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**SMALL ENTERPRISES AND THE LOW-INNOVATION TRAP:
EVIDENCE FROM ENVIRONMENTAL REGULATION OF
INDUSTRY IN MEXICO**

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ABSTRACT

Scholarship on the politics of small enterprises in developing countries has come to differing conclusions about these enterprises' capacity to affect the policies that regulate the markets in which they operate. One view is that small firms face barriers to collective action and are incapable of effectively advocating for national policies. A countervailing view is that they are politically influential enough at local levels to stymie the implementation of unfavorable policies, suggesting that small firms are quite able to affect their own market conditions. This paper argues that these views are in fact not incompatible with one another. By distinguishing between "reactive" and "proactive" behaviors and between the capacity for collective action at local and national levels, I make the case that clusters of concentrated small enterprises can be both effective at resisting regulation at the local level and incapable of bringing political pressure to bear more proactively on national industrial policy, a kind of low-innovation trap. Where regulatory mechanisms are effective at promoting technological upgrading, they rely on altering incentives through market mechanisms and information provision rather than punitive measures. I present evidence from three sectors that are dominated by geographically clustered microenterprises in Mexico: brickmaking, leather tanning, and ceramics production.

RESUMEN

Los estudios sobre la política de las pequeñas empresas en los países en desarrollo han arribado a conclusiones divergentes sobre sus capacidades para afectar las políticas que regulan los mercados en los que ellas operan. Una visión sostiene que las pequeñas firmas enfrentan barreras para la acción colectiva y que son incapaces de abogar eficazmente por políticas nacionales. Una visión alternativa es que las pequeñas empresas son lo suficientemente influyentes políticamente en la escala local como para impedir la implementación de políticas que les son desfavorables, lo que sugiere que las pequeñas firmas son bastante capaces de afectar sus propias condiciones de mercado. Este artículo sostiene que estas visiones en realidad no son incompatibles. Distinguiendo entre comportamientos proactivos y reactivos y entre las capacidades para la acción colectiva en las escalas local y nacional, sostengo que los agrupamientos concentrados de pequeñas empresas pueden tanto ser eficaces para resistir las regulaciones en la escala local como incapaces de ejercer presión política proactivamente sobre la política industrial nacional, lo que constituye una especie de trampa de baja innovación. Los mecanismos regulatorios promueven eficazmente la actualización tecnológica donde alteran los incentivos a través de mecanismos de mercado y de la provisión de información en lugar de a través de medidas punitivas. Presento evidencia de tres sectores en México que están dominados por microempresas geográficamente concentradas: la fabricación de ladrillos, el teñido de cueros y la producción de cerámicos.

Small enterprises play a critical role in the maintenance of public wellbeing in the developing world. They provide the majority of employment opportunities and, when successful and dynamic, can help achieve more equitable distribution of the gains from economic growth. Much recent development research on small enterprises has focused on the more managerial aspects of how individual firms can become more innovative or attract investment (e.g., UNCTAD's Empretec training programs) and how clusters of small firms might become more innovative or competitive in the global economic environment. While providing valuable insights into the dynamics within and between private firms, this literature has tended to avoid the political question of the relationship between small enterprises and government policymakers. In particular, a long-standing discussion about the nature of the organizational capabilities and political efficacy of small firms has remained unsettled. Research on organizations of small firms has resulted in conclusions that depart significantly from one another regarding the extent to which small firms are able to act collectively to shape the regulatory setting and markets in which they operate. One view, articulated by Shadlen (2002, 2004), is that because of the inherent barriers to collective action that they face, small enterprises are generally unable to find strong representation for their interests in the making of policies that affect them. The countervailing view is that small firms are in fact quite politically potent and can use their influence to shape the markets in which they operate by stymieing efforts to enforce regulations that they perceive to be disadvantageous (Tendler 2002; Holland 2015). Are we to understand groups of small firms as inherently fractured, fragile, politically lifeless actors for whom there is little chance of advancing their business preferences through political action or as groups that readily exercise their political influence to shape the markets in which they find themselves?

I argue that neither of these views of small firms is complete and that there is, in fact, common ground to be found between these opposing accounts of the political power of small firms in developing democratic countries. I make this common ground clear by specifying 1) whether the small firms seek to alter their local markets alone or the broader regulatory circumstances at the national level as well, and 2) whether the goals of the firms take what I will call an "active" or "reactive" approach to shaping the market conditions under which they operate. Drawing out these distinctions in the area of environmental regulation lays bare the manner in which these ostensibly conflicting views are not incompatible with one another. Rather, they represent two simultaneous and complementary conditions that characterize the

politics of small enterprises: 1) willingness and capacity to resist local officials; and 2) an inability to influence the formulation of policy by national policymakers. Furthermore, both of these conditions can be associated with a lack of innovation and new technology adoption. On one hand, the ability to stymie local actors' efforts to promote upgrading and regulatory compliance allows for the continued use of known—if inefficient and dangerous—technologies. On the other hand, the inability to exert pressure at the federal level for programs better suited to firms' existing conditions means that programs are less likely to create effective incentives to help microenterprises to overcome the risk of innovation. Together these can create a low-innovation trap, which both prevents small enterprises' compliance with environmental and other social regulations and stunts economic development. Where enterprises do upgrade to adopt new process or product technologies to become compliant with environmental regulations, this is a consequence of the design of mechanisms that ease local resistance to innovation by creating appropriate incentives for the firms and the opportunity for the diffusion of information.

In what follows, I review the divergent arguments for the weakness of small firms and the contrasting view that they are too politically influential. I then make a theoretical argument for why these views are not incompatible but, rather, address different parts of the broader outcomes of the market-constituting relationship between the state and small private enterprises. I present evidence of this dynamic in three industries in Mexico that are populated by microenterprises, drawn from both original interviews and observations in the field and existing studies of the industries. Each has had both relative successes and failures at shaping the manner in which the market in which it operates is regulated. A concluding section draws together the lessons from these cases and spells out the political and policy implications.

REGULATION, THE MARKET, AND TECHNOLOGY UPGRADING

Arguing against the neoclassical notion that markets are naturally occurring outcomes of rational, profit-seeking organizations, scholars such as Fligstein (2001) contend that markets are institutions constituted by actors that organize and regulate them. Public policy plays a central role in determining the structure of markets (who buys and sells, prices, allowable forms of production, rates of technological adoption, etc.) (Jaffe et al. 2005). Two sets of actors have historically been the focus of scholarship on the regulation of markets: the enterprises that seek

to shape the nature of the market in which they operate (by, for example, protecting rents); and state bureaucracies, which traditionally seek regulation to repair market failures (Schneiberg and Bartley 2008). On the one hand, business organizations actively “conceptualize opportunities, figure out how to exploit them, and motivate others to help attain these ends” (Fligstein 2001, 3). Large firms or business organizations have numerous channels of influence available to them, including reinforcing existing institutions, exiting the market, acting as organized lobbying organizations (Schneider 2014), shaping product standards (Murphree 2014), and acting “as capital” (Schneider 2015). There is, however, no a priori reason to assume that small enterprises do not shape the rules that govern the markets in which they operate, though the levers available to them may be distinct from those available to larger firms; the extent to which they do so is one of the primary issues taken up in this paper. On the other hand, state agents have traditionally been seen as attempting to mitigate “failures” that develop in the market and misallocate prices, by, for example, guaranteeing property rights or restricting behaviors that result in negative externalities, such as pollution controls.

The examination of markets from an environmental perspective centers around the notion of “externalities,” the consequences of economic activity that are borne by parties distinct from the producers of the economic activity (Jaffe et al. 2005). Environmental regulations typically seek to repair market failures by reducing negative externalities; methods for enforcing environmental regulation generally fall into categories such as command and control (e.g., emissions or process standards), economic incentives (e.g., emissions fees or green subsidies), or government investment (e.g., provision of information, technology, or facilities) (Blackman 2006). Although economic incentives do so most explicitly, other means of regulation also intervene in the market by altering the allowable means of production or the availability of information about the true costs of production, available alternate technologies, or potential markets.

Regardless of the method of promoting compliance, technological upgrading is typically central to compliance with environmental regulation (Porter 1990, 1996). Similarly, active industrial policies are those that promote “more dynamic activities generally, regardless of whether those are located within industry or manufacturing per se” (Rodrik 2004, 2). Whatever the sources of the technologies that raise productivity, the dynamism these policies seek comes with the generation and diffusion of more productive process and product technologies.

Similarly, even minimalist environmental regulations that aim to abate pollution generally require technological adaptation.¹ In both cases, the development or adoption of new technology is a process rife with market uncertainty, the alleviation of which is often critical to effective shaping of the behavior of firms. Indeed, for risk-averse small enterprises, resistance to technological change—and maintenance of known market conditions—is a common strategy. This production “low-road”—retaining older, less efficient but *known* technologies, possibly accompanied by reduced wages to account for stagnant productivity—is safe; while the “high road” of upgrading productive methods implies the risk of altering the market in which an enterprise operates and often entails a knowledge gap.

SMALL ENTERPRISES AS MARKET SHAPERS

Two seemingly opposed views of small firms have dominated the discussion of their political capacity and, by extension, their capacities to shape the nature of the markets in which they operate. On the one hand, small enterprises in the developing world are frequently viewed as being economically and politically vulnerable because they are generally low-tech, operate on slim margins of profit, lack reliable access to information, and are geographically dispersed and difficult to organize. Based on the logic of collective action, Shadlen (2002, 2004) argues that small enterprises face inherent barriers to effective organization, undermining their capacity to shape the formal characteristics of markets in which they operate by appealing to elected officials and national bureaucracies. Large firms are typically less likely to *need* to act collectively because they have individually higher profiles and the educational and social capacity to lobby policymakers on their own behalf; they also have more financial resources to commit to collective action (Schneider 2015). Small firms have fewer resources to dedicate to acting collectively, even though, like labor, they have a greater need to do so in order to receive collective representation by elected officials. However, collective action among small firms is inherently different from collective action among both large firms and labor. Small firms face

¹ One rare exception is discussed in this paper: the removal of brick kilns out of populated areas, where air quality standards are designed to protect health, to outlying areas where fewer people will be exposed to smoke and particulate matter. Relocation of the kilns does not require technological upgrading, but it can reduce human exposure to pollution by putting them in less densely populated areas.

serious challenges of spatial separation and large numbers, along with divisions between types of firms (even if similar in size) and lower levels of profit (Olson 1965; Berger 1981; Offe and Wiesenthal 1980; Shadlen 2002, 2004). Logically, if the need for and the barriers to collective action exist for small and medium firms, this is even more true for microenterprises and family workshops; these tend to be even more economically marginal, numerous, diverse, isolated, and unable to articulate their joint preferences about the nature of their markets through political lobbying.²

Shadlen's (2002, 2004) description of the experience of small business organization in Mexico is illustrative: democratization in the 1990s eroded the authoritarian-corporatist system (which had effectively required small firm membership in business organizations), with the consequence of undermining the representation of small firms in the government by raising the problem of collective action. Under corporatist rule, compulsory membership in business chambers was a form of state control; however undemocratic, this arrangement allowed small firms to overcome the barriers to organization and gave them access to elected officials and appointed policymakers. With the unraveling of the corporatist system, the inherent challenges to collective action emerged, and with no means of overcoming organizational challenges, small businesses divided along sectoral (and perhaps regional) lines. In the wake of this splintering, Shadlen argues that efforts by smaller groups of firms to lobby for "activist industrial policy" that would protect them from international market pressures were generally ignored by the erstwhile ruling party (the Institutional Revolutionary Party, PRI) and by the more ideological parties to the PRI's left (Party of the Democratic Revolution, PRD) and right (Party of National Action, PAN) as well (2002, 56). Appeals to the Secretary of Trade (SECOFI) to institute a set of nationwide policies to insulate small firms from the pressures of open markets went unheeded on the ideological grounds that open trade policy and a seamless global market would best achieve long-term economic growth. In summary, the successful small firm organization that allowed

² Definitions of what constitutes a small enterprise vary. Mexico has defined small enterprises as those having between 11 and 50 employees, with microenterprises employing between 1 and 10. Although by this definition the enterprises discussed in this paper are almost exclusively micro, I refer to them with the shorthand "small." Shadlen's work examines PMYEs (small and medium enterprises) as a group, which aggregates firms from the very smallest to those that are quite large by comparison (250 employees for manufacturing firms). My presumption throughout is that for micro- and small enterprises, the barriers to organization are different in *degree* rather than in *type*, although this may be a line of inquiry worthy of further attention.

access to government relied on conditions—particularly compulsory participation in business organizations—that tend not to exist under democratic rule. Although explicitly concerned with industrial policy, this case speaks more broadly to the inherent difficulty of small and microenterprises to influence the nature of the markets in which they operate by appealing to policymakers.

This perspective runs contrary to studies that depict small firms as being very efficacious political actors. Small firms in the developing world are frequently engaged in what Tendler (2002) calls a “devil’s deal,” an arrangement by which government officials exchange protection from the enforcement of taxation or existing environmental or labor regulations for political support. More recently Holland (2015) has formulated the concept of “forbearance,” where officials have the legal backing and capacity but not the willingness to enforce regulation.³

Tendler (2002, 2) argues that small firm development has come to be treated as an issue of welfare “rather than the stuff of ‘serious’ economic development” by international and domestic policymakers alike: in popular discourse, small enterprises need to be exempted from burdensome regulation in order to allow them to continue to provide jobs and income to communities with few other options for employment. The thinking goes that, because of their inherent weaknesses as enterprises (see Kantis et al. 2012; von Tunzelmann and Acha 2005), if clusters of small firms are over-taxed or regulated in ways that increase the costs of production, the jobs they provide—however poorly remunerated, however shoddy the working conditions, however environmentally deleterious—will be lost. This logic is reinforced by the fact that nonenforcement of existing tax and regulation for small enterprise groups is politically effective and potentially has a large yield in terms of votes; and the trade-off can require very little from government officials.⁴ Blanket exemptions from regulation—rather than those that require some form of certification or conditionality—are simpler to have in place, as they reduce the need to monitor the small enterprises (Tendler 2002, 7). Beyond requiring very little effort on the part of

³ In Holland (2015) the exercise of “forbearance” or non-enforcement is a political calculation made on the basis of electoral institutions (size of electoral district) and constituency characteristics (income level). In her formulation, little, if any, political agency is assigned to the informal entrepreneurs.

⁴ Exception from regulatory rules is essentially a non-activity, less costly for officials in some senses than enforcement. Holland (2015) qualifies this view by pointing out that nonenforcement can be politically costly in electoral districts less tolerant of illicit behavior (e.g., less support for tolerance of street vendors in wealthier electoral districts).

local officials, because small enterprises of a particular type (e.g., footwear, leather tanning, ceramics) are frequently clustered in particular communities, regulatory exemptions can have outsized local influence. Blanket exemptions can earn political support even when those enterprises are not tied particularly strongly to industry groups or are not well organized; even unaffiliated enterprises (i.e., free riders) will still be the beneficiaries of the exemptions.

In short, small enterprises and their associations (where they exist) may take advantage of the welfare-oriented discourse that they are non-dynamic and inherently ill-equipped to survive the pressures of the formal market if they are held to particular standards. Whether accurate or not, enterprises seeking to avoid particular formal rules have clear incentives to strengthen that impression.⁵ Tandler points out that from the perspective of small enterprises and their groups (as with officials), “universalist” exemptions are preferable to more limited exemptions. In this view, small enterprises are politically quite influential, able to tap into the fear of job losses through regulation and to trade broad exemptions from regulation for political support. Although based in part on the observation of garment clusters in Northern Brazil, recent scholarship has suggested that this dynamic is responsible for outcomes in sectors from street vendors and mototaxis to fishers and in developing countries varying from Nigeria (Meagher 2011) and Uganda (Goodfellow and Titeca 2012; Lince 2011) to Brazil (Barberia and Biderman 2010; Puppim de Oliveira and Ali 2011), Peru (Zuin 2004; Holland 2015), Colombia, and Chile (Holland 2015).

Market Capacity Reconsidered

How can one reconcile the notions that, on the one hand, resource and organizational challenges preclude small enterprises from effectively shaping the regulation of markets in which they operate and, on the other, that government officials often permit these same enterprises to define their market conditions by skirting policies that they believe to be disadvantageous? I argue that these ostensibly opposing views of the relative capacities of small firms are much more in

⁵ Small enterprises frequently lack accurate information about the long-term costs and benefits of upgrading (von Tunzelmann and Acha 2005). The enterprises themselves, then, may not necessarily know how becoming compliant with particular regulations may affect them but, recognizing short-term costs, reflexively seek to support the notion that their enterprises will not survive particular requirements. This point is taken up more thoroughly later.

accordance with one another than they may appear. The common ground between them relies on drawing out several distinctions that are implicit in the arguments. First, one can distinguish between influence at the local level and at the national level, depending, respectively, in part on whether decisionmaking is in the hands of officials with a small, concentrated, local constituency or with broader, more dispersed and heterogeneous constituencies. A second distinction can be made between enterprises that are “active” in pursuing desired policies by working to influence the manner in which these policies are developed or “reactive” in resistance to existing or emerging policies that they believe to be inimical to their success.

Local vs. National Levels

The first distinction is the rather noncontroversial division between factional power at the local and national levels. This notion goes back at least to the writings of James Madison, who argued that public good was best served by representatives with broader constituencies due to the relative ease with which small, concentrated interest groups (i.e., “factions”) can influence policy in small electorates. Because national representatives are elected by a broader group of constituents with more heterogeneous concerns, the particular interests of small groups (even when they might be effectively articulated to policymakers) must be balanced with the interests of others, limiting their influence. The possibility of increasing the influence of small groups by expanding the number of participants in a group simultaneously raises one of the primary barriers to organized collective action: group size and heterogeneity (Olson 1965). This ties back directly to the notion that institutional setting is a critical consideration for how market-defining regulations are put in place (see Schneiberg and Bartley 2008). Moreover, beyond their domestic constituencies, national policymakers face pressures from foreign governments, international intellectual communities and normative movements, international legal agreements, and so forth.

This logic has also been employed—although in a different context—by proponents of political and fiscal decentralization, for whom lower levels of governance allow for policy decisions to be more sensitive to “the preferences of smaller, more homogeneous groups” (Wallis and Oates 1988, 5). In this account, locally designed or tailored policies are necessarily more sensitive to the preferences of the communities in question. Thus, the sensitivity to local preferences is a double edge that may be best for local populations but also allows local interest groups to dictate policy directions that are potentially deleterious (Bardhan and Mookerjee 2000;

Francis and James 2003; Prudhomme 1995; Smith 1985; Faguet and Sánchez 2008); for better or worse, the same degree of influence at the higher level of governance is less likely without the formation of a broader coalition.

In sum, in adjudicating the debate over the capacity of small enterprises to shape their markets, it is necessary to consider what the targets of that influence are: 1) officials at the national level, who are by definition making policy for broader constituencies—possibly including international partners and organizations (Levi-Faur 2011)—and are less easily influenced by groups that are not large and effectively organized; or 2) policymakers at lower levels of governance, who are more attuned to the political exigencies, preferences, and beliefs of their smaller constituencies and are more likely to be affected by small group interests.

“Proactive” vs. “Reactive” Policy Engagement

Second, there is a distinction to be made between the manners in which firms or groups of firms may attempt to shape the markets in which they operate, particularly in regard to industrial and regulatory policies. What I will refer to as “proactive” engagement with government officials consists of efforts to shape policy as it is being formulated or lobbying for the inclusion of particular elements or programs in new legislation or regulatory norms. This may come at the behest of policymakers seeking to design appropriate interventions or because business organizations demand the formulation of new policies. “Reactive” behavior, by contrast, refers to private sector resistance to market-regulating policy that has already been formulated, with the goal of reshaping market conditions, often by leaving formal policies and rules unenforced.⁶ This resistance can be quite open (striking, for example), but the form in which it is often found is much more passive and hidden: simple avoidance of existing formal regulations, shirking taxation, and taking refuge in informality. Resistance to many regulations—particularly those seeking to limit negative environmental externalities—is not surprising. In contrast to the organizational demands of proactively influencing policymaking, effective reactive behaviors require much lower levels of coordination; for instance, this kind of resistance to established regulation—foot-dragging, shirking, avoidance of formality, nonpayment of taxes, in other

⁶ Although the behaviors described here as “reactive” help constitute the market characteristics and may reasonably be considered active behaviors, the term “reactive” is intended to connote the notion that they are efforts often taken to counter or evade to existing market-shaping policies.

words what Scott (1985, 35) refers to as “everyday forms of resistance”—may require tacit understanding or shared opinions or norms but “little or no formal coordination.” While the distinction between proactive and reactive efforts is not perfect, it is meant to separate, for example, the qualitatively different efforts of business groups in Mexico to convince the legislative Commission on Industrial Development to put in place more active industrial policy, such as trade protection and sources of credit, for small industry (see Shadlen 2002) from, say, the resistance of tanneries to restrictions on the discharge of salt, sulfur, and chromium waste into waterways (Blackman 2006).⁷

Placing these distinctions on the axes of a two-by-two table, a more complete picture of the influence of small and microenterprises emerges: one that distinguishes (however roughly) between both the level at which they seek to influence market-defining policies and the manner in which they intend to do it (see Table 1). Rather than particular groups or industries populating the different quadrants, they might be thought of as more or less distinct outcomes of political action that are common to groups of enterprises; in other words, the same group of enterprises may occupy quadrants 1 and 4 simultaneously.

Quadrant 1 (Local arena for reactive policy) depicts the situation Tandler (2002) describes as the “devil’s deal” in which small firms effectively resist regulation by using political pressure to compel local officials to permit shirking of particular legal requirements—be they social regulations, such as labor or environmental standards, or taxation—and operate wholly or semi-formally. In such situations, they are likely to find a relatively high level of success for the reasons described above: relative concentration of voters affected by exemptions, relatively lower coordinative requirements for widespread avoidance, higher likelihood for shared beliefs between local officials and enterprises, and the aforementioned welfare justification for protecting small enterprises. This dynamic has been widely documented, particularly in countries at middling levels of development such as Brazil and India (e.g., Almeida 2008), where clusters of small, often low-tech and informal firms exist concurrently with somewhat well developed *de jure* regulatory or tax regimes.

⁷ One can imagine a situation, for example, in which the reaction to undesirable policies is an organized effort to push policymakers to issue amended policies.

Quadrant 4 represents the difficulty those same firms face with regard to affecting the active formulation of policy on a national scale. Given the necessity of organizing a broad coalition of small firms to pre-emptively shape policy in a coherent manner, the likelihood of being effective in this manner is low, as Shadlen (2002, 2004) describes. The relative powerlessness of groups of small enterprises in this respect hinges on both the difficulty of coordinating these enterprises due to the collective action problem facing their organization and the inability to articulate coherent positive policy for the development of their enterprises.

TABLE 1

OUTCOMES OF SMALL ENTERPRISE EFFORTS TO SHAPE MARKETS

		Targeted Level of Policymaking	
		Local	National
Nature of Efforts to Shape Market	Reactive	<p>1. Small Enterprise groups effectively lobby for protection from existing regulatory/tax policy based on relative concentration; low coordination requirements (Tendler 2002).</p>	<p>2. Possibly effective (may depend upon special circumstances, such as champions in federal government or concentration of firms in few clusters).</p>
	Proactive	<p>3. Possibly effective (may depend on the policy options available to local officials).</p>	<p>4. Small Enterprise groups unable to scale up and are ineffective at shaping policy and affecting market conditions nationally (Shadlen 2004).</p>

The generic situations represented in Quadrants 2 and 3 are less common and less clear. A reactive national movement (Quadrant 2) of small firms affecting market-shaping policy at the national level is an empirical unlikelihood both because of the difficulty of national coordination (however nominal) of small firms that tend to be geographically isolated from one another and

because that regulation is unlikely to affect the nature of small firms' markets in the same manner, making cross-industry organization unlikely. The possible exception might be national resistance among similarly affected enterprises, without the resistance being coordinated (e.g., wide resistance to meeting new minimum wage requirements). Quadrant 3 represents a scenario in which microfirm representation is perhaps more likely to be effective: the proactive lobbying for policy at the local level. One potential problem in this scenario is that even if the difficulties of organizing active lobbying pressure are overcome, local government officials may not have the policy discretion or expertise to put those preferences into place. In short, quadrants 1 and 4 have become the scenarios of scholarly interest, but there are important lessons to be drawn from the other scenarios as well. While the discussion of the first and fourth quadrants has to this point implied a contradiction, these two scenarios are ultimately not incongruous: small firms can both wield significant market-influencing political power at the local level and be generally inefficacious nationally.

This more nuanced understanding of the market-shaping capabilities also underlines one further aspect of the varying political capabilities of microenterprises: both local effectiveness and national ineffectiveness may have a general tendency to produce negative outcomes for the firms. In combination, these aspects generate "low-road" tendencies, which affect the workers and firm owners negatively: while they are able to avoid labor and environmental regulations that promise to improve their working and local environmental conditions, they are also unable to effectively shape conditions of the market (such as provision of credit or the improvement of information flows) that might assist them in actively innovating and upgrading their productive profiles (see Schrank 2013).⁸

⁸ None of this is to suggest that large firms do not make efforts to stymie social regulations, that their evasion does not prolong certain social ills, or that larger organizations are somehow socially more desirable. Larger businesses do evade regulations, and they have a broader repertoire of strategies available to them—including use of national institutional processes, such as the courts, and possibly even intervention before the promulgation of regulations—given the relative ease of organizing, their relative wealth, and so on.

CASE STUDIES

I present three cases of low-tech Mexican industries dominated by small and micro-organizations to illustrate the manner in which the dynamics of enforcement play out largely in the ways discussed above. Although the details of these industries differ significantly, each case study elucidates microenterprises' capacities to shape policy by coupling discourse, resistance, and political pressure at the local level and their relative incapacities to advocate for broader industrial policies at the national level. Each of the cases is a highly polluting industry dominated by microenterprises clustered geographically (Giuliani, Pietrobelli, and Rabelotti 2005); in the interest of holding national concerns constant, I have selected three that are all located in Mexico. I focus on the explicit regulation of their productive activities, which, in each case, is intended to reduce harmful environmental externalities. Although only one area in which policies might shape the nature of the markets for their goods, regulation is consequential for, among other things, the costs of inputs and the management of externalities associated with production. The evidence in these cases is drawn from interviews and observation (primarily ceramics enterprises) and existing studies of these industries that offer detail about the process of regulating them (primarily tanning and brickmaking).

The first case, brick production, most neatly illustrates the dynamic described above, wherein the industry generally fits into both the first and fourth quadrants. Leather tanning and traditional ceramics, however, are slightly “off-the-line” cases (Lieberman 2005). Like brickmakers, tanners and ceramics producers have significant local leverage, but for idiosyncratic reasons they have achieved greater degrees of influence over policies at the national level. Their ability to manage greater policy influence identifies several manners in which the problem of collective action may be overcome and emphasizes the rarity of those circumstances for most microfirm-dominated industries. In all three cases, the deviations from the scenarios in the first and fourth quadrants—however temporary or slight—reveal important conditions affecting upgrading and compliance among small enterprises.

Brick Kilns (*Ladrilleras*)

Among small businesses, the cottage production of inexpensive clay bricks for construction is a leading contributor to air pollution in Mexico (CEPAL 2006). Illegal and highly polluting

fuels—tires, oil, plastics, scrap wood, and industrial waste—are frequently used by workshops to fire bricks, because they cost less than cleaner fuels such as natural gas or wood (CEPAL 2006). The easy replaceability of bricks on the market makes low production cost critical.⁹ The smoke and toxic particulate matter from kilns burning these fuels disproportionately affects vulnerable populations such as the poor, children, and rural-urban migrants (Grineski et al. 2010; Romo Aguilar et al. 2004; Blackman et al. 2000). The first federal laws and norms governing air quality were put in place in the late 1980s and early 1990s. Since that time many municipalities, sometimes with the assistance of state officials, have attempted to regulate or eliminate the emissions from brick kilns. Local brickmakers' groups have, in general, been very effective at resisting these efforts to bring them into regulatory compliance.

Because brick production is typically a very low-return activity, largely informal, and based upon traditional technologies, standard “command and control” methods to regulate the market by monitoring emissions and fining violators were nonstarters. For example, in Ciudad Juárez, some of the efforts have explicitly sought to use market incentives to shape the manner of production (see Blackman 2006; Blackman et al. 2000). Officials in Ciudad Juárez worked through organized brickmakers' groups to provide propane burners and upgrade existing kilns as well as to absorb the transition costs for those who would move to the clean technology. To alleviate concerns about the moderately higher recurring costs of firing bricks with gas, the municipality helped subsidize the cost of propane, as well as negotiating a set price-floor for bricks sold in the municipality and a voluntary boycott of bricks produced with dirty fuels. Finally, municipal agents provided informational resources by offering training with the improved kilns as well as education about the health effects of trash-burning kilns. While these efforts inspired upgrading in a portion of the community, shifting prices for propane inspired cheating and the short-lived boycott and price-floor collapsed; brickmakers broadly abandoned their use of cleaner, costlier fuel in order to return to the status quo ante of burning less costly fuels in order to compete strictly on price.

⁹ Concrete blocks, which are not fired, are an alternative building material. They are often produced by larger operations, given the costs of inputs (i.e., crushed rock, sand, cement) and machinery, and these larger operations also produce higher quality bricks (suitable for façades, for example). Both are substantially more expensive and thus not a competitive alternative to fired brick for most common buildings, such as houses.

Other communities have focused on relocation of brick kilns outside of populated areas, which would lower negative health consequences without intervening heavily in the market. These efforts, too, have been successfully resisted by brickmakers where they are numerous enough to directly pressure local officials. Torreón, for example, began a relocation program in the early 1990s in which kilns in populated areas would be moved to a common area outside town. The municipality agreed to pay the cost of relocation, but for reasons that are not entirely clear brickmakers suspected that municipal agents would not live up to their end of the agreement and consequently backed out (Blackman 2006; Blackman et al. 2000). In the face of the organized brick producers, municipal officials were left without politically palatable recourse and consequently settled upon a much more modest arrangement: agreements of producers to not burn tires and to fire their kilns on a set schedule to minimize the total amount of airborne particulate at any given time.¹⁰

In short, despite regulatory legislation at the federal level, brickmakers in many municipalities have been able to resist the efforts of local policymakers to alter the market for low-cost bricks. Those efforts were partially successful when local authorities recognized that they faced numerous resistant workshops and therefore sought to alter the market through information diffusion and recurring subsidization of clean inputs rather than traditional command and control measures; but the gains from these methods were temporary and based on conditions that were ultimately beyond the capacity of local officials. At the present time—two decades after the first efforts to regulate brick kilns—municipal efforts to reduce externalities in the form of emissions appear to focus on requiring the relocation of kilns out of populated areas, rather than subsidizing clean fuels or promoting information exchange.

At the same time that they were and continue to be able to reactively stymie the efforts of local officials in Ciudad Juárez, Saltillo, Torreón, and other municipalities across Mexico, brickmakers have done little in the way of advocating for more proactive industrial policies that would improve the market conditions under which they operate. This is especially apparent at the federal level, where they have demonstrated very little capacity to shape policy. In fact, federal

¹⁰ By contrast, brickmakers in Zacatecas were too few to be able to resist forced eviction at the hands of the municipality, which had seen its market incentives program collapse, much like Cd. Juárez's had. Where numerically too few (and possibly economically too insignificant), small firms are less likely to be effective at making a case for avoidance of regulations to both local policymakers and their local communities.

policies demonstrably run roughshod over the interests of brickmakers, with little more than local discontent as a response. Several major policy decisions illustrate this well. First, federal law issued in the late 1980s and the specific norms for emissions established by the Secretary of Health in 1993 went into effect without any kind of modification for small enterprises (CEPAL 2006), and brickmakers (along with other emitters) sought no exemptions or assistance program for their workshops and instead worked to avoid regulation by municipal authorities. Second, federal liberalization in the early 1990s undercut the ability of local communities to subsidize cleaner fuel sources for the kilns, which producers groups in municipalities like Ciudad Juárez had already embraced to demonstrable effect. Even though brickmakers' groups were often affiliated with the ruling PRI, they were unable to maintain subsidies for fuel for those kilns that had been converted (Blackman et al. 2000).

Even though brick kilns are widely distributed throughout Mexico, the geographic clusters in which they tend to be located have no effective network of relations to facilitate coordinated lobbying. It is unclear—even if there were the capacity to coordinate across communities—whether the brickmakers have sufficient information to formulate coherent policy ideas (beyond easy subsidization) to articulate to national policymakers or whether there is full recognition of the health and environmental costs of traditional brick production. Part of the informational campaign undertaken in Ciudad Juárez was meant to publicize the danger to workers and the public posed by the burning of garbage, tires, and other toxic materials, as well as introducing the possibility of a different kind of kiln, but the success of that campaign is suspect (Blackman 2006; Blackman et al. 2000). In short, brickmaking—a quintessential geographically clustered, low-tech industry—fits quite neatly into the scheme outlined above.

Leather Tanning (*Curtiduría*)

Leather tanning is a comparable industry that deviates somewhat from the predicted pattern—in statistical terms, a deviant or “off-the-line” case (Lieberman 2005)—but does so in a manner that is at least partly confirmatory. Tanning is a notoriously polluting industry, which when unregulated has led to the dumping of toxic salts, acids, heavy metals, and animal solids into local waterways. In Mexico these externalities have been borne by the communities in which small tanneries are concentrated: the Mexico City area, the states of Nuevo León and Jalisco, and, especially, the city of León, Guanajuato (Semarnap 1999, Semarnat 2007). The vast

majority of Mexican tanneries are small-scale family enterprises that are integrated (engage in all steps of curing and tanning within the workshop) and produce fewer than 100 tanned hides daily (Semarnap 1999). Because of informality, the precise number of tanneries is not known; the highest estimate is for about 1,200 tanneries in León, Guanajuato, which makes up roughly 65 percent of national production (Blackman 2006; Semarnap 1999). The Mexican government has taken an active interest in regulating the pollution emitted into León's Turbio River by the cluster of tanneries since the mid-1980s, when several precipitating events (bird and fish kills) resulted in heightened attention to the toxic discharge originating in tanneries. Although formal regulations against the release of untreated effluent had been in place previously, it was not until the mid-1980s that the federal government sought to address the issue of enforcement.

In spite of the central government's plans to force tanneries to bear some of the costs of treating the industrial waste from the sector, the tannery cluster in León has been very effective at using its local influence to avoid the implementation of federal environmental regulations. Blackman (2006, 192; see also Pacheco-Vega 2008) notes that, "By all accounts, the main reason [for effective resistance] is that leather tanneries are a mainstay of the local economy and therefore enjoy considerable political power." The earliest effort was a voluntary agreement signed in 1987 by representatives of the federal and local governments and the industry group CICUR (Chamber of the Tanning Industry of Guanajuato; Cámara de la Industria de la Curtiduría del Estado de Guanajuato), which represented only a fraction of the tanneries. The agreement acknowledged the existing regulations, the environmental impact of untreated effluent, and the sector's responsibility to bear the costs of pollution, and it committed the tannery sector to taking steps to reduce the organic and chemical content of wastewater. The industry group, however, remained opposed to the punitively enforcing federal wastewater regulations through fines; the voluntary agreement, thus, represented the pragmatic decision by the government to allow the previously unregulated industry an opportunity to monitor and correct itself. The changes in the behaviors of the small tanneries in response to the agreement were minimal: over the next four years the sole changes were the construction of sedimentation tanks in some workshops, which reduced solids in wastewater (preventing the clogging of sewers) (Blackman 2006). Similar agreements were repeatedly signed in 1991, 1995, and 1997, also to slight effect.

This is not say that no improvement has been made regarding the management of negative environmental externalities; it is important to note, however, that the improvements that have been made in the sector have largely been facilitated by the industry groups (CICUR in particular) and government efforts to alter economic incentives. Specifically, industry groups have helped to spread information about cleaner technologies, helping to bridge the information gaps that lock producers into older production processes; in some instances, such as the use of a precipitant that allows for chromium to be reclaimed and reused, these new technologies not only promote compliance but also lower production costs (Blackman 2006).¹¹ It has not been the use of regulatory pressure that has forced workshops to clean up—to the extent that they have—because the industry has been able to skirt these pressures. Instead, improvements have come through industry groups' ability to promote voluntary change through the provision of information about the costs of traditional, dirty technologies.

Several other indicators reveal the extent to which the efforts of small enterprises have been effective in shaping the markets in the tanning cluster in León. First, one of the goals of the agreements was to push for the relocation of many of the tanning enterprises into zones (i.e., industrial parks) that have communal wastewater treatment facilities, thus mitigating the high expense of individual treatment mechanisms for microfirms while still eliminating the costs of pollution borne by the community. However, the municipality of León—which, like other municipalities, has the constitutionally established prerogative to establish local zoning codes—never bothered to even propose codes that would force tanneries into particular areas of the municipality (Blackman and Sisto 2003). The failure is reportedly the consequence of the unpopularity of the small businesses having to relocate their operations. Second, although the government had established inspections as part of the process to reduce toxic emissions from the tanners, these inspections to determine whether tanneries in León were in compliance fell to nearly zero by the year 2000 in spite of the fact that well under half of the tanneries had become compliant (Pacheco-Vega 2008, 79). Pacheco-Vega (2008) attributes this in part to the political

¹¹ This case is not alone in this respect. There is a growing literature on what Schrank (2013) calls “rewarding regulation,” social regulations (i.e., environment or labor) that promote the use of processes that are in the long-run less expensive, more efficient, lead to the production of more competitive products, or create some other private good for the producers.

influence of the industry in the community and the unwillingness among local officials to alter the market conditions for this locally dominant sector in ways that might disadvantage them.

In spite of its capacity to avoid the enforcement of environmental regulations, the tanning industry has been mostly unable to lobby effectively at the federal level for policy that would protect them from the competitive pressures they face from international enterprises or lower the costs of credit. Where the sector has been effective—and, hence, where it violates the predicted weakness at the federal level—this was a function of the high concentration of firms in a few communities and fortuitous political connections rather than a sustained capacity to shape the national policies that define the market in it they operates.

The relationship between the tanning industry and the footwear industry in Guanajuato is revealing and underlines the difficulty of organizing cross-industry small business organizations. Both industries have independent business organizations: CICUR and CICEG (the Chamber of the Footwear Industry in Guanajuato; Cámara de la Industria del Calzado del Estado de Guanajuato). Pacheco-Vega (2008) argues that there has been little coordination and cooperation between the two industry organizations—in spite of the fact that they occupy positions in the same supply chain—and between parallel state-level organizations—in spite of the fact that they are concentrated in proximate states. The national business organizations—the Cámara Nacional de la Industria de Transformación (National Chamber of the Processing Industry; CANACINTRA) and the Confederación de Cámaras Industriales (Confederation of Industrial Chambers; CONCAMIN), which counts among its constituent business groups CICUR, CICEG, and parallel organizations from Jalisco—had begun jointly advocating for more active industrial policies in the mid-1990s. A package of policies that they believed would assist small firms generally included federally subsidized credit, fiscal incentives for inter-firm cooperation and for the upgrading of productive technologies, investment in infrastructure, and the creation of an agency that would be dedicated to directing resources to small firms and advocating for necessary government action to aid small firms (Shadlen 2002). These requests went largely unmet as federal policy tended toward open trade and nonintervention. In the absence of more effective lobbying for industrial policy for small firms, CICUR and CICEG have continued to express fears about their global competitiveness and their need for protection from international competition, a concern that that was heightened by China's entry into the WTO (World Trade Organization) in 2001. After commissioning a study of the competitiveness of the tanning and

footwear sectors in León, the business associations have concentrated on the much more limited goal of retaining some trade protections for the footwear sector, which have been consistently eroded.

Partial evidence of the tanning and footwear industries' effectiveness at lobbying at the national level seems rather to be the exception that proves the rule. Between 2004 and 2006, the footwear industry in León successfully solicited about one million pesos in federal financing for support (divided among some 600 enterprises) (Pacheco-Vega 2008). On closer examination, however, what looks like a lobbying success seems more like a fortuitous political connection. Then Mexican President Vicente Fox was owner of a footwear production facility in Guanajuato, and some have seen this kind of assistance to the allied footwear and tanning sectors as clearly connected to the president's own financial interests. While able to extract minor financial assistance from the federal government when its connections happened to reach the office of the executive, the tanneries have mostly been unable to actively shape broader trade policy in a manner that would help shore up their competitiveness or alleviate competitive pressures.

Ceramics (*Alfarería*)

Workshops in the traditional ceramics industry have arguably been more effective at shaping national policy, in spite of the industry being structured more like brickmaking (e.g., multiple scattered clusters) than like tanning (fewer, more concentrated clusters). The difference has been the engagement of disparate clusters by an activist bureaucracy. The traditional ceramics-producing industry in Mexico is a sector that has long been a source of both dangerous labor conditions and environmental degradation (Dietz et al. 1991). A key source of these social dangers has been the reliance on the use of lead oxide as a fluxing agent in the glazes that are applied to the ceramic goods.¹² Use of lead oxide exposes workers, their family members (who frequently live in family-centered workshops), and the consumers of their products to soluble lead, a neurotoxin whose wide-ranging health effects are well documented. The lack of attention

¹² A second source is the use of wood-burning updraft kilns, which both expose workers in workshops to excessive levels of smoke and heat and have also tended to strain the local ("common-pool") forest resources in the areas surrounding ceramics-producing communities. This section will focus specifically on the use of lead oxide, as it has been the part of production that the national government has sought to regulate.

to disposal of waste glaze has also led to the contamination of soil and water near the communities that produce ceramics (Cuiriz Morales 2011). With an estimated 10,000 small workshops—largely clustered in discrete communities in the central highlands—the environmental and health issues associated with ceramics production are grave (Secretaría de Salud 2003).

Efforts to curtail the use of lead oxide through regulation were spearheaded by the Secretary of Health in the early 1990s, in part as a response to changing international norms on exposure to lead. The National Lead Substitution Program was formed under Fonart (National Fund for the Promotion of Artisanal Production) in the mid-1990s as a response to the clear incapacity of workshops to comply with newly established restrictions against the use of lead oxide in ceramics production. This national program sought to both develop (see Samford 2015) and diffuse (see Samford forthcoming) an alternate glaze technology in order to bring workshops into compliance with domestic regulation and international market quality standards.

Few ceramics producers identify the development or diffusion of a new technology as a high priority, and workshops have not organized to seek assistance with surviving the pressures of international markets and production norms. In fact, there has been a high degree of reflexive resistance to complying with the new regulations for adopting the lead-free technology, which appears to stem from informational gaps (i.e., inaccuracies in estimating costs and benefits; lack of information about the new technology; uncertainty about long-run costs of lead use) and market uncertainty (i.e., lack of knowledge about the marketability of products with lead-free glaze). For example, workshops very frequently report that they see no negative consequences of using lead-oxide glaze and, hence, that the costs of adopting it are not worth bearing. Resistance to new regulations has taken a number of different forms. Most common is the generally uncoordinated avoidance of officials in the informal sector. Although most know of the regulations and of the existence of an alternate technology, they simply choose to operate as they have for years, selling products informally and avoiding contact with government officials. Slightly more coordinated efforts to resist have also been observed, for example, making government officials associated with the regulations unwelcome in local communities (Herrera 2011).

A particularly egregious example of local resistance has occurred in the state of Michoacán. As a part of the state's historical efforts to shore up electoral support in the 1970s

and 1980s, ceramics producers and other artisans were encouraged to join a state-level artisans union (UNEAMICH; Unión Estatal de Artesanos de Michoacán). Although there has been significant political change in the state and nationally since that time, some of these organizations still exist at the local level and are associated with the state government through the state-run Michoacán Handicrafts Center (Casa de las Artesanías). The Casa de las Artesanías has been nominally committed to assisting the diffusion of lead-free glaze and promoting compliance with federal regulations. However, responding to pressure from the organized ceramics producers in UNEAMICH, as of 2011 it continued to actively sell subsidized lead-oxide glaze to workshops across the state, in spite of the existing national policy geared toward its eradication.¹³ In a meeting with a representative of Fonart in July 2011, the current director of the Casa de las Artesanías (a political appointee chosen by the PRD Governor) articulated the view that, “Ethically, the Casa de las Artesanías has an obligation to care for and support the sector. Those trying to feed their families need help immediately, and the longer-term project of changing technologies will have to be subservient to that” (Herrera 2011). This view hews quite closely to the logic described by Tandler (2002) of “protecting” short-term wellbeing from the demands of federal regulations and international markets in exchange for local political support.

In short, in Michoacán and elsewhere in the Mexican highlands, ceramics producers have been relatively successful at pressuring many local officials to either not enforce, not allow to be enforced, or actively undermine national regulations against lead use. Most ceramics-producing areas are poor and rural and often ethnically indigenous, and appeals to the supposed negative welfare consequences of reportedly burdensome steps to compliance shape the calculus of local officials.

The ceramics industry has been partially able to affect the manner in which it is regulated at the national level, if not to advocate for a broader set of desired policies.¹⁴ What distinguishes ceramics workshops from brick kilns is the fact that a government agency has sought the input of communities and workshops for the substitution of lead. The Lead Substitution Program has

¹³ In 2011, the Casa reportedly had roughly three tons of powdered lead-oxide glaze stockpiled for distribution, suggesting a continued interest in the provision of the toxic but popular input.

¹⁴ Although the Lead Substitution Program promotes the adoption of new technology that will improve the sector’s competitiveness along with labor and environmental conditions, I draw a distinction between this beneficial policy and the policies that the workshops in the sector have identified as being potentially beneficial for them (and that they would lobby to have implemented).

required information from workshops at the local level, particularly in the field-testing of the new technology in existing workshops and in the recruitment of community contacts who act as cluster-level diffusers of information and trainers in the new technology. The information taken from workshops has affected the manner in which regulatory compliance has been pursued through training and information diffusion, rather than punitive or command and control mechanisms. That said, while the trainings the program provides to promote compliance have potential to improve the process and products in this sector, it is clearly not the primary policy priority of ceramics producers.

Assistance with marketing of their products is one particular example that stands out as a priority that ceramics producers have been ineffective at lobbying the government to provide. In the several hundred interviews I carried out among the ceramics producers (between 2010 and 2012), many identified the need for improved training in marketing or commercialization of their products. Most ceramics producers sell their goods in bulk (*por mayoreo*) to middlemen (*acaparadores*) who have the means to move the products and the connections to either sell in domestic markets or, less frequently, export if the products are lead free. Under these conditions, the producers are price-takers who face a great deal of market uncertainty and lose a share of their potential profits to others. They recognize this an arrangement that disadvantages them and view assistance with marketing as a means around the monopsonistic conditions under which they sell their goods. To this end, they have sought training in marketing from Fonart, which purchases nationwide and resells artisanally produced goods in stores in Mexico City. Fonart officials see this as a means of providing assistance to artisans, but the artisans themselves see Fonart's purchasing program as woefully inadequate, buying limited amounts of ceramics at low prices. Fonart has been resistant to the calls to alter this long-standing buying program or to offer marketing training, and ceramics producers have been unable to coordinate efforts with other artisanal sectors, whose markets differ from those of ceramicists and who seldom live in close proximity to ceramics-producing clusters.

Although it has not been successful at lobbying federal officials for its preferred policies, the ceramics sector has had an effective conduit through which information about technological capability is able to flow and adjustments to enforcement can be made. This brokering, however, came as a federal government initiative, rather than as an elective action on the part of the widely

dispersed ceramics workshops. It has, in other words, little to do with the national influence of the ceramics industry but instead with the initiative of federal bureaucrats.

DISCUSSION

Although the three industries described here vary in some details, they embody a relative coherent pattern in which they can be seen to be both quite ineffective at advocating for the kinds of market-shaping policies that might benefit them at the national level *and* adept at stymieing local regulatory efforts. The brickmaking industry illustrates the concurrence of the capacity to shape the outcomes of environmental policies that affect the nature of the markets in which they operate at the local level and inability to lobby more actively for “industrial” policies for microenterprises. I suggest that this is a consequence both of the nature of the efforts to shape how they are affected by government policy or regulation—whether proactive or reactive—and of the more intractable collective action problem that microenterprises face with coordinating diverse and geographically dispersed workshops and producers. The temporary success in Ciudad Juárez may be read as a brief example of proactive local efforts, which ultimately underlines the lack of policy discretion at the municipal level. While the leather tanning and ceramics industries are similarly effective at resistance at the local level, they have also had a greater degree of success in advocating for themselves at the national level. For the tanneries, this seems to have been more like reactively seeking assistance in the face of trade liberalization, facilitated by heavy concentration of the industry in a few clusters. The ceramics sector, while generally resistant, has benefited from a federal bureaucracy that has actively sought functioning informational ties with some clusters of workshops. In the absence of these idiosyncratic conditions, ceramics producers would be similarly ineffective at the federal level.

From the perspective of environmental regulation, one key lesson is about the manner in which compliance (and the requisite technological upgrading) is achieved among these small, low-tech enterprises. Where efforts to promote compliance have been even marginally successful, the success has not been a consequence of punitive command and control mechanisms, which the small enterprises are good at avoiding. Instead it has come as local officials recognize the capacity to stymie regulation and are able to develop mechanisms that address the technological gaps and uncertainties associated with changing technologies, typically with a combination of informational resources and programs that alter the economic incentives

for upgrading. In each case of partial compliance, this process moved from 1) the issuance of the regulation to 2) the recognition by local officials that compliance would not occur without programs that addressed the economic concerns of the producers to 3) the development of alternatives to direct command and control mechanisms. This progression has required the ability of government agents to adapt to the resistant capacity of the industry and to have sufficient contact and communication with enterprises or industry groups to design effective interventions. This again harks back to successful industrial policies where incentives are provided to firms to encourage them to make technological leaps and where “embeddedness” of state agents allows for the design of appropriate policies (Evans 1995), including addressing the manner in which the firms prioritize their many obligations. The technological leaps in question in the cases discussed here are simpler than those in typical discussions of industrial policy and of the technologies provided by governments, but the underlying mechanisms of addressing firms’ shortcomings are much the same.

Another point that emerges from the analysis is that the structure of clusters matters for the effective brokerage of information between the state and the private sector (see Samford forthcoming). Most obviously, enterprises that are clustered in fewer communities (such as Mexican tanneries) wield greater capacity to shape the regulation of their markets at the federal level. This concentration lowers the costs of coordinating across communities and lowers the chances that the enterprises will have distinct interests. Fortuitous connections to national policymakers aside, the concentration of the tanneries appears to have lowered the barriers to intra-industry cooperation such that they were not only politically formidable at the local level but also able to lobby at the federal level. Brickmakers, by contrast, generally have little contact across communities and are consequently unable to overcome barriers to cooperation. Ceramics producers are structured much like the brickmakers (i.e., widely dispersed) and are similarly uncoordinated across communities, a feature that is common to many other kinds of low-tech industry.

At the local level, these cases demonstrate that small enterprises have a host of methods that can be effectively deployed to resist market-altering policies. These forms of resistance are reminiscent of James Scott’s (1985) notion of “everyday forms of resistance,” which he ascribes to peasants who resist authority without overt opposition. For the kind of very small enterprises depicted here, there are a corresponding set of behaviors: operating workshops within family

compounds (Dietz et al. 1991; Blackman 2006); consciously remaining a very small operation to lower likelihood of government attention (*Economist* 2014); informality (Maloney 2004); and so on. These activities are effective at least in part because they require little more than a shared preference to avoid making changes, not necessarily coordinated action. They require little to no coordination and do not face the kind of collective action problems that more proactive forms of action do. The effect of a cluster of producers all independently shirking regulatory standards is the maintenance of existing market structure, rather than, say, the reduction of environmental externalities.

However, these everyday forms of resistance—idealized as they might be by Scott (1985)—are from a developmental point of view potentially quite troublesome. Both those who see small firms as too strong for their own good at the local level and those who see them as inherently incapable of effective organization interpret these characteristics as a detriment. Taken together, I believe these characteristics present a double threat to the enterprises. In the sectors examined in this paper, the continued avoidance of regulation perpetuates not only the negative community-level externalities associated with their respective industries but also the high private costs of worker exposure and, in the case of the ceramics sector, inability to access external markets where the import of lead-glazed ceramics is restricted. In short, given that the blanket notion that regulations are costly and harmful for firms—and particularly so for small and microenterprises—is increasingly tenuous (Schrank 2013), the ability to shape their market environment by resisting simple product and process upgrades is potentially a significant problem for their long-term viability. As Tandler (2002) argues, many small producers appear to have the capacity to upgrade, so using political influence to avoid doing so on the grounds of short-term costs is generally counterproductive. At the same time, these microenterprises are unable to advocate for national policies, such as programs that fund or provide informational assistance or training with marketing and commercialization, that might make them more competitive and might make upgrading less financially challenging. Small tanneries and ceramics workshops—like so many other similarly structured industries—are simply unable to create bridges to other sectors and make their collective interests known to national officials. In the case of Mexico, it is clear that their organizations have been unable to alter the direction of national policymakers by whom open “trade policy was mistaken for development policy” (Zepeda, Wise, and Gallagher 2009). An image emerges of a broad group of enterprises that are

too effective at maintaining their own negative externalities for their own good in one respect and too ineffective at pressing for policies that generally reduce the barriers to innovation in another.

From a developmental standpoint, this double-edged problem is of grave concern. The vast majority of workers in Mexico and other middle-income and developing countries are employed in similar kinds of microenterprises, rather than large or high-tech firms. These kinds of firms are known to use outdated equipment and techniques, to maintain low standards for workplace safety, and to contribute significantly to environmental degradation (Lanjouw 2006; Grineski et al. 2010). Although the development of solutions to this dual problem is not the priority here, it is worth initially identifying some literature that holds some promise for addressing it. A stream of literature is emerging that examines the role of regulatory agencies in helping to overcome local resistance by using information provision and flexibility to lower the apparent costs of compliance (Pires 2013) or by providing assistance that helps small producers to bridge technology gaps rather than resist pressures to upgrade (Perez-Aleman 2013; Samford forthcoming). Other work that focuses on “state-society synergies” (Evans 1997; Ostrom 1997) or information brokerage between the private and public sectors (Samford 2015) may also hold insights for overcoming the informational gaps between small private sector groups and national policymakers. There seems to be less interest in the problem of collective action and representation faced by microenterprises, which may ultimately be the more intractable side of the dual challenge facing small enterprises.

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