SOCIAL CAPITAL AND THE FORMAL LEGAL SYSTEM: EVIDENCE FROM PREFECTURE-LEVEL DATA IN JAPAN

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ABSTRACT

Verifiable proxies for social capital potentially provide an empirically tractable way to identify environments where social norms both constrain behavior and substitute for judicial enforcement. Using regression and factor analysis with Japanese prefecture-level data, I explore several aspects of this possibility. I first note that people in prefectures with high levels of social capital more readily comply with a wide range of low-level legal mandates. Conditional on levels of economic welfare, I further find that: (i) firms in prefectures with low levels of social capital are more likely to default on their contracts, (ii) residents in low social-capital prefectures are more likely to litigate, (iii) creditors of distressed debtors in low social-capital prefectures are more likely to petition a court for enforcement orders, and (iv) distressed debtors in low social-capital prefectures are more likely to file in court for bankruptcy protection.

New York diamond merchants make agreements orally, and keep them. They promise to perform, as Lisa Bernstein (1992) famously explained, and trust each other to perform. They perform and trust because they live their lives within densely overlapping networks of social and religious ties. They perform and trust because they live within a community with an extraordinary level of social capital.

Farmers in Shasta County, California, do much the same. They too structure their contracts and resolve their disputes privately, reported Robert Ellickson (1986, 1991). What is more, they structure and negotiate with scarcely a

thought for the law. Again, they do this because of the dense social networks—the high levels of social capital—within which they live and work.

Long-distance merchants in the medieval Mediterranean world cut their contracts beyond the reach of any formal court system as well, wrote Avner Greif (1993). They could do this because they kept their transactions within the closed world of Maghribi Jewish circles. They trusted and performed despite the long distances and the absence of any formal enforcement mechanism because of social capital—because they shared a panoply of closely overlapping ties.

If some people keep their promises, others cheat routinely. Given the resulting risks, in parts of the modern world people negotiate large-stakes agreements only where they can enforce any ensuing claims in court. Bernstein, Ellickson, and Greif detail polar cases where people trust each other without judicial access. Other scholars focus on the other extreme—worlds where people cut deals at their peril, and can rely on each other only in the shadow of an authoritarian court.

Between these extremes, people sometimes perform and sometimes renege. They sometimes trust and sometimes suspect. They sometimes invoke the courts, and sometimes manage their transactions and disputes without them. In the article that follows, I locate prefecture-level data on social capital in modern Japan. With that data, I explore possible determinants of trust and performance in this intermediate (neither Jewish diamond merchants, nor anomic anonymity) world. Between the extremes of rigid honesty and ruthless opportunism, I ask whether levels of social capital mirror legal compliance and contractual performance. Note that I do not demonstrate causation: I lack a mechanism by which to identify causation. Instead, I simply measure basic patterns of correlation.

I find that people in societies with high levels of social capital comply with a variety of simple legal mandates: they obey their traffic rules, make their pension contributions, and pay their TV broadcast fees. Conditional on levels of economic welfare, they are less likely to default on their promises. When a dispute does ensue, people in high social-capital prefectures (particularly when social capital is measured by family patterns like divorce and illegitimacy) less often sue. Creditors less often petition courts for enforcement orders, and debtors less often file in court for bankruptcy protection. Note that these results on the use of legal strategies are robust to instrumental variable estimates using levels of social capital from the 1920s.

I begin by reviewing the empirical literature on social capital (Section 1). The concept began in sociology, but owes much of its current prominence to political scientist Robert Putnam. I canvass the resulting scholarship, and identify multiple proxies for levels of social capital in modern Japan (Section 2). Through factor analysis, I use the prefecture-level proxies to create synthetic

measures that approximate social capital as an unobserved latent variable (Section 3). I then regress measures of legal compliance (Section 4), contractual performance, and contract enforcement (Section 5) on the synthetic factor variables. I close by suggesting two alternative mechanisms for these empirical results (Section 6).

1. LITIGATION AND SOCIAL CAPITAL

1.1 Introduction

Robert Putnam (1995, 2000) hit a chord when he suggested nearly two decades ago that the modern American malaise might stem from a decline in "social capital". Sociologists replied by noting antecedents in their own discipline. They pointed to the concept in Durkheim and Marx (Portes 1998, p. 2). They cited more recent discussions by James Coleman (1988, 1990) and Pierre Bourdieu (1985).

But it was Putnam who brought the theme home. It was he who introduced it to political science, to economics, and to the chattering classes more generally. As Putnam articulated the idea, people invest in social capital within their communities by building, maintaining, and strengthening their ties with each other. They help the PTA. They join the Rotary Club. They coach soccer leagues. They attend churches and synagogues.

In the course of doing all this, Putnam's citizens created social capital: the byzantine network of reciprocal favors and obligations that let them overcome the collective-action problems that would otherwise plague their communities. With social capital intact, they volunteer. They deter petty crime. They can depend on the kindness of strangers, as Blanche Dubois put it. And together, they can build the basis for participatory democracy.

Build ties, and people behave. Integrate themselves into large and crosscutting social networks, as Saegert & Winkel (2004, p. 220) put it, and they come to "share a sense of mutual obligation, shared norms, and trustworthiness". Make friends, and "[i]nformation flows freely and from multiple channels". Convey that information, and people know what they need to know to punish those who misbehave: "norms of behavior are reinforced in many settings and sanctions for violating these norms can be effectively brought to bear".

Coleman (1988, 1990; see Burt 2000, p. 351) gave the classic statement of social capital. As he articulated the concept, residents can enforce their communal norms only if they keep a network of overlapping ties dense enough to create "closure" (Coleman 1988, pp. S105–S107):

> Norms arise as attempts to limit negative external effects [by some members] or to encourage positive ones. But, in many social structures

where these conditions exist, norms do not come into existence. The reason is what can be described as lack of closure of the social structure.

Posit two societies, explained Coleman (*id.*). In one, members maintain ties with other members that do not intertwine. A knows B and C, but B and C do not know each other and neither do they know anyone else in common. Without such mutual connections, they find it harder to punish people who violate important norms:

> In an open structure . . ., actor A, having relations with actors B and C, can carry out actions that impose negative externalities on B or C or both. Since they have no relations with one another, but with others instead (D and E), they cannot combine forces to sanction A in order to constrain the actions. Unless either B or C alone is sufficiently harmed and sufficiently powerful vis-a-vis A to sanction alone, A's actions can continue unabated.

If members do maintain intertwined ties, the society is "closed". Should anyone deviate from the norms, many in the network will know, and many can punish (Coleman, *id.*). "In a structure with closure", Coleman continued, "B and C can combine to provide a collective sanction, or either can reward the other for sanctioning A". As Ronald S. Burt (2000, p. 351) put it, "network closure facilitates sanctions that make it less risky for people in the network to trust one another".

Putnam saw in the modern U.S. a fall in social capital, and lamented the decline. Social capital mattered to Putnam, because he thought the capital key to democratic governance. In northern Italy, he noted, residents maintained a more vibrant democratic order than in the south. They maintained it through (Putnam's first canonical example) the vast number of choral societies they joined. In the 1950s, U.S. residents maintained their democratic order through (his second canonical example) the bowling leagues they joined. Unfortunately, claimed Putnam, in the 21st century, they bowl alone.

Charles Murray (2012) contests any notion that American social capital has declined across the board. It remains intact in professional communities, he argued, even as it has vanished from among the working class. He calls the former "Belmont", after the affluent Boston suburb, and the latter "Fishtown", after the blue-collar Philadelphia neighborhood of that name. In America's Belmonts, social capital remains high—and people read the newspaper, vote, attend church, volunteer at schools, marry, bear children within marriage, and stay married. In its Fishtowns, social capital has disappeared. With social capital high, in Belmont people keep their promises; with that capital gone, in Fishtown they rely on neighbors at their peril. In Belmont, people trust; in Fishtown, they cheat.

1.2 Methodological Choices

1.2.1. Individual and Group Attributes

In the years since Putnam first posited a decline in American social capital, scholars have worked hard to transform the concept into empirically tractable form. The econometric problems alone are formidable, as Durlauf (2002) describes in detail. But scholars remain divided over even so basic a question as whether to measure social capital at the individual or community level.

Individuals create social capital by choice. As Portes (1998, p. 4) put it, "the acquisition of social capital requires deliberate investment of both economic and cultural resources", and people make those investments individually. Glaeser et al. (2002) construct (and test) models of investment in social capital by rational individuals. And Durlauf (2002, pp. F468–F469) notes that treating the concept as a community-level aggregate aggravates already-troubling econometric dilemmas.

Yet the concept of social capital describes individuals located within a communal context—within networks of other individuals. When Putnam writes about Italy and the U.S., he compares the density of social networks both across space and across time—but within communities. To be sure, explain Saegert & Winkel (2004, p. 220), social capital "can derive from a variety of individual actions, motivations, and expectations and can be used for individual as well as collective benefit". But at root (*id.*), it "is a property of groups". Stolle & Rochon (1998, p. 50) probably overstate their case in describing a reference "to an individual's social capital" as "a category mistake". But as Burt (1997, p. 339; see 2000, p. 346) explains, if human capital describes the abilities that an individual develops, "social capital is the contextual complement to [that] human capital". Human capital "is useless without the social capital of opportunities in which to apply it" (1997, p. 339).

1.2.2. Survey Data and Behavioral Evidence

Scholars also vary in the evidence they use to measure that social capital. Putnam examined behavior: he studied voting patterns and newspaper circulation, and famously counted the associations people joined—not just choral societies and bowling leagues, but groups such as the PTA, churches, and Lion's Clubs as well. Murray examined behavior too: he looked to divorce, illegitimacy, crime, and (again) associational membership.

Other scholars use survey data (for social capital studies using Japanese survey data, see, e.g., Hanibuchi 2008; Ishida 2008; Inaba 2008a). To the extent social capital benefits people, it does so in part by letting them "trust" each other. Rather than rely on behavioral proxies like voter turnout rates or choral groups, some scholars (including Helliwell & Putnam 2007) measure

trust directly. Toward that end, they use survey questions that address this generalized sense of trust (Stolle & Rochon 1998; Knack 2002a, b; Knack & Keefer 1997; Paxton 1999; Mizumi 2014, pp. 45–46).

Yet survey data necessarily raise questions about how accurately they measure the underlying phenomenon. When Glaeser et al. (2000, p. 833) compare experimental evidence of trust and trustworthiness against standard survey questions, they find the latter egregiously unreliable. Bowles & Gintis (2002, p. F421) forthrightly declare that they "doubt that the commonly used survey instruments are reliable predictors of actual behaviours".

1.2.3. Independent and Dependent Variables

Scholars also differ in the use to which they put social capital: some ask how social capital affects other phenomena, while others ask which phenomena create social capital. Some place it on the right side of the equation, while others place it on the left. Putnam famously does both—he uses social capital as both an independent variable and the dependent. The more thriving associational tradition in northern Italy, he first argued, led to a better functioning democracy than in the south (social capital as an independent variable). The longer hours spent watching television in the modern U.S., he now claims, has caused levels of social capital to fall (as a dependent variable).

Scholars pursue both directions. Many treat social capital as an independent variable. To list just a few of the studies, Knack & Keefer (1997) ask whether widespread membership in groups correlates positively with improved economic performance, and find that it does not; Knack (2002) asks whether it correlates positively with better government, and finds that it does not; Rice & Sumberg (1997) ask whether civic engagement correlates positively with government performance, and find that it does; and Skinner & Staeger (2007) ask whether social capital correlates with technological diffusion, and find that it does. Others treat social capital as the dependent variable. Again, to take a few of the many examples, Paxton (1999) uses historical data to explore the ways in which social capital is (or is not) declining in the U.S.; Alesina & La Ferrara (2000) ask what effect economic inequality and ethnic fragmentation have on social capital.

1.2.4. Univariate and Factor Analyses

In running regressions on social capital (whether on the left or on the right), most scholars proxy for the concept with a single variable. Some run univariate regressions. Some use a single proxy for social capital, but run multi-variate regressions that hold constant other sources of variation. And those who do collect multiple proxies for the concept generally run a series of regressions, one proxy at a time (e.g., Knack 2002).

Given the nature of social capital as an unobserved latent variable, scholars rely on single proxies at their peril. As Paxton (1999, p. 90) put it, the "problem with previous assessments of social capital is that they rely on single indicators". Social capital, he continued, "is a general concept". One "should not expect that it can be captured with just one variable". To address exactly this problem, Putnam urges a broad approach (Putnam 2000, p. 414; orig. in ital.):

> No single source of data is flawless, but the more numerous and diverse the sources, the less likely that they could all be influenced by the same flaw. Two independent (though necessarily imperfect) strands of evidence are better than one, and more than two are better still, especially if they have different imperfections.

Once a scholar locates multiple proxies, given their colinearity he will need to combine them into a single measure. For this task, psychologists and sociologists typically propose factor analysis. The exercise models the observed proxies as linear combinations of an unobserved latent variable, and then estimates its parameters. Skinner & Staiger (2007) take this approach, as do Paxton (1999), Sabatini (2009), and Ramseyer (2014).

1.2.5. Anti-social Outcomes

Social capital contributes to Coleman's "closure", and "closed" communities exhibit the intertwined social ties by which members enforce collective norms. In *Bowling Alone*, Putnam argued that communities with high levels of that capital promote participatory democracy. Elsewhere, he wrote that "communities endowed with a diverse stock of social networks and civic associations are in a stronger position to confront poverty and vulnerability, resolve disputes, and take advantage of new opportunities" (Putnam & Goss 2002).

This is all a bit ingenuous, of course. Communities enforce a wide variety of norms, and not all of them promote democracy. Much less do communities necessarily confront poverty, shield the vulnerable, or exploit new opportunities. In the 1930s, choral-society-rich northern Italy turned fascist (Riley 2005; Chambers & Kopstein 2001). When the Soviet empire collapsed, Serbs embedded in dense networks of social ties massacred their Bosnian Croat and Muslim neighbors (Chambers & Kopstein 2001, p. 842).

By far the most telling example, however, involves the Nazis. Through historical narrative, Berman (1997, p. 402) shows "how a robust civil society actually helped scuttle the twentieth century's most critical democratic experiment, Weimar Germany". The "high levels of association", explains she (id.), "served to fragment rather than unite German society".

Satyanath, Voiglaender & Voth (2013) make the same point econometrically. From city directories, they calculate the density of civil associations (not just

political associations, but "bowling, singing, hiking, and animal breeding clubs"; *id.*, 3) in Weimar Germany. With that density, they then predict the speed at which the Nazi Party grew. The denser the associational networks, the faster the spread of Nazism. Conclude Satyanath, Voiglaender & Voth (2013, p. 3), "the Nazi Party spread more rapidly in the fabric of German society where citizens had more points of contact outside the workplace".

As a result, that social capital can facilitate anti-social outcomes is no longer news (e.g., Chambers & Kopstein 2001; Knack 2002b; Portes 1998; Acemoglu, Reed & Robinson 2012). Perhaps, Putnam suggests, scholars should distinguish associations that "bridge" different groups, from associations that merely "bond" together people already in a group. Several scholars have followed that distinction (e.g., Stolle & Rochon 1998, p. 57; Knack 2002; Knack & Keefer 1997). Within the debate over the Nazi rise, for example, Berman (1997) finds the distinction helpful: bonding associations facilitated the Nazi rise in Germany, but bridging groups did not. Satyanath, Voiglaender & Voth (2013) disagree: bonding and bridging associations both contributed to Nazi growth.

1.3 Social Capital and Law

1.3.1. Introduction

All this matters to legal studies, because it potentially gives an empirically tractable way to determine when people use the formal legal apparatus—to determine which communities can enforce norms and resolve disputes without invoking the courts. Students of social capital routinely argue that it facilitates the negotiation of transactions, and smooths the resolution of disputes. Where social capital is high, people trust each other to cooperate and keep their word (Annen 2003). They rely on social pressure to enforce their agreements. Only when social capital falls do they turn to the law. Unable anymore to enforce their agreements informally, they hire lawyers and use the courts.

Where social capital is high people cooperate, in short, and where it is low they sue. Lieberman (1983, p. 186) put the claimed tie between social capital and litigation most starkly:

> Litigiousness is not a legal but a social phenomenon. It is born of a breakdown in community, a breakdown that exacerbates and is exacerbated by the growth of law. . . . [U]ntil there is a consensus on fundamental principles, the trust that is essential to a self-ordering community cannot be.

Putnam (2000) explained the tie between social capital and litigation as a function of the trust that comes from a dense network of social ties. "[F]ormal contracts, courts, litigation, adjudication, and enforcement by the state" are, he

writes (id., 144-145), "one alternative to generalized reciprocity and socially embedded honesty". When trust is high, Knack & Keefer (1997, p. 1253) suggest, people are "less dependent on formal institutions to enforce agreements" and can make do without "government-backed property rights or contract enforcement".

1.3.2. Law and Social Norms

Over the course of the 1990s, legal scholars largely ignored the debate over "social capital", and developed a parallel corpus on "social norms" instead (see the synthesis by E. Posner 1998, 2002). They focused—at the obvious risk of over-simplification—on several points. First, as Ellickson (1998, p. 546; 1990; 1986) put it, they found "informal systems of control" to be "especially" important "where interacting parties have a continuing relationship" at stake. The more stable a population, the more secure its norms and mechanisms of social control.

Second, legal scholars concluded that people follow communal norms in order to retain the chance to trade. Should anyone try to deviate, others enforce the norms by threatening a boycott. They mandate behavior, explained Richard Posner (1997, 366), by tying their norms to an "implicit threat of ostracism, that is, of refusal of advantageous transactions" (see also R. Posner & Rasmusen 1999; Posner 1998, p. 554;). The fewer the transactions among members in the group, the less secure the norms.

Third, scholars found that communication matters. "Norms and rules, whether publicly or privately created, embody and convey information", explained Katz (1996, p. 1749):

> They cannot be followed unless information is transmitted regarding their substantive content; they cannot be enforced unless information is transmitted regarding who has obeyed them, who has violated them, and who is to impose any associated punishment or reward.

The more people gossip, the more information they collect. The better their information, the more they know about their neighbors. And the more closely they follow what their neighbors do, the more secure their collective norms (see Akerlof 1976; Ellickson 1990, pp. 180–181).

1.3.3. Law in Discrete Communities

Within this literature on social norms, three closely focused studies of discrete groups took on unusual prominence. Each examined a small, insular world where members seemed able to enforce norms and resolve disputes without the courts. Lisa Bernstein (1992) studied the Jewish diamond merchants in New York. She found that they deliberately shifted their highest-stake transactions

outside the ambit of the U.S. legal system (id., 133). Within "the diamond industry, extralegal contracts are the dominant contractual paradigm", wrote Bernstein. Rather than turn to the courts, merchants construct a market where "enforcement depends on social ostracism or reputational damage" (id., 133).

Robert Ellickson (1986, 1991) identified much the same phenomenon among the farmers and cattle ranchers of Shasta County, California. As the cattle roamed, they damaged fences and ate crops. For the most part, residents settled their resulting disputes without going to court, and without even following the rules a court would enforce. They interacted with each other repeatedly, and across a wide range of issues. Because they thought their norms better suited to their micro-economy than California property or tort law, they "discourage[d] members from taking intermember disputes into the legal system" (id., 1991, p. 250).

Finally, Avner Greif (1993) examined long-distance commerce among eleventh-century Maghribi Jewish traders in the Muslim Mediterranean world. Greif did formally what Bernstein and Ellickson did informally: he modeled the ties among traders and agents as an indefinitely repeated game. He then examined the historical record, and found that the members of the community did indeed share information with each other, and enforce honesty by punishing violators mutually and multilaterally. They used, he explained, a "multilateral punishment strategy".

1.3.4. Social Norms and Social Capital

The empirical studies in social capital suggest an approach to a problem that the literature on "law and social norms" posed but never resolved: finding an empirically tractable way to identify the communities where members enforce norms and resolve disputes outside of the formal legal regime. Within that literature on norms, the theory was clear enough: norms matter most where people interact with each other widely, regularly, and extensively, and plan to continue doing so indefinitely. Unfortunately, other than polar cases, scholars never identified—tractably, empirically—the communities with the most effective informal mechanisms.

The three famous micro-studies represent the polar cases. Bernstein's diamond merchants formed a tightly knit and largely closed religious minority. Ellickson's Shasta county farmers and ranchers were born into the community and expected to die within it. Greif's Maghribi traders comprised a tightly knit, closed religious society where each member could count on the others to punish a cheating agent.

Each of the three studies captured a world where members followed norms—and although none of the three focused on the term, each also captured a world with extremely high levels of social capital. Each constituted a world with

Coleman's "closure": a network of overlapping, intertwined social connections where information travelled extensively and members collectively enforced expectations of proper behavior on each other. Each described a world where the availability of information created trust—where people cooperated in part because the speed with which information about their behavior "also affect[ed] future cooperation with... third parties" who would learn that information (Burt & Knez 1995). Greif's "multilateral punishment strategy" is nothing if not Coleman's "closure", and Bernstein's diamond traders appear and reappear in the subsequent literature as the archetypal high social-capital community (e.g., Portes 1998, pp. 6, 15; Paxton 1999, p. 93; Coleman 1988, p. S98).

What social scientists have developed in the two decades since the three studies is a way potentially to identify empirically the communities most likely to enforce "social norms"—and most likely to enforce them without recourse to the judiciary. By operationalizing social capital, they may have created an empirically tractable way to distinguish when people will follow social norms and when they will not; when they will structure their transactions through the formal legal apparatus and when they will not; and when they will use the courts to resolve their disputes and when they will not.

1.3.5. The Japanese Promise

Japanese data let scholars explore this connection between quantifiable social capital and the formal legal system in a world where the quality of that legal system does not vary. When people informally enforce norms and resolve disputes, they do so in part to save time and money. Compared to informal mechanisms, formal contracts and lawsuits usually take time and cost money. But the formal and informal sectors can vary on other dimensions too. The village elder who mediates a local dispute can be wise or foolish, honest or corrupt. And so too the local judge in the formal sector: judges can be predictable or haphazard, smart or dumb, fast or slow, a paragon of integrity or a simple cheat.

As a result, when people choose between formal and informal sectors, they consider not just the effectiveness of the informal sector but the quality of formal mechanisms as well. All else equal, they may prefer informal processes for the time and money saved, but all else is not necessarily equal. From jurisdiction to jurisdiction, statutes differ, procedures differ, judges differ. Courts vary not just in the time and cost they entail, but in the clarity, honestly, and predictability they offer as well.

American court quality varies in ways that often are hard to measure. In part, the variation reflects differences among state court systems. Scholars can measure state court congestion, but they will find it harder to rank the quality of a

state's common law or the efficiency of its court procedures. Harder still will they find it to measure a judge's intelligence, diligence, and honesty. Even federal courts vary in quality. Presidents appoint these men and women for life—to specific courts. Over time, some federal courts will acquire more judges with talent than others. Some will develop a more sensible common law than others. None of this will be easy to gauge empirically.

By contrast, Japan offers a relentlessly uniform legal system (Ramseyer 1994; Ramseyer & Rasmusen 2001, 2003). All law is national: local governments do not pass statutes. All fora are national: prefectures do not run courts. And no judges are local: the government does not appoint judges to specific courts. Instead—and in part precisely to maintain uniform quality—the court rotates its judges regularly across the country. Generally on three-year cycles, it moves its judges from court to court, city to city. Cities and prefectures do not acquire a distinctive jurisprudence. Neither do they acquire a distinctive judicial quality.

1.4 This Project

1.4.1. The Variables

In the article that follows, I use evidence from Japan to explore the correlation between (i) levels of social capital in a community, and (ii) the frequency with which its members comply with legal mandates and invoke the legal system. I treat social capital as an attribute of the community rather than of individuals, and measure its level at the forty-seven Japanese prefectures. I would have preferred data from a more local level. Unfortunately, most of the variables I use are not measured below the prefectural level (on the unavailability of local data on social capital in Japan, see Mizumi 2014, p. 64). The limited number of observations obviously restricts the reliability of the results. I also would have preferred data on change over time. Unfortunately again, several of the variables are not measured on a regular basis.

I identify eleven proxies for social capital. In this effort, I locate primarily behavioral measures rather than attitudinal survey evidence. Some of the variables I use "cause" social capital, while others represent its "effect" (Paxton 1999, p. 101). Given that I focus on the correlation between levels of social capital and the manipulation of formal legal institutions, I use both types of variables without distinguishing between the two.

Although these eleven proxies cover a wide range of phenomena, they correlate with each other closely. Of the fifty possible pairs among them, the correlation is statistically significant at the 10 percent level in forty-four. Apparently, most of the variables capture the same basic pattern of inter-prefectural variation.

1.4.2. Synthetic Factors

Because of the empirical problems involved in using eleven highly correlated variables, I combine them through factor analysis. Rather than enter proxies for social capital in regressions independently, in other words, I reduce them to two synthetic measures of the unobserved latent variable, social capital. I then use the resulting synthetic measures as the independent variables.

I construct similar synthetic measures for economic and educational levels. Both economic welfare and education correlate heavily with social capital, but they also affect the use of the formal legal system independently of any effect through social capital. In order to examine the effect of economic welfare and educational investments independent of social capital more generally, I retain them as distinct variables.

1.4.3. Regressions

Finally, I regress several measures of the role of the legal system (of the extent people comply with legal mandates, of the extent they manipulate the judicial system) on these economic, educational, and social capital factors. As appropriate, I add the number of attorneys per capita. Given that attorneys choose to locate where people use the courts, I instrument the number of attorneys and use two-stage least squares.

In their regression of Nazi growth rates on German social capital, Satyanath, Voiglaender & Voth (2013) suggest that their results could reflect omitted variable bias: people joined the Nazi party where "economic distress was high", and given their low-opportunity cost also spent more time in clubs. They address the possible problem by using two-stage least squares with measures of associational density from the nineteenth century. Although I include measures of economic welfare and educational levels in my regressions, I could face a similar problem: omitted variables reflecting the contemporary environment could potentially affect the use of the legal system. "To separate the deeper historical roots" of social capital (as Satyanath et al. 2013 put it), I add two-stage least squares estimates with instruments for levels of social capital in the 1920s.

Note that this study—at its root, and like most other studies of social capital—demonstrates correlation rather than causation. This is not a project where identification lets us tease out causal effect. Satyanath et al., find that the spread of Nazi party correlated with social capital levels. The logic for the mechanism by which social ties contributed to the spread of the party is there, but the study fundamentally remains a study in correlation. Similarly, Skinner & Staiger (2007) find that technological adoption correlates with levels of social capital. Again, the logic for the phenomenon is there, but the project itself remains a project in correlation.

2. VARIABLES

2.1 Introduction

I focus on three sets of questions that follow straightforwardly from the literature on social capital. First, do levels of social capital correlate with legal (and normative) compliance? Where social capital is high, do people more willingly do what the law (and informal social norms—as Coleman [1988] explains) tells them to do?

Second, do levels of social capital correlate with contractual performance? Where social capital is high, do people more willingly keep their promises?

Third, do levels of social capital correlate with judicial enforcement? Where social capital is high, do people (as Lieberman 1983 argues) less often use the courts to enforce their contracts? Are firms less likely to manipulate the law to avoid liability?

To explore these issues, I construct the following variables. I describe the dependent variables in Section 2.2, and the proxies for economic welfare, educational investment, and levels of social capital in Section 2.3. I explain the additional independent variables in Sections 2.4, and the instruments used in the two-stage estimates in Section 2.5. I include selected summary statistics in Table 1.

2.2 Dependent Variables

2.2.1. Compliance with Low-Level Mandates

In societies bound together by high levels of social capital, people more readily comply with norms of appropriate behavior. If (i) those norms dictate a given pattern of behavior, and (ii) the government does not enforce the behavior through the courts or the police, then compliance should correlate positively with levels of social capital. Take three low-level mandates that enjoy widespread support, and which the government primarily enforces through social norms.

> **(Traffic violations)/roads**: Number of traffic violations in 2008 (Japan Now, 2014), divided by the number of kilometers of roads in 2013 (Somu sho, 2014).
> **NHK payment rate:** Percent of households paying their mandated levy to the national broadcasting network (the NHK) in 2011 (NHK 2012).
> **Pension contribution rate:** Percent of person-months of mandated national pension contributions for the self-employed for the 2011 fiscal year that were actually paid by the end of May 2013 (Kosei rodo sho 2013).

Note that the literature articulates social capital as the principal way by which people enforce their commonly held norms. As a result, consider these low-level mandates a simple way to check whether my proxies for social-capital do in fact capture aspects of the concept itself.

Table 1. Selected Summary Statistics

	Minimum	Mean	Median	Maximum
A. Dependent Variables:				
(Traffic viol)/roads (2008, 2013)	1.650	7.078	4.498	46.513
NHK payment rate (2011)	42.0	77.8	78.9	94.6
Pension contribution rate (2013)	42.9	65.7	66.0	75.2
Insolvency PC (e-05) (2010)	3.54	8.39	7.17	23.83
Lawsuits PC (e-04) (2010)	9.19	14.77	13.86	40.61
Bankruptcy PC (e-04) (2010)	6.14	9.49	8.57	18.78
Enforcement PC (e-05) (2010)	9.4	88.44	86.65	126.7
B. Proxy variables:				
Income PC (2010)	4559	6823	6830	8336
Savings PC (2004)	5068	14887	15647	19577
Foreign auto fraction (2009)	1.5	4.28	4.2	7.6
Advance to high school (2002)	92.8	96.5	96.7	98.4
Expenses per stud, elem (2008)	761	924.1	905	1211
Expenses per stud, middle (2008)	890	1065.2	1027	1474
Expenses per stud, high (2008)	941	1171.4	1141	2173
Standardized test, mean (2013)	55.8	62.2	62.0	69.2
Standardized test, middle (2013)	53.7	62.3	62.5	68.2
Truancy rate (2013)	1.83	2.53	2.56	3.11
Voter turnout (2003)	38.19	59.46	58.77	69.44
Volunteering (2006)	19.7	28.2	27.6	34.5
Commy cen. staff PC (e-05) (2005)	2.26	13.34	11.24	44.31
Religious followers PC (2008)	.625	1.720	1.485	6.473
Crime rate (2010)	4.99	10.50	10.02	18.87
Job tenure (2009)	8.7	11.5	11.6	13.0
Unemployment rate (2010)	3.2	4.8	4.7	7.5
Unemployment, college grad (2002)	7.5	21.8	21.5	42.7
Divorce rate (2010)	0.289	0.375	0.374	0.452
Divorce settlement rate (2010)	0.804	0.869	0.871	0.921
Illegitimacy rate (2010)	1.29	2.15	2.10	3.99
C. Synthetic Variables:				
Economic factor	−2.176	0.000	0.048	2.914
Educational factor 1	−3.237	−0.000	−0.033	2.878
Educational factor 2	−1.632	0.000	−0.187	2.911
Other social capital 1	−1.692	0.000	−0.195	3.275
Other social capital 2	−1.972	0.000	0.135	1.931

Note: $n = 47$. Many of the variables are not measured on an annual basis, but I know of no reason that the values would have changed radically during this period.

2.2.2. Contractual Performance

To estimate the extent to which people keep their promises in business, I measure the rate at which firms default on their notes.

> **Insolvency PC**: Companies facing economic insolvency (tosan; defined as firms that default on two notes within six months) in 2010, per capita. I take the number of insolvencies from the credit-rating firm, Tokyo shoko risaachi (2013).

2.2.3. Legal Manipulation

To capture how readily residents manipulate the formal legal apparatus, I measure the willingness of creditors to file enforcement actions against insolvent (or nearly insolvent) debtors, and the willingness of those debtors to file for bankruptcy protection (all from Saiko 2011, tab. 4).

> **Lawsuits PC:** Total civil suits filed in 2010, per capita.
>
> **Enforcement PC**: Enforcement petitions (kyosei shikko; both realty and personalty) in 2010, per capita.
>
> **Bankruptcy PC:** Petitions for bankruptcy (hasan) protection in 2010, per capita.

2.3 Proxy Variables

2.3.1. Economic

I define three proxies for the level of economic welfare in a prefecture:

> **Income PC**: Income in 2010 per capita, from Naikaku fu (2013).
>
> **Savings PC**: Mean bank deposits (but not other wealth) per capita in 2004, in 1000 yen, from Somu (2004).
>
> **Foreign auto fraction:** Percentage of all cars in 2009 made by foreign firms, from Todo-ran (2013a). Foreign cars in Japan are disproportionately luxury models.

2.3.2. Educational

I include seven proxies for the level of investments in education:

> **Advance to high school:** The percentage of middle school (grades 7–9) students in 2002 who advanced to high school (grades 10–12) (Toba 2005, p. 89). Education in Japan is compulsory only through grade 9.
>
> **Expenses per student, elementary:** The mean amount spent on each elementary-school student in 2008, in 1,000 yen (Monbu sho 2008).
>
> **Expenses per student, middle:** The mean amount spent on each middle-school student in 2008, in 1,000 yen (Monbu sho 2008).
>
> **Expenses per student, high:** The mean amount spent on each high-school student in 2008, in 1,000 yen (Monbu sho 2008).
>
> **Standardized test, mean:** 2013 mean score in the Japanese language and mathematics standardized tests in public schools for sixth and ninth grades (Todo-ran, 2013b).
>
> **Standardized test, middle school:** 2013 mean score in the Japanese language and mathematics standardized tests in public schools for ninth-grade students (Todo-ran 2013c). The ninth-grade scores are said to reflect home environments more fully than sixth grade scores (Todo-ran 2013c).
>
> **Truancy rate:** Percentage of middle school students missing 30 or more days per year (Todo-ran 2013d).

2.3.3. Social Capital

2.3.3.1. Civic engagement.—I use voter turnout rates as a straightforward measure of civic engagement: how many people take part in elections (for a study tying social capital to voter turnout in Japan, see Mizumi 2014, p. 47)? To capture the extent to which people participate more broadly in their community, I examine volunteering rates.

> **Voter turnout:** Voter turnout rates for the national election in 2003 (Somu sho 2003).
>
> **Volunteering:** Percentage of residents fifteen years or older performing volunteer work, 2006 (Somu sho 2006).

2.3.3.2. Social cohesion.—To measure social cohesion, I examine investments in community centers, participation in religious groups, and local patterns of crime. First, I use staffing patterns at community centers as a measure of local willingness to invest in the facilities and staffing necessary to build community cohesion. Second, I use religious participation as an index of social involvement. According to Putnam (2000, p. 67), religious participation functions "as a powerful correlate of most forms of civic engagement"; according to Murray (2012, p. 207), it constitutes "one of the key sources of social capital in a community". Third, I add the rate of serious crime as a further measure of social cohesion. As Putnam (2000, p. 308) put it:

> Higher levels of social capital, all else being equal, translate into lower levels of crime. . . . States with more social capital have proportionately fewer murders. . . . This inverse relationship is astonishingly strong – as close to perfect as one might find between any two social phenomena.

Extant studies tie Japanese crime rates to social capital levels as well (e.g., Takagi 2011, p. 153).

> **Community center staff, PC:** The number of staff at local community centers (kominkan) in 2005, per capita (Monbu sho 2005).
>
> **Religious followers, PC**: The number of members of a religious organization (of any faith) in 2008, per capita (Bunka cho 2008).
>
> **Crime rate**: The number of violations of the Criminal Code (excluding traffic violations) in 2010, per 1,000 population (Homu sho 2011).

2.3.3.3. Workplace ties.—Putnam (2000, pp. 87–88) observes that "[m]any people form rewarding friendships at work", and "feel a sense of community among co-workers, and enjoy norms of mutual help and reciprocity on the job". As a result, those with low job tenure enjoy less "trust and social connectedness in the workplace". Those who lose work completely withdraw psychologically from the community itself. The financial stress from their unemployment places "a profoundly depressing effect on social involvement" (Putnam 2000, pp. 192–193),

and leads to "less time spent with friends,... less frequent attendance at church, less volunteering, and less interest in politics". Because educated men and women contribute disproportionately to a community's stock of social capital, the job prospects for the best-educated youth matter particularly heavily for a community's ability to cohere as an integrated unit.

> **Job tenure:** Average number of years on a job, 2009 (Gekkyu 2009).
> **Unemployment rate**: Unemployment rate in 2010 (Somu sho 2012).
> **Unemployment, college graduates:** Unemployment rate among new college graduates, 2002 (Toba 2005, p. 75).

2.3.3.4. Family cohesion.—To measure family cohesion, I take divorce rates, divorce settlement rates, and illegitimacy rates (all calculated from data available at Kosei 2010a). First, the divorce rate straightforwardly measures that cohesion. Second (and more indirectly), the divorce settlement rate measures that cohesion as well. Because Japanese couples more readily divorce in prefectures with low levels of social capital, the marriages that do end in divorce in high-social-capital prefectures are more bitter. Consequently, couples find it harder to settle their divorces out-of-court (Ramseyer 2014).

Third, illegitimacy rates directly measure how closely couples tie childbirth to marriage. Obviously, "illegitimate" will carry different connotations in different societies. Within the modern USA, though, children born out of marriages (born "illegitimate") do not fare well. As Murray (2012, p. 164) put it, their mothers "come disproportionately from the lower socioeconomic classes and they tend to provide worse environments for raising children than married mothers". What is more, if mothers are bearing their children outside of marriage, then families are necessarily playing a smaller role in the community—yet "families with children are the core" of well-functioning communities (Murray 2012, p. 165). If illegitimacy is high, social capital is low.

> **Divorce rate:** The number of divorces in 2010, divided by the number of marriages in 2010.
> **Divorce settlement rate:** The number of divorces negotiated out of court (kyogi), divided by the total number of divorces.
> **Illegitimacy rate:** Percentage of children born outside of marriage, 2010.

2.4 Additional Variables

I add the following independent variables as appropriate.

> **GDP growth, 2005–2010**: Fractional growth in GDP, 2005–2010, from Naikaku fu (2013).
> **Attorneys PC:** The number of attorneys per capita, 2010 (Nihon bengoshi 2011, pp. 84–85).

Additionally, I also use the following demographic and industry controls (all from Somusho 2014):

> **Population density:** Total population, divided by livable area (in hectares).
> **Age 15–64:** Population aged 15–64, divided by total population.
> **Age 65 and over:** Population aged 65 and older, divided by total population.
> **Manufacturing sector:** Production of manufacturing sector, divided by prefectural GDP.
> **Service sector:** Production of service sector, divided by prefectural GDP.
> **Agricultural sector:** Production of agricultural sector, divided by prefectural GDP.

2.5 Instruments

I use the following instruments in two-stage analyses.

2.5.1. For Attorneys

> **Scriveners PC:** The number of judicial scriveners (shiho shoshi) per capita, 2012 (Nihon shiho 2012).

2.5.2. Historical Instruments

> **Divorce rate, 1925**: The number of divorces in 1925, divided by the number of marriages in 1925 (Naikaku 1926).
> **Illegitimacy rate, 1925:** Percentage of children born outside of marriage, 1925 (Naikaku 1926).
> **Young wife rate, 1925**: Fraction of brides aged 17 or younger, 1925 (Naikaku 1926).
> **Elementary school attendance, 1925**: The percentage of children of elementary school age attending school, 1925 (Monbusho 1926).
> **Emigrants, 1899–1941 PC**: The number of residents emigrating to other countries, 1899–1941, per capita (population 1940) (Kokusai 1991).
> **Tenancy rate, 1923**: The fraction of irrigated rice paddies cultivated by tenants in 1923 (Kawagoe 1995).
> **Tenant riots, 1912–1926 PC**: Number of tenant riots during the Taisho period (1912–1926), per capita (population 1929) (Aoki 1972).
> **Prostitute birthplace, 1924 PC**: Number of 1924 licensed Tokyo prostitutes (shogi) born in the prefecture, per capita (population 1925) (Fukumi 1928).
> **Geisha birthplace, 1924 PC**: Number of 1924 Tokyo geisha born in the prefecture, per capita (population 1925) (Fukumi 1928).
> **Barmaid birthplace, 1926 PC**: Number of 1926 Tokyo and Osaka barmaids born in the prefecture, per capita (population 1925) (Fukumi 1928).
> **Infant mortality sex ratio, 1925:** Deaths of boys relative to girls, under age 1 for 1925 (Naikaku 1926).

3. SYNTHETIC FACTORS

3.1 The Project

Rather than regress the dependent variables directly on the several proxies for social capital, I use the proxies to estimate the underlying level of social capital itself. This is the procedure used in Skinner & Staiger (2007), Paxton (1999), Sabatini (2009), and Ramseyer (2014). As in other studies on this topic, social capital here constitutes an unmeasured latent variable. Through factor analysis I combine its various proxies into two synthetic variables that more closely approximate it. As Stata (2005, p. 213) explains:

> [The procedure] reduces the number of variables in an analysis by describing linear combinations of the variables that contain most of the information and . . . admit meaningful interpretations.

More colloquially, Skinner & Staiger (2007, p. 552) write that the "factor model assumes that all of the state-level variables are linear combinations of a few unobserved factors. . ., plus an independent error. . . ." I use the standard "principal factors" estimation procedure, with "orthogonal varimax" rotation. Following general practice, I retain those factors with eigenvalues greater than 1. Table 2 reports the rotations.

I begin by using the three proxies for economic welfare to estimate a common economic factor. As the rotated factor loadings in Panel A shows, the resulting factor loads all three proxies heavily. What is more, all three rise with the level of economic welfare: The economic factor used in this study correlates positively with the level of economic welfare.

I use the seven proxies for levels of educational investment to estimate a second set of factors. The eigenvalue cutoff of 1 generates two education factors. The first heavily loads the standardized exam variables, and produces a synthetic measure that rises with the level of educational achievement. The second loads proxies related to educational expenditures. This variable rises with the level of educational investment as well. As a result, both variables are positively correlated with the level of education in the prefecture (Panel B).

Finally, in Panel C, I take the eleven proxies for social capital to calculate synthetic factors that reflect the level of that underlying capital. Again, the eigenvalue cutoff generates two variables. Note that when factor analysis calculates (as it does here) multiple synthetic variables to approximate the unobserved latent variable, it produces factors that are—by design—uncorrelated with each other.

The two calculated factors load different proxies for the underlying social capital. The first variable heavily loads the divorce, divorce settlement,

Table 2.   Rotated Factor Loadings

A. Economic Factor:		
Variable	**Factor1**	**Uniqueness**
Income PC	0.8150	0.3357
Savings PC	0.7278	0.4703
Foreign Auto	0.8574	0.2649

B. Education Factor:			
Variable	**Factor1**	**Factor2**	**Uniqueness**
Advance HS	0.3401	0.4420	0.6889
Exp PC elem	0.1172	0.8835	0.2056
Exp PC middle	0.0115	0.8829	0.2204
Exp PC high	−0.1097	0.4848	0.7529
Std test mean	0.9208	0.1310	0.1350
Std test md sch	0.9126	−0.0229	0.1667
Truancy rate	−0.4373	−0.0582	0.8054

C. Other Aspects of Social Capital			
Variable	**Factor1**	**Factor2**	**Uniqueness**
Divorce rate	0.7094	0.1321	0.4793
D settlemt rt	0.5578	−0.4714	0.4667
Voter turnout	−0.3916	0.6585	0.4130
Volunteering	−0.2539	0.7921	0.3081
Cmtyctr st PC	−0.2170	0.6601	0.5171
Rel follwr PC	−0.3423	0.2640	0.8132
Crime rate	−0.0769	−0.7001	0.5039
Job tenure	−0.7383	0.1968	0.4162
Unemployment	0.6600	−0.4698	0.3436
Unemp col gr	0.6303	−0.2842	0.5220
Illegitimacy	0.8757	−0.2131	0.1878

Notes: The table gives the rotated factor loadings for the synthetic measures of the Economic factor, the Educational factors, and Other Social Capital measures.
Principal factors method used. Orthogonal varimax rotation results reported. Factors retained if eigenvalue > 1.

unemployment, and illegitimacy variables to produce a factor that falls with levels of social capital (Panel C). The second factor loads the voter turnout, volunteering, community center, and crime variables to produce a variable that rises with levels of social capital. The result is a pair of variables that moves in opposite directions: factor 1 declines with the level of social capital in a community, and factor 2 increases.[1]

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1   As factor analysis requires, most of the variables are closely correlated with each other. The sample size of 47, however, is smaller than recommended for the construction of stable factors.

3.2 The Result

Given that the economic factor loads heavily per capita income and bank accounts, it assigns the lowest score to the very poor southern island of Okinawa. The other four lowest scores fall to three rural prefectures in the northeast (Iwate, Aomori, and Akita) and one on the southern island of Kyushu (Kagoshima). The factor assigns the highest score to Tokyo, and the four other highest scores to the adjacent prefecture of Kanagawa (site of Yokohama city), and three western prefectures (Aichi [site of Nagoya city], and Shiga and Fukui [both near Kyoto]).

The first education factor correlates strongly with the economic factor, and Okinawa scores low by this measure as well. Recall that the factor loads heavily standardized test scores. Osaka also scores low but the other low scores fall to rural provincial areas like Kochi (on Shikoku island), Oita (on Kyushu), and the far northern island of Hokkaido. Tokyo has the 11th highest score.

The second education factor loads heavily educational expenses. Tokyo again scores high by this measure. Other high scoring prefectures, however, include the rural areas of Kochi, Shimane, Akita, and Iwate. The urban areas in the west (Osaka and Aichi) and near Tokyo (Saitama and Kanagawa) score very low.

The first social capital factor loads measures of family cohesion and employment, and falls with social capital. It correlates inversely with the economic and first education factors, and assigns Okinawa the highest score (the lowest social capital). Other high-scoring prefectures (low social capital) include the economically poor prefectures of Miyazaki, Kagoshima, and Fukuoka on the southern island of Kyushu, the similarly poor Kochi on Shikoku island, and the northern prefectures of Hokkaido and Aomori. Low-scoring prefectures (high social capital) include primarily rice-producing prefectures on or near the Japan Sea coast: Niigata, Toyama, Fukui, Gifu, Shimane, Ishikawa, and Nagano. Aichi (home to metropolitan center of Nagoya) is third; Tokyo is 11th.

The second social capital factor (recall that by design verimax-rotated factors do not correlate with each other) loads heavily measures of civil engagement and crime, and rises with social capital. It correlates positively with the two education factors and negatively with the economic factor. Okinawa scores low by this measure, but so do urban areas like Tokyo, Osaka, Aichi, and Kyoto. Rural prefectures like Shimane, Tottori, Iwate, Yamagata, Ishikawa, and Fukui score high.

For the most part, the first social capital factor predicts the use of the legal system more fully than the second. The first factor generates significant results in Table 3 (low stakes norms—2 of 3 specifications), Table 5 (civil litigation rates—4 of 6 specifications), Table 6 (enforcement petitions—5 of 6 specifications), and Table 8 (bankruptcy petitions). The second factor generates

Table 3. Low-Stakes Social Norms

Dependent variable:	NHK fee payment rate	National pension payment rate	Traffic ticket rate
Economic factor	−3.479	−.092	4.750
	(2.53)**	(0.12)	(2.72)***
Educational factor 1	2.976	.801	.727
	(3.19)***	(1.58)	(0.61)
Educational factor 2	.725	1.277	1.595
	(0.84)	(2.74)***	(1.46)
Other social cap 1	**−5.208**	**−3.527**	2.520
	(3.97)*	**(4.96)***	(1.51)
Other social cap 2	**4.45**	**3.239**	**−4.373**
	(4.35)*	**(5.83)***	**(3.35)***
Adj R2	0.73	0.79	0.42
n	47	47	47

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. Coefficient, followed by absolute value of t-statistic in parenthesis.
Results supportive of the role of social capital are given in bold.

the predicted significant results only in Table 3 (low stakes norms), and Table 4 (insolvency rates—3 of 5 specifications).

4. NORMS AND COMPLIANCE

4.1 The Ambiguity

Ask, then, when people will comply with widely held norms and when they will not. If levels of social capital are high, people find themselves more closely tied to networks within their communities. Their relations are "closed", as Coleman put it, and they will (so sociological theory asserts) more willingly comply with communal norms.

All else equal, the correlation between levels of social-capital and rates of compliance should turn on at least two considerations. First, it should depend on the extent to which the (distant) norms mirror local (as opposed to national) values. If the norms reflect widely held local values, the density of social capital should correlate positively with compliance.

Second, the observed effect of social capital should turn on the extent to which the government enforces the norms through formal legal mechanisms. If the government does not try to enforce those mandates through the legal (particularly criminal) process, then social capital should correlate positively with observed compliance rates. If the government actively enforces the norms through the formal process, however, then those efforts may crowd out the effect of social capital. After all, data only show correlation when they

Table 4. Insolvency Rates

Dependent variable:	Insolvency PC				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
GDP growth	−3.51e-04	−3.44e-04	−2.59e-04	−4.25e-04	−2.84e-04
	(2.15)**	(2.12)**	(1.50)	(2.03)**	(1.52)
Economic factor	1.85e-05	1.01e-05	1.64e-07	5.59e-07	−5.57e-06
	(2.01)*	(0.87)	(0.01)	(0.03)	(0.41)
Educ factor 1	7.47e-06	6.10e-06	9.10e-06	1.21e-05	9.59e-06
	(1.20)	(0.96)	(1.18)	(1.39)	(1.11)
Educ factor 2	4.80e-06	2.17e-07	5.66e-06	8.55e-06	1.04e-05
	(0.82)	(0.03)	(0.62)	(1.14)	(0.91)
Other soc cap 1	1.06e-05	5.77e-06	1.07e-05	8.28e-06	3.89e-06
	(1.18)	(0.58)	(1.10)	(0.49)	(0.25)
Other soc cap 2	**−1.9e-05**	**−1.74e-05**	−6.67e-06	**−5.18e-05**	−1.88e-05
	(2.76)*	**(2.50)**	(0.78)	**(3.29)***	(1.24)
Pop density			1.57e-06***		1.49e-06***
			(3.04)		(2.73)
Age 15-64			−1.10e-04		−1.19e-03
			(0.12)		(0.82)
Age 65 and over			5.05e-05		−9.89e-04
			(0.06)		(0.72)
Manufac sector			1.49e-04		1.10e-04
			(0.92)		(0.63)
Service sector			4.56e-05		1.52e-05
			(0.11)		(0.03)
Agric sector			−6.28		−2.74e-04
			(0.72)		(0.28)
Adj R2	0.33	0.19	0.44	−0.03	0.40
n	47	46	47	46	46
Tokyo included:	Yes	No	Yes	Yes	Yes
Regression	OLS	OLS	OLS	2SLS	2SLS

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. Coefficient, followed by absolute value of t-statistic in parenthesis. In regressions (4) and (5), **Other social capital 1** and **Other social capital 2** are instrumented by **Divorce rate 1925, Illegitimacy rate 1925, Young wife rate 1925, Elem school attend 1925, Emmigrants 1899-1941 PC, Tenancy rate 1923, Tenant riots 1912-1926 PC, Prostitute birthplace 1924 PC, Geisha birthplace 1924 PC, Barmaid birthplace 1926 PC,** and **Infant mortality sex ratio 1925.** n falls to 46 in these regressions because **Tenancy rate 1923** omits Okinawa.
Results supportive of the role of social capital are given in bold.

vary. To the extent that formal enforcement causes people everywhere to comply, the observed variation will disappear.

4.2 The Project

Consider three relatively low-level government mandates. These mandates involve social norms that enjoy relatively widespread support, and which the government rarely enforces through formal judicial mechanisms.

4.2.1. Public Broadcasting Fees

Take the subscription fee to the national television and radio broadcasting network, the NHK. The network is reasonably popular, but all Japanese households with a television set must pay the fee whether they like the programs or not. Even for freely available broadcasts, the amount is non-trivial: in late 2013, 27,200 yen/year.

Some Japanese resent paying the NHK fee. Popular as the broadcasts may be, not all Japanese like them. Much of the music is classical, and although NHK news broadcasts tend to be unbiased, they also tend to be boring. Bloggers on internet sites swap strategies about how to skirt the fee. NHK still collects the money through door-to-door solicitation agents, so bloggers discuss how to avoid paying them. When the NHK agent appears at the door, some Japanese pretend not to be home. If they answer the door, some claim not to own a television. If they admit to owning a set, some simply refuse to pay anyway.

Compliance is widespread, but not complete. As of 2011, 72.5 percent of Japanese households paid the fee (NHK 2012). The government does not bring criminal prosecutions against those who refuse, but it has started to file a small number of civil suits. The Yomiuri newspaper reported one court in 2013 that did order a non-compliant TV owner to pay the fee—but it added that the case was only the 6th civil suit ever for non-payment (Yomiuri 2013).

4.2.2. National Pension Contributions

Second, turn to the Japanese government's pay-as-you-go pension system. The system actually includes two distinct networks. The first covers employees. Because employers withhold the premiums (which vary by income) from a worker's paycheck, compliance is high.

The second pension network covers the self-employed and several other groups (see generally Iwasaki 2004). Participation is mandatory, but people must take the initiative to pay the fees. Despite a legal requirement that everyone comply, the government does not punish those who shirk. As of March 2013, the premium was a flat 14,980 yen/month. If a worker paid the premiums for 40 years, he would upon retirement receive an annual pension of 786,500 yen (Nihon 2013, p. 1). In 2012, the self-employed pension network included 18.6 million people (MHLW 2012, p. 1). Of that group, the government had granted a full hardship exemption to 2.4 million (MHLW 2012, p. 1).

On a widespread scale, self-employed Japanese avoid payment. After 15,000 yen per month for 40 years, a 790,000 yen pension is a very bad deal. Japanese recognize the "badness" of the deal, and often try to avoid it. In early 2003, journalists found even prominent politicians who skipped their required contributions. Voters hounded several of them from office (Onishi 2004), but the government does not itself penalize those who shirk their contributions.

In 1990, compliance (calculated by paid month-premiums/payable month-premiums) had been 85.2 percent. By 2012, it had fallen to 58.6 percent (MHLW 2012, p. 3).

4.2.3. Traffic Violations

Last, take the willingness of drivers to flout traffic rules. The penalties are modest, and enforcement (other than for exceptions like DUI or reckless driving) is modest. Most violations, of course, impose no substantial dangers either on the driver or on other parties. Instead, the cost of flouting traffic rules turns on the corrosive effect on traffic norms more generally—corrosion that leads eventually to violations that do impose social costs.

Traffic violation rates in Japan vary significantly. The rates are typically highest in urban centers. By violations per capita, annual rates ranged from 0.033 in the prefecture of Wakayama to 0.103 in Yamaguchi (Tokyo was third, at 0.087). By violations per automobile, they ranged from 0.043 in Ibaragi to 0.253 in Tokyo. By violations per kilometer of roads, they ranged from 1.7 in Akita (2.5 in Wakayama, 1.9 in Ibaragi) to 46.5 in Tokyo.

4.3 The Results

Ordinary least squares (OLS) regressions using rates of compliance with the three low-level government mandates indicate that cooperation rises with levels of social capital. Conversely, the regressions also suggest that the synthetic variables calculated through factor analysis capture significant aspects of the underlying social capital.

4.3.1. Public Broadcasting Fee

For example, consider the NHK broadcast fees. First, according to the regressions reported in the first column of Table 3, people are more likely to pay the fee in educated communities. The coefficient on the first educational factor is positive and statistically significant. The coefficient on the second is insignificant.[2]

Second, people are more likely to pay the fees in communities with high levels of social capital. Recall that the first social capital factor falls with levels of social capital while the second rises with social capital. The coefficient on the first factor is negative and strongly significant; the coefficient on the second is positive and strongly significant. Oddly, holding educational and social capital

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2   The insignificance is a function of including the other factors in the regression. In a simple pairwise correlation, the correlation between the second educational factor and the payment rate is positive and significant at the 10 percent level.

levels constant, the coefficient on the economic factor is significantly negative—payment rates fall rather than rise with income.[3]

4.3.2. Pension Payment

Turn to the second column of Table 3: contributions toward the national pension system. The results closely resemble those on the NHK broadcast fees. First, the payment contribution rate rises with education. The coefficient on both educational factors is positive, and the coefficient on the second factor is significantly so.

Second, the contribution rate rises with levels of social capital. Again, recall that the two factors point in opposite directions. The coefficient on the first social capital factor is negative, and the coefficient on the second factor is positive: the contribution rate rises with social capital levels. Both coefficients are statistically extremely significant.

Last, the coefficient on the economic factor is insignificant. This relation is also insignificant in a simple pairwise correlation.

4.3.3. Traffic Violations

Last, consider the relation between social capital and traffic violation rates. As reported in the third column of Table 3, traffic violation rates are similarly strongly related to levels of social capital. The coefficient on the first social capital factor is positive, and the coefficient on the second negative. The former is statistically strongly significant. Recall that it falls with levels of social capital: the higher the levels of social capital, the lower the rates of traffic violations.

Traffic violation rates are not related to educational levels. The coefficient on the economic factor is significantly positive: the wealthier the prefecture, the higher the rate of traffic violations. This is, however, an artifact of wealthy but congested Tokyo. Drop Tokyo, and the coefficient on the economic factor becomes insignificant. The coefficient on the first social capital factor remains positive and strongly significant.

5. THE FORMAL JUDICIAL PROCESS

5.1 Introduction

Scholars routinely claim that people and firms in communities with high levels of social capital more often keep their promises than those elsewhere. Embedded within dense networks of inter-laced social ties, they jeopardize a

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3   This is apparently an artifact of holding the other factors constant. In a simple pairwise correlation between the economic factor and the payment rate, the relation is not significant.

broader range of gains if they renege. They enjoy access to a wider source of aid to weather their crises. Even when those in more anomic worlds might break their commitments, people and firms in Coleman's "closed" societies obtain the help they need, and do as they promised. In Section 5.2, I confirm this logic: at the Japanese prefectural level, social capital does indeed correlate with contractual performance.

I then ask whether people and firms in communities with high levels of social capital manipulate the formal legal apparatus as readily as those elsewhere. I ask whether they file as many lawsuits generally (Section 5.3)—and find that (conditional on economic circumstance) litigation rates do indeed fall as social capital rises. I ask whether creditors file as many petitions to enforce their claims (e.g., enforce security interests, auction real estate; Section 5.4)—and find that enforcement petition rates (conditional on economic circumstance) fall as social capital rises. Finally, I ask whether they file as many petitions for bankruptcy protection (Section 5.5)—and find that bankruptcy filings similarly fall as social capital rises.

5.2 Contractual Performance

Contractual performance is hard to measure. No one documents the promises people keep or the contracts firms perform. For the most part, no one counts the commitments they break. Even less does anyone count the agreements they threaten to break and then renegotiate on more advantageous terms.

To measure how often firms renege on their promises I take the number of firms that default on two promissory notes within six months. Under the private rules of the clearinghouse for the banking industry, banks collectively agree not to extend further credit to any such firm. Effectively, they agree to place these firms on a cash basis and (what is the same thing) run them out of business (Ramseyer 1991; Matsumura & Ryser 1995).

The firms that default are thus firms that took risks and that no one saved. Firms can minimize the risk of default by taking fewer chances. Once they anticipate default they can ask search for additional credit or ask banks and trade partners to renegotiate existing loans. Disproportionately, those that run afoul of the clearinghouse rules will be the firms that took the highest risks and found the fewest people willing to help.

Firms in prefectures with low levels of social capital do indeed more readily default. In Table 4, I regress the per capita rate of double defaults on the economic, educational, and social capital factors, and a separate variable capturing any economic growth over the preceding five years. As one would expect, the coefficient on GDP growth is significantly negative: the lower the rate of growth, the more likely firms default on their notes.

Central to this study, the coefficient on the second social capital factor (a factor that rises with social capital) is significantly negative in three of the five regressions, and insignificant in two: at least according to three of the regressions, the higher the social capital, the lower the rate of default. Perhaps debtors take less risk with other people's money. Perhaps others more readily help troubled firms. Whatever the reason, defaults fall as social capital rises.

Consider three potential complications. First, Tokyo is an extreme outlier. It serves as home to about a tenth of the national population, and produces about a fifth of the GDP. Lest it skew the OLS results, in regression (2) I exclude Tokyo from the database. The results do not change.

Second, the social capital variables are potentially endogenous to the rate of firm failures. Recall that the variables are synthetic measures created through factor analysis on eleven proxies for the concept. Those proxies included job tenure and unemployment rates. Necessarily, these are endogenous to the rate at which firms default on their loans.

To address that endogeneity, in regressions (4) and (5) I report two-stage least-squares estimates. For these regressions, I instrument the two social capital variables with a series of proxies for the level of social capital in the various prefectures during the mid-1920s. Inter-regional variation in social capital has been remarkably stable. Although the correlation between divorce rates in 1925 and 2010 is only 0.21 (significant at 16 percent), that between illegitimacy rates in 1925 and 2010 is 0.54 (significant at the 0.1 percent level). The correlation between 1925 illegitimacy rates and 2010 divorce rates is 0.30 (significant at 5 percent). The correlation between elementary school attendance rates in 1925 and performance on the 2013 middle-school standardized test is 0.32 (significant at 3 percent).

The two-stage estimates in regression (4) deliver the same message as the OLS estimates in regressions (1) and (2): the higher the level of social capital, the lower the rate of default. The coefficient on the instrumented second social capital factor remains of the same order of magnitude as in the OLS estimates. The statistical significance increases further still. Do bear in mind, of course, that instrumental variables regressions are problematic with small samples (the n is only 47) and the first-stage F statistic is less than 10.

Third, prefectures vary by demographic and industry structure. Some of these variations will correlate with levels of social capital, and some will correlate with contractual performance independent of social capital. To explore that interplay, in regressions (3) and (5) I add demographic and industry controls.

The coefficient on the second social capital variable remains negative in these regressions but is no longer statistically significant. Firms most often default on their contracts in urban prefectures, and the population density measure

directly captures that phenomenon. As it does, the social capital variable with which it is heavily correlated (a correlation coefficient of −0.64, significant at more than 0.1 percent) loses significance.

5.3 Civil Suits

In Table 5, I ask whether people and firms in prefectures with high levels of social capital file as many civil suits. To hold constant prefectural economic performance, in addition to the economic factor, I include the prefectural GDP growth rate used as an independent variable in Table 4, and the rate of default used as the dependent variable in that table. Because the rate at which people file suits will turn on the availability of an attorney, I add the number of lawyers per capita.

I offer the basic regression in the first column. Preliminarily, note several characteristics. First, I exclude Tokyo. Not only does Tokyo house a tenth of the population and produce a fifth of GDP, it represents the residence of choice for half of all Japanese lawyers. For any study of the extent to which Japanese use the formal legal process, this obviously makes it a case unto itself. For comparative purposes, I offer the same regression on a database that does include Tokyo in regression (4).

Second, I use two-stage least squares and instrument the number of attorneys (regressions (1), (3), and (4)). Although the availability of an attorney will obviously affect the rate at which people and firms file suits, attorneys will choose to work in areas where people and firms more willingly file suits. To address this endogeneity, I instrument the per capita attorney population with the per capita population of their principal licensed rivals for non-litigation-related legal work (i.e., the so-called "judicial scriveners"). The latter offer a wide variety of office-based legal services: e.g., real estate conveyancing, administrative filings, and estate administration. Other than over small claims, however, they may not represent parties in court. Following Ginsburg & Hoetker (2006) and Ramseyer (2014), I use the number of these non-lawyer legal professionals to instrument the attorney population. As noted earlier, the sample size is smaller than it should be for two-stage estimates, but in this case the first-stage F statistic is 16.9. For comparative purposes, I offer the same regression in ordinary least squares in regression (2).[4] As expected, the number of attorneys is positively and consistently correlated with the number of lawsuits.

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4   As noted elsewhere, the *n* in these regressions is only 46 or 47. Visual inspection of the residuals from the OLS regressions suggests that the errors are approximately normally distributed. There are, however, clear deviations in the middle range. The Shapiro-Wilk W test for normality indicates that the null hypothesis that the residuals are normally distributed cannot be rejected in the first two regressions of Table 4. The residuals in other regressions are not normally distributed.

Table 5. Civil Suit Rates

Dependent variable:	Lawsuits PC					
	(1)	(2)	(3)	(4)	(5)	(6)
Insolvency PC	−1.508	0.571	3.051	0.360	0.840	1.319
	(0.26)	(0.14)	(0.54)	(0.07)	(0.18)	(0.35)
Attorneys PC	13.545	11.234	7.115	9.718	13.593	7.610
	(2.54)**	(3.79)***	(1.14)	(3.62)***	(3.54)***	(2.36)**
GDP growth	6.35e-03	5.69e-03	5.20e-03	5.06e-03	7.89e-03	2.70e-03
	(1.67)	(1.60)	(1.23)	(1.34)	(1.71)*	(0.72)
Economic factor	−1.56e-04	−1.86e-04	−1.16e-04	−5.79e-04	−1.09e-04	−5.90e-04
	(0.63)	(0.77)	(0.36)	(1.65)	(0.29)	(1.75)*
Educational factor 1	1.28e-04	1.03e-04	9.48e-05	3.3e-05	7.26e-06	1.89e-04
	(0.90)	(0.78)	(0.50)	(0.24)	(0.04)	(1.11)
Educational factor 2	7.78e-05	5.78e-05	8.47e-05	−1.69e-04	−3.69e-05	4.03e-04
	(0.52)	(0.40)	(0.33)	(0.83)	(0.21)	(1.62)
Other social cap 1	**4.89e-04**	**5.07e-04**	**7.06e-04**	3.02e-04	5.53e-04	**6.50e-04**
	(2.38)**	**(2.52)****	**(2.83) *****	(1.06)	(1.49)	**(1.91)***
Other social cap 2	3.18e-04	2.76e-04	7.44e-06	2.94e-04	6.51e-04	−3.26e-04
	(1.77)*	(1.73)*	(0.35)	(1.60)	(1.84)*	(0.97)
Pop density			7.74e-06			1.57e-06
			(0.41)			(0.10)
Age 15-64			−0.032			−0.096
			(1.41)			(3.26)***
Age 65 and over			−0.020			−0.090
			(0.98)			(3.28)***
Manufac sector			−3.16e-03			−2.40e-03
			(0.82)			(0.74)
Service sector			−0.013			−0.012
			(1.33)			(1.33)
Agric sector			−0.015			−0.015
			(0.67)			(0.84)
Adj R2	0.61	0.61	0.58	0.70	0.54	0.70
n	46	46	46	47	45	45
Tokyo included:	No	No	No	Yes	No	No
Regression	2SLS	OLS	2SLS	2SLS	2SLS	2SLS

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. Coefficient, followed by absolute value of t-statistic in parenthesis. In regressions (1), (3) and (4), **Attorneys PC** is instrumented by **Scriveners PC**. In regressions (5) and (6), **Other social capital 1** and **Other social capital 2** are instrumented by **Divorce rate 1925, Illegitimacy rate 1925, Young wife rate 1925, Elem school attend 1925, Emmigrants 1899-1941 PC, Tenancy rate 1923, Tenant riots 1912-26 PC, Prostitute birthplace 1924 PC, Geisha birthplace 1924 PC, Barmaid birthplace 1926 PC,** and **Infant mortality sex ratio 1925.** n falls in the last two columns because **Tenancy rate 1923** omits Okinawa.
Results supportive of the role of social capital are given in bold.

Third, the three economic variables are highly correlated. The correlation between **Insolvency PC** and the synthetic economic factor is 0.47 (significant at 0.1 percent) and between Insolvency PC and the GDP growth rate is −0.28 (significant at 6 percent). Given this colinearity, many of the calculated

coefficients on the three variables in the Table 5 regressions are not statistically significant.

Fourth, despite these multiple economic controls, the social capital factors remain potentially endogenous. As Satyanath Voiglaender & Voth (2013) put it in their study of Nazi growth rates, people may have joined the Nazi party where "economic distress was high", and given their low-opportunity cost invested more heavily in activities that built social capital. They address the possibility by instrumenting their measures of social capital with measures from the nineteenth century. I do the same in regressions (5) and (6) by instrumenting the two social capital variables with proxies for the level of social capital in the 1920s (the same procedure used in Table 4, regressions (4) and (5)).

The basic regression (1) suggests that the number of lawsuits rises as social capital falls. Note the significant positive coefficient on the first of the social capital factors. Given that this factor falls with social capital, a positive coefficient points to a negative correlation with litigation rates. The second social capital factor rises with social capital, however, and the coefficient on this variable is significantly positive as well. In part, the two variables thus offset each other.

The greater size (and statistical significance) of the first variable (loading heavily the family variables) suggests a net negative relationship between social capital and litigation rates. In the basic regression (1), the coefficient on the first factor is about 50 percent bigger than the coefficient on the second. The variation in the two factors is similar: a standard deviation of 0.95 on the first and 0.91 on the second. As a result, an increase of one standard deviation in both factors would necessarily cause a larger effect through the first factor—and indicate that litigation does indeed rise with social capital.[5]

The inclusion of demographic and industry controls clarifies this relationship between levels of social capital and litigation patterns. I report the results of adding these controls in regressions (3) and (6). In regression (3) (where I instrument attorneys with the number of judicial scriveners), the coefficient on the first social capital factor is positive and strongly significant, while the coefficient on the second factor is insignificant: litigation rises as social capital falls. In regression (6) (where I instrument the social capital variables with levels of social capital from the 1920s), the coefficient on the first social capital factor

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5   Consider a simple pairwise correlation between the social capital factor and the litigation rate (with Tokyo excluded). The correlation between the first factor and the litigation rate is positive and significant at the 0.1 percent level: litigation falls with social capital. The correlation between the second factor and the litigation rate is negative and significant at the 5 percent level: again, litigation falls with social capital.

is positive and significant, while the coefficient on the second is negative: again, litigation rises as social capital falls.

5.4 Enforcement Petitions

Any ambiguity about the relation between social capital and litigation rates disappears entirely when one focuses specifically on enforcement petitions (e.g., suits to auction real estate, suits to enforce security interests). In Table 6, I regress the per capita number of such petitions on the two social capital variables and several sets of controls. According to five of the six specifications, the higher the level of social capital, the fewer such court petitions.

Note two preliminary aspects of Table 6. First, I report six regressions—the same variations reported in Table 5: a two-stage estimate (instrumenting **Attorneys PC**) without Tokyo (regression (1)), an ordinary least squares estimate without Tokyo (2), a two-stage estimate without Tokyo but with demographic and industry controls (3), a two-stage estimate that includes Tokyo (4), a two-stage estimate that instruments the social capital variables with 1920s proxies (5), and a two-stage estimate with 1920s proxies and demographic and industry controls (6). Second, I control economic circumstance with the same variables used in Table 5: a synthetic economic factor, the five-year GDP growth rate, and the number of double-defaults per capita.

Parenthetically, note two further observations. First, the number of attorneys consistently predicts high levels of enforcement petitions. Second, two regressions suggest that higher educational levels are associated with higher levels of enforcement petitions.

The calculated coefficient on the first social capital is significantly positive in five of the six specifications (albeit in two of the five at only the 10 percent level).[6] Recall that this factor falls with social capital. Conditional on economic circumstance, at least in five of the six regressions higher levels of social capital are associated with lower rates of enforcement petitions. Perhaps firms take fewer risks. Perhaps troubled firms voluntarily make good to their creditors, or perhaps they can more readily obtain help. Whatever the reason, creditors in prefectures with high levels of social capital less often turn to the courts to enforce claims.

The magnitude of the effect of social capital is substantial. Take the results from the basic regression in the first column. A one standard-deviation change in the first social-capital factor (0.95) produces a 14 percent change in the probability of a per capita enforcement filing from its median (0.00087).

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6   In a pairwise correlation between the second social capital factor and the enforcement rate, the coefficient is negative and significant at the 10.1 percent rate.

Table 6. Enforcement Petition Rates

Dependent variable:	Enforcement PC					
	(1)	(2)	(3)	(4)	(5)	(6)
Insolvency PC	−0.828	−0.818	−1.114	−0.370	−0.876	−1.002
	(0.72)	(0.97)	(0.99)	(0.34)	(1.02)	(1.08)
Attorneys PC	1.979	1.967	2.142	1.042	2.179	1.698
	(1.86)*	(3.30)***	(1.72)*	(1.82)*	(3.04)***	(2.16)**
GDP growth	1.059e-03	1.056e-03	9.75e-04	7.436e-04	1.321e-03	5.30e-04
	(1.40)	(1.48)	(1.16)	(0.92)	(1.54)	(0.58)
Economic factor	5.62e-05	5.6e-05	5.26e-05	−4.76e-05	3.47e-05	−1.4e-05
	(1.13)	(1.16)	(0.82)	(0.63)	(0.50)	(0.17)
Educational factor 1	8.02e-07	6.82e-07	−1.29e-06	−2.24e-05	−1.99e-05	3.71e-06
	(0.03)	(0.03)	(0.03)	(0.76)	(0.62)	(0.09)
Educational factor 2	5.85e-05	5.84e-05	5.89e-05	−1.83e-06	3.98e-05	8.73e-05
	(1.96)*	(2.02)*	(1.14)	(0.04)	(1.23)	(1.44)
Other social cap 1	**1.31e-04**	**1.311e-04**	**1.62e-04**	8.5e-05	**1.189e-04**	**1.41e-04**
	(3.20)*	**(3.24)***	**(3.25)***	(1.40)	**(1.71)***	**(1.70)***
Other social cap 2	2.8e-05	2.78e-05	9.86e-06	2.22e-05	5.37e-05	−7.66e-05
	(0.78)	(0.86)	(0.23)	(0.57)	(0.81)	(0.94)
Pop density			1.64e-06			9.29e-07
			(0.43)			(0.24)
Age 15-64			−1.07e-03			−.010
			(0.23)			(1.40)
Age 65 and over			−4.22e-05			−8.75e-03
			(0.01)			(1.32)
Manufac sector			−8.43e-05			−1.63e-04
			(0.11)			(0.21)
Service sector			−2.62e-03			−2.56e-03
			(1.30)			(1.19)
Agric sector			1.30e-03			1.40e-03
			(0.30)			(0.31)
Adj R2	0.55	0.55	0.52	0.44	0.54	0.50
n	46	46	46	47	45	45
Tokyo included:	No	No	No	Yes	No	No
Regression	2SLS	OLS	2SLS	2SLS	2SLS	2SLS

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. Coefficient, followed by absolute value of t-statistic in parenthesis. In regressions (1), (3) and (4), **Attorneys PC** is instrumented by **Scriveners PC**. In regressions (5) and (6), **Other social capital 1** and **Other social capital 2** are instrumented by **Divorce rate 1925, Illegitimacy rate 1925, Young wife rate 1925, Elem school attend 1925, Emmigrants 1899-1941 PC, Tenancy rate 1923, Tenant riots 1912-26 PC, Prostitute birthplace 1924 PC, Geisha birthplace 1924 PC, Barmaid birthplace 1926 PC,** and **Infant mortality sex ratio 1925.** n falls in the last two columns because **Tenancy rate 1923** omits Okinawa.
Results supportive of the role of social capital are given in bold.

Table 7 explores which proxies for social capital might be driving the significant coefficient on social capital in Table 6. The table reports the coefficients from a series of regressions on **Enforcement PC.** In each regression, the independent variables were **Attorneys PC** (instrumented as discussed), the **GDP**

Table 7. Serial Enforcement Regressions on Proxies for Social Capital

Dependent Variable:	Enforcement PC	
Divorce rate	1.627e-03	(2.01)*
Divorce settlement rate	2.244e-03	(1.49)
Voter turnout	1.95e-06	(0.32)
Volunteering	1.18e-06	(0.16)
Community center staff, PC	.146	(0.42)
Religious followers, PC	−1.04e-05	(0.45)
Crime rate	7.42e-07	(0.05)
Job tenure	−3.31e-05	(0.68)
Unemployment	1.37e-05	(0.28)
Unemployment, college graduates	2.46e-06	(0.45)
Illegitimacy	1.827e-04	(2.71)***

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. The table gives the coefficient, followed by the absolute value of the t-statistic. Note that each independent variable appeared in a separate regression. In each case, the dependent variable in the regression is **Enforcement PC**. The regression is two-stage least squares, and excludes Tokyo. In each regression, the independent variables included **Attorneys PC** (instrumented by **Scriveners PC**), **GDP growth rate, Insolvency PC, Economic factor, Educational factor 1, Educational factor 2**, and one of the variables above.

growth rate, **Insolvency PC**, the **Economic factor**, the **Educational factor 1**, the **Educational factor 2**, and one each of the 11 proxies used to construct the two social capital factors.

The most highly significant coefficients appear on the family variables: the strongest proxy for enforcement filings is the prefectural **Illegitimacy rate.** Indeed, the pairwise correlation coefficient between the **Illegitimacy rate** and **Enforcement PC** is a staggering 0.70 (significant at 0.1 percent). The **Divorce rate** is also significant, but the coefficient on each of the other variables is statistically insignificant.[7]

5.5 Bankruptcy Petitions

The regressions on bankruptcy filings similarly present no ambiguity: economic circumstances held constant, petitions for formal bankruptcy protection rise as social capital falls (see Table 8). If a firm simply defaults on a note, the banks

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7   In pairwise correlations, the **Unemployment rate** is correlated with **Enforcement PC** at 0.54 (significant at 0.1 percent), the **College graduate unemployment rate** is correlated with **Enforcement PC** at 0.46 (significant at 0.1 percent), and **Job tenure** is correlated at 0.42. (significant at 0.1 percent).

Table 8. Bankruptcy Petition Rates

Dependent variable:	Bankruptcy PC					
	(1)	(2)	(3)	(4)	(5)	(6)
Insolvency PC	1.821	.191	.728	1.681	−0.195	−0.075
	(1.33)	(0.21)	(0.60)	(1.55)	(0.28)	(0.10)
Attorneys PC	0.046	1.858	0.781	.334	1.788	1.578
	(0.04)	(2.90)***	(0.59)	(0.58)	(3.08)***	(2.53)**
GDP growth	−8.89e-04	−3.71e-04	−3.78e-04	−7.92e-04	−3.38e-04	−7.34e-04
	(0.99)	(0.48)	(0.42)	(0.98)	(0.49)	(1.00)
Economic factor	3.57e-05	5.93e-05	4.46e-05	6.76e-05	−1.14e-05	−5.11e-05
	(0.61)	(1.14)	(0.65)	(0.90)	(0.20)	(0.78)
Educational factor 1	3.42e-05	5.32e-05	8.61e-06	4.13e-05	1.14e-05	3.35e-05
	(1.02)	(1.86)*	(0.21)	(1.39)	(0.44)	(1.01)
Educational factor 2	1.07e-04	1.22e-04	5.99e-05	1.25e-04	8.45e-05	1.31e-05
	(3.00)***	(3.93)***	(1.08)	(2.89)***	(3.22)***	(2.72)**
Other social cap 1	**1.83e-04**	**1.70e-04**	**1.60e-04**	**1.97e-04**	**1.64e-04**	**1.47e-04**
	(3.77)*	**(3.90)***	**(3.00)***	**(3.25)***	**(2.92)***	**(2.22)**
Other social cap 2	−2.36e-05	8.86e-06	1.99e-05	−2.18e-05	−1.55e-05	−4.01e-05
	(0.56)	(0.26)	(0.43)	(0.56)	(0.29)	(0.62)
Pop density			1.50e-06			−5.60e-07
			(0.37)			(0.18)
Age 15-64			8.13e-03			−4.00e-03
			(1.66)			(0.70)
Age 65 & over			8.12e-03			−6.03e-03
			(1.90)*			(1.14)
Manufac sector			8.26e-05			3.67e-04
			(0.10)			(0.58)
Service sector			1.31e-03			1.78e-03
			(0.61)			(1.03)
Agric sector			5.80e-04			7.65e-04
			(0.12)			(0.22)
Adj R2	0.50	0.59	0.56	0.65	0.77	0.75
n	46	46	46	47	45	45
Tokyo included:	No	No	No	Yes	No	No
Regression	2SLS	OLS	2SLS	2SLS	2SLS	2SLS

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. Coefficient, followed by absolute value of t-statistic in parenthesis. In regressions (1), (3) and (4), **Attorneys PC** is instrumented by **Scriveners PC**. In regressions (5) and (6), **Other social capital 1** and **Other social capital 2** are instrumented by **Divorce rate 1925, Illegitimacy rate 1925, Young wife rate 1925, Elem school attend 1925, Emmigrants 1899-1941 PC, Tenancy rate 1923 Tenant riots 1912-26 PC, Prostitute birthplace 1924 PC, Geisha birthplace 1924 PC, Barmaid birthplace 1926 PC,** and **Infant mortality sex ratio 1925.** n falls in the last two columns because **Tenancy rate 1923** omits Okinawa.
Results supportive of the role of social capital are given in bold.

will collectively place it on a cash basis and drive it into failure. By filing for bankruptcy protection, the firm can sometimes force its creditors to take less than promised. Firms more often do this, according to the regressions in Table 8, in the prefectures with the lowest levels of social capital.

I use the same presentation as in Tables 5 and 6. I again report six regressions: a two-stage estimate (instrumenting **Attorneys PC**) without Tokyo (regression (1)), an ordinary least squares estimate without Tokyo (2), a two-stage estimate without Tokyo but with demographic and industry controls (3), a two-stage estimate that includes Tokyo (4), a two-stage estimate that instruments the social capital variables with 1920s proxies (5), and a two-stage estimate with 1920s proxies and demographic and industry controls (6). I use the same economic controls: a synthetic economic factor, the five-year GDP growth rate, and the number of double-defaults per capita. Given the multi-colinearity involved, the economic variables again generate statistically insignificant results.

Here too, note two further observations. First, the coefficient on the second educational factor is generally positive and significant: economic circumstances held constant, the rate of bankruptcy petitions rises with education.[8] Second, in three of the six regressions, the number of attorneys is positively associated with the number of bankruptcy petitions. In the other three regressions, the coefficient is insignificant.

The coefficient on the first social capital variable is consistently positive and strongly significant. Given that the variable falls with social capital, the import is straightforward: the greater level of social capital, the less often distressed firms file for bankruptcy protection. Note that this holds true even when I instrument the variable with social-capital proxies from the 1920s. Either firms in high social-capital prefectures take less risk with borrowed money, or when in distress they successfully negotiate workable arrangements outside the courts.

The magnitude of the effect of social capital is again substantial. Take the basic regression in the first column. A one standard-deviation change in the first social capital factor (0.95) produces a 20 percent change in the probability of a per capita bankruptcy filing from its median (0.00086).

Table 9 explores which proxies used in the factor analysis might be driving the significant coefficient on social capital in Table 8. I report the coefficients from a series of regressions on **Bankruptcy PC**. I use the same independent variables as in Table 7.

The most strongly significant coefficients again appear on the family variables: the **Illegitimacy rate** and the **Divorce rate**. The pairwise correlation between the **Illegitimacy rate** and **Bankruptcy PC** is 0.52 (significant at 0.1 percent). Statistically significant results also appear on the number of **Religious**

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8   In a pairwise correlation between the second social capital factor and the bankruptcy filing rate, the coefficient is negative and significant at the 15.4 percent rate.

Table 9.   Serial Bankruptcy Regressions on Proxies for Social Capital

Dependent Variable:	Bankruptcy PC.	
Divorce rate	2.661e-03	(3.08)***
Divorce settlement rate	3.586e-03	(1.79)*
Voter turnout	−2.79e-06	(0.38)
Volunteering	−3.33e-06	(0.38)
Community center staff, PC	−.781	(2.06)**
Religious followers, PC	−7.05e-05	(3.03)***
Crime rate	2.62e-05	(1.62)
Job tenure	−6.79e-05	(1.13)
Unemployment	1.009e-04	(1.97)*
Unemployment, college graduates	1.54e-07	(0.02)
Illegitimacy	2.985e-04	(3.29)***

Notes: ***, **, *, significant at the 1, 5, and 10 percent levels. The table gives the coefficient, followed by the absolute value of the t-statistic. Note that each independent variable appeared in a separate regression. In each case, the dependent variable in the regression is **Bankruptcy PC**. The regression is two-stage least squares, and excludes Tokyo. In each regression, the independent variables included **Attorneys PC** (instrumented by **Scriveners PC**), **GDP growth rate, Insolvency PC, Economic factor, Educational factor 1, Educational factor 2**, and one of the variables above.

followers per capita, **Community center staff per capita**, the **Unemployment rate**, and the **Divorce settlement rate**.[9]

6. MECHANISMS

Where social capital is high (particularly, social capital measured by family patterns like divorce and illegitimacy), people more often do as expected. Integrated into broad social networks, they convey information to each other quickly and widely—and learn about those who violate social norms. Participating in a broad range of indefinitely repeated relationships, they find it advantageous to punish those who violate those norms—even when not harmed themselves. And able (through these mechanisms) more credibly to promise to perform, when in financial distress they can more successfully tap the needed help.

This logic suggests two related yet fundamentally distinct mechanisms for the empirical results above. The first is straightforward. Where social capital is high,

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9   The correlation coefficient between **Job tenure** and **Bankruptcy PC** is −0.25, significant at the 10 percent level.

residents can more readily enforce their deals informally. Given the risk of informal sanctions, contractual partners are less likely to renege on their promises (Table 4). When they do default, creditors more readily enforce their agreements out of court (Tables 5 and 6). And given the force of those communal sanctions, debtors less often skirt their promises through bankruptcy filings (Table 8).

A related—but distinct—explanation turns on access to credit. Where residents interact with each other in a wide range of relationships, creditors can more accurately gauge the risk that a debtor presents and more effectively enforce repayment. A debtor, in turn, can more credibly promise to repay. As a result, where social capital is high, distressed debtors have better access to informal sources of credit.

Suppose, for example, that a small firm borrows from a bank but falls into distress. It defaulted on one promissory note last month, and is about to default again. Where social capital is low, it will simply default (Table 4). Where social capital is high, however, the CEO may be able to borrow informally. Perhaps he will borrow from a friend, or perhaps from his older brother. He will take out that informal loan, pay his bank, and avoid the second default.

Suppose the CEO in the high-social-capital community does borrow from his brother and repay the bank. Because the bank will have obtained its money, it will not sue to enforce any security interest (Table 6). Of course, the CEO's older brother may find himself saddled with a bad loan—but older brothers seldom sue in court.

And suppose the firm eventually fails. Where social capital is low, the firm's CEO will not have borrowed informally, so the firm will fail with debt outstanding at the local bank. Rather than pay, it will file for bankruptcy and skirt repayment (Table 8). Where social capital is high, though, it will fail owing money to the CEO's brother. It will not file for bankruptcy protection for a simple reason—few people anywhere file for bankruptcy protection to avoid paying older brothers.

7. CONCLUSIONS

Most people everywhere try to keep their word when they can, but in some societies they try particularly hard. Firms perform their contracts when able. When they find performance impossible, they work with their creditors to make the best of the bad circumstances, and try to find an outcome satisfactory to them both. Courts and formal legal institutions they largely ignore.

Investments in social capital potentially provide a way to identify these worlds. Whether firms negotiate and perform independent of the formal

judicial apparatus turns on the extent to which people locate themselves within webs of social ties:

Do they marry? Do they bear and raise their children within marriage? Do they avoid divorce? Do they vote? Do they volunteer at community centers? Do they attend religious services? Do they sing in choral societies?

Or do they bowl alone?

Measure the density of the networks within which people live, work, negotiate, and invest, and perhaps one can start to locate the communities where they stay largely outside the ambit of the formal legal system.

In Japan, levels of social capital (particularly levels measured through family variables like divorce and illegitimacy) do indeed identify the worlds where people most often keep their word. To locate those communities, I assemble multiple proxies for the levels of social capital in the community—though not Putnam's famed choral societies or bowling leagues. Through factor analysis, I then use those proxies to approximate the levels of underlying social capital. Where social capital is high, I find that people do indeed more willingly comply with social norms. They file fewer lawsuits. Debtors less often default on their debt. Creditors enforce fewer claims through the formal court process. And debtors less often try to skirt their obligations through bankruptcy filings.

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