Regional Ties and Discrimination: Political Change, Economic Crisis, and Job Displacements in Korea, 1997-1999

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Abstract

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Abstract

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1 Introduction

Informal networks in East Asia that are defined as personal relationships based on family-based clans, blood ties, school ties, or regional ties have recently attracted special attention from various fields of social sciences. Although informal networks are regarded as one of the central features of understanding the East Asian economy, divergent perspectives exist on the causes and effects of informal networks in East Asia. Many scholars view informal networks among elites forged in East Asia as a crucial factor underpinning its rapid economic growth during the 1970s and 1980s [Aoki 1997; Evans 1995; Lee 1992; Okimoto 1989]. After the outbreak of the 1997 Asian financial crisis, however, scholars identify informal networks among elites as a source of the so-called "cronyism," which refers to corruption and rent-seeking behavior based on personal relationships [Krugman 1998;

Wade 1998].

Although they aptly capture an important aspect of the East Asian political economy, existing studies on informal networks in East Asian countries are mainly concerned with their existence and functioning in macro-institutions such as government or business. They tend to place a primary emphasis on informal networks cultivated among elites, such as fused relationships among politicians, bureaucrats, and businessmen. Keenly aware of the blurred boundaries between public and private areas, for instance, many studies on *amakudari* in Japan, *guanxi* in China or parachute appointment in South Korea explore the way in which informal networks among elites are created and maintained in their societies [Blumenthal 1985, Usui and Colignon 1995 for Japan; Pye 1995 for China; Kim 1991a, Kim 1991b, Kim and Lee 2001, Kim and Park 2001, Kim and Lew 1996, Lee 2001 for South Korea]. They also investigate the causes for such fused linkages among elites by focusing on personnel movement between the public and private sectors. Studies are, however, scarce that explore informal networks and their scopes and consequences at the individual and micro levels. Moreover, little is known about the functioning of such mechanisms within non-elite groups.[1] A full examination of the scopes and consequences of informal networks calls for explicating their micro-foundations and their impacts on the micro levels.

Given the limitation of studies on informal networks in the East Asian economy, this paper aims to explore two theoretical as well as practical issues. First, it focuses on one particular form of informal

[1] There exist some micro-level studies on Chinese *guanxi* [Bian 1994; Wank 1996; Zhang and Li 2003]. However, such studies on Japan and South Korea are few. In the case of South Korea, Park (1990) showed that the presence of a region (i.e., Kyongsang)-based dominant group at the manager level led to regional discrimination in worker hiring in the early 1980s. Lacking micro-foundations, however, his analysis focuses on the intermediate level in the sense that he compares aggregate employment of workers from different regions across different industries. Recently, Kim and Park (2004) have done a micro-level analysis of labor market discrimination in association with workers' region of birth. Their main emphasis is on the difference in labor market outcomes between workers from the Seoul-Kyongki region and other regions. In contrast to their study, we highlight differences in the labor market outcome between workers from the Jolla and Kyongsang provinces, a historically-rooted major concern in South Korea in terms of antagonistic regional sentiments and discriminatory effects of informal networks forged by elites and ordinary people from the same region.

networks that are believed to exist in South Korea: regional ties (or *jiyon* in Korean). Regional ties are an informal connection between people, built upon the geographical closeness or bond of an individual's birth region in South Korea. Along with school ties, regional ties have been identified as one of the informal networks that typically create distortional outcomes and discrimination in the South Korean society.[2]

Second, like traditional studies on informal networks in East Asia, a majority of previous studies on regional ties in South Korea have adopted a macro-level approach by examining regional bias reflected in the composition of power-elite groups, such as high ranking government officials and management staffs of *Chaebols*, government-sponsored companies, or influential mass media companies. However, these studies are inherently limited in providing concrete evidence on the scope and depth of regional ties in South Korea. Little has been known about whether the function of regional ties and regional discrimination is limited to such extraordinary labor markets as the elites groups, or if it is a widespread phenomenon that takes place among ordinary people.[3] Instead of delving into macro-institutional consequences, analyzing job displacements during the recent period of economic recession (1997-99), this study offers micro-level evidence of regional ties and the discrimination they accompany, and seeks

[2] Unlike the skin color, gender, race or ethnicity for which discrimination is found to function in other countries, an individual's birth region is not apparent with a sheer look at a person. Since South Korea is a very homogeneous country in terms of race and ethnicity, it is fairly difficult to distinguish, for example, between native Jolla and native Kyongsang people at their appearances or languages. One of the most frequently used methods to identify one's birth region in South Korea would be browsing a person's resume that has information on the records of high school that he/she attended. Unless one moves between provinces during his/her teenage period, the birth region will well match the region where the high school is located.

[3] In the political arena, the issue of regional ties is very acute as evidenced in the outcomes of the South Korean general and presidential elections for the past decade and half. For example, in the recent 2002 presidential election, the current president (Roh Moo-Hyun) whose then regional basis of political support was believe to be the Jolla provinces (to be more exact, Jolla provinces-born voters) received about 93.6 percent of votes from the Jolla provinces, while getting about 25.8 percent of those from the Kyongsang provinces. (See Figure 1 to locate these regions.) In contrast, his major opponent candidate whose then regional basis of political support was believe to be the Kyongsang provinces received about 4.9 percent of votes from the Jolla provinces, while getting about 69.5 percent of those from the Kyongsang provinces. (These figures are available from National Election Commission of South Korea, Database.) Also, see Park (2001) for the proportions of supporting votes for parties by region in the 1987 and 1992 presidential elections and the 1988 and 1992 national parliament elections in South Korea [Table 5.10 and Table 5.11].

theoretically grounded micro-causal explanations for regional discrimination in South Korea.

The remainder of the paper is organized as follows: in section 2, a historical background of South Korean regional discrimination and its relevance to job displacements during the period 1997-99 are presented. The empirical model and data used in the analysis are discussed in sections 3 and 4, respectively. In section 5, the findings and their implications are presented. Section 6 concludes the paper.

2 Regional Discrimination and Job Displacements (1997-1999) in South Korea

It is widely known that South Korea's successful economic growth in the past four decades has been accompanied by geographically uneven developments in the following two respects: (1) the concentration of industrial activities in the Seoul-Kyongki metropolitan region in the northwest region of South Korea, and (2) the disproportionate development between the Jolla provinces in the southwest and the Kyongsang provinces in the southeast (See Figure 1).[4]

INSERT FIGURE 1 HERE.

First, industrial activities are highly concentrated in Seoul-Kyongki, as demonstrated in some indicators of population and industrial production distribution by region. Table 1 shows the regional distribution of population and the value added of the mining and manufacturing industries from the year

[4] In our analysis, we divide the entire nation into four broad regions that are mutually exclusive and that are believed to be the basis of regional ties: they are the Seoul-Kyongki region, the Kyongsang provinces, the Jolla provinces, and the Chungchong-Jeju-Kangwon provinces. The Seoul-Kyongki region includes Seoul and Inchon City, and Kyongki Province. The Kyongsang provinces include North Kyongsang and South Kyongsang Provinces, and Taegu, Pusan and Ulsan City. The Jolla provinces include North Jolla and South Jolla Provinces, and Kwangju City. The Chungchong-Jeju-Kangwon (or CJK) provinces include Kangwon Province, North Chungchong and South Chungchong Provinces, and Jeju Province. This demarcation system of the cities and provinces has been employed (with slight occasional modifications) ever since the First Republic in 1948. As most of the border lines between the cities and provinces are not drawn in direct association with geographical separations, they are generally blurry from non-geographical perspectives. In contrast, the separation between the Kyongsang provinces and the Jolla provinces is very pronounced, as it is actually based on a geographical separation by a high mountain range lying north-south along the border.

1960 to 1998. The share of population residing in Seoul-Kyongki has rapidly increased from 28.3 percent in 1970 to 45.8 percent in 1998. The regional distribution of value added also shows the concentration of industrial production in Seoul-Kyongki. In 1960, the region accounted for 36.8 percent of value added and 31.8 percent employment in the mining and manufacturing industries. In 1995, these numbers had grown to 44.4 percent and 46.4 percent respectively.

Second, and more important for our purpose, even in the economic developments outside Seoul-Kyongki, regional bias has existed between the Kyongsang provinces and the Jolla provinces. As illustrated in Table 1, during the high-growth period since early 1960's, the Kyongsang provinces have outgrown the Jolla provinces in terms of the share of population, value added and employment in the mining and manufacturing industries.[5]

INSERT TABLE 1 HERE.

It is generally thought that the political change in the early 1960s, which brought in native Kyongsang political elites into power via regional ties, contributed to the reverberation of regional bias in economic development, especially between the Kyongsang and Jolla provinces (Kim 1991a). From 1961 to 1997, all the presidents were those who were able to garner landslide election victories from the Kyongsang provinces. As a consequence of the political regionalism and region-biased economic development that have lasted for the past several decades, there was a growing public perception that the Kyongsang provinces and native Kyongsang people had been the major beneficiaries of regional ties, while the Jolla provinces and native Jolla people had been their main victims.[6] Until recently, although it is not demonstrated at the micro-level, it has been believed that native Kyongsang people are more favored in

[5] See also Wessel (1997) and Cho and Kim (1991) for details of the region-biased economic development in South Korea.

[6] One of the reasons the Jolla provinces had been the major victim of the mainstream Kyongsang regional ties was because the former South Korean president Kim Dae-Jung, the long-time opposition party leader, had based his political support on the Jolla provinces and native Jolla people.

various respects than native Jolla people.[7] This perception of regional bias against native Jolla people is thought to hold valid even in Seoul-Kyongki (the most industrialized region) in which both native Jolla and native Kyongsang people live as immigrants.

With this backdrop, probing into job displacements (especially, layoffs) from 1997 to 1999 has theoretical and practical merits in examining the scope and depth of regional ties and regional discrimination, and their changes in South Korea. First, the traditional political landscape changed dramatically at the end of 1997, as the long-time opposition party led by Kim Dae-Jung, who received support from the Jolla provinces as well as native Jolla people, won the presidential election in December 1997.[8] As a result, the changes were expected to take place in the traditional mechanism of regional ties and discrimination. That is, with the advent of the new political regime, either the mechanism could die out altogether with the dismantling of Kyongsang regional ties, or the major promoters of such a mechanism could change from Kyongsang to Jolla while the mechanism itself remained unaltered. If the latter is true, reflecting the preceding political change, this time, native Jolla people are likely to emerge as the main beneficiaries, while native Kyongsang people as the main victims of the same mechanism.

Second, the era of change in political regionalism interestingly coincides with the period of a massive economic crisis and the severe economic recession. In the wake of the 1997 Asian financial crisis, a large scale of job displacement was going to take place in the labor market.[9] In the course of the economic

[7] Kim (1991a), Kim (1991b) and Kim and Lew (1996) report the regional bias (favorable to Kyongsang and unfavorable to Jolla) in composition of high-ranking government officials and elite groups such as ministers, national assembly members, high-ranking military officers from the 1960's to the late 1980's.

[8] In this election, Kim Dae-Jung received about 92.9 percent of votes from the Jolla provinces, while getting about 13.2 percent of those from the Kyongsang provinces. His major opponent candidate received about 3.2 percent of their votes from the Jolla provinces, while getting about 58.1 percent of those from the Kyongsang provinces. For the Seoul-Kyongki region, Kim Dae-Jung received about 49.1 percent support, and his opponent received 37.8 percent (National Election Commission of South Korea, Database).

[9] During this period, major changes in economic policies to overcome the urgent critical situation were focused on the financial markets and the labor relations. The International Monetary Fund, which provided the South Korean government with a bail-out funding at the end of November 1997, demanded that the government execute strict economic restructuring by pursuing a high interest rate policy and allowing for the rapid adjustment of the labor market and employment practices in a more flexible manner. Until mid 1999 when the economy went back to normal,

crisis and subsequent recession in South Korea, the unemployment rate surged to a level of 8.8 percent in February 1999. In such a situation, it would have become highly uncertain whether and when a person could have been re-employed once displaced, and the damaging effects of job displacements could have become more powerful.[10] As long as the identification was not straightforward as to which worker was redundant and which one was not among a group of workers, the employers' prejudice and discretion could have entered the process of selective layoffs. If the mechanism of regional ties and discrimination persisted during this period in South Korea, birth region—the basis of regional ties—may have emerged as a determinant in the layoff process.

Below we argue that a worker's birth region was one of the factors that significantly contributed to a gap in layoff rates among ordinary workers during 1997-99 in South Korea. Given the nature of the preceding political and socioeconomic changes, native Jolla workers are expected to have been main beneficiaries (rather than victims) of the system of regional ties. If we find a significant gap in the layoff rates between native Jolla workers and other workers (especially, native Kyongsang workers), we interpret it as the outcome of the functioning of regional ties and regional discrimination.

From the perspectives of many of existing studies that assume informal networks as constant, political and socioeconomic changes won't have immediate impacts on the functioning of networking (Krasner 1984; Skowronek 1982). However, if we find evidence of the reversed version of regional discrimination (that is, favored native Jolla people versus unfavored native Kyongsang people) in the wake of the recent political changes, it presents new evidence that the functioning of informal networks is subject to change as individuals attempt to enhance their interests within the existing institutions, although their structure per se remains unchanged. In this respect, the 1997-1999 period in South Korea can also serve as a natural experiment which shows how abrupt socioeconomic and political changes affect the

these policies resulted in a severe economic recession which was accompanied by large scale bankruptcies and job displacements.

[10] For studies reporting the various negative outcomes (such as wage losses, longer unemployment durations, low rates of reemployment, and etc.) of job displacement, see Kletzer (1998), Fallick (1996) and the references therein.

functioning of informal networks such as regional ties.

3 Estimation Model of Job Displacement

Our empirical analysis of job displacement basically compares personal and job-related characteristics of those displaced and those not. The control group is those workers who retain their employments during the recession period (1997-99), and the comparison group is those who experience a displacement during the same period.[11] In our micro analysis of regional ties and discrimination, the main explanatory variable of interest is an individual's birth region.

A probit model is applied for statistical analysis. In this model, an individual's displacement status is regressed against the characteristics of a worker and the employer, as well as a worker's birth region, while the discrete nature of the displacement status (0 or 1) is taken into account in the regression. Define D_i as a dummy variable that takes one if worker i has been displaced from his employer during a period of interest, and zero otherwise. When worker i has become displaced, the likelihood is specified by $\Pr(D_i = 1) = \Phi(X_i\beta)$ where X_i is a $(1 \times K)$ vector of i's personal and job-related characteristics at the risk of displacement, β is a $(K \times 1)$ parameter vector and $\Phi(\cdot)$ is the cumulative distribution function of the standard normal distribution. The likelihood that i has maintained his employment during the same period is specified by $\Pr(D_i = 0) = 1 - \Phi(X_i\beta)$.[12]

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[11] Using the similar method, Fairlie and Kletzer (1996) and Fairlie and Kletzer (1998) examine the racial discrimination of the U.S. labor market in the process of job displacements. If one interprets a layoff as a selective hiring of workers in the face of the need for employment downsizing, the discrimination in hiring has an implication on that in layoff. See Darity and Mason (1998) for studies on gender and racial discrimination in employment.

[12] Taking a derivative of $\Pr(D_i = 1)$ with respect to X_{ik} $(k = 1,\cdots,K)$ to interpret the estimates, we have

$$\frac{\partial \Pr(D_i = 1)}{\partial X_{ik}} = \frac{\partial \Phi(X_i\beta)}{\partial X_{ik}} = \phi(X_i\beta) \times \beta_k$$

where $\phi(\cdot)$ is the probability density function of $N(0,1)$. Since $\phi(\cdot)$ is always positive, a characteristic X_{ik}

There are three issues to be mentioned regarding the statistical specification. First, in the analysis, we distinguish between layoffs and plant closings, and separately examine the two causes of job displacement. Discerning the two types of displacements can highlight the regional bias that lies behind the process of job displacement. It is believed that a worker's displacement due to layoff is caused by the employer's decision or discretion on selective cutting down of its employees in the face of the need for employment restructuring. In contrast, displacement due to plant closing takes place when a worker's employer goes bankrupt and is forced to shut down. Thus we can suppose that the displacement due to plant closing is not directly associated with the employer's discretion over whom to displace.[13] As long as the economic recession hit employers in a non-discriminatory manner during the post-crisis recession period in South Korea, the regional gap in the displacement rates would not exist in the case of displacement due to plant closings, whereas it would exist in the case of layoffs; this reveals the functioning of regional discrimination arising from regional ties.

Second, in a strict analysis of job displacement, it is important that we identify those workers who are *actually* "at risk" of getting displaced, whether, or not, they are eventually displaced. Unless a question is explicitly asked as to whether there has been an employment restructuring in the workplace, it is impossible to know whether a worker has been at the risk of job displacement in the job. As a result, it is plausible that those workers who have not been at the risk are (erroneously) included in the sample of the stayers at the job in our comparison between those displaced and those not. If the non-at-risk workers are systematically different in terms of personal characteristics from those who have actually been at the risk and have managed to survive it, failure to exclude the former workers from the analysis may lead to biased results.[14] In our case, we suppose that this problem is less severe. To the extent that the economic

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increases (decreases) the displacement likelihood if β_k is positive (negative), other explanatory variables being kept constant.

[13] See Gibbons and Katz (1991) for the nature of plant closings as opposed to the layoffs.

[14] This possibility has been one of major concerns in traditional U.S. studies of job displacement that use data only

recession following the 1997 financial crisis was so strong and widespread in South Korea, we can assume that a large proportion of private sector employees had *actually* been "at risk" of losing a job at any moment during the recession period 1997-99.[15]

Third, in the probit analysis, the set of explanatory variables includes a worker's current residence region together with the birth region.[16] Controlling for the former is required to consider the current gap in industrialization among the four broad regions, especially between the Kyongsang provinces and the Jolla provinces. As seen in section 2, the Seoul-Kyongki region and the Kyongsang provinces are currently more industrialized than the Jolla provinces and the Chungchong-Jeju-Kangwon (or CJK) provinces. If native Kyongsang (Seoul-Kyongki) workers are hired by firms in Kyongsang (Seoul-Kyongki), the higher rate of displacement facing them may not be due to discrimination, but due to the current regional gap in the level of industrialization.[17]

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of those displaced. See Farber (1993), Fallick (1996) and Kletzer (1998, p.130) for the problems and alternative methods used in the analysis of job displacements.

[15] Using two national-level establishment surveys in South Korea, we attempt to measure how strong and widespread the risk of job displacement was among the private-sector workers during 1997-99. The surveys employed are the Mining and Manufacturing Survey and the Wholesale and Retail Trade Survey that are annually conducted by the Korea National Statistical Office. They are annual surveys on establishments that collect a wide range of information on the establishments in the respective industries (The Mining and Manufacturing Survey covers all mining and manufacturing establishments with five or more workers countrywide, while the Wholesale and Retail Trade Survey covers a sample of about 30,000 establishments). Collected by these surveys is the information on the establishment's location, employment size, total compensation, annual sales, etc. Using the data publicly available, we construct the total number of employees in each 3-digit industry broken down by a total of 16 provinces and large cities for the year 1997 and 1998 to calculate the percentage changes between the two years in total employment sizes in each (region×3-digit industry) cell. In the construction, 26 different 3-digit industries are identified from the Mining and Manufacturing Survey, and 36 industries are identified from the Wholesale and Retail Trade Survey. By arranging them for each of 16 different regions, we finally obtain 389 (for the mining and manufacturing industry) and 505 (for the retail and service industry) valid changes in total employment size of the (region×3-digit industry) cells. From this calculation, it turns out that 329 cells, which explains 84.6% of the (region×3-digit industry) cells, display negative changes (i.e. decreases) in the employment size for the mining and manufacturing industry, while 348 cells explaining 68.9% of the cells display negative changes for the retail and service industry. Putting together these two groups, 677 out of 894 cells (i.e. 75.3%) report the decrease in the employment size. This suggests the large scale of impact that the 1997 financial crisis had on employment in South Korean firms during the post-crisis period. It supports the assumption that a large proportion of private sector employees had *actually* been "at risk" during this period.

[16] The residence regions and birth regions are controlled by the dummy variables in the probit models. The Jolla provinces are used as the reference group.

[17] While the residence regions are controlled for, we separately examine the birth region effects on job displacement

After estimating the probit model and examining the birth region bias in the process of displacement, we decompose the birth region gap in average layoff rates between native Kyongsang and Jolla workers into two parts: (1) the part that can be attributed to the gap in an individual's (personal and job-related) observable characteristics and (2) the part that can be ascribed to differential treatment in the layoff process. Such decomposition is generally examined in an analysis of discrimination, as it highlights the relative importance of differential treatment (or genuine discrimination) in the discriminatory outcomes. Our decomposition is made by the Blinder-Oaxaca method that is modified by Fairlie (1999) for the non-linear cases.

For our probit model where the average value of dependent variable, *Y,* is expressed by a nonlinear form ($\overline{Y} = \sum_{i=1}^{N_j} \frac{\Phi(X_i\hat{\beta})}{N_j}$), the decomposition of the gap in average layoff rates between native Kyongsang and native Jolla workers can be written as

$$\overline{Y}^{KS} - \overline{Y}^{J} = \{\sum_{i=1}^{N_{KS}} \frac{\Phi(X_i^{KS}\hat{\beta}^{J})}{N_{KS}} - \sum_{i=1}^{N_J} \frac{\Phi(X_i^{J}\hat{\beta}^{J})}{N_J}\} + \{\sum_{i=1}^{N_{KS}} \frac{\Phi(X_i^{KS}\hat{\beta}^{KS})}{N_{KS}} - \sum_{i=1}^{N_{KS}} \frac{\Phi(X_i^{KS}\hat{\beta}^{J})}{N_{KS}}\} \qquad (1)$$

where N_j is the sample size for birth region *j* (= *KS; J*).[18] In the first version of the decomposition method, the Jolla estimates are used to measure the layoff rates gap that is due to differences in observable characteristics. The term in the first curly bracket represents the part of the layoff rates gap that is due to group differences in the distribution of *X*, as they share the same coefficient $\hat{\beta}^{J}$, while varying over *X*.

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for Seoul-Kyongki and regions outside Seoul-Kyongki. Seoul-Kyongki is where people from all over the country have migrated; the distribution of birth regions in Seoul-Kyongki is very different from other regions outside Seoul-Kyongki. We suppose that the functioning of regional discrimination varies over the two regions. The separate examinations for Seoul-Kyongki and regions outside Seoul-Kyongki are enabled by simply adding the interaction terms of the Seoul-Kyongki residence and each of the birth region dummy variables to X_i.

[18] For linear models, the standard Blinder-Oaxaca decomposition in the average value of the dependent variable, *Y*, can be expressed as

$$\overline{Y}^{A} - \overline{Y}^{B} = \overline{X}^{A}\hat{\beta}^{A} - \overline{X}^{B}\hat{\beta}^{B} = [(\overline{X}^{A} - \overline{X}^{B})\hat{\beta}^{B}] + [(\overline{X}^{A}(\hat{\beta}^{A} - \hat{\beta}^{B})]$$

where $\overline{X}^{j}$ is a vector of average values of the explanatory variables and $\hat{\beta}^{j}$ is a vector of coefficient estimates for the group *j* (= *A,B*). See Blinder (1973) and Oaxaca (1973).

The term in the second curly bracket represents the part of gap that is due to group differences in treatment, as they share the same characteristic X_i^{KS}, while varying over $\hat{\beta}$.

The second version of decomposition method can be written, with slight modification, as follows:

$$\overline{Y}^{KS} - \overline{Y}^{J} = \{\sum_{i=1}^{N_J} \frac{\Phi(X_i^J \hat{\beta}^{KS})}{N_J} - \sum_{i=1}^{N_J} \frac{\Phi(X_i^J \hat{\beta}^J)}{N_J}\} + \{\sum_{i=1}^{N_{KS}} \frac{\Phi(X_i^{KS} \hat{\beta}^{KS})}{N_{KS}} - \sum_{i=1}^{N_J} \frac{\Phi(X_i^J \hat{\beta}^{KS})}{N_J}\} \qquad (2)$$

In this case, the Kyongsang estimates are used to measure the layoff rates gap that is due to differences in observable characteristics. This time, the second bracket denotes the gap in average value of *Y* that is due to the difference in *X*, and the first bracket denotes the difference in treatment. We decompose the gap in average layoff rates between native Kyongsang and native Jolla workers in both ways. The outcomes of the two methods of decomposition turn out to be fairly similar.

4 Data

For empirical analysis we use a South Korean national household survey entitled "Korean Labor and Income Panel Study (KLIPS)." KLIPS is a longitudinal survey of Korean households which started in 1998 for 5,000 households and 13,783 individuals over 15 years of age. It is modeled after the National Longitudinal Surveys (NLS) and the Panel Study of Income Dynamics (PSID) in the US, and administered annually by the Korea Labor Institute (KLI), a government-sponsored research institute. The respondent households and individuals of this survey are designed to represent the population of South Korean households and individuals.[19] The survey collects a wide range of information from a household's income and expenditures to each household member's demographics (including birth region), current and past labor market status, and labor (or non-labor) earnings. The questions regarding an

[19] For details of KLIPS, see Korea Labor Institute (1998).

individual's current and past labor market experiences are useful for our study of job displacement during the recession period. Specifically, we rely on the calendar date when an individual left his/her most recent employer and the reason for the job separation to identify those displaced from the jobs for involuntary reasons between December 1997 and the survey date of 1999.[20]

As indicated, we distinguish between layoffs and plant closings in our analysis. Such distinction of displacements is made possible by questions in the survey that asked the reason why one left his/her most recent employer. We classify a worker's displacement as due to a plant closing if the reason for leaving a job is "because of plant closing." If the reason answered is "because of being laid off or because of no jobs assigned," we classify the displacement as due to a layoff. If a worker left the employer for voluntary reasons such as "because the compensation was too low, because the job is not promising, because of personal matters like marriage or child care, etc.," such observations are excluded from the analysis. The individuals who had been displaced for either of the involuntary reasons are "separators"—those who were displaced from employers in the process of the restructuring forced by the economic recession. Those who had retained the employment with the same employer between December 1997 and the survey date of 1999 are "stayers"—survivors of employment downsizing during the period of interest.

5 Birth Regions and Job Displacement

[20] The KLIPS surveys have been mainly conducted during the second half of each year (June to October for the 1998 survey, and August to December for the 1999 survey). Given that the 2000 survey mainly asked what happened after the 1999 survey dates and before the 2000 survey dates and that the South Korean economy seemed to return to its normal track in the forth quarter of 1999 with respect to the GDP growth rate and unemployment rate, we restrict our analysis up to the 1999 survey. As stated earlier, if we extend the years of analysis to the post-1999 data, the problem of non-distinction between non-at-risk workers and stayers at the job may arise. As a supplement to our main analysis, we analyze the 2000 and 2001 data to examine job displacements after the recession, and find no significant effects of a worker's birth regions on the likelihood of layoff. Nevertheless, this result does not necessarily contradict our main findings. First, in the recovery period, it is highly likely that workers are not actually at the risk of job displacement. Including those who are not at the risk can lead to biased results. Second, in the recovery period, the displacement may fail to serve as a means to discriminate any longer. As long as employers strongly wish to cut off their employees, and employees want as strongly to remain employed, the displacement is an efficient tool of discrimination. Otherwise, it may not be the case. These two conditions are well satisfied during the recession period between 1997 and 1999, while not as well during the recovery period after the second half of 1999.

5.1 Basic Results

Table 2 shows basic estimation results of the probit model on layoffs and displacement due to plant closings.[21] Columns (1) and (4) control for only the personal characteristics such as sex, age, education, marital status, household head status, birth/residence regions, occupation, etc. As employer-related characteristics, columns (2) and (5) control for broad industry dummies, while columns (3) and (5) include both industry and firm-size dummies.[22]

INSERT TABLE 2 HERE.

When only the personal characteristics are controlled for, we do not find significant evidence for the birth region effects on the layoff likelihood both for Seoul-Kyongki and regions outside Seoul-Kyongki. However, to the extent that the Jolla provinces had been relatively underdeveloped and that native Jolla people had emigrated on a larger scale over the past decades, this result may be due to the fact that native Jolla workers were more likely to be employed in industries and firms that were more vulnerable to the economic recession.[23] When industry and firm sizes are controlled for in columns (2) and (3), we do find

[21] The descriptive statistics of the variables used in the analysis are reported in Appendix Table 1. The estimates for the other personal characteristics and firm size suppressed here are reported in Appendix Table 2.

[22] All industries are summarized by five representative industries that are put together based on 3-digit industry codes. These five industries are the construction, light manufacturing, heavy manufacturing, nonprofessional service, and professional service industry. The construction industry is the 1-digit construction industry. The light manufacturing industry consists of the industry of nondurable manufacturing, primary metals, and fabricated metals. The heavy manufacturing industry is the industry of nonelectrical machinery, electrical machinery, transportation equipment and other durable manufacturing. The nonprofessional service industry is made up of wholesale and retail trade, and transportation, communication and public utilities. Finally, the professional service industry includes the industry of finance, insurance and real estate, and professional and business services. Those who are employed in agriculture, the mining industry and the government sector are excluded from the analysis. Firm-sizes are controlled by dummy variables for less than 10, 10 to 30, 30 to 100, 100 to 300, 300 to 1,000, and more than 1000 employees.

[23] For example, a simple frequency analysis for the sample of layoff analysis shows that, in the Seoul-Kyongki region, native Jolla workers were more likely than native Kyongsang workers to work in the light manufacturing industry (18.9 percent vs 13.2 percent) and less likely to work in the professional service industry (22.8 percent vs 28.6 percent). A similar analysis also shows that, in the Seoul-Kyongki region, native Jolla workers were less likely to work in the large-sized firm with over 300 employees than native Kyongsang workers (26.2 percent vs 36.8 percent). As long as the professional service industry and the large-sized firms were less severely hit by the economic recession, the absence of significant gap in layoff rates between native Kyongsang and Jolla workers in

the significant gap in layoff rates between native Kyongsang and Jolla workers, particularly for Seoul-Kyongki. According to column (3), the Kyongsang coefficient for Seoul-Kyongki is 0.389 (s.e. 0.187) and it is significant at the 5% significance level. In contrast, the Seoul-Kyongki and CJK coefficients are not significantly different from zero. No birth region coefficients are significant for regions outside Seoul-Kyongki. The results reveal that native Kyongsang workers faced a significantly higher likelihood of layoffs than similar native Jolla workers in Seoul-Kyongki, while not outside Seoul-Kyongki.

The empirical result of the significant Kyongsang-Jolla gap in layoff rates is quite surprising in itself. A seemingly non-economic factor of a worker's birth region yields a significant gap in layoff rates between native Kyongsang and Jolla workers in Seoul-Kyongki. It provides basic evidence on the functioning of a regional discrimination mechanism during the post-crisis recession period in South Korea. As we see in the next section, this empirical result shows a fair amount of robustness against omission of some important variables. Our results also verify the possibility that a higher proportion of native Jolla workers are hired in industries and firms vulnerable to job displacements, and that this masks the birth region gap in layoff rates when industry and firm size are not controlled for.

INSERT TABLE 3 HERE.

Using the probit estimates of column (3) of Table 2, in Table 3, we calculate the predicted layoff rates of a median worker for each birth region.[24] They are reported under column (0) of Table 3. According to column (0), a native Kyongsang median worker faced a 0.138 (s.e. 0.046) probability of layoff in Seoul-Kyongki, while he faced a 0.078 (s.e. 0.026) probability outside it. In contrast, a native Jolla median worker faced a 0.070 (s.e. 0.027) probability of layoff in Seoul-Kyongki, while he faced a 0.061 (s.e. 0.024) probability outside it. The layoff rates gap between native Kyongsang and native Jolla workers is 0.068 (s.e. 0.037) in Seoul-Kyongki, which is significant at the 7% significance level. For the

column (1) does not necessarily imply that of regional discrimination.

[24] This worker is a male married household-head worker who is 36 years of age and has 12 years of education, W1.1 million in monthly earnings and 3 years of tenure while employed on the full-time basis as a laborer in a firm with 100-300 employees of the heavy manufacturing industry.

regions outside Seoul-Kyongki, however, the gap is 0.017 (s.e. 0.018), and it is insignificant at the conventional levels of significance.[25] In contrast to relatively higher rates of layoff for a native Kyongsang worker, a native Seoul-Kyongki and native CJK median worker faced a 0.097 (s.e. 0.031) and 0.103 (s.e. 0.034) probability of layoff, respectively, in Seoul-Kyongki. Both of them are not significantly different from that of the native Jolla median worker. The gaps also are not significant outside Seoul-Kyongki.

In contrast to the case of layoffs, whether or not we control for industries and firm sizes, we fail to find evidence on the birth region gap in displacement rates due to plant closing. According to Table 2, within and outside Seoul-Kyongki alike, there exist no such gaps for the plant closing likelihood. This result confirms that the employer's discretion is not explicitly present in the process of displacement due to plant closings, while it is present in the process of layoffs.[26] Such a difference in birth region effects between layoff and plant closing is suggestive of the validity of our results for layoffs; if we found equally significant effects of birth region on plant closings, it would be a sign of misspecification in the layoff analysis.

In addition, there are no significant gaps in the layoff and plant closing rates across the residence regions according to Table 2. This confirms the assumption that the economic recession during 1997-1999 uniformly affected the South Korean economy nationwide.

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[25] The variances of the layoff rates gap between the median Kyongsang and Jolla workers are calculated by means of the delta method as follows.

$$Var(\Phi(X_m^{KS}\hat{\beta}) - \Phi(X_m^{J}\hat{\beta}))$$
$$\approx (\phi(X_m^{KS}\hat{\beta}))^2 X_m^{KS} Var(\hat{\beta}) X_m^{KS'} + (\phi(X_m^{J}\hat{\beta}))^2 X_m^{J} Var(\hat{\beta}) X_m^{J'} - 2\phi(X_m^{KS}\hat{\beta}) X_m^{KS} Var(\hat{\beta}) X_m^{J'} \phi(X_m^{J}\hat{\beta})$$

where $\phi(\cdot)$ is a probability density function of the standard normal distribution.

[26] According to column (3) of Appendix Table 2, the personal variables that have significant effects on the layoffs at the 10% level are a worker's age (negative), household-head status (negative) and sales & administration occupation (negative) as well as the birth regions. In contrast, according to column (6) of Appendix Table 2, no personal variables except for the service occupation (positive) have significant effects on the displacement due to plant closings.

5.2 Robustness of the Results

Given the finding that a worker's birth region plays an important role in the employer's decisions on whom to lay off especially in Seoul-Kyongki, one may reasonably ask whether such a finding is due to an uncontrolled correlation between a worker's birth region and his/her characteristics that are omitted from the analysis. Suppose that native Kyongsang workers who are employed in firms in Seoul-Kyongki are, on average, less productive than native Jolla workers who share the same observational characteristics. If this is true, the higher layoff rates of native Kyongsang workers relative to native Jolla workers will arise because unproductive workers simply face higher layoff rates, not due to regional discrimination in Seoul-Kyongki. The issue of whether or not some important characteristics are omitted is very common in an examination of any discrimination. Omitting such factors can yield very misleading outcomes. If they are found to have significant correlation with the target of discrimination, empirical evidence of discrimination can easily undermine.[27]

In our case of regional discrimination between native Kyongsang and Jolla workers, a possibility exists that Kyongsang workers are less productive than Jolla counterparts, since regional discrimination is believed to have functioned, for the past few decades, against Jolla in favor of Kyongsang until 1997. Native Kyongsang workers could have been favored in many labor market areas such as hiring, promotion, salary, etc. To check the robustness of our main findings against potential bias, we consider four extra variables that may help us bypass spurious birth region effects on layoff rates.

First, we use a log of monthly earnings that a worker received at the risk of displacement. As long as the labor market is competitive and a worker is paid by the value of marginal productivity, earnings serve as a good reflection of a worker's productivity. Controlling for monthly earnings in the probit model can

[27] See Neal and Johnson (1996), Rodgers and Spriggs (1996) and Darity and Mason (1998) regarding the controversy over the implication of Armed Forces Qualifying Test(AFQT) scores (as a measure of an individual's unobserved productivity or ability) in the examination of discrimination between white and black workers in the U.S.

consider a possible correlation between birth region and productivity-related factors uncontrolled in the basic analysis of layoff. Second, we employ the gap between the actual monthly earnings and their predicted values (both in log). If the layoff decisions are made on the basis of the gap between a worker's pay and productivity (the larger the pay is than productivity, the higher the likelihood of layoff is), controlling for such gap in earnings can also lower a suspicious correlation in the probit analysis.[28] Third, we also use a measure of one's industry's relative location in the industry wage distribution. Specifically, we use dummy variables for four quartiles of the 1997 industry wage distribution in Korea.[29] If native Kyongsang workers are believed to have been favored in hiring in high-wage industries, controlling for relative position of a worker's industry in the industrial wage distribution can also explain a suspicious correlation between birth region and uncontrolled characteristics of a worker. Fourth, we employ a worker's job designation at the risk of job displacement. If native Kyongsang workers have been favored in promotions within firms and are more likely to be found in mid-level positions that are more vulnerable to job displacement, their higher layoff rates may be due to their job designations rather than the birth region-biased decision of layoffs.[30] Columns (1) to (5) of Table 4 show the results of the probit estimation of layoffs that has controls for the four new variables in addition to personal and job-related characteristics. The corresponding results for displacement due to plant closings are reported in Appendix

[28] To get the predicted values of a worker's monthly earnings, we first run an OLS regression of monthly earnings on personal and employment-related characteristics including birth regions. Using all estimates except for birth regions, we calculate the predicted values of a worker's monthly earnings. The reason why we include birth regions in the earnings regression is because their omission may also lead to bias due to similar reason for the probit analysis of layoffs. The estimates of the earnings regression are available upon request.

[29] We calculate the distribution of the year 1997 industry wages by using a Korean national annual cross-sectional earnings survey called the Korean Wage Structure Survey (WSS) for the year 1997. While controlling for workers' personal and employment-related characteristics in the monthly earnings regression, we get the industry wage differentials for 1997, and identify the four quartiles of their distribution. Relying on these quartiles, we construct the four dummy variables that represent an industry's relative position in the industrial wage distribution. By matching the KLIPS 3-digit industry affiliation of a worker at the risk of displacements with industries of the 1997 WSS industrial wage distribution, we identify where a worker's industry is located in the 1997 industrial wage distribution. In the probit models, we use the first wage-quartile industry (lowest-wage industry) as a reference group.

[30] We classify various titles of job designations reported in the KLIPS survey into three types of positions (high-ranking, mid-ranking and low-ranking positions) to use them as dummy variables in the probit model.

Table 3.

INSTERT TABLE 4 HERE

Whether we use the level of monthly earnings (in log) or the gaps between the actual and predicted values to control for potential omitted variables, there are no substantial differences in the birth region effects on the layoff rates. Both controls yield virtually identical results for birth region, and they are similar to the basic results in column (3) of Table 2. Native Kyongsang workers face a significantly higher likelihood of layoffs in Seoul-Kyongki than similar native Jolla workers. When earnings are controlled for in column (1) of Table 4, the Kyongsang effect becomes slightly stronger. While the Kyongsang estimate is 0.389 (s.e. 0.187) in column (3) of Table 2 when no earnings are controlled for, the corresponding estimates are 0.434 (s.e. 0.189) in columns (1) and (2) of Table 4. When we convert this estimate into a median worker's predicted probability of layoff as in columns (1) and (2) of Table 3, we find there is a 0.073 (s.e. 0.038) gap in layoff rates between a native Kyongsang and Jolla median worker in Seoul-Kyongki. Note that columns (1) to (5) of Table 3 report predicted probabilities of a median worker's layoff which are based on the probit estimates in columns (1) to (5) of Table 4, respectively. For example, predicted probabilities in column (1) of Table 3 are calculated by means of probit estimates in column (1) of Table 4.

In contrast to higher layoff rates in Seoul-Kyongki, native Kyongsang workers do not face significantly higher layoff rates outside Seoul-Kyongki than native Jolla workers. As we have seen in the basic results in column (0) of Table 3, native Seoul-Kyongki and CJK workers do not face significantly higher layoff rates relative to native Jolla workers both within and outside Seoul-Kyongki. These results suggest that our basic findings are not substantially affected by wage-related uncontrolled factors that might exist in the layoff process. With the extra controls for monthly earnings and the gap between the actual and predicted earnings, general patterns of birth region effects on layoffs remain unaltered.

When we consider the industry's relative position in the industrial wage distribution in the probit

model, the basic findings also remain robust. In Seoul-Kyongki, native Kyongsang workers face significantly higher layoff rates than their native Jolla counterparts. According to column (3) of Tables 3 and 4, the estimate 0.403 (s.e 0.187) of the Kyongsang birth implies that, in Seoul-Kyongki, a native Kyongsang median worker faces a 0.056 (s.e. 0.031) higher probability of layoffs than the same native Jolla worker. In contrast to native Kyongsang workers, native Seoul-Kyongki and CJK workers do not face significantly higher rates of layoff in Seoul-Kyongki than native Jolla counterparts. On the other hand, outside Seoul-Kyongki, the layoff rates do not vary by birth regions. In sum, a consideration of the industry's relative wages fails to change our basic results on regional discrimination for Seoul-Kyongki.

When we add a job designation control to the probit model, the patterns of birth region effects also remain similar to those without such a control especially for Seoul-Kyongki. According to column (4) of Tables 3 and 4, the estimate for the Kyongsang birth implies that a native Kyongsang median worker faces a 0.060 (s.e. 0.033) higher layoff rate in Seoul-Kyongki than the native Jolla counterpart. This gap is similar to the previous four cases for the Kyongsang-Jolla gap in layoff rates in Seoul-Kyongki. Thus, we infer that our basic findings for layoffs in Seoul-Kyongki are not contaminated by bias due to uncontrolled factors associated with job designations.

When we examine the results for regions outside Seoul-Kyongki with control for job designation, the patterns of regional gaps in layoff rates become more supportive of the existence of regional discrimination. We find evidence that there exists birth region discrimination against native Kyongsang workers and even native CJK workers who are employed in regions outside Seoul-Kyongki. For these regions, we find a 0.033 (s.e. 0.018) higher layoff rate of a native Kyongsang median worker relative to the native Jolla counterpart. A native CJK worker also shows a 0.045 (s.e. 0.025) higher layoff rate than the native Jolla counterpart. Although the values of layoff rate gaps are not as large as those for Seoul-Kyongki, they are significantly different from zero. The significant (positive) effects of Kyongsang and CJK birth on layoff outside Seoul-Kyongki remain robust, when the gap in actual and predicted monthly

earnings is controlled for together with job designations. Such findings for regions outside Seoul-Kyongki suggest the possibility that regional discrimination based on birth region was not only a local Seoul-Kyongki phenomenon, but the one which was widespread throughout the nation during the recession period.[31]

As shown earlier, the finding that there exists a gap in layoff rates between native Kyongsang and Jolla workers in firms in Seoul-Kyongki is robust to several mis-specification checks. In addition to this, the results of similar probit models for plant closing cases are suggestive of our main finding for the layoff cases; there is little evidence that displacements due to plant closings are related with a worker's birth region (See Appendix Tables 2 and 3). This confirms an expectation that plant closing decisions are made on a plant's productivity (or profitability) basis. If layoff decisions were made on such a productivity ground, we would also fail to find significant effects of a worker's birth region on layoff rates. Gaps in layoff rates between native Kyongsang and Jolla workers shows that layoff decisions were made otherwise during 1997-1999.

5.3 Decomposition of Average Layoff Rates

Using the modified version of Blinder-Oaxaca decomposition expressed in equations (1) and (2), we decompose the Kyongsang-Jolla gap in average layoff rates into two parts: (1) the part that can be attributed to differences in observable characteristics and (2) the part that can be ascribed to differential treatment in layoff. The results of such decomposition are shown in Table 5. The separate probit estimates

[31] Unfortunately, however, a more detailed examination of regional discrimination outside Seoul-Kyongki is limited by a small sample problem. We do not have immigrant workers into individual regions outside Seoul-Kyongki sufficiently large for statistical significance. For example, in the sample of layoff analysis, we have only 24 workers born in Seoul-Kyongki out of 878 workers employed in the Kyongsang provinces. The problem worsens when we examine the non Seoul-Kyongki birth/non Kyongsang residence regions. Thus we interpret the results for regions outside Seoul-Kyongki as a supplement to those for Seoul-Kyongki.

of native Kyongsang and Jolla workers are used for decomposition, while they are reported in Appendix Table 4. The probit specification used for column (0) of Table 5 is same as that in column (3) of Table 2, while the specifications used for columns (1) to (5) are same as those in columns (1) to (5) of Table 4 (and Appendix Table 4), respectively.

INSERT TABLE 5 HERE.

Basic results in column (0) of Table 5 reveal that the gap in Kyongsang-Jolla average layoff rates for Seoul-Kyongki can be mainly explained by discriminatory treatment against native Kyongsang workers. Differences in observable characteristics contribute to a reduction of the gap. From the decomposition that uses the Jolla estimates for reference comparison in equation (1), the part due to differential treatment (i.e. 0.083) even exceeds the existing gap in Kyongsang-Jolla average layoff rates (i.e. 0.046). This implies that the part due to differences in observable characteristics in fact takes negative values (i.e. -0.037). These findings suggest that differential treatment against native Kyongsang workers was so large in the layoff process that, if native Kyongsang workers shared exactly the same observable characteristics as native Jolla workers, the gap in the layoff rates would become larger than the existing average gap. The gap would become 0.083 (rather than the existing 0.046) between native Kyongsang and Jolla workers. Alternatively, if native Kyongsang workers were treated in the layoff process in the same way as native Jolla workers, average layoff rates of the former would become 0.037 lower than those of the latter. Similar findings are also revealed by the alternative method of decomposition, which uses the Kyongsang estimates for reference comparison in equation (2). The part due to differential treatment (i.e. 0.098) is larger than the existing average gap (i.e. 0.046), and the part due to differences in observable characteristics even takes negative values (i.e. -0.052).

When we add some wage-related and job designation variables (as in columns (1)-(5) of Appendix Table 4) to control for the factors that may fail to be included in the basic analysis of layoffs, patterns found in column (0) remain robust. According to columns (1)-(5) of Table 5, for Seoul-Kyongki, the entire

gap in the Kyongsang-Jolla layoff rates are explained by differential treatment, and the parts representing differences in observable characteristics take negative values. Again, this means that if native Kyongsang and Jolla workers shared exactly the same observable characteristics, the gap in layoff rates would become larger than the existing average layoff gap.

In contrast to such decomposition results for Seoul-Kyongki, there is a small gap in layoff rates between Kyongsang and Jolla for regions outside Seoul-Kyongki. According to bottom panel of Table 5, the Kyongsang-Jolla average layoff rates gap is 0.011 for these regions (column (0)). Such a gap is also mostly explained by differential treatment between native Kyongsang and Jolla workers rather than differences in observable characteristics. Similar findings are also reported in columns (1)-(5).

5.4 Implication for the Structure of Regional Ties and Labor Market Discrimination

The preceding findings make it clear that, in the post-crisis recession period in South Korea, native Kyongsang workers faced a significantly higher likelihood of layoff in Seoul-Kyongki than native Jolla workers. The gap in layoff rates between native Kyongsang and Jolla workers is entirely due to discriminatory treatment against native Kyongsang workers. That is, during the economic crash, birth region—a seemingly non-economic factor—played a significant role in layoffs in the South Korean labor market. It suggests that this factor affected even ordinary workers' careers, and that regional discrimination and its economic effects were far more deep-rooted and widespread in South Korea than previous macro-level studies had reported.

Our study also highlights the recent change in the functioning of regional ties and informal networks in South Korea. As indicated earlier, regional ties had long been one of the main features of the government-business relations in South Korea. Although there had been some fluctuations in past decades, the majority of political leaders, government officials, and corporate managers were from the Kyongsang

provinces (Kim 1991a, Kim 1991b). Under this circumstance, it was absolutely necessary for corporate managers to seek external networking to gain better access to information regarding government policies. For this goal, companies recruited those who had close connections with the government and the ruling party. In this process, the major beneficiaries had been the Kyongsang provinces and native Kyongsang people, while the major victims had been the Jolla provinces and native Jolla people. As shown by Park (1991), an upshot of such a Kyongsang-dominant decision-making was that in 1980s, Jolla-born workers were less (more) likely to be hired in monopolistic (competitive) industries, while Kyongsang-born workers showed the opposite trend of employment.

With the economic crisis and political change in 1997, however, many analysts initially expected regional ties and discrimination to weaken. In contrast to this expectation, our study demonstrates that the system of networking remained virtually unchanged, and that only the relative positions changed within the same system. With no sign of the system of regional ties and discrimination dismantled, native Jolla people emerged as the main beneficiaries, and native Kyongsang people turned into the main victims. The reason was probably that companies tried to internally promote or newly recruit those who were well connected to the new Jolla-based government in the same way as done in the previous regime. Initially these personnel changes for external networking must have started from upper echelons of companies (see below for evidence on this phenomenon). Eventually, the effects of these changes trickled down to the ordinary worker level as explicated in this study. As corporate managers were recruited from those born in Jolla, they tended to favor ordinary workers with the same regional background, just as corporate managers with Kyongsang regional ties had done in the past.[32] In the face of severe economic hardship,

[32] As theories of social capital (e.g., Granovetter 2005) suggest, informal networks based on regional ties may have some merits because they can provide better information, reduce monitoring costs, and make enforcement of agreement easier. For example, personal relationships based on regional ties may decrease transaction costs, because monitoring is relatively easy. And overlapping personal relationships based on regional ties can spread information about each other more quickly and make sanctions easier when one party breaks contracts. In a similar vein, Cornell and Welch (1996) argue that discrimination is likely to occur when employers judge workers' unknown qualities better when they belong to the same group as employers (such as birth region). They label this discrimination as

this tendency turned out to become stronger.

To the extent that Koreans traditionally invest heavily in blood ties, school ties, and regional ties (Yee 2000), such a dramatic overturn of victims and beneficiaries of regional discrimination does not seem to be too surprising. While they may occupy different status either as victims or beneficiaries, people from Kyongsang and Jolla alike attempt to enhance their interests within the existing structure of networking. When the dominant group with decision making power exogenously changed from Kyongsang to Jolla, it is not unimaginable that traditional beneficiaries turned to victims, while traditional victims became beneficiaries within the invariable system of informal networking.

According to our results, rather than dismantling the existing system of networking, the exogenous political changes produced the situation of so-called reverse discrimination under which native Jolla people could pursue their goals more effectively than in the past. As conditions changed to favor them, Jolla people acted on openings provided by the changing environments in order to enhance their own interests and positions. And this change in the functioning of regional ties in turn created new economic and political struggles for native Kyongsang people.

Some of the recent studies provide evidence that supports our view. Kim and Lee (2001) and Kim and Park (2001) examine the recent changes in composition of birth regions of the power elite groups in private large sized firms (e.g., the firms listed in the Korean Stock Exchange), as well as in the government organizations. They report clear patterns that native Jolla people, more often than before, advanced to high ranking positions under the new political regime since 1998. (See Table 6 for reorganized findings of the two Korean studies cited.) This shift significantly influenced a firm's decisions regarding the selection of whom to displace. And an individual's birth region was one of the major factors

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screening discrimination. Seen this way, discrimination in job displacements occurs for a variety of reasons such as employers' tastes, average quality of workers from different birth regions, screening based on background, etc. In this study, rather than exploring specific causes for job discrimination, we attempt to demonstrate whether or not there exists discrimination based on birth region. We believe that fact-finding is the first step to explaining discrimination in Korea.

that influenced the decisions of workforce downsizing during the recession period.[33]

INSERT TABLE 6 HERE.

6 Concluding Remarks

In this paper, we have examined the incidence of job displacements in South Korea during the period of the post-crash economic restructuring. Empirical findings reveal striking evidence of regional ties and the functioning of regional discrimination in South Korea. A probit analysis shows that a worker's birth region played a key role in the layoff decisions during the recession period 1997-99. Those born in Kyongsang faced a significantly higher likelihood of layoff in firms in Seoul-Kyongki than those born in Jolla. Results based on decomposition of average layoff rates show that the layoff rates gap in Kyongsang-Jolla workers is mainly due to differential treatment in the layoff process rather than differences in observable characteristics. We also find evidence that suggests the phenomenon of regional discrimination is not strictly confined to Seoul-Kyongki, but may be observed in the entire nation including regions outside Seoul-Kyongki.

Our study shows that regional discrimination is more deep-rooted in South Korea than previously thought. The findings reveal that regional discrimination is not limited to high-ranking government officials or power elite groups in the private sector, as several previous studies have demonstrated; instead, regional discrimination is so widespread that even ordinary individuals have to deal with it in their workplaces.

[33] A major daily newspaper in South Korea reports two cases of job displacements in public-sector institutions: the Korea Racing Association and the Korean Cable Communications Commission. Although anecdotal, both support our argument. The two cases reveal that a worker's birth region along with his/her political orientation was one of major factors that had influenced the decisions of workforce downsizing in 1998. Moreover, Jolla-based management staffs who were newly injected into both institutions in the wake of political leadership change primarily made the decisions related to the job displacements. See *Dong-a Daily* (March 20, 2002; March 21, 2002) and *Monthly Dong-a* (May 2002).

Many scholars have surmised that the effects of regional discrimination would diminish during the recent recession period. But we find the system of regional discrimination remains powerful. With the changes in socioeconomic environment and political configuration, Jolla's regional ties become more dominant and the traditional Kyongsang's less. It presents evidence that in the face of unexpected shocks, a way in which informal networks function can undergo an abrupt change, even when the shocks do not cause the fundamental system per se to change. This finding may have an implication to other types of discrimination systems such as sex and racial discrimination: if the relationship between parties is changed within the existing system of discrimination, the traditional beneficiaries may become its main victims, while the traditional victims become its beneficiaries.

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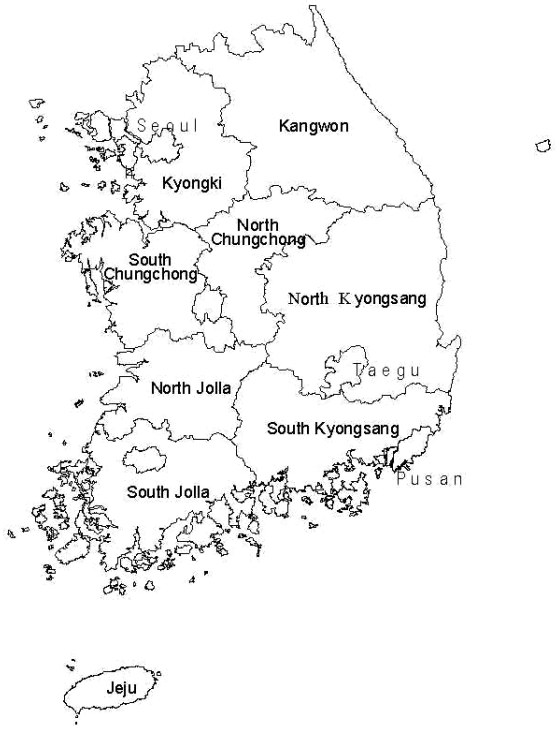

Figure 1: Map of South Korea

Table 1: Regional Distribution of Population and Value Added of the Mining and Manufacturing Industries

(Unit: %)

	Population					Value Added				
Year	Seoul-Kyongki	Kyongsang	Jolla	CJK	Total	Seoul-Kyongki	Kyongsang	Jolla	CJK	Total
1960	-	-	-	-	-	36.8	33.6	8.5	21.2	100
						(31.8)	(35.9)	(11.9)	(20.4)	(100)
1966	-	-	-	-	-	37.9	34	8.5	19.5	100
						(37.5)	(34.2)	(11.1)	(17.3)	(100)
1970	28.3	30.4	20.4	20.9	100	42.0	34.8	7.2	16.0	100
						(43.4)	(32.8)	(10.0)	(12.4)	(100)
1975	31.5	30.5	18.1	19.1	100	44.4	35.7	8.9	11.1	100
						(46.1)	(36.3)	(6.6)	(11.0)	(100)
1980	35.5	30.5	16.2	17.7	100	40.8	39.6	9.2	10.3	100
						(44.3)	(39.4)	(6.3)	(10.0)	(100)
1985	39.1	29.8	14.7	16.3	100	42.3	39.8	7.4	10.4	100
						(45.9)	(33.4)	(5.7)	(9.1)	(100)
1990	42.8	28.9	13.2	15.1	100	45.1	37.1	7.9	9.90	100
						(47.0)	(32.2)	(6.4)	(9.2)	(100)
1995	45.3	28.6	11.7	14.4	100	44.4	34	8.9	12.7	100
						(46.4)	(30.0)	(7.2)	(10.9)	(100)
1998	45.8	28.2	11.5	14.5	100	38.9	38.2	9.7	13.2	100
						(44.0)	(31.5)	(7.6)	(12.0)	(100)

Note: Numbers in parentheses are the share of monthly average number of employees.
CJK denotes the Chungchong-Jeju-Kangwon provinces.
Source: Korea National Statistical Office, Statistics Data Base

Table 2: Probit Estimates for Job Displacement

Explanatory Variables	Layoff			Plant Closing		
	(1)	(2)	(3)	(4)	(5)	(6)
Birth Region Effects for Seoul-Kyongki						
Seoul-Kyongki	0.081	0.048	0.179	0.092	0.194	0.271
	(0.135)	(0.141)	(0.156)	(0.145)	(0.159)	(0.173)
Kyongsang Provinces	0.163	0.297	0.389*	-0.009	0.094	0.214
	(0.147)	(0.167)	(0.187)	(0.192)	(0.204)	(0.218)
CJK Provinces	0.284	0.174	0.212	-0.017	0.048	0.080
	(0.162)	(0.151)	(0.168)	(0.163)	(0.175)	(0.191)
Birth Region Effects for Regions outside Seoul-Kyongki						
Seoul-Kyongki	0.416	0.426	0.391	0.164	0.155	0.194
	(0.313)	(0.323)	(0.343)	(0.355)	(0.365)	(0.367)
Kyongsang Provinces	0.079	0.068	0.142	0.278	0.253	0.348
	(0.210)	(0.218)	(0.235)	(0.248)	(0.249)	(0.247)
CJK Provinces	0.356	0.397	0.424	-0.071	-0.078	-0.025
	(0.231)	(0.246)	(0.264)	(0.289)	(0.305)	(0.310)
Residence Regions						
Seoul-Kyongki	0.108	0.082	0.055	0.025	-0.052	-0.098
	(0.162)	(0.166)	(0.179)	(0.174)	(0.186)	(0.200)
Kyongsang Provinces	-0.033	-0.019	-0.025	-0.208	-0.120	-0.168
	(0.223)	(0.230)	(0.245)	(0.260)	(0.261)	(0.263)
CJK Provinces	-0.106	-0.122	-0.109	-0.158	-0.113	-0.105
	(0.252)	(0.267)	(0.284)	(0.301)	(0.314)	(0.322)
Other Controls						
Personal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Occupations	Yes	Yes	Yes	Yes	Yes	Yes
Industries	No	Yes	Yes	No	Yes	Yes
Firm Employment Sizes	No	No	Yes	No	No	Yes
Log-Likelihood	-847.6	-790.9	-509.8	-679.5	-607.9	-544.6
No. of Observations	2156	2036	1835	2010	1899	1724
No. of Separators	326	307	273	229	211	200

Notes: The reference group is female, unmarried, non household head, part-time laborers who were born and reside in the Jolla provinces, while employed in a firm with less than 10 employees in the light manufacturing industry. The estimates for the personal characteristics, occupations, industries and firm sizes are reported in Appendix Table 2.

Numbers in parentheses are standard errors. * and ** indicate that the estimate is significant at the 5% and 1% levels, respectively.

Table 3: The Probability of A Median Worker's Layoff

Birth Regions	(0)	(1)	(2)	(3)	(4)	(5)
Residence in Seoul-Kyongki						
Seoul-Kyongki	0.097	0.094	0.094	0.068	0.072	0.049
	(0.031)	(0.033)	(0.036)	(0.025)	(0.027)	(0.025)
Kyongsang Provinces	0.138	0.136	0.136	0.104	0.105	0.079
	(0.046)	(0.049)	(0.052)	(0.040)	(0.042)	(0.040)
Jolla Provinces	0.070	0.063	0.062	0.048	0.045	0.027
	(0.027)	(0.027)	(0.029)	(0.021)	(0.022)	(0.017)
CJK Provinces	0.103	0.097	0.097	0.074	0.071	0.047
	(0.034)	(0.036)	(0.038)	(0.028)	(0.029)	(0.025)
Difference Between Kyong-	0.068	0.073	0.073	0.056	0.060	0.052
sang and Jolla Provinces	(0.037)	(0.038)	(0.039)	(0.031)	(0.033)	(0.030)
Residence outside Seoul-Kyongki						
Seoul-Kyongki	0.117	0.111	0.111	0.083	0.037	0.035
	(0.061)	(0.062)	(0.063)	(0.048)	(0.032)	(0.033)
Kyongsang Provinces	0.078	0.074	0.074	0.055	0.066	0.070
	(0.026)	(0.028)	(0.030)	(0.021)	(0.025)	(0.033)
Jolla Provinces	0.061	0.061	0.061	0.043	0.033	0.026
	(0.024)	(0.026)	(0.028)	(0.019)	(0.016)	(0.016)
CJK Provinces	0.116	0.112	0.113	0.084	0.078	0.088
	(0.038)	(0.041)	(0.044)	(0.032)	(0.032)	(0.043)
Difference Between Kyong-	0.017	0.013	0.013	0.012	0.033	0.045
sang and Jolla Provinces	(0.018)	(0.018)	(0.018)	(0.014)	(0.018)	(0.022)

Note: The median worker is a male married household-head worker who is 36 years of age and has 12 years of education, W1.1 million in monthly earnings and 3 years of tenure, while employed on the full-time basis as a laborer in a firm with 100-300 employees of the heavy manufacturing industry and the 2nd quartile-wage industry. Numbers in parentheses are standard errors.

Table 4: Probit Estimates for Layoffs - Extra Controls

Explanatory Variables	(1)	(2)	(3)	(4)	(5)
Birth Region Effects for Seoul-Kyongki					
Seoul-Kyongki	0.218	0.218	0.173	0.235	0.269
	(0.158)	(0.158)	(0.155)	(0.173)	(0.177)
Kyongsang Provinces	0.434*	0.434*	0.403*	0.446*	0.517*
	(0.189)	(0.189)	(0.187)	(0.202)	(0.205)
CJK Provinces	0.237	0.237	0.219	0.232	0.251
	(0.170)	(0.170)	(0.169)	(0.188)	(0.193)
Birth Region Effects for Regions outside Seoul-Kyongki					
Seoul-Kyongki	0.366	0.366	0.372	0.223	0.139
	(0.346)	(0.346)	(0.347)	(0.414)	(0.417)
Kyongsang Provinces	0.122	0.122	0.135	0.505*	0.476
	(0.237)	(0.237)	(0.238)	(0.241)	(0.248)
CJK Provinces	0.401	0.401	0.417	0.625*	0.596*
	(0.267)	(0.267)	(0.266)	(0.271)	(0.277)
Residence Regions					
Seoul-Kyongki	0.002	0.002	0.050	0.088	0.022
	(0.181)	(0.181)	(0.180)	(0.206)	(0.209)
Kyongsang Provinces	-0.034	-0.034	-0.024	-0.221	-0.227
	(0.246)	(0.246)	(0.249)	(0.250)	(0.256)
CJK Provinces	-0.098	-0.098	-0.109	-0.268	-0.270
	(0.288)	(0.288)	(0.287)	(0.294)	(0.299)
Other Controls					
Log (Monthly Earnings)	Yes	No	No	No	No
Earnings Gap	No	Yes	No	No	Yes
Quartiles of Industry Wages	No	No	Yes	No	Yes
Job Designation	No	No	No	Yes	Yes
Log-Likelihood	-685.6	-685.6	-693.7	-558.7	-543.4
No. of Observations	1821	1821	1835	1678	1664
No. of Separators	269	269	273	195	191

Notes: The reference group is female, unmarried, non household head, part-time laborers who were born and reside in the Jolla provinces, while employed in a firm with less than 10 employees in the light manufacturing industry and the 1st quartile wage industry. The estimates for the personal characteristics, occupations, industries, firm sizes, log monthly earnings, earnings gap, job designation and quartiles of industry wages are suppressed. They can be available.

Numbers in parentheses are standard errors. * and ** indicate that the estimate is significant at the 5% and 1% levels, respectively.

Table 5: Decomposition of Average Layoff Rates

Specifications	(0)		(1)		(2)		(3)		(4)		(5)	
Estimates Used:		Kyong-		Kyong-		Kyong-		Kyong-		Kyong-		Kyong-
Residence	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang
In Seoul-Kyongki:												
Difference in Average Layoff Rates	0.046		0.050		0.051		0.047		0.064		0.069	
Due to: Difference in Observables	-0.037	-0.052	-0.028	-0.052	-0.027	-0.052	-0.035	-0.066	-0.027	-0.046	-0.013	-0.059
Due to: Difference in Estimates	0.083	0.098	0.078	0.102	0.078	0.102	0.082	0.113	0.091	0.110	0.082	0.128
Outside Seoul-Kyongki:												
Difference in Average Layoff Rates	0.011		0.008		0.008		0.011		0.042		0.030	
Due to: Difference in Observables	-0.010	-0.003	-0.009	-0.002	-0.009	-0.001	-0.010	-0.001	0.013	-0.004	0.013	-0.002
Due to: Difference in Estimates	0.021	0.015	0.017	0.010	0.018	0.010	0.021	0.012	0.029	0.047	0.026	0.041

Note: The specification used for column (0) is same as that in column (3) of Table 2. The specifications used for columns (1) to (5) are same as those in columns (1) to (5) of Table 4, respectively.

Table 6: Distribution of Birth Regions of Management Staff in the Korea Stock Exchange-Listed Firms

Birth Region \ Year	1998*)	1997	1998	1999	2000
Seoul-Kyongki	352 (44.6)	2202 (40.7)	1488 (39.8)	1244 (39.6)	1050 (38.9)
Kyongsang Provinces	258 (32.8)	1825 (33.7)	1301 (34.8)	1047 (33.3)	923 (34.2)
Jolla Provinces	50 (6.3)	420 (7.8)	308 (8.2)	290 (9.2)	249 (9.2)
CJK Provinces	130 (16.5)	967 (17.9)	642 (17.2)	560 (17.8)	476 (17.6)
Sum	790 (100)	5414 (100)	3739 (100)	3141 (100)	2698 (100)

Source: Recreated from Table 2 of Kim (1991a) and Table 3 of Kim and Lee (2001).
Notes: Number in parentheses are percentages.
*) Management staffs of the 50 largest Chaebol-affiliated firms.

Appendix Table 1: Descriptive Statistics of the Sample

		Separators	
	Stayers	Layoff	Plant Closing
Means:			
Age	36.45	40.77	38.51
	(10.00)	(12.54)	(10.55)
Years of Schooling	12.47	10.60	11.46
	(3.37)	(3.82)	(3.22)
Monthly Earnings	1230.8	1065.5	1157.4
(W1,000)	(726.0)	(704.2)	(710.7)
Tenure (Year)	5.05	5.62	4.42
	(5.77)	(7.32)	(5.46)
Proportions (%) :			
Male	0.646	0.622	0.632
Married	0.720	0.768	0.762
Household Head	0.573	0.541	0.552
Full-Time	0.860	0.679	0.823
Occupation			
Professional & Technical	0.275	0.148	0.136
Sales & Administrative Support	0.245	0.128	0.132
Service	0.108	0.178	0.253
Crafts, Operatives, Laborers	0.370	0.546	0.479
Industry			
Construction	0.073	0.168	0.158
Light Manufacturing	0.155	0.209	0.211
Heavy Manufacturing	0.189	0.140	0.165
Nonprofessional Services	0.306	0.318	0.377
Professional Services	0.277	0.165	0.088
Firm Employment Size			
1 ~ 10	0.223	0.395	0.424
11 ~ 30	0.165	0.156	0.194
31 ~ 100	0.165	0.139	0.194
101 ~ 300	0.103	0.077	0.108
301 ~ 1000	0.105	0.065	0.042
1001+	0.239	0.168	0.038
Birth Regions			
Seoul-Kyongki	0.232	0.215	0.222
Kyongsang Provinces	0.348	0.307	0.375
Jolla Provinces	0.207	0.217	0.213
CJK Provinces	0.213	0.260	0.190
Residence Regions			
Seoul-Kyongki	0.505	0.534	0.498
Kyongsang Provinces	0.317	0.273	0.329
Jolla Provinces	0.085	0.090	0.096
CJK Provinces	0.094	0.102	0.077
Number of Sample	2,151	423	315

Notes: Variables are measured at time of displacement risks. Individuals over 65 years of age are excluded. Numbers in parentheses are standard deviations.

Appendix Table 2: Probit Estimates for Job Displacement: Estimates for Personal Characteristics and Firm Size

Explanatory Variables	Layoff			Plant Closing		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	1.082*	1.249*	1.260*	-0.930	-0.783	-0.720
	(0.529)	(0.550)	(0.595)	(0.609)	(0.627)	(0.668)
Personal Characteristics						
Male	0.231	0.215*	0.158	0.114	0.086	0.053
	(0.094)*	(0.101)	(0.108)	(0.108)	(0.117)	(0.125)
Age	-0.097**	-0.101**	-0.099**	-0.009	-0.021	-0.024
	(0.026)	(0.027)	(0.030)	(0.031)	(0.032)	(0.034)
Agesq/100	0.129**	0.134**	0.133**	0.017	0.036	0.038
	(0.030)	(0.031)	(0.034)	(0.036)	(0.038)	(0.039)
Years of Schooling	-0.034**	-0.029*	-0.020	-0.016	-0.004	0.011
	(0.013)	(0.013)	(0.015)	(0.015)	(0.016)	(0.017)
Married	0.056	0.080	0.145	0.007	0.016	0.037
	(0.124)	(0.128)	(0.135)	(0.131)	(0.142)	(0.148)
Household Head	-0.239*	-0.279**	-0.279**	-0.032	-0.076	-0.077
	(0.096)	(0.101)	(0.107)	(0.109)	(0.116)	(0.122)
Tenure (Year)	-0.013	-0.018	-0.006	-0.020	-0.022	-0.001
	(0.014)	(0.015)	(0.016)	(0.020)	(0.021)	(0.022)
Tenuresq/100	0.105	0.120*	0.097	0.041	0.053	0.023
	(0.057)	(0.058)	(0.065)	(0.097)	(0.103)	(0.105)
Full Time	-0.225*	-0.218*	-0.139	0.071	0.127	0.080
	(0.090)	(0.097)	(0.108)	(0.108)	(0.120)	(0.132)
Firm Employment Size						
11 ~ 30			-0.403**			-0.193
			(0.121)			(0.128)
31 ~ 100			-0.449**			-0.126
			(0.123)			(0.129)
101 ~ 300			-0.371*			-0.151
			(0.146)			(0.151)
301 ~ 1000			-0.505**			-0.741**
			(0.152)			(0.185)
1001+			-0.397**			-0.934**
			(0.116)			(0.165)
Occupation	Yes	Yes	Yes	Yes	Yes	Yes
Industry	No	Yes	Yes	No	Yes	Yes
Birth Regions	Yes	Yes	Yes	Yes	Yes	Yes
Residence Regions	Yes	Yes	Yes	Yes	Yes	Yes
Number of Sample	2,156	2,036	1,835	2,010	1,899	1,724

Note: Numbers in parentheses are standard errors. * and ** indicate that the estimate is significant at the 5% and 1% levels, respectively.

Appendix Table 3: Probit Estimates for Plant Closings - Extra Controls

Explanatory Variables	(1)	(2)	(3)	(4)	(5)
Birth Region Effects for Seoul-Kyongki					
Seoul-Kyongki	0.327	0.327	0.274	0.312	0.361
	(0.179)	(0.179)	(0.173)	(0.184)	(0.193)
Kyongsang Provinces	0.230	0.230	0.226	0.239	0.281
	(0.228)	(0.228)	(0.218)	(0.228)	(0.237)
CJK Provinces	0.128	0.128	0.086	0.026	0.064
	(0.199)	(0.199)	(0.191)	(0.213)	(0.220)
Birth Region Effects for Regions outside Seoul-Kyongki					
Seoul-Kyongki	0.064	0.064	0.179	0.143	0.008
	(0.396)	(0.396)	(0.370)	(0.412)	(0.455)
Kyongsang Provinces	0.341	0.341	0.348	0.202	0.191
	(0.247)	(0.247)	(0.246)	(0.281)	(0.274)
CJK Provinces	-0.098	-0.098	-0.023	-0.146	-0.167
	(0.315)	(0.315)	(0.311)	(0.350)	(0.356)
Residence Regions					
Seoul-Kyongki	-0.172	-0.172	-0.103	-0.015	-0.063
	(0.205)	(0.205)	(0.200)	(0.224)	(0.230)
Kyongsang Provinces	-0.164	-0.164	-0.159	0.112	0.138
	(0.265)	(0.265)	(0.260)	(0.306)	(0.298)
CJK Provinces	-0.066	-0.066	-0.110	0.040	0.046
	(0.328)	(0.328)	(0.323)	(0.381)	(0.390)
Other Controls					
Log(Monthly Earnings)	Yes	No	No	No	No
Earnings Gap	No	Yes	No	No	Yes
Quartiles of Industry Wages	No	No	Yes	No	Yes
Job Designation	No	No	No	Yes	Yes
Log-Likelihood	-522.3	-522.3	-541.8	-437.8	-420.1
No. of Observations	1702	1702	1724	1597	1576
No. of Separators	188	188	200	151	140

Notes: The reference group is female, unmarried, non household head, part-time laborers who were born and reside in the Jolla provinces, while employed in a firm with less than 10 employees in the light manufacturing industry and the 1st quartile wage industry. The estimates for the personal characteristics, occupations, industries, firm sizes, log monthly earnings, earnings gap, job designation and quartiles of industry wages are suppressed. They can be available.

Numbers in parentheses are standard errors. * and ** indicate that the estimate is significant at the 5% and 1% levels, respectively.

Appendix Table 4: Separate Probit Estimates for Layoffs - Native Jolla vs Native Kyongsang Workers

Specifications	Means		(0)		(1)		(2)		(3)		(4)		(5)	
Estimation Sample:		Kyong-		Kyong-		Kyong-		Kyong-		Kyong-		Kyong-		Kyong-
Explanatory Variables	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang	Jolla	sang
Intercept			1.467	-0.687	2.885	-0.166	1.273	-0.606	1.878	-0.962	-4.715	-0.745	-8.208	-1.187
			(1.940)	(2.456)	(2.180)	(2.408)	(2.135)	(2.423)	(2.007)	(2.417)	(2.571)	(2.572)	(2.771)	(2.558)
Male	0.678	0.720	1.160	0.241	0.977	0.130	1.221	0.207	1.218	0.286	1.160	0.376	1.449	0.439
	(0.469)	(0.450)	(0.481)	(0.386)	(0.523)	(0.426)	(0.536)	(0.393)	(0.491)	(0.403)	(0.634)	(0.465)	(0.869)	(0.508)
Age	37.53	38.50	-0.066	0.072	-0.110	0.061	-0.076	0.070	-0.089	0.110	0.282	0.070	0.398	0.116
	(10.16)	(10.13)	(0.097)	(0.112)	(0.108)	(0.113)	(0.108)	(0.113)	(0.101)	(0.115)	(0.137)	(0.114)	(0.145)	(0.119)
Agesq/100	15.11	15.84	0.089	-0.049	0.147	-0.036	0.103	-0.048	0.123	-0.095	-0.341	-0.055	-0.447	-0.108
	(8.31)	(8.37)	(0.111)	(0.122)	(0.124)	(0.123)	(0.123)	(0.123)	(0.117)	(0.128)	(0.170)	(0.124)	(0.176)	(0.131)
Education	12.19	13.72	-0.081	-0.155	-0.085	-0.162	-0.058	-0.154	-0.081	-0.161	-0.112	-0.167	-0.051	-0.176
	(3.63)	(2.95)	(0.045)	(0.074)	(0.049)	(0.074)	(0.048)	(0.074)	(0.047)	(0.079)	(0.046)	(0.080)	(0.056)	(0.084)
Married	0.772	0.783	-0.555	-0.676	-0.785	-0.710	-0.731	-0.685	-0.583	-0.768	-1.254	-0.424	-1.947	-0.575
	(0.421)	(0.414)	(0.398)	(0.539)	(0.417)	(0.553)	(0.416)	(0.552)	(0.402)	(0.532)	(0.475)	(0.555)	(0.497)	(0.572)
Head	0.667	0.713	-0.769	-0.005	-0.872	-0.024	-0.792	-0.010	-0.770	-0.259	-0.729	-0.216	-0.745	-0.477
	(0.473)	(0.454)	(0.396)	(0.383)	(0.443)	(0.385)	(0.435)	(0.385)	(0.401)	(0.415)	(0.523)	(0.401)	(0.687)	(0.451)
Log(Monthly Earnings)	0.140	0.279			0.898	0.239								
	(0.539)	(0.566)			(0.409)	(0.336)								
Earnings Gap	0.099	0.094					0.966	0.205					2.185	0.252
	(0.414)	(0.438)					(0.408)	(0.332)					(0.575)	(0.350)
Tenure	5.00	5.73	-0.017	-0.009	-0.029	-0.010	-0.001	-0.004	-0.020	0.009	0.047	-0.024	0.089	0.000
	(6.17)	(6.39)	(0.055)	(0.063)	(0.055)	(0.063)	(0.058)	(0.064)	(0.055)	(0.064)	(0.080)	(0.065)	(0.100)	(0.068)
Tenuresq/100	0.63	0.73	0.235	0.037	0.276	0.033	0.233	0.024	0.252	-0.062	-0.030	0.081	-0.132	-0.028
	(1.40)	(1.37)	(0.205)	(0.249)	(0.205)	(0.252)	(0.209)	(0.252)	(0.206)	(0.262)	(0.351)	(0.256)	(0.475)	(0.279)
Occupation:														
Professional & Technical	0.283	0.371	-0.301	-0.045	-0.923	-0.086	-0.757	-0.046	-0.531	-0.020	-0.305	0.164	-1.247	0.259
			(0.403)	(0.464)	(0.365)	(0.459)	(0.372)	(0.465)	(0.455)	(0.485)	(0.429)	(0.512)	(0.687)	(0.534)
Sales & Administrative	0.222	0.273	-0.084	0.291	-0.262	0.281	-0.172	0.294	-0.197	0.251	-0.078	0.369	-0.165	0.378
Support			(0.388)	(0.484)	(0.418)	(0.490)	(0.408)	(0.491)	(0.372)	(0.490)	(0.471)	(0.518)	(0.494)	(0.540)
Service	0.122	0.105	0.119	0.507	0.150	0.506	0.233	0.515	0.304	0.199	0.525	0.740	0.936	0.519
			(0.432)	(0.485)	(0.482)	(0.490)	(0.492)	(0.493)	(0.496)	(0.496)	(0.448)	(0.505)	(0.613)	(0.526)
Industry:														
Construction	0.094	0.098	-0.361	-0.130	-0.641	-0.156	-0.490	-0.120	-0.878	0.335	-0.729	0.167	-2.120	0.576
			(0.420)	(0.582)	(0.431)	(0.588)	(0.415)	(0.582)	(0.491)	(0.694)	(0.602)	(0.591)	(0.730)	(0.746)
Heavy Manufacturing	0.133	0.161	-0.465	-0.480	-0.901	-0.496	-0.820	-0.477	-0.572	-0.352	-0.220	-0.272	-0.441	-0.175
			(0.481)	(0.534)	(0.590)	(0.538)	(0.588)	(0.536)	(0.473)	(0.590)	(0.508)	(0.576)	(0.645)	(0.649)
Nonprofessional Services	0.339	0.328	-0.513	-0.555	-0.662	-0.571	-0.665	-0.567	-0.854	-0.409	-0.504	-0.519	-1.015	-0.423
			(0.358)	(0.444)	(0.391)	(0.450)	(0.391)	(0.449)	(0.360)	(0.488)	(0.383)	(0.516)	(0.456)	(0.588)
Professional Services	0.256	0.322	-0.464	-0.324	-0.460	-0.377	-0.395	-0.355	-0.696	-0.085	0.028	-0.197	-0.131	-0.054
			(0.406)	(0.483)	(0.436)	(0.479)	(0.441)	(0.479)	(0.432)	(0.551)	(0.442)	(0.528)	(0.637)	(0.614)
Firm Size $\geq$ 500	0.222	0.343	-0.271	-0.181	-0.240	-0.221	-0.134	-0.195	-0.376	-0.053	-0.701	-0.042	-1.347	0.038
			(0.335)	(0.291)	(0.365)	(0.289)	(0.362)	(0.289)	(0.371)	(0.300)	(0.415)	(0.309)	(0.650)	(0.317)
Quartiles of Industry Wages			No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes
Job Designation			No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Number of Sample	180	143	180	143	178	143	178	143	180	143	166	136	164	136

Note: Numbers in parentheses are standard deviations or standard error.