GCOE Discussion Paper Series
Global COE Program
Human Behavior and Socioeconomic Dynamics

Discussion Paper No.42

The Economic Costs of Court Decisions Concerning Dismissals in Japan: Identification by Judge Transfers

Hiroko Okudaira

April 2009

GCOE Secretariat
Graduate School of Economics
OSAKA UNIVERSITY
1-7 Machikaneyama, Toyonaka, Osaka, 560-0043, Japan

The Economic Costs of Court Decisions Concerning Dismissals in Japan: Identification by Judge Transfers※

Hiroko Okudaira ‡

This version: January 28, 2009

Abstract

The goal of this paper is to detect the degree to which court decisions control the stringency of employment protection and to investigate how such judicial discretion affects labor market performance. However, identification difficulty arises because court decisions are volatile against economic and social conditions. This paper overcomes the endogeneity problem by exploiting the triennial judge transfer system in Japan, or the exogenous allocation of judges to prefectures. A key finding is that the prefecture employment rate is reduced by approximately 1.4% if a prefecture receives more pro-worker judgments than pro-employer ones in a given year.

Journal of Economic Literature Classification Numbers: J65, K31, K41

Keywords: Employment Protection, Wrongful-Discharge Law, Weak Instrumental Variables

※ I am grateful to Fumio Ohtake, Yukiko Abe, David Autor, Steven Davis, Kyota Eguchi, Charles Y. Horioka, Takenori Inoki, Ryo Kambayashi, Daiji Kawaguchi, Jeong-Yoo Kim, Miki Kohara, Ayako Kondo, Jan Magnus, Masao Ogaki, Shinichi Sakata, Masaru Sasaki and anonymous referees as well as the seminar participants at the Japan Institute of Labor and Policy Training (JILPT), Research Institute for Economy, Trade and Industry (RIETI), National Graduate Research Institute for Policy Studies (GRIPS), Tokyo University and Osaka University for their helpful comments. All remaining errors are my own. This paper was presented at *the 2008 Far Eastern and South Asian Meeting of Econometric Society*, *the 63rd European Meeting of the Econometric Society*, and *the 20th Annual EALE Conference*. Author acknowledges a research grant from the Japan Society for the Promotion of Science for Young Scientists.

‡ Graduate School of Economics, Osaka University (okudaira@iser.osaka-u.ac.jp).

1 Introduction

The empirical effects of employment protection have been widely studied; however, only a fraction of these studies focused on the economic cost of discretion exercised by courts. It has been one of longstanding issues in labor economics to construct an index that precisely represents the de facto stringency of employment protection. Nonetheless, a majority of the studies have left the degree of judicial reviews intact and mainly quantified the amount of severance pay or length of advance notice (Lazear 1990, Heckman and Pages 2000, 2004).[2] The exceptions to this are a series of studies regarding the "employment at will" doctrine in the U.S. Autor et al. (2006) found that state employment rate is reduced by approximately 1 % if the state court adopts the implied exceptions to the at-will doctrine. The idea of their analysis rests on the fact that the timing of the adoptions differs across states, thereby creating state-level variation in the dominance of case law. However, even after a case law becomes prevalent, it is open to a wide range of interpretations and a large amount of discretion is left to courts or judges. The stringency of employment protection may differ from court to court or judge to judge. Then, the questions that arise are: does a specific court or individual judge have persistent influence over the restrictions on dismissals? If so, in what manner do the economic agents react to the restrictions imposed by the court or judge?

These questions are of great significance particularly in countries with a high degree of judicial activism. They are also important if a country has one national court system but no state court system. Unlike the U.S. state court system, for example, it is usually difficult to find regional variations in regulation change in countries with no explicit legal boundaries across regions. From the perspective of program evaluation, it would be ideal if researchers of such countries could also exploit variations that arise from reasons other than the program change de jure by region.

[2] Botero *et al*. (2004) revealed that countries with common law origin tend to embrace significantly more stringent labor regulation than those with civil law origin. The difference arises because "common and civil law traditions utilize different strategies for dealing with market failure: the former relying on contract and private litigation, the latter on direct supervision of markets by the government" (Botero *et al.* 2004, 1340).

An example of lower courts in the Tokyo and Osaka Prefecture in Japan provides an insightful and intriguing case study. Table 1 presents the ratios of worker victory for dismissal-related litigations at the High and District Courts in Tokyo and Osaka Prefecture. The numbers in brackets indicate the total number of litigations. The figures are obtained by dividing the number of worker victories by the total number of litigations related to "adjustment dismissal" (*Seiri Kaiko*) for each five-year period.[3] The table indicates a remarkable difference between Tokyo and Osaka; in particular, after the late 1970s, Tokyo Prefecture has experienced a much lower worker victory ratio, while courts in Osaka tended to adjudge employers of abusiveness in adjustment dismissals. Moreover, the third row presents the overall victory ratio for all 47 prefectures, from which it is even more evident that the two prefectures represent extreme cases.

In Japan, there is only one national court system. Precedents made at lower courts are applicable to all lower courts but do not necessarily bind their future decisions. There exists no legal boundary between prefectures. Although it has been not tested empirically, some legal scholars point out that Japan has historically permitted a relatively large amount of discretion in judicial reviews in dismissal-related litigations (e.g. Foote 2006). Since it is mandatory for plaintiffs (i.e., workers) to bring their case to a lower court in the region where defendants (i.e., firms) reside, one possible explanation for this observation is that firms receive different enforcement levels of employment protection across prefectures. In other words, firms in Osaka Prefecture may have been faced with more stringent restrictions on dismissals or high firing costs than those in Tokyo Prefecture.

In previous studies, the empirical effect of employment protection has been suggestive but tentative. Addison and Teixeira (2001) broadly surveyed cross-country studies and concluded that strict employment protection has a negative, if not significant, impact on employment rate. Heckman and Pages-Serra (2000) used a cross-country dataset for OECD and Caribbean countries and

[3] "Adjustment dismissal" is a dismissal that is undertaken as a means of employment adjustment under business necessity, independent of the misconduct of workers.

concluded that high severance payments moderately decrease total employment. However, in their revised work they indicated the fragility of cross-country studies in expanding samples and changing the definition of an employment protection indicator, and emphasized the importance of a within-country study (Heckman and Pages 2004). In this respect, a majority of the recent studies on employment protection have focused on within-country variations in terms of restrictions. Besley and Burgess (2004) found that the pro-worker amendment of the Indian Industrial Relations Act reduces state output per capita and hinders welfare by increasing the urban poverty. Similarly, Autor, Donohue and Schwab (2006) examined the effect of the "implied-contract" exception to the employment-at-will doctrine on employment-to-population ratio and indicated that employment rate falls significantly if state courts accept the exception.

In line with previous studies, the worker victory ratio presented in Table 1 is negatively correlated with local labor market performance. Figure 1 compares the employment-to-population ratio for Tokyo and Osaka Prefecture. Until the early 1970s, Osaka had only slightly higher employment-to-population ratio than Tokyo. However, in 2000, employment-to-population ratio became much higher in Tokyo as compared with that in Osaka. When combined with Table 1, Figure 1 indicates a persistent negative correlation between worker victory and employment-to-population ratios. In Tokyo, courts are likely to decide in favor of employers while employment rate is high; on the other hand, in Osaka courts are likely to decide in favor of workers while their employment rate is low. The example of the two prefectures is at least seemingly consistent with findings in a majority of previous works.

However, the correlation does not necessarily guarantee that any causal relationship is at work. There are identification difficulties for detecting the economic costs of court decisions concerning dismissals on labor market performance. A primary concern is the endogeneity problem. Case law is under continuous revision, and judgments are volatile against changes in social norms or economic

conditions. Ichino et al. (2003) analyzed a detailed dataset pertaining to an Italian bank and indicated that judges have expressed unbalanced leniency toward workers in judgments when the local labor market is in a depression. While a court may exogenously establish new decision standards that affect the amount of expected firing costs to firms, judge bias, such as this, or replacement of social norms also have a reverse effect on court decisions. The bilateral causality between court decisions and local economy makes it difficult to identify the causal effects of employment protection imposed by courts.

This paper attempts to identify the causal effects of adjustment dismissal-related court decisions on local labor market performance by exploiting the exogenous allocation of judges to prefectures. In particular, I exploit triennial judge transfers in the Japanese judicial career system. To do so, I first created a judgment indicator by coding adjustment dismissal precedents into pro-worker or pro-employer judgments. Then, by using this variable, I examined how the direction of judgment affects the labor market performance in a prefecture-level panel model. Finally, I estimated judge-specific effects from dismissal litigation records, and instrumented them to the direction of judgment in the original prefecture-level panel model in order to avoid the endogeneity bias.

A main finding in this paper is that the employment rate is reduced significantly—by approximately 1.5%—if a prefecture has a greater number of "pro-worker" judgments in a certain year as compared with those that are "pro-employer." This result is robust to several specification checks, such as controlling for observable prefecture characteristics and alternative methods of coding judgments, as well as Instrumental Variable (IV) estimation. Additional analysis reveals that the incumbent workers also bear some costs by accepting the decrease in real wages, and that firms substitute full-time workers with part-time ones who are less productive in terms of specific capital and less expensive to fire.

The unique contribution of this paper is to identify the impact of judgments on the labor

market through the exogenous assignment of judges to prefectures, by exploiting the periodical judge-transfer system in Japan. This paper also differs from a series of works that have investigated the consequence of American at-will exceptions, by focusing on the economic consequence of court or judge discretion per se rather than the established case law. Lastly, this work provides the first evidence to indicate the impacts of employment protection on the Japanese labor market.[4]

2 Theoretical Background

Table 1 and Figure 1 indicate a negative correlation between worker victory ratio and employment rate in Tokyo and Osaka. Although economic theory has predicted the ambiguous effects of employment protection on the level of employment, the correlation appears to be in line with some of the previous empirical works, which suggests that strict employment protection hinders labor market performance. On the other hand, it is not necessarily clear whether the correlation observed in section 1 actually represents the causal effect of court discretion on labor market outcome. The negative correlation may be reversely explained by local labor market performance or may be spurious due to omitted variables. This section summarizes economic theories in order to relate employment protection and labor market outcome, and introduces the possibilities of estimation bias incurred by reverse causation and omitted variables.

Economic theories have provided unambiguous conclusions that higher firing cost reduces employment flows. Hopenhayn and Rogerson (1993) presented a general equilibrium model and suggested that increased firing tax increases both current and future labor cost and makes labor reallocations more rigid (see also Bentolila and Bertola 1990). In addition, Kugler and Saint-Paul (2004) emphasized that adverse selection of workers by firms makes the unemployment

[4] Ohtake and Fujikawa (2002) and Ohtake (2004) first organized the statistical information regarding the doctrine of adjustment dismissal that has been established by courts. Kawaguchi (2005) and JILPT (2006, 2007) followed; however, neither analyzed its relation to the labor market. Okudaira (2008, in Japanese), the previous version of this paper, presented the preliminary evidence on the impact of judgments regarding adjustment dismissals; however, she did not present results from the IV estimations, which is of primary interest in the current paper.

-to-employment flow even more rigid when firing cost is higher. In other words, firms are more likely to hire from a pool of job-seekers who are already employed since they are less likely to be "lemons." A high firing cost exacerbates the option value of hiring from the employed (Kugler and Saint-Paul 2004).[5]

On the other hand, it is inconclusive whether or not a higher firing cost reduces the level of employment. In his simple model of labor contract, Lazear (1990) indicated that increased severance pay is not completely undone unless there is an efficient labor contract. The employment consequence of increased severance pay is theoretically ambiguous, depending on the elasticity of labor supply or the ability of workers to accept lower wages (Lazear 1990). Similarly, Bentolila and Bertola (1990) argued that the impact of firing cost on firing and hiring are rather asymmetric due to discounting and voluntary quits of workers, and it is not necessarily clear if an increase in firing cost reduces the level of employment. Thus, the theoretical impact of employment protection depends entirely on the parameter values in the labor market, and empirical studies play a role in determining the actual impact of increased firing costs on the level of employment.

However, contrary to theoretical speculations, the local labor market can also reversely influence judgments regarding adjustment dismissals. As Ichino et al. (2003) argued, judges may be biased against the unfavorable condition of the labor market. In the case of Italian litigations, judges are subjectively compassionate with workers and adjudicate in favor of them when the local unemployment rate is high (Ichino et al. 2003). Conversely, judges may also adjudicate in favor of firms during recessions. Undoubtedly, the four prerequisites may be more easily satisfied as the economic conditions worsen. The first prerequisite of the doctrine stated in section 2.1 is a decision standard that involves the business conditions of firms. Therefore, local labor market performance may partially explain the variations in Court Decision, although court or judge discretions may also

[5] Recently, researchers are increasingly studying the impact of EPL on productivity, which is partially explained by the rigid labor reallocation effects. See Autor et al. (2007), Petrin and Sivadasan (2006), and OECD (2007b).

exogenously provide additional interpretations of the doctrine at the same time.

Unique to the analysis of court discretions, it is also important to consider the litigation selection mechanism because not all disputes are brought into trials and the characteristics of the litigation depend on the underlying dispute characteristics in the region. For example, suppose that employers in Osaka are so irrational and ruthless that they rush to fire their hard-working employees without any valid reasons, making an excuse that it was part of their restructuring plan. Further assume that the employers in Osaka also lack in their ability to accurately predict the probability of their winning when the case reaches trial. Then, it is not a surprise even if courts in Osaka convict more employers for their abusiveness in adjustment dismissals than courts in Tokyo. Meanwhile, such irrationality of management may also have repealed business opportunities in Osaka, thereby dampening employment. If this is the case, the negative correlation observed in Table 1 and Figure1 is merely spurious.

More formally, Priest and Klein (1984) analyzed the incentive mechanism operating between parties, and clarified that the plaintiff victory ratio incorporates the characteristics of disputes, such as costs of litigations and settlements, as well as the relative stakes of both parties. According to their selection hypothesis, the plaintiff victory ratio in litigations does not necessarily reflect the underlying distribution of plaintiff success for an entire sample of disputes, and tends to be 50% regardless of the original distribution of success. In other words, a rational litigation process only selects those disputes to go into trial whose expected ratio of winning is almost fifty-fifty, *ceteris paribus*. Deviation from 50% occurs if, for example, the stakes of parties are asymmetric as in cases of malpractices, injuries, and product liability. Figures 1 and 2 indicate a large regional variation in judgments, and this may partially support the possibility that correlation is generated by the omitted variables specific to prefectures, such as irrationality of agents or asymmetry of stakes.

3 Institutional Background

3.1 Employment Protection in Japan

Japan has a unique legal system. Its Labor Law is originally based on German laws but heavily follows precedents, which portrays the American influence of common law on account of its short occupation after the Second World War. The introduction of American law allowed judges a more liberal and teleological interpretation of the existing civil law system after the War (Araki 2002). Similarly, the power of judicial reviews is a by-product of the 1947 Constitution, which organized the present trial system, although "judge-made law constitutes only a fraction of the entire picture of making and administrating public policies in Japan" (Itoh 1991, 195). An example of the exceptional "judge-made law" is the one for employment protection, the four prerequisites in the Doctrine of Abusive Adjustment Dismissals (hereafter, referred to as the doctrine of four prerequisites). Unlike European countries, there has been no written statute that demands just cause to dismiss workers.[6] Instead, Japanese courts have established strict prerequisites for regulating abusive adjustment dismissals.[7]

An adjustment dismissal (*Seiri Kaiko*) is a dismissal that results from business necessities, independent from the behavior of the worker. The doctrine of four prerequisites in adjustment dismissals, although not stipulated in a written statute, has *de facto* required a firm to satisfy the following four prerequisites in order to curtail their employees on account of economic necessity:[8]

1) There must be a need to reduce the number of employees

[6] It must be noted that the Japanese government codified the Doctrine of Abusive Dismissal in the Labor Standards Law in 2003 (Labor Standards Law, Art. 18, Par. 2), although the provision only generalized the existing case law and does NOT stipulate the four prerequisites. Also see footnote 6.

[7] The doctrine of four prerequisites for adjustment dismissal has been derived from the Doctrine of Abusive Dismissal, which was originally a "modification" by courts to the Civil Code provision, which states that "if the employment is not for a definite period, either party may make a request to terminate the contract at any time…" (Civil Code, Art. 627, Par. 1). In essence, judges *de facto* altered this written statute by the Doctrine in the face of a serious economic downturn immediately after the Second World War, when the cost of being fired was exceptionally high for workers. See Sugeno (2002, 473–493).

[8] Prominent examples include *Hamada v. Ohmura-Nogami*, 242 Rodo Hanrei 14 (Nagasaki D. Ct. Dec. 24, 1975) and *Shimazaki v. Toyo Oxygen*, 30 Rodo Minshu 1002 (Tokyo High Ct. Oct. 29, 1979)

2) Resorting to adjustment dismissals be necessary for attaining personnel reduction
3) The selection of the person or persons to be dismissed be appropriate
4) The procedures be appropriate

These four prerequisites have strictly limited the ability of firms to adjust the number of employees and flexibly achieve their optimal production level. Ohtake (2004) studied all published adjustment dismissal litigation records and statistically revealed that Japanese courts have rigorously required defendant firms to experience a reduction in sales in the previous fiscal term, in order for firms to satisfy the first prerequisite. As a result, firms must hoard unproductive labor until they meet the standards required by courts. The second prerequisite is satisfied only if firms have made their best efforts to avoid adjustment dismissals—before dismissing workers; for example, they must suspend hiring mid-career and new graduates, reallocate workers within a company, farm out workers to related companies, and solicit early retirement (Ohtake 2004, Sugeno 2002). By soliciting early retirement, firms also have to undertake the risk of forgoing productive labor. Ohtake (2004) found, in his probit model of worker victory, that it was around the mid-1970s—in the midst of the oil crisis—when the four prerequisites had arisen. Similarly, Kawaguchi (2005) pointed out that at least until the 1990s courts had literally required firms to satisfy all four prerequisites in order to legitimately dismiss workers. Thus, the doctrine of four requirements has *de facto* imposed stringent employment protection or high firing costs on firms in Japan for decades.

In relation to other countries, Japan is regarded as a country with relatively stringent employment protection. OECD (1999) created an index to represent the rigidity of the Employment Protection Legislature (EPL) and placed Japan in the 7th rank of most strict EPL from among 27 countries.[9] OECD (2007) also denoted that employment protection is particularly restrictive for

[9] Many other studies also constructed the EPL index. However, some only quantified the length of advance notice or severance pay (Lazear 1990, Heckman and Pages 2000, 2004) and ignored the restriction imposed by courts, such as the doctrine of four prerequisites. Thus, these indexes fail to capture the actual stringency of EPL in the Japanese labor market.

regular workers in Japan, proposing reforms in the EPL. One reason of this proposal was the uncertainty that court-mandated law delivers. It is possible that the uncertainty in the interpretation of courts of the four prerequisites discourages firms to hire new regular workers (OECD 2007a). Indeed, the four prerequisites have been under continuous revision, and the wording of the doctrine is open to a wide range of interpretations. While it blurs the de facto stringency of employment protection and may have discouraged new hiring, it also implies that a large discretion is left to courts or judges in interpreting the doctrine of four prerequisites.

As a matter of fact, it is well-known among legal scholars and professions that the Tokyo District Court has attempted, particularly after the 1990s, to relax the prerequisites and to allow firms to exercise adjustment dismissal with more ease (Tsuchida 2002, Mori 2001). With regard to the second prerequisite mentioned above, for example, the "scope" of labor contract is one of the questions at issue. The Tokyo District Court has tended to define the relatively narrow scope of the labor contract by requiring firms to reallocate workers only within an affiliated company and not across all related companies (*Saitoh v. Chase Manhattan Bank*, 609 Rodo Hanrei 63, Tokyo D. Ct. Feb. 27, 1992). Another issue is the legitimacy of hiring new workers immediately before or after the adjustment dismissal. The case of *Uenishi v. Meiji Shoin* (779 Rodo Hanrei 27, Tokyo D. Ct. Jan. 12, 2000) recognized the legitimacy in the second prerequisite; however, despite this, firms hired new employees around the time of the adjustment dismissals. This was considered to be a radical judgment for relaxing employment protection (Ukai 2001). These examples indicate the possibility that the enforcement of employment protection differs across regions, and that it was much less strict in Tokyo due in part to judge discretion. Figure 1 supports these observations of legal scholars.

This paper takes advantage of regional variations in the standards of interpreting adjustment dismissal by courts in order to investigate the empirical impact of employment protection in Japan. In particular, I applied a method similar to the one in Burgess and Besley (2004) and generate a

variable that represents the direction of judgments accumulated in each prefecture from a precedent dataset of adjustment dismissal. Then, I use this variable to estimate its impact on labor market outcome in prefecture-level panel data. In the next section, I explain a variable construction procedure and examine the regional patterns in judgments regarding adjustment dismissals.

Prior to constructing the variable, it is useful to provide a brief summary of the Japanese judicial system. First, all litigations are bench trials in Japan and they have no juries.[10] Judges decide questions of fact in addition to questions of law (Ramseyer and Rasmusen 2003). Second, Japan employs a three-instance trial system, and parties usually have three opportunities to contest in courts—the District Court at each prefecture, High Court at each regional block, and Supreme Court as a final stage (see Appendix for more details). Finally, Japan is a country with a low frequency of litigations. The number of newly filed labor-related cases in 1998 was only approximately 3000 cases in Japan, while it was almost 600,000 cases in Germany (Araki 2002). However, this fact does not devaluate the significance or impact of litigations in establishing the case-law. To be certain, the accumulation of precedents has often led to the enactment of case law by the central government (see footnote 5).

3.2 Exogenous Judge Transfers

In order to identify the causal impact of employment protection exercised by courts, it is crucial to find the random allocation of stringency in employment protection for each prefecture, independent from labor market conditions. This paper utilizes the variations that result from the periodical transfer system of Japanese judges. About every three to five years, the Supreme Court Secretariat, which manages judicial human resources, transfers judges from prefecture to prefecture and from court to court.[11] Judges usually do not stay in the same prefecture or court for too long, especially

[10] The jury system will be introduced in 2009 for serious criminal cases.
[11] An exception is judges of the Supreme Court who are appointed by the Cabinet and removed by voters at the

when they are young.[12] It is important to note that judges cannot practically reject their postings, although they are nominally entitled to do so (Ramseyer and Rosenbluth 1993).[13] Thus, judges must obey any appointments offered to them by the Secretariat.

However, the appointments may not necessarily be random. First of all, the Japanese judicial transfer system has an innate incentive scheme for judges to be promoted at an earlier stage or transferred to "prestigious" courts, such as those in metropolitan areas. Examples of fast track are positions at courts in Tokyo or administrative positions at the Secretariat, while examples of unfavorable appointments are positions at branch offices or rural courts (Nishikawa 2005). Ramseyer and Rasmusen (2003) examined the detailed career records of judges and revealed that judges are promoted to *Sokatsu*, an administrative position, significantly earlier if they were assigned their first positions at the Tokyo District Court, but significantly later if they were assigned their first positions at branch offices. Ramseyer and Rasmusen (2003) also presented some evidence to show that the Secretariat retaliated by assigning judges a position at a branch office of courts in rural areas if judges adjudicate for the illegitimacy of the Constitute or express any anti-government opinions. This works as an incentive for judges to not take such actions and so that the Secretariat transfers them to the "better" courts or metropolitan areas where local labor market performance may or may not be relatively fine. What is worse, since the Secretariat takes judges' location preferences into account to a certain but unknown degree, it is possible that ideology of individual judges in adjustment dismissal litigations selects them into a region whose political background matches with

---

time of Lower House election (although they never have been removed from position in this manner).

[12] In order to grasp the idea, let us take a standard example of Judge X, who appears in our sample of adjustment dismissal precedents several times; Judge X passed the national bar exams in 1987 and after a two-year mandatory training period at the Legal Research and Training Institute, began his career at Tokyo (No.13) District Court in 1990; in the third year of his career, he was transferred to Kagoshima (No.46) District Court, where he spent three years until he was assigned an out-of-court position at the Takamatsu (No.37) branch office of the Legal Affairs Bureau; thereafter, he returned to the Tokyo (No.13) District Court in 1998; however, he was again transferred to Saga (No.41) District Court in 2001 (Nihon Minshu 2004).

[13] "Nominally, a judge can refuse any posting he dislikes. In fact, he refuses at his peril. By 1969, Judge Shigeharu Hasegawa had worked in Hiroshima for seventeen years. The Secretariat then assigned him to an out-of-town position, formally a promotion. Hasegawa, however, had a sick wife and did not want it. He declined the promotion, and when the time came for his next ten-year appointment he found himself out of work" (Ramseyer and Rosenbluth 1997, 156).

their own taste.[14] For instance, pro-worker judge may prefer to be transferred to the region where unions exercise relatively large political power.

In order to confirm that judge assignments are exogenous to labor market performances or to the regional factors that incur selection of litigations, I test whether a current judgment determines the 'quality' of a next destination for each judge. More specifically, I take rank differences in outcome measure between judge's current prefecture (court) and the next prefecture (court), and regress them on judge's decisions regarding dismissal litigations at a current prefecture. I pick up judges those who dealt with adjustment dismissal cases at least once in our dataset which will be introduced in section four. Then, for each judge, I truck the first transfers before which judges gave any decisions in regard with dismissals. The transfer data used in this analysis consists of 382 judge-transfers identified by *Zen Saibankan Keireki Soran* (the ZSKS hereafter) between 1951 and 2003.[15]

Table 3 reports the average pro-employer judgments among judges by rank-difference categories. Column (3) and (4) presents the results for the employment-to-population ratio, a main indicator which will be analyzed in this paper. In all columns, there is no consistent pattern in rank differences both in labor market outcomes and regional dispute factors. I also show regression coefficients and standard errors of a simple regression of rank difference on judgment variable at the second bottom of the tables, however, no judgment variables are significant. Thus, the Supreme Court Secretariat does not 'retaliates' judges by assigning them to poor-performing prefectures just because they adjudicated in favor of workers or employers. Judges are transferred at least in a way

[14] Judge transfers usually involve three steps. First, the Secretariat asks judges to fill in their preferences in 'Judge Card No.2' Sheet (*Saibankan Daini Kaado*). This sheet includes information about family members, such as occupation and health condition etc, as well as how many and what kind of litigations they had dealt with previously. Then in the second step, the Secretariat asks top managers in each court about their evaluations about each judge. In the final step, the Secretariat assigns judges to the next courts by taking all these information into account, although a scholar points out that the decision process is pretty much a 'Black Box' (Nishikawa 2005).

[15] ZSKS records detailed information about when and where judges are transferred. ZSKS describes all positions held by every judge who were educated after World War Two. Some transfers are excluded from the analysis in case judges retire or turned to be attorneys. Ramseyer and Rasmusen (2003) use the same dataset to test the effects of judge ideology on their promotion.

that is exogenous to labor market performance or regional dispute factors.

4 Variable Construction: Direction of Judgments

Precedent dataset used in this paper has been taken from one of the most prevalent reports, "*Judicial Information System* (JIS)" provided by *Dai Ichi Hoki Co.*[16] JIS encompasses every *released* precedent in approximately ninety published periodical reports since the Meiji era and comprises over 300 thousand cases from all courts. Ohtake (2004) organized a dataset of wrongful-adjustment dismissal precedents from JIS in order to analyze the development of the doctrine of four prerequisites. His dataset was obtained by typing "adjustment dismissal (*Seiri Kaiko*)" in the JIS key word search for identifying reports where plaintiff worker(s) claims the defendant firm for its wrongfulness in adjustment dismissals.[17] The sample period ranges from January 1950 to December 2001, which is a total of 260 adjustment dismissal cases. I use this same group of precedents to construct a variable to represent the enforcement level of employment protection by courts.[18]

In estimating the economic consequence of court decisions, it is important to correctly define the information set that constrains the behavior of economic agents (i.e., firms and workers). A key to this definition is the perception of court decisions by agents. When firms maximize their profit, they estimate the expected costs of firing using only the available information. Similarly, workers decide to invest in firm-specific or general human capital in accordance with the expected probability to be fired (Wasmer 2006), which is in part constructed through their beliefs against employment protection imposed by the judiciary. Both firms and workers are affected by new information through newspapers or published precedent reports that are easily accessible to the

[16] Japan has another popular database, LEX DB, that is often used in legal professions, although the JIS and LEX DB are mostly mutually inclusive because of their compatible data sharing system.

[17] The dataset excludes any precedents that did not involve dismissals but were included in the results of the key word search. Certain legal scholars indicate that it is difficult to precisely distinguish "adjustment dismissal" cases from other types of dismissal litigations, where, for example, workers were fired due to their incompetence (Ogawa et al. 2007). This paper includes those cases, and thus, broadly defines "adjustment dismissal."

[18] Fumio Ohtake (Osaka University) kindly provided me with his organized dataset.

public.

JIS is an ideal data source in this respect. JIS does not contain all the litigations that have been filed in courts; however, it includes every *released* report of litigations. The Supreme Court Secretariat, the administrative office of courts, does not release all precedents. It is said that the Secretariat tends to allow "époque-making" or "rare" cases to be published in precedent reports.[19] In fact, JIS is often used by legal scholars and contains all the influential precedents that have in fact established the doctrine of four prerequisites. Since workers and firms as well as their attorneys observe released precedents but never unreleased ones, JIS must accurately capture, to a certain extent, the information set of agents that constrains their behavior.

The variable construction method used in this paper is very similar to the one proposed by Besley and Burgess (2004), where they quantified the amendments to the industrial relations law by Indian states. I code each of the 260 cases either pro-worker or pro-employer in order to indicate the direction of judgment in adjustment dismissal litigations. In identifying whether a judgments is pro-worker or pro-employer, I employ a simple rule: Each court decision was regarded as pro-worker if a defendant firm was charged of illegitimate or abusive dismissal, and pro-employer if plaintiff workers lost the case. Some samples were considered neutral if the defendant firm wins the case but a plaintiff worker also obtains some compensation.[20] For the purpose of quantitative analysis, I code each pro-worker judgment as one, each pro-employer judgment as minus one, and each neutral judgment as zero. Then, I allocate them to each prefecture if it is held at the District Courts, to all prefectures under the jurisdiction if it is held at the High Courts, and to every prefecture if it is held at the Supreme Court. A zero is assigned if a prefecture observes no judgments in adjustment dismissals in a given year. In years with multiple judgments, I sum up to obtain the total values of precedents and transform them into an indicator of the general direction of change—a

[19]Comments from a seminar participant (judge) at the Legal Research and Training Institute (November 9, 2006, Tokyo).

[20] Such cases comprise 13.8 % of the sample.

plus one is assigned if the total value is positive, and a minus one is assigned if the total value is negative. This creates a prefecture-level panel data of indicator of direction of judgment from 1950 to 2001.

As an example of this procedure, it is instructive to calculate a judgment indicator for Tokyo Prefecture in 1979. Tokyo Prefecture witnessed three major adjustment dismissal-related litigations at Tokyo District and High Court in 1979. One was filed in the High Court (*Nakamoto v. Nissan Motor Co.*, 717 Jurist 138, Tokyo H. Ct. Mar.12, 1979), where a defendant was sentenced for abusing the right of dismissal. This judgment is ascribed a code of plus one. The other two cases were declared as legitimate (*Abe v. British Airways*, 332 Rodo Hanrei 28, Tokyo D. Ct. Nov.29, 1979; *Shimazaki v. Toyo Oxygen*, 30 Minshu1002, Tokyo D. Ct. Oct. 29, 1979), and are ascribed a code of minus two. These makes up a total of minus one. Therefore, Tokyo Prefecture in 1979 is coded as minus one.

As a final step, I accumulate these judgment indicators over time in each prefecture beginning from 1950. There are three obvious reasons why the accumulation commences in 1950. First, the Allied High Command introduced a new set of labor regulations between 1945 and 1947, immediately after the Second World War.[21] It brought into effect the three labor laws common to all prefectures, which has been the benchmark for industrial relations after the Second World War.[22] Upon these laws, courts established the Doctrine of Abusive Dismissal, and later the four requirements in adjustment dismissals. The second reason is the fact that severe recession around the 1950s caused a number of collective labor disputes. It has been stated that these disputes generated a strong demand for employment protection and accelerated the establishment of the Doctrine of Abusive Dismissal (Chuma 1998).[23] Lastly and most obviously, JIS has very few adjustment

[21] Trade Union Law in 1945, Labor Relations Adjustment Law in 1946, and Labor Standards Law in 1947.
[22] See Sugeno (2002) for thorough discussions on the historical development of Japanese labor law.
[23] The early stage disputes include firms that are nowadays well-known international corporations: *Hitachi Ltd.* Dispute in 1950, *Nissan Motor Co.* and *Toyota Motor Co.* Dispute in 1953 (Chuma 1998).

dismissal cases filed prior to 1950. Since all prefectures have the same starting point, the accumulated judgment indicators represent the overall direction of judgments made in the past. I define this accumulated variable as "Court Decision"; a positive value of this variable implies that courts have been likely to sentence for the illegitimacy of adjustment dismissal or make pro-worker decisions in the past.

Figure 2 presents a graph of accumulated direction of judgments (Court Decision) for each prefecture. There are clear regional variations. Consistent with the observation in Table 1, Tokyo (No.13) exhibits an extreme pro-employer Court Decision, whereas Osaka (No.27) indicates a strong pro-worker trend. Note that prefectures in the same High Court jurisdictions have a similar pattern, which is partially as a result of adding High Court judgments to all prefectures in the same jurisdiction. In essence, prefectures under the jurisdiction of Tokyo H.C. [c] and Fukuoka H.C. [h] accumulated pro-employer judgments, while those under Osaka H.C. [e] and Hiroshima H.C. [f] accumulated pro-worker judgments. In addition to regional patterns, Court Decision has some common trends. For example, the divergences from zero are concentrated in the late 1970s in a majority of the prefectures. The 1970s witnessed a serious nationwide recession caused by the oil crisis, and firms were inevitably forced to reduce the number of their employees. As a result, the number of litigations related to adjustment dismissal increased dramatically, which accumulated precedents, thereby establishing the doctrine of four prerequisites (Ohtake 2004). Another common trend is an overall pro-employer movement in the late 1980s and early 1990s. This may be due to the fact that courts commonly accepted the lenient view toward the second prerequisite around the time.[24]

While the variable construction procedure in this paper is rather similar to the one in Besley and Burgess (2004), this paper has an implicit but important modification. In the Indian case of

[24] Firms used to be required to "go inevitably bankrupt" unless they curtailed their employees. However, courts relaxed their views, and now it is sufficient to dismiss workers if firms are in a "high degree of business difficulties" (Sugeno 2002, *Osaka Gyomeikan* ,685 Rodo Hanrei 49, Osaka D. Ct., Oct. 20, 1995).

Besley and Burgess (2004), they accumulated state-specific amendments to the Indian Industrial Relations Act, a written law. The amendment persists *within* the state forever unless it is abolished. On the other hand, in the case of the doctrine of four prerequisites in Japan, where they employ one national court system but no prefecture (i.e., state) court system, the revision of the doctrine is applicable to all prefectures; however, at the same time, it does not necessarily bind future judgments, even within the same prefecture. Only Supreme Court decisions bind lower court judgments. Thus, Court Decision does not represent the accumulated revisions of a law persistent within a prefecture. Instead, Court Decision represents the accumulated information of agents regarding judicial environments, including judicial decision standards or judge discretion exercised thus far within a prefecture. This idea largely relies on the fact that a prefecture of the first trial is exogenously given to both parties. When firms are considering the dismissal of workers due to their business necessity and uncertain regarding whether or not their adjustment dismissal satisfies the four prerequisites, rational firms calculate the likelihood of winning the case when it goes to a trial, taking into consideration historical judgment records of courts in their prefectures.

There are some evidences that support this idea. Foote (2006) suggested that the revision of the Doctrine of Abusive Dismissals is one of a few examples where Japanese courts have been involved in policy-making. He provided the example of Tokyo District Court in the 1950s, where judges at Division 10 of Tokyo District Court had a strong influence on the preliminary debate of the Doctrine by declaring their opinions in published works. As already mentioned, the Tokyo District Court is famous for leading decisions in the 1990s that relaxed the four prerequisites. Judge convocation (*Saiban-kan Kaido*) is another fact that supports that courts have generated judicial climate by regions. Judge convocation is held by the Supreme Court Secretariat, occasionally within the High Court jurisdiction area, in order to provide judges with an opportunity to exchange their opinions and, more importantly, consolidate their views (Nishikawa 2005). Thus, there are some

reasonable grounds to believe that the economic agent perceives that judicial climate or court discretions differ significantly from region to region.

However, the drawback of this idea is that information regarding which and how many precedents the economic agent preserves in the information set is not available. Firms may not necessarily recognize all the past precedents or past judicial climate. This implies that firms and workers may exclude the old past precedents from their information set with the passage of time. For a moment, let us assume that firms and workers never forget past information and let all past precedents remain in their information set. I return to this issue in Section 5 and propose some new alternative variables to relax this assumption.

5 Identification Strategies and Data

5.1 Baseline Model

The baseline model of this paper begins with an ordinary least squares (OLS) estimation with some covariates to adjust for observable differences in prefecture characteristics. Let E denote the employment to population ratio and CD denote pro-worker Court Decision, as defined in section 2.2; let subscript *p* refer to a prefecture and *t* refer to a year. An OLS regression model is presented in equation (1):

$$E_{pt} = \alpha + \beta_1 CD_{pt-1} + X_{pt}\beta_2 + \delta_t + \varepsilon_{pt1} \text{ . } (1)$$

One-year lagged pro-worker Court Decision, CD_{pt-1} , is used assuming that it takes one year for firms and their attorneys to recognize new precedents and incorporate the expected cost of firing into their maximization behavior. Prefecture characteristics (X) are controlled in order to account for the possible correlation between Court Decision and local public policies and demographics. Year

dummies (δ_t) are also included in order to capture unobserved year effects, including technological progress and enactments or amendments of laws common to all prefectures (e.g., major amendment of the Labor Standards Law in 1987). [25]

In order to measure employment (E), I draw on the *Basic Survey on Wage Structure* (Wage Census) annual files for the years 1985 to 2000 and calculate employment-to-population ratio by prefecture-year group.[26] The Wage Census stands out from other surveys in that it draws a large sample of establishments and their regular workers (over 70 thousand establishments and 1.5 million workers in 2001), and comprises details regarding employment and wage information of workers by a variety of categories—for example, prefecture, industry, sex, and age. In section 6, I make use of this advantage of Wage Census to present results for employment and hourly wages for ten subgroups distinguished by sex and industry. Panels A and B of Table 2 provide summary statistics for the main variables used in this paper. Appendix Table 1 shows more details about data sources and variable constructions. Okuaira (2008), previous version of this paper, discusses the economic background to include control variables, X in equation (1).

5.2 Estimation of Judge Effects

The original idea of IV analysis in this paper is adapted from Kling (2006), where he identified the effects of incarceration length on the future labor market outcome by using the random assignment of judges to cases as instrumental variables. I apply his idea to the analysis of the employment protections imposed by courts. In particular, I compare groups of otherwise similar prefectures which experience pro-worker or pro-employer judgments because they were randomly assigned to judges who displayed different levels of leniency in adjudicating the abusiveness of adjustment

[25] Robust standard errors are clustered by prefectures in order to permit an arbitrary serial correlation within the prefecture (Bertrand, Duflo, Mullainathan 2004).

[26] The Wage Census is a survey conducted each year by the Ministry of Health, Labor and Welfare, and their sample encompasses private establishments with over five regular employees and public establishments with over ten regular employees.

dismissals. This method first estimates judge-specific effects, or the decision standard of judges, in a linear probability model of employer victory. Let Z denote judge indicators, and let the subscript i refer to a dismissal case. Let Prob (Employer Victory) take the value of one if the employer successfully avoids the accusation of illegitimate adjustment dismissal:

$$\text{Prob(Employer Victory}_i) = Z_i\pi + Q_i\theta + L^2{}_i\beta_4 + \nu_i. \quad (3)$$

In order to confirm that the allocation of judges is actually randomly determined by the Secretariat, I include a set of interaction terms of five-year period dummies and High Court jurisdiction dummies (Q). Equation (3) also controls for some dismissal characteristics (L^2): a set of dummies for types of dismissals and levels of courts (i.e., District and High Courts) and an indicator for collegiate court.

In estimating judge effects, it is best to have *all* the information of adjustment dismissal litigations that the judges are involved in. Unfortunately, the Supreme Court Secretariat does not release all litigation records, and unpublished records are not easily accessible to the public. The JIS used in this paper includes every *released* precedent, and the estimation of equation (3) only with the JIS sample may bias the estimates, depending on the manner in which the discretion of judges differs between released and unreleased litigations. What is worse, I do not have enough samples of adjustment dismissal cases; the sample size of adjustment dismissal cases (e.g., 260 cases) is too small relative to the sample size of judges for efficiently estimating judge effects.

In order to overcome the difficulty of sample size, I first augment the dataset with the other types of dismissal litigations whose issues are also in its abusiveness. Instead of typing "adjustment dismissal (*Seiri Kaiko*)" in the JIS search system as done before, this time I typed "dismissal (*Kaiko*)" to obtain all types of dismissal-related litigations from 1949 to 2004: punitive dismissal, union-shop dismissal, and dismissals due to worker incompetence, in addition to adjustment

dismissal.[27] Then, the sample is limited to a case where the plaintiff is a worker(s) and defendant a firm.

In matching the estimated judge effects, $Z_i\hat{\pi}_m$, with the prefecture-level panel model in equation (1), I follow several steps so as to avoid the endogeneity problem latent between judge's current decision and local labor market:

(a) pool litigation records of all dismissal-related litigations.
(b) assign judge dummies to each litigation by assuming that an individual judge independently gives decisions. This means that one case with a panel of three judges is expanded to three different cases, and each judge is coded as one in one of the three cases in a judge dummy.
(c) further expand the dataset to account only for cases at the previous courts after which the estimated judge effects will be instrumented with CD. That is, estimate equation (3) only with litigation records in previous courts, and then instrument it with the decisions at a current court. This method allows us to exclude the endogenous concerns latent between current decision and the economic condition of current prefecture (court). Expansion of dataset is necessary to avoid double counts of an individual judge in dummies: the litigation records at all previous courts are expanded depending on how many times each judge is transferred to the another prefecture in the pooled litigation record constructed in step (a).
(d) Pool all the expanded records and run a regression of equation (3) to obtain the estimates of judge dummies.
(e) Among the estimated judge-effects, take up those which are only relevant in creating Court Decisions.
(f) Match judge effects with prefecture-level panel model in equation (1). In case that a matrix of judge-effects is not full-column rank in equation (1), take averages to replace those who are in mulitcolinearity.
(g) instrument the estimated judge-effects with pro-worker Court Decision CD in equation (1).

These procedures leave twenty-five judges in total who are instrumented to Court Decision in equation (1).

Recent econometric literature emphasizes the importance of checking the weakness of

[27] The sample period is extended from 1950–2001 to 1949–2004, assuming that a judge effect is time-invariant, and that both past and future litigations provide information regarding judge discretion.

instruments for detecting finite-sample bias (Bound, Jaeger and Baker 1994, Stock, Wright and Yogo 2002, Murray 2006, to mention a few), although the observations discussed above indicate that judges do matter. It is also known that finite-sample bias in 2SLS becomes even more deteriorated when the number of instruments is large, relative to the number of observations (Hahn and Hausman 2002a, 2002b). As this may be the case in this study (36 judge effects relative to 752 observations), I will also present results from the alternative estimation method as well as conventional statistics for detecting weak instruments (Stock and Yogo 2004).

6 Estimation Results

6.1 Main Results

The first column of Table 4 examines a simple regression of employment-to-population ration Court Decision. Pro-worker Court Decision is negatively associated with employment, but at a modest significance level (p-value = 0.221). This rough result indicates that at least some statistical relationship exists between the two variables; however, any possibilities of spurious or reverse causation cannot be excluded at this point.

In order to control for observable prefecture characteristics (X) in equation (1), I add log prefecture population, log public investment per capita, female ratio, population ratio of age 15-24, and two indicators for political attributes of governors: one for governors who execute leftist policy, and the other for those who have held any positions at the Ministry of Internal Affairs and Communications (*Soumu Sho*, hereafter referred to as MIAC) at some point in his or her career. Columns (2) to (4) indicate a significant effect of pro-worker Court Decision—the prefecture employment-to-population ratio decreases by 1.4 log points if a prefecture has more pro-worker judgments (i.e., adjustment dismissal is illegitimate) than pro-employer judgments (i.e., adjustment dismissal is legitimate) in a certain year. This is a comparable effect found in Autor et al.

(2006)—the adoption of the implied-contract exception to the "at-will" doctrine reduces the state employment-to-population ratio by 0.8 to 1.7 log points.[28] Column (5) checks the sensitivity of the result by excluding outliers from the sample. As is evident from Figure 2, Tokyo and Osaka prefecture display extreme trends in Court Decision. This is due to the fact that the litigations are related to the two prefectures where they have a large number of company headquarters, encompassing almost half of the total precedents in the sample (48%). In column (5), the estimate of Court Decision is negative and significant. To summarize, I found negative and moderately significant impact of pro-worker court decisions on prefecture employment rate, after controlling observable and unobservable prefecture characteristics. For the remainder of the analysis, I present the estimates with the same group of controls as those in column (4).

Panel A of Table 5 presents the results for IV estimations. For comparison, in column 1, the baseline model of OLS regression is replicated from column (4) of Table 4. Each cell represents for an estimates from separate regressions. Column 2 of Panel A presents the estimates from the 2SLS model with judge effects instrumented with Court Decision. The 2SLS result provides rather similar results to those obtained in OLS estimation. According to column 2, the employment rate is reduced by approximately 1.6 log points if a prefecture observes more illegitimate adjustment dismissal cases than legitimate one. The point estimates are over two standard errors from zero.

At the bottom of Table 5, the first stage statistics are presented in order to diagnose the relevance of judge effects on pro-worker Court Decision shocks. Testing the overall significance of judge effects yields an F-statistics of 10.94. According to the critical values presented in Stock and Yogo (2004), this suggests that the bias of 2SLS may be 10 to 20% that of OLS. Thus, the estimates with three other alternative methods are also presented in order to mitigate the finite sample bias

[28] I test the overall significance of prefecture effects in column (3) and find that these effects are jointly different from zero at the less than 1 % significance level. Moreover, the Hausman specification test significantly rejects the null that prefecture effects are orthogonal to the other regressors (p-value is very close to 0.000). Thus, prefecture effects are included in all the following estimations.

problem—Limited Information Maximum Likelihood (LIML), Fuller's (1977) modification of LIML (Fuller)[29], and Jackknife IV estimator proposed by Angrist et al. (1999) (JIVE).[30] The first two, as well as 2SLS, are k-class estimators. LIML is proved to possess better finite sample properties than 2SLS, while LIML and 2SLS share the same asymptotic distribution. On the other hand, LIML is also known to have no moments, and Fuller's (1977) LIML provides the modification. JIVE is also estimated for a robustness check, although recent Monte Carlo simulations support the use of LIML or Fuller's modification of LIML rather than JIVE in terms of its bias and inference (Davidson and MacKinnon 2006, Murray 2006).

Columns 3 to 5 in Panel A provide the estimation results. LIML and Fuller's modification of LIML do not change the point estimates for Court Decision, nor do they reduce the statistical significance for the two estimates. Similarly, JIVE in column 5, although statistically insignificant, shares the same signs for the point estimates. Even after dealing with possible finite sample bias deteriorated by weak instruments, the results are rather similar to the ones obtained in OLS or 2SLS. In fact, partial R-squared here equals 0.363, and judges effects appear to be relevant rather than weak instruments in the first stage regression. This supports observations in section 3.2 that judges do matter in trials in Japan.

6.2 How Do Workers Share the Costs?

This section tests two hypotheses in order to reveal how and by whom the economic cost of pro-worker Court Decision are borne. The first hypothesis refers to a trade-off between wages and employment. The point was first clarified in Lazear (1990), where he introduced the Coasean type contract that completely nullifies an increase in severance pay or firing cost. In essence, if workers and firms agree to workers paying a bond that is exactly equal to the mandated severance pay, no

[29] Fuller's parameter is set to 2, although the result is robust to parameter values.

[30] JIVE excludes the ith observations for Z'X, where the first stage fitted value for the ith observation is obtained by $Z\pi(i) = (Z'Z)^{-1}Z'X$. Namely, I estimated the JIVE 2 estimator proposed by Angrist et al. (1999).

employment consequence must follow (Summers 1989, Lazear 1990). Thus, if efficient Coasean contract were to not hold at all, pro-worker Court Decision would result only in employment reduction and there would be no reduction in wages.

The second hypothesis refers to the substitution effect between full-time and part-time workers. The doctrine of four requirements includes only those who are regularly employed. Firms have an incentive to evade the increased firing costs by employing part-time workers who are not covered by the doctrine and thus are much less expensive to fire. Autor (2003) constructed a model to suggest that the increase in firing cost induces firms to outsource the occupations where specific human capital investment is relatively unimportant. Thus, if courts impose high firing costs, then part-time to full-time employment rates are expected to increase, particularly in occupations that require general rather than specific human capital investment.

Table 6 tests the first hypothesis by examining the effect of pro-worker Court Decision on hourly wages (Panel B) as well as employment (Panel A) for ten subgroups distinguished by sex and industry. Similar to the baseline specification, both employment and hourly wage correspond for full-time employees (*Ippan Rodosha*), and part-time workers are not included. The same specifications are used as those in the Fuller's modification of the LIML model in column 4 of Table 5, but with a replaced dependent variable.[31]

Two important findings arise from the estimation results. The first finding is that the pro-worker Court Decision has a relatively large negative impact on the male employment rate in the Manufacturing (column 2) and Finance & Insurance sectors (column 5), while no significant effects are observed on male or female employment rates in other sectors. In the Manufacturing sector, the male employment rate is reduced by approximately 2 log points if a prefecture experiences more pro-worker judgments than pro-employer ones. The second finding refers to the hourly wage in

[31] The employment rate in this table is defined by the number of employees in the industry divided by prefecture population. Hourly wage is measured in terms of the prices in the year 2000 (see Appendix Table 1).

panel B. Court Decision significantly reduces hourly wages in all sectors, for both male and female workers. The only exception is the insignificant effect on female wage rate in the Finance & Insurance sector (column 10), but it has negative signs. It must be noted that in the Manufacturing sector, male employment is relatively less undone by the decrease in wage (panels A and B of column 2), as compared with the other sectors. The estimates for hourly wages contrast with those found in Autor et al. (2006), in which no significant effect of the implied contract adoptions on log hourly wage was obtained. Coasean contract partially negates an increase in firing costs imposed by pro-worker judgment on adjustment dismissal in Japan, whereas it does not do so in the U.S. case of exception to the employment-at-will doctrine. While potential male workers who are unemployed and searching for a job are seriously damaged by pro-worker judgments, particularly in the Manufacturing and Finance & Insurance sectors, the incumbent workers also accept certain costs imposed by pro-worker judgments through a reduction in their real wages.[32]

Table 7 similarly tests the second hypothesis—whether pro-worker Court Decision substitutes full-time workers with part-time workers. The dependent variable is defined by 100 times logarithm of part-time *female* employment divided by full-time *male and female* employment. Until very recently, Wage Census tabulated female part-time employment only, partially because a majority of the part-time positions used to be occupied by female workers. In order to check the degree of substitution between female part-time and all full-time workers, the part-time female employment was divided by female and male full-time employment rather than female full-time employment only.

Substitution to part-time workers occurs in a rather different manner across industries. The bottom line of Table 8 indicates that pro-worker Court Decision has replaced full-time workers with

[32] There are two possible explanations for why workers in the Manufacturing and Finance & Insurance sectors are most severely affected by Court Decision. First, incumbent workers in these sectors have relatively strong vested interests as compared with those in other sectors. Second, firms, particularly in the Manufacturing sector, can be more cautious with regard to compliance in dismissing workers. Almost half of the cases in the JIS sample (129 out of 260) involve the Manufacturing sector.

part-time ones for all industries overall, although at the moderate significance level. This is in keeping with the prediction of Autor (2003). However, the remainder of the table indicates that this total effect masks a large discrepancy among industries. The second row indicates that pro-worker Court Decision increases the part-to-full-time-ratio by almost 7 log points in service sectors. On the contrary, pro-worker Court Decision does not substitute full-time with part-time workers but *reduces* part-time employment in the Manufacturing sector. There are two possible interpretations for this reduction. First, female part-time workers may be a complement, rather than a substitute, to full-time workers in the Manufacturing sector; second, the incumbent full-time workers in the Manufacturing sector are strong insiders so that firms find it too costly to replace them with part-time workers and instead reduce the number of part-time female workers. In fact, unions have been usually formed only with full-time workers, and part-time workers did not belong to any unions, until recently the "Regional General Unions" (*Godo Roso*) has begun to include "those who are hard to organize, such as…part-time workers" (Sugeno 2002, 499).

In summary, the economic costs of pro-worker Court Decision are borne in variant ways—employment opportunities in the Manufacturing and Finance & Insurance sectors are reduced significantly. The incumbent workers also bear some cost in the form of a reduction in real hourly wage, while unstable part-time jobs have increased in the overall industry. Thus, everyone appears to end up bearing some of the costs incurred by firing restrictions exercised by courts, although the incumbent full-time workers, particularly in the Manufacturing sector, have some ability to impute some of their burden to outsiders.

7 Conclusion

The purpose of this paper was to provide an empirical assessment of relationship between labor market outcomes and employment protection enforced by court discretion. I exploited regional

variations in judgments and generate a variable, Court Decision, in order to represent the enforcement level of case law, or the doctrine of four prerequisites in adjustment dismissals in Japan. Table 1 and Figure 2 present a sharp regional difference in the direction of judgments concerning adjustment dismissals. Particularly, in the Tokyo Prefecture, courts tended to sentence in favor of employers while in Osaka Prefecture, they are likely to adjudicate in favor of workers.

However, the difficulty in exploiting the direction of judgments lies in the identification of the causality, since court decisions are easily affected by economic conditions and social norms. In order to circumvent the problem, I exploited the exogenous allocation of judges to prefectures by taking advantage of the periodical judge-transfer system in Japan. Specifically, I estimated judge-specific effects in OLS model of worker victory in all dismissal-related precedent records, and instrumented the relevant judge effects to the original prefecture-level panel model.

The results are in keeping with those obtained in previous works. Pro-worker Court Decision or strict employment protection significantly reduces the employment-to-population ratio by approximately 1.4 log points, after controlling for observable and unobservable prefecture characteristics. They are also robust to instrumental variable estimations. This paper also indicated that the economic costs of pro-worker judgments are ubiquitous. Stringent employment protection not only deprives employment opportunities to potential workers but also requires the incumbent workers to accept a decline in their hourly wages. This finding contrasts with the one in Autor et al. (2006), where they found that the efficient Coasean contract did not hold in the U.S. labor market, and thus only employment was affected by the exception to the at-will doctrine. Moreover, firms replace full-time with female part-time workers when courts are likely to adjudicate in favor of workers. This replacement effect is largest in service sectors where specific capital is less required. On the other hand, in the Manufacturing sector, the incumbent workers or “insiders” have a stronger bargaining power and owe relatively lower costs by transferring some of their burden to “outsiders”

(Lindbeck and Snower 1986).

It is important to emphasize that the results presented in this paper must be handled with caution. First, this paper provides no evidence of the benefit of employment protection imposed by courts. Several previous studies insist that the employment protection induces investment in specific human capital (Autor 2003, Wasmer 2006). Further research is necessary in order to find the net impact of court discretions concerning dismissals in Japan. Second, this study focused on the *direction* of judgments only and did not test for the effect of *uncertainty* brought by courts. Uncertainty in firing costs may increase the option value to hoard workers (OECD 2007a), but this effect is ignored.

Finally and most importantly, a question that may have arisen in the minds of readers is why the worker victory ratio persistently differs from Osaka to Tokyo, despite the fact that judges are exogenously transferred to prefectures. There are two possible explanations for this. A first explanation refers to multiple equilibria that arise from reverse causation. If judges are sympathetic toward workers and their decisions are biased by bad local labor market conditions, and if pro-worker judgments also increase firing costs and reversely hinder the labor market outcome, two equilibria may arise: 1) high employment rate and pro-employer judgments and 2) low employment rate and pro-worker judgments (Ichino et al. 2003). It is also possible that certain exogenous but unknown mechanism of judge transfers explains the divergence in Tokyo and Osaka. It is informally believed that the Japanese judicial ladder has two top levels, one in Tokyo and the other in Osaka. The two cliques may have tugged each other by proposing opposing interpretations of existing case-law, although this issue will remain within the compass of imagination until further research is conducted.

Appendix 1: The Japanese Court Structure

Japan maintains a three-instance trial system. In a typical case of adjustment dismissal litigation, the legal procedure involves three possible court levels: District, High, and Supreme Courts. Appendix Figure 1 describes the Japanese court structure. In the first stage of a trial, workers file their cases at the District Court in a prefecture where a defendant firm is located. Every prefecture has one District Court and a few of its branches. The only exception is Hokkaido Prefecture (northern island), where they have four District Courts. This adds up to a total of fifty District Courts. With the first court judgment, either workers or a firm may appeal to the second court level, the High Court. The High Court comprises four to eleven District Courts located in the vicinity. Their jurisdiction area corresponds to the geographical region block, which is often referred to in practical use. For example, Osaka High Court includes six prefectures in *Kansai* or the Western area—Shiga (No.25), Kyoto (No.26), Osaka (No.27), Hyogo (No.28), Nara (No.29), and Wakayama (No.30) Prefecture. Finally, either of the two parties may appeal to the third court level, the Supreme Court, which is located in Tokyo.

References

Addison, John, and Paulino Teixeira. 2001. The economic of employment protection. IZA Discussion Papers 381.

Angrist J.D., Imbens, G.W., and A. B. Krueger. 1999. Jackknife instrumental variables estimation. *Journal of Applied Econometrics* 14, 1:57-67.

Araki, Takashi. 2002. Labor and employment law in Japan. Tokyo: The Japan Institute of Labor.

Autor, David H. 2003. Outsourcing at will: The contribution of unjust dismissal doctrine to the growth of employment outsourcing. *Journal of Labor Economics* 21, no. 1: 1-42.

Autor, David H., Donohue, John J., and Stewart J. Schwab. 2006. The cost of wrongful-discharge

laws. *The Review of Economics and Statistics* 88, 2:211-231.

Autor, David, Kerr, William, and Adriana Kugler. 2007. Does employment protection reduce productivity? Evidence from U.S. states. *The Economic Journal* 117: F189-F217.

Bentolila, Samuel, and Giuseppe Bertola. 1990. Firing costs and labour demand: how bad is eurosclerosis? *The Review of Economic Studies* 57, no. 3:381-402.

Besley, Timothy, and Robin Burgess. 2004. Can labor regulation hinder economic growth? –evidence from India. *The Quarterly Journal of Economics* 119, no. 1:91-134.

Bertrand, Marianne, Duflo, Esther, and Sendhil Mullainathan. 2004. How much should we trust differences-in-differences estimates? *The Quarterly Journal of Economics* 119, no. 1:249-75.

Botero, Juan C., Djankov, Simeon, La Porta, Raphael, Lopez-de-Silanes, Florencio, and Andrei Shleifer. 2004. The regulation of labor. *The Quarterly Journal of Economics* 119, no. 4:1339-82.

Bound, John, Jaeger, David, and Regina Baker. 1995. Problems with instrumental variables estimation when the correlation between the instruments and the endogeneous explanatory variable is weak. *Journal of American Statistical Association* 90, 430:443-50.

Chuma, Hiroyuki. 1998. Kaiko ken ranyo hori no keizai bunseki (Economic analysis of the doctrine of abusive dismissal). In *Kaisya ho no keizaigaku*, ed. Yoshihiro Miwa, , Hideki Kanda, and Noriyuki Yanagawa. The University of Tokyo Press, 425-451.

Davidson, Russell and James Mackinnon. 2006. The case against JIVE. *Journal of Applied Econometrics* 21:827-33.

Foote, Daniel. 2006. Saiban to shakai (Litigation and society), translated by Tamaruya, Masayuki. NTT Press. Will be available in English as *Law in Japan: A Turning Point*.

Fuller, Wayne. 1977. Some properties of a modification of the limited information estimator. *Econometrica* 45, 4:939-53.

Hahn, Jinyong and Jerry Hausman. 2002a. Notes on bias in estimators for simultaneous equation

models. *Economic Letters* 75:237-41.

Hahn, Jinyong and Jerry Hausman. 2002b. Weak instruments: diagnosis and cures in empirical econometrics. Unpublished Paper, Cambridge, MA.

Heckman, James, and Carmen Pages-Serra. 2004. Introduction. *Law and Employment: Lessons from Latin America and the Caribbean*.The University of Chicago Press.

Heckman, James, and Carmen Pages-Serra. 2000. The cost of job security regulation: evidence from Latin American labor markets. *Economia* (Fall): 109-54.

Hopenhayn, Hugo, and Richard Rogerson. 1993. Job turnover and policy evaluation: a general equilibrium analysis. *The Journal of Political Economy*, 915-938.

Ichino, Andrea, Polo, Michele, and Enrico Rettore. 2003. Are judges biased By labor market conditions? *European Economic Review* 47:913-44.

Itoh, Hiroshi. 1991. Judicial activism in Japan. In *Judicial activism in comparative perspective*, ed. Kenneth Holland . Macmillan Academic and Professional Ltd., 188-200.

JILPT. 2007. Kaiko kisei to saiban (Employment protection and litigations). *The Japan Institute of Labour Policy and Training Report Series* No.29, Tokyo.

JILPT. 2006. Saibansho ni okeru kaiko jiken (Dismissal litigations at courts: tentative report). *The Japan Institute of Labour Policy and Training Report Series* No.17, Tokyo.

Kling, Jeffrey. 2006. Incarceration Length, Employment, and Earnings. *The American Economic Review* 96, 3:863-875.

Kugler, Adriana, and Gilles Saint-Paul. 2004. How do firing costs affect worker flows in a world with adverse selection? *Journal of Labor Economics* 22, 3:553-83.

Lazear, Edward. 1990. Job security provisions and employment. *The Quarterly Journal of Economics* 105, 3:699-726.

Lindbeck, Assar and Dennis Snower. 1986. Wage setting, unemployment, and insider-outsider

relations. *The American Economic Review, AEA Papers and Proceedings* 76, 2:235-239.

Mori, Seigo. 2001. Seiri kaiko no igi to genkai (Adjustment dismissals: significance and limitations). Rodo Horistu Jyunpo 1497, 6-20.

Murray, Michael. 2006. Avoiding invalid instruments and coping with weak instruments. *Journal of Economic Perspectives* 20, 4:111-32.

Nihon Minshu Horitsuka Kyokai, ed. 2004. *Zen saibankan keireki soran: dai 4-pan* (Biographical information on all judges: 4th edition). Kojinsya: Tokyo.

Nishikawa, Shinichi. 2005. *Nihon shiho no gyakusetsu* (Paradox of Japanese Judiciary). Satsuki Press: Tokyo.

OECD. 1999. Employment protection and labour market performance. *Employment Outlook*.

OECD. 2004. Employment protection and labour market performance. *Employment Outlook*.

OECD. 2007a. Going for growth 2007. *Economic Policy Reforms*.

OECD. 2007b. More jobs but less productive? The impact of labour market policies on productivity. *Employment Outlook*.

Ogawa, Hideo, Kimiwada, Nobuhito, Sakuma, Daisuke, Satoh, Masakazu, Suga Toshiharu, Nomoto, Natsuo, Hori, Kosuke and Tetsuo Kamoda. 2007. Ohtake hanrei unseki ni igi ari (Critique against precedent analysis in Ohtake and Okudaira 2006). *Kikan Rodosya no Kenri* (Quarterly Periodicals of Workers' Rights) 270:58-59.

Ohtake, Fumio and Joseph Tracy. 1994. The determinants of labour disputes in Japan: a comparison with the U.S.", In *Labour Market and Economic Performance: Europe, Japan and the USA*, ed. Toshiaki Tachibanaki. Macmillan, 349-372.

Ohtake, Fumio and Okudaira Hiroko. 2006. Kobetsu rodo funso no kettei yoh in (The determinants of individual labour disputes). *Nihon Rodo Kenkyu Zasshi* 48:4-19.

Ohtake, Fumio. 2004. Seiri kaiko no jissyo bunseki (Empirical analysis on adjustment dismissal). In

Kaiko hosei wo Kangaeru, ed. F. Ohtake, S. Ohuchi, and R. Yamakawa. Keiso Shobo, 125-148.

Ohtake, Fumio and Keiko Fujikawa. 2001. Nihon no seiri kaiko (Japanese adjustment dismissal). In *Koyo Seisaku no Keizai Bunseki*, ed. T. Inoki and F. Ohtake . The University of Tokyo Press, 3-28.

Okudaira, Hiroko. 2008. *Seiri kaiko hanketsu ga rodo shijyo ni ataeru eikyo* (Labor market performance and court decisions concerning dismissals: preliminary evidence from Japan). *Nihon Rodo Kenkyu Zasshi* (forthcoming).

Petrin, Amil, and Jagadeesh Sivadasan. 2006. Job security does affect economic efficiency: theory, a new statistic, and evidence from Chile. NBER Working Paper # 12757.

Priest, George L., and Benjamin Klein. 1984. The selection of disputes for litigation. *Journal of Legal Studies* 13, 1:193-225.

Ramseyer, Mark J. and Eric Rasmusen. 2003. *Measuring judicial independence, the political economy of judging in Japan*. The University of Chicago Press.

Stock, James, Wright, Jonathan and Motohiro Yogo. 2002. A survey of weak instruments and weak identification in generalized method of moments. *Journal of Business & Economic Statistics* 20, 4:518-29.

Stock, James and Motohiro Yogo. 2004. Testing for weak instruments in linear IV regression. mimeo.

Sugeno, Kazuo. 2002. *Japanese employment and labor law*. translated by Leo Kanowitz. Carolina Academic Press and University of Tokyo Press.

Summers, Lawrence H. 1989. Some simple economics of mandated benefits. *The American Economic Review* 79, *Papers and Proceedings of the Hundred and First Annual Meeting of the American Economic Association*, 2:177-83.

Tsuchida, Michio. 2002. *Bessatsu jurisuto rodo hanrei 100 sen (100 labor precedents, jurist supplementary volume)* Sugeno, Nishiya Araki 7th ed. Yuhikaku Press.

Ukai, Yoshiaki. 2001. *Seirikaiko hori no genjyo to jitsumu jyo no kadai* (The doctrine of abusive adjustment dismissal: trend and issues), Kikan Rodo Ho 196:60-71.

Wasmer, Etienne. 2006. General versus specific skills in labor markets with search frictions and firing costs. *American Economic Review* 96, 3:811-831.

Yawata, Kazuo. 2007. *Rekidai chiji 300-nin (300 prefecture governors in the past)*. Kobun-sya Press.

Table 1. Worker Victory Ratio for Adjustment Dismissal Litigations

year	**1950-2000**	1950-60	1961-70	1971-80	1981-90	1991-2000
Tokyo High and District Court	**0.30**	0.20	0.00	0.38	0.10	0.40
Osaka High and District Court	**0.80**	0.50	0.50	0.86	0.88	0.82
All High and District Courts	**0.52**	0.28	0.39	0.58	0.52	0.61

Source: *Judicial Information System* (Hanrei Taikei).

Note: Worker victory ratio is calculated by dividing the number of worker victories by the number of total litigations. The sample is limited to the litigations that are involving adjustment dismissals. The original dataset has been taken from Ohtake (2004), as discussed in section 2. The third row shows the victory ratio for every high and district court of all 47 prefectures, including Tokyo and Osaka Prefecture. The number of total cases are given in parentheses.

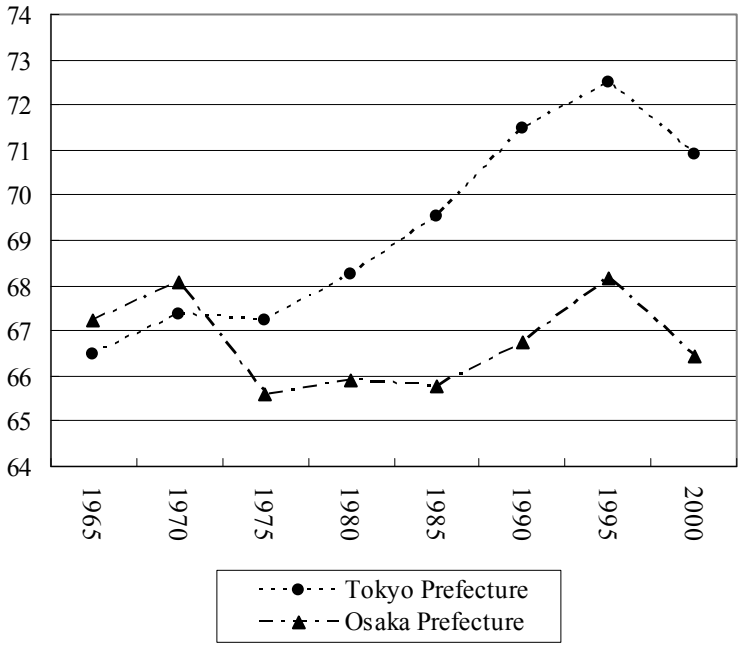


Figure 1. The Employment to Population Ratio (%): Tokyo vs. Osaka

Source: National Census.

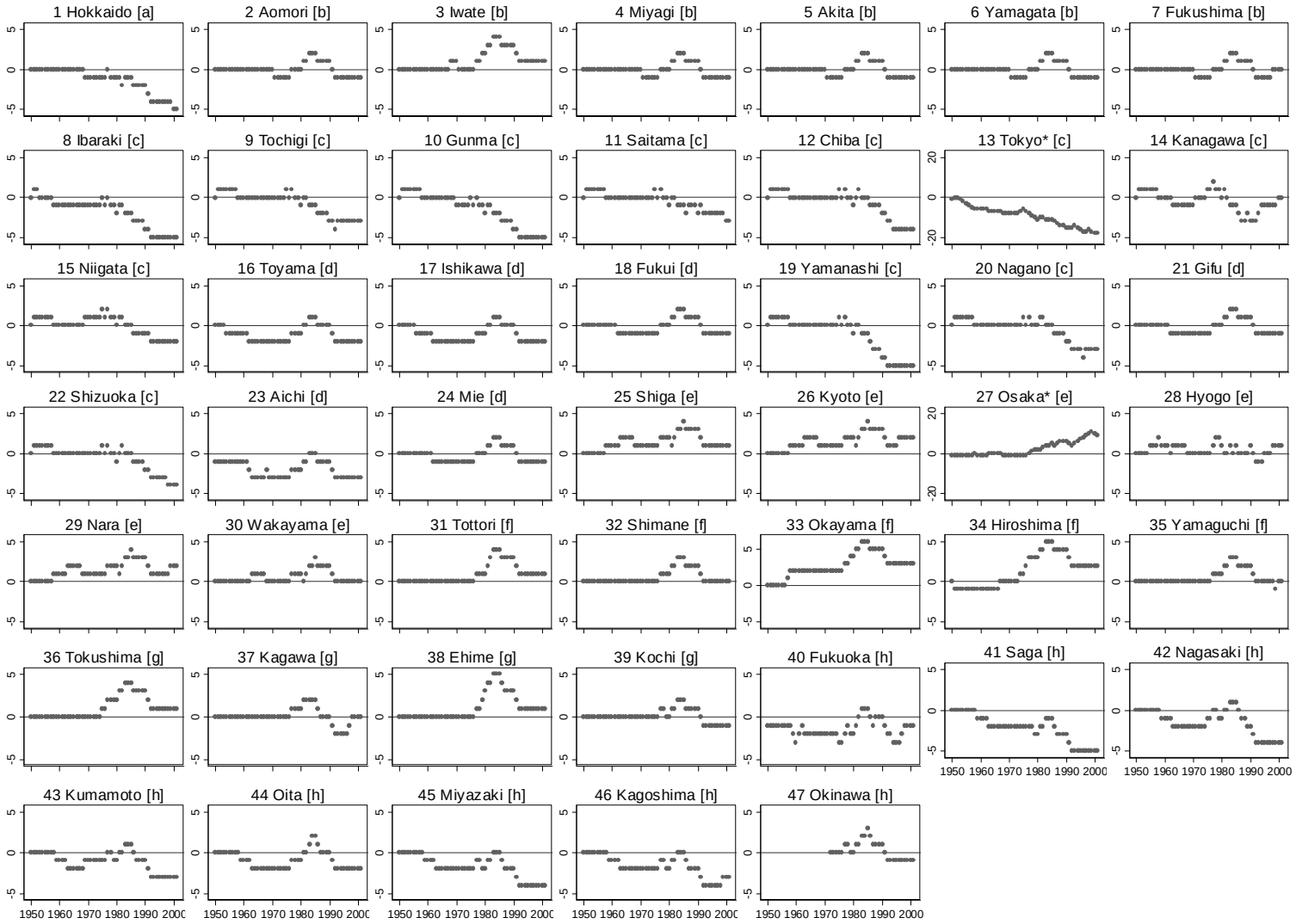


Figure 2. Direction of Accumulated Judgments (Court Decision) by Prefecture

Note. Tokyo (No.13) and Osaka (No.27) occupies 48% of the total cases, and different vertical scales are used for the two prefectures. [ ] denotes High Court jurisdiction; [a] under Hokkaido (Sapporo) H.C., [b] under Miyagi (Sendai) H.C., [c] under Tokyo H.C., [d] under Aichi (Nagoya) H.C., [e] under Osaka H.C., [f] under Hiroshima H.C., [g] under Kagawa (Takamatsu) H.C., and [h] under Fukuoka H.C.

Table 2. Summary Statistics

A. Dependent Variable	Sample Period	No. of Observations	Standard Deviation	Min.	Mean	Max.
100 × log (Employment/Population)	1985-2000	752	22.129	-223.429	-139.010	-70.361
B. Regressors						
Court Decision	1985-2000	752	3.235	-17	-0.648	11
Court Decision before sample period	1950-1984	1576	1.521	-11	-0.197	6
Governor from MIAC	1985-2000	752	0.422	0	0.231	1
Leftist governor	1985-2000	752	0.258	0	0.072	1
Log prefecture population	1985-2000	752	0.720	13.326	14.493	16.306
Log public investment, 2000 price	1985-2000	752	0.302	11.735	12.595	13.413
Unionization index	1987-2000	652	0.032	0.095	0.170	0.278
Ratio of settlements mediated by courts	1987-2000	652	0.265	0	0.429	1
Average number of plaintiffs per case	1987-2000	652	13.823	1	2.281	351
C. Variable Specification Checks						
Ratio of worker victory in the last 3 years	1985-2000	752	35.521	0	37.528	100
Ratio of worker victory in the last 5 years	1985-2000	752	35.017	0	33.394	100
Ratio of worker victory in the last 10 years	1985-2000	752	31.948	0	41.321	100
Ratio of worker victory for all cases since 1950	1985-2000	752	15.786	25.000	52.086	100

Table 3 Exogeneity of Judge Transfers

Employer Victory Rate by Rank-differnce, Averages among Judges

	Population		Employment-to-Population Ratio	
	(1)	(2)	(3)	(4)
$-(NextRank_t - CurrentRank_t)$	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)
-30 or less	0.43	0.42	0.47	0.41
-20 to -11	0.46	0.52	0.52	0.58
-10 to -1	0.43	0.44	0.36	0.40
0 to 9	0.47	0.48	0.44	0.45
10 to 19	0.40	0.38	0.57	0.61
20 to 29	0.50	0.48	0.50	0.50
30 or more	0.31	0.31	0.37	0.36
Total	0.44	0.44	0.46	0.46
Regression coefficient	-2.234	-2.054	-2.874	-1.656
	(1.915)	(1.683)	(4.016)	(3.534)
Sample transfer period	1951-2003		1985-2000	
Number of total transfers	382		160	

Note: Rank difference is a difference in prfecture ranks between a judge's current court and his or her next destination. All variables are ranked in descending orders. Regression coefficent stands for the estimates from the regression of the rank difference on the cumulative win rate or judgment right before a transfer. Robust standard errors are given in parentheses.

Table 3 continued.

	Unemployment Rate		Public Investment per capita	
	(5)	(6)	(7)	(8)
$-(NextRank_t - CurrentRank_t)$	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)
-30 or less	0.38	0.42	0.44	0.46
-20 to -11	0.50	0.40	0.45	0.44
-10 to -1	0.41	0.43	0.22	0.23
0 to 9	0.43	0.44	0.46	0.46
10 to 19	0.41	0.39	0.48	0.44
20 to 29	0.47	0.51	0.45	0.50
30 or more	0.38	0.33	0.43	0.43
Total	0.43	0.43	0.43	0.43
Regression coefficient	-1.181	-0.555	1.556	1.366
	(1.782)	(1.528)	(2.423)	(2.068)
Sample transfer period	1965-2003		1965-2000	
Number of total transfers	352		328	

Note: Rank difference is a difference in prfecture ranks between a judge's current court and his or her next destination. All variables are ranked in descending orders. Regression coefficent stands for the estimates from the regression of the rank difference on the cumulative win rate or judgment right before a transfer. Robust standard errors are given in parentheses. Unemployment rate is linearly interpolated since observations are only avaialble for every five-year period.

Table 3 continued.

	Unionization Index		Ratio of Settlements Mediated by Courts	
	(9)	(10)	(11)	(12)
$-(NextRank_t - CurrentRank_t)$	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)	Victory rate for firms within a current court	Judgment right before a transfer (1= firm victory)
-30 or less	0.46	0.46	0.67	0.67
-20 to -11	0.52	0.56	0.62	0.67
-10 to -1	0.41	0.36	0.43	0.45
0 to 9	0.46	0.45	0.39	0.40
10 to 19	0.38	0.40	0.49	0.51
20 to 29	0.50	0.52	0.47	0.37
30 or more	0.32	0.32	0.40	0.40
Total	0.43	0.43	0.45	0.45
Regression coefficient	-3.538	-2.471	-1.591	-2.772
	(2.180)	(1.914)	(2.297)	(1.956)
Sample transfer period	1965-2002		1987-2002	
Number of total transfers	347		180	

Note: Rank difference is a difference in prfecture ranks between a judge's current court and his or her next destination. All variables are ranked in descending orders. Regression coefficent stands for the estimates from the regression of the rank difference on the cumulative win rate or judgment right before a transfer. Robust standard errors are given in parentheses. P-values for significance test of regression coefficients are; p-value = 0.105 in column (1); p-value = 0.197 in

Table 4. The Impact of Pro-Worker Court Decision on Employment

	100 × ln (Employment/Population)				
	(1)	(2)	(3)	(4)	(5) No Tokyo and Osaka
Court Decision [t-1]	-1.561	-2.331	-1.703	-1.437	-1.464
	(1.257)	(0.396)	(0.539)	(0.498)	(0.761)
Leftist governor			0.461	0.038	0.721
			(1.652)	(1.870)	(1.738)
Governor from MIAC			-1.865	-1.736	-2.887
			(1.645)	(0.268)	(1.359)
Log prefecture population			-91.357	-93.714	-100.338
			(30.968)	(35.233)	(36.714)
Log public investment			3.774	2.353	0.406
			(3.046)	(2.994)	(3.004)
Female population/ total population				0.742	0.886
				(1.150)	(1.143)
Population of age 15-24/ total population				97.314	35.155
				(59.064)	(61.326)
Year effect	No	Yes	Yes	Yes	Yes
Prefecture effect	No	No	Yes	Yes	Yes
Adjusted R-sq.	0.051	0.351	0.432	0.440	0.453
No. of observations	752	752	752	752	720

Note: Standard errors, adjusted for clustering at the prefecture level, are given in parentheses. The data are for the fourty-seven prefectures for the period 1985-2000.

Table 5. Dealing with the Endogeneity Concern

	(1) OLS	(2) 2SLS	(3) LIML	(4) Fuller	(5) Angrist et al. unbiased JIVE2
			A. 100 × ln (Employment/Population)		
Court Decision [t-1]	-1.437	-1.626	-1.679	-1.676	-5.926
standard error	(0.302)	(0.515)	(0.535)	(0.539)	(4.338)
robust standard error	(0.498)				
			B. 100 × ln (Job Creation Rate)		
Court Decision [t-1]	-5.068	-5.038	-5.033	-5.034	-2.773
standard error	(1.635)	(2.790)	(2.783)	(2.775)	(1.325)
robust standard error	(1.815)				
			C. 100 × ln (Job Destruction Rate)		
Court Decision [t-1]	-4.066	-4.784	-4.866	-4.859	-3.094
standard error	(1.814)	(2.507)	(2.478)	(2.470)	(1.218)
robust standard error	(1.469)				
First-stage F-statistics for H0: judge effects = 0	-	13.79	13.79	13.79	9.33
First-stage Partial R-squared	-	0.344	0.344	0.344	-
No. of excluded Instruments	-	25	25	25	25
No. of observations	752	752	752	752	752

Note: Standard errors are given in parentheses in columns (2) to (5). Standard error, adjusted for clustering at the prefecture level, is given in parentheses in column (1). The data are for the fourty-seven prefectures for the period 1985-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variable for leftist governor, indicator variable for governor from MIAC, female ratio, and population ratio for age 15-24. Column (1) in panel A replicates the estimates from column (4) of Table 4. Column (4) sets the fuller parameter = 2.

Table 6. The Impact of Pro-Worker Court Decision on Employment and Hourly Wage by Gender and Industry

	Males					Females				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Construction	Manufacturing	Services	Wholesale and Retail	Finance and Insurance	Construction	Manufacturing	Services	Wholesale and Retail Trade	Finance and Insurance
A. 100 × ln (Employment/Population)										
Court Decision [t-1	-0.016	-2.230	0.014	-2.542	-2.022	0.617	-1.803	-0.067	0.641	0.529
	(1.479)	(0.731)	(1.091)	(1.522)	(1.181)	(2.173)	(0.924)	(0.939)	(1.725)	(1.543)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	752	752	752	752	752	752	752	752	752	752
B. 100 × ln (Hourly Wages)										
Court Decision [t-1	-0.721	-0.369	-0.595	-1.295	-0.875	-0.274	-0.397	-1.275	-1.394	-0.535
	(0.383)	(0.264)	(0.375)	(0.459)	(0.419)	(0.630)	(0.269)	(0.350)	(0.363)	(0.621)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	752	752	752	752	752	752	752	752	752	752

Note: All models are estimated by Fuller's LIML. Fuller's parameter is set equal to 2. Standard errors are given in parentheses. The data are for the fourty-seven prefectures for the period 1985-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variable for leftist governor, indicator variable for governor from MIAC, female ratio, and population ratio for age 15-24. "Wholesale and Retail Trade" sector includes drinking and eating places.

Table 7. The Impact of Pro-Worker Court Decision on Female Part-time Employment

	100 × ln (Part-time Female Employment /Full-time Total Employment)			
	(1)	(2)	(3)	(4)
	OLS	2SLS	LIML	Fuller
Manufacturing	-3.009	-1.612	-1.546	-1.559
	(2.121)	(2.274)	(2.201)	(2.195)
Services	2.933	5.631	5.923	5.896
	(1.442)	(2.560)	(2.527)	(2.519)
Wholesale and Retail Trade	-0.921	2.109	2.291	2.262
	(1.317)	(2.520)	(2.450)	(2.442)
All industry	-0.515	1.740	1.856	1.835
	(1.337)	(1.517)	(1.471)	(1.466)

Note: Standard errors are given in parentheses. The data are for the fourty-seven prefectures for the period 1985-2000. All estimation controlls for prefecture dummies, year dummies, log population, log public investment, indicator variable for leftist governor, indicator variable for governor from MIAC, female ratio, and population ratio for age 15-24.. The number of observations is 752 in all estimations.

Appendix Table 1. Data Source and Variable Construction

Variable	Source	Construction
Log (employment/population)	Wage Census, Population Estimates	obtained by dividing number of full-time employees (ordinary employees, *Ippan Rodosha*) by population.
Log (hourly wage, 2000 price)	Wage Census, Consumer Price Index	obtained by dividing annual wage by number of hours worked annually. Annual wage includes: annual contractual cash earning, bonus and term-end allowance. Hours worked includes: actual number of overtime worked and actual number of scheduled hours worked. Note that it covers only full-time employees (*Ippan Rodosha*).
Log (part-time female employment /full-time total employment)	Wage Census	obtained by dividing the number of part-time female employees by full-time male and female employees.
Court Decision	Judicial Information System, (*Hanrei Taikei, by Dai Ichi Hoki*)	positive if pro-worker judgments have been accumulated; negative if pro-employer judgments have been accumulated. The original dataset is provided by Ohtake (2004), which contains 260 adjsutment dismissal litigation records from 1950 to 2001. See section 2.2 for a construction of the variable.
Leftist governor	The Biographic Dictionary of Politicians, (*Seijika Jinmei Jiten, by Nichigai Associate*)	equals one if leftist governor, zero if not. Govrenors are classified as leftiest if there is any description of "hard-left" in *the Biographic Dictionary of Politicians* , or he or she is a member of left-wing parties and also has experienced a president of local labor committees. They include: Toshihumi Tanaka (1.Hokkaido), Jiro Iwagami (8.Ibaraki), Yawara Hata (11.Saitama), Ryokichi Minobe (13.Tokyo), Kazuji Nagasu (14.Kanagawa), Torazo Ninagawa (26.Kyoto), Ryoichi Kuroda (27.Osaka), Yukiharu Miki and Shiro Nagano (33.Okayama), Goro Abe (36.Tokushima), Tadao Maekawa (37.Kagawa), Taichi Uzaki and Hachiji Okuda (40.Fukuoka), Kaoru Kinoshita (44.Oita), Choubyou Yara, Kohichi Taira, Jyunji Nishime, Masahide Ohta (47.Okinawa).
Governor from Ministry of Internal Affairs and Communications (MIAC)	The Biographic Dictionary of Politicians, (*Seijika-Jinmei-Jiten, by Nichigai Associate*)	equals one if a governer is from MIAC, zero if not. Governors are classified as "governer from MIAC" if he or she had held any positions at the Ministry before he or she was elected as a governor. There are 46 out of 216 governors from the MIAC between 1950-2000.
Log prefecture population	Population Estimates	
Log public investment per capita, 2000 price	System of Prefecture Account, Consumer Price Index, Pupulation Estimates	public investment is obtained from prefecture public gross fixed capital formation in "System of Prefecture Account".
Unionization index	System of Prefecture Account, Basic Survey on Labuor Unions	obtained by dividing number of union members by number of workers (*Shu Gyosha*).
Ratio of settlements mediated by courts	JILPT (2006), Appendix Tables	If no dismissal litigation was filed in courts, I take an average of values of previous and next period when they filed litigations. This procedure excludes five observations (1987 of Saga Prefecture and 1987-1990 of Tottori Prefecture) since the data begins in 1987.
Average number of plaintiffs (workers) per case	JILPT (2006), Appendix Tables	same as above.

Appendix Table 2 Is A Judgement Shock Accurately Defined?

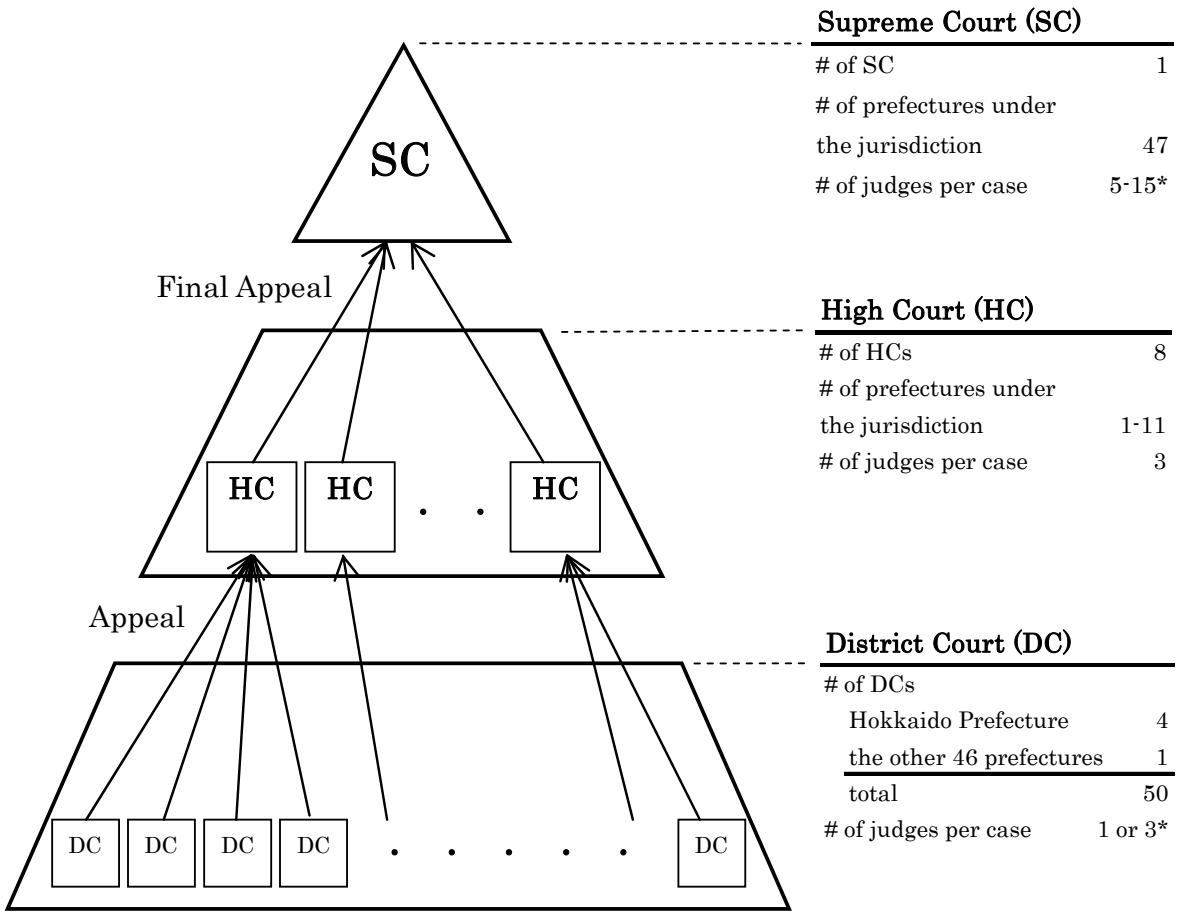
	Dependent variable: 100 × log (Employment/Population)				
	(1)	(2)	(3)	(4)	
Ratio of Worker Victory	OLS	2SLS	LIML	Fuller	First-stage F-statistics for H0: judge effects = 0
in the last 3 years	-0.025	-0.083	-0.151	-0.145	3.74
	(0.014)	(0.028)	(0.042)	(0.041)	
in the last 5 years	-0.016	-0.078	-0.832	-0.511	1.56
	(0.018)	(0.476)	(0.472)	(0.244)	
in the last 10 years	-0.002	-0.106	-0.434	-0.379	2.22
	(0.030)	(0.051)	(0.145)	(0.125)	
for all cases since 1950	0.081	-0.087	-1.059	-0.865	2.49
	(0.085)	(0.136)	(0.479)	(0.398)	

Note: Standard errors are given in paretheses for columns (2) to (4). Standard errors, adjusted for clustering at prefecture level, are given in parenthese for column (1). Fuller's parameter is set equal to 2. The data are for the fourty-seven prefectures for the period 1985-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variable for leftist governor, indicator variable for governor from MIAC, female ratio, and population ratio for age 15-24. The number of observations is 752 in all estimations.

Appendix Table 3 First Stage Tabulation with Conservative Instruments

	First Stage	Second Stage
Dependent Variable	Court Decision [t-1]	100 × ln
Court Decision [t-1]		-2.691
		(0.814)
Judge1_fukuoka1 [t-1]	-5.412	
	(3.118)	
Judge2_osaka [t-1]	-1.496	
	(1.587)	
Judge3_osaka [t-1]	-10.383	
	(2.028)	
Judge4_tokyo [t-1]	2.604	
	(6.314)	
Judge5_osaka [t-1]	0.313	
	(0.968)	
Constant	-0.657	
	(0.046)	
Year effect	Yes	Yes
Prefecture effect	Yes	Yes
First-stage F-statistics for H0: judge effects = 0	5.95	
First-stage Partial R-squared	0.041	
No. of excluded Instruments	5	
Sample period	1985-2000	
Number of observations	752	

Note: Standard errors are given in paretheses. Fuller's parameter is set equal to 2. The data are for the fourty-seven prefectures for the period 1985-2000.



Appendix Figure 1. The National Court System in Japan (typical adjustment dismissal case)

NOTE. * The number of judges per case depends on the social significance of each case.