Chapter 3

The Effects of Employment Protection on Labor Turnover: Empirical Evidence from Taiwan

3.1 Introduction

This chapter studies the effects of employment protection legislation (EPL) on the rates of worker flows, job reallocation, and churning flows. EPL refers to restrictions on firing by means of severance pay, mandatory notification periods, or other administrative procedures that delay or prevent an employee from being dismissed. We examine the case of Taiwan, whose enactment of Labor Standards Law (LSL) in 1984 and its subsequent enforcement measures substantially increase firms' firing costs.

The economic consequences of EPL is an important public policy issue. The original purpose of EPL is to enhance the welfare of employees. However, if EPL leads to a lower employment level, it becomes questionable whether the protections that employees enjoy through EPL are worth the costs in terms of fewer employment opportunities. Policy makers have to weigh the welfare gains from labor protections against the loss (i.e., a lower employment level). Furthermore, if a country's EPL is associated with slower worker and job flows, diminished economic efficiency and productivity are the extra costs that the society has to pay for the improvement in employees' job security. Slower worker and job flows imply that the adjustment of the economy to shocks will be slower and resources are not allocated to their best use.[1]

Economic theories generally predict that EPL limits the reallocation of labor

[1]It is widely believed that the disappointing economic performance of Western European countries, relative to that of the U.S., is partly attributable to their more stringent EPL. This believe prompts some European countries to carry out labor market reforms.

(e.g., Hopenhayn and Rogerson, 1993). EPL lowers worker and job flows because firing costs discourage firms from firing and hiring. In the absence of EPL a firm dismisses a non-performing employee, and hires an employee to replace a non-performing one or to expand its workforce. The presence of EPL prompts a firm to retain an employee even if her marginal value product is below wages in order to avoid the EPL-associated firing costs. Likewise, a firm may be discouraged from hiring even when the product market calls for an output expansion because an extra employee increase the chance of costly adjustments in the future when the product market takes a down turn. The negative effects of EPL on firms' firing and hiring lead to lower labor market velocity. In contrast to the consensus on the predicted effects of EPL on the flows of workers and jobs, there is an inconsonance in the expected employment consequences of EPL among economic models with different behavioral and environmental assumptions.

In principle the validity of different theoretical models can be examined by confronting their predictions with empirical evidence. However, in the literature empirical findings on the effects of EPL are far from unanimous. Similar to the pattern of findings obtained by theoretical studies, positive, negative or trivial effects of EPL on the employment level are obtained by empirical studies. Moreover, even though there is less disaccord among theoretical models on EPL's impact on employment flows, empirical studies reach different conclusions. Some of the differences in empirical findings concerning EPL can be attributed to the nature of the data used. Country-level panel data are used by some past studies for analysis (e.g., Lazear, 1990; Bertola, 1990; Gómez-Salvador, Messina and Vallanti, 2004; and Di Tella and Macculloch, 2004). In addition to imprecision arising from aggregation,

cross-country analysis may be liable to bias from uncontrolled heterogeneity (e.g., institutional setting, the rule of law, strength of EPL's enforcement, social norms, etc.).

The diversity in empirical findings may also be attributed to the measures of the strength of EPL. Some studies use objective measures (e.g., length of advance notice, amount of severance payments) as proxies for EPL, e.g., Lazear, 1990; Bertola, 1990; and Gómez-Salvador, Messina and Vallanti, 2004. These objective measures of EPL strength may suffer from two shortcomings. Firstly, they ignore cross-country differentials in EPL enforcement intensity. Secondly, changes in these measure may represent marginal changes in the EPL. This may lead to weak identification. Some others use subjective measures of labor market flexibility (e.g., Di Tella and MacCulloch, 2004). The use of subjective measures may account for differences in the strictness of enforcement among countries. However, since the measure is solicited from different individuals in different countries, validity of cross-country comparison on the basis of this subjective measure is questionable.

This chapter aims to examine the effect of employment protection on job and worker flows. Similar to Kugler (1999, 2004), Kugler, Jimeno, and Hernanz (2003), and Kugler and Pica (2005), this chapter exploits a natural experiment arising from institutional changes. In the current study, the natural experiment is created by Taiwan's the enactment of Labor Standards Law (LSL) in 1984 and the subsequent institutional changes (in 1987 and 1993) to enhance the LSL's enforcement. Our identification is strengthened by (a) the existence of a control group, i.e., some industries were not covered by the LSL until 1996, (b) the changes in the intensity

of LSL's enforcement over time, and (c) the variation in the stringency of the LSL's provisions and intensity of its enforcement with establishment size.[2] These allow us to adopt the difference-in-difference-in-difference approach for identification.

Our estimation is based on monthly data, which consist of a sequence of establishment level cross-sections, in Taiwan covering the period 1983–1995. An advantage of our data is that they are at the monthly frequency. This enables us to uncover the effect of employment protection on worker and job flows that may not be possible using data of lower frequencies. This point is demonstrated by Blanchard and Portugal's (2001) finding that the effect of employment protection in Portugal affects mainly the transitory component of job creation and job destruction as reflected in their quarter-to-quarter movements, while the permanent one, as captured by year-to-year movements, is largely unaffected.

Our empirical findings suggest that the LSL and its enforcement measures do have negative impacts on job and worker flows pertaining to medium-sized and large establishments. The worker and job turnover pertaining to small establishments are not affected by the enactment of the LSL and the LSL's enforcement measures. These negative effects also vary with establishment size. Relative to medium-sized establishments, large establishments endure greater negative impacts by the LSL and its enforcement measures.

The remainder of this chapter proceeds as follows. A review of literature is presented in Section 3.2. In section 3.3 we provide an overview of the evolution of EPL in Taiwan. For our empirical analysis we use data from the *Employees'*

[2]See Section 3.3 for details.

Earnings Survey (EES), which is described in Section 3.4. Our empirical strategy and discussion of estimation results are presented in Section 3.5. Some concluding remarks are presented in Section 3.6.

3.2 Literature Review

In the literature, there is a large amount of theoretical and empirical research evaluating EPL's economic effects. Among theoretical studies, while there is no consensus on EPL's impacts on the employment level, it is general agreed that EPL has a negative impact on job and worker flows.[3] Some theoretical studies find that EPL does not have a clear-cut effect on a firm's employment level. Using a dynamic labor demand model, Bertola (1990) shows that in the presence of firing costs a firm reduces hiring and firing simultaneously, implying slower job and worker flows, leaving its employment level more or less unchanged. The search and matching model of Pissarides (2001) suggests that, in the absence of complete insurance markets, an optimally chosen EPL can be an instrument to provide unemployment insurance to risk averse workers such that EPL may not adversely affect a firm's employment level. Since job turnover costs are more costly, the results of Pissarides (2001) implies that both job and worker flows are slower.

There are theoretical studies indicating that the effects of EPL on the employ-

[3]An exception is Lazear (1990), who demonstrates that in complete markets EPL does not have any real effects on either the employment level or reallocation of workers because the effects of firing costs, which represents a transfer from an employer to a dismissed employee, will be neutralized by employment contracts, which specifies a reverse transfer.

ment level depends on a firm's production technology, while its effect on employment flows is unambiguously negative. The insider-outsider theory (see Lindbeck and Snower, 1988) deduces that while the firing costs associated with EPL create an employment inertia in the short-run such that its impact on a firm's employment level depends on whether the economy is experiencing an upward swing or a downward swing, their long-run employment effect is ambiguous, depending on the relative response of hiring and firing to the firing costs. Nonetheless, the insider-outsider theory implies that the effect of EPL on employment flows is negative, no matter whether it is in the long-run or in the short-run. Allowing for short-term contracts and on-the-job search, Boeri's (1999) theoretical model also point to an ambiguous employment level effect of EPL and a negative employment flow effect. Adopting a similar framework as Bertola (1990), Bentolila and Bertola (1990) and Bertola (1992) find that the effects of EPL on a firm's employment level are ambiguous, depending on the firm's labor demand function and discount rate. Both studies obtain a negative effect of EPL on worker and job flows.

In the literature, there are studies finding EPL to have both a negative effect on the employment level and employment flows. For example the efficiency wage model of Galdón-Sáchez and Güell (2003) suggests that firing costs encourage shirking, which leads to higher labor costs, such that firms lower their employment level and the aggregate worker/job flows subside. Calibrating a general equilibrium model and assuming perfectly competitive markets, Hopenhayn and Rogerson (1993) find that EPL induced firing costs have a significant negative effect on both job creation and destruction, with the negative effect on creation bigger such that there is a negative effect on the employment level. The general equilibrium matching model

of Burda (1992) arrives at the same conclusion as Hopenhayn and Rogerson (1993), which arises from the assumption that the rate of job destruction is exogenous. Also adopting a matching model, Saint-Paul (1995) obtains the conclusion that EPL's impact on the employment level is negative. This result can be attributed to the assumption that firing costs increase workers' share of the match surplus. All these studies implies that EPL hampers worker reallocations.

Moreover, a positive effect of EPL on the employment level is also found by a few studies in the theoretical literature. For example, employing a matching model for analysis, Mortensen and Pissarides (1999) find EPL to have a positive effect on employment and a negative effect on employment flows. This results is due to the employer-employee bargaining, which keeps the relative share of the match surplus invariant to firing costs. Fella (2000), using an efficiency wage model, also obtains a positive employment effect for EPL. The intuition of the Fella's (2000) result is that EPL (in the form of severance payments) enables a firm to make a credible commitment of not making redundancy firing in bad times. This allows a firm to enjoy lower labor costs. Firms' fewer redundancy firing implies that employment flows are slower.

The above review of the theoretical literature suggests that while economic theories' prediction of EPL's effect on the employment level is mixed, there is a consensus that EPL leads to slower employment flows. Yet, empirical findings of the effect of EPL on both the employment level and employment flows are divided. For example, Lazear (1990), based on data pertaining to a panel of developed countries, finds that

firing costs do not have any effect on the employment level.[4] Similar findings are obtained by Bertola (1990), whose empirical analysis is based on a panel of Western European countries.[5] By contrast, Di Tella and Macculloch (2004) find that among a panel of OECD countries, an increase in the degree of labor market flexibility is associated with an decrease in the unemployment rate and an increase in the labor force participation rate.

Findings of more recent studies based on micro data are no more consistent. For example, the empirical findings of Anderson (1993), Hunt (2000), and Friesen (2005) contradict those obtained by Gómez-Salvador, Messina and Vallanti (2004) and Blanchard and Portugal (2001). Employing a data set containing retail firms in six U.S. states, Anderson (1993) finds a firm's seasonal labor demand adjustment decreases with adjustment costs. Anderson's (1993) empirical results also point to a positive effect of firing costs on the employment level. Based on data for Germany, Hunt (2000) does not find any evidence that lower dismissal costs lead to more rapid employment adjustments or changes in the employment level. Furthermore, the increase in firing costs by the advance notice and severance laws in Canada is found by Friesen (2005) to have no significant effect on individual workers' probability of being laid off.

Employing firm-level micro data from 13 European countries, Gómez-Salvador, Messina and Vallanti (2004) find that EPL depresses job flows. With EPL having a larger negative effect on job creation than on job destruction, their results also imply a negative effect of EPL on the employment level. Comparing employment

[4]Lazear (1990) does not examine EPL's effect on employment flows.

[5]Lazear (1990) and Bertola (1990) do not examine EPL's effect on employment flows.

flows, computed from micro data, of the U.S. and Portugal, Blanchard and Portugal (2001) argue that higher employment protection is responsible for Portugal's slower employment flows . In addition, to reconcile the fact that the U.S. and Portugal have similar unemployment rates even though employment flows are lower in Portugal, Blanchard and Portugal (2001) point out that Portugal's job creation and job destruction rates are roughly the same such that the employment level is not affected. This implies that EPL does have an unambiguous impact on the employment level.

Most previous studies in the literature use indicators of the strictness of EPL to measure firing costs and depend on cross-country comparison for identification. Adopting such a strategy may weaken identification because changes in firing costs in most countries are mostly marginal and cross-country comparison may be complicated by institutional differences (e.g., the rule of law and social norms, etc.) across countries. There are recent empirical studies that use more robust identification strategies, e.g., Kugler's (1999, 2004), Kugler, Jimeno, and Hernanz (2003), and Kugler and Pica (2005). They rely on natural experiments created by labor market reforms, which relax labor market regulations. In the context of the Colombian labor market reform, Kugler (1999) uses multi-year cross-sectional data at the individual level to investigates the impact of a firing costs reduction on the hazard of exiting from employment and from unemployment. The Kugler's (1999) difference-in-difference estimation uses formal sector employees and informal sector employees (which was exempted from the firing costs reduction), respectively, as the treatment and control groups.

To identify the effect of the 1997 relaxation of EPL in Spain, Kugler, Jimeno, and

Hernanz (2003), use quarterly individual data and adopt a difference-in-difference approach with an individual's age as the criterion to classify sample individuals into control or treatment groups. The 1990 Italian labor market reform, which increases the firing costs for small firms, allows Kugler and Pica (2005) to identify the effects of EPL on job and worker flows. Employing a matched employer-employee panel and using large firms, which were not affected by the reform, as the control group, they use a difference-in-difference approach for estimation.

By exploiting a natural experiment for identification, our study is similar to that of Kugler's (1999, 2004), Kugler, Jimeno, and Hernanz (2003), and Kugler and Pica (2005). This study supplements these studies by providing additional evidence on the effects of changes in EPL in the context of an Asian country during a period of rapid economic development.

3.3 Background

Labor Standards Law

Taiwan's LSL was enacted on August 1, 1984. Prior to LSL there did not exist a comprehensive labor law, even though there was a multitude of labor laws in Taiwan.[6] Compared to the labor laws preceding LSL, the LSL represents a significant strengthening of labor protection.

[6]Among the pre-LSL labor laws in Taiwan, the major one was the Factory Act, which was enacted in 1929 and amended in 1975.

Firstly, the LSL is comprehensive. The LSL attempts to regulate all aspects of employment relationship, e.g., labor contract, wage, overtime payments and hours, retirement and severance payments, compensations for occupational accidents, maternity benefits.[7] Some of these were stipulated by other existing labor laws. For example, the Factory Act had provisions for overtime payments and hours, and maternity benefits; and severance payments was mandated also by the Factory Act. Some of the LSL labor protections measures were new, e.g., the LSL requires a firm of more than 30 employees to have work rules (covering, e.g., the compensation scheme, work schedule, and disciplinary measures, etc). After being sanctioned by the appropriate government authorities, a firm's work rules are to be posted publicly. Moreover, while many previous labor laws (e.g., the Factory Act) did not have any provisions for penalties for violations, violations of the LSL are liable to fines and prison sentences.

Moreover, the LSL has a much broader coverage then previous labor laws. For example, while the Factory Act only covers manufactory firms with 30 or more employees, the LSL covers employees in manufacturing and some other sectors, regardless of the number of employees in the establishments.[8] The industries covered by the LSL include: (1) agriculture, forestry, fishing and animal husbandry; (2) mining and quarrying; (3) manufacturing; (4) electricity, gas and water; (5) con-

[7]See Lai and Master (2005) for an analysis of the adverse effects of the LSL's maternity and pregnancy benefit provisions on women's employment and wages in Taiwan.

[8]As of 1984, when the Factory Act was replaced by the LSL, only 30% of all non-farm workers were covered by the Factory Act. The scope of the LSL was extended further to cover employees in the service sector in 1996. However, even though firms employing less than 30 employees is also covered by the LSL, without the requirement for the posting of work rules, the compliance of these smaller firms with the LSL is difficult to monitor.

struction; (6) transportation, storage and communication; and (7) mass media. The industries not covered by the LSL belong to the service sector: (1) commerce; (2) finance, insurance and real estate; (3) business services; (4) social, personal and related community services; and (5) public administration.

The enactment of the LSL has led to a substantial increase in the costs of firing an employee in several dimensions. Firstly, employers have to give an advance notice before dismissing an employee. How far in advance a notice has to be issued in order to dismiss an employee depends on the type of contracts and the length of service of the employee. For example, for an employee working under a non-fixed-term contract and having worked for more than three years, a 30-day advance notice has to be given in order for the employer to dismiss the employee. Secondly, the LSL imposes a higher severance pay than previous labor laws. Although the Factory Act also stipulated severance pay for dismissed employees, it did not specify the amount and it allowed an employer to set its own severance pay as part of the work rules.[9] Under the LSL a dismissed employee is entitled to one month's wage for each year of service for the whole length of the tenure.

Moreover, the LSL raises an employer's costs of firing an employee by ruling out the possibility for an employee to be fired at will. Unjust firing is prohibited even with advance notices. Under the LSL an employer can dismiss an employee only if the business is closing down, suspended for more than one month, suffering from a loss, or when the employee is not able to perform the duties satisfactorily.

Since the LSL imposes substantial extra labor costs to employers, they have

[9]The Factory Act required employers employing more than 30 workers to post work rules.

tried to evade it or adopted a wait-and-see strategy (see Chiu, 1993). The poor enforcement of the LSL has also contributed to the low compliance rate of the LSL in the early years of its implementations. During the first three years of the LSL's enactment the Department of Labor of the Ministry of Interior was in charge of the enforcement of the LSL. However, inspection and prosecution were carried out by a multitude of local labor agencies belonging to the Taiwan Provincial Government, the Taipei and Kaohsiung municipalities, and the Ministry of Economic Affairs. (See Council of Labor Affairs, 1988, for a chronicle of labor inspection in Taiwan.) However, neither the Ministry of Interior's Department of Labor nor the Taiwan Provincial Government's local labor agencies took the LSL seriously. As such the LSL was poorly enforced and employers' compliance was skimpy.[10] In contrast to employers' lackluster compliance, employees believed they had the rights stipulated by the LSL. This had led to a rise in labor-management confrontation and disputes. During this period labor inspection mainly aimed at medium to large establishments.

Council of Labor Affairs

In response to mounting social discontent and pressure from the U.S. to improve labor rights, the Taiwan's government attempted to step up the LSL's enforcement

[10]The Factory Act was similarly enforced. The poor enforcement of the LSL and the Factory Act is attributable to the fact that the Ministry of the Interior, which was a weak ministry in the 80s, when national security and economic growth were the utmost concerns of Taiwan's government. Even though the Ministry of Interior was relatively more sympathetic to labor's right, it is ineffective in the enforcement of the LSL. Moreover, local labor agencies were prevented from seriously carrying out inspection and prosecution because of interference from local politicians, shortage of workforce, and poor training of inspectors.

by setting up the Council of Labor Affairs (CLA) on August 1, 1987. The CLA is a government agency at the near-ministry level. It took charge of labor inspection. However, due to insufficient workforce, its labor inspection emphasized on establishments with 100 or more employees. It is reported by the CLA that during the first 17 months of the CLA's operation, the CLA has inspected 3.2% of these establishments, accounting for 38.3% of the LSL covered workers. Almost half of these inspected establishments were either fined (43.6%) or sent to court (5.5%).[11] [12]

In addition, the CLA was responsible for providing guidelines and consultation for local labor agencies, which were responsible for inspecting smaller establishments (i.e., with less than 100 employees). In 1989, about 6960 (accounting for 4.28% of establishments employing less than 100 employees and covered by the LSL) businesses were inspected. Among theses inspected 17% were either fined or sent to court. Comparing the inspection results of the central labor agency (i.e., the CLA) and the local ones, we see that the violation rates found by the local agencies were lower. This can be attributed to poor coordination among local agencies, insufficient training, interference by local business, who lobbied against inspection and penalties, and a lack of cooperation from justice agencies (see Chiu, 1993). This suggests that the local labor agencies are less effective in performing their duties.

[11]The cited figures are from Chiu (1993).

[12]The mandatory penalty for an employer in violation of the LSL is NT$30,000 at most.

Labor Inspection Law

To remedy the ineffective inspection of local labor agencies, the CLA drafted a Labor Inspection Law (LIL), which was promulgated on February 3, 1993. The LIL provides labor inspection a legal basis and established a central inspection system. Under the LIL, all inspection agencies are under the jurisdiction of the CLA. This gives the CLA the authority to supervise inspection agents and avoids interferences from local businesses.

In addition, labor inspection agencies' jurisdiction has been much expanded under the LIL. For example, labor agencies are empowered by the LIL to search a business entity for evidence of violations of the LSL, and they may request a business entity to supply the necessary information for the purpose of labor inspection. The workforce for labor inspection has been improved with the implementation of the LIL, too. While the number of inspectors has not been increased, labor inspectors are stipulated by the LIL to receive pre-employment and on-the-job training. Moreover, the LIL stipulates the setting up of an independent labor court, which handles cases involving LSL violations and labor-management disputes.

With the enactment of the LIL, the enforcement of the LSL is vastly improved. However, with a total of 193,324 establishments (as of 1994, reported by Council of Labor Affairs, 1995) covered by the LSL, the workforce of 221 labor inspectors was sheerly insufficient to ensure the compliance of LSL. Because of insufficient workforce, much of the labor inspection effort was devoted to the inspection of medium-sized to large business entities, which have 100 or more employees (See

Council of Labor Affairs, 1995).

The above narration of the evolution of labor protection institutions in Taiwan reveals that the enactment of its LSL represented a reform in labor protection, as was claimed by Chiu (1993). Nevertheless, initially the enforcement of the LSL was poor. This is especially true for businesses with less than 30 employees since they are not required to post work rules, such that monitoring of LSL compliance is more difficult. With the subsequent implementation of enforcement measures (i.e., the setting up of the CLA in 1987 and the enactment of the LIL in 1993), the enforcement of the LSL has been improved. However, due to insufficient inspection workforce, LSL's enforcement intensity was still low for employers with fewer employees (i.e., those employing less than 100 employees).

3.4 Data and Sample

3.4.1 Employees' Earnings Survey

Our empirical analysis is based on a sequence of monthly cross-sections of firms from the 1983–1995 Employees' Earnings Survey (EES).[13] The EES is a firm-level survey conducted monthly by Taiwan's *Directorate-General of Budget, Accounting,*

[13]An establishment is surveyed 12 times. However, for confidentiality reasons, we are not able identify a given establishment across different surveys. Data prior to the 1983 surveys are not available because they are not digitalized. The reasons why we do not use data beyond those pertaining to 1995 surveys is that there is a change in the LSL in 1996 such that all industries are covered by the LSL.

and Statistics since 1972.

The survey collects information on an establishment's number of employees, average work hours and employee turnover. The EES samples consist of both private establishments and government-owned enterprises, which belong to the following industries: (a) mining and quarrying; (b) manufacturing; (c) electricity, gas and water; (d) construction; (e) retail and wholesale; (f) hotels and restaurants; (g) transport, storage and communication; (h) finance, insurance and real estate; and (i) business, social and personal services. Excluded from the survey are consumers cooperatives, workshops in charitable organizations and schools, and factories belonging to Taiwan's Ministry of National Defense.

Sample Design

The targeted sample size for each survey is 8,000. All government-owned enterprises are surveyed, and data collection is by means of on-site enumeration. For the rest of the establishments, a random sample is surveyed by mail.[14] The sampling of these establishments are by means of a stratified random sampling approach, with stratification by an establishment's number of employees. The EES uses the Dalenius-Hodges method to determine the boundaries of the strata.[15] The Neyman allocation is used to determine the sample size in each stratum.

Sampling Frame

[14]Starting from 1999, a web-based system is adopted for reporting by the sampled establishments.

[15]The finding of the cut-off points is by means of minimizing the sum of the products of the relative stratum size and the within stratum standard deviation. See Cochran (1977) for details.

The sampling frame of the EES comes from the *Industry, Commerce and Service Census*, which is also conducted by the *Directorate-General of Budget, Accounting, and Statistics*.

Sample Selection

The 1983–1995 EES raw data consists 1,286,324 observations. The following describes our sample selection.

1. A total of 1,215 observations pertaining to establishments without employees are deleted.
2. We delete 51,977 observations coming from establishments belonging to public-enterprises.
3. We delete 143,061 observations which pertains to the three months before and after the implementation of each LSL-related policy. This is to allow an adjustment period for labor turnover to stabilize after the implementation of a labor protection policy.
4. In addition, we delete an observations when `WFLOW`, `JREALLOC`, or `CFLOW` exceeds 100%. There are 1,466 such observations.

After the above sample selection, our sample consists 1,088,605 observations.

3.4.2 Definition of Variables of Interest

The purpose of the current chapter is to identify the effect of Taiwan's LSL and the subsequent enhancement in its enforcement on the rates of worker flows (denoted by `WFLOW`), job reallocation (denoted by `JREALLOC`), and churning flows (denoted by `CFLOW`).

These terms are defined as follows (see Davis and Haltiwanger, 1992; and Burgess, Lane, and Stevens, 2000). Worker flows measures all movements of workers (i.e.,

separation and hiring) of an establishment. It is equal to the summation of the number of workers who was hired and separated from establishment i at time t. To derive the rate of worker flows, we divide an establishment's worker flows by the average number of employees in period t, i.e.,

$$\texttt{WFLOW}_{it} = \frac{\texttt{HIRE}_{it} + \texttt{SEPARATE}_{it}}{\texttt{EMP}_{it-1}} \times 100, \tag{3.1}$$

where $\texttt{HIRE}_{it}$ and $\texttt{SEPARATE}_{it}$, respectively, denote total hiring and separation during period t, and $\texttt{EMP}_{it-1}$ equals the number of employees at the end of period $t-1$. The variation in worker reallocation arises from two sources. The first is due to a firm's creation and destruction of job positions as it expands or contracts, leading to changes in the level of employment. These changes of job positions are called gross job reallocation or job turnover. The second source of turnover is a result of worker movements in a given job position. These movements may either arise from worker-initiated quit or from firm-initiated firing. Arising from poor job matches, they have no effects on the level of a firm's employment positions.

Job reallocation refers to the absolute value of the change in employment, which is equivalent to the gross changes of job creation and job destruction. The rate of job reallocation is derived by dividing job reallocation during period t by the employment level at the end of period $t-1$. That is,

$$\begin{aligned} \texttt{JREALLOC}_{it} &= \frac{|\,\texttt{EMP}_{it} - \texttt{EMP}_{it-1}|}{\texttt{EMP}_{it-1}} \times 100, \\ &= \frac{|\,\texttt{JC}_{it} - \texttt{JD}_{it}|}{\texttt{EMP}_{it-1}} \times 100, \\ &= \frac{|\,\texttt{HIRE}_{it} - \texttt{SEPARATE}_{it}|}{\texttt{EMP}_{it-1}} \times 100, \end{aligned} \tag{3.2}$$

where $\texttt{JC}_{it}$ and $\texttt{JD}_{it}$, respectively, stands for the number of jobs created and destruc-

ted during period t. It is obvious from (3.2) that $\texttt{WFLOW}_{it}$ must be greater or equal to $\texttt{JREALLOC}_{it}$.

Churning flow is defined as worker flows in excess of job flows. The rate of churning flows is computed as

$$\texttt{CFLOW}_{it} = \texttt{WFLOW}_{it} - \texttt{JREALLOC}_{it}. \tag{3.3}$$

It represents the difference between the rates of worker flows and job reallocation. Since JREALLOC can be interpreted as the minimum level of worker turnover in order to accomplish a change in the number of employment positions, churning flows can be considered the *excess* job reallocation. Churning may arise from (a) separations initial by an employee in order to take up or look for better jobs and this employee is replaced, or (b) employer initiated replacements of employees. Both types of churnings are motivated by non-optimal job matches or firms' non-optimal skill mix, and churnings represent an improvement to job matches or reconfiguration of a firm's skill mix. According to Burgess, Lane and Stevens (2000), churning flows in the U.S. are highly persistent over time, such that they can be regarded as an equilibrium phenomenon. They argue that because churning flows are highly persistent, they reflect a particular set of personnel policy.

Table 3.3 displays a summary of the worker/job turnover rates of the LSL-covered and non-LSL-covered industries. According to Table 3.3, during the pre-LSL period the rates of worker flows (denoted by WFLOW) for small (i.e., with 1–29 employees) establishments belonging to the LSL-covered industries, i.e., 5.36%, is slightly lower than the corresponding figures pertaining to the medium-sized and large establishments, i.e., 6.82% and 6.84%, respectively. However, for the non-LSL-covered

industries, the small establishments' rate of worker flows, ie., 5.08%, is much larger than those corresponding to medium-sized and large establishments, i.e., 3.39% and 2.22%, respectively.

The variation in the job reallocation rate (denoted by `JREALLOC`) across establishments of difference size in the pre-LSL period exhibits a different pattern than the rate of worker flows. In the pre-LSL period, the job reallocation rate of medium-sized establishments in the LSL-covered industries, i.e., 4.29%, is larger than the corresponding figures for small and large establishments, i.e., 4.05% and 3.20%, respectively. For industries not covered by the LSL, the variation in the rate of job reallocation across establishment size exhibits a similar pattern as their counterparts for the LSL-covered industries.

In the pre-LSL period, the rate of churning flows (denoted by `CFLOW`) increases with establishment size for the group of industries covered by the LSL, i.e., 1.31%, 2.54%, and 3.64%, respectively, for the small, medium-sized and large establishments. By contrast, the rate of churning flows for industries not covered by the LSL manifests a non-monotonic pattern across establishments of difference size, i.e., medium-sized and large establishments' rate of churning flows is lower (1.10%), small establishments' is higher (1.49%).

The above discussion of the work/job turnover rates across establishments size during the pre-LSL period suggests that different worker/job turnover rates may vary with establishments in a different ways. Some may increase with establishment size, while others may decrease. Some turnover rates may have a non-monotonic relationship with establishment size. The relationship may also vary between indus-

tries covered or not covered by the LSL.

We next examine of the rates of worker flows, job reallocation, and churning flows across different periods in Table 3.3. For small establishments covered by the LSL, the worker/job turnover rates increase slightly with the enactment of the LSL and the setting up of the CLA, and decline when the LIL was enacted for establishments belonging to the LSL-covered industries, except the rate of churning flows.

For medium-sized establishments belonging to industries covered by the LSL, the worker flows rate increases with the enactment of the LSL in August 1984 and declines after the setting up of the CLA in August 1987. The job reallocation rate have a similar pattern as its smaller counterparts, i.e., it increases during the LSL and CLA periods (i.e., August 1984–July 1987, and August 1987–February 1993), and then decrease after the LIL was enacted. The rate of churning flows starts to decline after the setting up of the LSL.

The worker flows rate of large establishments exhibit a different pattern than its medium-sized and small counterparts. The rate worker flows for large establishments in the LSL-covered industries decrease after the enacment of the LSL. While the rates of job reallocation and churning flows have a similar pattern as their medium-sized and small counterparts, i.e., the job reallocation rate increases during the LSL and CLA periods (i.e., August 1984–July 1987, and August 1987–February 1993), and then decrease after the LIL was enacted; the rate of churning flows starts to decline after the setting up of the LSL.

It is noted that the turnover rates reported in Table 3.3 are comparable with those

pertaining to the U.S. state of Maryland (computed based on quarterly data) reported by Burgess, Lane, and Stevens (2000). For example, the mean rates of worker flows, job reallocation, and churning flows for manufacturing establishments are 19.4%, 7.4%, and 12.1%, respectively, while those pertaining to non-manufacturing establishments are 32.3%, 9.5%, and 22.8%, respectively.[16] Our rates of worker flows are much higher than Denmark's annual rate of worker flows of 23.5% during the period 1980–1991 (see Albæk and Sørensen, 1998).[17] Our job reallocation rate is also higher than some south American countries'. For example, as reported by Haltiwanger *et. al.* (2004), Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay during the 1980s and 1990s have an annual job reallocation rate of 21.5%, 14.1%, 32.1%, 23.8%, 19.8%, 27.9%, 13.8%, respectively.[18]

For an exploratory investigation into the effects of Taiwan's LSL and its enforcement measures on worker/job turnover rates, we compare the differences in these turnover rates between LSL-covered industries and non-LSL-covered industries, as shown in Figures 3.1–3.12. The relative worker/job turnover rates are also reported in Table 3.4. Figures 3.1–3.3 show the changes of worker flows rate in three establishment sizes for LSL-covered (the thick line) and non-LSL-covered (the

[16]If we convert our monthly turnover rates into quarterly ones, in the pre-LSL period, establishments belonging to the LSL-covered industries have the rates of worker flows of 16.08% 20.46% 20.52% (for small, medium and large establishments), the rate of job reallocation of 12.15%, 12.87%, and 9.60%, and rates of churning flows of 3.93% 7.62% 10.92%.

[17]If we convert our large establishments' monthly rates of work flows into annual ones, they will become 82.08% and 26.64% (i.e., LSL-covered and non-LSL-covered) during the pre-LSL period, 81.96% and 26.40% during the LSL-period, 81.36% and 39.60% during the CLA-period, and 63.96% and 52.20% during the LIL-period.

[18]Our annualized job reallocation rates are 45.72%, 47.76%, 49.08%, and 42.84%, respectively, during the four periods for the LSL-covered establishments; and 36.36%, 29.64%, 29.76%, and 32.88%, respectively, during the four periods for the non-LSL-covered establishments.

thin line) industries. Figure 3.4 shows the difference between LSL-covered and non-LSL-covered industries' average rate of worker flows. For small establishments, the difference rises steadily and then declines (see the dotted line in the figure). For medium-sized and large establishments, their relative rates of work flows decline over time (see the solid and bold lines). Figures 3.5–3.7 show the changes of job reallocation rate in three establishment sizes for LSL-covered (the thick line) and non-LSL-covered (the thin line) industries. Figure 3.8 demonstrates the relative rate of job reallocation. The trend in small, medium-sized and large establishments' relative rates of job reallocation are similar to those of the rate of worker flows. The changes of churning flows rate in three establishment sizes for LSL-covered (the thick line) and non-LSL-covered (the thin line) industries are showed in Figures 3.9–3.11. The time-series variation of small establishments' relative rate of churning flows, as displayed by the dotted line in Figure 3.12, suggests that it rises after the enactment of the LSL and started to level off after the setting up of the CLA. This implies that the enactment of the LSL has little harmful effect on small establishments' employment adjustments. However, there are signs that small establishments' employment adjustments are impeded by the LSL's subsequent enforcement measures, i.e., the setting up of the CLA and and the enactment of the LIL. In Figure 3.12, the trends in the relative worker/job turnover rates for medium-sized and large establishments are similar with Figures 3.4 and 3.8, and these trends exhibit a different pattern than those of the small establishments'. (See the solid line and the bold line, which denote the medium-sized establishment's and large establishments' relative turnover rates, respectively.) For both medium-sized and large establishments, the three turnover rates either stay steady or increase very slightly after the enactment of the LSL.

They start to have a declining trajectory after the setting up of the CLA.

Our discussion of the time-series variation in the rates of worker flows, job reallocation and churning flows demonstrates that initially the enactment of the LSL does not constitute an impediment to employment adjustment by the LSL-covered establishments. However, after the setting up of the CLA and the enactment of the LIL, medium-sized and large establishments' turnover rates decline, revealing that the LSL enforcement measures inhibit employment adjustments by medium-sized and large establishments. The relative worker/job turnover rates of small establishments continue to grow over time, alluding to an absence of a negative effect of LSL and its enforcement measures on labor adjustments by firms.

3.5 Empirical Strategy and Results

To investigate the effects of the LSL and its subsequent enforcement measures on labor market dynamics, as measured by worker flows, job reallocation, and churning flows, we use the difference-in-different-in-difference approach. Our empirical strategy exploits the (a) sectoral difference in the coverage of EPL (i.e., Taiwan's LSL covered only some industries, which belong to the primary and secondary sectors of industry, and establishments in some industries, which mostly belong to the tertiary sector of industry, are not covered by the LSL and are used as the control group), (b) changes in the strength in employment protection over time (i.e., the enactment of LSL in August 1984, the setting up of CLA in August 1987, and the enactment

of LIL in February 1993), and (c) differences in the LSL enforcement intensity for LSL-covered establishments of difference sizes.[19]

Accordingly, our empirical model is specified as follows.

$$
\begin{aligned}
\texttt{FLOW}_{fit} \;=\;& \beta_{f1} \times \texttt{LSL}_{it} + \beta_{f2} \times \texttt{CLA}_{it} + \beta_{f3} \times \texttt{LIL}_{it} + \beta_{f4} \times \texttt{COVERED}_{it} \\
&+\beta_{f5} \times \texttt{SIZE30}_{it} + \beta_{f6} \times \texttt{SIZE100}_{it} \\
&+\beta_{f7} \times \texttt{SIZE30}_{it} \times \texttt{COVERED}_{it} + \beta_{f8} \times \texttt{SIZE100}_{it} \times \texttt{COVERED}_{it} \\
&+\beta_{f9} \times \texttt{LSL}_{it} \times \texttt{SIZE30}_{it} + \beta_{f10} \times \texttt{CLA}_{it} \times \texttt{SIZE30}_{it} \\
&+\beta_{f11} \times \texttt{LIL}_{it} \times \texttt{SIZE30}_{it} + \beta_{f12} \times \texttt{LSL}_{it} \times \texttt{SIZE100}_{it} \\
&+\beta_{f13} \times \texttt{CLA}_{it} \times \texttt{SIZE100}_{it} + \beta_{f14} \times \texttt{LIL}_{it} \times \texttt{SIZE100}_{it} \\
&+\beta_{f15} \times \texttt{LSL}_{it} \times \texttt{COVERED}_{it} \\
&+\beta_{f16} \times \texttt{CLA}_{it} \times \texttt{COVERED}_{it} \\
&+\beta_{f17} \times \texttt{LIL}_{it} \times \texttt{COVERED}_{it} \\
&+\beta_{f18} \times \texttt{LSL}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE30}_{it} \\
&+\beta_{f19} \times \texttt{CLA}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE30}_{it} \\
&+\beta_{f20} \times \texttt{LIL}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE30}_{it} \\
&+\beta_{f21} \times \texttt{LSL}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE100}_{it} \\
&+\beta_{f22} \times \texttt{CLA}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE100}_{it} \\
&+\beta_{f23} \times \texttt{LIL}_{it} \times \texttt{COVERED}_{it} \times \texttt{SIZE100}_{it} \\
&+\boldsymbol{\beta}_{f0} \boldsymbol{x}_{it} + \epsilon_{it}, \qquad (3.4)
\end{aligned}
$$

where $\texttt{FLOW}_{fit}$ represents $\texttt{WFLOW}_{it}$ (for $f = 1$), $\texttt{JREALLOC}_{it}$ (for $f = 2$), and $\texttt{CFLOW}_{it}$ (for $f = 3$), respectively, for establishment i in period t, $\texttt{COVERED}_{it}$ is an indicator of whether or not an establishment is in an industry covered by the LSL; $\texttt{LSL}_{it}$ is an LSL indicator, which equals one, for the period August 1984–July 1987 (i.e, after the enactment of LSL and before the setting up of CLA); $\texttt{CLA}_{it}$ is a CLA indicator,

[19]Smaller establishments' LSL compliance was loosely enforced. As mentioned in Section 3.3, LSL requires work rules to be posted by establishments with more than 30 employees and labor inspection mainly emphasizes establishments with more than 100 employees.

which equals one for the period August 1988–January 1993 (i.e., after the setting up of CLA and before the enactment of the LIL); $\texttt{LIL}_{it}$ is a post-LIL indicator, which equals one for periods after February 1993 (i.e., after the enactment of the LIL); $\boldsymbol{x}_{it}$ is a vector of control variables; and ϵ_{it} is a residual term. All the β's are parameters to be estimated. Detailed definitions of variables used in our empirical analysis are listed in Table 3.1.

It is noted that the vector of control variables $\boldsymbol{x}_{it}$ consists of (a) industry specific GDP growth rates, which are interacted with a set of industry dummies; (b) industry specific average monthly wages, which are interacted with a set of industry dummies; (c) a polynomial (up to the fourth order) of establishment size; (d) a polynomial (up to the fourth order) of time trend; (e) interaction between dummies {SIZE30,SIZE100} and establishment size; (f) interaction between dummies {SIZE30,SIZE100} and time trend; (g) sector dummies; (h) the interaction between a sector dummy indicating LSL-covered industries {COVERED} and establishment size; and (i) a set of eleven month dummies.[20]

The use of industry specific GDP growth rates and average monthly wages as regressors in (3.4) is to account for the fact that different industries grow at different rates and an industry's growth rates and wages may affect its labor turnover. Moreover, the use of industry specific GDP growth rates as regressor may also mitigate the effects of possible policy endogeneity. An economic policy, which have adverse effect on either the whole population or a segment of it, is likely to be introduced in time of good economic conditions in order to soften its impact and reduce political

[20]Qualitatively the estimation results and our conclusion remain the same as we increase or decrease the order of the establishment size polynomial.

costs. If it is the case that the timing of Taiwan's LSL-related policies are related to the business cycle, and different industries react to the business cycle differently, then the estimated effects of LSL and its enforcement measures will be spurious without controlling for the effects of business cycle.

In (3.4) we allows time and establishment size to have smooth effects on labor turnover. With smooth effects of time and establishment size allowed, the effects of LSL and its subsequent enforcement measures are identified by the discontinuity surrounding the timing of the introduction of LSL and its enforcement measures and the firm size cutoffs of 30 and 100. Our identification strategy is similar to that of Autor, Kerr, and Kugler (2007).

3.5.1 Baseline Estimation

The estimation of the parameters in (3.4) is by means of ordinary least squares. Our inference relies on cluster-robust standard errors, which account for within-group (i.e., industry) serial correlation of the error term ϵ_{it}.[21] Our parameters of interest are $\left\{\beta_{f15}, \beta_{f16}, \beta_{f17}, \beta_{f18}, \beta_{f19}, \beta_{f20}, \beta_{f21}, \beta_{f22}, \beta_{f23}\right\}$, which are the difference-in-differences of the labor turnover rates for the LSL-covered vs. non-LSL-covered establishments. We also compute estimates of difference-in-difference-in-differences, which pertain to the relative effects of different LSL-related policies and the relative effect of each LSL-related policy on establishments of different sizes, based

[21] According to Bertrand, Duflo and Mullainathan (2004), the cluster-robust standard errors perform well. The cluster-robust standard errors are produced by using the cluster command in STATA, with the industries as the clusters. There are 25 industries in our sample.

on differences among these parameters. The estimation results are reported in Table 3.5–3.8.[22]

The parameters $\left\{\beta_{f15}, \beta_{f16}, \beta_{f17}\right\}$, whose estimates are reported in Table 3.5, represent the effects of LSL and the subsequent enforcement measures on the worker/job turnover rates during the periods August 1984–July 1987 (i.e., after the LSL was enacted, but prior to CLA's establishment), August 1987–January 1993 (i.e., after the CLA was set up, but prior to the enactment of the LIL) and February 1993–December 1995 (i.e., after the enactment of the LIL, until the end of our sample period), respectively, for establishments with less than 30 employees.[23] It is expected that all three parameters are negative. However, contrary to our conjecture, the estimates of β_{f15}, β_{f16}, and β_{f17} for the rates of worker flows and job reallocation are positive and statistically significant in the post-LSL period. The parameter estimates $\left\{\widehat{\beta}_{f15}, \widehat{\beta}_{f16}, \widehat{\beta}_{f17}\right\}$ for worker flows, job reallocation and churning flows, respectively, are $\{0.32,\ 0.39,\ 0.74\}$ and $\{0.39,\ 0.60,\ 0.54\}$, and $\{-0.08,\ -0.22,\ 0.20\}$. These estimation results suggest that the rates of worker and job reallocation in the post-LSL period are significantly higher than that in the pre-LSL period.

The difference-in-difference-in-difference estimates, i.e., $\widehat{\beta}_{f16} - \widehat{\beta}_{f15}$ for the three turnover rates, suggest that the setting up of the CLA in 1987 did not hamper or encourage small establishments' rates of worker/job turnover. As reported in Table 3.5, the difference between β_{f16} and β_{f15} is 0.06, 0.21 and -0.16, respectively,

[22]The R^2's are 0.032, 0.024, and 0.041, respectively, for the regressions for worker flows, job reallocation, and churning flows. The full set of parameter estimates are reported in Tables 3.9–3.11, except β_{f15} to β_{f23}.

[23]In the discussion below we refer to the three periods as the LSL, CLA, and LIL periods, while the period before the enactment of the LSL as the pre-LSL period.

for the rates of worker flows, job reallocation, and churning flows; and the test of the hypothesis $\mathrm{H}_o : \beta_{f16} - \beta_{f15} = 0$ yields an F-statistic of 0.03, 0.66, and 1.32, indicating statistical insignificance of the differences.

The differences in parameter estimates $\widehat{\beta}_{f17} - \widehat{\beta}_{f16}$ indicate the enforcement effect of the LIL on worker/job turnover rates of small establishments. According to our estimation results in Table 3.5, they are 0.35, -0.06, and 0.42. The test of the hypothesis $\mathrm{H}_o : \beta_{f17} - \beta_{f16} = 0$ yields F-statistics of 3.66, 0.23, and 30.65, respectively, for the rates of worker flows, job reallocation and churning flow. These F-statistics indicate that the difference $\widehat{\beta}_{f17} - \widehat{\beta}_{f16}$ is statistically insignificant for job reallocation rates at conventional levels. These results suggest that the enactment of the LIL has positive effect on small establishments' rates of worker and churning flows.

The difference-in-difference estimates (i.e., $\left\{\widehat{\beta}_{f15}, \widehat{\beta}_{f16}, \widehat{\beta}_{f17}\right\}$) and the difference-in-difference-in-difference estimates (i.e., $\widehat{\beta}_{f16} - \widehat{\beta}_{f15}$ and $\widehat{\beta}_{f17} - \widehat{\beta}_{f16}$), as discussed above, reveal that the LSL and it enforcement measures did not have any negative effects on the nimbleness of small establishments' employment adjustments. They are likely to arise from the fact that Taiwan's LSL did not require work rules to be posted for small establishments and small establishments' compliance of the LSL was not effectively enforced.

The difference-in-difference estimates $\left\{\widehat{\beta}_{f18}, \widehat{\beta}_{f19}, \widehat{\beta}_{f20}\right\}$ depict the worker/job turnover rates of medium-sized (with 30–99 employees) establishments relative to their non-LSL-covered counterparts during the LSL, CLA, and LIL periods, respectively. According to Table 3.6, the rates of worker flows, job reallocation, and

churning flows for the LSL-covered medium-sized establishment relative to their non-covered counterparts decreases by {0.61%, 2.40%, 3.44%}, {0.41%, 1.39%, 1.49%}, and {0.19%, 1.01%, 1.95%}, respectively, during the LSL, CLA, and LIL periods relative to that in the pre-LSL period. These difference-in-difference estimates are all statistically significant for the three worker/job turnover rates at the 10% level. They are also significant in magnitude relative to the overall mean of the three rates reported in Table 3.2. These estimation results imply that the Labor standards Law has a discernible dampening effect on the rates of worker/job turnover for medium-sized establishments.

To investigate whether or not the enforcement measures of the LSL has additional negative effects on worker/job turnover rates, we examine the difference-in-difference-in-difference $\widehat{\beta}_{f19} - \widehat{\beta}_{f18}$. With the difference-in-difference-in-difference estimates being negative and statistically significant at conventional levels for worker flows (i.e., $\widehat{\beta}_{f19} - \widehat{\beta}_{f18} = -1.79$), job reallocation (i.e., $\widehat{\beta}_{f19} - \widehat{\beta}_{f18} = -0.98$), and churning flows (i.e., $\widehat{\beta}_{f19} - \widehat{\beta}_{f18} = -0.82$), our empirical results indicate that the CLA's establishment had further reduced medium-sized establishments' worker/job turnover rates.

Furthermore, the estimates of the difference-in-difference-in-difference $\widehat{\beta}_{f20} - \widehat{\beta}_{f19}$ are negative for all three turnover rates.[24] This implies that the LIL's enactment further reduce the rates of labor turnover for medium-sized establishments in Taiwan. Except for the rate of job reallocation, for which $\widehat{\beta}_{f20} - \widehat{\beta}_{f19}$ is statistically insignificant, the magnitude of LIL's impacts is not negligible relative to the sample

[24]They are statistically significant for the rates of worker flows and churning flows only.

mean of the rates of worker flows and churning flows.

The difference-in-difference estimators $\left\{\beta_{f21}, \beta_{f22}, \beta_{f23}\right\}$ pertain to the worker/job turnover rates of the large establishments (i.e., 100 or more employees), relative to their counterparts not covered by the LSL, during the LSL, CLA, and LIL periods. The parameter estimates reported in Table 3.7 suggest that the reductions in turnover rates during the LSL, CLA, and LIL periods are not small relative to the sample mean of the three turnover rates.[25] The estimates of these three parameters are statistically significant for all three worker/job turnover rates, connoting a negative impact of Taiwan's Labor Standards Law on the employment adjustments of large establishments.

To investigate the relative impacts of the LSL, CLA and LIL, we analyze the differences in the estimates of these three parameters and report the results in Table 3.7. We first look at the difference in the estimates $\widehat{\beta}_{f22} - \widehat{\beta}_{f21}$, which is the difference-in-difference-in-difference estimate of the relative effect of CLA. With $\widehat{\beta}_{f22} - \widehat{\beta}_{f21}$ being negative for all three turnover rates, we infer that the setting up of the CLA has further stifled labor adjustments of large establishments in Taiwan. A test of the hypothesis $\mathrm{H}_o : \beta_{f22} - \beta_{f21} = 0$ yields F-statistics of 10.19, 4.66, and 5.67 for the rates of worker flows, job reallocation and churning flows, respectively. With the p-values below 0.05, the difference-in-difference-in-difference estimates suggest that the negative impacts of CLA on labor turnover are statistically significant.

The difference $\beta_{f23} - \beta_{f22}$ represents the effect of the enactment of the LIL,

[25]The largest is the LIL's impact on the rate of worker flows (i.e., -3.98%) and the smallest is LSL's impact on the rate of churning flows (i.e., -0.43%).

relative to the period when the CLA was in operation, on large establishments' turnover rates. The estimates of this difference are negative for all three turnover rates. The estimation results suggest that the impacts of LIL (relative to the period when the CLA had been set up but prior to the enactment of the LIL) on the rates of worker flows, job reallocation, and churning flows are -1.61%, -0.01%, and -1.61%. The F-statistics imply that the p-values of these difference-in-difference-in-difference are below 0.01 for the rates of worker flows and churning flows. These results support our *a priori* conjecture that the LIL's enactment further deadened large establishment's labor adjustments.

To further investigate the effect of the introduction of Labor Standards Law in Taiwan, we rely on the estimates of difference-in-difference-in-differences by comparing the impacts of Taiwan's Labor Standards law on establishments of different sizes and report the results in Table 3.8. We first examine establishments employing 30–99 employees relative to those employing less than 30 employees by inspecting the differences in parameter estimates $\beta_{f18} - \beta_{f15}$ (during the LSL period), $\beta_{f19} - \beta_{f16}$ (during the CLA period), and $\beta_{f20} - \beta_{f17}$ (during the LIL period). They represent the impacts of the LSL, CLA, and LIL on the worker/job turnover rates for medium-sized establishments relative to those for small establishments. Since the LSL's provisions and enforcement are more stringent for medium-sized establishments than small ones, it is expected that these differences in parameters are negative for the rates of worker/job turnover.

As reported in Table 3.8, these differences are $\{-0.93, -2.79, -4.18\}$ for the rate of worker flows; $\{-0.80, -1.99, -2.03\}$ for the rate of job reallocation; and

$\{-0.11, -0.79, -2.15\}$ for the rate of churning flows. The F-statistics imply that all these difference-in-difference-in-difference estimates are statistically significant at the 1% level. This suggests that the negative impacts of the LSL, CLA, and LIL are greater for medium-sized establishments than their smaller counterparts. Overall, these results lend support to our conjecture, i.e., the Labor Standards Law and their subsequent enforcement measures do have greater negative impacts on worker/job turnover rates for medium-sized establishments than for small establishments.

Higher priority of the enforcement of the LSL is placed on larger establishments (i.e., with 100 or more employees) such that the LSL, CLA, and LIL are expected to pose a greater impediment to the worker/job turnover rates for this kind of establishments than their medium-sized counterparts. We confront this conjecture with empirical evidence by examining the estimates of the following difference-in-difference-in-difference: $\beta_{f21} - \beta_{f18}$, $\beta_{f22} - \beta_{f19}$, and $\beta_{f23} - \beta_{f20}$, which pertain to the difference in the LSL, CLA and LIL's worker/job flows impact for larger establishments relative to the medium-sized ones.

It turns out that the difference-in-difference-in-difference estimates are almost all negative. However, comparing with the difference-in-difference estimates reported in Tables 3.6–3.7 the magnitude of these estimates is not quantitatively important except for those pertaining to LSL's relative effects. The F-statistics of these difference-in-difference-in-difference estimates imply that the relative impact of LSL on the rates of worker flows, job reallocation, and churning flows are all statistically significant; the relative impact of CLA on these rates are all statistically insignificant; and the relative impact of LIL are statistically significant for the rate of

churning flows only.[26] Our conjecture is partially supported by empirical evidence. The impact of employment protection on the labor turnover rates on large establishments relative to their medium-sized ones is the largest during the LSL period. It is relatively small and statistically insiginficant during the CLA period, and become stronger and more statistically significant during the LIL period.

3.5.2 Accounting for LSL's Effect on Firm Size

The identification of the effects of LSL and its subsequent enforcement measures in (3.4) requires that establishment size is exogenous. However, it is possible that firms will have incentive to reduce their number of employees in order to minimize the burden imposed by the LSL, implying an increase in the rate of separation. This is espeically so for firms whose number of employees was only slightly above 30 or 100 before the LSL and the introduction of the enforcement measures. Moreover, for firms having no employees (e.g., the self-employed), or having slightly less than 30 or 100 employees, they may be discouraged from expanding their number of employees. Thus, the association between the degree of enforcement of the LSL and firm size may generate a correlation between the rates of labor turnover for firms with the number of employees in the neighborhood of 1, 30 and 100. This renders firm size an invalid running variable.

To account for this, one may adopt an instrumental variable approach. This requires the use of variables, which generate variation in firm size but have no direct

[26]The difference-in-difference-in-difference estimate of the impact of LIL is almost statitically significant at the 10% level for the rate of worker flows.

relationship with worker/job turnover. However, such variables are not available in the EES data. Instead, we extenuate bias arising from the association between firm size and labor turnover by dropping establishments having 1–2, 24–36 and 80–120 employees when estimating model (3.4).[27] This is a robustness check of our results in Tables 3.5–3.8. The estimation results are reported in Tables 3.12–3.15.[28] Comparing results in Tables 3.5–3.8 with those in Tables 3.12–3.15, we see that qualitatively the dropping of observations in the neighborhood of the cutoffs 1, 30, and 100 does not alter the pattern of the results.

3.6 Conclusion

This chapter examines the effect of employment protection legislation on the worker and job turnover rates. The empirical investigation is grounded in the case of Taiwan during a period of rapid economic development. The identification of the effect of employment protection legislation is based on a natural experiment created by the enactments of Labor Standards Law in 1984, and the subsequent furnishing of enforcement measures in 1987 (i.e., the setting up of the Council of Labor Affairs to centralize the enforcement of Labor Standards Law) and 1993 (i.e., the enactment of the Labor Inspection Law, which provides a legal basis for the enforcement of the Labor Standards Law) by Taiwan's government. Our identification also exploits

[27]This reduces the sample size by 163,740. The ranges 24–36 and 80–120, respectively, represent 20% above and below the original cutoffs of 30 and 100.

[28]There are 836,590 observations after the deletion. The R^2's of the regressions for worker flows, job reallocation, and churning flows are 0.030, 0.024, and 0.042, respectively. The full set of parameter estimates are reported in Tables 3.16–3.18, except β_{f15} to β_{f23}.

the fact that the stringency of the Taiwan's Labor Standards Law and the intensity of enforcement varies with establishment size. That is, small establishments (i.e., having 29 or less employees) are not required to post work-rules, and due to the shortage of inspectors, inspection for compliance is more intensive for larger establishments. It is expected that the use of a natural experiment for identification is superior to the use of indices indicating the degree of stringency of employment protection legislation with cross-country data.

We use establishment level data for the period 1983–1995 from Taiwan's Employees' Earnings Survey, which is conducted monthly by *Directorate-General of Budget, Accounting, and Statistics*. The use of monthly data allows the examination of the transitory components of worker and job turnover, which is not possible with data of a lower frequency. (See Blanchard and Portugal, 2001.)

We use the difference-in-difference-in-difference approach for our empirical investigation. The results indicate that small establishments' employment adjustments are not affected by Labor Standards Law and its enforcement measures. However, the worker and job turnover rates of medium-sized (having 30–99 employees) and large (having 100 or more employees) are severely reduced with the enactment of LSL. Their turnover rates are further hampered by the subsequent introduction of enforcement measures. Moreover, a comparison of the effect of the LSL and its enforcement measures on establishment of difference sizes reveals that their negative impacts on worker and job turnover rates increase with establishment size.

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Table 3.1: Variable Definition

Variables	**Description of variables**
WFLOW	The rate of worker flows, as defined in equation (3.1).
JREALLOC	The rate of job reallocation, as defined in equation (3.2).
CFLOW	The rate of churning flows, as defined in equation (3.3).
$\texttt{LSL}_{it}$	LSL period indicator, defined as $\texttt{LSL}_{it}$=1 for sample period August 1984–July 1987, and $\texttt{LSL}_{it}$=0, otherwise.
$\texttt{CLA}_{it}$	CLA period indicator, defined as $\texttt{CLA}_{it}$=1 if for sample period August 1987–January 1993, and $\texttt{CLA}_{it}$=0, otherwise.
$\texttt{LIL}_{it}$	Post-LIL period indicator, defined as $\texttt{LIL}_{it}$=1 for sample period February 1993–December 1995, and $\texttt{LIL}_{it}$=0, otherwise.
$\texttt{COVERED}_{it}$	Indicator of an individual's sector of employment, defined as $\texttt{COVERED}_{it}$=1 if an establishment belongs to an LSL-covered industries, and $\texttt{COVERED}_{it}$=0, otherwise.
$\texttt{SIZE30}_{it}$	Firm size indicator, defined as $\texttt{SIZE30}_{it}$=1 if establishment i employs 30–99 employees, and $\texttt{SIZE30}_{it}$=0,otherwise.
$\texttt{SIZE100}_{it}$	Firm size indicator, defined as $\texttt{SIZE100}_{it}$=1 if establishment i employs 100 or more employees, and $\texttt{SIZE100}_{it}$=0,
SIZE	The employees number of an establishment.
t	The time trend.
$\texttt{Industry}_j$	Industrial dummy. j=1: the food and beverage manufacturing sector; j=2: the tobacco manufacturing sector; j=3: the textiles mills sector; j=4: the apparel, clothing accessories and other textile product manufacturing sector; j=5: the leather, fur and allied product manufacturing sector; j=6: the wood and bamboo products manufacturing sector; j=7: the pulp, paper and paper products manufacturing sector; j=8: the chemical material manufacturing sector; j=9: the chemical products manufacturing sector; j=10: the rubber products manufacturing sector; j=11: the plastic products manufacturing sector; j=12: the non-metallic mineral products manufacturing sector; j=13: the basic metal industries sector; j=14: the fabricated metal products manufacturing sector; j=15: the machinery and equipment manufacturing and repairing sector; j=16: the electronic parts and components manufacturing sector; j=17: the transport equipment manufacturing and repairing sector; j=18: the precision instruments manufacturing sector; j=19: the other industrial products manufacturing sector; j=20: the services sector; j=21: the mining and quarrying sector; j=22: the construction sector; j=23: the transportation, storage and communications sector; j=24: the the mass media sector.
$\texttt{WAGE}_j$	Industry j's average monthly wage.
$\texttt{GRATE}_j$	Industry j's GDP growth rate.

Table 3.2: Full Sample Descriptive Statistics

Variables	**Means**	**Standard Errors**
WFLOW	5.87%	(10.85)
JREALLOC	3.73%	(8.73)
CFLOW	2.14%	(5.95)
$\texttt{LSL}_{it}$	0.21	(0.41)
$\texttt{CLA}_{it}$	0.45	(0.50)
$\texttt{LIL}_{it}$	0.23	(0.42)
$\texttt{COVERED}_{it}$	0.85	(0.35)
$\texttt{SIZE30}_{it}$	0.28	(0.45)
$\texttt{SIZE100}_{it}$	0.30	(0.46)
SIZE	141.98	(437.65)
t	1989.23	(3.68)
$\texttt{Industry}_1$	0.03	(0.17)
$\texttt{Industry}_2$	3.32e-3	(0.06)
$\texttt{Industry}_3$	0.05	(0.22)
$\texttt{Industry}_4$	0.02	(0.15)
$\texttt{Industry}_5$	0.01	(0.11)
$\texttt{Industry}_6$	0.02	(0.16)
$\texttt{Industry}_7$	0.02	(0.14)
$\texttt{Industry}_8$	0.01	(0.11)
$\texttt{Industry}_9$	0.02	(0.12)
$\texttt{Industry}_{10}$	0.01	(0.11)
$\texttt{Industry}_{11}$	0.05	(0.22)
$\texttt{Industry}_{12}$	0.03	(0.16)
$\texttt{Industry}_{13}$	0.02	(0.13)
$\texttt{Industry}_{14}$	0.04	(0.20)
$\texttt{Industry}_{15}$	0.03	(0.17)
$\texttt{Industry}_{16}$	0.09	(0.28)
$\texttt{Industry}_{17}$	0.03	(0.16)
$\texttt{Industry}_{18}$	0.01	(0.10)
$\texttt{Industry}_{19}$	0.03	(0.16)
$\texttt{Industry}_{20}$	0.15	(0.35)
$\texttt{Industry}_{21}$	0.01	(0.11)
$\texttt{Industry}_{22}$	0.11	(0.31)
$\texttt{Industry}_{23}$	0.07	(0.26)
$\texttt{Industry}_{24}$	0.02	(0.12)
$\texttt{WAGE}_j$	12256.26	(722.83)
$\texttt{GRATE}_j$	7.12	(9.07)
Observations	1,088,605	

Table 3.3: Worker and Job Turnover Rates[†]

Period		Worker and Job Turnover Rates					
		1–29 Employees		30–99 Employees		≥100 Employees	
		LSL-Covered	Non-Covered	LSL-Covered	Non-Covered	LSL Covered	Non-Covered
Pre-LSL	WFLOW	5.36%	5.08%	6.82%	3.39%	6.84%	2.22%
		(13.90)	(14.05)	(11.61)	(8.51)	(9.60)	(3.66)
		[38,773]	[13,416]	[24,106]	[3,959]	[32,628]	[2,339]
	JREALLOC	4.05%	3.58%	4.29%	2.29%	3.20%	1.11%
		(11.85)	(11.47)	(9.12)	(7.33)	(6.79)	(2.25)
		[38,773]	[13,416]	[24,106]	[3,959]	[32,628]	[2,339]
	CFLOW	1.31%	1.49%	2.54%	1.10%	3.64%	1.10%
		(6.69)	(7.48)	(6.32)	(3.60)	(6.18)	(2.30)
		[38,773]	[13,416]	[24,106]	[3,959]	[32,628]	[2,339]
LSL	WFLOW	5.72%	4.15%	6.90%	2.86%	6.83%	2.20%
		(13.77)	(12.45)	(11.28)	(7.21)	(9.44)	(3.95)
		[71,208]	[24,667]	[52,663]	[8,270]	[69,143]	[5,321]
	JREALLOC	4.30%	2.93%	4.41%	1.92%	3.32%	1.19%
		(11.76)	(10.02)	(9.02)	(6.04)	(6.71)	(3.07)
		[71,208]	[24,667]	[52,663]	[8,270]	[69,143]	[5,321]
	CFLOW	1.42%	1.22%	2.49%	0.94%	3.51%	1.01%
		(6.63)	(6.96)	(6.14)	(3.20)	(6.13)	(2.13)
		[71,208]	[24,667]	[52,663]	[8,270]	[69,143]	[5,321]
CLA	WFLOW	5.74%	4.05%	6.75%	4.28%	6.78%	3.35%
		(12.72)	(11.42)	(10.08)	(8.02)	(8.54)	(4.84)
		[157,938]	[41,508]	[129,617]	[14,002]	[137,178]	[14,582]
	JREALLOC	4.39%	2.75%	4.75%	2.53%	3.41%	1.70%
		(10.92)	(8.89)	(8.18)	(6.15)	(6.19)	(3.50)
		[157,938]	[41,508]	[129,617]	[14,002]	[137,178]	[14,582]
	CFLOW	1.34%	1.31%	2.31%	1.75%	3.38%	1.65%
		(6.12)	(6.66)	(5.40)	(4.47)	(5.52)	(2.85)
		[157,938]	[41,508]	[129,617]	[14,002]	[137,178]	[14,582]
LIL	WFLOW	5.20%	4.56%	6.00%	5.56%	5.33%	4.36%
		(11.88)	(11.61)	(9.16)	(8.29)	(7.34)	(6.37)
		[86,051]	[15,691]	[69,837]	[7,023]	[59,725]	[9,148]
	JREALLOC	3.79%	3.06%	3.89%	3.00%	2.87%	2.01%
		(9.52)	(8.84)	(7.10)	(5.67)	(5.35)	(4.76)
		[86,051]	[15,691]	[69,837]	[7,023]	[59,725]	[9,148]
	CFLOW	1.40%	1.49%	2.11%	2.56%	2.46%	2.35%
		(6.48)	(6.94)	(5.30)	(5.48)	(4.61)	(3.88)
		[86,051]	[15,691]	[69,837]	[7,023]	[59,725]	[9,148]

[†]Standard error in parentheses. Observation numbers in square parentheses.

Table 3.4: Relative Worker and Job Turnover Rates of LSL-Covered and Non-LSL-Covered Industries[†]

Period		**Relative Worker and Job Turnover Rates**		
		1–29 Employees	30–99 Employees	≥100 Employees
Pre-LSL	ΔWFLOW[‡]	0.28%** (2.01)	3.43%*** (17.82)	4.62%*** (23.15)
	ΔJREALLOC	0.47*** (3.99)	2.00%*** (13.12)	2.09%*** (14.81)
	ΔCFLOW	−0.18%*** (−2.60)	1.44%*** (13.97)	2.54%*** (19.82)
LSL	ΔWFLOW	1.57%*** (15.81)	4.04%*** (31.57)	4.63%*** (35.55)
	ΔJREALLOC	1.37%*** (16.36)	2.49%*** (24.26)	2.13%*** (23.00)
	ΔCFLOW	0.20%*** (4.03)	1.55%*** (22.48)	2.50%*** (29.64)
CLA	ΔWFLOW	1.69%*** (24.55)	2.47%*** (28.04)	3.43%*** (47.75)
	ΔJREALLOC	1.64%*** (28.32)	2.22%*** (31.17)	1.71%*** (32.81)
	ΔCFLOW	0.03 (0.95)	0.56%*** (11.83)	1.72%*** (37.13)
LIL	ΔWFLOW	0.64%*** (6.23)	0.44%*** (3.82)	0.98%*** (12.04)
	ΔJREALLOC	0.73%*** (8.88)	0.89%*** (10.01)	0.86%*** (14.62)
	ΔCFLOW	−0.09%* (−1.67)	−0.45%*** (−6.61)	0.11%** (2.16)

[†] t-statistic in parentheses.
[‡] ΔWFLOW stands for the difference in the rate of worker flows between the LSL-covered and the non-LSL-covered industries, and ΔJREALLOC and ΔCFLOW are similarly defined.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.5: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 1–29 Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f15})	0.32^{*} (2.01)	0.39^{***} (2.94)	-0.08 (-0.70)
	CLA	(β_{f16})	0.39 (0.98)	0.60 (1.18)	-0.22 (-1.09)
	LIL	(β_{f17})	0.74 (1.63)	0.54 (1.02)	0.20 (0.95)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f16} - \beta_{f15})$	0.06 (0.03)	0.21 (0.66)	-0.16 (1.32)
	LIL vs. CLA	$(\beta_{f17} - \beta_{f16})$	0.35^{*} (3.66)	-0.06 (0.23)	0.42^{***} (30.65)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.6: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 30–99 Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f18})	-0.61^{***} (-2.81)	-0.41^{**} (-2.59)	-0.19^{*} (-1.95)
	CLA	(β_{f19})	-2.40^{***} (-10.69)	-1.39^{***} (-7.51)	-1.01^{***} (-10.67)
	LIL	(β_{f20})	-3.44^{***} (-9.99)	-1.49^{***} (-4.45)	-1.95^{***} (-13.41)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f19} - \beta_{f18})$	-1.79^{***} (91.00)	-0.98^{***} (25.28)	-0.82^{***} (194.52)
	LIL vs. CLA	$(\beta_{f20} - \beta_{f19})$	-1.04^{***} (9.57)	-0.10 (0.12)	-0.94^{***} (82.13)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.7: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 100 or more Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f21})	-1.28^{***} (-7.03)	-0.85^{***} (-5.83)	-0.43^{***} (-3.72)
	CLA	(β_{f22})	-2.37^{***} (-5.62)	-1.59^{**} (-3.88)	-0.78^{***} (-4.47)
	LIL	(β_{f23})	-3.98^{***} (-6.03)	-1.59^{**} (-2.41)	-2.39^{***} (-14.15)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f22} - \beta_{f21})$	-1.09^{***} (10.19)	-0.74^{**} (4.66)	-0.35^{***} (5.67)
	LIL vs. CLA	$(\beta_{f23} - \beta_{f22})$	-1.61^{***} (9.83)	-0.01 (0.01)	-1.61^{***} (61.24)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.8: Difference-in-Difference-in-Difference Estimates of the Differential Impacts on Establishments of Different Sizes[†]

		Worker Flows	**Job Reallocation**	**Churning Flows**
Establishments employing 30–99 vs. those employing 1–29 Employees				
Effects of LSL	$(\beta_{f18} - \beta_{f15})$	-0.93^{***} (8.47)	-0.80^{***} (10.77)	-0.11 (0.60)
Effects of CLA	$(\beta_{f19} - \beta_{f16})$	-2.79^{***} (36.56)	-1.99^{***} (12.29)	-0.79^{***} (10.27)
Effects of LIL	$(\beta_{f20} - \beta_{f17})$	-4.18^{***} (43.76)	-2.03^{**} (6.68)	-2.15^{***} (77.87)
Establishments employing 100 or more vs. those employing 30–99 Employees				
Effects of LSL	$(\beta_{f21} - \beta_{f18})$	-0.67^{***} (12.82)	-0.44^{**} (8.51)	-0.62^{**} (4.10)
Effects of CLA	$(\beta_{f22} - \beta_{f19})$	0.03 (0.93)	-0.20 (0.34)	0.23 (2.12)
Effects of LIL	$(\beta_{f23} - \beta_{f20})$	-0.54 (0.24)	-0.10 (0.06)	-0.44^{***} (11.76)

[†] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.9: Estimation Results of the EPL Impacts on the Rate of Worker Flows[†]

Variables	**Coefficient**	***t*-statistics**
$\texttt{WAGE}_1$	0.0411^{***}	(4.74)
$\texttt{WAGE}_2$	-0.1009^{***}	(−6.51)
$\texttt{WAGE}_3$	-0.0419^{***}	(−3.69)
$\texttt{WAGE}_4$	−0.0436	(−1.49)
$\texttt{WAGE}_5$	−0.0344	(−1.48)
$\texttt{WAGE}_6$	0.0064	(0.76)
$\texttt{WAGE}_7$	-0.1048^{***}	(−14.72)
$\texttt{WAGE}_8$	-0.0976^{***}	(−8.45)
$\texttt{WAGE}_9$	-0.0519^{***}	(−2.67)
$\texttt{WAGE}_{10}$	-0.0342^{***}	(−4.67)
$\texttt{WAGE}_{11}$	−0.0090	(−1.21)
$\texttt{WAGE}_{12}$	−0.0177	(−0.75)
$\texttt{WAGE}_{13}$	-0.0524^{***}	(−6.65)
$\texttt{WAGE}_{14}$	0.0154	(0.83)
$\texttt{WAGE}_{15}$	−0.0046	(−0.25)
$\texttt{WAGE}_{16}$	0.0424^{***}	(3.03)
$\texttt{WAGE}_{17}$	−0.0102	(−1.55)
$\texttt{WAGE}_{18}$	0.0033	(0.48)
$\texttt{WAGE}_{19}$	0.0223^{*}	(1.84)
$\texttt{WAGE}_{20}$	0.4275^{***}	(5.12)
$\texttt{WAGE}_{21}$	-0.0817^{***}	(−8.78)
$\texttt{WAGE}_{22}$	0.0754^{***}	(11.25)
$\texttt{WAGE}_{23}$	−0.0804	(−0.97)
$\texttt{WAGE}_{24}$	0.0676	1.74)
$\texttt{GRATE}_1$	−0.0447	(−0.97)
$\texttt{GRATE}_2$	−0.0088	(−1.12)
$\texttt{GRATE}_3$	−0.0296	(−1.00)
$\texttt{GRATE}_4$	0.0013	(0.05)
$\texttt{GRATE}_5$	0.0066	(0.41)
$\texttt{GRATE}_6$	−0.0117	(−0.57)
$\texttt{GRATE}_7$	-0.0677^{**}	(−1.92)
$\texttt{GRATE}_8$	-0.1206^{***}	(−3.91)
$\texttt{GRATE}_9$	-0.0829^{**}	(−2.52)
$\texttt{GRATE}_{10}$	0.0335	(1.68)
$\texttt{GRATE}_{11}$	0.0205	(1.59)
$\texttt{GRATE}_{12}$	−0.0994	(−1.58)
$\texttt{GRATE}_{13}$	-0.1115^{***}	(−3.48)
$\texttt{GRATE}_{14}$	−0.0256	(−0.70)
$\texttt{GRATE}_{15}$	−0.0355	(−0.93)
$\texttt{GRATE}_{16}$	0.0744^{***}	(4.23)
$\texttt{GRATE}_{17}$	−0.0055	(−0.24)
$\texttt{GRATE}_{18}$	0.0590^{**}	(2.12)
$\texttt{GRATE}_{19}$	0.0024	(0.10)
$\texttt{GRATE}_{20}$	0.0189	(1.52)
$\texttt{GRATE}_{21}$	−0.0074	(−0.70)
$\texttt{GRATE}_{22}$	-0.0476^{**}	(−2.21)
$\texttt{GRATE}_{23}$	-0.3005^{**}	(−2.17)
$\texttt{GRATE}_{24}$	−0.1118	(−1.58)
SIZE	0.1236^{***}	(5.55)
$\texttt{SIZE}^2$	0.0001	(1.45)
$\texttt{SIZE}^3$	−0.0001	(−0.80)
$\texttt{SIZE}^4$	0.0001	(0.56)
t	1.1060^{***}	(3.84)
$\texttt{t}^2$	−0.2125	(−2.44)
$\texttt{t}^3$	0.0057	(0.51)
$\texttt{t}^4$	0.0001	(0.32)
t×SIZE	−0.0001	(−1.34)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.1272^{***}	(−5.69)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.1245^{***}	(−5.59)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0937	(1.19)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	−0.0110	(−0.11)
$\texttt{SIZE30}_{it}$	−0.3816	(−1.34)
$\texttt{SIZE100}_{it}$	-1.3989^{***}	(−5.41)
$\texttt{COVERED}_{it}$	4.1628^{***}	(3.62)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.5575^{***}	(4.42)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	−0.0002	(−1.39)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	3.6421^{***}	(11.09)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	4.4324^{***}	(9.92)
$\texttt{LSL}_{it}$	-2.6523^{***}	(−9.15)
$\texttt{CLA}_{it}$	-3.5662^{***}	(−10.65)
$\texttt{LIL}_{it}$	-3.5097^{***}	(−7.93)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.2300	(1.24)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	1.5065^{***}	(3.01)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	1.8811^{**}	(2.16)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	1.0685^{***}	(4.59)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	2.4796^{***}	(3.77)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	3.3147^{***}	(3.02)
Number of Observations	1,088,605	
Adjusted R^2	0.032	

[†] A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.10: Estimation Results of the EPL Impacts on the Rate of Job Reallocation†

Variables	**Coefficient**	***t*-statistics**
$\texttt{WAGE}_1$	0.1146^{***}	(21.62)
$\texttt{WAGE}_2$	0.0168	(1.42)
$\texttt{WAGE}_3$	0.0119	(1.04)
$\texttt{WAGE}_4$	0.0178	(0.54)
$\texttt{WAGE}_5$	0.0327	(1.22)
$\texttt{WAGE}_6$	0.0657^{***}	(7.51)
$\texttt{WAGE}_7$	-0.0262^{***}	(-3.49)
$\texttt{WAGE}_8$	-0.0148^{*}	(-1.78)
$\texttt{WAGE}_9$	0.0071	(0.41)
$\texttt{WAGE}_{10}$	0.0134^{*}	(1.93)
$\texttt{WAGE}_{11}$	0.0522^{***}	(10.65)
$\texttt{WAGE}_{12}$	0.0353	(1.63)
$\texttt{WAGE}_{13}$	0.0052	(0.83)
$\texttt{WAGE}_{14}$	0.0567^{***}	(3.33)
$\texttt{WAGE}_{15}$	0.0577^{***}	(3.48)
$\texttt{WAGE}_{16}$	0.0800^{***}	(7.34)
$\texttt{WAGE}_{17}$	0.0351^{***}	(6.26)
$\texttt{WAGE}_{18}$	0.0492^{***}	(7.61)
$\texttt{WAGE}_{19}$	0.0696^{***}	(5.24)
$\texttt{WAGE}_{20}$	0.2847^{***}	(5.25)
$\texttt{WAGE}_{21}$	-0.0274^{***}	(-3.60)
$\texttt{WAGE}_{22}$	0.1239^{***}	(22.06)
$\texttt{WAGE}_{23}$	0.0469	(0.56)
$\texttt{WAGE}_{24}$	0.0935^{**}	(2.55)
$\texttt{GRATE}_1$	-0.0064	(-0.14)
$\texttt{GRATE}_2$	-0.0143^{***}	(-2.82)
$\texttt{GRATE}_3$	-0.0555^{*}	(-1.77)
$\texttt{GRATE}_4$	-0.0263	(-0.91)
$\texttt{GRATE}_5$	-0.0117	(-0.75)
$\texttt{GRATE}_6$	-0.0352	(-1.66)
$\texttt{GRATE}_7$	-0.0644^{*}	(-1.77)
$\texttt{GRATE}_8$	-0.0841^{***}	(-2.65)
$\texttt{GRATE}_9$	-0.0548	(-1.61)
$\texttt{GRATE}_{10}$	0.0008	(0.04)
$\texttt{GRATE}_{11}$	-0.0026	(-0.19)
$\texttt{GRATE}_{12}$	-0.0443	(-0.70)
$\texttt{GRATE}_{13}$	-0.0754^{**}	(-2.29)
$\texttt{GRATE}_{14}$	-0.0339	(-0.91)
$\texttt{GRATE}_{15}$	-0.0540	(-1.40)
$\texttt{GRATE}_{16}$	0.0081	(0.43)
$\texttt{GRATE}_{17}$	-0.0129	(-0.60)
$\texttt{GRATE}_{18}$	-0.0014	(-0.05)
$\texttt{GRATE}_{19}$	-0.0231	(-0.91)
$\texttt{GRATE}_{20}$	0.0102	(1.00
$\texttt{GRATE}_{21}$	-0.0084	(-0.76)
$\texttt{GRATE}_{22}$	-0.0094	(-0.63)
$\texttt{GRATE}_{23}$	-0.2957^{**}	(-2.08)
$\texttt{GRATE}_{24}$	-0.1399^{**}	(-2.10)
SIZE	0.0666^{***}	(3.39)
$\texttt{SIZE}^2$	0.0001^{***}	(4.87)
$\texttt{SIZE}^3$	-0.0001^{***}	(-3.46)
$\texttt{SIZE}^4$	0.0001^{***}	(2.83)
t	0.5448^{***}	(2.36)
$\texttt{t}^2$	-0.0845	(-1.24)
$\texttt{t}^3$	-0.0036	(-0.48)
$\texttt{t}^4$	0.0004	(1.39)
t×SIZE	-0.0001	(-0.45)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.0780^{***}	(-4.10)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0682^{***}	(-3.44)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0683	(1.01)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	0.0240	(0.27)
$\texttt{SIZE30}_{it}$	-0.1070	(-0.52)
$\texttt{SIZE100}_{it}$	-1.3597^{***}	(-5.82)
$\texttt{COVERED}_{it}$	2.8946^{***}	(2.79)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.2963^{***}	(5.05)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	-0.0002^{*}	(-1.84)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	1.9620^{***}	(7.06)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	1.8060^{***}	(5.07)
$\texttt{LSL}_{it}$	-1.6310^{***}	(-7.02)
$\texttt{CLA}_{it}$	-2.2156^{***}	(-10.51)
$\texttt{LIL}_{it}$	-2.0653^{***}	(-6.83)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.1498	(0.96)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	0.7578^{*}	(1.78)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	0.6329	(0.86)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	0.7382^{***}	(3.52)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	1.4063^{**}	(2.36)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	1.4577	(1.47)
Number of Observations	1,088,605	
Adjusted R^2	0.024	

† A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.11: Estimation Results of the EPL Impacts on the Rate of Churning Flows[†]

Variables	**Coefficient**	*t*-**statistics**
$\texttt{WAGE}_1$	-0.0735^{***}	(-13.00)
$\texttt{WAGE}_2$	-0.1176^{***}	(-11.12)
$\texttt{WAGE}_3$	-0.0538^{***}	(-6.66)
$\texttt{WAGE}_4$	-0.0614^{***}	(-4.83)
$\texttt{WAGE}_5$	-0.0671^{***}	(-6.60)
$\texttt{WAGE}_6$	-0.0593^{***}	(-13.30)
$\texttt{WAGE}_7$	-0.0786^{***}	(-15.92)
$\texttt{WAGE}_8$	-0.0828^{***}	(-16.40)
$\texttt{WAGE}_9$	-0.0589^{***}	(-16.21)
$\texttt{WAGE}_{10}$	-0.0476^{***}	(-9.03)
$\texttt{WAGE}_{11}$	-0.0612^{***}	(-12.83)
$\texttt{WAGE}_{12}$	-0.0530^{***}	(-13.65)
$\texttt{WAGE}_{13}$	-0.0576^{***}	(-23.50)
$\texttt{WAGE}_{14}$	-0.0412^{***}	(-16.47)
$\texttt{WAGE}_{15}$	-0.0622^{***}	(-23.69)
$\texttt{WAGE}_{16}$	-0.0375^{***}	(-7.22)
$\texttt{WAGE}_{17}$	-0.0453^{***}	(-12.04)
$\texttt{WAGE}_{18}$	-0.0460^{***}	(-8.54)
$\texttt{WAGE}_{19}$	-0.0473^{***}	(-7.88)
$\texttt{WAGE}_{20}$	0.1427^{***}	(2.99)
$\texttt{WAGE}_{21}$	-0.0543^{***}	(-19.86)
$\texttt{WAGE}_{22}$	-0.0485^{***}	(-18.57)
$\texttt{WAGE}_{23}$	-0.1273^{***}	(-18.59)
$\texttt{WAGE}_{24}$	-0.0259^{***}	(-3.57)
$\texttt{GRATE}_1$	-0.0383^{***}	(-10.32)
$\texttt{GRATE}_2$	0.0054	(1.70)
$\texttt{GRATE}_3$	0.0259^{***}	(4.90)
$\texttt{GRATE}_4$	0.0276^{***}	(5.90)
$\texttt{GRATE}_5$	0.0182^{***}	(5.73)
$\texttt{GRATE}_6$	0.0235^{***}	(8.35)
$\texttt{GRATE}_7$	-0.0034	(-0.94)
$\texttt{GRATE}_8$	-0.0364^{***}	(-7.79)
$\texttt{GRATE}_9$	-0.0281^{***}	(-7.93)
$\texttt{GRATE}_{10}$	0.0327^{***}	(4.75)
$\texttt{GRATE}_{11}$	0.0230^{***}	(7.57)
$\texttt{GRATE}_{12}$	-0.0551^{***}	(-4.17)
$\texttt{GRATE}_{13}$	-0.0361^{***}	(-5.43)
$\texttt{GRATE}_{14}$	0.0082	(1.70)
$\texttt{GRATE}_{15}$	0.0184^{***}	(2.74)
$\texttt{GRATE}_{16}$	0.0663^{***}	(17.71)
$\texttt{GRATE}_{17}$	0.0075	(0.88)
$\texttt{GRATE}_{18}$	0.0604^{***}	(14.40)
$\texttt{GRATE}_{19}$	0.0256^{***}	(8.94)
$\texttt{GRATE}_{20}$	0.0088^{**}	(2.02)
$\texttt{GRATE}_{21}$	0.0010	(0.38)
$\texttt{GRATE}_{22}$	-0.0382^{***}	(-4.30)
$\texttt{GRATE}_{23}$	-0.0048	(-0.31)
$\texttt{GRATE}_{24}$	0.0281^{**}	(2.12)
$\texttt{SIZE}$	0.0569^{***}	(7.28)
$\texttt{SIZE}^2$	-0.0001^{***}	(-2.66)
$\texttt{SIZE}^3$	0.0001^{**}	(2.60)
$\texttt{SIZE}^4$	-0.0001^{**}	(-2.52)
$\texttt{t}$	0.5612^{***}	(4.78)
$\texttt{t}^2$	-0.1281^{***}	(-3.45)
$\texttt{t}^3$	0.0093^{*}	(1.78)
$\texttt{t}^4$	-0.0003	(-1.22)
$\texttt{t}\times\texttt{SIZE}$	0.0001^{*}	(-1.75)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.0492^{***}	(-5.92)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0562^{***}	(-7.27)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0254	(0.93)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0350	(-1.37)
$\texttt{SIZE30}_{it}$	-0.2746^{**}	(-2.22)
$\texttt{SIZE100}_{it}$	-0.0392	(-0.32)
$\texttt{COVERED}_{it}$	1.2682^{***}	(3.23)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.2612^{***}	(3.12)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	0.0001	(0.51)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	1.6801^{***}	(11.03)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	2.6264^{***}	(10.82)
$\texttt{LSL}_{it}$	-1.0213^{***}	(-8.65)
$\texttt{CLA}_{it}$	-1.3506^{***}	(-8.50)
$\texttt{LIL}_{it}$	-1.4444^{***}	(-8.53)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.0802	(1.21)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	0.7487^{***}	(4.31)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	1.2482^{***}	(4.14)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	0.3303^{***}	(5.22)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	1.0732^{***}	(6.24)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	1.8569^{***}	(6.47)
Number of Observations	1,088,605	
Adjusted R^2	0.041	

[†] A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.12: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 3–23 Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f15})	0.34^{*} (2.00)	0.44^{***} (3.36)	-0.10 (-0.84)
	CLA	(β_{f16})	0.14 (0.37)	0.39 (0.79)	-0.25 (-1.19)
	LIL	(β_{f17})	0.53 (1.30)	0.29 (0.56)	0.24 (1.08)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f16} - \beta_{f15})$	-0.20 (0.23)	-0.05 (0.01)	-0.15 (1.11)
	LIL vs. CLA	$(\beta_{f17} - \beta_{f16})$	0.39^{**} (5.82)	-0.10 (0.55)	0.49^{***} (49.65)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.13: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 37–79 Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f18})	-0.37^{*} (-1.83)	-0.33^{*} (-1.97)	-0.04 (-0.38)
	CLA	(β_{f19})	-2.10^{***} (-7.74)	-1.22^{***} (-5.03)	-0.88^{***} (-9.09)
	LIL	(β_{f20})	-3.29^{***} (-8.06)	-1.41^{**} (-3.63)	-1.87^{***} (-11.04)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f19} - \beta_{f18})$	-1.73^{***} (47.63)	-0.89^{***} (11.61)	-0.84^{***} (109.59)
	LIL vs. CLA	$(\beta_{f20} - \beta_{f19})$	-1.19^{***} (12.08)	-0.20 (0.48)	-0.99^{***} (70.28)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.14: Difference-in-Difference Estimates of the Effects of LSL, CLA and LIL for Establishments with 121 or more Employees

			Worker Flows	**Job Reallocation**	**Churning Flows**
Gross Effects[†]	LSL	(β_{f21})	-1.32^{***}	-0.92^{***}	-0.39^{***}
			(-7.33)	(-5.76)	(-3.46)
	CLA	(β_{f22})	-2.18^{***}	-1.47^{***}	-0.72^{***}
			(-4.78)	(-3.23)	(-4.03)
	LIL	(β_{f23})	-3.85^{***}	-1.46^{*}	-2.39^{***}
			(-5.36)	(-2.00)	(-12.24)
Relative Effects[‡]	CLA vs. LSL	$(\beta_{f22} - \beta_{f21})$	-0.86^{*}	-0.55	-0.33^{*}
			(5.35)	(1.93)	(4.08)
	LIL vs. CLA	$(\beta_{f23} - \beta_{f22})$	-1.67^{***}	0.01	-1.67^{***}
			(9.40)	(0.01)	(56.26)

[†] t-statistics in parentheses.

[‡] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.15: Difference-in-Difference-in-Difference Estimates of the Differential Impacts on Establishments of Different Sizes[†]

		Worker Flows	**Job Reallocation**	**Churning Flows**
Establishments employing 37–79 vs. those employing 3–23 Employees				
Effects of LSL	$(\beta_{f18} - \beta_{f15})$	-0.71^{**}	-0.77^{***}	0.06
		(5.57)	(8.76)	(0.16)
Effects of CLA	$(\beta_{f19} - \beta_{f16})$	-2.24^{***}	-1.61^{**}	-0.63^{**}
		(16.44)	(6.55)	(6.97)
Effects of LIL	$(\beta_{f20} - \beta_{f17})$	-3.82^{***}	-1.70^{*}	-1.11^{***}
		(29.93)	(4.24)	(68.29)
Establishments employing 121 or more vs. those employing 37–79 Employees				
Effects of LSL	$(\beta_{f21} - \beta_{f18})$	-1.69^{***}	-1.25^{***}	-0.35^{***}
		(33.37)	(17.60)	(9.74)
Effects of CLA	$(\beta_{f22} - \beta_{f19})$	-0.08	-0.25	0.16
		(0.08)	(0.67)	(1.09)
Effects of LIL	$(\beta_{f23} - \beta_{f20})$	-0.56	-0.05	-0.56^{***}
		(1.78)	(0.01)	(20.17)

[†] F-statistics in parentheses.

***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.16: Estimation Results of the EPL Impacts on the Rate of Worker Flows — Accounting for LSL's Effect on Firm Size†

Variables	**Coefficient**	***t*-statistics**
$\texttt{WAGE}_1$	0.0375^{***}	(3.87)
$\texttt{WAGE}_2$	-0.1156^{***}	(-7.32)
$\texttt{WAGE}_3$	-0.0348^{***}	(-2.94)
$\texttt{WAGE}_4$	-0.0513^{*}	(-1.78)
$\texttt{WAGE}_5$	-0.0307	(-1.35)
$\texttt{WAGE}_6$	0.0161^{*}	(1.85)
$\texttt{WAGE}_7$	-0.1049^{***}	(-15.12)
$\texttt{WAGE}_8$	-0.0945^{***}	(-7.31)
$\texttt{WAGE}_9$	-0.0308	(-1.46)
$\texttt{WAGE}_{10}$	-0.0294^{***}	(-3.61)
$\texttt{WAGE}_{11}$	-0.0082	(-0.99)
$\texttt{WAGE}_{12}$	-0.0053	(-0.21)
$\texttt{WAGE}_{13}$	-0.0458^{***}	(-5.11)
$\texttt{WAGE}_{14}$	0.0169	(0.83)
$\texttt{WAGE}_{15}$	0.0003	(0.01)
$\texttt{WAGE}_{16}$	0.0481^{***}	(3.08)
$\texttt{WAGE}_{17}$	-0.0095	(-1.26)
$\texttt{WAGE}_{18}$	0.0050	(0.67)
$\texttt{WAGE}_{19}$	0.0317^{***}	(2.70)
$\texttt{WAGE}_{20}$	0.4530^{***}	(5.23)
$\texttt{WAGE}_{21}$	-0.0893^{***}	(-10.05)
$\texttt{WAGE}_{22}$	0.0812^{***}	(12.07)
$\texttt{WAGE}_{23}$	-0.0814	(-0.93)
$\texttt{WAGE}_{24}$	0.1014^{**}	(2.44)
$\texttt{GRATE}_1$	-0.0447	(-0.95)
$\texttt{GRATE}_2$	0.0012	(0.16)
$\texttt{GRATE}_3$	-0.0347	(-1.19)
$\texttt{GRATE}_4$	-0.0061	(-0.23)
$\texttt{GRATE}_5$	0.0121	(0.76)
$\texttt{GRATE}_6$	-0.0124	(-0.60)
$\texttt{GRATE}_7$	-0.0633^{*}	(-1.77)
$\texttt{GRATE}_8$	-0.1280^{***}	(-4.13)
$\texttt{GRATE}_9$	-0.0956^{***}	(-2.83)
$\texttt{GRATE}_{10}$	0.0200	(0.98)
$\texttt{GRATE}_{11}$	0.0187	(1.47)
$\texttt{GRATE}_{12}$	-0.1163^{*}	(-1.81)
$\texttt{GRATE}_{13}$	-0.1214^{***}	(-3.76)
$\texttt{GRATE}_{14}$	-0.0228	(-0.60)
$\texttt{GRATE}_{15}$	-0.0217	(-0.54)
$\texttt{GRATE}_{16}$	0.0763^{***}	(4.35)
$\texttt{GRATE}_{17}$	-0.0156	(-0.68)
$\texttt{GRATE}_{18}$	0.0559^{*}	(1.93)
$\texttt{GRATE}_{19}$	-0.0022	(-0.09)
$\texttt{GRATE}_{20}$	0.0149	(1.26)
$\texttt{GRATE}_{21}$	0.0034	(0.33)
$\texttt{GRATE}_{22}$	-0.0405^{*}	(-1.91)
$\texttt{GRATE}_{23}$	-0.2832^{*}	(-1.97)
$\texttt{GRATE}_{24}$	-0.1477^{*}	(-1.97)
$\texttt{SIZE}$	0.1197^{***}	(4.37)
$\texttt{SIZE}^2$	0.0001	(1.20)
$\texttt{SIZE}^3$	-0.0001	(-0.52)
$\texttt{SIZE}^4$	0.0001	(0.28)
$\texttt{t}$	1.0068^{***}	(3.89)
$\texttt{t}^2$	-0.2043^{**}	(-2.58)
$\texttt{t}^3$	0.0050	(0.45)
$\texttt{t}^4$	0.0002	(0.36)
$\texttt{t}\times\texttt{SIZE}$	-0.0001	(-1.25)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.1182^{***}	(-4.11)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.1205^{***}	(-4.40)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0789	(0.88)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0337	(-0.30)
$\texttt{SIZE30}_{it}$	-1.0845^{***}	(-2.69)
$\texttt{SIZE100}_{it}$	-1.9447^{***}	(-6.40)
$\texttt{COVERED}_{it}$	4.1192^{***}	(3.33)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.6036^{***}	(4.52)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	-0.0002	(-1.50)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	3.6983^{***}	(12.07)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	4.5383^{***}	(9.05)
$\texttt{LSL}_{it}$	-2.6872^{***}	(-9.31)
$\texttt{CLA}_{it}$	-3.4124^{***}	(-8.55)
$\texttt{LIL}_{it}$	-3.3886^{***}	(-6.57)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.1337	(0.62)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	1.5041^{***}	(2.62)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	1.9961^{**}	(2.01)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	1.1798^{***}	(4.38)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	2.6103^{***}	(3.48)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	3.5155^{***}	(2.82)
Number of Observations	836,590	
Adjusted R^2	0.030	

† This estimation reduces 20% above and below the firm size cutoffs of 30 and 100. A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.17: Estimation Results of the EPL Impacts on the Rate of Job Reallocation — Accounting for LSL's Effect on Firm Size†

Variables	**Coefficient**	***t*-statistics**
$\texttt{WAGE}_1$	0.1149^{***}	(20.34)
$\texttt{WAGE}_2$	0.0099	(0.88)
$\texttt{WAGE}_3$	0.0141	(1.30)
$\texttt{WAGE}_4$	0.0174	(0.54)
$\texttt{WAGE}_5$	0.0355	(1.38)
$\texttt{WAGE}_6$	0.0743^{***}	(9.04)
$\texttt{WAGE}_7$	-0.0225^{***}	(-3.38)
$\texttt{WAGE}_8$	-0.0129	(-1.45)
$\texttt{WAGE}_9$	0.0233	(1.24)
$\texttt{WAGE}_{10}$	0.0166^{**}	(2.46)
$\texttt{WAGE}_{11}$	0.0568^{***}	(11.95)
$\texttt{WAGE}_{12}$	0.0433^{*}	(1.86)
$\texttt{WAGE}_{13}$	0.0094	(1.34)
$\texttt{WAGE}_{14}$	0.0613^{***}	(3.25)
$\texttt{WAGE}_{15}$	0.0626^{***}	(3.41)
$\texttt{WAGE}_{16}$	0.0832^{***}	(6.98)
$\texttt{WAGE}_{17}$	0.0385^{***}	(6.61)
$\texttt{WAGE}_{18}$	0.0459^{***}	(7.88)
$\texttt{WAGE}_{19}$	0.0734^{***}	(6.00)
$\texttt{WAGE}_{20}$	0.2949^{***}	(5.47)
$\texttt{WAGE}_{21}$	-0.0341^{***}	(-4.82)
$\texttt{WAGE}_{22}$	0.1290^{***}	(22.89)
$\texttt{WAGE}_{23}$	0.0521	(0.59)
$\texttt{WAGE}_{24}$	0.1132^{***}	(2.87)
$\texttt{GRATE}_1$	0.0042	(0.09)
$\texttt{GRATE}_2$	-0.0056	(-1.16)
$\texttt{GRATE}_3$	-0.0583^{*}	(-1.89)
$\texttt{GRATE}_4$	-0.0247	(-0.88)
$\texttt{GRATE}_5$	-0.0093	(-0.60)
$\texttt{GRATE}_6$	-0.0384^{*}	(-1.79)
$\texttt{GRATE}_7$	-0.0620	(-1.68)
$\texttt{GRATE}_8$	-0.0861^{***}	(-2.71)
$\texttt{GRATE}_9$	-0.0592	(-1.70)
$\texttt{GRATE}_{10}$	-0.0113	(-0.58)
$\texttt{GRATE}_{11}$	-0.0032	(-0.24)
$\texttt{GRATE}_{12}$	-0.0534	(-0.83)
$\texttt{GRATE}_{13}$	-0.0761^{**}	(-2.30)
$\texttt{GRATE}_{14}$	-0.0316	(-0.82)
$\texttt{GRATE}_{15}$	-0.0493	(-1.23)
$\texttt{GRATE}_{16}$	0.0084	(0.45)
$\texttt{GRATE}_{17}$	-0.0145	(-0.68)
$\texttt{GRATE}_{18}$	-0.0019	(-0.06)
$\texttt{GRATE}_{19}$	-0.0242	(-0.95)
$\texttt{GRATE}_{20}$	0.0099	(1.10)
$\texttt{GRATE}_{21}$	-0.0008	(-0.08)
$\texttt{GRATE}_{22}$	-0.0056	(-0.36)
$\texttt{GRATE}_{23}$	-0.2895^{*}	(-1.96)
$\texttt{GRATE}_{24}$	-0.1590^{**}	(-2.24)
$\texttt{SIZE}$	0.0613^{***}	(2.76)
$\texttt{SIZE}^2$	0.0001^{***}	(4.74)
$\texttt{SIZE}^3$	-0.0001^{***}	(-3.33)
$\texttt{SIZE}^4$	0.0001^{***}	(2.70)
$\texttt{t}$	0.4878^{**}	(2.37)
$\texttt{t}^2$	-0.0879	(-1.37)
$\texttt{t}^3$	-0.0025	(-0.32)
$\texttt{t}^4$	0.0004	(1.08)
$\texttt{t}\times\texttt{SIZE}$	-0.0001	(-0.43)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.0722^{***}	(-3.17)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0627^{***}	(-2.81)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0533	(0.78)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	0.0090	(0.09)
$\texttt{SIZE30}_{it}$	-0.4005^{***}	(-1.36)
$\texttt{SIZE100}_{it}$	-1.7304^{***}	(-6.71)
$\texttt{COVERED}_{it}$	2.9277^{***}	(2.62)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.3204^{***}	(5.14)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	-0.0002^{*}	(-1.87)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	1.9795^{***}	(7.49)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	1.7691^{***}	(4.33)
$\texttt{LSL}_{it}$	-1.6401^{***}	(-7.55)
$\texttt{CLA}_{it}$	-2.0011^{***}	(-8.35)
$\texttt{LIL}_{it}$	-1.8712^{***}	(-5.62)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.1291	(0.80)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	0.7690^{*}	(1.77)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	0.7281	(0.97)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	0.8321^{***}	(3.57)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	1.4552^{**}	(2.20)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	1.5492	(1.41)
Number of Observations	836,590	
Adjusted R^2	0.024	

† This estimation reduces 20% above and below the firm size cutoffs of 30 and 100. A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Table 3.18: Estimation Results of the EPL Impacts on the Rate of Churning Flows — Accounting for LSL's Effect on Firm Size†

Variables	**Coefficient**	*t*-**statistics**
$\texttt{WAGE}_1$	-0.0774^{***}	(-12.35)
$\texttt{WAGE}_2$	-0.1255^{***}	(-11.14)
$\texttt{WAGE}_3$	-0.0489^{***}	(-5.29)
$\texttt{WAGE}_4$	-0.0687^{***}	(-4.78)
$\texttt{WAGE}_5$	-0.0662^{***}	(-5.62)
$\texttt{WAGE}_6$	-0.0582^{***}	(-11.45)
$\texttt{WAGE}_7$	-0.0824^{***}	(-15.21)
$\texttt{WAGE}_8$	-0.0816^{***}	(-13.76)
$\texttt{WAGE}_9$	-0.0541^{***}	(-14.35)
$\texttt{WAGE}_{10}$	-0.0460^{***}	(-7.33)
$\texttt{WAGE}_{11}$	-0.0650^{***}	(-11.88)
$\texttt{WAGE}_{12}$	-0.0485^{***}	(-12.28)
$\texttt{WAGE}_{13}$	-0.0552^{***}	(-20.08)
$\texttt{WAGE}_{14}$	-0.0443^{***}	(-19.29)
$\texttt{WAGE}_{15}$	-0.0623^{***}	(-25.94)
$\texttt{WAGE}_{16}$	-0.0351^{***}	(-5.91)
$\texttt{WAGE}_{17}$	-0.0480^{***}	(-10.97)
$\texttt{WAGE}_{18}$	-0.0409^{***}	(-6.71)
$\texttt{WAGE}_{19}$	-0.0417^{***}	(-6.20)
$\texttt{WAGE}_{20}$	0.1582^{***}	(3.19)
$\texttt{WAGE}_{21}$	-0.0552^{***}	(-19.21)
$\texttt{WAGE}_{22}$	-0.0478^{***}	(-19.57)
$\texttt{WAGE}_{23}$	-0.1335^{***}	(-17.67)
$\texttt{WAGE}_{24}$	-0.0118^{*}	(-1.82)
$\texttt{GRATE}_1$	-0.0490^{***}	(-11.41)
$\texttt{GRATE}_2$	0.0069^{**}	(2.25)
$\texttt{GRATE}_3$	0.0236^{***}	(4.06)
$\texttt{GRATE}_4$	0.0186^{***}	(3.62)
$\texttt{GRATE}_5$	0.0214^{***}	(6.58)
$\texttt{GRATE}_6$	0.0260^{***}	(8.48)
$\texttt{GRATE}_7$	-0.0013	(-0.35)
$\texttt{GRATE}_8$	-0.0418^{***}	(-8.27)
$\texttt{GRATE}_9$	-0.0364^{***}	(-9.48)
$\texttt{GRATE}_{10}$	0.0312^{***}	(4.27)
$\texttt{GRATE}_{11}$	0.0219^{***}	(6.72)
$\texttt{GRATE}_{12}$	-0.0629^{***}	(-4.49)
$\texttt{GRATE}_{13}$	-0.0454^{***}	(-6.24)
$\texttt{GRATE}_{14}$	0.0087	(1.72)
$\texttt{GRATE}_{15}$	0.0276^{***}	(4.02)
$\texttt{GRATE}_{16}$	0.0680^{***}	(16.29)
$\texttt{GRATE}_{17}$	-0.0012	(-0.13)
$\texttt{GRATE}_{18}$	0.0578^{***}	(12.35)
$\texttt{GRATE}_{19}$	0.0220^{***}	(6.94)
$\texttt{GRATE}_{20}$	0.0051	(1.03)
$\texttt{GRATE}_{21}$	0.0043	(1.61)
$\texttt{GRATE}_{22}$	-0.0349^{***}	(-4.20)
$\texttt{GRATE}_{23}$	0.0063	(0.36)
$\texttt{GRATE}_{24}$	0.0113	(0.93)
$\texttt{SIZE}$	0.0584^{***}	(6.26)
$\texttt{SIZE}^2$	-0.0001^{***}	(-2.60)
$\texttt{SIZE}^3$	0.0001^{**}	(2.56)
$\texttt{SIZE}^4$	-0.0001^{**}	(-2.49)
$\texttt{t}$	0.5190^{***}	(4.46)
$\texttt{t}^2$	-0.1165^{***}	(-3.41)
$\texttt{t}^3$	0.0075	(1.53)
$\texttt{t}^4$	-0.0002	(-0.91)
$\texttt{t}\times\texttt{SIZE}$	-0.0001	(-1.62)
$\texttt{SIZE}\times\texttt{SIZE30}_{it}$	-0.0460^{***}	(-4.52)
$\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0578^{***}	(-6.25)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE30}_{it}$	0.0256	(0.71)
$\texttt{t}\times\texttt{SIZE}\times\texttt{SIZE100}_{it}$	-0.0426	(-1.39)
$\texttt{SIZE30}_{it}$	-0.6840^{***}	(-4.33)
$\texttt{SIZE100}_{it}$	-0.2143	(-1.73)
$\texttt{COVERED}_{it}$	1.1916^{***}	(2.89)
$\texttt{COVERED}_{it}\times\texttt{t}$	0.2832^{***}	(3.31)
$\texttt{COVERED}_{it}\times\texttt{SIZE}$	0.0001	(0.30)
$\texttt{COVERED}_{it}\times\texttt{SIZE30}_{it}$	1.7189^{***}	(10.79)
$\texttt{COVERED}_{it}\times\texttt{SIZE100}_{it}$	2.7692^{***}	(11.15)
$\texttt{LSL}_{it}$	-1.0471^{***}	(-7.89)
$\texttt{CLA}_{it}$	-1.4114^{***}	(-7.28)
$\texttt{LIL}_{it}$	-1.5174^{***}	(-7.14)
$\texttt{LSL}_{it}\times\texttt{SIZE30}_{it}$	0.0046	(0.05)
$\texttt{CLA}_{it}\times\texttt{SIZE30}_{it}$	0.7351^{***}	(3.15)
$\texttt{LIL}_{it}\times\texttt{SIZE30}_{it}$	1.2679^{***}	(3.15)
$\texttt{LSL}_{it}\times\texttt{SIZE100}_{it}$	0.3477^{***}	(4.34)
$\texttt{CLA}_{it}\times\texttt{SIZE100}_{it}$	1.1552^{***}	(5.45)
$\texttt{LIL}_{it}\times\texttt{SIZE100}_{it}$	1.9663^{***}	(5.60)
Number of Observations	836,590	
Adjusted R^2	0.042	

† This estimation reduces 20% above and below the firm size cutoffs of 30 and 100. A set of month dummies is included.
***Significant at 1% level. **Significant at 5% level. *Significant at 10% level.

Figure 3.1: The Changes of Worker Flows for Establishments with 1-29 Employees.

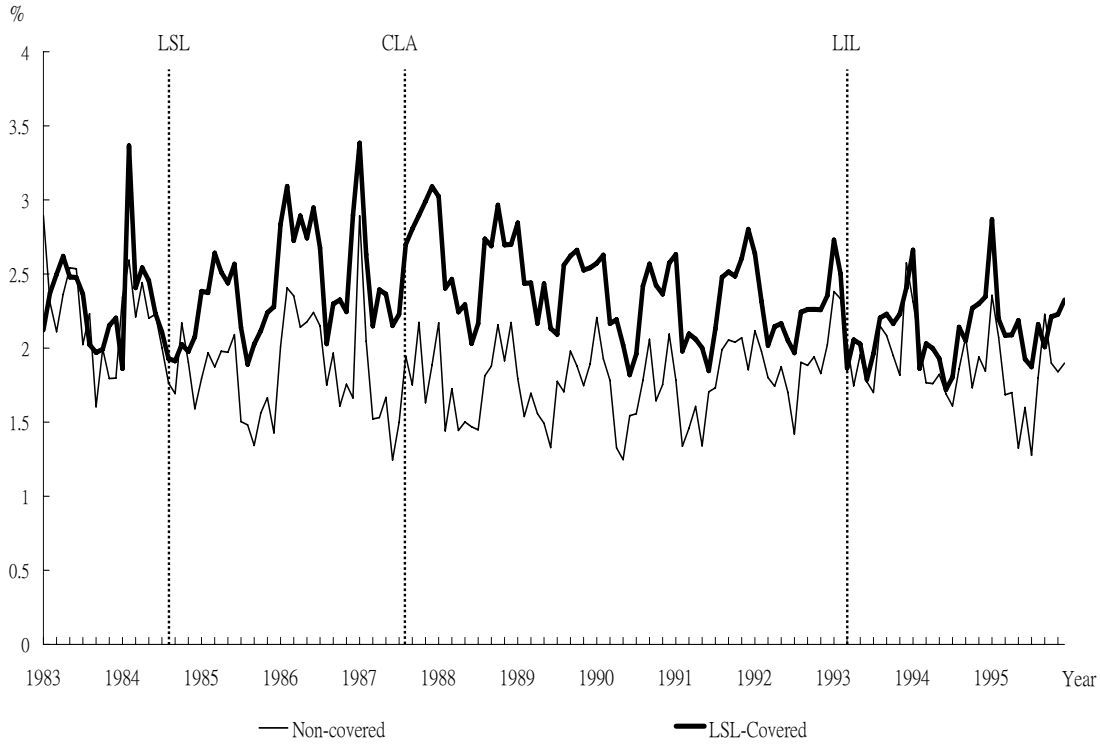

Figure 3.2: The Changes of Worker Flows for Establishments with 30-99 Employees.

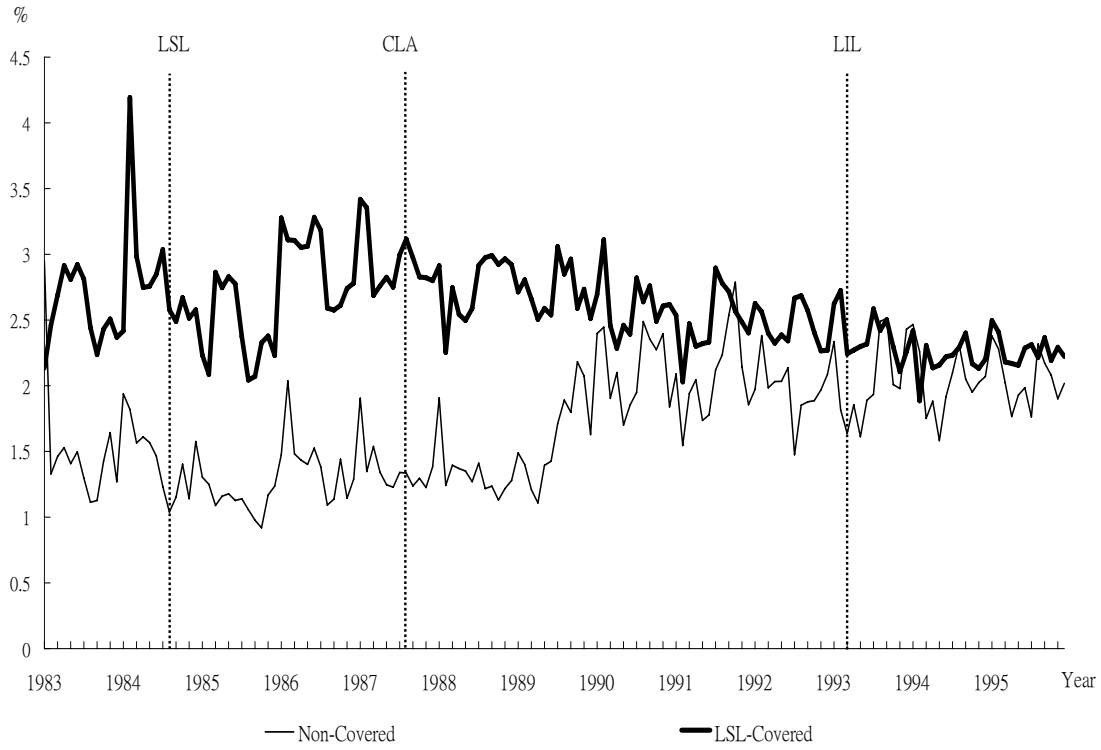

Figure 3.3: The Changes of Worker Flows for Establishments with 100 or more Employees.

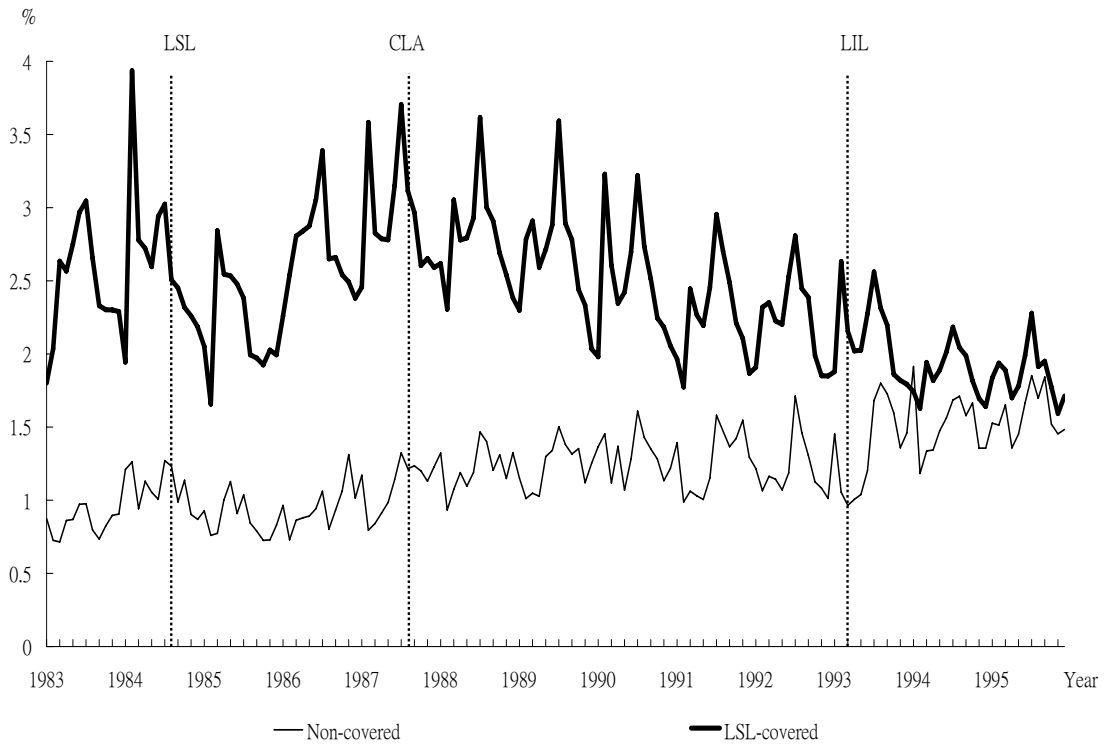

Figure 3.4: Difference in the Rate of Worker Flows between LSL-Covered and Non-LSL-Covered Industries

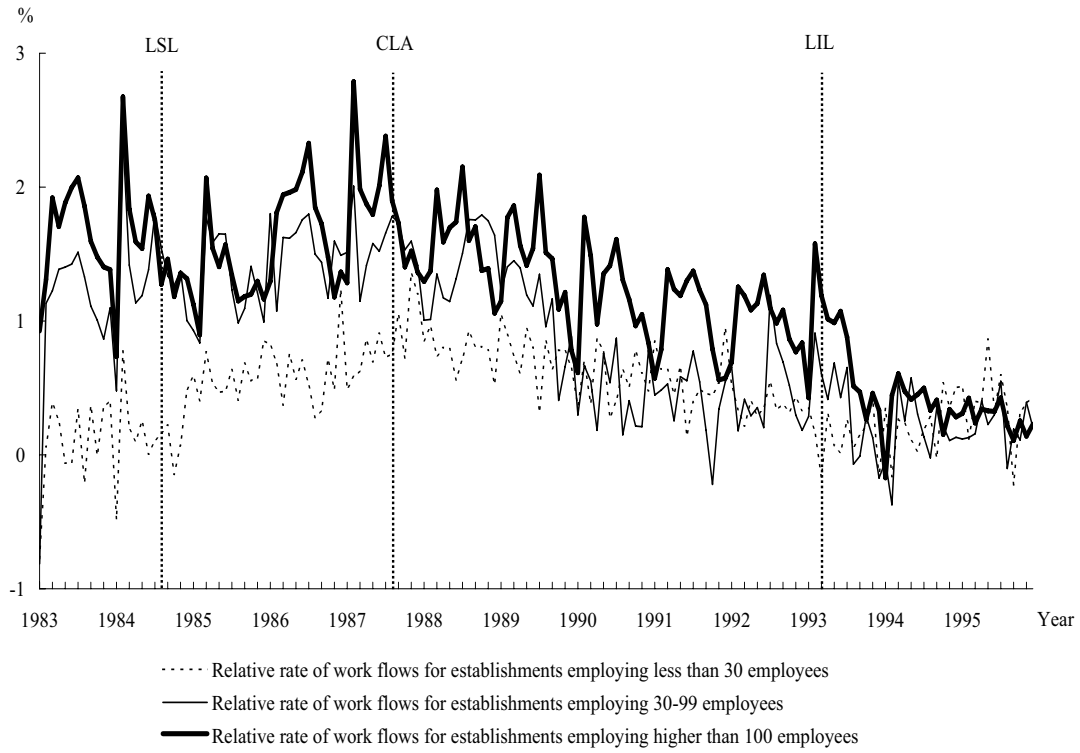

Figure 3.5: The Changes of Job Reallocation for Establishments with 1-29 Employees.

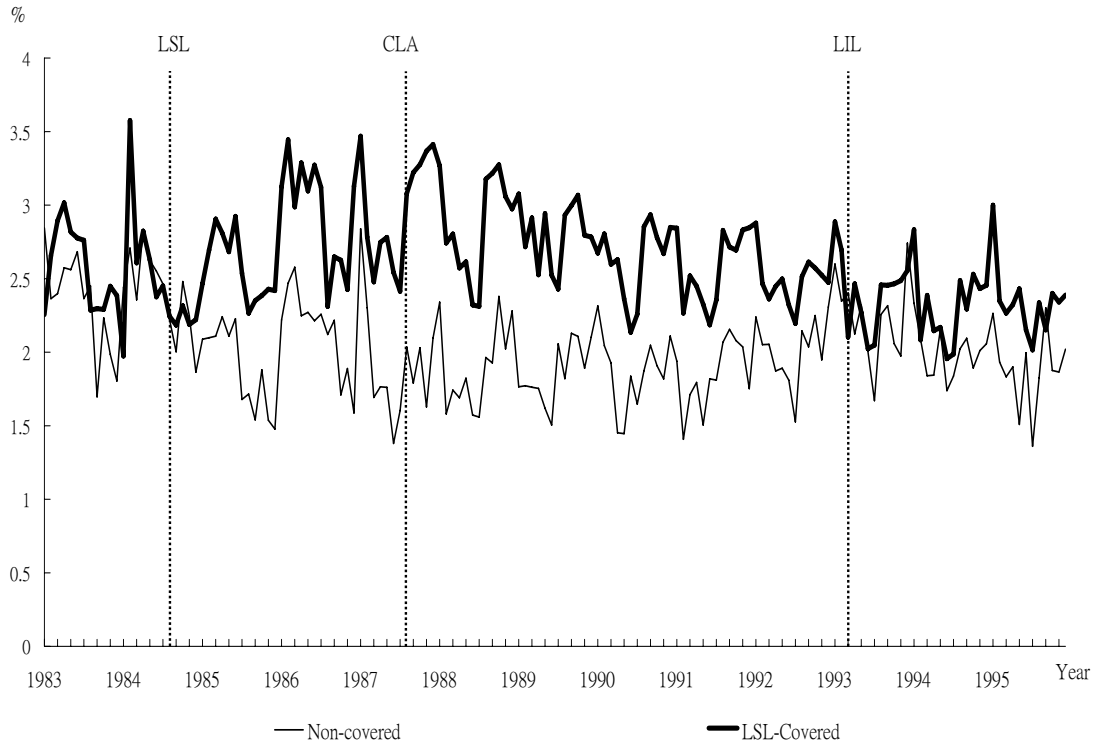

Figure 3.6: The Changes of Job Reallocation for Establishments with 30-99 Employees.

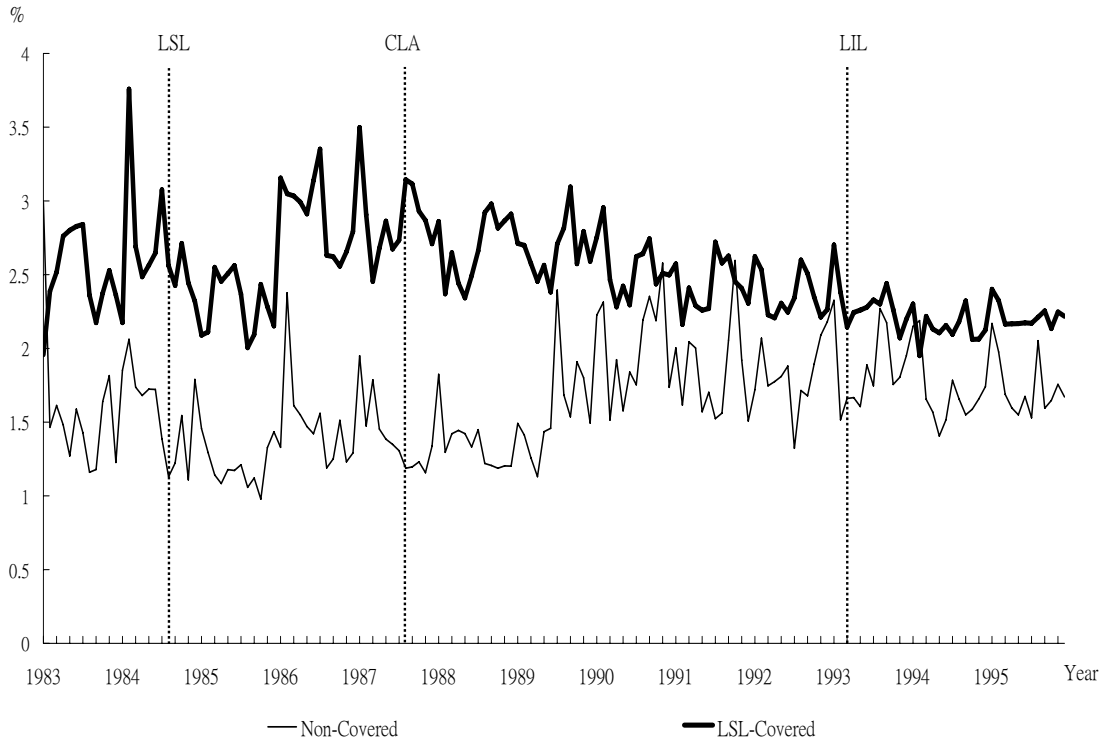

Figure 3.7: The Changes of Job Reallocation for Establishments with 100 or more Employees.

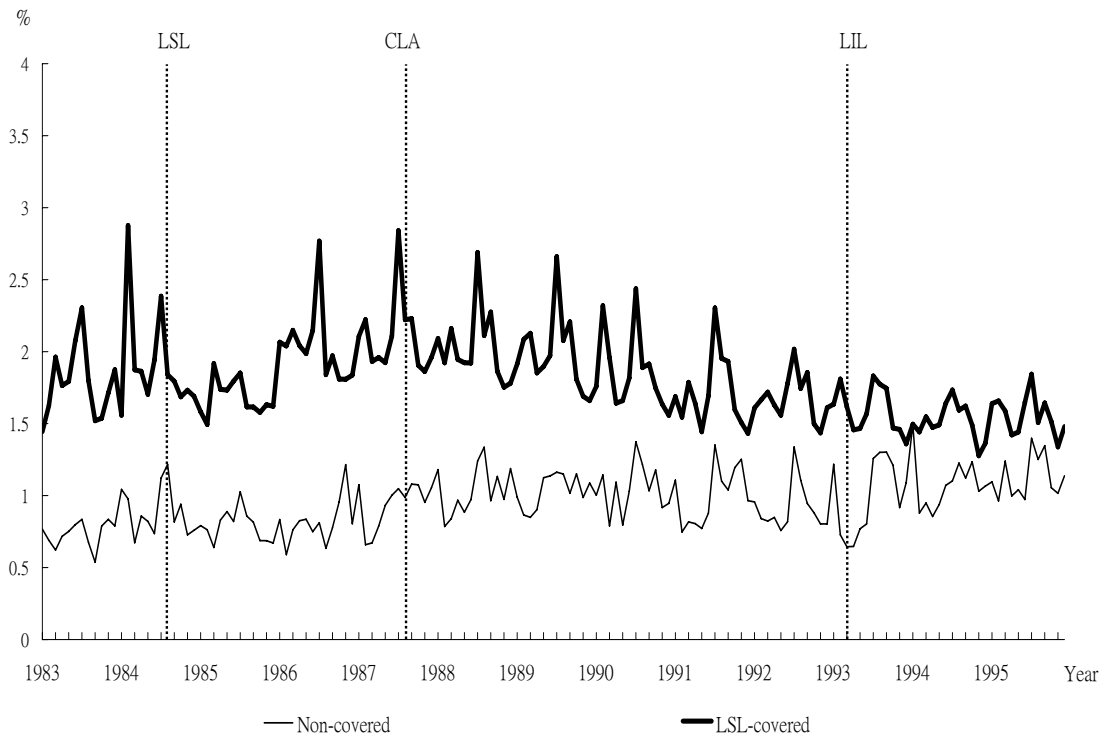

Figure 3.8: Difference in the Rate of Job Reallocation between LSL-Covered and Non-LSL-Covered Industries

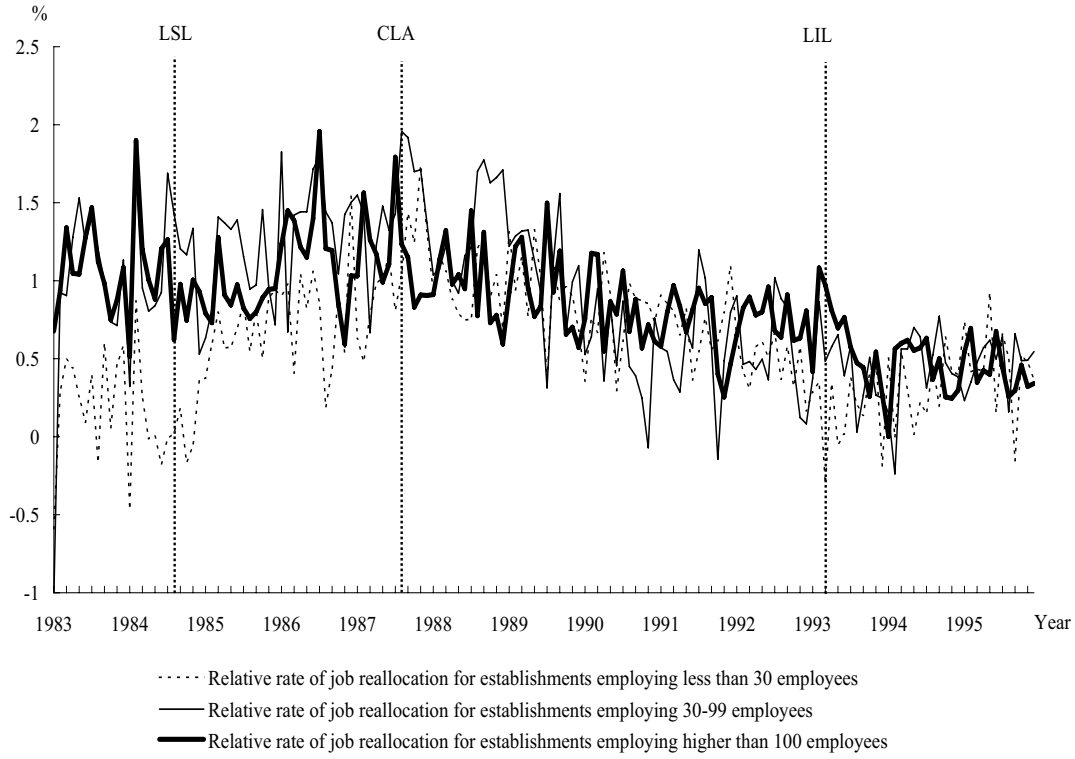

Figure 3.9: The Changes of Churning Flows for Establishments with 1-29 Employees.

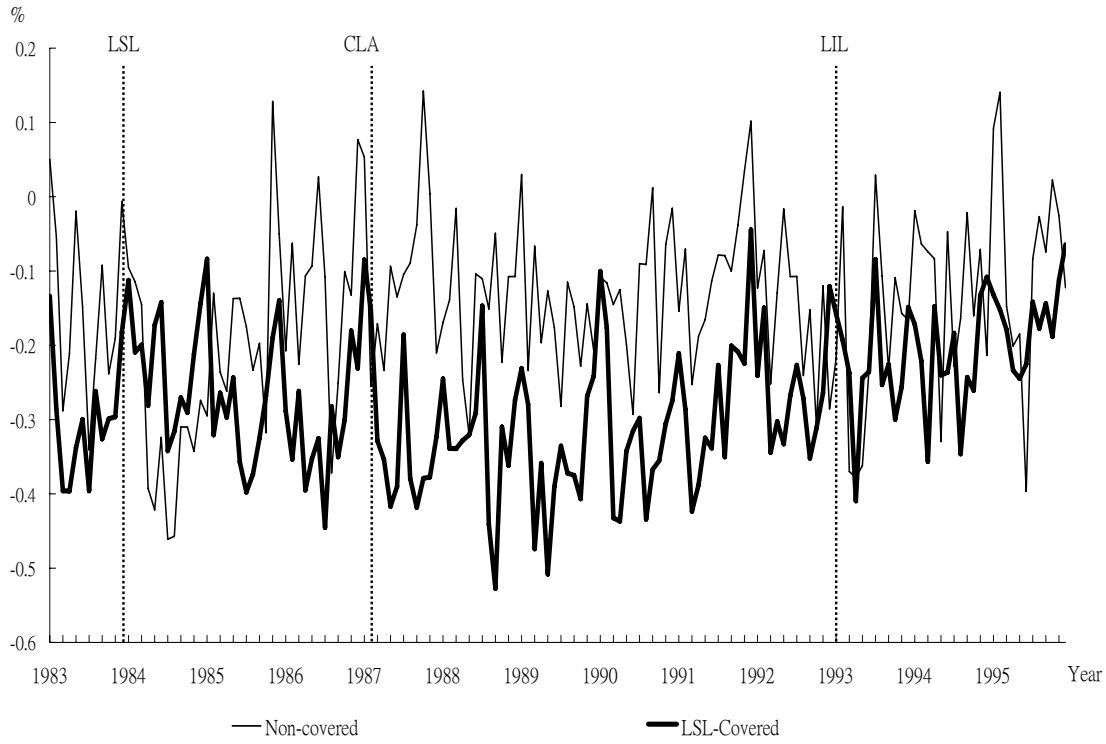

Figure 3.10: The Changes of Churning Flows for Establishments with 30-99 Employees.

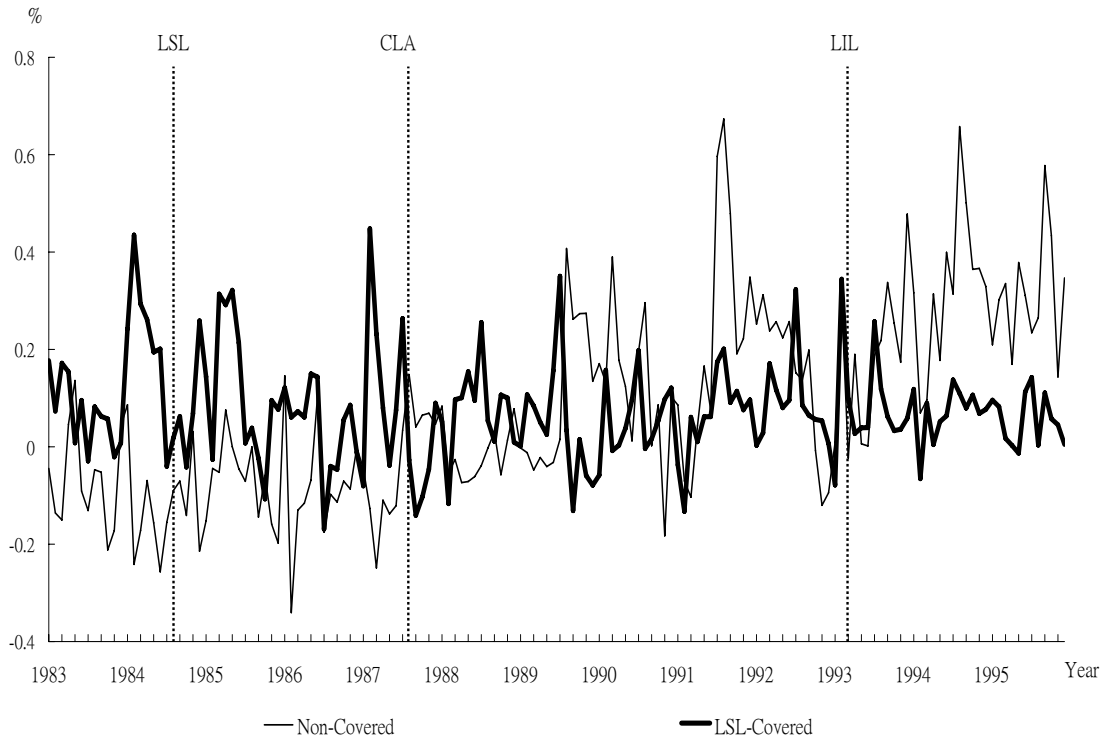

Figure 3.11: The Changes of Churning Flows for Establishments with 100 or more Employees.

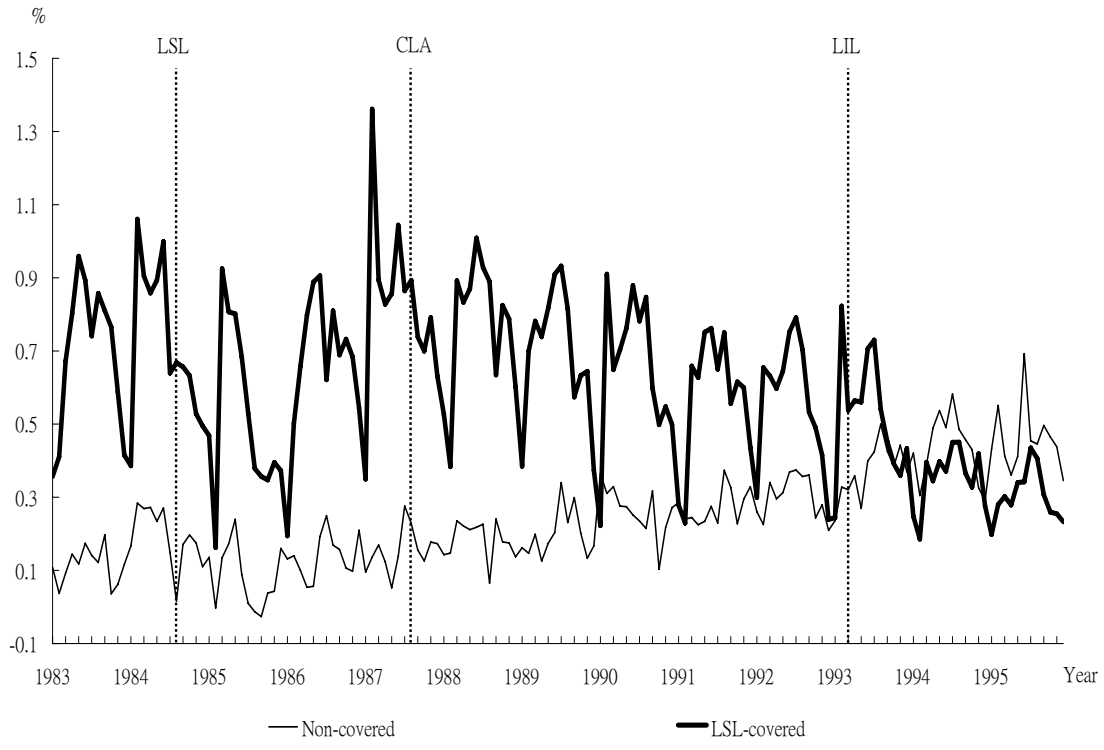

Figure 3.12: Difference in the Rate of Churning Flows between LSL-Covered and Non-LSL-Covered Industries