Fuzzy Relationships: Procedural Justice and Citizen Cooperation in Developed and Developing Countries

Jaehee Park

The process-based model of regulation suggests that policies eroding public confidence and support, such as New York City’s Stop and Frisk, lead to lower rates of citizen cooperation with authorities. After Sunshine and Tyler’s seminal 2003 article introducing the process-based model, additional researchers have examined the relationship between procedural justice, or citizens’ perceptions of fairness, and levels of cooperation with government authorities. This paper’s meta-analysis of seven independent studies finds a modest correlation between procedural justice and cooperation ($\rho=0.367$). My results suggest that socio-economic context moderates the relationship between procedural justice and cooperation. The procedural justice-cooperation relationship was stronger in developed countries ($\rho=0.376$) than in developing countries ($\rho=0.271$). Researchers should further explore data from developing countries to determine how factors differentiating developed and developing nations influence relationships between authorities and citizens.

Introduction

A citizen’s views of the legitimacy of a legal authority can influence his or her willingness to comply with regulations.1 Citizens, as a result, may refuse to cooperate with the police because they distrust law enforcement officers.2 Psychologist Tom Tyler concludes that when people perceive that legal authorities treat them respectfully and make decisions in a trustworthy, neutral and transparent way, citizens will view the police as more legitimate.3 This trust leads to cooperation.4 Known as the “process-based model,” Tyler suggests that the authorities’ abilities to reduce crime and interact with citizens are key to public trust and support.5 This model

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assumes that citizens’ cooperation with police is grounded in their confidence in the police service.  

Empirical evidence explaining the connection between procedural justice and cooperation continues to grow. Despite the increasing acceptance of the process-based model, several fundamental issues remain. Since most studies rely largely on samples from developed countries, the strength of the relationship between procedural justice and cooperation and the implications of this relationship may not be valid in other contexts. To address these issues, I conducted a meta-analysis of seven studies that reported correlation factors between procedural justice and cooperation with examined research context as a moderator. This meta-analysis seeks to evaluate the strength of the relationship, as well as the extent to which its magnitude changes within different socioeconomic and authoritative contexts.

Operationalization of procedural justice and cooperation
To measure procedural justice, all seven studies used two key components of procedural justice drawn from the relational model of authority — quality of decision-making and quality of interpersonal treatment. Specific components were used to measure concepts of voice, respect and neutrality, indexing voluntary cooperation with authorities, measure self-report compliance behavior, and capturing willingness to help police officers.

Method

Literature search & Inclusion and exclusion criteria
Sunshine and Tyler’s process-based model is one of the most influential frameworks for procedural justice in the context of legal authority. As a preliminary step, I conducted an extensive literature search for studies published after Sunshine and Tyler’s that included the keywords procedural justice, procedural fairness, cooperation, police, and legitimacy. The primary criterion for inclusion in this meta-analysis was that the study reported correlation between a measure of procedural justice and a measure of cooperation. Although many criminal justice and organizational justice studies measure both procedural justice and cooperation, very few studies reported the observed correlation between the two constructs. Therefore, many studies of criminal justice and organizational justice were excluded from the current analysis. On the basis of this criterion, I included seven correlations from seven studies. All seven studies reported the effect size in terms of a correlation coefficient (r) and reliabilities of each measurement (Cronbach’s \( \alpha \)).

Moderator Variables
Two study characteristics were coded as potential moderators of the relationship between procedural justice and cooperation. These traits were 1) the research context (police versus non-police) and 2) the country of study (developed country versus developing country). In line with the International Monetary Fund’s World Economic Outlook Report, the United States and

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7 David DeCremer and Tom R. Tyler, “The Effects of Trust in Authority and Procedural Fairness on Cooperation,” Journal of Applied Psychology 92, no. 3 (2007); Tyler, 2003; Reisig and Lloyd, 2009; Murphy, Tyler, and Curtis, 2009; Tankebe, 2009; Murphy and Cherney, 2011.
Australia are identified as “developed countries” and Ghana and Jamaica are identified as “developing countries.”

Potential moderators included police versus non-police states and developed versus developing countries.

<table>
<thead>
<tr>
<th>Research context</th>
<th>Police</th>
<th>Non-police</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed countries</td>
<td>De Cremer &amp; Tyler (2007), Murphy, Tyler, &amp; Curtis (2009c), Murphy &amp; Cherney (2011)</td>
<td>Murphy, Tyler, &amp; Curtis (2009a), Murphy, Tyler, &amp; Curtis (2009b)</td>
</tr>
<tr>
<td>Developing countries</td>
<td>Reisig &amp; Lloyd (2009) Tankebe (2009)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

(Murphy, Tyler, and Curtis, 2009, a: taxation context; b: social security context; c: law enforcement context)

**Meta-analysis procedure**

I used psychometric meta-analysis, also known as the Hunter & Schmidt Random Effect Meta-Analysis, to correct a distribution of observed correlation coefficients in order to estimate the distribution of population coefficients. For the overall meta-analysis and the moderator meta-analysis, I made corrections to account for the unreliability of both procedural justice and cooperation measures and for sampling error.

The meta-analytical results include the weighted mean ($r$), the standard deviation of the weighted mean ($\sigma$), and the sampling error variance ($\sigma_{SE}^2$) of the observed distribution. The results provide an estimated mean of the population distribution ($\rho$), the standard deviation of the population distribution ($\sigma_{\rho}$), and the credibility interval (95 percent CR). The standard deviation of the population distribution ($\sigma_{\rho}$) represents the degree of dispersion remaining after sampling error variance, and the variance due to other artifacts has been removed from the observed variance.

The credibility interval can help us determine if moderators exist. If the credibility interval is wide, I need to explain the source of the remaining variance. The source of the remaining variance could be attributed to moderators or to statistical artifacts for which no corrections were performed.

**Results**

**Relationship Between Procedural Justice and Cooperation**

The weighted mean correlation between procedural justice and cooperation was 0.38. Across all seven studies, the estimated population value for the procedural justice-cooperation relationship was 0.46, CI$_{95} = [0.05, 0.88]$ (see Table 2). However, this number might overstate the true population mean because there is a potential outlier in this study. De Cremer and Tyler’s

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11 Borenstein et al., 2009.
correlation ($r=0.77$) is much higher than that of the other studies. After deleting one extreme effect size ($r=0.77$), the weighted mean correlation between procedural justice and correlation changed to $0.37 \text{ CI}_{95} = [0.27, 0.47]$ (see Table 3). Thus, the outlying study was responsible for substantial heterogeneity in the distribution of effects.\footnote{David De Cremer and Tom R. Tyler, “The Effects of Truth in Authority and Procedural Fairness on Cooperation,” \textit{Journal of Applied Psychology} 92, no. 3 (2007): 639-649.}

\textit{Homogeneity}

To evaluate population homogeneity, I employed the 75 percent rule.\footnote{Hunter and Schmidt, \textit{Methods of Meta-Analysis}.} This rule states that the presence of moderators is likely if more than 25 percent of the population variance remains after correcting for sampling error and other correctable artifacts in the procedural justice or cooperation measures.\footnote{Neil M.A. Hauenstein, Tim McGonigle, and Sharon W. Flinder, “A Meta-Analysis Of The Relationship Between Procedural Justice And Distributive Justice: Implications Of Justice Research,” \textit{Employee Responsibility and Rights Journal} 13 (2001): 39-56.} Sampling error explains less than one percent of the variance in the correlation (see Table 2), suggesting moderators were likely present. The large credibility interval $[0.05, 0.88]$ also suggests the presence of moderators (see Table 2).

\textit{Moderator Analysis}

For the initial assessment of the context specificity of the procedural justice and cooperation relationship, I performed four separate meta-analyses of studies involving developed countries (k=5) versus developing countries (k=2) contexts and police authority (k=5) versus non-police authority (k=2) contexts.

In the psychometric meta-analysis literature, two criteria should be satisfied to classify a factor as a moderator: the estimate population mean of at least one moderator subgroup should differ from the estimated population mean of the distribution of all effects, and the estimated population standard deviation for all moderator subgroups should be less than the standard deviation for the distribution of all effects. Often more consideration is given to the subgroup mean effect differences than is given to the subgroup differences in estimated standard deviations.

With respect to country context (developed compared to developing), both subgroup means ($\rho_{\text{developed}}=.477$; $\rho_{\text{developing}}=.271$) differ from the mean of the distribution of all effects ($\rho=.463$). However, the developed country subgroup population standard deviation is slightly larger than the population standard deviation of all effects ($\sigma_{\rho_{\text{developed}}}=2.1332 > \sigma_{\rho}=2.1245$). Conversely, the developing country subgroup population standard deviation is smaller than the population standard deviation of all effects ($\sigma_{\rho_{\text{developing}}}=2.1245 > \sigma_{\rho}=0.02102$). A second potential moderator in my study is authority context (police authority versus non-police authority). Both subgroup means ($\rho_{\text{police}}=.475$; $\rho_{\text{non-police}}=.302$) differ from the mean of the distribution of all effects ($\rho=.463$). However, police authority context studies’ population standard deviation is slightly larger than the population standard deviation of all effects ($\sigma_{\rho_{\text{police}}}=2.1273 > \sigma_{\rho}=2.1245$). The population standard deviation for non-police authority context studies is less than the population standard deviation of the distribution of all effects ($\sigma_{\rho_{\text{non-police}}}=1.2565$). Thus, neither of the two potential moderators satisfies the criteria.
After deleting an extreme sample \((r=0.770)\) from the outlying study, I reran the four separate meta-analyses for studies involving developed countries \((k=4)\) versus developing countries \((k=2)\) contexts and police authority \((k=4)\) versus non-police authority \((k=2)\) contexts.\(^{15}\) With regards to the country context, both subgroup means \((\rho_{\text{developed}}=.376; \rho_{\text{developing}}=.271)\) differ from the mean of the distribution of all effects \((\rho=.367)\). Furthermore, both subgroup population standard deviations are smaller than the population standard deviation of the distribution of all effects \((\sigma_{\rho_{\text{developed}}}=0.05450<\sigma_{\rho}=.05988; \sigma_{\rho_{\text{developing}}}=0.002102<\sigma_{\rho}=.05988)\). Thus, country context is likely a moderator of this relationship.

In my analysis of the second potential moderator (police authority versus non-police authority), I found that both subgroup means \((\rho_{\text{police}}=.373; \rho_{\text{non-police}}=.302)\) differ from the mean of the distribution of all effects \((\rho=.367)\). The studies of police authority have a population standard deviation that is smaller than the population standard deviation of the distribution of all effects \((\sigma_{\rho_{\text{police}}}=0.04458<\sigma_{\rho}=.05988)\). However, the population standard deviation for non-police authority context studies is larger than the population standard deviation of the distribution of all effects \((\sigma_{\rho}=0.05988<\sigma_{\rho_{\text{non-police}}}=0.12565)\). Thus, the police versus non-police authority context fails to satisfy the criteria and cannot be considered a moderator.

**Discussion**

The meta-analysis, after one extreme effect size \((r=0.77)\) was omitted, indicates a modest relationship between procedural justice and cooperation \((\rho=0.367)\). This relationship was moderated by one of the research contexts. Studies in developed countries highlighted a stronger procedural justice–cooperation relationship \((\rho=0.376)\) than was evident in studies of developing countries \((\rho=0.271)\). Socio-economic and cultural factors may cause the difference, since they differ significantly between countries and shape the power relationship between legal authorities and citizens. For example, Jamaican police misconduct such as unnecessary force and corruption disrupts their relationship with citizens.\(^{16}\) In Ghana, citizens’ views of police trustworthiness did not seem to relate to their expression of obligation to obey police orders.\(^{17}\) These case studies suggest that the process-based model does not explain the developing countries as well as it does the developed countries that have, to date, been explored.

However, a large amount of residual variance remained even when I accounted for socio-economic contexts. This result suggests that other moderators were unaccounted for in the study. Moreover, the number of study samples is too small \((k=7)\) to clearly interpret the current finding within the contexts. When more studies enter this meta-analysis, I can obtain a more accurate estimate of the population variance. Nonetheless, it is worth noting that this is the first study that provides a systematic investigation of the relationship between procedural justice and cooperation using peer-reviewed meta-analysis techniques. Moreover, this study provides a direction for future research on the process-based model. Researchers should pay more attention to a variety of cultural settings, particularly in developing countries, to make more definitive claims about the generalizability of the process-based model beyond the developed world.

\(^{15}\) DeCremer and Tyler.

\(^{16}\) Reisig and Lloyd.

\(^{17}\) Tankebe.
Conclusion

This analysis suggests that the country context, particularly economic development status, may moderate the central relationships of the process-based model—the relationship between procedural justice and cooperation. This analysis reveals that the process-based model might more accurately describe developed countries, however, it does not indicate that the process-based model is not applicable in developing countries. The model has been built on evidence from the United States to show the effect of legitimacy of legal authority on a citizen’s cooperation with regulations. The process-based model should be tested in more socio-economically and culturally diverse contexts to establish its applicability beyond the developed world. Applying the process-based model to more diverse context would provide a more robust understanding of the procedural justice system as applied in all socio-economic contexts in order to help shape policies surrounding the justice system.

Jaehee Park is a third year doctoral student and graduate assistant in the L. Douglas Wilder School of Government and Public Affairs at Virginia Commonwealth University. His recent research focuses on international faculty mobility. He is also interested in examining the interaction between citizens and legal authorities regarding trust and legitimacy.

APPENDIX

Table 1. Meta-Analytic Results (Without a Potential Outlier)

<table>
<thead>
<tr>
<th>Distribution</th>
<th>k</th>
<th>N</th>
<th>R</th>
<th>Σ</th>
<th>$\sigma^2_{SE}$</th>
<th>$\rho$</th>
<th>$\sigma_p$</th>
<th>95% CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>All studies</td>
<td>6</td>
<td>8329</td>
<td>0.2993</td>
<td>0.04471</td>
<td>0.00060</td>
<td>0.367</td>
<td>0.05988</td>
<td>(0.27,0.47)</td>
</tr>
<tr>
<td>Developed vs. Developing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed</td>
<td>4</td>
<td>7666</td>
<td>0.3058</td>
<td>0.04052</td>
<td>0.00043</td>
<td>0.376</td>
<td>0.05450</td>
<td>(0.28,0.47)</td>
</tr>
<tr>
<td>Developing</td>
<td>2</td>
<td>663</td>
<td>0.2244</td>
<td>0.00494</td>
<td>0.00273</td>
<td>0.271</td>
<td>0.02102</td>
<td>0.2244</td>
</tr>
<tr>
<td>Police vs. Non police</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police</td>
<td>4</td>
<td>7567</td>
<td>0.3053</td>
<td>0.02900</td>
<td>0.00044</td>
<td>0.373</td>
<td>0.04458</td>
<td>(0.30,0.44)</td>
</tr>
<tr>
<td>Non-police</td>
<td>2</td>
<td>762</td>
<td>0.2404</td>
<td>0.09841</td>
<td>0.00234</td>
<td>0.302</td>
<td>0.12565</td>
<td>(0.09,0.52)</td>
</tr>
</tbody>
</table>

Table 2. Meta-Analytic Results

<table>
<thead>
<tr>
<th>Distribution</th>
<th>k</th>
<th>N</th>
<th>R</th>
<th>Σ</th>
<th>$\sigma^2_{SE}$</th>
<th>$\rho$</th>
<th>$\sigma_p$</th>
<th>95% CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>All studies</td>
<td>7</td>
<td>9985</td>
<td>0.3774</td>
<td>0.1797</td>
<td>0.00052</td>
<td>0.463</td>
<td>0.21245</td>
<td>(0.05,0.88)</td>
</tr>
<tr>
<td>Developed vs. Developing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed</td>
<td>5</td>
<td>9322</td>
<td>0.3883</td>
<td>0.18119</td>
<td>0.00039</td>
<td>0.3883</td>
<td>0.18119</td>
<td>(0.0353,0.7413)</td>
</tr>
<tr>
<td>Developing</td>
<td>2</td>
<td>663</td>
<td>0.2244</td>
<td>0.00494</td>
<td>0.00273</td>
<td>0.2244</td>
<td>0.00496</td>
<td>0.2244</td>
</tr>
</tbody>
</table>
### Table 3. Study Samples

<table>
<thead>
<tr>
<th>Study</th>
<th>Author</th>
<th>Study Area and Sample</th>
<th>Measurement</th>
<th>Correlation Coefficient ($r$)</th>
</tr>
</thead>
</table>
| 1     | De Cremer and Tyler (2007) | 1,656 residents of two urban areas  
A stratified random sample  
Legal authority (i.e., police and court) | Procedural fairness (2 items); fairness of decision making and fairness of interpersonal treatment ($\alpha = .91$)  
Trust in authority (4 items); from models of motive based trust ($\alpha = .92$)  
Cooperation (voluntary cooperation with authorities) (4 items, $\alpha = .80$) | When trust is high, 58%; when trust is low, 21% Procedural fairness explains variance in cooperation, so trust in the authority moderates the effect of procedural fairness on people’s cooperation  
Procedural Fairness-cooperation (.77***)  
Procedural Fairness-trust (.83***), Trust-cooperation (.79***) |
| 2     | Murphy, Tyler, and Curtis (2009) | 652 Australia taxpayers  
A stratified random sample of 1,250 | Procedural justice (3 items, .79)  
Compliance (6 items, .80) | Procedural Justice-Cooperation (.20), Legitimacy-Compliance (.34***)  
Procedural Justice-Legitimacy (.03) |
| 3     | Murphy, Tyler, and Curtis (2009) | 110 Australia university students | Procedural justice (3 items, .84)  
Perceived legitimacy of laws (5 items)  
Compliance behavior (5 items, .73) | Procedural Justice-Cooperation (.48***)  
Legitimacy-Cooperation (.47***)  
Procedural Justice-Legitimacy (.41***) |
| 4     | Murphy, Tyler, and Curtis (2009) | 5,700 surveys  
A stratified random sample of Australian citizens | Procedural justice (3 items, .73)  
Perceived legitimacy of laws (2 items)  
Cooperation (4 items, .88) | Procedural justice-cooperation (.32***)  
Procedural justice-legitimacy of laws (.35***)  
Legitimacy of laws-cooperation (.20***) |
<p>| 5     | Reisig &amp; Lloyd | N=289 Jamaican | Cooperation with police (3 items, $0.61 &lt; r &lt; 0.65$, $\alpha = 0.73$) | Procedural justice-police legitimacy (.15***) |</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Study</th>
<th>Sample Description</th>
<th>Measures</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>High School Students Survey</td>
<td>Procedural justice (6 items, .18 &lt; r &lt; .48, α = .71)</td>
<td>Procedural justice-cooperation with police (.23**) Distributive fairness-cooperation with police (.15*) Police legitimacy-distributive fairness (.13*) Procedural justice-distributive fairness (.32**)</td>
<td></td>
</tr>
</tbody>
</table>