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Identification by Judge Transfers

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Discussion Paper 08-08

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Abstract

The goal of this paper is to detect the degree to which court decisions control the stringency of employment protection and 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. Specifically, I estimated the judge-specific effects from litigation records and instrumented them to the judgment indicator in the original model. A key finding in this paper is that prefecture employment rate is reduced by approximately 1.5% if a prefecture receives more pro-worker judgments than pro-employer ones in a given year. Interestingly, the result is robust to the instrumental variable estimates only if the sample includes observations of the Tokyo and Osaka Prefectures. Thus, judges assigned to these prefectures have played leading roles in exogenously establishing the doctrine of abusive adjustment dismissals, whereas the rest of the variation in judgments is reversely explained by local labor market performance.

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

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

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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. On the other hand, Japan has historically permitted a relatively large amount of discretion in judicial reviews in dismissal-related litigations. 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. Interestingly, IV estimates reveal the fact that judges in Tokyo and Osaka Prefecture have a dominant control over the establishment of case law with regard to adjustment dismissals, while judgments at other prefectures are only endogenously explained by other factors, such as local labor market performance. Finally, 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]

The remainder of this paper is organized as follows. Section 2 introduces the legal framework of employment protection in Japan, constructs a variable that indicates the stringency of firing restrictions, and determines the theoretical hypotheses for linking court decisions and the local labor market. Section 3 presents identification strategies and data sources. Section 4 provides empirical analysis of the effect of dismissal court decisions on employment. Section 5 checks the robustness of the judgment variable to the construction procedure by proposing several alternative variables. Section 6 examines how and by whom the economic cost of court decisions are borne. Section 7 presents the conclusion.

2 Background

2.1 Legal Framework Constrained by Courts

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

[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.

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.[5] Instead, Japanese courts have established strict prerequisites for regulating abusive adjustment dismissals.[6]

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:[7]

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

[5] 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.

[6] 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).

[7] 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)

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.[8] OECD (2007) also denoted that employment protection is particularly restrictive for 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

[8] Many other studies also constructed the EPL index. However, some only quantified the length of advance notice or severance pay (Lasear 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.

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. 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.[9] 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).

2.2 Direction of Judgments: Variable Construction

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.*[10] 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.[11] 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

[9] The jury system will be introduced in 2009 for serious criminal cases.

[10] 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.

[11] 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."

construct a variable to represent the enforcement level of employment protection by courts.[12]

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 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.[13] 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

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

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

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.[14] 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 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

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

Allied High Command introduced a new set of labor regulations between 1945 and 1947, immediately after the Second World War.[15] 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.[16] 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).[17] Lastly and most obviously, JIS has very few adjustment 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

[15] Trade Union Law in 1945, Labor Relations Adjustment Law in 1946, and Labor Standards Law in 1947.
[16] See Sugeno (2002) for thorough discussions on the historical development of Japanese labor law.
[17] 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).

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.[18]

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 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.

[18] 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).

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.

2.3 Theoretical Background and Estimation Bias

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 -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).[19]

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

[19] 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).

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 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.

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. The next section presents empirical strategies for identifying the true impact of Court Decision from the endogenous biases discussed in this section.

3 Identification Strategies and Data

Any credible empirical evidence must rely on research designs that appropriately identify the causal effects from biases incurred by reverse causation or omitted variables. This paper utilizes the prefecture-level panel structure of Court Decision to do so. First, I control for the observable and unobservable prefecture characteristics, including dispute traits attributable to prefectures. Then, I exploit the periodical judge transfers between courts in the Japanese judicial career system and elaborate the random allocation of judges to cases in order to estimate the causal effect of Court Decision on labor market outcome. Specifically, I estimate judge-specific effects from litigation

records and instrument them to Court Decision.

3.1 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).

As discussed in the last section, the litigation characteristics can also correlate with Court Decision and explain the discrepancies of judgments among prefectures. Then, estimating equation (1) does not provide a consistent estimate of β_1: $E\ [CD_{pt-1}\varepsilon_{pt1}\ ] \neq 0$. In order to eliminate this omitted variable bias, two groups of controls are added—prefecture effects (η_p) and observable traits of dismissal disputes (L^1). Prefecture effects are added by assuming that the irrationality of workers and employers or some other form of dispute characteristics is time-invariant but heterogeneous

among prefectures[20]:

$$E_{pt} = \alpha + \beta_1 CD_{pt-1} + X_{pt}\beta_2 + L^1_{pt}\beta_3 + \delta_t + \eta_p + \varepsilon_{pt2}. \quad (2)$$

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.[21] 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. For more details about data sources and variable constructions, please refer to Appendix Table 1.

3.2 Judges as Instruments

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

[20] Equation (2) is very similar to the specification estimated by Besley and Burgess (2004).

[21] 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.

judges who displayed different levels of leniency in adjudicating the abusiveness of adjustment dismissals. This approach is justified if judges exercise large discretion in adjustment dismissal litigations *and* if the assignment of judges to prefectures is uncorrelated with the labor market performance. In other words, instruments must be relevant and valid. This section first provides observations and evidence for the justification and then presents an empirical framework for elaborating judge effects as instruments.

As already emphasized in section 2.1, Japanese judges have a strong influence on the establishment of the doctrine of four prerequisites. More recently, in the late 1990s, judges at Tokyo District Court repeatedly established precedents in which they provided a much less stringent application of the doctrine of four prerequisites, which implies that their interpretation was rather pro-employer—opposed to the incumbent doctrine. (See section 2.1).

On the other hand, recent surveys of JILPT (2007) also reveal that judge discretion differs significantly even within the Tokyo District Court. JILPT (2007) compiled records of *all* dismissal litigations, including unpublished ones, filed in the Tokyo District Court from 2000 to 2004 under a special request to the Supreme Court Secretariat. Table 3 replicates their tabulations for three divisions that are mainly involved in dismissal-related cases brought into the Tokyo District Court. It must be noted that "dismissal" here includes all types of dismissal-related litigations.[22] As is evident, there is a large variation in the worker victory ratio between judges. Among nine judges who took charge of over twenty dismissal litigations during the period, the worker victory ratio ranges from 0.14 to 0.71. Thus, even within the Tokyo District Court, which indicates a strong pro-employer trend in Figure 2, there is a possible discrepancy in levels of judge leniency, *assuming that all cases are randomly assigned to judges within a court*.

In addition to the variations in judge discretions, this paper utilizes the variations that result

[22] The numbers in Table 3 are, in addition to the adjustment dismissal cases, totals of punitive dismissal litigations and dismissal litigations due to worker incompetence.

from the periodical transfer system of Japanese judges. About every three to five years, the Supreme Court Secretariat, which also manages judicial human resources, transfers judges from prefecture to prefecture and from court to court.[23] Judges usually do not stay in the same prefecture or court for too long. 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). It is important to note that judges cannot practically reject their postings, although they are nominally entitled to do so (Ramseyer and Rosenbluth 1993).[24] Thus, judges must obey any appointments offered to them by the Secretariat.

However, the appointments may not necessarily be exogenous. 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

[23] An exception is judges of the Supreme Court who are appointed by the Cabinet and removed by voters at the time of Lower House election (although they never have been removed from position in this manner).

[24] "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).

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.

Importantly, Ramseryer and Rasmusen (2003) presented another evidence to support that the Secretariat promotes a judge to *Sokatsu* significantly later if he or she was a member of the Young Jurist League (YJL; *Seinen Horitsuka Kyokai*), a political affiliate of "radical communists" (Itoh 1991, 199).[25] If YJL judges had sentenced in favor of workers in adjustment dismissal cases and as a result been transferred to branch offices of rural courts where the local economy is sluggish, then judge transfers would be endogenous to the local labor market performance and unfavorable as instruments to Court Decision in equation (1).

However, in the context of the analysis in this paper, there is no clear reason to believe that judge discretion is endogenous in determining appointments to specific prefectures. First, YJL judges have been statistically "pro-employer" rather than "pro-worker" as compared with non-YJL judges. From the JIS sample of 260 adjustment dismissal precedents used in section 2.2., there are 22 YJL judges or 29 total YJL judge-cases from among a total of 589 judge-cases from 1950 to 2001.[26] For YJL-judge-cases, the worker victory ratio is 31%, while it is 48.5% for the total judge-cases. Thus, there is no statistical ground to consider that YJL judges sentenced for the benefit of their political preference, at least in adjustment dismissal cases.[27] It is also important to note that while an

[25] "They (i.e., YJL members) also denounced some libertarian decisions in public safety cases and labor strikes as a manifestation of these communist-oriented judges." (Itoh 1991, 199).

[26] Since judges appear in the JIS sample more than once and each case is often taken charge by more than one judge (e.g., collegiate court), the number of total judge-cases does not match with the original JIS observations.

[27] Undoubtedly, career discrimination against YJL judges is better known for anti-Constitutional judgments regarding Article 9 (no war potential will be maintained). Refer to the first two chapters of Ramseyer and Rasmusen (2003) for more details regarding YJL issues.

estimation of equation (1) includes samples only after 1985, YJL lost their political foundation in the judiciary in the early 70s when the Secretariat admonished judges, asking them to withdraw from affiliations with any political organizations.

Another justification to believe judge transfer is exogenous in our sample is that local labor market performance does not necessarily match with the career ranks of courts in the judicial hierarchy. For example, judge positions at High Courts are usually one of the fast track positions, irrespective of the jurisdiction blocks they are assigned. Similarly, positions in Osaka Prefecture (No. 27) are not necessarily as bad as indicated in the employment-to-population ratios in Figure 1, considering that they are also "prestigious" ones located in a metropolitan area.

In the remainder of this section, I present the empirical framework to exploit the exogenous allocations of judges to prefectures as instruments. This method first estimates judge-specific effects, or the decision standard of judges, in a simple binary logit 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). I then calculate marginal effect of coefficients for judge indicators, $\hat{\pi}_m$, and instrument the estimated judge-effects to pro-worker Court Decision CD in equation (1). In matching the estimated judge effects, $Z_i\hat{\pi}_m$, with the prefecture-level panel model in equation (1), I randomly pick up one judge effect in the case

of perfect multicollinearity. Then, the estimation should provide a consistent estimate of Court Decision, CD, if the instruments are valid and relevant.

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.[28] Then, the sample is limited to a case where the plaintiff is a worker(s) and defendant a firm. This increases the number of samples from a total of 260 to 1614 litigations. After estimating equation (3), I pick up only relevant judges who actually made any decisions concerning adjustment dismissals in the original JIS sample and use them as instruments in equation (1).[29]

Recent econometric literature emphasizes the importance of checking the weakness of instruments for detecting finite-sample bias (Bound, Jaeger and Baker 1994, Stock, Wright and Yogo

[28] 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.

[29] One caveat is that the estimation of judge effects is limited to judges who took charge of over three litigations in the augmented JIS sample. This may selectively exclude a specific type of judges. For example, judges may change their majors from dismissal-related disputes to other types of litigations, and the taste of those judges may differ from those of judges who appear in the sample over three times, although there exists no method to detect such bias due to data availability.

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).

4 Impacts on Employment

4.1 Basic Results

The first column of Table 4 examines a simple correlation between pro-worker Court Decision and employment-to-population ratio. 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 this section, I address the possibility of spurious correlations induced by omitted variables by adding observable and unobservable controls specific to prefectures.

In order to control for observable prefecture characteristics (X) in equation (1), I add log prefecture population, log public investment per capita, 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. Prefecture population crudely measures the size and competitiveness of the local labor market. Public investment is added in order to represent the amount spent for stimulating employment in a region. Leftist governor dummy checks the robustness of estimates to the prospect that the political representation of pro-worker interest groups may

pressure workers to invest a relatively large amount of costs in litigations in order to win a case, whereas leftist governor tends to execute anti-unemployment policies.[30] MIAC dummy is also included in order to account for the ability of the governors to obtain a local government block grant, which is partially devoted to public investment and employment promotions (Yunoue 2005).[31] See more details of variable construction and data sources in Appendix Table 1, and summary statistics in Table 2.

Column (2) reports a result from the pooled estimation that includes these controls. The result again indicates that pro-worker Court Decision has a negative impact on employment; however, the effect is not statistically significant. Comparing columns (1) and (2) suggests that controlled variables have a mild impact on employment-to-population ratio and that these local characteristics partially proxy for the direction of judgments.

The above pooled regressions utilize variations both between and within prefectures; however, a consistent estimate is not provided when regressors correlate with time-invariant unobservable prefecture effects. Column (3) adds prefecture effects and elaborates only within variations instead.[32] The results indicate a significant effect of pro-worker Court Decision—the prefecture employment-to-population ratio decreases by 1.7 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.[33]

[30] For example, Taichi Uzaki, a governor of Fukuoka Prefecture (No.40) from 1959 to 1967, provided unemployed mine workers with positions in public sectors. However, his "leftist" policy inflated the burden of local government, and Governor Uzaki was replaced by Governor Kamei after a while, who discharged these union workers "without mercy" (Yawata 2007).

[31] Yunoue (2005) empirically indicated that the informal connections between the prefecture governor and MIAC significantly increase the local government block grant, which is supposed to be distributed upon unusual (i.e., earthquakes, typhoons, etc.) fiscal demand.

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

[33] I test the overall significance of prefecture effects in column (3) and find that these effects are jointly different

While these results confirm the robustness of estimates to prefecture policies and time-invariant unobservable effects, they ignore the fact that litigation is a dispute that has not been settled and, as a result, brought into trial. The direction of Court Decision may then represent the regional difference in dispute characteristics rather than judicial impact (see section 2.3). If dispute characteristics also correlate with local employment, then the specification in columns (1)–(3) suffers from inconsistent estimates of Court Decision.

To this end, I include three, although indirect, variables in order to proxy for the observable characteristics of litigations in each prefecture (i.e., L^1 in equation (2))—ratio of settlements mediated by courts, average number of plaintiffs per case, and unionization index. The first variable is a rough measure for the relative amount of settlement demand of the plaintiff (worker) and the settlement bid of the defendant (firm). Since a dispute is settled if the maximum amount of the settlement offer of the defendant exceeds the minimum amount of the settlement demand of the plaintiff, it indirectly controls for regional differences in the selection mechanism.[34] The next two variables are included in order to explain a recent trend of labor disputes in Japan. In the last three decades, Japan has experienced a sharp increase in the number of individual labor disputes from approximately one dispute per 100 thousand employees in the early 70s to over four disputes in 2003.[35] In contrast, the number of collective labor disputes has dramatically decreased from approximately 30 disputes per 100 thousand employees in 1974 to 1.6 disputes in 2003.[36] The individualization of dismissal litigations, as well as the reduction in the unionization index, may

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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.

[34] According to Priest and Klein (1984), both the maximum amount of the settlement offer of the firm (F) and minimum amount of settlement demand of workers (W) depends on three main factors—the expected ratio of winning, costs of litigations and settlements, and their relative stakes. Since the probability of settlement is given by Prob(settlement) = Prob($W \leq F$), the ratio of settlements proxies for the relative amount of W and F, or the three main factors.

[35] *Hoso Jiho* (Lawyer Times) by Supreme Court Secretariat. However, it must be noted that the numbers also reflect a recent improvement of access to litigations.

[36] *Rodo-sogi Toukei Chosa Hokoku* (Survey on Labor Dispute Statistics) by the Ministry of Health, Labor and Welfare.

have reduced the ability of workers to continue litigations, whereas they may also correlate with labor market performance (Ohtake and Tracy 1994).[37]

Column (4) examines the effect of adding these dispute characteristic controls. It must be noted that the sample period begins in 1987, not in 1985, due to data availability of dispute controls. As before, the sign of Court Decision coefficients are the same, and pro-worker Court Decision significantly reduces the employment rate even after controlling for dispute characteristics, although its magnitude is slightly smaller than the one in column (3).

The remainder of Table 3 further checks the sensitivity of the result by adding prefecture-trend or excluding outliers from the sample. Columns (5) and (6) add prefecture-specific trends to baseline specifications. The magnitude, as well as the significance of Court Decision estimates, is reduced and its impact is no longer statistically significant. The impact of court decisions weakens because prefectures with a similar pattern of judgments also have similar prefecture-specific trends, such as long-run movement of industrial relations (Besley and Burgess 2004).[38] To the extent that the instruments—judge indicators—are independent of the unobserved trend in the industrial climate, it may be possible to identify the effects of Court Decision from the prefecture-specific trend. However, the source of this correlation is unknown, and caution must be exercised when interpreting the impact of Court Decision.

Columns (7) and (8) present the estimates from the sample, excluding Tokyo and Osaka. As is evident from Figure 3, 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

[37] The Union and firms share the rent; thus, the likelihood of collective labor dispute is negatively correlated with unemployment rate when the rent shrinks (Ohtake and Tracy 1994). On the contrary, the number of individual disputes is positively correlated with the unemployment rate because it is likely that unfavorable economic conditions pressure firms to dismiss workers, thus causing friction between employees and employers (Ohtake and Okudaira 2006).

[38] Besley and Burgess (2004) examined the effect of the pro-worker amendment of the Industrial Relations Law on market outcomes in India, and they also found it difficult to identify the amendment effects from the state-specific linear trend.

column (7), the estimate of Court Decision is negative and significant; however, it is not significant in column (8) (p-value = 0.268) although its sign remains negative. Again, the results indicate that the negative effect of pro-worker Court Decision is only moderate.

To summarize, I found negative but 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 (3) (i.e., no dispute controls), and results with dispute characteristic controls will be summarized in the Appendix Tables. Controlling for the dispute characteristics does not change the sign of the estimates in all following specifications but does reduce the significance level of estimates in some of the specifications. However, it is important to note that the two variables—ratio of settlements mediated by courts and average number of plaintiffs per case—are only available as a total of all types of dismissal litigations, and may not be a good representation of dispute characteristics regarding adjustment dismissals. In fact, adjusted R-squares in columns with and without dispute controls indicate that these variables reduce the explanatory power of the models (see columns (3) vs. (4), (5) vs. (6), and (7) vs. (8)). Thus, it is unclear whether the reduction in the significance level is due to the low quality of variables or the "true" omitted variable bias. Since appropriate IV estimation should provide consistent estimates of Court Decision, the following analysis simply ignores the dispute characteristic controls. The corresponding tables of the following analysis with the dispute characteristics controlled are presented in Appendix Tables 2 to 5.

4.2 Instrumental Variable Estimates: Who Created the Law?

Models estimated in the previous section do not provide consistent estimates of pro-worker Court Decision if the local labor market performance reversely affects judgments. This section identifies the causal impact of pro-worker Court Decision on employment through the exogenous allocation of

judges to prefectures.

In estimating the judge effects in equation (3) using the logit model, some litigation controls (L^2) are added: a set of dummies for types of dismissals and levels of courts (i.e., District and High Courts) and an indicator for collegiate court. Marginal effects are evaluated at a case of adjustment dismissal at the District Court adjudicated by the collegiate system. The estimation is limited to litigations with judges who adjudicated at least three times. Several judge indicators were also excluded due to multicollinearity.[39] From among 1905 judges in the sample, 377 judges took charge of adjustment dismissal cases at least once in the JIS dataset from 1950 to 2001. From among the 377 judges, 59 judge effects were estimated significantly. Thereafter, in order to match these judges with prefecture-level panel model in equation (1), I randomly dropped such judges whose colleague(s) also take charge of adjustment dismissal cases exactly in the same year at the same prefecture. This leaves thirty-six judges in total who are instrumented to Court Decision in equation (1).

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 3 of Table 4. All models control for prefecture dummies, year dummies, log population, log public investment, indicator variable for leftist governor, and governor from MIAC, although only the estimates for Court Decision are presented. Column 2 of Panel A presents the estimates from the 2SLS model with judge effects instrumented to 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 1.5 log points if a prefecture observes more illegitimate adjustment dismissal cases than legitimate one. The point estimates are over two standard errors from zero.

[39] This is due to the fact that the same group of judges often took charge of litigations in collegiate court. For example, suppose Judges A, B, and C worked together on Cases 1, 2, 3, and 4, and these were the only cases which Judges A, B, and C handled, then, only one judge effects could be estimated due to rank condition. This implicitly imposes an assumption that Judges A, B, and C are the identical person.

In the middle row of column 2, 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 problem—Limited Information Maximum Likelihood (LIML), Fuller's (1977) modification of LIML (Fuller)[40], and Jackknife IV estimator proposed by Angrist et al. (1999) (JIVE).[41] 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.

As Foote (2006) and numerous other Japanese labor law scholars put it, divisions of labor litigations at the Tokyo District Court have played a leading role in establishing the doctrine of four

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

[41] 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).

requirements (See section 2.1). This is partly because Tokyo is the capital of Japan and has a large number of company headquarters, and as a result, many labor litigations have been filed. Together with courts in Osaka Prefecture, Tokyo has handled almost half of the adjustment dismissal precedents in the JIS sample (see notes at the bottom of Figure 2). In order to test a hypothesis that judges at these two prefectures indeed had established the doctrine, the same IV estimates are presented in Panel B of Table 5 for the sample excluding Tokyo and Osaka Prefecture. Interestingly, without the two biggest prefectures, IV estimates are no longer significant and their magnitude is reduced from those in Panel A. Results in the two panels of Table 5 indicate two remarkable facts—judges at Tokyo and Osaka have created the doctrines, consistent with the observations of legal scholars; second, endogeneity is a serious concern in other prefectures and judge effects are "weak"; in other words, direction of judgments in Figure 2 is a result, rather than a cause, of local labor market performance (except for those of Tokyo and Osaka Prefecture).

5 Is a Judgment Shock Accurately Defined?

Thus far, an assumption of "perfect" economic agents has been imposed, which states that a direction of Court Decision in previous years persists forever without any attrition, although this assumption is easily violated. The Supreme Court Secretariat transfers judges to other courts or prefectures every three to five years, as mentioned in section 3. If economic agents perceive that specific judges do matter at the enforcement level of employment protection in the region (i.e., increase their firing costs), his or her judgment impact must completely vanish when he or she is transferred to courts in other prefectures. Another problem is that a court decision identifies only the direction of cases, and does not take the relative impact of cases into account. The previous method explained in section 2.2 implicitly places an equal weight on judgments within one same-year-prefecture cohort, and does not permit an equal weight over past precedents. If an agent

discerns the impact of a judgment in relation to the number of precedents in the past or smoothens the information, the previous method may have miss-specified the relative importance of precedents in the past.

This section addresses these issues by proposing new alternative variables of Court Decision and checks the robustness against the baseline result. Instead of accumulating discrete Court Decision year by year as done thus far, worker victory ratios are calculated with adjustment dismissal precedents only in the limited previous years. As before, assume that each prefecture receives judgment shocks from every court that takes charge of the prefecture; the District Court judgment is applicable to each prefecture, the High Court judgment is applicable to prefectures under its jurisdiction, and the Supreme Court judgment is applicable to every prefecture. Let W denote the number of worker victories in adjustment dismissal litigations, and let EM denote the victory of employers. Let R denote the worker victory ratio. Then, the worker victory ratio of prefecture *p* in year *t* with the precedents in the last *m* years is calculated by

$$R_{pt}^{m} = \frac{\sum_{i=t-m}^{t} W_{pi}}{\sum_{i=t-m}^{t} W_{pi} + \sum_{i=t-m}^{t} EM_{pi}} \quad \text{, if } \sum_{i=t-m}^{t} W_{pi} + \sum_{i=t-m}^{t} EM_{pi} > 0$$

$$= 0.5 \text{ , otherwise.} \qquad (4)$$

It must be noted that in certain prefectures in certain years, no adjustment dismissal litigations are reported in the JIS database (e.g., $\sum_{i=t-m}^{t} W_{pi} + \sum_{i=t-m}^{t} EM_{pi} = 0$), and 0.5 is assigned in such cases. This new variable differs from the previous variable of Court Decision in two ways: first, it discards any judgment information after *m* years; second, it provides equal weightage to precedents by the total number of litigations that have occurred in the last *m* years. Panel C of Table 2 presents summary

statistics for this new variable in cases of m = 3, 5, and 10, as well as $m = t - 1950$ where worker victory ratio is calculated with all precedents since 1950 up until year t.

Table 6 presents the results from the same estimations in Table 5 but with Court Decision replaced with new alternatives. As before, dependent variable is the logarithm of employment-to-population ratio multiplied by 100 in all specifications, and only the coefficient estimates of alternative variables for Court Decision are provided in the table. The results are consistent with those in Table 5—increase in worker victory ratio significantly reduces prefecture employment rate in all LIML and Fuller's modification of LIML estimations, as shown in columns (3) and (4). Note that the first-stage F statistics take much smaller values than the ones observed in Table 5. This makes sense because judge effects are direct instruments to the discrete annual variation of Court Decision in Table 5, while in Table 6 judge effects are instrumented to the variation of victory ratio in all past m years. In fact, comparing columns (1)–(4) of Table 6, the bias incurred by weak instrument appears to be the largest for $m = t - 1950$ and smallest for m = 3.

The estimates in this section reveal that a baseline result is robust to the violation of assumption that the economic agents count all the judicial information of the past. Nor does it change the main conclusion even if judgments are equally weighted by the total number of litigations in previous years, instead of being taken as discrete directions. Although the manner in which the economic agents establish their "true" perception toward judgments is an open-ended question, the analysis of this section confirms that the preceding estimates are at least robust to the information attrition of precedents and alternative weightage of judgments.

6 How Do Workers Share 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 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 7 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.[42]

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

[42] 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).

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 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.[43]

Table 8 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

[43] 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.

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 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 the logit 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 1.5 log points, after controlling for observable and unobservable prefecture characteristics. They are also robust to instrumental variable estimations. Interestingly, the IV estimate of Court Decision is no longer statistically significant if observations of Tokyo and Osaka Prefecture are excluded from the sample. Thus, the non-trivial portion of the establishment in the doctrine is reversely explained by local economic conditions. However, at the same time, this result confirms the observations by legal professions that judges at the Tokyo or Osaka courts wield a strong influence over the establishment of the doctrine of four prerequisites (Foote 2006).

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). Tokyo District Court is famous for its pro-employer judgments, and this paper has claimed that it is one reason why the employment rate has been high in Tokyo. However, the effect may be canceled out if Tokyo District Court entails the relatively higher uncertainty in judge leniency, as is evident in Table 3.

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 equilibriums 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 equilibriums 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: 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.

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Table 1. Worker Victory Ratio for Adjustment Dismissal (*Seiri Kaiko*) Litigations: Tokyo vs. Osaka

year	1950-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Tokyo High and District Court	0.33	0.00	0.00	0.00	0.71	0.11	0.00	0.13	0.60	0.30
	(9)	(6)	(1)	(1)	(7)	(9)	(2)	(8)	(10)	(20)
Osaka High and District Court	N/A	0.50	1.00	0.00	N/A	0.86	1.00	0.80	0.88	0.79
	(0)	(2)	(1)	(1)	(0)	(7)	(3)	(5)	(8)	(14)
All High and District Courts	0.33	0.24	0.30	0.46	0.64	0.55	0.63	0.42	0.69	0.57
	(15)	(17)	(10)	(13)	(14)	(38)	(24)	(24)	(29)	(51)

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.

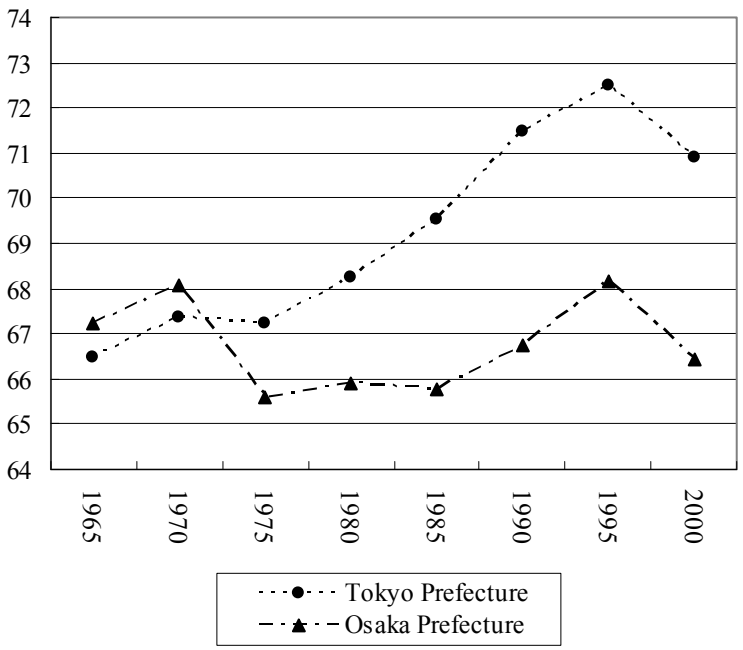


Figure 1. The Employment to Population Ratio (%): Tokyo vs. Osaka

Source: National Census.

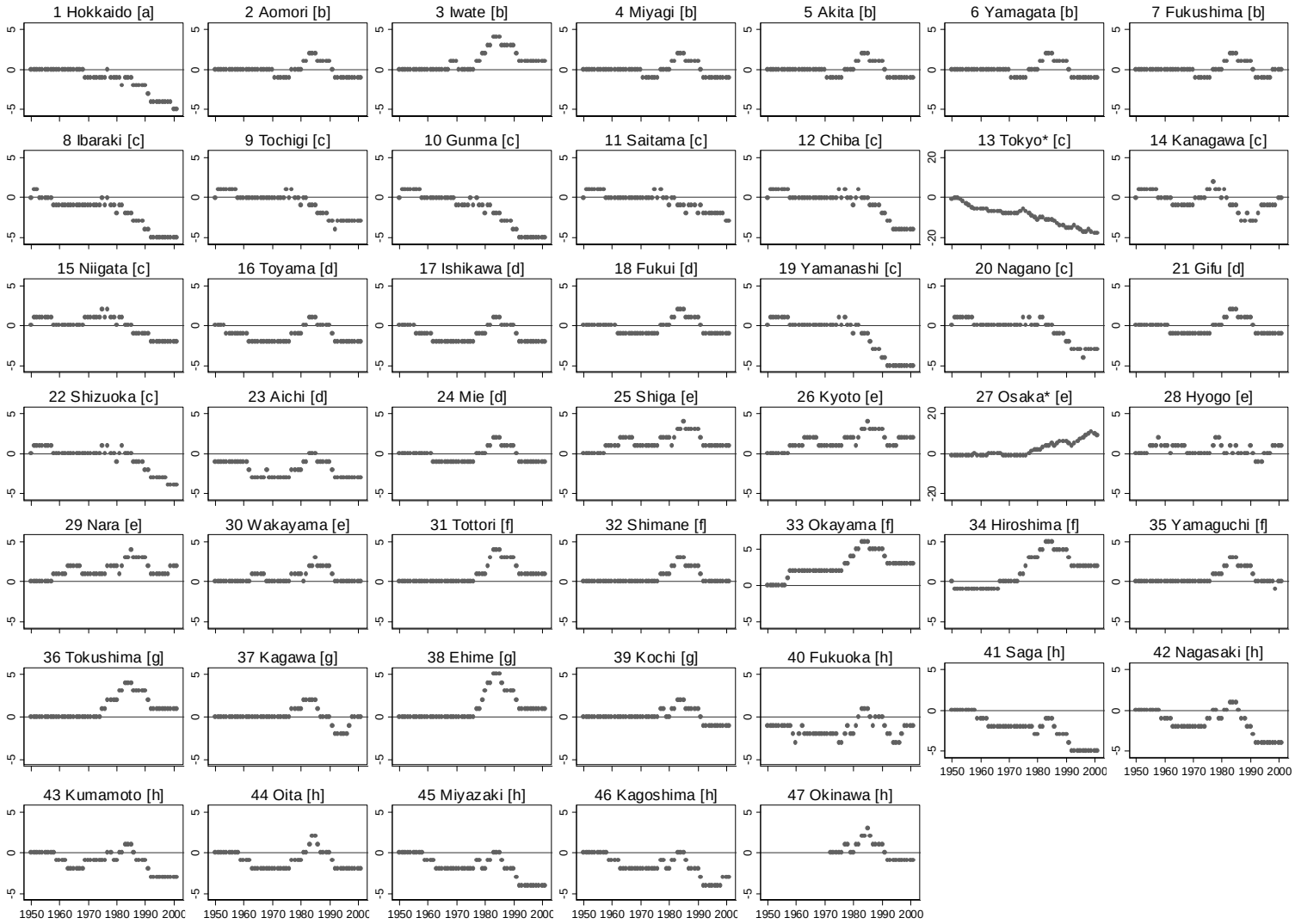


Figure 2. Direction of Accumulated Judgments (Court Decision) by Prefecture

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	0	2.281	351
C. Variable Specification Checks						
Ratio of worker victory in the last 3 years	1985-2000	752	0.355	0	0.375	1
Ratio of worker victory in the last 5 years	1985-2000	752	0.350	0	0.334	1
Ratio of worker victory in the last 10 years	1985-2000	752	0.319	0	0.413	1
Ratio of worker victory for all cases since 1950	1985-2000	752	0.158	0.250	0.521	1

Table 3. Worker Victory Ratio by Judges, Tokyo District Court 2000-2004

Division 11			Division 19			Division 36		
Judge	# of cases	Worker Victory Ratio	Judge	# of cases	Worker Victory Ratio	Judge	# of cases	Worker Victory Ratio
A10	49	0.24	B8	42	0.41	C2	22	0.55
A7	47	0.43	B9	23	0.33	C1	20	0.14
A8	44	0.24	B1	22	0.71	C3	12	0.33
A11	16	0.24	B3	21	0.17			
A1	14	0.75	B5	18	0.43			
A2	14	0.33	B2	15	0.63			
A3	14	0.50	B6	15	0.67			
A12	10	0.25	B11	12	1.00			
A5	10	0.00	B10	11	0.33			
A13	9	0.00	B12	10	1.00			
A4	8	0.25						
Div. 11 total	238	0.30	Div. 19 total	202	0.47	Div. 36 total	69	0.42

Source: JILPT (2007), Table 2-3-12.

Note: The replication is limited to those judges who passed any judgement, and samples of those judges who setteled all cases through mediation were excluded.Thus, the total number of cases for each division does not match the sum of cases for the individual judges shown in a table. Cases include all types of abusive dismissals in addition to adjustment dismissals.

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

	100 × ln (Employment/Population)							
	(1)	(2)	(3)	(4)	(5) Prefecture Trend	(6) Prefecture Trend	(7) No Tokyo and Osaka	(8) No Tokyo and Osaka
Court Decision [t-1]	-1.561	-0.981	-1.703	-1.416	-0.136	-0.128	-1.662	-1.009
	(1.257)	(1.282)	(0.539)	(0.683)	(0.778)	(0.831)	(0.801)	(0.899)
Leftist governor		-9.082	0.461	0.078	-1.584	-2.162	1.091	0.838
		(10.263)	(1.652)	(0.962)	(2.213)	(2.246)	(1.565)	(1.331)
Governor from MIAC		2.085	-1.865	-1.516	-1.811	-1.084	-3.049	-2.670
		(6.127)	(1.645)	(1.523)	(1.120)	(1.231)	(1.401)	(1.210)
Log prefecture population		8.210	-91.357	-94.586	-67.797	-74.801	-94.771	-99.508
		(6.176)	(30.968)	(35.973)	(47.703)	(53.055)	(32.213)	(35.791)
Log public investment		20.198	3.774	6.383	9.002	9.976	1.151	2.069
		(14.477)	(3.046)	(3.770)	(2.540)	(3.380)	(2.869)	(2.995)
Ratio of settlements mediated by courts				0.866		-0.467		0.695
				(1.031)		(0.947)		(1.011)
Unionization index				108.946		-33.650		151.745
				(94.830)		(91.992)		(98.418)
Average number of plaintiffs per case				0.012		-0.006		0.010
				(0.004)		(0.003)		(0.004)
Year effect	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture effect	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-sq.	0.051	0.099	0.432	0.379	0.633	0.576	0.451	0.398
No. of observations	752	752	752	653	752	653	720	625

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 in columns (1), (2), (3), (5) and (7), and 1987-2000 in columns (4), (6) and (8). In columns (4), (6) and (8), some samples have been excluded due to data availability.

Table 5. Dealing with the Endogeneity Concern: Who Created the Law?

	100 × ln (Employment/Population)				
	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	LIML	Fuller	Angrist et al. unbiased JIVE2
			A. All Prefectures		
Court Decision [t-1]	-1.703	-1.523	-1.449	-1.452	-0.811
	(0.539)	(0.485)	(0.520)	(0.519)	(2.291)
First-stage F-statistics for H0: judge effects = 0	-	10.94			
First-stage Partial R-squared	-	0.363			
No. of excluded Instruments	-	36	36	36	36
No. of observations	752	752	752	752	752
			B. Excluding Tokyo and Osaka		
Court Decision [t-1]	-1.662	-1.038	-0.639	-0.670	N/A
	(0.801)	(1.130)	(1.344)	(1.324)	
First-stage F-statistics for H0: judge effects = 0	-	5.60			
First-stage Partial R-squared	-	0.143			
No. of excluded Instruments	-	19	19	19	
No. of observations	720	720	720	720	

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 variables for leftist governor, and governor from MIAC. Column (1) replicates the estimates from column (3) of Table 4. Column (4) sets the fuller parameter = 2. Appendix Table 2 presents the results with dispute characteristics controlled.

Table 6. 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	-2.193	-7.181	-14.767	-14.275	3.55
	(1.384)	(2.533)	(3.992)	(3.889)	
in the last 5 years	-1.788	-5.729	-30.299	-26.343	2.43
	(1.801)	(3.276)	(11.198)	(9.712)	
in the last 10 years	-1.734	-14.217	-30.016	-28.741	2.80
	(3.166)	(3.890)	(6.569)	(6.312)	
for all cases since 1950	4.813	-21.938	-79.147	-74.309	2.89
	(9.251)	(11.083)	(22.442)	(21.315)	

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 variables for leftist governor, and governor from MIAC. The number of observations is 752 in all estimations. Appendix Table 3 presents the results with dispute characteristics controlled.

Table 7. The Impact of Pro-Worker Court Decision on Employment and Hourly Wage by Gender and Industry: Fuller's LIML Estimation

	Males					Females				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Construction	Manufacturing	Services	Wholesale and Retail Trade	Finance and Insurance	Construction	Manufacturing	Services	Wholesale and Retail Trade	Finance and Insurance
					A. 100 × ln (Employment/Population)					
Court Decision [t-1]	0.681	-2.030	-0.814	-1.279	-1.775	1.012	-0.951	-1.303	0.619	0.115
	(1.406)	(0.733)	(1.027)	(1.437)	(1.094)	(2.056)	(0.871)	(0.894)	(1.627)	(1.462)
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]	-1.161	-0.714	-0.840	-1.615	-1.181	-1.058	-0.605	-1.275	-1.403	-0.520
	(0.379)	(0.263)	(0.356)	(0.439)	(0.408)	(0.632)	(0.263)	(0.350)	(0.400)	(0.584)
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 variables for leftist governor, and governor from MIAC. "Wholesale and Retail Trade" sector includes drinking and eating places. Appendix Table 4 presents the results with dispute characteristics controlled.

Table 8. 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	-3.866	-3.410	-3.359	-3.364
	(1.876)	(2.180)	(2.153)	(2.147)
Services	2.828	6.587	6.983	6.947
	(1.335)	(2.397)	(2.370)	(2.358)
Wholesale and Retail Trade	-1.445	0.835	1.189	1.166
	(1.501)	(2.353)	(2.356)	(2.349)
All industry	-0.786	1.457	1.719	1.697
	(1.064)	(1.433)	(1.419)	(1.415)

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 variables for leftist governor, and governor from MIAC. The number of observations is 752 in all estimations. Appendix Table 5 presents the results with dispute characteristics controlled.

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. Dealing with the Endogeneity Concern, Dispute Characteristics Controlled: Who Created the Law?

	100 × ln (Employment/Population)				
	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	LIML	Fuller	Angrist et al. unbiased JIVE2
			A. All Prefectures		
Court Decision [t-1]	-1.416	-1.140	-1.012	-1.016	-3.408
	(0.683)	(0.566)	(0.610)	(0.608)	(6.463)
First-stage F-statistics for H0: judge effects = 0	-	10.66			
First-stage Partial R-squared	-	0.365			
No. of excluded Instruments	-	32	32	32	32
No. of observations	653	653	653	653	653
			B. Excluding Tokyo and Osaka		
Court Decision [t-1]	-1.009	0.376	1.627	1.493	N/A
	(0.899)	(1.446)	(1.867)	(1.818)	
First-stage F-statistics for H0: judge effects = 0	-	4.79			
First-stage Partial R-squared	-	0.116			
No. of excluded Instruments	-	15	15	15	
No. of observations	625	625	625	625	

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 1987-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variables for leftist governor, and governor from MIAC, unionization index, ratio of settlements mediated by courts, and average number of plaintiffs per case. Column (1) replicates the estimates from column (3) of Table 4. Column (4) sets the fuller parameter = 2. This table corresponds to Table 5 and also controls for dispute characteristics.

Appendix Table 3. Is A Judgement Shock Accurately Defined? Dispute Characteristics Controlled

	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	-2.155	-7.250	-13.497	-13.097	4.03
	(1.203)	(2.622)	(3.759)	(3.678)	
in the last 5 years	-2.077	-5.423	-72.335	-45.027	2.01
	(1.672)	(4.061)	(41.797)	(22.522)	
in the last 10 years	-2.136	-14.589	-33.807	-31.877	2.56
	(2.895)	(4.352)	(8.073)	(7.622)	
for all cases since 1950	4.226	-18.723	-114.791	-102.015	2.66
	(11.360)	(15.796)	(42.618)	(38.474)	

Note: Standard errors are given in parentheses in columns (2) to (4). Standard errors, adjusted for clustering at the prefecture level, are given in parethese for OLS estimations. Fuller's parameter is set equal to 2. The data are for the fourty-seven prefectures for the period 1987-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variables for leftist governor, and governor from MIAC, unionization index, ratio of settlements mediated by courts, and average number of plaintiffs per case. The number of observations is 653 in all estimations. This table corresponds to Table 6 and also controls for dispute characteristics.

Appendix Table 4. The Impact of Pro-Worker Court Decision on Employment and Hourly Wage by Gender and Industry : Fuller's LIML Estimation, Dispute Characteristics Controlled

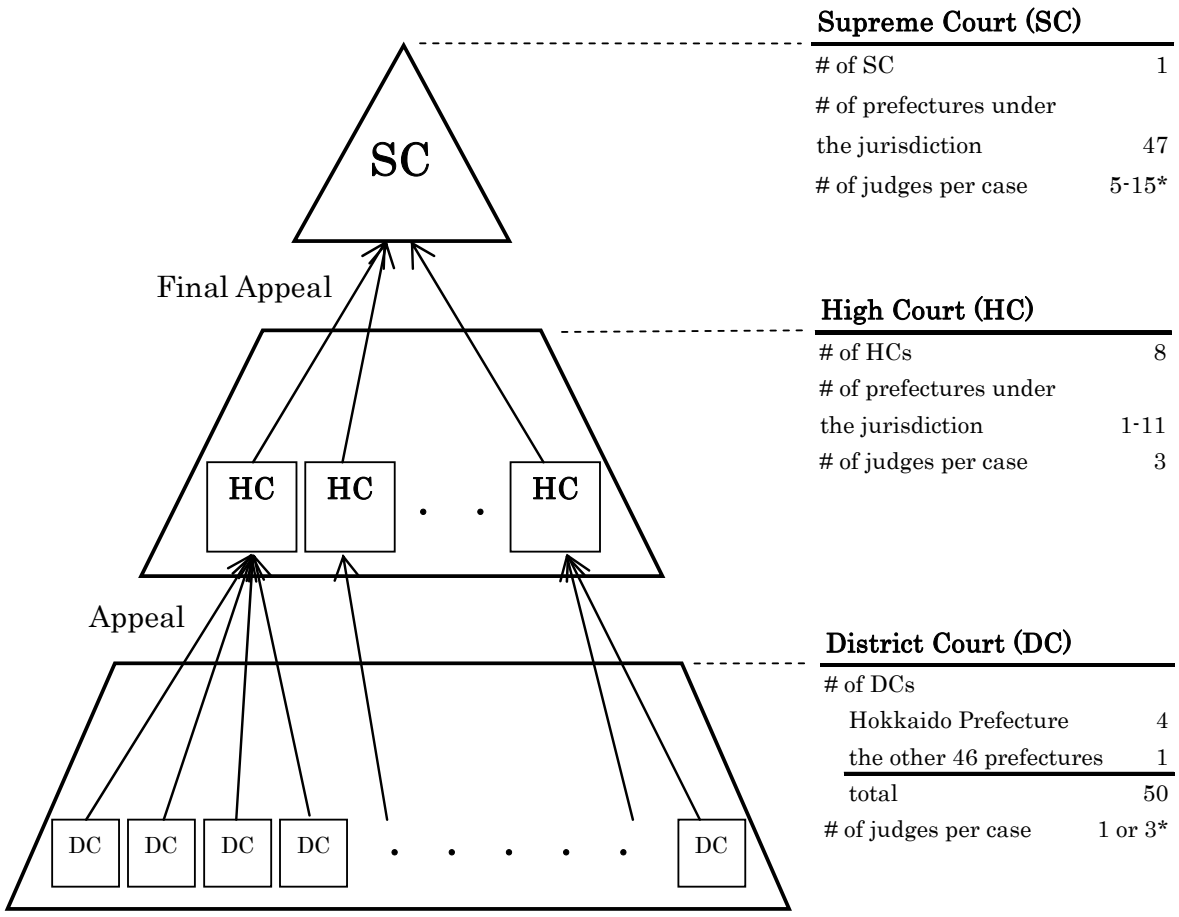
	Males					Females				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Construction	Manufacturing	Services	Wholesale and Retail Trade	Finance and Insurance	Construction	Manufacturing	Services	Wholesale and Retail Trade	Finance and Insurance
A. 100 × ln (Employment/Population)										
Court Decision [t-1]	1.223	-1.134	-0.276	-1.676	-2.172	0.949	-0.454	-0.299	0.621	1.248
	(1.569)	(0.832)	(1.156)	(1.733)	(1.287)	(2.348)	(1.016)	(1.014)	(1.968)	(1.724)
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	653	653	653	653	653	653	653	653	653	653
B. 100 × ln (Hourly Wages)										
Court Decision [t-1]	-1.342	-0.723	-0.837	-1.367	-0.864	-1.148	-0.798	-1.007	-1.002	0.016
	(0.418)	(0.266)	(0.419)	(0.512)	(0.457)	(0.697)	(0.295)	(0.401)	(0.465)	(0.671)
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	653	653	653	653	653	653	653	653	653	653

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 1987-2000. All estimation controls for prefecture dummies, year dummies, log population, log public investment, indicator variables for leftist governor, and governor from MIAC, unionization index, ratio of settlements mediated by courts, and average number of plaintiffs per case. "Wholesale and Retail Trade" sector includes drinking and eating places. This table corresponds to Table 7 and also controls for dispute characteristics.

Appendix Table 5. The Impact of Pro-Worker Court Decision on Part-time Female Employment Rate, Dispute Characteristics Controlled

	100 × ln (Part-time Female Employment /Full-time Total Employment)			
	(1)	(2)	(3)	(4)
	OLS	2SLS	LIML	Fuller
Manufacturing	-4.384	-3.757	-3.680	-3.687
	(2.165)	(2.575)	(2.530)	(2.522)
Services	1.443	7.179	7.739	7.676
	(1.918)	(2.729)	(2.670)	(2.658)
Wholesale and Retail Trade	1.327	3.233	3.475	3.453
	(1.247)	(2.446)	(2.408)	(2.399)
All industry	-0.389	2.177	2.422	2.394
	(1.084)	(1.705)	(1.664)	(1.659)

Note: 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 variables for leftist governor, and governor from MIAC, unionization index, ratio of settlements mediated by courts, and average number of plaintiffs per case. The number of observations is 653 in all estimations. This table corresponds to Table 8 and also controls for dispute characteristics.



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.