and place. At the macro level, one of the long-standing themes within the procedural justice literature has been the long-term and macro-level enhancements to the effectiveness of police and courts because citizens are more willing to obey and cooperate with agents acting in more procedurally fair ways (Tyler, 2004, 2006a). “Broadly, the major procedural justice idea is that the more citizens think processes promote procedural justice, the more likely they are to support laws and societal institutions” (Taylor and Lawton, 2012: 417). Those supports should link to perceived organizational effectiveness.² Granting that these institutions are more efficient may be part of the “reservoir of support” granted to institutions seen to act more legitimately. “Across all types of organizations, the core argument of legitimacy theory is that legitimacy provides a ‘reservoir of support’ for institutions and authorities” (Tyler, 2006b: 381).

In addition to the “reservoir of support” argument for an intra-individual impact of fairness on effectiveness, several empirical findings are directly relevant. First, satisfaction with police encounters links to both these threads (Huang and Vaughn, 1996). Second, some individual-level research observed this impact directly. Cross-sectional analyses of surveyed urban Ghanaian residents of Accra revealed positive impacts of perceived effectiveness of local police on perceived procedural fairness (Tankebe, 2008). That study neglected, however, to examine possible impacts of perceived police procedural justice on perceived police effectiveness. Third, in a cross-sectional survey of metropolitan Londoners conducted by Tankebe (2013: Fig. 1) framed perceived effectiveness and perceived procedural fairness as two co-varying components in a broader four-component police legitimacy construct (see also Bottoms and Tankebe, 2012). Analyses revealed a sizable relationship between effectiveness and procedural justice.³ Model comparisons confirmed that “effectiveness has to be viewed as a component of legitimacy” (Tankebe, 2013: 121). See also Jackson et al. (2012).

In sum, procedural justice works have advanced the idea that more fairness in how local police treat the citizenry will ultimately enhance effectiveness of police functioning, and recent police legitimacy works have advanced the opposite idea: police operating more effectively enhances their legitimacy, part of which is citizens’ perceptions of officers acting fairly. Yet, no works to date have sought to *simultaneously* estimate both these relationships. If the relationship is indeed bi-directional, previous work which has examined *only* impacts of fairness on effectiveness may have misestimated this relationship. Therefore, this work undertakes such bi-directional estimation. We believe this is the first time the fairness/effectiveness link has been examined non-recursively.

1.3. Conceptualizing variable relationships between perceived procedural fairness and perceived effectiveness

One of the unanswered questions stemming from the relationship between perceived procedural justice/fairness and effectiveness of the local police is: do the connections that citizens make between these perceptions of the police depend on race/ethnicity of the perceiver and whether he/she lives in the primary urban core of a major metropolitan area? This notion represents an extension of earlier work that has underscored non-monolithic views of police across different racial and ethnic groups and different locational contexts (Weitzer, 2000).

Race/ethnicity has emerged as one of the most important demographic correlates of several features of views of local police, including satisfaction, confidence, and institutional support, and specific components such as effectiveness, perceived fairness, and legitimacy (Brown and Benedict, 2002; Brunson and Miller, 2006; Taylor and Lawton, 2012; Tyler and Wakslak, 2004). Relevant factors driving the race connection appear to be experiences with and perceived neighborhood prevalence of differential treatment by the police including racial profiling (Carr et al., 2007; Stewart et al., 2009; Weitzer and Tuch, 2004, 2005a,b). Of course, other factors including class may affect citizen attitudes of the police. For example, the race impact is conditioned by socioeconomic status (SES) of the citizen and of his/her neighborhood (Weitzer, 1999; Weitzer and Tuch, 1999, 2004, 2005a,b).

One suggested theoretical framework for interpreting racial differences of police perceptions has implications for both race and place. Weitzer and Tuch (2005a: 1010) extended the “group-position thesis” to “group relations with social

² The contested relationship between perceived procedural fairness and perceived institutional legitimacy, across institutions, is not addressed here (Tankebe, 2008; Taylor and Lawton, 2012: 417).

³ This covariation was probably significant. Tankebe (2013: Fig. 1)) reports $b = .24$ between effectiveness and procedural fairness latent variables. Although coefficients in Table 1 are described as standardized, no note is provided for Fig. 1. Assuming that Fig. 1 coefficients are standardized, in light of the sample size (5120) and assuming no sizable missing data problems, the link between effectiveness and procedural fairness reported in that figure would be highly significant ($p < .001$ via r to z transformation).

institutions” like the police. The group-position thesis argues that the relative subordinate position in terms of privileges and resources of racial and ethnic minorities in relation to whites creates competition over material rewards and power, and causes general hostility. Institutions within the criminal justice system and the police in particular, from a group-position perspective, help create and maintain these positional arrangements between whites and racial or ethnic minorities. Therefore, depending on one’s perspective, whites in general may have an affinity with the institutions such as the criminal justice system and police if their interests are served, whereas racial and ethnic minorities may view the criminal justice system and police as supporting the status quo. [Weitzer and Tuch’s \(2005a\)](#) extension of the group-position theory specifically outlines the role of race and perceptions of the police:

Our extension of group-position theory predicts that whites will tend to be dubious or dismissive of allegations of police misconduct. To accept that minorities are frequently mistreated would lend credence to reforms—reforms that might dilute crime control, thereby threatening whites. African Americans and Hispanics, on the other hand, should be more inclined to view the police as engaged in frequent abuse of minority citizens and, thus, as a ‘visible sign of majority domination’ (p. 1011).

The group position thesis suggests, therefore, that nonwhites, as compared to whites are more likely to have “direct and vicarious” experiences of racially biased policing and place more credence in this dynamic. Specifically, “Minorities should be more inclined to view the police as contributing to their subordination . . . Blacks are inclined to believe that police bias is common” ([Weitzer and Tuch, 2005a: 1027](#)). They further state that, “This view of police does not mean that minorities are monolithically critical of the police, but it does increase the chances that they will see police misconduct as . . . a general problem” ([Weitzer and Tuch, 2005a: 1011](#)).

The group position thesis applied to whites, nonwhites, and police, clearly undergirds findings that nonwhites, as compared to whites, see local police as less effective, less fair, less satisfactory, and less confidence inspiring. But – and this is our extension of [Weitzer and Tuch’s \(2005a\)](#) modified group position thesis – those race-linked differences in perception also may be linked to place. Relevant place factors may include racial composition and violent crime levels. The former determines the extent to which nonwhites are subordinate and whites superordinate, and the latter because it is likely to shape police contact rates. Starting with racial composition, [Stewart et al. \(2009\)](#) found that minority adolescents were more likely to be discriminated against by police in predominantly white neighborhoods (see also [Smith, 1986](#)). They interpreted these patterns using a defended neighborhood perspective.

Weitzer and Tuch’s group position thesis as extended here suggests that police act to keep African-Americans in subordinate positions, especially in contexts where African-Americans are clearly in the racial minority. In the case of Pennsylvania, this includes all counties outside of the two urban core counties – Philadelphia and Allegheny – which form the urban hubs of the state’s two largest metropolitan areas. Counties beyond these two are predominantly white, according to 2000 Census results approximately 91 percent of people in the non-core identified themselves as “white alone” ([Adams et al., 2008](#); [U.S. Bureau of the Census, 2001](#)).

This leads to several research questions. If whites outside core cities hold the most superordinate position, and thus according to the group position thesis as extended here are those whose interests most closely align with local police, in contrast to them nonwhites should see local police as less procedurally fair, compared to nonwhites. Nonwhites, especially those outside the state’s two largest urban core counties, may see police as especially unfair.

But taking community violent crime rates into consideration suggests non-urban nonwhites may *not* see the police as more procedurally unfair than nonwhites in urban core counties. In the two largest urban core counties, whites and nonwhites alike see police a lot more frequently, and experience substantially higher violent crime rates ([Glaeser and Sacerdote, 1999](#)). Further, given the higher community-level violent crime rates where nonwhites live within each of these two urban core counties, nonwhites here are likely to see more crime, more enforcement actions directed at nonwhites, and more instances of specific ineffectiveness as overwhelmed police are not always able to respond in a timely way to reported incidents. These actions witnessed may result in urban core nonwhites rating the police lowest on fairness, rather than nonwhites outside the urban cores.

Turning to average perceived differences in effectiveness, the group position thesis as extended here would argue that nonwhites in non-core counties would see police as less effective than whites in the same counties. On the other hand, a focus on violent crime rates as determinative of these views would suggest that non-whites in core counties, who reside in the communities experiencing the highest violent crime rates, would be the group most likely to see police as ineffective, compared to the superordinate group of whites living in non-core counties. What ineffective means for nonwhites within urban core counties was explained by nonwhite adolescents living in high violent crime neighborhoods in Philadelphia. They “spoke about both a general ineffectiveness at stopping crime and a more specific ineffectiveness that centered on poor response time” ([Carr et al., 2007: 459](#)) Yet, “many [nonwhite] young people who are negatively disposed toward police perceive a vital role for them in crime-reduction efforts” ([Carr et al., 2007: 469](#)). So, in addition to expecting nonwhites in high crime urban locations to see police as less procedurally fair, they also should see them as less effective given [Carr et al.’s \(2007\)](#) observations. [Carr et al. \(2007\)](#) would not necessarily expect to see those same race-linked mean differences around effectiveness in safer non-core counties with lower violent crime rates and thus less need for police. But our extension of the Weitzer and Tuch group position thesis would.

Moving from a discussion of mean differences to connections between fairness and effectiveness, should we expect variability in the strength of these connections? We have hints about such variability from two previous works. [Tankebe \(2013\)](#):

123–124 & Table S.2) observed that how a component of legitimacy, effectiveness, linked to his outcome of interest depended on victimization vs. non-victimization status.⁴ If “even within the same society, different dimensions of legitimacy can have a different impact among different social groups” (Tankebe, 2013: 126), it is only a short extension from that finding to the idea that “different social groups” “even within the same society” connect the dimensions of legitimacy in different ways. Previous theorizing by Rosenbaum et al. (2005) lends further support to the idea of variable connections across groups. They suggested (p. 355) impacts of vicarious police contact incidents on attitudes toward police would vary by race and ethnicity because of “theorized differences in biases and expectations about police.” Their analyses provided empirical support. Again, it is a short theoretical modification from Rosenbaum et al.’s (2005) ideas about differential impacts on attitudes by race to our idea here of differential impacts from one component of legitimacy to another.

But which groups will connect the two components of legitimacy more strongly? Which more weakly? And which direction will dominate? Will fairness be inferred from effectiveness more strongly than the reverse?

Starting with the impacts of effectiveness on fairness, Tankebe (2008) already has established this link in his Ghanaian study of Accra residents. Where and for whom will this impact be stronger? Carr et al.’s (2007) narratives of non-white adolescents in high crime urban core neighborhoods strongly suggest nonwhite residents in high crime urban neighborhoods may make the strongest link. Their strong inference of unfairness, in the form of not caring about some people and some places, is inferred in part from evidence of ineffectiveness. The latter includes general ineffectiveness, reflected in high local violent crime rates, and specific ineffectiveness, reflected in slow police response times (Carr et al., 2007: 459).

Violent crime is generally lower beyond the largest urban core counties, but at the same time nonwhites more clearly have minority or subordinate status (Weitzer and Tuch, 2005a). Depending on where they live, that may translate into race-linked differences in police response times and thus perceptions of specific effectiveness. These perceived differences could surface despite nonwhites in white locations being more frequent targets of biased policing (Stewart et al., 2009; Smith, 1986). If so, then nonwhites in non-core counties also may make stronger inferences of unfairness from ineffectiveness.

Weitzer and Tuch’s (2005a) argument suggests that the most superordinate group will be treated the most fairly. In this study, that group would be whites outside of the urban core counties. Because members of this group are treated well, have little personal or vicarious information about biased policing incidents, and live in relatively low violent crime communities compared to communities in the two major urban core counties, it is plausible that these residents infer from their experiences of being treated fairly by local police that these officers also are operating effectively. This strengthened impact is part of the psychological “reservoir of support” (Tyler, 2006b: 381) created by procedural fairness. The flow into this reservoir from perceived fairness may be strongest for whites in noncore counties. On the other hand, if racial mixing in the county and/or local violent crime levels contribute less than expected to these dynamics, the impact of fairness on effectiveness may just be race-linked. So, since nonwhites are most likely to experience the lowest levels of specific police effectiveness and highest probabilities of biased policing incidents, the link would be strongest for them.

1.4. Questions in brief

Voluminous earlier work has examined race and place based differentials in mean views about many perceived dimensions of local police (Boggs, 1971; Brown and Benedict, 2002; Brunson and Miller, 2006; Carr et al., 2007; Stewart et al., 2009; Taylor and Lawton, 2012). Focusing just on two prominent themes reflecting legitimacy within the broader realm of police perceptions – procedural justice/fairness and effectiveness – researchers have argued both that perceived effectiveness bolsters perceived fairness (Carr et al., 2007; Tankebe, 2008) and that perceived fairness enhances perceived effectiveness (Tyler, 2006a,b). Yet no works to date have examined how citizens might connect these two threads in different ways depending on race or place or race/place combinations. Further, no works to date have attempted to separate the impacts of fairness on effectiveness from effectiveness on fairness. This study addresses these two gaps. We propose an ecological extension of Weitzer and Tuch’s (2005a,b) modified group position thesis, supported by studies such as Stewart et al. (2009), and supplemented with key qualitative insights from Carr et al. (2007). The modification here suggests that relative to the most superordinate group – whites located in counties beyond the state’s two largest urban core counties – other groups will see stronger impacts of effectiveness on fairness and weaker effects of fairness on effectiveness. The groups examined here are whites vs. non-whites living in the state’s two major core urban counties vs. outside those two counties. Further, mean differences in average effectiveness and fairness across these four groups, also expected by the ecological extension of the group position thesis, are examined as well.

2. Methods

2.1. Survey data

The study sample is drawn from the 2003 Philadelphia Area Study (PAS)/Pennsylvania Life Survey (PLS), a random-digit dialing probability-based sampling survey conducted by the Institute for Survey Research for Temple University and the

⁴ Tankebe (2013) did not report, however, either in the article or the online supplementary materials, whether this was a statistically significant different impact across the two groups.

William Penn Foundation.⁵ Telephone interviews were conducted with heads of households who were paid \$10 to answer a variety of questions about neighborhood conditions, public services, views about crime and the police, as well as provide basic demographic information (Institute for Survey Research, 2003).

The sampling frame for the surveys was comprised of slightly over 6000 telephone numbers from counties in both Pennsylvania and New Jersey. The final sample used here relied on interviews only from those respondents residing within Pennsylvania ($n = 1289$).⁶ The response rate for the Pennsylvania respondents was almost 25 percent.⁷ Although, the low response rate may be a concern, research has found that low response rates are not necessarily less valid (Visser et al., 1996) and often yield similar results to those from surveys with higher response rates (Keeter et al., 2006). Further, in this specific study, concerns of potential non-representativeness are lessened because those who were interviewed closely resembled key demographics including gender, race/ethnicity, and age of heads of households with those of the 2000 U.S. Census data.⁸ Finally, minor discrepancies were resolved through weighting.

In order to examine responses across different locational contexts, respondents were classified as living in either a large urban core county or elsewhere.⁹ Philadelphia County, coterminous with the city of Philadelphia, and Allegheny County, home to Pittsburgh, are the only two urban core counties in the state where the population in each exceeds one million ($n = 415$). Each of these counties is the primary urban core of its respective metropolitan area. Those residing in other areas of Pennsylvania were classified as living in non-core counties ($n = 874$).¹⁰ In the core counties, nonwhites ($n = 239$) outnumbered whites ($n = 176$), but in non-core jurisdictions, whites were the clear majority ($n = 789$) relative to nonwhites ($n = 85$).

2.1.1. Survey items and properties

Predicted scores from the two latent indexes were created to operationalize the two themes about perceptions of the local police of interest here. Eight survey items addressed fairness/procedural justice. Two items – “How would you rate the police in your neighborhood on friendliness?” (J9) and “How would you rate the fairness of the police in dealing with people in your neighborhood?” (J10) – used the response categories “1 = very high, 2 = high, 3 = low, 4 = very low.” The following six questions, introduced in a way to make clear that local police were of interest, used an agree/disagree response format: “The police respect your basic rights” (J11); “The police treat all people in your neighborhood equally” (J13); “Police stop people without good reason” (J14); “Police usually treat people with respect” (J15); “Police are too tough on the people they stop” (J16); “Police are rude to members of the public” (J17). Response options were “1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree.” Final latent index scores were reverse coded, with higher scores reflecting more procedural justice. The Cronbach’s alpha for this index indicates a high level of reliability ($\alpha = .88$).

Two items addressed perceived police effectiveness: “How much confidence do you have in the ability of the police to protect you from crime?” (J7); and “How much confidence do you have in the ability of the police to prevent crime?” (J8) (1 = a great deal, 2 = some, 3 = very little, 4 = none at all).¹¹ The final latent index scores were reverse coded with higher scores reflecting more effectiveness. The Cronbach’s alpha for this index indicates an acceptable level of reliability ($\alpha = .79$). Table 1 shows means and standard deviations for individual items for the entire sample and the four subgroups of interest.

⁵ Two other published studies with this data source have examined intra-city, inter-neighborhood determinants of perceived police responsiveness in Philadelphia only (Taylor et al., 2010), and determinants of confidence in the local police using all Pennsylvania residents (Taylor and Lawton, 2012).

⁶ One sampling frame consisted of five counties in Southeastern Pennsylvania (Bucks, Chester, Delaware, Montgomery, and Philadelphia) and four counties in New Jersey (Burlington, Camden, Gloucester, and Salem) together, the nine counties that comprise the Philadelphia metro area. The second sampling frame comprised of the rest of Pennsylvania. Further, 1315 heads of households were interviewed but the addresses of 26 respondents could not be successfully geocoded thereby not being able to identify the municipality of the respondent leaving the final sample total of 1289.

⁷ “However, the response rate becomes 36% if it is defined as an AAPOR “cooperation rate”, which is the proportion of those actually contacted who are interviewed” (Institute for Survey Research, 2003: 24).

⁸ More specifically (Institute for Survey Research, 2003: 24–25): Gender of respondents to the survey matches the Census data closely, with the survey showing only slightly more female interviews (6 percentage points on PAS [Philadelphia Area Survey], 4 points on PLS [Pennsylvania Life Survey]) than the Census would predict. For ethnicity, African-Americans are overrepresented in the PAS and PLS by 6 percentage points. Hispanics and Asians are slightly underrepresented, but the small numbers involved make such differences unreliable. The major underrepresentation is of Caucasians in the PAS and PLS (7 and 8 percentage points, respectively). The age distribution shows only one category difference between survey and census of more than 4 percentage points—those aged 71 and above are under-represented by 8 percentage points in the PAS and PLS, in part due to poor hearing and other health-related reasons. These relatively small demographic differences can be remediated by weighting procedures during data preparation routines with very little statistical impact on the data. Given the good match to Census data for the current survey, response rates are of less concern than they might otherwise be. Although there is always the possibility of some non-response bias in other categories, further non-response analysis shows no evidence for such bias. For example, mapping analysis identified no differences between respondents and nonrespondents in their geographic location. Further, weights correcting these slight discrepancies were applied to all the analyses using structural equation models. Given the software used (Stata v. 13), however, it was not possible to use weighted data for the measurement models because the latter used generalized structural equation modeling.

⁹ Urban and non-urban areas were classified using the Rural–Urban Continuum Codes (Economic Research Services, 2004).

¹⁰ Some of these residents may have resided in primary urban core counties of smaller metropolitan areas in Pennsylvania. By non-core county we mean not residing in a primary urban core county of a metropolitan area with more than a million residents.

¹¹ The use of just two indicators for the effectiveness latent index is not a limitation per se because internal consistency is comparable to that for the fairness latent index. Therefore differential (inter-item) reliability cannot explain differential patterns of findings for the two indices. Of course, one could charge that the threat to construct validity of “construct underrepresentation” (Messick, 1995: 742) applies to this index. But we would argue two points. An advantage of this index is that it does not suffer from another threat to construct validity, the threat of including “construct-irrelevant variance” (Messick, 1995). Close examination of the items in some other study indices labeled police effectiveness may suffer from this second threat. Further, the “construct underrepresentation” threat to validity is most relevant when we are concerned about why we did not find certain impacts of effectiveness. As the reader will see, this is not a concern. Finally, some other studies also used a very small number of items (e.g., 3, Huang and Vaughn, 1996) to gauge police effectiveness.

Table 1

Sample size, mean and standard deviation for survey items comprising perceived procedural justice and police effectiveness variables.

	Nonwhite		White		All
	City Core (n = 239)	Non-Core (n = 85)	City Core (n = 176)	Non-Core (n = 789)	Total (n = 1289)
<i>Procedural justice questions: Mean; SD</i>					
(J9) "rate the... friendliness"	3.06; 1.04	3.25; 1.22	3.59; .96	3.74; .93	3.56; 1.02
(J10) "rate the fairness..."	3.05; .94	3.27; 1.09	3.59; .88	3.69; .89	3.52; .96
(J11) "police respect your basic rights"	2.72; .75	2.92; .76	3.07; .56	3.14; .57	3.03; .65
(J13) "police treat all people... equally"	2.60; .74	2.67; .78	2.89; .65	2.99; .64	2.88; .69
(J14) "police stop people without good reason"	2.36; .76	2.55; .72	2.89; .65	2.90; .65	2.77; .72
(J15) "police usually treat people with respect"	2.69; .65	2.91; .59	3.03; .55	3.09; .51	3.00; .57
(J16) "police... too tough on the people they stop"	2.55; .64	2.64; .72	2.90; .48	2.95; .49	2.85; .56
(J17) "police are rude to members of the public"	2.55; .67	2.76; .65	2.89; .58	3.01; .51	2.89; .59
<i>Police effectiveness questions: Mean; SD</i>					
(J7) "confidence... police to protect... from crime"	3.36; 1.02	3.69; 1.05	3.72; .96	3.77; .93	3.67; .97
(J8) "confidence... police to prevent crime"	3.19; 1.04	3.39; 1.05	3.37; .92	3.47; .93	3.39; .97

Note: Final index scores were reverse coded. Min–Max for J7 to J10 1–5; all others 1–4. Data provided by the 2003 Philadelphia Area Study (PAS)/ Pennsylvania Life Survey (PLS).

2.2. Measurement models and predicted scores on latent variables

The perceived fairness and perceived effectiveness items have ordinal response categories. Confirmatory latent variables constructed for the two indices therefore employed generalized ordinal logit structural equation models (Rabe-Hesketh et al., 2004).

These latent indices were constructed in two ways. First, a common ordinal logit measurement model was used in which loadings of each indicator on each index was the same for all respondents. The item asking respondents to rate the fairness of police in dealing with people in one's neighborhood (J10) was the reference variable for fairness/procedural justice, and the survey item asking about confidence in the ability of the police to protect them from crime (J7) was the reference variable for police effectiveness (for each, loadings = 1.0). All observed variables loaded significantly and in the expected direction (all p 's < .001) and unstandardized loadings ranged from .49 to 1.06. (Details on the measurement model appear in an online appendix which is attached here as Appendix A. Predicted latent scores were retained, and were distributed normally (skewness < |1|).

Second, an ordinal logit measurement model was constructed *separately* for each of the four different race \times place groups (nonwhite, core counties (Philadelphia or Allegheny); white, core counties; non-white, outside core counties; white, outside core counties). The structure of the confirmatory measurement model for each group was the same as for the common measurement model. The same variables loaded on the same latent variables and the same two items were used to anchor each latent variable.¹² But across the four groups the correlations between the two latent variables were allowed to differ, and the specific loading of each indicator variable was allowed to vary. Predicted latent scores were retained, and were distributed normally (skewness < |1|) within each group. Obviously, these group-based measurements cannot be used to examine mean group differences because each group has a mean (unweighted) score of zero on both predicted latent variables.

The only goodness of fit information available with this software with GSEM include information theoretic indicators such as AIC and BIC. Although the latter are helpful when comparing models (Raftery, 1995), they do not provide fit indicators on an absolute metric. That limitation aside, the results were encouraging for the common measurement model. All indicators loaded significantly ($p < .001$) and in the anticipated direction. For the group-based measurement models, not all indicators had significant loadings, and these significance patterns varied somewhat across the groups. All this suggests

¹² For the group-based measurement solution, it was not possible to directly assess the superiority of a group-based measurement model vs. a common measurement model using an ordinal logit model, because the software (Stata v. 13) does not permit comparing "stacked" models across groups when analyzing a generalized structural equation model. So the need for separate group-based generalized models was approximated as follows. Matrices of polychoric correlations (Olsson, 1979) were constructed for each group, and each was analyzed using asymptotic, distribution free (ADF) estimation. These group-based models were run in two different ways. First, the correlation (phi) between the two latent variables was allowed to vary. A significant Wald test (14.73 (df = 3); $p < .01$) rejected the idea of constraining the correlation between latent procedural justice and latent effectiveness to be equal across all four groups. But the loading of each latent variable on each observed variable was the same across the four groups. That is, for each indicator, the same relation to its corresponding latent variable was assumed across the four groups (Bollen, 1989: 359). But when this solution was compared to a model allowing the contributions of specific indicators to their corresponding latent variable to vary across groups, the group-based measurement models resulted in significantly better fit (overall LaGrange multiplier or score test (Kano, 2002) = 65.86 (df = 24); $p < .001$). Thus, fit was further improved if these differences were allowed as well. Given these inputs from the rough attempt to learn if generalized measurement models varied by group, the ordinal logit model was run separately for each of the four groups. Each measurement model had its own correlation (phi) between the two latent variables, and except for the two anchoring variables whose loadings were set to 1, in each group each indicator had its own loading on the corresponding latent variable.

these group-based measurement models may have been less satisfactory than the common measurement model for some groups.¹³ Nevertheless, because the group-based measurement model, in comparison to the overall measurement model, was better fitting, results using the group-based models deserve consideration. Analyses with the group-based measurement models should be interpreted cautiously given the differential success of the measurement model across groups.

2.2.1. Instruments for predicted scores

The models allowing reciprocal influence between effectiveness and fairness require instruments for each of them. Using attitude variables from outside of the theoretical model, an instrument was built for each of the common predicted index scores, and each of the group-based predicted index scores.¹⁴ If a variable contributed to one instrument it was not allowed to contribute to the other instrument.

2.2.2. Sequence of models

Simultaneous impacts of effectiveness on fairness, and vice versa, are estimated using predicted scores from the common measurement model in three different ways: respondents are grouped by race to examine the main effect of race, by place to examine the main effect of place, and by place-and-race. Wald tests were used to determine if the size of the impact differed across the groups compared. This series of analyses was then repeated using the predicted scores based on the group-based measurement models.

Finally, to examine mean differences in predicted fairness and effectiveness, four structural equation models were run for each predicted score from the common measurement model. Treating whites outside the core counties as the reference group because they are the most superordinate group in Weitzer and Tuch's frame, that group's mean score was contrasted with the mean scores of the other three groups: nonwhites outside core counties, whites in core counties, and nonwhites in core counties. Four models were required given different possible ways to model the relationship between the two predicted scores. In Model 1 the two outcome scores were simply allowed to have co-varying residuals. In Model 2 effectiveness was allowed to affect fairness. In Model 3 fairness was allowed to shape effectiveness. Finally, in Model 4 a non-recursive relationship between predicted fairness and effectiveness scores was allowed by instrumenting each outcome.

3. Results

3.1. Common measurement model

3.1.1. Race differences

Whites and nonwhites disagreed significantly ($p < .001$ by Wald test) about the impacts of perceived local police effectiveness on perceived local police fairness. Nonwhites ($b = .40, p < .001$) exhibited a stronger connection between these two perceptions than whites ($b = .25, p < .001$). See Table 2. Nonwhites made stronger inferences about local police fairness based on perceived efficiency of those officers. This difference aligns with Weitzer and Tuch's (2005a,b) original group position thesis, and with the insights suggested by Carr et al. (2007).

Turning to the effects of fairness on effectiveness, nonwhites ($b = .82, p < .001$) and whites alike ($b = .72, p < .001$) make extremely strong inferences of effectiveness from viewed fairness. But the two groups (ns by Wald test) do not differ in their willingness to make this inference.

Further, we believe this is the first study examining the effects of fairness on effectiveness while controlling for the reverse. The size of the links seen here extends previous procedural justice arguments. That frame anticipates societal level enhancements in policing (or court or corrections) efficiency arising from stronger perceptions of agency fairness. The links seen here document the individual-level counterpart to that macro-level thesis, reflecting Tyler's "reservoir of support." Further, because the impact of fairness on effectiveness is so much stronger than the reverse impact, the results further underscore the centrality of fairness to broader legitimacy. At the same time, they also highlight the relevance of effectiveness to legitimacy as argued by Tankebe (2013).

3.1.2. Place differences

Differential impacts of effectiveness on fairness similarly surface when respondents are contrasted by place ($p < .01$ by Wald test). Those in major urban core counties ($b = .34, p < .01$) see a stronger impact than do those outside these urban cores ($b = .26, p < .001$).

¹³ In the group-based measurement models, details on significance pattern differences from the common measurement model (all p 's $< .001$) were as follows. For urban core whites, the loading of the confidence in ability of police to prevent crime (j8) item on the effectiveness latent variable was only significant at $p < .05$, one tailed ($b = .55, t = 1.44$). For nonwhites beyond the urban core counties, the fairness item police stop people without good reason (j14) was only significant at $p < .04$, one tailed ($b = .22, t = 1.85$). For this group the loading of the police can prevent crime (j8) item on effectiveness was only significant at $p < .03$, one tailed ($b = .54, t = 1.92$). For the last group, whites beyond the urban core counties, all fairness items loaded significantly ($p < .001$) in the expected direction, but the loading of the police can prevent crime (j8) item on effectiveness was not significant ($b = .32, t < 1$).

¹⁴ The correlations between the instruments and the predicted scores were as follows: .748 common measurement model – effectiveness; .678 common measurement model – fairness; .864 group-based measurement model – effectiveness; .748 group-based based measurement model – fairness.

Table 2Impacts of effectiveness on fairness, and vice versa with common measurement model: Race, place, and race \times place connections and differences.

	<i>b</i>	<i>se</i>	<i>z</i>	<i>p</i> <	95% LCL	95% UCL	Wald test			BIC
							Chi 2	df	<i>p</i> <	
<i>White vs. nonwhite</i>										
Effectiveness => Fairness										
Nonwhite	0.404	0.025	16.000	.001	0.355	0.454	27.523	1	0.001	
White	0.251	0.017	15.050	.001	0.218	0.284				
Fairness => Effectiveness										
Nonwhite	0.818	0.063	12.950	.001	0.694	0.942	2.026	1	0.155	
White	0.717	0.050	14.230	.001	0.619	0.816				
<i>Outside core vs. core</i>										
Effectiveness => Fairness										
Outside core	0.258	0.018	14.400	.001	0.223	0.293	6.739	1	0.009	
Core	0.337	0.025	13.430	.001	0.287	0.386				
Fairness => Effectiveness										
Outside core	0.721	0.051	14.130	.001	0.621	0.821	0.739	1	0.390	16472.02
Core	0.782	0.065	12.110	.001	0.656	0.909				
<i>White vs. nonwhite \times Outside core vs. core</i>										
Effectiveness => Fairness										
Nonwhite core	0.409	0.029	14.240	.001	0.353	0.465	27.915	3	.001	
White core	0.256	0.040	6.390	.001	0.178	0.335				
Nonwhite outside core	0.393	0.048	8.190	.001	0.299	0.487				
White outside core	0.250	0.018	13.540	.001	0.214	0.286				
Fairness => Effectiveness										
Nonwhite core	0.832	0.076	10.900	.001	0.682	0.981	2.120	3	0.548	16444.55
White core	0.740	0.104	7.140	.001	0.537	0.943				
Nonwhite outside core	0.785	0.085	9.220	.001	0.618	0.952				
White outside core	0.714	0.054	13.300	.001	0.609	0.819				

As was seen when respondent races were contrasted, here too when places are contrasted: fairness powerfully shapes effectiveness ($p < .001$). Further, as also seen when races were contrasted, much stronger impacts of fairness on effectiveness surface, compared to the reverse. The impacts of the former are about twice the impacts of the latter for both core and outside core respondents.

Even though place matters for impacts of effectiveness on fairness, it does not matter (ns by Wald test) for the reverse. Respondents in both places saw similarly strong impacts.

3.1.3. Race by place differences

Having established that both race and place matter, at least for impacts of effectiveness on fairness, we now turn to contrasting the connections made by the four race \times place groups.

We start with the links from effectiveness to fairness, and contrasts with the most superordinate group, whites outside the urban core counties. As anticipated by the extended group position thesis, results show that the more subordinate group in these locations does see stronger implications of fairness based on effectiveness. The impact seen by the most superordinate group, although sizable and significant ($b = .25, p < .001$), is about sixty percent of the impact seen by nonwhites in the same counties ($b = .39, p < .001$). The two groups have non-overlapping 95% confidence intervals for this impact.

In core counties, the same race difference surfaces with nonwhites ($b = .41, p < .001$) seeing stronger impacts of effectiveness on fairness than whites ($b = .26, p < .001$) in the same counties. It is *not* the case, however, as anticipated by our ecological extension of the group position thesis, that the race differential is stronger for non-whites in non-core as compared to core county locations. Confidence intervals overlap. The Wald test does confirm, however, that the four sets of impacts as a group are significantly different ($p < .001$).

Turning to the effects of fairness on effectiveness, as was seen before when considering either race or place, for all four groups the impact is extremely sizable (all $bs > .7$, all p 's $< .001$). Further, as also was seen when considering race and place separately, this impact did not differ significantly across groups (ns by Wald test).

3.1.4. Summing up

Summing up on the common measurement model results on linkages between the two legitimacy themes investigated, results confirm differential linkages by group. This extends earlier works identifying differential subgroup impacts of police views (Tankebe, 2013) and differential impacts of police experiences on police views (Rosenbaum et al., 2005). Not only do different groups in the population even within the same general area see different impacts of legitimacy or determinants of legitimacy, they literally construe the impacts of one component of legitimacy (effectiveness) on another legitimacy component (fairness) in different ways.

In line with Weitzer and Tuch's (2005a) original extension of the group position thesis, race appears to be the most important subgroup factor. Nonwhites, as compared to whites, whether place is taken into account or not, see stronger implications of effectiveness for fairness.

Ignoring race, there was some support for the idea that place matters. Those within as compared to outside the major urban core counties, saw stronger impacts of effectiveness on fairness.

There was less support for the ecological extension proposed here of the group position thesis. In line with that expectation, nonwhites outside core counties saw stronger impacts of effectiveness on fairness. But the same race differences emerged in the core counties as well, where nonwhites were less clearly subordinate to whites because of overall racial composition. At the same time, however, nonwhites in urban core counties are living in higher violent crime communities, a complication not explicitly anticipated by our ecological extension of the group position thesis, but suggested as relevant by the work of Carr et al. (2007).

Further, these may be the first results contrasting the impacts of effectiveness on fairness with the reverse. The findings show that the impacts of fairness on effectiveness are considerably stronger, and less influenced by either race or place or race/place combinations. This underscores the centrality of broad procedural justice dynamics to legitimacy (Tyler, 2004), at least when views of local police are in question even though effectiveness, as Tankebe (2013) and others (Jackson et al., 2012; Kochel et al., 2013) have argued, is part of that legitimacy construct as well.

3.2. Group-based measurement models

Results based on the group-based measurement models deserve consideration since these provide better fit than the common measurement model, but need to be interpreted with considerable caution since not all observed indicators loaded significantly for all groups on their corresponding latent variable. Using predicted scores based on these measurement models, impacts of effectiveness on fairness, and vice versa appear in Table 3.

The most important point is that the four key results observed using predicted scores based on the common measurement model replicated with the scores based on group-based measurement models. (1) Nonwhites as compared to whites saw stronger impacts of effectiveness on fairness ($p < .001$ by Wald test). (2) Core county residents as compared to non-core county residents also saw stronger impacts of effectiveness on fairness ($p < .01$ by Wald test). (3) Nonwhites outside the core counties saw stronger impacts of effectiveness on fairness than did whites outside the core. (4) The same differences surfaced when comparing whites and nonwhites in core counties.

Table 3
Impacts of effectiveness on fairness, and vice versa with group-based measurement model: Race, place, and race × place connections and differences.

	<i>b</i>	<i>se</i>	<i>z</i>	<i>p</i> <	95% LCL	95% UCL	Wald test			BIC	
							Chi 2	df	<i>p</i> <		
<i>White vs. nonwhite</i>											
Effectiveness => Fairness											
Nonwhite	0.611	0.031	19.39	.001	0.549	0.673	141.976	1	.001	16401.29	
White	0.210	0.012	17.96	.001	0.187	0.233					
Fairness => Effectiveness											
Nonwhite	0.262	0.072	3.63	.001	0.121	0.404	47.103	1	.001		
White	0.782	0.054	14.38	.001	0.676	0.889					
<i>Outside core vs. core</i>											
Effectiveness => Fairness											
Outside core	0.213	0.013	16.32	.001	0.188	0.239	6.95	1	.01		
Core	0.309	0.032	9.53	.001	0.245	0.372					
Fairness => Effectiveness											
Outside core	0.762	0.053	14.36	.001	0.658	0.866	5.371	1	.05		
Core	0.559	0.080	7.02	.001	0.403	0.715					
<i>White vs. nonwhite × Outside core vs. core</i>											
Effectiveness => Fairness											
Nonwhite core	0.608	0.043	14.06	.001	0.523	0.693	141.782	3	.001		
White core	0.223	0.033	6.87	.001	0.160	0.287					
Nonwhite outside core	0.619	0.045	13.75	.001	0.531	0.707					
White outside core	0.209	0.013	15.87	.001	0.183	0.234					
Fairness => Effectiveness											
Nonwhite core	0.202	0.105	1.92	ns	−0.004	0.408	45.658	3	.001		
White core	0.791	0.125	6.33	.001	0.546	1.037					
Nonwhite outside core	0.354	0.079	4.46	.001	0.198	0.510					
White outside core	0.780	0.059	13.32	.001	0.665	0.895					

Note: $n = 1,289$. Source: 2003 Philadelphia Area/Pennsylvania Life Survey, Pennsylvania respondents only. Effectiveness and fairness latent variables defined using ordinal logit confirmatory factor models, separately for each of the four groups (nonwhite core; white core; nonwhite outside core; white outside core). Those latent variables modeled as observed in the structural equation model shown here. Unstandardized coefficients. Loading for multi-item instrument for group-based fairness constrained to 1. Similar procedure followed for multi-item instrument for group-based effectiveness. Analysis of model shown here based on weighted data.

Predicted scores based on the group measurement model also revealed some differences in impact patterns not seen with the predicted scores based on the common measurement model. Most importantly for the ecological extension of the group position thesis, in counties outside the urban cores nonwhites saw weaker impacts ($b = .35, p < .001$) of fairness on effectiveness, as reflected in non-overlapping confidence intervals, than did whites in the same counties ($b = .78, p < .001$). Further, in support of the idea of the importance of race \times place interactions, the impacts of fairness on effectiveness were non-significant for nonwhites in urban core counties.

Although the parallels between the patterns observed for predicted scores based on the common measurement model vs. the group-based measurement models are extremely encouraging, differences in patterns appearing solely with the group-based measurement models, albeit encouraging for the ecological extension of the group position thesis, need to be interpreted with considerable caution.

3.3. Mean differences in effectiveness and fairness

Table 4 displays results of SEMs predicting mean differences in predicted scores on fairness and effectiveness across the four groups of primary interest. All the results in this section are based on the common measurement model. As noted earlier, the different models expect different relationships between predicted effectiveness and predicted fairness. The most superordinate group, whites in noncore counties, are the reference string against which the other three group dummies provide contrasts.

Table 4
SEM results predicting mean differences in predicted scores on fairness and effectiveness.

		Model 1	Model 2	Model 3	Model 4
<i>Outcome</i>					
<i>Predictor</i>					
<i>Fairness</i>					
Nonwhite core	<i>b</i>	−2.43	−1.439	−2.43	−1.583
	<i>t</i>	−7.41	−8.75	−7.41	−10.79
White core	<i>b</i>	0.021	−0.184	0.021	−0.237
	<i>t</i>	0.07	−0.96	0.07	−1.31
Nonwhite outside core	<i>b</i>	−1.72	−1.194	−1.72	−1.163
	<i>t</i>	−3.99	−5.2	−3.99	−4.93
Effectiveness	<i>b</i>		0.449		0.271
	<i>t</i>		24.79		18.64
Instrument (iv_pre_com1m)					1
					−
White outside core (constant)	<i>b</i>	0.502	0.381	0.502	0.403
	<i>t</i>	4.37	4.51	4.37	6.49
<i>Effectiveness</i>					
Nonwhite core	<i>b</i>	−2.208	−2.208	0.775	−0.492
	<i>t</i>	−4	−4	2.82	−1.84
White core	<i>b</i>	0.458	0.458	0.432	0.236
	<i>t</i>	0.95	0.95	1.42	0.92
Nonwhite outside core	<i>b</i>	−1.172	−1.172	0.94	0.015
	<i>t</i>	−1.64	−1.64	2.49	0.04
Fairness	<i>b</i>			1.228	0.729
	<i>t</i>			30.72	15.71
Instrument (iv_pre_com2m)	<i>b</i>				1
	<i>t</i>				−
White outside core (constant)	<i>b</i>	0.268	0.268	−0.348	−0.009
	<i>t</i>	1.36	1.36	−2.47	−0.07
<i>Residual variances</i>					
Fairness	σ^2	6.634	2.979	6.634	1.915
	<i>t</i>	16.18	16.15	16.18	13.76
Effectiveness	σ^2	18.149	18.149	8.151	6.115
	<i>t</i>	19.87	19.87	15.94	12.95
<i>Residual covariance (residual fairness, residual effectiveness)</i>					
Covariance		8.144			
	<i>t</i>	14.52			

Note: Results from structural equation models, using weighted data (unweighted $n = 1,289$), 2003 Philadelphia Area Survey/Pennsylvania Life Survey. Fairness and effectiveness = latent variables based on common measurement model for all groups, derived using generalized structural equation models using ordinal logit estimation. Latent variables treated as observed outcomes in structural equation models. Model 1: correlated errors in the two outcomes. Model 2: mediating model where effectiveness \rightarrow fairness. Model 3: mediating model where fairness \rightarrow effectiveness. Model 4: Non-recursive model; fairness $\leftarrow \rightarrow$ effectiveness. Multi-item instrument for each common latent factor used.

3.3.1. Fairness

Whites outside the core counties reported mean perceived fairness significantly above the average of the other three groups ($p < .001$, all models). Further, nonwhites, whether in or outside of the urban core counties, perceived the police treat citizens less fairly than did whites outside the core counties (all p 's $< .001$). Additionally, whites in core counties saw as much fairness as whites in non-core counties. These links held regardless of how the relationship between fairness and effectiveness is modeled. The mean differences on perceived fairness appear to be generated by race but not place differences. As such, they support Weitzer and Tuch's (2005a) original extension of the group position thesis to police.

3.3.2. Effectiveness

Patterns of mean differences in effectiveness proved more contingent on the specific modeling choices. For example, only when fairness has a recursive impact on effectiveness (Model 3) does the effectiveness perceived by whites in non-core counties differ significantly from the sample average, and it does so by going significantly ($p < .05$) below the average effectiveness perceived by the other three groups.

Further, it is only in this model (3) with impacts of fairness on effectiveness controlled that non-whites outside the core counties see a different ($p < .05$) level of effectiveness than whites in the same counties: but they rate police as *more* effective, opposite the expectation from a Weitzer and Tuch perspective. Nevertheless, this theoretically unexpected difference surfaces only in model 3. In the model allowing a non-recursive relationship between effectiveness and fairness (model 4), there are no significant mean differences in effectiveness across the four groups.

One difference that was expected given Carr, Napolitano, and Keating's discussion about views toward police was that nonwhites in the core counties, for three of the four models, saw police as less effective than did whites living outside the core counties ($ps < .05$). Given the markedly higher violent community crime rates where core county nonwhites are living, this discrepancy seems plausible.

Nevertheless, the broader point from examining predicted effectiveness scores is that (a) the differences depend on how the relationship between fairness and effectiveness is estimated, but (b) in three out of four models nonwhites in urban core counties – probably living in the higher violent crime communities in those counties – see police as less effective than whites in safer counties outside the core. In one model (3) nonwhites in core counties see police as more effective.

4. Discussion

Two aspects of police legitimacy were of interest here: perceived effectiveness of police, and perceived fairness/procedural justice. Previous work has provided good evidence that these are two important threads in broader views about local police legitimacy (Tankebe, 2013), and that either or both of these views can link to important prosocial outcomes like cooperating with, reporting to or obeying local police (Kochel et al., 2013; Tankebe, 2009, 2013; Tyler, 2006a,b). The current investigation sought to advance work by addressing these elements in citizens' perceptions of local police legitimacy in two ways.

The first way was by unpacking the relationship between these two themes. Recent works have either argued that these two perceptions of the police simply co-vary (Jackson et al., 2012; Tankebe, 2013), or that effectiveness drives perceptions of fairness (Tankebe, 2008), or has modeled them as un-related endogenous variables (Kochel et al., 2013). An argument representing a psychological analog to the "reservoir of support" (Tyler, 2006b) created for institutions by their procedural fairness suggests that perceptions of legitimacy can elevate perceptions of effectiveness. Tankebe's (2008) reasoning, supplemented with rationales based on nonwhite urban adolescents' comments about the specific ineffectiveness of police as reflected in slow response times (Carr et al., 2007), together create a broader rationale for how perceptions of ineffectiveness can spawn perceptions of unfairness. This is the first work, to the authors' knowledge, that has attempted to specify simultaneously how fairness affects effectiveness and effectiveness affects fairness. To the extent that the current work has succeeded in finding significant links in both directions, this raises *potential* questions about misspecified models in prior works which have examined how these two connect and have specified a direction to the relationship, but have specified it in *only* one direction.

The current project extended earlier work in a second way, by examining the extent to which mean levels of perceived fairness and effectiveness, and the strengths of the impacts of one on the other, depended on both race and place. An ecological extension of Weitzer and Tuch's (2005a,b) modified group position thesis about race-linked superordinate vs. subordinate societal positions suggested that race and race and place combined mattered for all these concerns. Weitzer and Tuch's (2005b: 1027) "extension of the group-position thesis holds that views of social institutions will be influenced by group interests and perceived threats." More specifically with the extension here, the nonwhites likely to be most subordinate in relation to whites would be nonwhites outside Pennsylvania's two largest urban core counties. The two largest urban core counties are racially mixed making nonwhites less subordinate to whites there.

4.1. Unpacking the relationship

Turning attention first to the overall connections between fairness and effectiveness, results extended previous work in three ways. For this sample, impacts of effectiveness on fairness, observed in some prior works (Tankebe, 2008), were observed here *even after* controlling for the effects of fairness on effectiveness. Prior studies considering this connection

may have over-estimated this connection by failing to control for the reverse relationship. But that impact does persist, so results here underscore the importance of perceived organizational effectiveness as a foundation contributing to perceived agency legitimacy (Tankebe, 2008). Second, current results provide intra-individual evidence, we believe for the first time, of the “reservoir of support” created for institutions seen to act with greater procedural fairness, while simultaneously controlling for impacts of effectiveness on fairness. This extends already existing support for arguments (Tyler, 2004) about benefits arising from institutions acting fairly with constituents. Third, results from the common measurement model observed markedly larger impacts of fairness on effectiveness than of effectiveness on fairness (Table 2). This is the stronger connection of the two, and was less influenced either by race, place, or race/place intersectionality. This confirms the central relevance of fairness perceptions in the broader police legitimacy construct.

4.2. Variations in the relationship

Considering all the results here, there is some suggestion of race/ethnicity-location intersectionality, but most generally the results simply support race/ethnicity-based differences. More specifically, results from the common measurement model revealed stronger impacts of effectiveness on fairness for whites compared to nonwhites. Even when whites and nonwhites were compared just within county types, non-overlapping confidence intervals suggested the same conclusion. This race differential provides further support for Weitzer and Tuch’s expanded group position thesis by suggesting that it holds in situations whether nonwhites are clearly in the minority or not.

Although our extension of Weitzer and Tuch’s modified group position thesis expected to see less of a race differential in impacts of effectiveness on fairness in urban core counties, Carr et al.’s (2007) work on nonwhites’ perceptions of police specific ineffectiveness provided a rationale for race differences in urban core counties. Nonwhites, compared to whites, in the urban core counties are living in higher violent crime communities, resulting in more instances of slower police response times given more sizable workloads for police in these locations. This leads those residents to infer more strongly, given such laggardly responses, inadequate attention to their concerns. Klinger’s (1997) work on district level norms about what types of incidents are responded to with what levels of action given serious crime district workload levels provides a police organizational counterpart to the resident-based inferences that may have been behind the urban county differences seen here.

In short, given the theoretical frames brought to bear here, there are two theoretical possibilities for race/place intersectionality. One possibility is that the ecological extension proposed here is not needed, and Weitzer and Tuch’s modified thesis is sufficiently explanatory for the race differences seen in how effectiveness affects fairness. Another possibility is that the ecological extension proposed here does apply to the race differential in the counties outside the major urban cores, and that a different dynamic, perhaps linked to community violent crime levels and district police workloads applies inside the major urban core counties. Which route to go can be answered by future work comparing counties or communities with comparable crime levels but markedly different racial compositions, e.g., predominantly white vs. racially mixed.

4.3. Limitations and strengths

Of course, this study has numerous limitations. Although the race/ethnicity factor and the locational factor have proven relevant to past research, numerous relevant additional features also could prove relevant to creating these differences in how citizens organize their perceptions of local police. For example, socioeconomic status differences may moderate or diminish the race/ethnic differences seen here (Weitzer and Tuch, 2005b). Further, by disaggregating nonwhites, additional research may clarify differences between Latinos and African-Americans. Similarly, delving more deeply into place-based differences by using smaller spatial aggregations, including the investigation of neighborhood level factors (MacDonald et al., 2007; Schuck et al., 2008) or city-level crime or policing parameters (Sharp and Johnson, 2009), also might clarify further the nature of these relationships. The purpose of the current work was not to probe behind these expected group differences, but simply to see if they surfaced.

A further limitation is that instrumental variables were used to model the non-recursive relationship between fairness and effectiveness. Instrumental variable methods, including 2-stage least squares, have their detractors. For example, there are potential issues of weak instruments and weak identification (Staiger and Stock, 1997; Stock et al., 2002). But in the procedures here the instruments developed correlated moderately strongly with both predicted fairness and predicted effectiveness. Further, many of the concerns applicable to estimation using instruments (Wooldridge, 2010: 91) apply less here because the instrument was assigned a loading of 1.0 and was not estimated. That said, a stronger design would estimate these bidirectional relationships with longitudinal panel data to see how much changes in one shape changes in the other. Albeit stronger, that design too would have its limitations because police attitudes seem to be less susceptible to change over time for some racial or ethnic groups (Rosenbaum et al., 2005).

The above limitations are partially countered by several study advantages. (1) A survey probability sample closely matching the intended population was used as the data source, and the main estimation models applied survey weights to even more closely approximate population parameters. (2) Measurement models explicitly acknowledged the ordinal structure of questionnaire responses. (3) The common confirmatory measurement model linked all indicator variables with their intended latent index in the expected direction and with high ($p < .001$) levels of significance. (4) Finally, key results observed with the predicted index scores built from the common measurement model replicated with predicted index scores built from the group-based measurement models.

4.4. Practical/policy implications

Practically speaking, a better understanding of determinants of citizens' perceptions of legitimacy is important for the police as legitimacy has been linked with greater compliance with the law by citizens and it generally enhances the likelihood of citizen cooperation with the police. The latter may ultimately produce safer communities (Tyler, 2006a). Results here arguably suggest attempts to enhance police procedural fairness should not lose sight of perceived effectiveness concerns. Both these threads are bound up in a reciprocal relationship. At the same time that fairness bolsters perceived effectiveness, *even after controlling for this* perceived effectiveness also bolsters perceived fairness. Attempts to increase police legitimacy police should not exclusively emphasize fairness concerns or effectiveness concerns since each drives the other.

Where should police agencies put their efforts given their limited resources? Should they focus more on trying to be more fair and/or doing things that elevate perceived fairness? Or on trying to be more effective? This is a challenging question for three reasons. First, the bedrock mission of police agencies is ensuring public safety. The primacy of that mission component seems unassailable. Second, in times when public safety seems to have improved, probing questions intensify when police respond aggressively, and thus implicitly discount procedural fairness, in situations where they are confronting nonwhite citizens committing misdemeanors. The concerns raised in the wake of Eric Garner's death from a police chokehold after pulling away from an officer trying to handcuff him, an incident that took place in north Staten Island in New York City in July of 2014, underscore this point (New York Time Editorial Board, 2014). Third, as Carr et al. (2007) found, police are viewed as part of a larger crime control solution. Avoiding encounters with nonwhite citizens when serious crimes are not in question might be seen as one way to avoid negative confrontations between citizens and police, and thereby elevate perceived fairness. But doing so could harm crime control efforts as citizens see police under-policing and under-serving specific communities and thus decide to cooperate less with police and other public agencies.

5. Conclusion

In sum, recent work has highlighted the central relevance of both procedural justice/fairness and effectiveness themes to the broader police legitimacy frame (Tankebe, 2013). No works to date, however, have simultaneously examined the mutual influence of each theme on the other, nor how that pattern of influence might vary depending on race, or place, or race/place intersectionality. In accord with Tyler's (2006b) emphasis on the central role of procedural justice and his idea of the "reservoir of support" generated by agencies acting even-handedly, the current work found stronger effects of fairness on effectiveness than of effectiveness on fairness. That said, results here also extended Tankebe's (2008) previously observed impacts of effectiveness on fairness. That link holds in this sample *even after* controlling for impacts of fairness on effectiveness. Further, in line with a further theoretical expansion of Weitzer and Tuch's (2005a,b) modified group position thesis, the current investigation finds that impacts of effectiveness on fairness vary substantially by race.

Appendix A

Measurement model results.

Generalized structural equation model/Common solution				
Survey item number	Coef.	Std. Err.	z	p <
<i>Procedural Justice</i>				
j10_new	1 (constrained)	–	–	–
j9_new	.8084	.0511	15.80	.001
J11_new	.9705	.0729	13.30	.001
J13_new	.7985	.0572	13.95	.001
J14_new	.5118	.0390	13.09	.001
J15_new	1.0657	.0860	12.38	.001
J16_new	.57168	.0442	12.93	.001
J17_new	.7707	.0593	12.99	.001
<i>Police Effectiveness</i>				
J7_new	1 (constrained)	–	–	–
J8_new	.4936	.0958	5.15	.001

Note: Number of obs = 1315. Log likelihood = –11294.739. Source: 2003 Philadelphia Area/Pennsylvania Life Survey, Pennsylvania respondents only. Results based on ordinal logit model. Data not weighted.

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