Latinos and Environmental Justice: Examining the Link between Degenerative Policy, Political Representation, and Environmental Policy Implementation

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Abstract

The theory of social construction and policy design is insightful for exploring the circumstances in which the allocation of policy benefits and burdens is attributed to the feed-forward effect of degenerative policy that institutionalizes bias and reinforces the prevailing categorization and embedded social meaning regarding target populations. However, this theoretical framework has not been broadly adopted to analyze the environment-related phenomena. With a nationwide, block-group-level sample, this study examines the extent to which degenerative policies pertaining to immigrants influence state agencies' environmental regulatory outputs for predominantly Latino communities. Results show that in the states with moderately to most restrictive immigrant policy and high levels of Latino representation in legislatures, the rigorousness of government agencies' compliance monitoring activities decreases for Latino neighborhoods of environmental justice concern, as states' policy stance toward immigrants becomes more unfavorable. More Latino elected officials do not bolster policy implementation efforts for the vulnerable communities or offset the backlash effect of immigrant policy.

KEY WORDS: Latinos, immigrant policy, environmental justice, policy implementation, social construction, degenerative policy, political representation

Introduction

In the theory of social construction and policy design, social construction and degenerative policy are two closely related concepts (Schneider & Ingram, 1997; Schneider, Ingram, & deLeon, 2014). Social construction refers to "the cultural characterizations or popular images of the persons or groups whose behavior and well-being are affected by public policy" (Schneider & Ingram, 1993, p. 334). Degenerative policy is characterized by "the exploitation of derogatory social constructions, manipulation of symbols or logic, and deceptive communication that marks the true purpose of policy" (Ingram & Schneider, 2005, p. 11). The socially perceived deservingness of different social groups is embedded in group-centric, degenerative policy design, which in turn conveys and reinforces the messages regarding the categorization of target populations, engendering profound implications for multiple aspects of democracy (e.g., justice, citizenship, democratic institutions, problem solving) (Mondou & Montpetit, 2010; Nowlin, 2011; Schneider, 2012; Schneider & Sidney, 2009). In many policy domains, the allocation of policy benefits and burdens is contingent on the stereotyping of target populations (Pierce et al., 2014). Despite the burgeoning scholarship, this theoretical framework has not been broadly adopted to analyze the environment-related phenomena or the feed-forward effect of degenerative policy design on government's public service delivery for populations of environmental justice concern (for exception, see Al-Kohlani & Campbell, 2016; Liang, 2016).

In the theoretical frameworks of social construction, the feed-forward effect of policy design, and political power, this article explores how group-centric degenerative policy regime and political representation independently and jointly influence state agencies' environmental policy implementation for the vulnerable Latino population. Specifically, this study contributes to the literature of policy process and environmental studies in two important respects.

Conceptually, this study, from a policy-centric lens, examines the extent to which two degenerative policies (i.e., welfare and immigrant[1]) pertaining to immigrants influence government agencies' environmental regulatory outputs for communities that are largely comprised of Latinos[2]. Environmental policy implementation serves as an apt setting for exploring environmental justice issues and the feed-forward effect of degenerative policy. As Schneider and Sidney (2009) succinctly put it, "Next-generation studies need to pay considerably more attention to how public policy impacts the conditions of American democracy, especially issues of inequality" (p. 108). The experiences of Latinos remarkably illustrate the feed-forward effect of group-centric, degenerative policies on their receipt of public goods and services (Ingram & Schneider, 2005; Schneider, Ingram, & deLeon, 2014; Newton, 2005). This phenomenon is heightened in the context that immigrant and social policies intrinsically, in an intertwining way, categorize Latinos as less deserving social members (Zhu & Xu, 2015). Although cumulative evidence in environmental justice studies indicates that government agencies' regulatory enforcement actions vary across different groups of color, a research gap remains with respect to the disparate patterns and mechanisms. As Konisky and Schario (2010) noted, "The divergent results for facilities in large African-American and Hispanic areas highlight the importance of considering these minority groups separately, something that is not always done in the extant literature" (p. 845).

Methodologically, this study employs a nationwide, block-group-level sample to evaluate the research questions. Selection of an appropriate spatial scale (e.g., block group, census tract, zip code, county) for analysis is a salient and omnipresent methodological issue in environmental justice research (Baden, Noonan, & Turaga, 2007; Lester, Allen, & Hill, 2001; Ringquist, 2005). This issue is concerned about ecological fallacy or aggregation bias that assumes demographic

homogeneity within a geographical unit and disguises intra-locality variations (Anderton, 1996; Hird & Reese, 1998, p. 698-699, 711). Although states' environmental policy implementation structures are primarily premised at the county level (Baden, Noonan, & Turaga, 2007; Lester, Allen, & Hill, 2001; Liang, 2016; Lynch, Stretesky, & Burns, 2004; Williams, 1999) and county-level findings on regulatory enforcement inequity largely comport with prior work employing smaller spatial scales (Konisky, 2009; Konisky & Schario, 2010; Liang, 2016), it is imperative to examine the research questions based on an analytical unit that is more robust to aggregation bias.

Results of a multilevel, cross-sectional analysis show that in the states with moderately to most restrictive immigrant policy and high levels of Latino representation in legislatures, the rigorousness of government agencies' environmental compliance monitoring activities decreases for predominantly Latino block groups, as states' policy stance toward immigrants becomes more unfavorable. In addition, more Latino elected officials do not bolster policy implementation efforts for the vulnerable communities or offset the backlash effect of immigrant policy. In the rest of the article, the next section reviews the theory of group-centric, degenerative policy and its feed-forward effect, as well as the experiences of the Latino population in this policy system. It then conceptualizes environmental policy implementation inequity in degenerative policy paradigm and develops hypotheses. The fourth section describes data sources, measures of variables, and the estimating models. After reporting results in the fifth section, the article discusses the findings and their implications for understanding environmental justice in policy implementation process. Summary remarks conclude the article.

Target Population, Degenerative Policy, and the Feed-Forward Effect

The theory of degenerative politics posits that government's policymaking and distribution of benefits and costs among different societal members are a function of political

power and categorization of target populations. Political power of social groups has long been considered as a critical factor related to obtaining benefits and averting costs in policy formulation and implementation process. "The political power of a target group refers to the extent of its political resources, such as whether it is large, united, easy to mobilize, wealthy, skilled, well positioned, focused on issues of concern to it, accustomed to voting and contacting public officials, and so on" (Schneider, Ingram, & deLeon, 2014, p. 109-110). Categorization of target populations relates to the groups' valence or social construction "as worthy and deserving and contributing to the general welfare or as less worthy and undeserving and being a burden on the general welfare of society" (ibid, p. 110). Across various policy domains, the more deserving target populations are perceived to be, the more benefits or fewer burdens the groups are expected to receive from government (Pierce et al., 2014; Schneider, Ingram, & deLeon, 2014). Understood through the lens of categorization of target populations, race and ethnicity may no longer simply be a demographic characteristic, but rather a contextual denotation of the social positions of particular segments of people in terms of their deservingness of government's responsibility and attention as well as of the rights to goods and benefits in society. More important, the feed-forward ("reciprocal") effect of degenerative policy is able to institutionalize bias and solidify the prevailing categorization and embedded social meaning regarding target populations in a broader scale of institutions and culture (Nowlin, 2011, p. 51; Pierson, 2007; Schneider, Ingram, & deLeon, 2014; Schneider & Sidney, 2009). Put another way, public policy is both a product (as a dependent variable) and creator (as an independent variable) of broader institutional environments and political forces (March & Olsen, 1989, p. 162; Nowlin, 2011; Pierson, 1993). "When policies – backed by the full authority of the state – embrace negative

constructions of groups, they legitimate these constructions and help spread them throughout society" (Ingram & Schneider, 2005, p. 21).

Scholars suggest that political and social actors behave in ways that accord with collectively defined and politically institutionalized rules, norms, identities, beliefs, and practices that have overt or covert value judgments and normative implications (Soss & Schram, 2007, p. 100; "whose justice and what rationality has primacy", March & Olsen, 2006, p. 691). Public bureaucracies, who perform numerous policy implementation activities and wield a broad range of discretionary authority, are considered as a key policy maker (Lipsky, 1980; Wilson, 1989). Empirical evidence shows that street-level bureaucrats can "put the fix on clients and adjust their services upward or downward based on clients' perceived deservedness" (Schneider, Ingram, & deLeon, 2014, p. 115). Maynard-Moody and Musheno (2003) displayed two coexisting but conflictual roles of front-line public bureaucrats. As state agents, front-line public officials are mandated to implement policies and enforce regulations based on standards of fairness, equity, and the rule of law. As citizen agents, public administrators may be willing to overcome difficulties in daily work setting, contribute more efforts and resources, and even circumvent laws to help clients they judge as worthy of assistance, whereas they may create barriers to government entitlements for the undeserving clients or "get the bad guys". Subtly but plausibly, public bureaucracies are exposed to the feed-forward effect of degenerative policies that "convey powerful messages about who matters in our society and who does not and what kinds of people get served by government and who is ignored or punished" (Ingram & Schneider, 2005, p. 19) and make decisions in accordance with the policy regime's underlying logic.

Latinos, Immigrant Policy, and Political Representation

Over the past decades, Latinos have been negatively regarded in the intersection of social and immigrant policies in the U.S. (Abrajano & Hajnal, 2015; Fix, 2009; Gilens 1999, p. 71; Graefe et al., 2008; Hero & Preuhs, 2007; Park, 2011; Zhu & Xu, 2015). "Immigration is central to the growth and identity of the Hispanic population", which contributes to the largest increase in the total population of the U.S. (Pew Research Center, 2016). Restrictive immigrant policies are, in part, attributed to the widespread negative social stereotyping and behavioral assumptions related to Latino newcomers (Chavez, 2008; Newton, 2008; Schneider & Ingram, 2005). "Illegal immigrants" have emerged as "deviants" whose meritoriousness is questionable; and their claims are deemed to be illegitimate (Newton, 2005; Schneider & Sidney, 2009). Unlike the categorization of African Americans, in which socialization and culture play a key role, Latinos are a "legally racialized" ethnic group because of their national origin and foreign status (Chavez, 2008, p. 24). Issue of unauthorized immigrants of Hispanic origin has been portrayed as "an illegitimate status hierarchy: those who are 'illegal' are trying to obtain rights or benefits reserved for legal Americans" (Branton et al., 2011, p. 668) and Mexicans as "illegitimate members of society undeserving of social benefits" (Chavez, 2008, p. 3).

In the meantime, federal and state immigrant policymaking (e.g., the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, or the IIRAIRA) constitutes a critical contextual factor for building and shaping the perception of Latinos' deservingness (Abrajano & Hajnal, 2015). These government activities represent "an exercise in inclusion and exclusion when it comes to defining who is legitimately able to join the community of citizens" (Chavez, 2008, p. 6). Public policy, which is an authoritative recognition of immigrants' contributions or burdens to American society, exerts remarkable feed-forward impact that helps reify illegality and unworthiness as the stigmatized marker of Mexican or Latino Americans at large (Pew

Research Center, 2007; Menjívar & Abrego, 2012; Ngai, 2005, p. 127-166; Schneider & Ingram, 2005, p. 140). Policy reforms, like the IIRAIRA, have distinguished between the "right" and "wrong" types of immigrants, highlighted the image of illegal "freeloaders" who garner benefits at the expense of hard-working, taxpaying citizens, and further conveyed these unequivocal messages to target populations as well as to the general public (Chavez, 2008; Nowton, 2005, 2008). Furthermore, states' discretion on granting the access of immigrants to means-tested assistance programs has been substantially expanded (Zhu & Xu, 2015). As such, immigrant policies, which represent "the legal production of race-based criteria" (Newton, 2008, p. 13), are particularly important to comprehend the relative social worth of Latino newcomers (Donato & Armenta, 2011; Menjívar & Abrego, 2012).

Despite the entrenched degenerative policy regime that explicitly or implicitly targets Latinos, the group's descriptive representation in policymaking institutions, which is a critical part of political power, can translate into favorable policy outputs for the group (Bratton, 2006; Wallace, 2014). In some instances, political representation counteracts the negative valencing effect on the Latino population. Rocha and Matsubayashi (2013) found that the increased size of Latino citizens is related to more favorable policy outcomes for the group. However, the increased size of Latino noncitizens dampens the policy benefits, but to a varying extent, such backlash effect is weakened by Latino descriptive representation. Similarly, Preuhs (2007) demonstrated that as public assistance programs have been increasingly racialized and limited given the greater presence of Latino welfare recipients, Latino representation in state legislatures is able to offset racial resentment. Nevertheless, this moderating effect is observed only in a number of states with a large size of Latino populations.

Conceptualizing Environmental Justice in Degenerative Policy Paradigm

Environmental justice describes "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (U.S. GAO, 2011, p. 1). Alongside the uneven environmental hazards observed in socially marginalized and economically disadvantaged communities (Lester, Allen, & Hill, 2001; Mohai, Pellow, & Roberts, 2009; Mohai & Saha, 2015; Ringquist, 2005), government's inequitable implementation practices encountered by people of color (e.g., African Americans, Hispanics, American Indians) have drawn increased attention of scholars and practitioners (Konisky, 2009; Konisky & Schario, 2010; Liang, 2016; Lynch, Stretesky, & Burns, 2004; Malley, Scroggins, & Bohon, 2012; Mennis, 2005; Opp, 2012; Spina, 2015; Teodoro, Haider, & Switzer, 2016).

Scholars have increasingly conceptualized race/ethnicity-based environmental inequity in terms of group recognition (Pulido, 1994; Schlosberg, 2007), essentially sharing substantial common ground with the politics of deservedness and degenerative policy (see Liang, 2016 for an extensive review). As Young (2011[1990]) contended, the conventional perception of distributive injustice neglects institutional contexts and social structures that produce patterns of distribution (p. 15). In a similar vein, Fraser (1996) argued that "what counts as a contribution to society" shapes "the social meanings and the relations of recognition" of target populations (p. 56). With an extensive case study analyzing the environmental well-being of Latino newcomers in Aspen, Colorado, Park and Pellow (2011) suggested that environmentalism connected with nativism and anti-immigrant policy has been part of environmental political discourse. Local ecological protection has been framed as questions of "preservation for whom and for what purpose", leading to a dichotomous relation between citizen-whites and immigrant-others (p. 13,

21). Latino immigrants' experiences of environmental inequities are one of the telling instances of "the confluence of environmental and cultural entitlements" (p. 14).

Another noteworthy link between policy implementation inequity and the politics of deservedness lies in the bidimensional issue context of environmental policy (Liang, 2016). Along with its inherent regulatory feature, environmental policy is also defined by redistributive politics, in terms of problem diagnosis (e.g., whether and to what extent environmental benefits and costs are allocated inequitably across subpopulations) and policy prescription (e.g., how government devises approaches to redressing existing, if any, inequities and averting potential inequities; what procedural and substantive inequities might be incurred as a result of government's policy intervention). As discussed earlier, public administrators exercise broad discretion in the process of policy implementation and program management. It is no exception in environmental policy (Rinfret & Pautz, 2014; Waterman, Rouse, & Wright, 2004). As such, in a setting characterized of administrative discretion, contested issue framing, and multiple policy goals, it is reasonable to anticipate that environmental policy implementation is susceptible to the feed-forward effect of "a broader group-centric, degenerative policy context that has an inherent redistributive dimension and reinforces the messages regarding different citizens' social worth and deservedness of government's attention and assistance" (Liang, 2016, p. 555).

Recent empirical studies show that the uneven environment-related benefits for various social groups are, to a varying extent, the aftermath of their differentiated social categorizations. Al-Kohlani and Campbell (2016) found that in a rank-order way, the magnitude of air pollution in California Central Valley cites is positively associated with the degree of negativity of target populations' social constructions (i.e., advantaged: higher education attainment and business firms, contenders: banks, dependents: children under 18 and single mothers, deviants: prisons

and crimes). Liang (2016) examined the effect of welfare policy, which is a notable degenerative policy targeting African Americans, on state agencies' environmental policy implementation outputs for this group in the National Pollutant Discharge Elimination System permit program of the Clean Water Act. Results showed that government agencies' regulatory inspections and punitive actions are consistently less rigorous for predominantly black counties in the states that have less generous welfare benefits or have more stringent welfare eligibility and sanctions.

To summarize, conceptualization follows that when residents in a given community have an overrepresentation of target populations, whose behavioral attributes are regarded as problematic and who thus do not deserve a full social membership and are worthy of the least benefits, degenerative policies that target these groups are expected to influence government's administrative outputs for these subpopulations in a negative way. As environmental policy simultaneously embodies regulatory and redistributive feature, its implementation is likely to be susceptible to the feed-forward effect of degenerative policy that reflects group resentment. Meanwhile, target group's political power, specifically representation in democratic institutions, should help advance government agencies' policy outputs and mitigate the negative effect of group-centric degenerative policy. This study tests three hypotheses:

Hypothesis 1: A higher level of Latinos-centered, degenerative policy design is associated with a lower level of environmental policy implementation outputs for predominantly Latino communities.

Hypothesis 2: A higher level of Latino political representation is associated with a higher level of environmental policy implementation outputs for predominantly Latino communities.

Hypothesis 3: The backlash effect of Latinos-centered, degenerative policy design on environmental policy implementation outputs for predominantly Latino communities is weakened by a higher level of Latino political representation.

Data, Measures, and Methods

In the setting of the Clean Air Act (CAA), under which all states have authority delegated by the U.S. Environmental Protection Agency (EPA) to manage a variety of core air programs (U.S. EPA, 2016), this study assesses the research questions with a multilevel, cross-sectional design[3]. The analytic unit is block group, based on 2010 Census in 49 states[4].

Defining Race/Ethnicity-Based Potential Environmental Justice Areas

Over the past two decades since Executive Order 12898 in the Clinton administration, the federal government has not explicitly defined potential environmental justice areas (PEJA) (Holifield, 2012). Several states have adopted state-specific thresholds for such communities of concern. This study defines Latino (or African American) PEJAs as the highest 15th percentile of block groups in terms of percent Hispanic (or African American) populations in a given state, which are reasonably consistent with the standards of those states that have formally defined PEJAs at the level of block group (Appendix A). Race/ethnicity-based PEJAs are coded as 1 and otherwise as 0. Besides the baseline model, sensitivity analysis is conducted with two less restricted thresholds: the highest 20th and 25th percentile.

Dependent Variables

The dependent variables: state agencies' environmental policy implementation outputs are measured by the aggregate number of regulatory inspections and that of punitive actions in 2010. Compliance monitoring activities include both full and partial inspections; and compliance assurance actions cover both formal and informal enforcement activities.

Focal Independent Variables

Welfare Policy. The inclusiveness (or generosity) of welfare policy regarding immigrants is measured by the following four policy components: (1) weather states grant eligibility for state-provided benefits under the Temporary Assistance for Needy Families (TANF) program to immigrants[5], who are ineligible for federally-funded assistance due to the five-year ban stipulated in the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) (Urban Institute, 2010); (2) whether states provide health assistance of Medicaid and the Children's Health Insurance Program (CHIP) to immigrants in either state-expanded coverage under federal options during the five-year ban or in state-only-funded program (Fortuny & Chaudry, 2011); (3) whether states have state-only-funded food assistance under the Supplemental Nutrition Assistance Program (SNAP) to some or all qualified immigrants during the five-year ban (U.S. Department of Health and Human Services, 2012); and (4) whether states provide state-funded cash assistance to immigrants who are ineligible for coverage under the federal Supplemental Security Income (SSI) program (National Immigration Law Center, 2011). For each policy component, the presence of coverage in a given state is coded as 1 and otherwise as 0. The principal-component factor analysis yields one factor from these four welfare programs (the Cronbach alpha = 0.6444). A higher value of this indicator implies a higher level of immigrant inclusion in welfare benefits.

Immigrant Policy. Monogan (2013a) measured welcomeness of immigrant policy using a ratio of welcoming to hostile immigrant laws adopted by states in 2010, with a weighting of their direction (i.e., welcoming or hostile) and strength (i.e., symbolic, small-scale effect, large-scale effect, directly affecting immigrants' ability of residing in a state). This ratio is based on states' broad-based immigrant legislations documented by the National Conference of State Legislatures

(Monogan, 2013b). To better represent the backlash effect of degenerative policy, this study reverses Monogan's welcomeness index to an unwelcomeness ratio (Monogan, 2013a, p. 47):

$$Immigrant\ unwelcomeness = \log\left(\frac{\sum hostile\ laws\ \times scope + 1}{\sum welcoming\ laws\ \times scope\ + 1}\right)$$

A higher value of the ratio represents unwelcomeness of a state's policy toward immigrants. Although immigrant policy, to some extent, covers elements of health and public benefits, the strength of correlation between measures of welfare and immigrant policy in this study is small (the correlation coefficient r = -.1852). To evaluate the research questions, the empirical analysis first introduces two-way, cross-level interaction terms between Latino PEJAs and two group-related degenerative policies.

Political Representation. Political power of a target population is, in large part, reflected by the group's representation in democratic institutions. In this study, Latino political representation is measured by the percentage of Latino state legislators (two chambers combined). A similar variable is employed to represent political representation of African Americans. To assess whether political representation weakens the backlash effect of degenerative policies on target population, three-way interaction terms are introduced between Latino PEJAs, the percentage of Latino lawmakers, and two degenerative policies.

Control Variables

State Political-Economic Environments. Democratic governors and state legislators are more progressive than their Republican counterparts in environmental policy agenda (Helland, 1998; Koski, 2007). This study includes a dichotomous variable for the governor's party affiliation (Democrat coded as 1 and Republican as 0) and a measure of the Democratic strength of state legislatures (ranging from 0 to 1)[6] (Klarner, 2013). Ideologically liberal citizens are more supportive of active policy implementation efforts (Daley & Garand, 2005; Hays, Esler, & Hays,

1996; Konisky & Schario, 2010). The analysis uses the measure developed by Berry et al. (2010) to represent citizen ideology (ranging from 0 to 100; a higher value indicates a more liberal citizenry) (Fording, 2015). The analysis also controls for states' combined expenditures (in thousand dollars, natural logarithm) on natural resources, sewerage, and solid waste management (excluding capital outlay), as resources available to public agencies affect the level of administrative outputs (Potoski & Woods, 2002). Dietz et al. (2015) found that environmentalism in a given state, which reflects "the degree to which the environmental movement's goals are accepted by the public and by elites" (p. 8255), is conductive to the production of desirable policy outcome. Following their research strategy, the analysis employs the pro-environment voting score of members of Senate and the House of Representatives (0 as most anti-environment to 100 as most pro-environment). States with a more visible presence of pollution-intensive energy sectors likely reduce the rigorousness of environmental regulation. The analysis assesses such an effect using states' annual production of crude oil (in thousand barrels, natural logarithm) and coal (in thousand short tons, natural logarithm)[7]. Measures on environmentalism and energy production are the average of 2009 and 2010 values.

Local Socioeconomic and Demographic Factors. Environmental inequity is also shaped by economic class, which partially captures residents' political power (Mohai & Saha, 2015; Ringquist, 2005). A factor score of socioeconomic class is developed from three variables: the percentage of residents whose income ranges from below 0.5 to 1.99 times poverty threshold in the past 12 months, median household income (adjusted to 2010 dollars) in the past 12 months, and the percentage of residents (among the population of 25 years and over) with education less than high school. The Cronbach alpha is 0.8108. The analysis also controls for local characteristics related to environmental justice vulnerability, which have rarely been assessed in

prior research [8]. These factors include household linguistic isolation (measured by the percentage of households in which no one 14 years and over speaks English only, or speaks a language other than English at home and speaks English very well), two subpopulations with health vulnerability (measured by the percentage of residents under 5 years and percentage of residents 64 years and over), and exposure to lead paint (measured by the percentage of housing units built prior to 1960).

Local Political-Economic Environments. The analysis also controls for homeowner mobilization (measured by the percentage of owner-occupied housing units), local economic circumstances (measured by unemployment rate), and economic contribution of pollution-intensive industries (measured by the percentage of residents employed by industries of mining, quarrying, oil and gas extraction, construction, manufacturing, or utilities[9]). A high level of homeownership should prompt rigorous regulatory actions from government, as homeowners are more active in participating in political and social activities to protect and sustain their asset and property values (Dietz & Haurin, 2003; McCabe, 2013). Communities with a higher unemployment rate or with more residents employed in pollution-intensive industries are more likely to receive lax policy implementation efforts.

Local Task Demands. State agencies likely intensify policy implementation efforts in communities that have more severe regulatory violation (measured by the number of facilities designated as a high priority violator or alleged violator of program compliance requirements), have a more visible presence of pollution-intensive industries (measured by the number of facilities of these types), or receive more regulatory actions in the previous year (measured by the lagged dependent variable). In the evaluation of punitive actions, the EPA's inspections in the previous year are also included to represent federal oversight of states' delegated authority.

Lastly, the total population (natural logarithm) of a block group is included. The descriptive information on the outcome and predictor variables and data sources is summarized in Table 1.

[Table 1 Here]

Models

A multilevel model is used to estimate the effects of predictors at the block group and state level. Specifically, to analyze the aggregate number of inspections (or punitive actions), which is count of events, the present research adopts a hierarchical generalized linear model (HGLM) with a Poisson distribution and an adjustment of over-dispersion of level-one variance parameters (Raudenbush & Bryk, 2002). The number of regulated facilities is specified as the exposure variable. The analysis focuses on block groups that host at least one federally reportable facility, the information of which is required to be reported to the EPA and is more accurately verified by the federal government. The sample size, for block group (level one) and state (level two), is 22,947 and 49, respectively. The number of block groups for analysis accounts for approximately 10.64% of all 215,656 block groups in 49 states (excluding Nebraska and the District of Columbia) based on 2010 Census.

Results

The means of policy implementation outputs for Latino-PEJAs (i.e., inspections: 3.297 and punitive actions: .212) are lower than those of non-Latino-PEJA block groups (i.e., inspections: 3.369 and punitive actions: .221). But the differences are not significant. The subsequent analysis estimates the effects of the predictor variables. Multicollinearity should not be a concern, as the mean variance inflation factor (VIF) for the full model of inspection and punitive action is 2.99 and 2.94, respectively. Continuous explanatory variables are grand-mean centered and robust standard errors are reported.

First estimated are models for state agencies' regulatory compliance monitoring practices. Model 1 evaluates the effects of immigrant inclusion in welfare benefits, immigrant policy, Latino political representation, and the respective two-way interaction terms with Latino PEJA (Table 2). The interaction between immigrant policy and Latino PEJA is statistically significant in the negative direction ($\hat{\beta}$ = -0.049, $p < .10$), implying that agencies in the states that have a more unfavorable policy environment toward immigrants perform less stringent compliance inspections in facilities that are located in predominantly Latino neighborhoods. The moderating effect of welfare policy and Latino legislators are not significant. Model 2 includes three-way interaction terms between the variables of central interest. The three-way interaction variable between Latino PEJA, immigrant policy, and Latino state legislators is statistically significant ($\hat{\beta}$ = -0.009, $p < .05$). In multiplicative interaction models, the marginal effect of the focal variable (i.e., Latino PEJA) on environmental policy implementation outputs is conditional on the moderating variables (i.e., degenerative policies and political representation). It is not straightforward to interpret the magnitude and significance of the focal variable simply based on the information on the constitutive and interaction terms from the regression analysis output (Brambor, Clark, & Golder, 2006). It is computationally complicated to calculate the conditional marginal effect of the focal variable in a multilevel model involving three two-way and two three-way interaction terms, since the calculation is based on regression coefficients, coefficient variances, coefficient covariances, and the conditional values of the moderating variables (Bauer & Curran, 2005; Preacher, Curran, & Bauer, 2006). As the interaction terms related to immigrant inclusion in welfare benefits are largely insignificant in two models, for the sake of simplification, a reduced model without these interaction terms is estimated. In the reduced model, the effect of Latino PEJA varies as a function of immigrant policy and Latino political

representation (Model 3). The three-way interaction term between Hispanic PEJA, immigrant policy, and Latino state legislators is statistically significant ($\hat{\beta}$ = -0.011, $p < .05$).

[Table 2 Here]

Table 3 reports selected conditional marginal effect of Latino PEJA on regulatory compliance monitoring activities, estimated in Model 3 (steps of calculation in Appendix B). Latino PEJA is statistically significant and negative when immigrant policy is at and above the 50th percentile and Latino representation in statehouses is at and above the 85th percentile. Figure 1 graphically illustrates the corresponding relationships between the focal and moderating variables. As the states have a more unfavorable policy environment for immigrants, the marginal effect of Latino PEJA decreases (all lines have a negative slope), confirming hypothesis 1. However, regardless of states' policy stance toward immigrants, when state legislatures have more Latino legislators, the marginal effect of Latino PEJA gets more negative, implying a more reduction in government's environmental inspections for these neighborhoods. Therefore, hypothesis 2 is not supported. For instance, at the level of the 75th percentile of immigrant policy, the marginal effect of Latino PEJA is -0.0949 at the 85th percentile of political representation, implying that compared to non-Latino-PEJA block groups, the predicted count of inspections is fewer for Latino PEJAs by approximately 9.054% (i.e., [exp(-0.0949) – 1] × 100 = -9.054) (Long, 1997, p. 225; Long & Freese, 2014, p. 490-493). But with policy stance being the same, at the 95th percentile of political representation, the corresponding marginal effect is -0.3828, translating to a 31.805% decrease (i.e., [exp(-0.3828) – 1] × 100 = -31.805). Hypothesis 3 is not supported either, since the magnitude of the backlash effect of immigrant policy on Latino PEJA is larger when the states' lawmaking bodies are more Latino-representative (the slopes of the downward lines are steeper when the group is more politically represented). For example,

holding Latino elected officials at the 85th percentile, the marginal effect of Latino PEJA for the 50th and 95th percentile of immigrant policy is -0.0433 and -0.1515, respectively. These values are equivalent to a reduction in government agencies' compliance monitoring activities by 4.238% and 14.058% for the most vulnerable Latino neighborhoods. When the state is more politically representative for Latinos (e.g., the 95th percentile), the marginal effect of Latino PEJA for the 50th and 95th percentile of immigrant policy is -0.2025 and -0.5803, respectively. The corresponding reduction in government agencies' compliance monitoring activities is 18.331% and 44.027%, respectively.

[Table 3 Here]

[Figure 1 Here]

Results for government agencies' regulatory compliance assurance activities are presented in Table 4. First consider the model that only includes two-way interaction terms (Model 4). Akin to inspections, when the states have an unwelcoming policy context toward immigrants, the aggressiveness of environmental policy implementation diminishes for block groups that are primarily comprised of the Latino population ($\hat{\beta}$ = -0.068, $p < .05$). In addition, holding other variables constant, a positive correlation exists between Latino representation in state legislatures and compliance assurance activities in Latino PEJAs ($\hat{\beta}$ = 0.024, $p < .01$). Nevertheless, in the full model (Model 5), except for the two-way interaction term between Latino PEJAs and state legislators ($\hat{\beta}$ = 0.015, $p < .10$), none of the other interaction variables are statistically significant. In other words, in contrast to inspections, immigrant-centric policy context does not consistently predict government agencies' punitive actions against regulatory violations in Latino PEJAs.

[Table 4 Here]

As for the control variables, compared to state-level political contexts, local socioeconomic and demographic characteristics shed more light on the compliance evaluation activities of public agencies. Class-based environmental implementation inequity is discernible, as state agencies inspect facilities that are located in block groups of higher socioeconomic status in a more rigorous way. But race/ethnicity-based environmental inequity is not a monolithic phenomenon. Although no statistical difference in policy implementation activeness is observed between block groups that are predominantly Latino communities and those that are not, African-American PEJAs receive less attention from policy implementers. Neighborhoods that are comprised of more linguistically isolated households, home to the elderly population (age 64 and over), or have more housing units built prior to the 1960s are less inspected by state environmental protection agencies. To our surprise, employment in pollution-intensive industries is positively related to the aggressiveness of regulatory inspections, but the presence of more pollution-intensive industrial facilities lowers the level of agencies' actions. Only one state-level control variable is statistically significant. States with ample budgetary resources for environmental area are more likely to have more administrative outputs.

The control variables predict compliance assurance activities in somewhat different ways, whereby a number of state-level political and institutional attributes play at least as important a role as local socioeconomic and demographic characteristics. African-American PEJA does not have explanatory strength. Communities with a higher percentage of homeownership or the elderly population are less likely to receive aggressive enforcement actions. States with Democratic governors or legislatures with a higher level of Democratic strength tend to pursue regulatory enforcement agenda in a more active way. Similar to inspections, state governments' expenditures on environmental area are positively associated with punitive actions against

regulatory violations. States with more crude oil production generally have less stringent punitive actions, whereas there is a positive correlation between coal production and administrative agencies' regulatory activities.

Additional analysis is performed for robustness check. The first set of models estimate the interactive effects between Latino PEJA and several general contexts of states regarding immigrants and Latinos (in separate evaluations): the percentage of unauthorized immigrants in the total population (in 2010), the percentage of Latino populations (in 2010), and the percentage of eligible Hispanic voters (in 2008)[10]. None of the newly added interaction terms are statistically significant. Results related to immigrant policy and Latino legislators are largely unchanged (results not reported here). Also, findings of the models using the average of immigrant policy from 2005 to 2010, in place of the 2010 measure, are consistent with the baseline model (results not reported here). Lastly, two less restricted thresholds (i.e., the top 20th and 25th percentile of the minority population in a given state) defining a PEJA are used (results reported in Table A1). With respect to regulatory inspections, the effect of the three-way interaction between Latino PEJA, immigrant policy, and state legislators is comparable in the scenario of the top 20th percentile, whereas this variable is statistically insignificant in the model of the top 25th percentile. Findings on punitive actions against violations are comparable with the main model.

Discussion

The primary objective of this study is to evaluate the extent to which group-centric degenerative policies and political representation influence state agencies' environmental policy implementation for the vulnerable Latino communities, through the lenses of social construction, the feed-forward effect of policy design, and political power. As the findings show, a public

agency's regulatory compliance monitoring activities for neighborhoods that primarily encompass Latino populations are, to a varying extent, contingent on the state's policy stance (welcomeness or unfavorableness) toward newcomers. Meanwhile, it should be noted that the connection between group-centric degenerative policy context and environmental policy implementation inequity in predominantly Latino neighborhoods is not a uniform phenomenon nationwide. Rather, this link is significant only in the states with moderately to most restrictive immigrant policy and also with a high level of political representation of Latinos.

In addition, the feed-forward effect of immigrant policy is observed in administrative agencies' environmental inspections, but not consistently discernible in punitive actions against noncompliance. Variations may result from the different characteristics of regulatory actions and the related bureaucratic discretion in policy implementation process. At problem detecting stage, program managers and regulators likely have more discretion in decision making. Besides the allocation of agencies' infrastructure, personnel, and time resources in monitoring compliance, regulators have discretion on the adoption of different courses of action (e.g., suggestion of issuing a notice of violation, initiating other enforcement actions, or "simply draw attention to the problem") in response to facilities' violations (Rinfret & Pautz, 2014, p. 170). By contrast, once a violation is formally determined, administrative discretion at problem remediation stage is more constrained by legal procedures and organizational protocols. The backlash effect of immigrant policy on environmental policy implementation outputs for Latinos likely exists in the setting that allows for more administrative discretion for regulators.

Taken as a whole, these findings lend some support to the hypothesis regarding the backlash effect of group-centric degenerative policy design on target population. Latinos, who constitute a key group in environmental justice issues, have experienced a similar feed-forward

impact of degenerative policy on the services they receive from government (Menjívar & Abrego, 2012; Ngai, 2005; Schneider & Ingram, 2005). This circumstance attests to the consequences of "the policies adopted [that] create the boundaries of target populations and signal which citizens are deserving of government resources" (Wilkins & Wenger, 2014, p. 327). Such an effect can be seen at different geographic levels (e.g., block group in this study, county in Liang, 2016). But the inferences of this study are drawn from a meso- or organizational-level analysis of government agencies' policy implementation pattern. The present research does not perform an in-depth evaluation about how individual pubic administrators make regulatory decisions, especially in a policy context that negatively regards target populations. Also, a related question for future exploration asks whether degenerative policies exert similar feed-forward effects on the process of facility siting, in addition to policy implementation in the post-siting period.

Evidence also points to the importance of multidimensional policy design. Across the estimation models, immigrant inclusion in welfare benefits is largely insignificant, as opposed to the consistent effect of the broad-based immigrant policy that covers a variety of policy components. Ranging from education, employment (including licensing requirement of professions and occupations), to language, human trafficking, identification/driver's license, and law enforcement, these policies influence many aspects of immigrants' lives (Monogan, 2013a; Ybarra, Sanchez, & Sanchez, 2016). As such, scholars of social construction theory need to comprehensively identify multifaceted and interconnected policy constructs pertinent to target populations. The surge of states' activeness in immigration policymaking started from the mid-2000s. However, due to data limitation (e.g., the key information on block groups is only available in the ACS five-year estimates), this article only focuses on a single time point and is unable to conduct a time-series analysis to probe the temporal effect of degenerative policy at the

local level, which is a direction worthy of future investigation. It is also worth noting that although states' welfare inclusiveness and immigrant policy are two key policies targeting Latinos, they are not the only degenerative institutional practices significantly and negatively influencing this ethnic group and may thus not capture the full effect of this factor. Some recent studies suggest that immigration enforcement by local governments (e.g., counties) can also contribute to degenerative institutional environment pertaining to immigrants and Latino communities (Rocha, Knoll, & Wrinkle, 2015; Rocha et al., 2014). Given its single-year, cross-sectional feature, this study demonstrates correlational, not causal, evidence between immigrant unwelcomeness, Hispanic potential environmental justice areas, and environmental policy implementation inequity.

Hypotheses related to Latino political representation are largely unsupported. Within the region of statistical significance, on one hand, at a given level of immigrant policy, states with more Latino elected officials have consistently fewer environmental inspections for Latino communities of environmental justice concern. On the other hand, political representation does not weaken the backlash effect of degenerative policy for the group, but rather reinforces it. The theory of political representation posits that public officeholders who share racial/ethnic experiences, backgrounds, and "linked fate" should identify with the concerns of their co-ethnic population, and thus support and advocate for policy interests of minorities (Dawnson, 1994). Results of this article suggest that the transformation from descriptive to active representation may be issue/policy-specific. As Rouse (2013) demonstrated, only a moderate level of the Latino population considers "helping the environment (even if it costs jobs or reduces standard of living)" to be very or extremely important personally, as opposed to other issues (e.g., healthcare coverage, government spending on public services, and citizenship). In a similar vein, Latino

state lawmakers identify jobs as one of the priority issues (following education, healthcare, and followed by housing/homeownership, and immigration), but the environment is not cited as a top policy preference. It thus is plausible that Latino legislators deem stringent environmental regulatory activities undesirable, due to the possible negative impacts on economic opportunities and well-being for their co-ethnic constituencies.

Reasons for the strengthened backlash effect of immigrant policy in the states with more Latino-representative legislatures may lie in the attitudinal differentiation in public policies (both immigration and non-immigration-related) among the Latino population, depending on their generational status and cultural assimilation. Branton (2007) found that more acculturated Latinos are less supportive of less restrictive immigration policy. Likewise, Rouse, Wilkinson, & Garand (2010) found that to a varying degree, those Latinos, who are pro-acculturation, more attached to American society, second-/third-generation, or naturalized U.S. citizens, are less pro-immigration or immigrants (e.g., think illegal immigrants contribute to economy, support for more legal immigration, illegal immigrant work status program). In statehouses, Latino legislators are not more likely to vote in a liberal way than their non-Latino counterparts on both general and Latino-interest legislations (Rouse, 2013). In environmental area, native-born Mexican Americans have "strongly diminished environmental concern – that is, an ecological assimilation toward the majority population mean", compared to their foreign-born peers (Macias, 2016, p. 15). In short, descriptive representation of Latinos in state legislatures does not necessarily counteract the backlash effect of group-centric, degenerative policy environment.

Other possible answers hinge on a further exploration of the dynamics between different stakeholders in public policy implementation. One aspect relates to public bureaucrats. How do regulators, who wield policymaking authority, interact with minority elected officials and

minority communities? How does this process affect policy outputs and outcomes? How do regulators make decisions, when they are simultaneously exposed to group-centric, degenerative policy context and minority legislative influence? Furthermore, how do racially representative bureaucrats make decisions for intraracial minorities in the contexts where administrative discretion is constrained by the street-level and general organizational structures, cultures, and policies (Watkins-Hayes, 2011, p. i234-i235)? This line of inquiry begs both organizational- and individual-level examination regarding the decision making of public agencies and administrators, which are issues this study is unable to unravel. Another aspect revolves around minority political mobilization. The present research simply assesses the effect of political power from a top-down perspective. Konisky and Reenock (2013) found that political activism of Latino communities helps mitigate the environmental regulatory enforcement bias of state agencies. Given the connection between political representation and policy advocacy, comparable attention should be paid to the role of minority grassroots or bottom-up political mobilization in policy implementation process.

Conclusion

Over the years, the scholarship on environmental justice shows that state agencies, to a varying degree, enforce environmental regulations for people of color and/or low-income neighborhoods in an inequitable way. Moving beyond the conventional conceptualization of race/ethnicity-based environmental inequity, this article posits that the degenerative policy context that negatively categorizes minorities and devalues their social worth is relevant to government's attention to target populations. Given the growing racialization of social welfare programs and immigrant policy in the U.S., it is theoretically significant and practically relevant to examine the potential link between states' group-centric, degenerative policy context, minority

political power, and government agencies' environmental policy implementation outputs for socially marginalized groups.

Focusing on public agencies' environmental policy implementation in Latino communities, which emerge as a target population in environmental justice issues, this article finds that the backlash effect of racial/ethnic resentment embedded in group-centric, degenerative policy exists in the states with moderately to most restrictive immigrant policy and higher levels of Latino state lawmakers. Group power in representative institutions appears to strengthen such an effect. Providing some nuanced evidence that inequity in environmental protective benefits for Latinos is a phenomenon jointly shaped by their social deservedness and political representation, this research demonstrates that the theories of social construction and policy design have profound implications for our understanding of the distribution of government's policy implementation outputs for target populations.

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Notes

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1. As Fix and Passel (1994) defined, "The policy context encompasses not just the nation's immigration policies, which determine who comes and in what numbers, but also the nation's immigrant policies (the federal, state, and local policies that influence the integration of immigrants after they have arrived). U.S. *immigration policy* is set by the federal government

and has been both inclusive and well-defined. U.S. *immigrant policy*, by contrast, is made up of scattered, unlinked provisions and programs that fall, largely by default, to state and local governments" (p. 3-4; emphasis added).

2. Latinos and Hispanics are used interchangeably in this article.
3. This study adopts a cross-sectional design primarily because of data constraint. Information on economic and demographic attributes at the block group level are only available in the five-year period estimates (e.g., 2005-2009, 2006-2010, 2007-2011, 2008-2012) of American Community Survey (ACS). Datasets with overlapping years are not comparable and cannot be used for time-series analysis. In addition, the National Conference of State Legislatures (NCSL), based on which the key data (i.e., Monogan's index for immigrant welcomeness) is developed, did not systematically compile states' immigrant-related legislations until 2005. Therefore, this study examines states' policy implementation outputs in 2010, degenerative policy design in 2010, and communities' economic and demographic characteristics during the period of 2008-2012.
4. Nebraska is excluded from analysis. The partisan strength of state legislatures, which is one of the control variables, is unavailable for this state, due to its unicameral structure.
5. Immigrants are ineligible for federal assistance if they reside in the country for less than five years, after the enactment of the PRWORA (August 22, 1996). Immigrants are potentially eligible for federal TANF assistance under two other circumstances: entry into the country prior to the enactment of the PRWORA, and residence in the country for at least five years after the enactment of the PRWORA (Urban Institute, 2010, p. 20-23). As such, there is little variation across states in the latter two categories.

6. "1 = Democratic control of both chambers. 0 = Republican control of both chambers. 0.5 = Democratic control of one chamber, Republican control of the other. 0.25 = split control of one chamber, Republican control of the other chamber. 0.75 = split control of one chamber, Democratic control of the other" (Klarner, 2013).
7. This study does not include the production of natural gas, due to its high correlation with crude oil. In 2009-2010, the correlation coefficient between these two variables is .932 at the .05 significance level.
8. Under *Plan EJ 2014* strategic plan, these factors are used by the EPA to develop EJSCREEN, which is a key information screening and mapping tool facilitating the federal government to identify environmental justice vulnerability at the block-group level.
9. The coding of pollution-intensive industries is based on the categorization of the Standard Industrial Classification (SIC) system and the North American Industry Classification System (NAICS).
10. Latino descriptive representation in state legislatures is highly correlated with the variables measuring states' general contexts regarding immigrants and Latinos. The correlation coefficient for the percentage of unauthorized immigrants in the total state population (in 2010), the percentage of Latino populations (in 2010), and the percentage of eligible Hispanic voters (in 2008) is 0.71, 0.95, and 0.97, respectively.

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Table 1. Descriptive Statistics of Variables

Variable	Mean	Std. Dev.	Min	Max	Data Source
Dependent variable					
Inspection	3.358	9.334	0	354	U.S. EPA: Integrated Data for Enforcement Analysis - Air Facility System
Punitive action	0.220	1.046	0	61	
Independent variable					
Block-group-level (N = 22,947)					
Hispanic PEJA	0.149	0.356	0	1	U.S. Census Bureau: 2008-2012 American Community Survey
Black PEJA	0.132	0.338	0	1	
Socioeconomic class	0.000	1	-4.014	4.497	
Linguistic isolation (%)	3.621	7.732	0	100	
Age under 5 (%)	6.079	4.058	0	37.136	
Age 64 and over (%)	14.309	8.927	0	100	
Houses built before 1960 (%)	35.245	26.334	0	100	
Unemployment rate (%)	9.836	8.219	0	100	
Employment in polluting industries (%)	21.161	12.062	0	100	
Homeownership (%)	64.348	25.836	0	100	
Population	1498.83	958.306	0	27710	
Facility violation	0.283	0.649	0	22	U.S. EPA: Integrated Data for Enforcement Analysis - Air Facility System
Inspection$_{(t-1)}$	3.447	10.339	0	532	
Punitive action$_{(t-1)}$	0.259	1.385	0	89	
EPA inspection$_{(t-1)}$	0.087	0.667	0	28	
Polluting facility	1.257	1.465	0	49	U.S. EPA: Facility Registry System
Regulated facility	1.576	1.530	1	49	
State-level (N = 49)					
Welfare inclusion	0.000	1	-1.032	2.831	Fortuny & Chaudry, 2011; National Immigration Law Center, 2011; Urban Institute, 2010; U.S. Department of Health and Human Services, 2012

Immigrant unwelcomeness	-0.309	1.056	-2.639	1.872	Monogan, 2013b
Latino state legislator (%)	3.697	7.695	0	43.75	National Conference of State Legislatures: Legislator Data; National Association of Latino Elected and Appointed Officials: Directory of Latino Elected Officials
Black state legislator (%)	8.041	8.036	0	29	National Conference of State Legislatures: Legislator Data; Joint Center for Political and Economic Studies: National Roster of Black Elected Officials
Democratic strength of state legislature	0.617	0.445	0	1	Klarner, 2013
Democratic governor	0.551	0.503	0	1	
Citizen ideology	47.986	15.111	18.070	86.184	Fording, 2015
Environmental spending (thousand dollars)	398643	624592	70850	4422006	U.S. Census Bureau: Annual Surveys of State and Local Government Finances, 2010
Oil production (thousand barrels)	28232.5	72813.4	0	413005	U.S. Energy Information Administration
Coal production (thousand short tons)	21987.2	66164.3	0	436815	
Environmentalism score	57.134	27.344	8.25	98.25	League of Conservation Voters: National Environmental Scorecard 2009, 2010
Additional state-level control variables for the robustness analysis					
Unauthorized immigrants (%)	2.768	1.699	0.540	7.036	U.S. Census Bureau: 2010 Census
Latino populations (%)	9.847	9.976	0	44.909	Passel and Cohn (2011)
Eligible Hispanic voters (%)	5.999	7.363	0	37.830	Pew Research Center (2010)

Table 2. HGLM Estimation of States' Environmental Regulatory Inspections

	Model 1		Model 2		Model 3	
Variable	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Block-group-level predictor						
Hispanic PEJA	-0.009	0.049	-0.008	0.050	-0.008	0.049
Black PEJA	-0.113***	0.038	-0.113***	0.038	-0.112***	0.038
Socioeconomic class	0.060†	0.017	0.060†	0.016	0.060†	0.016
Linguistic isolation	-0.005***	0.002	-0.005***	0.002	-0.005***	0.002
Age under 5	0.003	0.005	0.003	0.004	0.003	0.004
Age 64 and over	-0.004**	0.002	-0.004**	0.002	-0.004**	0.002
Houses built before 1960	-0.001	0.001	-0.001*	0.001	-0.001*	0.001
Unemployment rate	0.002	0.001	0.001	0.001	0.002	0.001
Employment in polluting industries	0.005†	0.001	0.005†	0.001	0.005†	0.001
Homeownership	0.001	0.001	0.001*	0.001	0.001*	0.001
Facility violation	-0.016	0.033	-0.016	0.029	-0.016	0.030
Polluting facility	-0.027***	0.008	-0.027***	0.009	-0.027***	0.009
Population	-0.067†	0.016	-0.067†	0.015	-0.067†	0.016
Inspection$_{(t-1)}$	0.007†	0.001	0.007†	0.002	0.007†	0.002
State-level predictor						
Welfare inclusion (WI)	0.163	0.105	0.273**	0.111	0.182*	0.105
Immigrant unwelcomeness (IU)	0.007	0.083	0.028	0.093	-0.036	0.101
Latino state legislator (LSL)	-0.013	0.011	-0.002	0.012	-0.007	0.013
Black state legislator (BSL)	0.012	0.010	0.014	0.010	0.014	0.010
Democratic strength of state legislature	-0.084	0.326	-0.048	0.298	-0.093	0.314
Democratic governor	-0.081	0.153	-0.073	0.156	-0.108	0.161
Citizen ideology	0.005	0.011	0.003	0.010	0.004	0.010
Environmental spending	0.180	0.169	0.246*	0.139	0.271*	0.135
Oil production	0.000	0.018	0.008	0.020	0.007	0.021
Coal production	0.008	0.019	0.005	0.020	0.001	0.021
Environmentalism score	-0.006	0.006	-0.005	0.006	-0.005	0.006
Cross-level interaction						
HPEJA × WI	0.017	0.023	-0.008	0.026	---	---
HPEJA × IU	-0.049*	0.027	-0.033	0.028	-0.030	0.029
HPEJA × LSL	-0.006	0.004	-0.011**	0.004	-0.011**	0.004
WI × LSL	---	---	-0.019**	0.009	---	---
IU × LSL	---	---	0.005	0.026	0.033	0.030
HPEJA × WI × LSL	---	---	0.001	0.003	---	---
HPEJA × IU × LSL	---	---	-0.009**	0.004	-0.011**	0.005
Intercept	0.751†	0.137	0.737†	0.127	0.763†	0.134
Residual	Variance	χ^2	Variance	χ^2	Variance	χ^2

Level-2 u_{0j}	0.344	3422.54†	0.347	2978.14†	0.349	3223.74†
Slope for HPEJA u_{hj}	0.038	104.133†	0.039	97.7737†	0.035	97.2779†
Level-1 ε_{ij}	4.762	---	4.762	---	4.762	---

Exposure variable: the number of the regulated facilities
Population-average model with robust standard errors
† $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 3. Conditional Marginal Effects of Hispanic PEJA on Environmental Regulatory Inspections, by Immigrant Unwelcomeness and Latino State Legislator (Percentile)

	Latino State Legislator							
	25th		50th		85th		95th	
Immigrant Unwelcomeness	Marginal Effect	Percentage Change	Marginal Effect	Percentage Change	Marginal Effect	Percentage Change	Marginal Effect	Percentage Change
5th	0.012	1.238	0.020	1.969	0.064	6.588	0.172	18.732
25th	0.023	2.296	0.021	2.102	0.009	0.904	-0.020	-1.931
50th	0.033	3.314	0.022	2.214	-0.043	-4.238	-0.203***	-18.331
75th	0.042	4.331	0.023	2.337	-0.095*	-9.054	-0.383†	-31.805
95th	0.053	5.454	0.024	2.460	-0.152**	-14.058	-0.580†	-44.027

Marginal effects are based on the estimates of Model 3.
† $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

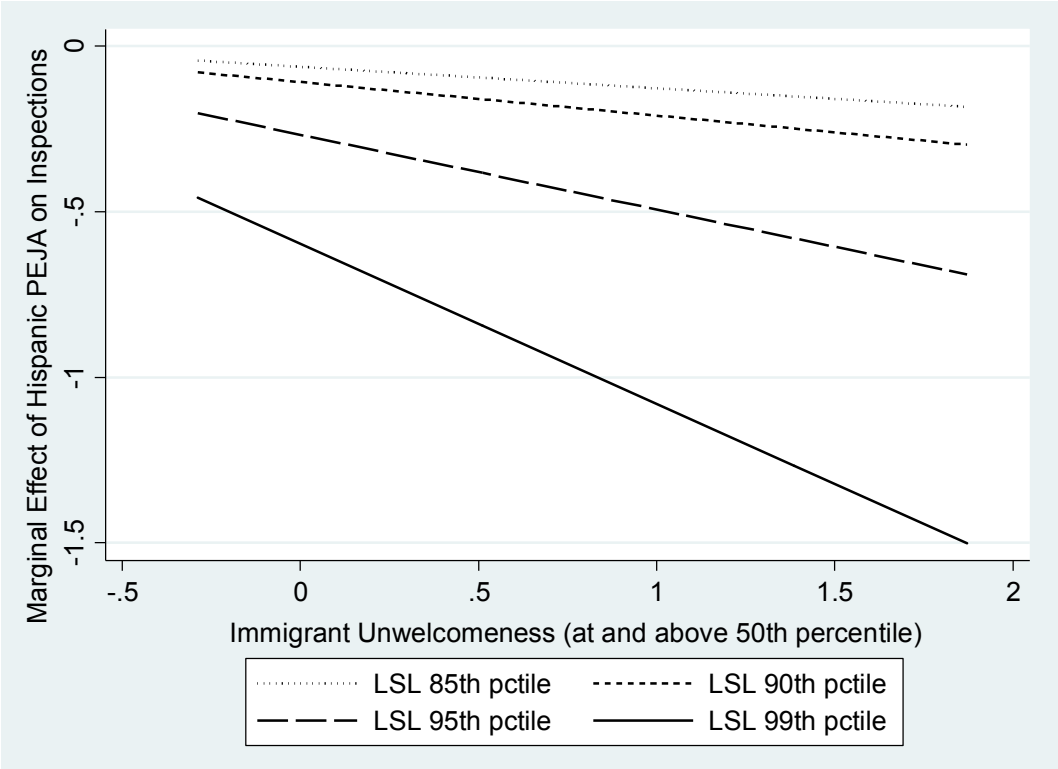
Table 4. HGLM Estimation of States' Environmental Regulatory Punitive Actions

	Model 4		Model 5	
Variable	Coefficient	Std. Err.	Coefficient	Std. Err.
Block-group-level predictor				
Hispanic PEJA	-0.149**	0.062	-0.145**	0.054
Black PEJA	0.055	0.073	0.057	0.073
Socioeconomic class	0.004	0.041	0.005	0.040
Linguistic isolation	-0.005	0.004	-0.005	0.004
Age under 5	0.003	0.005	0.002	0.005
Age 64 and over	-0.003	0.002	-0.003*	0.002
Houses built before 1960	0.002	0.001	0.002	0.001
Unemployment rate	0.003	0.002	0.003	0.002
Employment in polluting industries	0.005	0.029	0.003	0.002
Homeownership	-0.002**	0.001	-0.002**	0.001
Facility violation	0.018	0.057	0.018	0.058
Polluting facility	0.003	0.002	0.005	0.029
EPA inspection$_{(t-1)}$	0.066†	0.013	0.065†	0.014
Population	-0.038*	0.023	-0.038*	0.023
Punitive action$_{(t-1)}$	0.035***	0.011	0.036†	0.010
State-level predictor				
Welfare inclusion (WI)	0.001	0.133	-0.045	0.152
Immigrant unwelcomeness (IU)	-0.222**	0.109	-0.257*	0.132
Latino state legislator (LSL)	0.010	0.015	0.008	0.020
Black state legislator (BSL)	-0.007	0.014	-0.009	0.014
Democratic strength of state legislature	0.773**	0.314	0.729**	0.321
Democratic governor	0.278	0.250	0.273	0.254
Citizen ideology	-0.003	0.018	-0.003	0.018
Environmental spending	0.302**	0.138	0.285*	0.158
Oil production	-0.033**	0.013	-0.039**	0.012
Coal production	0.020**	0.010	0.023*	0.012
Environmentalism score	-0.010	0.008	-0.011	0.008
Cross-level interaction				
HPEJA × WI	0.013	0.040	-0.065	0.068
HPEJA × IU	-0.068**	0.032	-0.055	0.033
HPEJA × LSL	0.024***	0.007	0.015*	0.008
WI × LSL	---	---	0.013	0.009
IU × LSL	---	---	0.014	0.026
HPEJA × WI × LSL	---	---	0.005	0.006
HPEJA × IU × LSL	---	---	-0.010	0.010
Intercept	-2.241†	0.181	-2.241†	0.177

Residual	Variance	χ^2	Variance	χ^2
Level-2 u_{0j}	0.621	992.699†	0.646	975.953†
Slope for HPEJA u_{hj}	0.016	35.7598	0.005	32.4563
Level-1 ε_{ij}	1.914	---	1.916	---

Exposure variable: the number of the regulated facilities
Population-average model with robust standard errors
† $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Figure 1. Conditional Marginal Effects of Hispanic PEJA on Environmental Regulatory Inspections, by Immigrant Unwelcomeness and Latino State Legislator (Percentile)



Appendices

Appendix A. Definition of Race/Ethnicity-Based Potential Environmental Justice Areas

Although the federal government has not formally defined PEJAs, in 1997, the Council on Environmental Quality in the Executive Office of the President recommended, in terms of race and ethnicity, two definitions of communities of environmental justice concern: "(1) the minority population of the affected area exceeds 50 percent; or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general U.S. population" (U.S. Council on Environmental Quality, 1997, p. 25-26). According to 2010 Census, the Hispanic and African-American population composed about 16.3% and 12.6% of the total U.S. population, respectively (U.S. Census Bureau, 2011). In the present sample, the top 15th, 20th, and 25th percentile of block groups in terms of percent Hispanics is 33.33%, 24.22%, and 18.25%, respectively. (The corresponding number for African Americans is 27.99%, 18.94%, and 13.29%.)

Several states have defined PEJAs with respect to racial/ethnic composition at the level of block group (or community). *Illinois*: "a community with a low-income and/or minority population greater than twice the statewide average. In addition, a community may be considered a potential EJ community if the low-income and/or minority population is less than twice the state-wide average but greater than the statewide average and that has identified itself as an EJ community" (Illinois Environmental Protection Agency, 2015). In the sample, twice the statewide average of Illinois for Hispanics and African Americans is 28.63% and 31.7%, respectively. The top 15th, 20th, and 25th percentile of block groups in terms of percent Hispanics is 31.62%, 22.39%, and 16.72%, respectively. (The corresponding number for African Americans is 36.85%, 21.87%, and 13.96%.) *Massachusetts*: a census block group in which "25%

or more of the residents identifying as minority" (Massachusetts Executive Office of Energy and Environmental Affairs, 2015). In the sample, the statewide average of minority, Hispanics, and African Americans is 24.21%, 9.76%, and 6.7%, respectively. The top 15th, 20th, and 25th percentile of block groups in terms of percent Hispanics is 20.02%, 14.47%, and 10.86%, respectively. (The corresponding number for African Americans is 11.82%, 8.34%, and 6.08%.) *New York*: "a census block group, or contiguous area with multiple census block groups" that either has "a low-income population (i.e., having an annual income that is less than the poverty threshold) equal to or greater than 23.59% of the total population" or "a minority population (i.e., Hispanic, African-American or Black, Asian and Pacific Islander, or American Indian) equal to or greater than 51.1% in an urban area and 33.8% in a rural area of the total population" (New York State Department of Environmental Conservation, 2016). In the sample, the top 15th, 20th, and 25th percentile of block groups in terms of percent Hispanics is 36.57%, 27.32%, and 21.68%, respectively. (The corresponding number for African Americans is 35.34%, 23.64%, and 15.67%.) *Rhode Island*: "mapped areas where the percent of the block group that is minority or the percent of the block group that is low-income (under 2 × Federal Poverty Level) are high enough to rank in the top 15% of block groups state-wide" (Rhode Island State Department of Environmental Management, 2009). Also, some states define PEJAs using census tract. *Georgia*: a census tract with "29.07% minority or 5.0% Hispanic" (Georgia Department of Transportation, 2014). *Pennsylvania*: a census tract with "30% minority population" (Pennsylvania Department of Environmental Protection, 2016).

Appendix B. Calculation of the Conditional Marginal Effect (Magnitude and Significance) of Hispanic Potential Environmental Justice Areas

The calculation is executed by an online tool *Simple Intercepts, Simple Slopes, and Regions of Significance in HLM 3-Way Interactions* (http://www.quantpsy.org/interact/hlm3.htm) developed by Kristopher J. Preacher (Vanderbilt University), Patrick J. Curran (University of North Carolina at Chapel Hill), and Daniel J. Bauer (University of North Carolina at Chapel Hill). Hispanic PEJA is the focal predictor X_1. Immigrant unwelcomeness and Latino state legislators are the moderating variable W_1 and W_2, respectively. Regression coefficients, coefficient variances, and degrees of freedom (both intercept and slope) are drawn from the HLM analysis outputs. Coefficient covariances are drawn from the HLM variance-covariance matrices. The desired significance level is set at .10. To evaluate the moderating effect of immigrant unwelcomeness on state agencies' inspections for Hispanic PEJAs, a range of substantively meaningful conditional values (e.g., the 5th, 25th, 50th, 75th, 95th, and 99th percentile of immigrant unwelcomeness) are entered for W_1, holding W_2 constant at a specific value (e.g., the 25th, 50th, 75th, 85th, 90th, 95th, and 99th percentile of Latino state legislators).

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Table A1. HGLM Estimation of States' Environmental Policy Implementation Activities with Different Definition Thresholds for PEJA

	Top 20th Percentile				Top 25th Percentile			
	Inspection		Punitive Action		Inspection		Punitive Action	
	Model A1		Model A2		Model A3		Model A4	
Variable	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Block-group-level predictor								
Hispanic PEJA	-0.010	0.041	-0.060	0.061	0.035	0.048	-0.044	0.063
Black PEJA	-0.063**	0.025	0.048	0.058	-0.022	0.023	0.026	0.057
State-level predictor								
Welfare inclusion (WI)	0.272**	0.109	-0.036	0.154	0.267**	0.109	-0.046	0.152
Immigrant unwelcomeness (IU)	0.027	0.091	-0.260*	0.132	0.037	0.092	-0.249*	0.131
Latino state legislator (LSL)	-0.002	0.012	0.009	0.019	-0.003	0.013	0.009	0.019
Black state legislator (BSL)	0.012	0.010	-0.011	0.013	0.013	0.010	-0.011	0.013
Cross-level interaction								
HPEJA × WI	-0.005	0.024	-0.092	0.090	-0.015	0.027	-0.054	0.072
HPEJA × IU	-0.042	0.029	-0.045	0.044	-0.041	0.031	-0.056	0.043
HPEJA × LSL	-0.012***	0.004	0.004	0.008	-0.001	0.004	0.010	0.008
WI × LSL	-0.019**	0.009	0.012	0.009	-0.020**	0.009	0.010	0.010
IU × LSL	0.006	0.026	0.013	0.026	0.006	0.027	0.010	0.026
HPEJA × WI × LSL	0.003	0.003	0.008	0.007	0.001	0.003	0.011**	0.005
HPEJA × IU × LSL	-0.010**	0.004	-0.011	0.010	-0.008	0.005	0.000	0.010
Residual	Variance	χ^2	Variance	χ^2	Variance	χ^2	Variance	χ^2
Level-2 u_{0j}	0.347	2851.12†	0.652	954.101†	0.346	2673.17†	0.659	926.467†
Slope for HPEJA u_{hj}	0.032	100.633†	0.082	56.663*	0.030	109.807†	0.092	70.651**
Level-1 ε_{ij}	4.756	---	1.887	---	4.756	---	1.860	---

Full models are estimated. Only key variables are reported.
Exposure variable: the number of the regulated facilities
Population-average model with robust standard errors

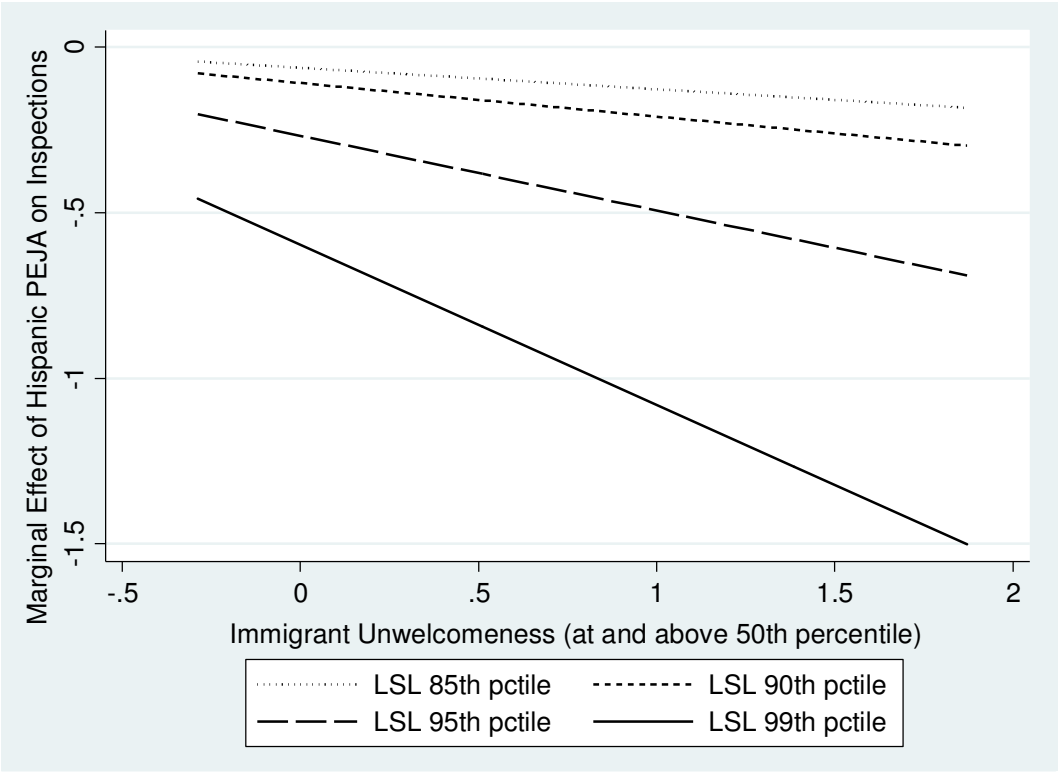
† $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

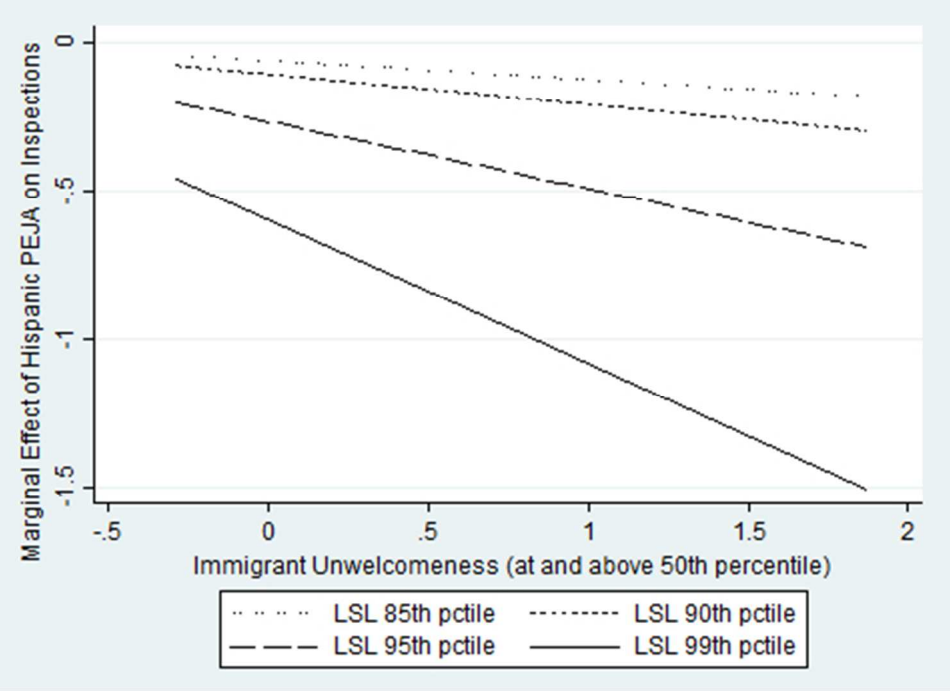
Latinos and Environmental Justice:

Examining the Link between Degenerative Policy, Political Representation, and Environmental Policy Implementation

Jiaqi Liang

Figure 1





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