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Short Title: The Normalization of Wage Arrears in Russia

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The Normalization of Deviant Organizational Practices:
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Abstract

We apply a normalization of deviance model to understand the prevalence of the illegal practice of wage arrears, the delayed payment of wages, in Russia during the 1990s. The normalization literature proposes that organizational deviance may be self-reinforcing, such that initial acts of organizational deviance are likely to induce additional deviations from formal standards of appropriate behavior. Based on this perspective, we hypothesize that the frequent adoption of a deviant practice within a community will make it more likely that firms in that community will engage in deviance and less likely that injured stakeholders will actively mobilize to oppose it. Our empirical analysis of wage arrears in Russia, based on data from a large, nationally representative sample of Russian agricultural and industrial enterprises, supports our hypotheses. Our findings show robust community effects both in firm use of wage arrears, controlling for firm performance and liquidity, and in workers' mobilization against them, through their quit (exit) and strike (voice) behavior.

Quid leges sine moribus vanae proficient

(Of what use are laws empty of customs?)

– Odes of Horace, 3.24

A growing stream of research in the management literature has examined deviant organizational behavior as a property of the institutional context in which it takes place. By a deviant organizational behavior, we refer to "an event, activity or circumstance, occurring in and/or produced by a formal organization, that deviates from both formal design goals and normative standards or expectations, either in the fact of its occurrence or in its consequences" (Vaughan, 1999: 273). Organizational deviance is sometimes explained by the breakdown of a normally well-functioning institutional system, such that organizational mistakes, misconduct and disasters are seen as rare events limited to marginal and failing organizations. In contrast, an institutional perspective views organizational deviance as "a routine by-product of the characteristics of the system itself" (Vaughan, 1999: 274). Once a community normalizes a deviant organizational practice, it is no longer viewed as an aberrant act that elicits an exceptional response; instead, it becomes a routine activity that is commonly anticipated and frequently used (Ashforth & Anand, 2003; Brief, Buttram, & Dukerich, 2001; Ermann & Lundman, 2002; Palmer, 2008; Pinto, Leana & Pil, 2008).

While organizational research has usually analyzed normalization processes at the level of the individual firm, Misangyi et al. (2008) call for the extension of this perspective to the study of organizational deviance at higher levels of analysis. They note that recent scandals in the United States have been "industry wide (e.g. accounting, energy, insurance, mutual funds) or regional (e.g. California's energy crisis), and not merely a matter of misbehavior by a specific

organization, group or individual" (Misangyi et al., 2008: 750). To extend analysis of the institutional context of deviant organizational behavior, they propose that "amoral (and corrupt) reasoning, and the responses to it, need to be construed as part of a larger institutional logic within which individuals, organizations, and even researchers are embedded."

In this paper, we address this call to extend the normalization model to higher levels of analysis. Research into organizational misconduct has demonstrated that deviant behavior may not only grow within an organization, but also may spread between organizations that work closely with each other (Vaughan, 1996; Zey, 1993, 1998) and between organizations that operate in the same industry (Geis, 1977; Baucus and Near, 1991; Simpson, 1986). A normalization perspective suggests that institutional processes may also influence the persistence of deviant organizational behavior among organizations that have no direct economic ties and that operate in different industries. If deviant behavior is allowed to persist unchecked over a long period of time within a local community, then deviance may become routinely used and anticipated among the organizations that work in that community despite contradicting the formal rules of society.

To develop hypotheses about the impact of normalization processes on the persistence of community norms of deviant behavior, we build upon related research that has studied the role of institutional context in facilitating the spread of organizational practices within a common field of actors (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983; Fligstein, 1985). While this research has usually focused on legitimate organizational practices – practices that conform to the broader regulatory and normative standards of broader society – we suggest a similar institutional perspective can be applied to the study of deviant organizational practices. A common finding in the organization literature is that the cumulative use of an organizational

practice within a field is likely to positively influence the subsequent growth and survival of the practice (Guler, Guillen, and Macpherson, 2002; Palmer, Jennings, and Zhou, 1993; Westphal, Gulati, and Shortell, 1997). Based on a similar logic, we hypothesize that, all else being equal, managers operating in communities with a higher prevalence of deviance will be more likely to engage in deviant behavior than will managers operating in communities with a lower prevalence.

While we first examine the implications of normalization processes from the point of managers who engage in deviant behavior, we also propose that normalization is likely to contribute to the persistence of deviant organizational behavior through its impact on other stakeholders as well. In particular, we examine the case of labor-related deviance where workers suffer harm from an organizational practice that violates the formal rules of society. We hypothesize that there will be less worker strikes and quits in communities with higher rates of deviant behavior, despite the fact that the hardships suffered from organizational deviance will be felt the strongest in these communities. By including an analysis of stakeholder responses in our study, we respond to the call of multiple organizational scholars for more research to include audiences and interests beyond those of managers when examining the ways that institutional processes shape organizational behavior (Clemens and Cook, 1999; Hinings and Greenwood, 2002; Seo and Creed, 2002; Stryker, 2000).

We test our hypotheses through an analysis of managerial and worker responses to the growth of wage arrears in Russia in the late 1990s. Wage arrears, the late and non-payment of contractual wages to employees, first became substantial in Russia in 1993, and the aggregate stock of overdue wages grew to a total of 50 trillion rubles (around 8 billion dollars U.S.) by the beginning of 1998 (Goskomstat, 1998). Nearly two-thirds of Russian employees reported they

were owed overdue wages by the end of that year, with an average debt of 4.8 monthly wages per affected worker (Earle and Sabirianova, 2000). The growth of wage arrears took place despite the fact that they were illegal and frequently normatively condemned. Indeed, while the legal systems of most other countries provide no special provisions for wage arrears, treating them merely as a particular case of contract violations, the Russian Labor Code explicitly outlawed them. Moreover, public opinion data research has demonstrated that Russian workers consistently placed the problem of wage arrears as one of the fundamental problems facing the country (Javeline, 2003). Gerber (2006) finds that Russian workers that received wage arrears were more likely to have health problems and a lower standard of living than those that received contractual wages.

Our analysis of a large survey of Russian agricultural and industrial firms, containing annual information from 1991 to 1998, provides strong support for our normalization hypotheses in the context of wage arrears in Russia. Despite being illegal and frequently normatively condemned, wage arrears were nonetheless routinely used with little worker opposition in many Russian communities.

THE NORMALIZATION OF DEVIANT ORGANIZATIONAL PRACTICES

The normalization literature distinguishes between factors that lead to the genesis of organizational deviance and factors that cause deviance to become routine, rather than idiosyncratic, behavior. A permissive ethical climate, an emphasis on financial goals at all costs, and an opportunity to act amorally or immorally, all contribute to managerial decisions to initiate deviance (Ashforth & Anand, 2003; Brief, Buttram, & Dukerich, 2001). If deviance is allowed to continue unchecked, then individual acts of deviance can turn over time into "institutionalized

corruption: personal behaviors become impersonal norms, emergent practices become tacit understandings and idiosyncratic acts become shared procedures" (Ashford and Anand, 2003: 9). Behavior that some societal groups may label as corrupt, illegal or immoral can become routinely used, widely anticipated and institutionally rewarded.

Ashford and Anand (2003) posit three stages of normalization: institutionalization, rationalization and socialization. Institutionalization refers to the process by which initial deviant decisions or acts become embedded in organizational structures and processes; rationalization to the process by which new ideologies develop to justify and perhaps even valorize corruption; and socialization refers to the process by which newcomers come to accept deviance as permissible if not desirable. While separating these stages of normalization for analytic purposes, Ashford and Anand (2003: 35) suggest that each process "reinforces and in turn is reinforced by the other two." For instance, institutionalization processes lead to the construction of informal procedures and norms that reward deviant behavior, which reinforces efforts to rationalize local standards of behavior and socialize newcomers. Individuals are less likely to openly question or challenge the status quo as the costs of opposition, and the benefits to conformity, rise over time.

Ermann and Lundman (2002) develop a similar process model as Ashford and Anand (2003) to examine organizational deviance, but add an additional stage of "stakeholder reactions" to their analysis. They write that "institutionalized deviance typically continues until stopped from inside or outside the organization. Internally, whistle blowers may step forward with accusations and evidence of wrongdoing. Externally, the media, prosecutors, or victims may challenge organizational actions." (Ermann and Lundman, 2002: 27). Their identification of external challengers to organizational deviance, such as the media and prosecutors, is similar to Palmer's (2008) argument that the actions of "social control agents" need to be included in the

study of organizational wrong-doing. If community leaders and regulators do not forcibly respond to organizational deviance, then organizational members are likely to conclude that there are few regulatory consequences or normative improprieties in violating formal standards of behavior (see also Brief et. al, 2001).

As well as looking at external challenges to deviance, the normalization literature also closely examines the potential of internal challengers. For instance, in their analysis of whistle-blowers, Ashford and Anand (2003: 37-39) note that normalization processes make it increasingly difficult for internal challenges to deviant behavior to succeed. As deviance increases in scale and scope, organizational members who may personally condemn such behavior may nonetheless consider themselves powerless to oppose it. Ashforth and Anand (2003: 37) write that whistle-blowing is so "fraught with career-threatening outcomes, that when three individuals did it in one year, they were named Time Magazine's Persons of the Year in 2002."

The case of worker movements that oppose labor-related organizational deviance provides another illustration of the role that internal stakeholders may play in reversing the normalization process. A long literature has demonstrated that organizations frequently implement policies that curtail human rights, offer below minimum wages, or provide inadequate health and safety working conditions (Margolis and Walsh, 2003; Rosen, 2002). In some communities, sweatshops are accepted as a routine and everyday part of economic life despite their violations of the formal rules of society (Radin and Calkins, 2006). However, research into worker movements illustrates workers are not always passive recipients of managerial choices, but at times mobilize to transform the institutional environment in which they work (Pivens and Cloward, 1977). For instance, Edwards (1979) demonstrates that the question of who defined the limits to managerial discretion became highly contested in the United States, often leading to violent interaction

between workers and managers. Similarly, comparative management researchers have demonstrated that political conflict and settlements between workers and managers has been an important factor in explaining cross-national variation in corporate governance systems (Aguilera and Jackson, 2003; Roe, 2006).

The fact that multiple audiences, either external or internal to the firm, often oppose organizational deviance helps to explain why normalization is so rare in many communities. Social control agents, whistle-blowers and workers have all been shown to successfully challenge or reverse normalization processes. Given the possibility that multiple social actors may oppose deviant organizational behavior, managers and other stakeholders are likely to view initial acts of deviance with uncertainty over their effectiveness and permanence. As a new deviant behavior is first introduced, the degree and extent of external and internal opposition is likely to be an important question for managers evaluating the new practice (Pinto et al., 2008). However, if deviance proceeds unchecked over a period of time, then managers are likely to become increasingly assured of the effectiveness of such practices. At the same time, challengers to deviant behavior are likely to become increasingly convinced of its permanence as it becomes more frequently use. Those who might have the most desire to oppose deviance may nonetheless define their immediate interests as accommodating to existing patterns of behavior rather than engaging in social mobilization efforts designed to challenge them (Misogyni et al., 2008; Seo and Creed, 2002).

In the section below, we analyze separately the proposed effects of normalization on managers' decisions to engage in deviant behavior and on others' decision to oppose it. As normalization processes widen the scope of managerial options to pursue profits through new forms of deviant behavior, we also propose that they limit the options open to others to challenge

that behavior.

The Use of Deviant Organizational Practices

An important implication of the normalization model is that the initial use of a deviant organizational practice is likely to contribute to its own reproduction through its effect on managerial cognition and reasoning. Pinto et al. (2008) discuss the role of sensemaking and routinization in explaining the cognitive mechanisms that lead to the normalization of corruption within an organization. Sensemaking occurs when members confront events, issues, and actions that are somehow surprising or confusing (Gioia & Thomas, 1996; Louis, 1980). When managers first encounter deviant behavior, for instance, the need to make sense of the new practice is likely to lead them to carefully observe the actions of others to uncover the operating norms of behavior within the organization and the broader society. As initial uncertainty fades and a practice becomes routinized, however, this active consideration of external norms and internal morality is likely to decrease. With continued use, deviance may become a normal and everyday practice that managers use with little active thought.

Pinto et al. (2008) build from Tenbrunsel and Messick's (2004) work on the "slippery slope" of ethical decision-making to identify why the ethical aspects of managerial decision-making may come to fade into the background through routinization. *Psychological numbing* takes place as members of a community become repeatedly exposed to deviant behavior; over time, "repeated exposures to ethical dilemmas may produce a form of ethical numbing in which self-reproof is diminished" (Tenbrunsel and Messick, 2004: 228). A *process of induction* also contributes to the incremental entrenchment of deviant behavior over time. Using inductive logic, managers are likely to rely on past organizational decisions as a guide to evaluate the

ethicality of new forms of behavior. The past success of deviant practices is assumed to validate the process through which initial deviant decisions were made (see also Ashford and Anand, 2003: 9). The frequent use of a deviant practice therefore provides an ethical precedent that encourages its future use without a continuous reexamination of its acceptability: "Routinization means that when a practice has become routine, it is ordinary, mundane, and acceptable. Any ethical coloration is lost." (Tenbrunel and Messick, 2004: 228).

The discussion of the amplifying effects of deviance through its routine use relates to similar arguments made about the spread of legitimate organizational practices across organizations (DiMaggio and Powell, 1983; Fligstein, 1985; Tolbert and Zucker, 1983). In the literature on organizational fields in the management literature, normative standards of behavior are not simply imposed on managers by more powerful organizations such as the state or professional organizations. Instead, managers themselves are participants in the construction of the commonly accepted standards of behavior under which they operate. A process of social learning and observation moves an organizational practice from an innovation that requires active efforts of sensemaking to a routine behavior that operates as a habitual response to common organizational problems. The more that a practice becomes frequently performed within a field, then the more likely that other managers in the field will come to adopt the practice over time. A firm's adoption of a new activity therefore has consequences not only for the firm itself, but also for the community as a whole.

Organizational researchers have frequently used a measure of a practice's cumulative adoption within an organizational field to study institutional effects in the spread of a new organizational practice (Burns and Wholey, 1993; Davis, 1991; Guler, Guillen, and Macpherson, 2002; Palmer, Jennings, and Zhou, 1993; Westphal, Gulati, and Shortell, 1997). These authors

argue that the wide-spread use of an organizational practice communicates to members of a social system the operable norms of appropriate behavior in ways that an examination of formal law or expressed moral sentiment cannot. We suggest that a similar logic can be applied to the study of deviant organizational practices. The wide-spread use of a practice may communicate that an organizational practice has lost any special regulatory or moral status within a community, i.e. it is normalized, as much as it may communicate that a practice has come to take on new positive, social meanings, i.e. it is legitimized. We propose that the cumulative and successful use of a deviant organizational practice is likely to reinforce perceptions of its normalization among managers who work within the same community, which, in turn, will contribute to its continued use. This leads to our first hypothesis:

Hypothesis 1: Independent of firm performance, firms operating in communities with a higher prevalence of deviance will be more likely to engage in deviant behavior than will firms operating in communities with a lower prevalence.

Reactions to Deviant Organizational Practices

An important question in the persistence of deviant organizational practices is not only why managers choose to use them, but also why other stakeholders permit managers to shape the workplace as they choose (Ermann and Lundman, 2002). The influence of institutionalization processes on the degree of opposition to a new practice is often theorized in the organizational literature. Jepperson (1991: 145) suggests that institutionalized practices "owe their survival to relatively self-activating social processes. Their persistence is not dependent notably, upon recurrent collective mobilization...." Tolbert and Zucker (1996) similarly suggest that "relatively low resistance by opposing groups" is an important indicator of the degree of institutionalization

of an organizational practice. We make a related argument about normalization processes. We suggest that the more a deviant behavior becomes normalized, then the lower the resistance by opposing groups.

Misangyi. et al. (2008) identify multiple mechanisms by which normalization processes are likely to decrease stakeholder opposition to deviant behavior. In their analysis of the strategies that lead to successful anti-corruption campaigns, Misangyi et al. (2008: 756) first note that "conditions that trigger deliberative cognition about behavior makes institutional change more likely, as such deliberation renders often taken-for-granted institutional logics visible and thus open to question or challenge (Barley and Tolbert, 1997; Emirbayer and Mische, 1998; Seo and Creed, 2002)." A critical task in anti-corruption campaigns is therefore to challenge the routine acceptance of deviant behavior such that alternative institutional arrangements seem possible and obtainable. A similar logic can also be made about why uncontested normalization processes are likely to lead to decreasing amounts of opposition. As a deviant practice becomes increasingly accepted as a routine part of everyday life, then active deliberation and conversation about its appropriateness is likely to diminish. From this perspective, the routinization and rationalization processes that were identified as accelerating the managerial use of a deviant practices are also likely to decrease stakeholder challenges to the practice.

Misangyi et. al. (2008) further posit that normalization processes entrench deviant behavior within a community through the redistribution of resources in favor of the status quo, an argument similar to Ashford and Anand's (2003) position that normalization processes reshape organizational incentive systems to reward deviance and punish opposition. As a deviant practice spreads in its use across a community, those who benefit from this activity gather additional resources to reward those who conform to local norms and to punish those who

oppose them. This redistribution of resources leads to growing differences in financial wealth between members of a community as well as differences in human capital (e.g. access to education and expertise) and social capital (e.g. access to individuals who regulate markets and society). The power of those that support deviance systems comes not only from their direct access to cash, but also through their ability to shape institutional rules and rewards in their own favor (Clemens and Cook, 1999; Seo and Creed, 2002). Given the differentials in resources between those who support and oppose institutionalized deviance, Misangyi et al. (2008) suggest that anti-corruption campaigns most not only motivate those who oppose deviance by facilitating active discussion of alternative futures but also by providing resources to allow these actors to effectively act on their beliefs.

Misangyi et al.'s (2008) proposal that the cognitive and resource effects of normalization processes act in tandem to support deviant behavior within communities is similar to Ashford and Anand's (2003: 38) argument that deviance is "normalized when the group's structure, processes and employee mental models act together to perpetuate unethical acts." The normalization literature does not isolate a single mechanism in explaining normalization effects, but instead notes the overlapping and self-reinforcing mechanisms of several processes taking place at the same time. Misangyi et al. (2008) build on this tradition when identifying the multiple processes that make it difficult for challengers to successfully mobilize against corruption in communities with high levels of normalized deviance.

Workers mobilization against violations of formal labor standards and rights provide an important example of the tight interconnection between symbol and substance in the persistence of deviant organizational behavior. Pivens and Cloward (1978) remark that "the social arrangements that are perceived as just and immutable must come to seem

both unjust and mutable" before workers mobilize to oppose managerial action. From this perspective, the normalization of a deviant organizational practice within a community may lead workers to change what they consider to be "just" organizational behavior, as routinization and rationalization processes alter the normative standards used to evaluate managerial behavior. Just as importantly, the continued use of a practice within a community may also transform beliefs about the relative permanence of a practice, i.e., what is "mutable." The frequent use of a deviant organizational practice within a community is likely to reinforce the belief among injured stakeholders that they are powerless under existing institutional conditions to contest what they consider to be deviant organizational behavior.

Organizational researchers have often noted that strategic actors respond to institutional norms in the broader environment not only because they value or agree with them, but also because they become "experienced as possessing a reality of their own, a reality that confronts the individual as an external and coercive fact" (Berger and Luckman, 1966: 58, cited in Tolbert and Zucker, 1996). The belief in the "exteriority" of social practices as beyond the ability to change leads strategic actors to accept social norms as a stable component of the way the world is, even if that practice does not match a normative perception of the way the world should be (Powell and DiMaggio, 1991; Zucker, 1977). While much of organizational theory has applied this argument to managerial actions, we propose that another fruitful application is to the study of stakeholder opposition to deviant organizational practices.

We develop two hypotheses specifically about the potential reaction of workers to deviant organizational behaviors that have strong adverse effects on employee welfare.

Hirschman (1970) identifies two primary mechanisms by which workers are able to challenge organizational activity: exit and voice. Based on the argument that normalization decreases manifest opposition to a deviant organizational practice, we first hypothesize that the more that organizations within a community use a deviant organizational practice that negatively impacts worker welfare, the less likely that workers in that community will exit (quit) a firm that uses the practice. We then hypothesize that the greater use within a community of such a deviant organizational practice, then the lower the probability that workers in that community will express voice (strike) against a firm that uses the practice. Our two hypotheses are as followed:

Hypothesis 2: The prevalence of a deviant organizational practice within a community will moderate the relationship between firm-level deviant behavior and employee turnover, such that the greater prevalence of a deviant behavior within a community, the less likely that employees will quit firms that engage in that deviant behavior.

Hypothesis 3: The prevalence of a deviant organizational practice within a community will moderate the relationship between firm-level deviant behavior and employee strikes, such that the greater prevalence of a deviant behavior within a community, the less likely that employees will strike against firms that engage in that deviant behavior.

WAGE ARREARS IN RUSSIA

Background

Taking their starting point in the neoclassical economic model of wage adjustment, most prior studies of the Russian labor market have treated wage arrears as a "flexible" way for firms

to reduce labor costs (Alfandari and Schaffer, 1996; Desai and Idson, 2000; Gimpelson, 1998; Layard and Richter, 1994; Lehmann, Wadsworth, and Acquisti, 1999; a critique of this approach can be found in Earle and Sabirianova, 2000 and 2002). The pressure to cut labor costs in Russia had been heavy due to the inherited situation of overstaffing, particularly in industrial enterprises, which, emerging from the constraints and supports of administrative planning, had experienced tremendous shocks to their product and factor markets. GDP had fallen by about 40 percent, and industrial production had been cut by over half in the early and mid-1990s (Goskomstat, 1998). Faced with this crisis, firms responded by reducing employment, hours of work, real wage rates, and employee benefits as well as delaying wages. A firm-level consequence of wage arrears – the ability to adjust wages flexibly under conditions of high uncertainty and difficult economic conditions – is portrayed as the primary causal explanation of why this practice has diffused so widely in post-communist Russia.

The application of a neo-classical economic model to the study of wage arrears assumes that markets function in a similar manner across societies: economic models developed in the United States can be applied with little adaptation abroad. In contrast, a normalization of deviance model suggests that organizational behavior may differ strongly across communities: practices that are routinely used in one society may be normatively sanctioned and opposed in another. A comparison of the widespread use of wage arrears in Russia with the practice of on-time payment in other countries illustrates the difference between a normalization of deviance perspective and the neo-classical argument. As Gerber (2006) notes, wage arrears are not only much rarer in most economies (including most post-socialist countries), but also when they do appear, the circumstances tend to be quite special. For instance, they may appear in small start-up companies facing severe liquidity constraints, bankrupt firms about to be shut down, or occasional

situations of fraud. For most firms under most circumstances, the choice of delaying wage payments is simply not an option. In the rare cases when arrears do occur, most communities react to this form of behavior as an abdication of contractual obligations instead of accepting it as an acceptable firm strategy to facilitate wage adjustment. Social understandings, not economic ones, provide the boundaries of what is considered to be legitimate behavior.

The issue in the spread of wage arrears is not only, or even primarily, one of legality. Indeed, while the legal systems of most other countries provide no special provisions for wage arrears, the Russian Labor Code explicitly outlaws the use of the practice. Firms may be called to account either by the civil courts (when workers file a lawsuit) or the Ministry of Labor's Inspection Service, in the latter case sometimes leading to criminal court procedures.

The prevalence of this practice, despite its illegality, illustrates the distinction between formal law and informal norms of appropriate behavior. Law has meaning only if it enters into the actions of individuals. The importance of social meaning in explaining the norm of on-time payment in many countries is not simply that late-payment is illegal, but that, in most situations, on-time payment is taken for granted. Western managers do not explicitly strategize about the costs and benefits of avoiding wage obligations, as if this practice represented a legitimate option among a menu of strategic choices. Instead, there is a cognitive component of institutionalized action in which practices are routinely chosen – or ignored – based on taken-for-granted norms of behavior (March and Olsen, 1989). What is taken-for-granted in one society may be very different from what is taken-for-granted in another.

While a comparison of wage arrears in Russia with norms of on-time payment in other countries provides important insights into the role of institutional context in explaining cross-national differences in organizational behavior, we focus in our analysis on variation in the use of

wage arrears between communities *within* Russia. By looking at comparisons within Russia, we are able to control for explanations of wage arrears that stress national characteristics, such as the idiosyncrasies of Russian culture or the weakness of the Russian state, in explaining this phenomenon. We are also able to control for measures of firm performance that the neo-classical model identifies as primary causes of wage arrears, such as a firm's problems with product demand and liquidity, while, at the same time, still vary the community context in which the organization is located. We examine variation in the prevalence of wage arrears across Russian communities in testing our hypotheses of the impact of normalization processes in influencing managerial decisions to use deviant practices and workers' decisions to oppose them.

Data

The firm-level data in this paper were collected to provide precise measures of wage arrears, growth, liquidity, labor, strikes, and turnover at the firm level for the period from 1991 to 1998.[1] The data were collected in 1999 and 2000 as part of a larger study of Russian firms. The data from the responses to this questionnaire were also linked to other data sources (Goskomstat industrial and agricultural registries and balance sheets) to supplement and further check the provided information. If particular data could not be reconstructed through past recording records, interviewers then asked managers to answer a survey of the frequency of events or practices for each year. We describe below our sample, research design, and specific operationalizations of the variables of interest.

[1] The survey of industrial firms also contained questions on 1999, but because firms interviewed in 1999 could provide information only through 1998 the sample for 1999 is much smaller (half the size of the 1998 sample), and it is nonrandom. So we exclude 1999 from the analysis. Results including 1999 are however quite similar to those we present.

Sample

The sample of firms is based on all industrial and agricultural employers of the employee-respondents to a nationwide household survey, the Russian Longitudinal Monitoring Survey (RLMS).[2] The sampling for the RLMS involved regional stratification across 50 *raions* within 32 Russian *oblasts*, with the probability of selection proportional to population (except for the cities of Moscow and St. Petersburg, which were taken as self-representing). Russian *raions* are roughly equivalent to the concept of a "county" in the United States; they represent a meaningful administrative unit below that of the *oblast* (regional) government. Household addresses were randomly selected for interviewing within the geographical sampling units. Thus, conditional on the same community stratification procedure, the firms in our sample constitute a national probability sample of industrial employers, with selection probability proportional to employment size.[3]

Unlike most surveys of firms, our procedure did not replace nonresponding firms with other observations, and interviewers expended great efforts to include every firm on their sample lists. As a result of this procedure, the response rate was approximately 64% among industrial firms (522 firms) and 73% among agricultural firms (75 firms). The regional and sectoral shares match those in the official statistics reasonably well, as shown in Biletsky et al. (2003). Response rates did not differ between the large firms in the government registries of enterprises

[2] The sampling strategy is very similar to the NOS (National Organizations Study) in U.S., which relies on employers of respondents in the GSS (General Social Survey). See Marsden, Kalleberg, and Knoke (2000) for a description of sampling in the NOS.

[3] To be precise, the RLMS involves a two-stage geographic stratification procedure followed by random drawing of households (residences); thus the probability for any household i to appear in the sample S_i is $\Pr(i \in S_i) = \Pr(i \in U_1)*\Pr(i \in U_2 | U_2 \subset U_1)*s/n_2$, where U_1 is the set of primary sampling units, U_2 is the set of secondary sampling units, s is the sample size, and n_2 is the total number of households in U_2. The probability that employer j is included in our firm sample S_j is then simply the joint probability equal to $\Pr(i \in S_i)*\Pr(i$ contains an employee of $j)$, if the distribution of employment across households is independent of the conditional probability of selecting i. The property of independence holds in the RLMS, since the final drawing is random and therefore equal for all n_2 households. See Swafford (1997) for more information on the RLMS sampling procedure.

and smaller firms that do not appear in the registry, so there is no evidence of size-related bias.

In total, the sample of firms, conditioned on a non-missing wage arrears variable (since this is necessary at each step in the analysis), is 560 firms, of which 486 come from the industrial firm survey and 74 from the agricultural firm survey. Firms interviewed before early 2000 did not provide information on 1999, as their accounts were not yet ready. The agricultural firm survey also includes information only through 1998.

Variables

Firm Wage Arrears. An organizational practice can be measured either as an indicator (dummy) variable for whether an organization engages in the practice at all or as a continuous measure of the extent to which the organization uses the practice. We employ both measures in this paper. The standard measure of the amount of wage arrears in Russia – whether in individual-firm balance sheets, in official Russian statistics or the minds of workers – is the stock of wages that is overdue (Earle and Sabirianova, 2002). The usual way managers express this stock is in terms of monthly wage bills (payrolls or total wage costs for the month). Thus, in our own interviews with managers, conducted when we were designing the data collection instrument, a common type of answer to a question about arrears would be "We're doing well, so we only owe one month," or "Things have gotten worse and now we have five months of arrears."

Our data contain this measure of the firm-level stock of wage arrears in monthly wage bills, as reported by a top manager in each year from 1991 to 1998. We label this variable *Arrears (months).* Using this information, we also construct a dummy variable for whether the firm had any wage arrears in a particular year, labeled *Arrears (dummy).* The data also contain

wage arrears on the balance sheet, which we use to construct an alternative dummy variable. [4]

Local Arrears. Measuring the community norm requires an assumption about the relevant organizational field or geographic unit defining the community. We use the unit of analysis defined as the *raion* (county) as the boundaries of the communities around which we develop our hypotheses. Russian *raions* are distinct administrative units, and studies have shown that the labor market tends to be highly local in Russia, as geographic mobility is difficult (see, e.g., Mitchneck and Plane, 1995). Our data contain firms from 50 *raions* of Russia.

Analogously to the measure of a practice at the organizational level, the community norm may be defined in terms of the frequency or intensity of the use of the practice. We use both, and our two measures of the community wage arrears norm correspond to the two measures of arrears at the organizational level: *Local Arrears (months)* represents the average stock of wage arrears among the sampled agricultural and industrial firms, and *Local Arrears (share)*, measures the share (proportion) of organizations using wage arrears. In both cases, the variable refers to the firm's *raion* in the previous year.

Worker Quits (Q) and Strikes (S). Quit rates (*Q*) for each year were calculated by dividing total voluntary separations by average employment for the corresponding year. These data were obtained from annual employment reports to the Goskomstat (the "P-4 form" in recent years), and again the precise line numbers were specified in our data collection instrument. The incidence of strikes (a dummy variable, *S*) was measured through survey questions to top managers on whether work protests had occurred at the firm, including not only conventional work stoppages but also in a few cases hunger strikes, demonstrations, slowdowns, and other actions. The survey also asked for the main motivation for the protest, and it is interesting to

[4] The results are very similar to those we received from the managerial reports, so we do not report them in the paper, but they are available on request.

note that more than 90 percent of the responses reported wage arrears as the cause; this variable is therefore very appropriate for our purposes.

Control Variables

We collected multiple measures of both firm growth and liquidity to control for differences in firm performance as an antecedent of an organization's use of wage arrears. One set of growth measures relates to performance of the firm in general: output growth, sales growth, and profitability. The second set of measures relates more directly to labor market behavior: growth in employment, real wages, nominal wages, and the hiring rate. Other growth proxies include the hiring rate and whether the firm received patents on any innovations. All these variables are represented with the notation *G*. Liquidity measures (*L*) include profitability (which could also be viewed as a performance measure), frozen bank account in response to nonpayment of debts (*kartoteka*), barter in payments for inputs and outputs, and overdue receivables and payables. Changes in these variables are calculated for each year in which the data were collected.

We also include industry indicators to proxy both for demand conditions and for differences in technology that may increase the propensity of firms to use wage arrears and of workers to strike and quit (for instance, due to differences in skill specificity). We similarly include a location code for whether a firm is located in a capital city, other city, or a non-city, the rationale being that workers' reactions to late wage payments may be influenced by their outside options in the local labor market. In general, the larger the urban area, the greater the number of outside options workers may be expected to have. Unionization is included because unions may resist arrears, although some observers believe that Russian unions have had little influence on

labor market outcomes (e.g., Gimpelson and Lippoldt, 2001; Kapeliushnikov, 2001). Fringe benefits may also affect worker behavior, particularly their tendency to quit (Layard and Richter, 1995) and strike, while the measure of initial training costs captures the firm's costs of adjustment in replacing workers who quit. Because training costs are missing in about 10 percent of the cases, we impute the mean and include a control for nonreporting in some of the regressions.

Summary Statistics

Table 1 shows the results from analyzing our survey data on the incidence – mean *Arrears (dummy)* – and magnitude – *Arrears (months)* - by year from 1991 to 1998. Consistent with other sources, the data show a negligible level of arrears in 1992, followed by a rapid increase. By 1998, about 60 percent of firms reported they had overdue wage debts, with an average of 4.3 monthly wage bills of overdue debt among affected firms. While there were relatively few with just a single monthly wage bill of arrears, more than 25 percent reported arrears exceeding 4 months. Thus, our data correspond well to other information on wage arrears in Russia (see Earle and Sabirianova, 2002).

INSERT TABLE 1 HERE

Table 2 presents the characteristics of the total sample in 1998. Together with the control variables (industry, hiring rate, etc.), the table also shows our alternative measures of growth (denoted as *G*): sales, output, real and nominal wages, and employment. Other growth proxies include the hiring rate and whether the firm received patents on any innovations. The magnitudes of these variables are very similar to what can be found in other studies of the Russian economy and labor markets (OECD, 2000; Kapeliushnikov, 2001). Finally, the table

also shows the mean and standard deviation of our worker response measures, strikes (*S*) and quits (*Q*). Only about 5.5 percent of organizations experienced a strike in 1998, although again it is notable that nearly all of them attributed the incident to wage arrears. The annual quit rate, at 19.8 percent, is very similar to other reported figures (e.g., Gimpelson and Lippoldt, 2001; Kapeliushnikov, 2001).

INSERT TABLE 2 HERE

Analysis

The Use of Wage Arrears. To test Hypothesis 1, we estimate the effect of the potential determinants of arrears in a multivariate panel regression as follows:

$Arrears_{it} = \beta' X_{it} + \gamma LocalArrears_{it-1} + \delta_1 G_{it} + \delta_2 L_{it} + \alpha_t + u_{it}$,

so that $Arrears_{it}$ = wage arrears of firm *i* in year *t*, X_{it} is the set of controls discussed with reference to Table 1, $Local\ Arrears_{it-1}$ is the lagged regional level of arrears, G_{it} is a measure of firm growth, and L_{it} is a measure of firm liquidity. The α_t are year dummies, the β, γ, δ_1, and δ_2 are parameters to be estimated, and the u_{it} reflect the influence of unobserved factors on wage arrears. As discussed above, the dependent variable is measured in two alternative ways, *Arrears (months)* and *Arrears (dummy).* In the latter case, the model estimates the impact of a lagged change in the community norm on the probability of a firm engaging in the practice; it is a linear probability model (LPM).[5] The main variable of interest also has two measures, *Local Arrears (months)* and *Local Arrears (share).*

A first test of the multivariate model maintains the assumption of a zero conditional mean of the u_{it}, estimating with pooled ordinary least squares (OLS). While we believe this is a useful starting point, one potential problem with these results could arise if there is some unobservable

[5] We have also estimated other functional forms, such as probit and logit, with results for the marginal effects very similar to the LPM.

wage arrears effect that is correlated with *Local Arrears*. Suppose, for example, that firms tend to cluster regionally, such that firms with a high unobserved "propensity to have arrears" tend to be found near each other. This propensity will be positively correlated with both *Arrears* and *Local Arrears*, imparting an upward bias to the estimated γ. A second type of model exploits our panel data to control for this correlated effect. We decompose the error term $u_{it} = \alpha_i + \varepsilon_{it}$, where α_i reflects this propensity (and other unobserved fixed factors). We used a firm fixed effect model to implement this estimation.

Worker Responses to Wage Arrears. To test Hypotheses 2 and 3, we estimate the effect of firm-level arrears and their interaction with average community arrears on worker responses through voice (incidence of strikes and protests, *S*) and exit (quit rate, *Q*). We specify the following equations:

$$Q_{it} = \varphi_1 Arrears_{it-1} + \varphi_2 Local\ Arrears_{it-1} + (\varphi_{12}\ Arrears_{it-1} \times Local\ Arrears_{it-1}) + \eta' X_{it} + \alpha_{2i} + \alpha_{2t} + w_{it}$$

$$S_{it} = \phi_1 Arrears_{it-1} + \phi_2 Local\ Arrears_{it-1} + (\phi_{12}\ Arrears_{it-1} \times Local\ Arrears_{it-1}) + \theta' X_{it} + \alpha_{1t} + v_{it},$$

where the interaction between *Arrears* and *Local Arrears* permits worker responses to their own firm's arrears to vary with the local norm, and other variables are defined as before. The critical parameters in these equations for Hypotheses 2 and 3 are the coefficients φ_{12} and ϕ_{12}. When *Local Arrears* are close to zero, then the reactions of quits and strikes to higher firm arrears are given by φ_1 and ϕ_1, respectively; as *Local Arrears* increase, the responsiveness of each changes in the amount φ_{12} and ϕ_{12} for each unit of *Local Arrears*. Expressed mathematically, $\partial Q/\partial Arrears = \varphi_1 + \varphi_{12} Local\ Arrears$ and $\partial S/\partial Arrears = \phi_1 + \phi_{12} Local\ Arrears$. According to Hypotheses 2 and 3, φ_{12} and ϕ_{12} are negative: local wage arrears attenuate the effect of a firm's arrears on worker reactions through quits and strikes. Again, we use panel regression to test

these models against the data.

RESULTS

The Use of Wage Arrears

Table 3 presents the results with *Arrears (months)* as the dependent variable, based on pooled OLS and fixed effects estimations. As we show later, results for the variable of interest, *Local Arrears* (measured both in months and as a share of local firms), are quite similar across alternative measures of the growth and liquidity characteristics of firms, and in Table 3, these factors are proxied by the annual growth rate of sales and nominal wages. In both the pooled OLS and fixed effects specifications, the lagged *Local Arrears* is estimated to have a positive and highly significant impact, one which is only moderately attenuated in FE compared to OLS. The coefficients imply that an increase in *Local Arrears (months)* of one monthly wage bill tends to raise firm *Arrears (months)* by 40 to 50 percent of a monthly wage bill. An increase in *Local Arrears (share)* of 0.5 (the change in Russia from the early to the late 1990s) increases *Arrears (months)* by 1.2 to 1.8 monthly wage bills.

INSERT TABLE 3 HERE

In the OLS estimates, sales and wage growth are estimated to have negative effects on *Arrears (months)*, consistent with the neoclassical explanation, but sales growth is statistically insignificant when firm fixed effects are included. The results for other control variables show that larger firms tend to have higher *Arrears (months)* on average, but the negative coefficients in the FE specification imply that shrinking firms have higher arrears. Organizations with low levels of unionization tend to have lower arrears, as do firms providing fringe benefits (housing, kindergartens, and training). More isolated communities (smaller cities and rural areas) tend to have higher arrears, as do particular industries (machine building and agriculture), again

consistent with previous research.

Table 4 contains results using the alternative dependent variable capturing any use of the wage arrears practice: *Arrears (dummy)*. Again, the estimated coefficients on *Local Arrears* are positive and highly statistically significant regardless of whether the specification is OLS or FE and for both the months and share measures. The coefficients on *Local Arrears (months)* imply that a one-month increase in the average use of the practice in the community increase the probability that the firm will use the practice by 6-7 percent in the following year. The coefficients on *Local Arrears (share)* imply that a 50 percentage point increase in the proportion of firms using arrears implies a 24 to 38 percent increase in the probability of using the practice at all. Results for the control variables with the *Arrears (dummy)* as dependent variable, shown in the table, are generally similar to those in Table 3.

INSERT TABLE 4 HERE

To assess the robustness of the estimated effects of *Local Arrears* with respect to alternative measures of growth and liquidity, we substitute such alternative variables for the sales and wage growth. As an example, Table 5 reports the analogous results for the firm fixed effect specification from Table 3 using *Local Arrears (months)*. We consider these alternative measures separately because they are highly correlated with one another. Most of these variables are statistically significant, but some of them only weakly so. Regardless of the specification, however, the effect of lagged local wage arrears remains large and highly statistically significant. The magnitude ranges from around .35 to .45, depending on the exact specification.[6] In general, the results for the variable of interest are highly robust to changes in the statistical specification.

Not only is the estimated impact of lagged *Local Arrears* positive, sizable in magnitude,

and precisely estimated (statistically significant), it also accounts for a substantial proportion of the variation in firm-level *Arrears*. The R^2s in Tables 3-5 range from 0.21 to 0.33. Moreover, when we drop all control variables, the local arrears by itself has large explanatory power. For instance, with *Arrears (months)* as dependent variable and only *Local Arrears (months)* as an independent variable, the R^2 is 0.18. These results provide strong support for Hypothesis 1 that firm behavior is strongly affected by the behavior of other local organizations, and wage arrears become normalized through interactions in local communities.

INSERT TABLE 5 HERE

Worker Responses to Wage Arrears

Our final results concern the mechanisms through which community normalization processes may take place: worker responses through voice (strikes and protests) and exit (quits). Table 6 presents the findings from this analysis. Consistent with hypotheses 2 and 3, the results show that worker responses to arrears are strongly affected by the extent of arrears in their local environment. The results imply that workers do respond to larger arrears at their firms with higher strike probability and quit rates – but only at low levels of arrears in the local community. An additional 3 months of *Arrears* is estimated to raise the probability of a strike by 5 percent and the quit rate by 3-4 percent, when *Local Arrears (months)* or *Local Arrears (share)* is close to zero. As either measure of *Local Arrears* rises, however, the coefficient on the interaction effect shows that the worker responsiveness to *Arrears* declines rapidly. At higher levels of *Local Arrears,* (such as those in the late 1990s), workers hardly respond at all to increases in arrears at their own firms, apparently becoming passive – at least in terms of this observable behavior – in the face of larger arrears.

[6] We estimated many versions of these equations, all of them producing similar findings to those in Table 5. Among other specifications, we included all of our growth and liquidity measures in a single "kitchen sink" regression, and

*****INSERT TABLE 6 HERE*****

These results are again robust to a wide variety of changes in the statistical specification of the estimating equations. Among a number of alternatives, we investigated whether the extent to which community norms moderate worker responses is a function of union status and firm size. On the one hand, unions might serve to overcome the moderation of individual behavior by providing a broader view on the possibilities for resisting the wage arrears practice. On the other hand, larger firms might be more likely to use the practice because they are larger players in the local community, helping to set local norms. In neither case, however, did we find any detectable pattern of increase or decrease in the moderation effect, which on the contrary appears to be uniform over these different types of firms. Overall, our findings strongly support the normalization hypotheses that the level of arrears in the community attenuates the exit and voice responses of workers to their own arrears.

DISCUSSION

In developing our hypotheses, we proposed that normalization processes were likely to facilitate organizational use of a deviant organizational practice as well as curtail stakeholder opposition to it. Our analysis of the growth of wage arrears in Russia supports both these propositions. We first found that the lagged level of local arrears is a strong predictor of firm-level arrears. This effect is large and robust even when controlling for a host of firm characteristics, including alternative measures of growth, performance, liquidity, and other relevant covariates. The analysis also includes firm fixed effects to control for any unobserved propensity for firms to use arrears that may be correlated with lagged local arrears.

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the estimated local wage arrears effect remained large and highly significant.

Our findings also demonstrate that there is less, rather than more, opposition to wage arrears in the communities where they are the most prevalent. In communities with low arrears, a firm's quit rate and strike probability both tend to increase with the level of firm arrears. In areas with high arrears, however, these responses are strongly attenuated. Workers are less likely to oppose wage arrears in localities in which the practice is more widely used. Workers are not simply responding to their immediate experience of wage arrears in their own firms but are clearly influenced by the broader community context in which they find themselves.

The study of the normalization of deviant organizational practices like wage arrears raises important questions for the study of how communities confer and communicate legitimacy in organizational systems. Existing empirical research emphasizes the role of managers in creating their own norms of acceptable organizational behavior. Community-wide processes influence the spread of organizational practices because managers observe and respond to one another as they face everyday strategic issues (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). However, others argue that a focus on managerial cognition and consensus underemphasizes the way in which coercion and conflict shape social norms (Hirsch and Lounsbury, 1997; Mizruchi and Fein, 1999). What is legitimate for managers may not be legitimate for other social actors (Perrow, 1986). Therefore, an examination of the role of managers in constructing their own definitions of legitimate behavior requires the question: legitimate for whom? These authors argue that audiences and interests beyond those of managers need to be analyzed to understand the way that communities construct and confer legitimacy in organizational systems (see also Clemens and Cook, 1999; Tolbert and Zucker, 1996; Fligstein, 1990; Stryker, 2000).

The issue of whose conception of legitimacy is operable at any particular time or place represents the central question in the study of normalization processes and outcomes. The

institutionalization of an organizational practice does not necessarily need to be accompanied by its legitimization. As the extensive literature on normalization demonstrates, deviant organizational practices may become embedded in institutional structure and processes even through they violate external laws and norms. Institutional norms are important not only because they identify the range of practices that managers consider to be acceptable, but also because they frame the set of practices that other groups of actors come to accept without active mobilization. Further research into the influence of normalization processes on the behavior of organizational actors other than managers represents an important avenue for future study.

A limitation of this study is that we are unable to observe the historical processes that led some Russian communities to normalize deviance and others to challenge it. Our study only looks at the consequences of the cumulative adoption of wage arrears at a single point of time without an examination of the full set of social dynamics that allowed for differential paths of development among Russian communities. Nor are we able to directly tap into the individual process of decision-making that shaped the aggregate responses we found in our data. The limitations of our research design are similar to those found in organizational research that uses cumulative adoption of an organizational practice as a proxy for the presence of an institutional norm. These studies similarly infer decision-making processes by looking at aggregate patterns of behavior (Fligstein, 1985; Guler, Guillen, and Macpherson, 2002; Palmer, Jennings, and Zhou, 1993; Tolbert and Zucker, 1983; Westphal, Gulati, and Shortell, 1997).

Despite these limitations, we suggest that our empirical design provides an important contribution to the study of the institutional foundations of organizational deviance. While there is a growing theoretical literature developing about normalization processes (Ashforth & Anand, 2003; Brief, Buttram, & Dukerich, J.M. 2001; Ermann & Lundman, 2002; Pinto, Leana & Pil,

2008; Palmer, 2008; Vaughan, 1999), there are inherent difficulties in testing these models empirically. One of the largest challenges is that records are usually not kept about behavior that violates the law, making it difficult to systematically examine normalization processes in actual business settings. If data are available, they usually come from judicial hearings and investigations (Baucus, and Near, 1991; Simpson, 1986). Yet, in some cases of systemic deviance, it is precisely the absence of meaningful regulation that contributes to its persistence. Relying on formal hearings and prosecutions to collect data makes it difficult to pick up some type of systemic deviance, especially in contexts outside the United States.

We were able to develop an empirical test of normalization processes because wage arrears were sufficiently normalized in Russia that they were openly reported despite their violation of formal law. Collecting reliable data about such deviant organizational practices as child labor, employee discrimination, sweatshops or human right abuses may be more difficult to accomplish. Despite these challenges, we suggest that the normalization model tested in this paper could be productively applied in future research to better understand the growth and persistence of many forms of deviant organizational behavior.

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Table 1
Incidence and Magnitude of Wage Arrears in the Firm Sample, 1991-1998

	1991	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*
Mean *Arrears(dummy)*	0.075	0.098	0.132	0.221	0.375	0.483	0.597	0.586
Mean *Arrears(months)*	0.147	0.255	0.334	0.644	1.143	1.725	2.363	2.501
Frequency distribution *Arrears(months)*								
0	0.925	0.904	0.870	0.780	0.625	0.517	0.403	0.414
1 month	0.037	0.035	0.041	0.064	0.075	0.064	0.081	0.080
2-3 months	0.028	0.041	0.060	0.106	0.208	0.234	0.277	0.246
4-6 months	0.006	0.014	0.021	0.037	0.063	0.146	0.145	0.150
>6 months	0.004	0.006	0.008	0.014	0.029	0.039	0.094	0.109
Mean *Arrears(months)*|*Arrears(months)*>0	1.974	2.661	2.575	2.921	3.051	3.571	3.960	4.269
N (sample size)	509	512	516	517	523	534	553	560

Notes: Sample consists of agricultural and industrial firms responding to wage arrears question.

Table 2
Summary Statistics, 1998

Variable Name	*Mean*	*Variable Name*	*N*	*Mean*	*Standard Deviation*
Industry (N=560)		Firm size (log of employment)	521	5.971	1.653
Energy / Fuel	0.080				
Metallurgy / Chemicals	0.077	Growth measures, *G*			
Machine Building	0.313	Hiring rate (ratio to average employment)	412	0.209	0.258
Building Materials / Wood	0.105	One-year growth in sales	410	-0.238	0.502
Light	0.084	One-year growth in output	454	-0.248	0.440
Food	0.132	One-year growth in real wages	424	-0.162	0.327
Other manufacturing	0.075	One-year growth in nominal wages	424	0.063	0.317
Agriculture	0.134	One-year growth in employment	467	-0.094	0.216
Location (N=560)		Received patents (dummy)	474	0.152	0.359
Moscow or St. Petersburg	0.113				
Regional Capital City	0.352	Liquidity measures, *L*			
Other City	0.327	Profitability (profit/output)	452	-0.192	1.039
Non-City	0.209	Positive profit (dummy)	454	0.557	0.497
Union Density (N=541)		Frozen bank account (dummy)	545	0.640	0.480
0-9%	0.196	Barter in payments for inputs (dummy)	451	0.772	0.420
10-59%	0.104	Barter in sales (dummy)	479	0.791	0.407
60-79%	0.091	Overdue receivables (dummy)	423	0.752	0.432
80-89%	0.092	Overdue payables (dummy)	422	0.758	0.429
90-99%	0.237				
100%	0.281				
Fringe benefits provided by firm		Worker responses			
Training (dummy, N=554)	0.561	Occurrence of strikes, *S* (dummy)	560	0.055	0.229
Kindergarten (dummy, N=555)	0.268	Quit rate, *Q* (ratio of quits to	417	0.198	0.209
Housing (dummy, N=550)	0.245	average employment)			

Table 3
Wage Arrears Function Estimates

	Dependent variable – *Arrears (months)*			
	OLS	**FE**	**OLS**	**FE**
Local Arrears (months)	0.525***	0.414***	…	…
	(0.096)	(0.124)		
Local Arrears (share)	…	…	3.634***	2.393***
			(0.495)	(0.652)
G: Sales growth	-0.310***	-0.012	-0.288**	0.003
	(0.117)	(0.081)	(0.113)	(0.081)
L: Nominal wage growth	-0.434*	-0.611***	-0.522**	-0.633***
	(0.235)	(0.194)	(0.248)	(0.193)
Log of firm employment	0.166***	-1.095***	0.155***	-0.942***
	(0.044)	(0.372)	(0.044)	(0.360)
Union density (100% is omitted)				
0-9%	-0.506	0.833	-0.409	0.941
	(0.309)	(0.683)	(0.311)	(0.685)
10-59%	0.433**	1.014*	0.474**	1.001*
	(0.218)	(0.579)	(0.216)	(0.572)
60-78%	0.072	0.971*	0.082	0.931*
	(0.224)	(0.503)	(0.219)	(0.498)
80-89%	0.140	0.765	0.176	0.720
	(0.275)	(0.496)	(0.268)	(0.481)
90-100%	0.059	0.637*	0.121	0.574*
	(0.137)	(0.329)	(0.136)	(0.317)
Fringe benefits provided by firms (dummies)				
Training	-0.735***	-0.814	-0.699***	-0.745
	(0.148)	(0.549)	(0.148)	(0.543)
Kindergartens	-0.131	-0.062	-0.162	-0.107
	(0.148)	(0.353)	(0.147)	(0.347)
Housing purchase and	-0.364***	-0.069	-0.306**	-0.021
Construction	(0.135)	(0.331)	(0.135)	(0.326)
Federal districts (Central is omitted)				
North West	0.060		0.031	
	(0.283)		(0.292)	
South	0.050		0.001	
	(0.188)		(0.183)	
Volga	-0.039		-0.287*	
	(0.173)		(0.174)	
Urals	-0.032		-0.486**	
	(0.207)		(0.212)	
Siberia	0.639**		0.176	
	(0.294)		(0.313)	
Far East	0.161		-0.405	
	(0.414)		(0.410)	
Type of location (Moscow and St. Petersburg are omitted)				

Regional capital city	-0.150		-0.315	
	(0.308)		(0.321)	
Other city	-0.355		-0.580**	
	(0.287)		(0.293)	
Non-city	-0.330		-0.493	
	(0.360)		(0.361)	
Industry (Energy/Fuel is omitted)				
Metallurgy/Chemicals	-0.616***		-0.597***	
	(0.225)		(0.220)	
Machine building	0.302		0.243	
	(0.199)		(0.193)	
Building materials/Wood	-0.086		-0.139	
Processing	(0.251)		(0.240)	
Light	-0.793***		-0.802***	
	(0.211)		(0.205)	
Food	-1.211***		-1.085***	
	(0.205)		(0.201)	
Other manufacturing	-0.714***		-0.753***	
	(0.238)		(0.226)	
Agriculture	2.134***		2.082***	
	(0.396)		(0.376)	
N	1532	1532	1570	1570
R^2	0.31	0.22	0.32	0.22

Notes: FE=firm fixed effects. Robust standard errors are in parentheses; *** significant at 1% level; ** significant at 5% level; *significant at 10% level. Year dummies and intercept are included but not shown here. R^2 = R^2-within for FE estimates.

Table 4
Wage Arrears Function Estimates

	Dependent variable – *Arrears (dummy)*			
	OLS	**FE**	**OLS**	**FE**
Local Arrears (months)	0.062***	0.069***	…	…
	(0.012)	(0.020)		
Local Arrears (share)	…	…	0.757***	0.435***
			(0.074)	(0.123)
G: Sales growth	-0.038*	-0.001	-0.030	-0.002
	(0.022)	(0.017)	(0.021)	(0.017)
L: Nominal wage growth	-0.057	-0.044	-0.070*	-0.046
	(0.045)	(0.040)	(0.042)	(0.037)
Log of firm employment	0.050***	-0.170***	0.047***	-0.147***
	(0.010)	(0.058)	(0.009)	(0.056)
Union density (100% is omitted)				
0-9%	-0.138**	0.187	-0.115**	0.192
	(0.054)	(0.133)	(0.052)	(0.133)
10-59%	0.111***	0.181	0.118***	0.168
	(0.041)	(0.120)	(0.039)	(0.120)
60-78%	0.011	0.140	0.023	0.122
	(0.046)	(0.096)	(0.045)	(0.096)
80-89%	-0.019	0.062	-0.008	0.050
	(0.042)	(0.089)	(0.040)	(0.088)
90-100%	0.003	0.089	0.021	0.081
	(0.029)	(0.073)	(0.028)	(0.071)
Fringe benefits provided by firms (dummies)				
Training	-0.128***	-0.131*	-0.108***	-0.120
	(0.026)	(0.077)	(0.026)	(0.077)
Kindergartens	-0.005	0.011	-0.014	0.002
	(0.027)	(0.059)	(0.026)	(0.058)
Housing purchase and	-0.039	-0.015	-0.026	-0.005
Construction	(0.025)	(0.061)	(0.024)	(0.060)
Federal districts (Central is omitted)				
North West	0.080*		0.045	
	(0.048)		(0.047)	
South	0.089**		0.077**	
	(0.037)		(0.037)	
Volga	0.113***		0.042	
	(0.032)		(0.033)	
Urals	0.128***		0.024	
	(0.043)		(0.044)	
Siberia	0.269***		0.136***	
	(0.045)		(0.046)	
Far East	0.186***		0.038	
	(0.068)		(0.068)	
Type of location (Moscow and St. Petersburg are omitted)				

Regional capital city	0.064		0.012	
	(0.052)		(0.051)	
Other city	0.098*		0.048	
	(0.052)		(0.051)	
Non-city	0.182***		0.121*	
	(0.066)		(0.064)	
Industry (Energy/Fuel is omitted)				
Metallurgy/Chemicals	-0.115**		-0.126***	
	(0.051)		(0.049)	
Machine building	0.104**		0.093**	
	(0.041)		(0.040)	
Building materials/Wood	0.057		0.055	
Processing	(0.051)		(0.049)	
Light	-0.031		-0.034	
	(0.051)		(0.050)	
Food	-0.245***		-0.224***	
	(0.046)		(0.044)	
Other manufacturing	-0.119**		-0.130**	
	(0.057)		(0.055)	
Agriculture	0.080		0.057	
	(0.065)		(0.059)	
N	1532	1532	1570	1570
R^2	0.30	0.26	0.33	0.26

Notes: FE=firm fixed effects. Robust standard errors are in parentheses; *** significant at 1% level; ** significant at 5% level; *significant at 10% level. Year dummies and intercept are included but not shown here. R^2 = R^2-within for FE estimates.

Table 5
Alternative Specifications of Growth and Liquidity Measures In Wage Arrears Functions

Independent variables	*Model Specifications*			
	1	***2***	***3***	***4***
Local Arrears (months)	0.397***	0.451***	0.367***	0.347***
	(0.096)	(0.117)	(0.103)	(0.093)
G_{it}: Output growth	-0.107	…	…	…
	(0.065)			
L_{it}: Frozen bank account (dummy)	0.789***	…	…	…
	(0.127)			
G_{it}: One-year change in Employment	…	0.147	…	…
		(0.344)		
L_{it}: Positive profit (dummy)	…	-0.671***	…	…
		(0.191)		
G_{it}: Rate of hiring	…	…	…	-0.688**
				(0.306)
L_{it}: Profitability (profit/output)	…	…	…	-0.303**
				(0.121)
G_{it}: Received patents (dummy)	…	…	-0.951*	…
			(0.572)	
L_{it}: Real wage growth	…		-0.238**	…
			(0.107)	
Observations	2433	2130	1771	2013
R^2-within	0.23	0.26	0.28	0.21

Notes: Dependent variable = *Arrears (months*). Robust standard errors are in parentheses; *** significant at 1% level; ** significant at 5% level; *significant at 10% level. All four specifications use firm fixed effects, the same set of control variables as in Table 3, plus the additional growth and liquidity measures shown.

Table 6
Worker Responses to Firm and Local Arrears

	Strike Incidence (OLS)		*Quit Rate (OLS)*		*Quit Rate (Firm FE)*	
	1	***2***	***1***	***2***	***1***	***2***
Arrears (months)	0.016***	0.013**	0.010***	0.015***	0.004	0.009**
	(0.004)	(0.006)	(0.003)	(0.004)	(0.003)	(0.004)
Local Arrears (months)	0.000	…	0.003	…	0.016***	…
	(0.004)		(0.005)		(0.006)	
Arrears x Local Arrears (months)	-0.003***	…	-0.002**	…	-0.001*	…
	(0.001)		(0.001)		(0.001)	
Local Arrears (share)	…	0.011	…	0.054**	…	0.084***
		(0.023)		(0.024)		(0.031)
Arrears x Local Arrears (share)	…	-0.005	…	-0.019***	…	-0.014**
		(0.010)		(0.006)		(0.006)
Log of firm employment	0.009***	0.009***	-0.012***	-0.012***	-0.045**	-0.042**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.017)	(0.017)
Union density (100% is omitted)						
0-9%	0.013	0.014	0.031	0.031	-0.017	-0.019
	(0.010)	(0.011)	(0.025)	(0.025)	(0.037)	(0.037)
10-59%	0.006	0.008	0.026**	0.025**	0.014	0.010
	(0.010)	(0.010)	(0.012)	(0.012)	(0.025)	(0.025)
60-78%	0.026**	0.027**	-0.003	-0.004	-0.008	-0.012
	(0.011)	(0.012)	(0.012)	(0.012)	(0.021)	(0.021)
80-89%	0.017	0.017	0.016	0.015	0.017	0.015
	(0.012)	(0.012)	(0.012)	(0.012)	(0.019)	(0.019)
90-100%	-0.001	0.000	0.013*	0.013*	0.007	0.004
	(0.006)	(0.006)	(0.007)	(0.007)	(0.013)	(0.013)
Fringe benefits provided by firms (dummies)						
Training	0.013**	0.013**	-0.018**	-0.017**	-0.004	-0.003
	(0.006)	(0.006)	(0.008)	(0.008)	(0.020)	(0.020)
Kindergartens	-0.007	-0.008	0.001	0.001	-0.006	-0.006
	(0.006)	(0.006)	(0.007)	(0.007)	(0.013)	(0.013)
Housing purchase and construction/10	0.012	0.012	-0.045	-0.042	-0.113	-0.108
	(0.056)	(0.056)	(0.067)	(0.067)	(0.097)	(0.098)
Type of location (Moscow and St. Petersburg are omitted)						
Regional capital city	0.016	0.015	0.011	0.004		
	(0.010)	(0.011)	(0.012)	(0.012)		
Other city	0.005	0.004	0.020	0.015		
	(0.009)	(0.009)	(0.012)	(0.012)		
Non-city	0.000	-0.003	-0.029	-0.035*		
	(0.011)	(0.011)	(0.018)	(0.018)		
Observations	3129	3129	2251	2251	2251	2251
R^2	0.07	0.07	0.14	0.14	0.04	0.04

Notes: Strike incidence=dummy for strike or protest. Quit rate=ratio of quits to average employment. Robust standard errors in parentheses; *** significant at 1% level; ** significant at 5% level; *significant at 10% level. Year and industry dummies and intercept are included but not shown here. R^2 = R^2-within for FE estimates.