THE WELFARE EFFECTS OF FIRING RESTRICTIONS

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ABSTRACT

I investigate the extent to which firing restrictions could serve as a welfare-improving contractual arrangement between the firm and the worker. I present a model where the equilibrium level of severance payment (and notice period) is equal to the welfare loss of the fired worker, and this induces the firm to make the efficient firing decision. The welfare loss of the fired worker in turn depends on the degree of wage inflexibility, the unemployment duration, and the unemployment benefit. I examine the labor data for OECD countries, and find that the the level of severance payment and notice period is comparable to the welfare loss of the fired worker, as the model suggests. In the immedate future, I will calibrate the model and estimate the (socially) optimal level of severance payment and notice period in individual OECD countries.

JEL classification: J60; J63; J65
Keywords: severance payment; welfare

1. Introduction

Firing restrictions such as severance payment and notice period are an important element of the labor market policy. They are often suggested as a source of labor market rigidities in many European countries. The objective of this paper is to assess the welfare effect of firing restictions.

The previous work in the literature tended to focus on the effect of firing costs on unemployment. Relevant studies include Lazear (1990) and Bentolila and Bertola (1990). Although unemployment is an important element in considering the welfare effect of firing restrictions, this is not a good measure of overall welfare effect of firing restricions: one needs to consider the effects on firms and the employed for example. There has been a relative lack of study of the overall welfare effect of firing restrictions. Hopenhayn and Rogerson (1993) and Alvarez and Veracierto (1999) do assess the welfare effect of firing costs using calibrated general equilibrium models. The authors model firing costs as something like a tax on labor market transactions. Thus firing costs can only reduce welfare. This leaves unanswered the question, why are there firing restrictions in the first place? One possibility is that the workers' union pushes for firing restrictions to their own benefit despite their overall negative welfare effect. In this vein, Saint-Paul (1997) argues that the employed are politically strong enough to erect employment-protection legislation in Western Europe.

However, at least some of the firing restrictions are contractual arrangements between the firm and the worker, whose purpose is presumably to improve welfare. Therefore, in assessing the effects of firing restrictions, it is important to investigate the extent to which the firing restriction could serve as a welfare-improving contractual arrangement between the firm and the worker. My previous study, Jeong (2000), addressed a similar issue in a partnership model. The basic idea was that a partner's search and matching effort has a negative externality on his current partner, and restrictions on seperation could improve

welfare. In this paper, I adapt this basic idea to the employment relationship between the firm and the worker.

In Section 2, I present a model of severance payment. The model builds on Mortensen and Pissarides (1994). The innovation is that the employment is a contactual relationship instead of a continuous bargaining relationship. The key result is that any joint-welfare maximizing contract should have a severance payment that is equal to the welfare loss of a fired worker. The severance payment makes the firm internalize the welfare loss of a fired worker, and leads to the efficient firing decision. The welfare loss depends on, among other things, the degree of wage flexibility. Under the flexible-wage contact, the contrautual wage declines in response to a negative shock to the point where there is no welfare loss by the worker from becoming unemployed. Under the fixed-wage contract, the contractual wage does not respond to a negative shock and there is a welfare loss by the worker from becoming unemployed. Consequently, the more fixed the wage is, the higher the severance payment is. The welfare loss of the fired worker also depends on the prospect of the fired worker such as the expected duration of unemployment and the unemployment benefit.

In Section 3, I investigate the labor market data for a cross secion of OECD countries. I find that on average across countries the severance payment may just about cover the welfare loss of the fired worker, as the model suggests. Comparing countries within the sample, the European countries tend to have a longer unemployment duration than non-European countries, in particular in comparison to the Unied States. Southern European countries tend to have a high level of severance payment, as the model would suggest. The Nothern European countries do not have a high level of severance payment but they tend to have a high level of unemployment benefit and a longer notice period. A high level of unemployment benefit reduces the welfare loss of the fired worker, and the notice period works as a kind of severance payment. Once I take these effects into account, the model is consistent with the Northern European countries. Overall, I conclude that a significant

part of firing restiction can be explained by the (privately) optimal contractual response to the labor market condition.

In the immediate future, I intend to elaborate the model in terms of the wage flexibility, the notice priod, and the unemployment benefit, all of which seem to be significant determinants of firing resticion. I will then calibrate the model to the OECD data, and estimate the socially optimal level of severance payment and notice period. Again, unlike in previous studies, this optimal level is likely to be some positive level, and the calibration exercise will give us the sense of how far the current level is from the optimal level in individual OECD countries.

2. A Model of Severance Payment

In this section, I construct a model economy where a positive level of severance payment could an element of the (privately) optimal contract between a firm and a worker. The model builds on the search and matching model of Moretensen and Pissarides (1994). The innovation is that when the firm and the worker are matched, they sign on an emloyment contract that specify wage rate and severance payment, which are possibly state-contingent.

In the model, there are many workers whose number is normalized to 1. At the beginning of each period, a worker is either employed or unemployed. The employment is a contractual relationship between a worker and a firm, whereby the worker works for the firm for wage and receives severance payment in case the firm fires the worker. As will become clear, under the equilibirum contract the worker has no incentive to quit while the firm wants to keep the worker. For simplicity, assume that a firm can employ only one worker. A firm receives an idiosyncratic output shock in each period. Let F(y) be the distribution function for the shock. The contract wage and severance payment potentially depend on the output shock. Let $w(y)$ denote the one-period wage and $s(y)$ the severance payment. A contact is then a wage and severance payment schedule $\{(w(y), s(y))\}$. Given contract $\{(w(y), s(y))\}$ and current output y, a firm chooses whether or not to fire the

worker. If the firm chooses not to fire the worker, the output y is produced and the firm pays the contractual wage $w(y)$ to the worker. The firm survives into the next period with the current worker. If the firm chooses to fire the worker, the firm pays the contractual severance payment $s(y)$ to the worker and the firm dies. Since the value of a vacant firm is zero in equilibirum, we could alternatively assume that the firm enters the matching market to recruit a new worker without any change in results. The fired worker joins the pool of unemployed workers. An unemployed worker works at home and produces a fixed output z, which can be also interpreted as leisure or unemployment benefit. The unemployed workers also search for new firms in a matching market. There is a free entry and exit of firms, but each firm in the market must spend a search cost c in each period. Let u and v denote the number of unemployed workers and the number of vacant firms. The number of new matches is given by a matching function $m(u, v)$. Assume that m is constant returns to scale. When a worker and a firm are matched, they bargain over their expected joint surplus. Abstracting from the bargaining process, simply assume that they choose a contract that maximizes the joint surplus and delivers $\mu(\in (0, 1))$ share of the surplus to the worker. It will become clear that there exists such a contract.

Assume that a contract $\{(w(y), s(y))\}$ is given for the moment. Let V_0 be the value of a vacant firm, and $V(y)$ the value of a matched firm after the productivity shock is realized. We have

$$V_0 = -c + \beta m(u/v, 1) \int_y V(y) dF(y) \tag{1}$$

and

$$V(y) = \max\{y - w(y) + \beta \int_y V(y) dF(y), -s(y)\} \tag{2}$$

where β is a discount rate between 0 and 1. Similarly, let W_0 be the expected utility of an unemployed worker, and $W(y)$ the expected utility of a worker after the productivity shock. We have

$$W_0 = z + \beta[m(1, v/u) \int_y W(y) dF(y) + (1 - m(1, v/u)) \cdot W_0] \tag{3}$$

and

$$W(y) = g(y)[w(y) + \beta \int_y W(y)dF(y)] + (1 - g(y))[s(y) + W_0]. \tag{4}$$

Here $g(y)$ denotes the firing rule of the firm (it is equal to 0 if the firm chooses to fire the worker and equal to 1 if it chooses not to).

So far, it was assumed that the contract $\{(w(y), s(y))\}$ was given. Now the condition that the contract maximize the joint surplus can be written as follows:

$$\{(w(y), s(y))\} = \arg\max\{\int_y (V(y) + W(y))dF(y) : (2),(4), \text{ and } W_0 \text{ given}\}. \tag{5}$$

The condition that the contract deliver μ share of the surplus to the worker can be written as follows:

$$\mu \int_y V(y)dF(y) = (1 - \mu) \int_y (W(y) - W_0)dF(y). \tag{6}$$

Given the free entry of firms, the expected profit of an entering firm is zero:

$$V_0 = 0. \tag{7}$$

The law of motion for the number of unemployed workers is

$$m(u, v) = (1 - u + m(u, v)) \int_y (1 - g(y))dF(y). \tag{8}$$

An equilibrium is a contract $\{(w(y), s(y))\}$, values of firm, V_0 and $V(y)$, utilities of worker, W_0 and $W(y)$, a firing rule $g(y)$, a number of unempolyed workers u, and a number of vacant firms that together satisfy (1) to (8).

From (2) and (4), we can see that the joint-surplus maximizing firing rule is $g(y) = 1$ if $y + \beta \int (V(y) + W(y))dF(y) \geq W_0$ and $g(y) = 0$ otherwise. Let $\bar{y}$ be the cut-off output: $\bar{y} \equiv W_0 - \beta \int (V(y) + W(y)dF(y)$. Further, assume that $w(y)$ and $s(y)$ are continuous everywhere. For the firm to choose this firing rule, from (2) we can derive that the contract should satisfy

$$w(\bar{y}) + \beta \int_y W(y)dF(y) = s(\bar{y}) + W_0 \quad \text{if } y = \bar{y}. \tag{9}$$

The left-hand side of this equation is the utility of the worker if he is not fired, and the right-hand side is the utility of the worker if he is fired. At $\bar{y}$, the joint-surplus from production is zero. To induce the firm to be indifferent between producing and not producing, the contract must be written so that the firm's surplus from production is zero, which implies that the worker's surplus from production is zero also. From (2), we can further derive that the contract should satisfy

$$\begin{aligned} w(y) - w(\bar{y}) &\leq s(y) - s(\bar{y}) + y - \bar{y} \quad \text{if } y \geq \bar{y} \\ w(y) - w(\bar{y}) &> s(y) - s(\bar{y}) + y - \bar{y} \quad \text{if } y < \bar{y}. \end{aligned} \tag{10}$$

In words, as output increases from $\bar{y}$, the wage net of severance payment should not increase by more than output. Conversely, as output decreases from $\bar{y}$, the wage net of severance payment should not decrease by more than output. These properties would induce the firm to produce if $y \geq \bar{y}$, and not to produce $y < \bar{y}$. The equations (9) and (10) are a set of necessary and sufficient conditions for the contract to maximize the joint surplus: any joint-surplus maximizing contract satisfes (9) and (10), and any contract that satisfies (9) and (10) maximizes the joint-surplus.

Looking at (9) and (10), we can see that there are an infinite variety of contracts that maximize the joint-surplus of the worker and the firm, and that deliver μ share of surplus to the worker and $1-\mu$ share to the firm. One such constract, which I will call the *flexible-wage contract*, is to provide no severance payment and to divide any incremental output by the shares μ and $1-\mu$ between the worker and the firm: $s(y) = 0$ for all y; $w(y) - w(\bar{y}) = \mu(y - \bar{y})$ for all y; and $w(\bar{y}) + \beta \int W(y) dF(y) = W_0$. Under this contract, the outcome is the same as if there was bargaining between the worker and the firm in each period, as in the Mortensen and Pissarides (1994). The output shock affects the worker's utility and the firm's profit proportionately. An alternative contract, which I will call the *fixed-wage contract*, is to provide a fixed wage and a fixed amount of severance payment: $s(y) = \bar{s}$ for all y; $w(y) = \bar{w}$ for all y; and $\bar{w} + \beta \int W(y) dF(y) = \bar{s} + W_0$. Under

this contract, the worker's utility is the same under all y and the output shock is entirely absorbed by the firm. From (4), we can derive

$$\bar{w} = (1-\beta)\int_y W(y)dF(y) = (1-\beta)(\bar{s}+W_0). \tag{11}$$

Note that the wage rate is the annuity value of the worker's discounted expected utility, which is the same whether the worker is fired or not. The expected utility is the same because the severance payment exactly compensates for the welfare loss from becoming unemployed. Thus a higher wage is associated with a higher severance payment. The level of wage and severance payment is pinned down by the worker's share parameter μ in (6): the level is higher for a greater μ. These two contracts are two extremes, and there are an infinite variety of equilbrium contracts where the wage is niether fully fexible nor fully fixed.

The current model has nothing to say about which contract should prevail. In general terms, however, we can think of advantages and disadvantages of various contracts. Comparing the above two contracts, the flexible-wage contract, being in effect equal to an on-going bargaining arrangement, does without any enforcement costs and can perhaps better handle contingencies that are difficult to write down in contracts. However, it requires that both the worker and the firm know which shocks occured in each period. In reality, the firm may have an informational advantage about the shock, and try to pay a low wage claiming a negative shock. The fixed-wage contract only requires that both the worker and the firm know the distribution of shock: the worker does not need to know which shock occured at all. This contract would also be beneficial to the worker if the worker's utility is concave and the worker has limited instruments to smooth his consumption. Enforcing this contract, however, would not be costless in general. The firm may be unwilling to pay the wage or the severance payment under a negative shock, and the worker may demand a higher wage under a positive shock. The issue is also factual. How and by how much does a shock affect the wage and the severance payment of the

worker in reality? Which contract can produce such an effect? Although answering these questions would require a careful investigation, the factally relevant contract would seem to fall in-between the two extremes considered above.

The key results of this section are as follows. There are many equilibirum contracts, all of which maximize the joint-welfare of the firm and the worker. Under any equilibirum contracts, the severance payment is equal to the welfare loss of the fired worker. Here the welfare loss is the difference between the expected utility from being unemployed and the expected utility that would obtain if the firm had chosen to keep the worker. Therefore, the severance payment depends on, among other things, the expected stream of contractual wages that the firm would have been obliged to pay. Under the flexible-wage contact, the contrautual wage declines in response to a negative shock to the point where there is no welfare loss from becoming unemployed. Under the fixed-wage contract, the contractual wage does not respond to a negative shock and there is a welfare loss from becoming unemployed. Consequently, the more fixed the wage is, the higher the severance payment is.

3. Some Data

The model in Section 2 suggests that the severance payment should be the welfare loss of the worker when he is fired (see equation 9). The welfare loss depends on many factors. First, it depends on the flexibility of the contractual wage. The severance payment is higher if the wage is more fixed. Second, to the extent that the wage is fixed, the welfare loss depends on the prospect of the fired worker. In particular, the severance payment is higher if the expected duration of unemployment is longer or if the unemployment benefit is greater.

Table 1 presents the levels of severance payment for 24 OECD countries. The data come from the OECD Employment Outlook (1999) and cover the late 1990's. They are mainly based on the legal regulation, and are average values across the worker types. We

can see that the severance payment is strongly correlated with job tenure: it is greater for workers who have been at the job for a longer period. Note also that the severance payment is significantly higher in Southern European countries. In contrast, the United States has no severance payment (at least according to the way the data have been produced here). The wages in the United States probably are probably more flexible than other contries, in particular in comparison to many European contries. According to the model in the previous secion, this is a contrast that we should expect from the data.

Table 2 presents the unemployment duration for the same countries. The data were constructed based on the OECD Labour Force Statistics (2002) and cover the years from 1992 to 2001. The Labor Force Statistics provide the percentage of the unemployed who have been unemployed for one month or less for all countries except for Korea, Poland, and Turkey, for which the three-month figures are provided. I averaged the pecentages over the ten year period (less than that for some depending on the availability of data). The unemployment duration in months for a country is estimated by the reciprocal of the average pecentage for each country (multiplied by three for the above three countries). We can see that Europoean countries tend to have much longer duration than non-European countries. Again, the United Sates has the shortest duration among all countries. Figure 1 plots the severance payment (for workers with 20 years at the job) against the unemployment duration. There seems to be a somewhat positive correaltion between the two, as the model suggests.

Table 2 also presents the replacement rate for the unemployment benefit for the same countries except for Turkey and Mexico, for which the data are not available. The data are from the OECD Benefits and Wages (2002), and are for the year 1999. The replacement rates are the summary mesaures, averaged over five years of unemployment and over different types of workers. The gross replacement rate is the ratio of the before-tax benefit over the before-tax prevous income of the worker, and the net replacement rate is the ratio of the after-tax benefit over the after-tax previous income of the worker. We can see

that European countries tend to have high replacement rates. Note in particular that the Northern European countries as high rates as, or even higher rates than, Southern European countries. It appears that the unemployment benefit works as a kind of substitute for the severance payment in the Northern European countries. Again, the United States is among the countries with the lowest rates.

To see whether the unemployment benefit helps to account for the variation in severance payment, we could adjust the unemployment duration of a country by the benefit in that country. A simple exercise is to calculate the *effective* unemployment duration by multiplying the actual rate by the 100% minus the replacement rate. Figure 2 plots the severance payment (again for workers with 20 years at the job) against the effective unemployment duration, calculated this way. In this calculation, I used the net replacement rate. Although it is conceptually not clear whether the net rate is better or worse than the gross rate, the OECD seems to have produced the net rate with more care and to put more faith in it. The correlation between the two seems to be stronger than in Figure 1. This is mainly because the Northern European countries that tend to have a long actual unemployment duration but a low level of severance payment go through greater adjustments than the other countries, and get pushed toward the origin.

Table 1 also presents the advance notice period that is required before firing a worker for the same 24 countries. The data are again from the OECD Employment Outlook (1999) and cover the late 1990's. The motivation for looking at the notice period is as follows. Although the current model has no notice period in it, in some sense the notice period works as a severance payment. The firm is effectively firing the worker when the notice period begins and is paying the wages during the period as a kind of severance payment. Being effectively unemployed, the worker would searh for a new job during the notice period. We can see from the table that the European countries, especially the Northern European countries, tend to have a long notice period. It appears that the unemployment benefit

also works as a kind of substitute for the severance payment in the Northern European countries. Again, the United States is at the other extreme and has no notice period.

To see whether the notice period helps to account for the variation in severance payment, we could augment both the severance payment and the unemployment duration of a country by the notice period of that country. A simple is exercise is to add the notice period to the severance payment and to the effective unemployment duration. Figure 3 plots the severance payment (again for workers with 20 years at the job) against the unemployment duration, augmented this way. The correlation between the two seems to improve after augmentation. In Figure 2, many European countries are concentated near the origin, but now the countries are more dispersed. This is again mainly because the Northern European countries that tend to have a low level of severance payment and a shorter effective unemployment duration go through greater augmenation than the other countries, and get pushed diagonally outward from the origin.

In summary, the severance payment (for workers who have been at the job for 20 years) is on average 4.5 months of wage in OECD countries. The unemployment duration is on average 11.4 months. When adjusted by the unemployment benefit, the unemployment duration is effectively 5.0 or 8.2 months depending whether we use the gross or the net replacement rate. Therefore, the severance payment on average seems to cover perhaps two-thirds of the expected income short-fall of a fired worker. Since there would be some value to leisure or unreported income for the officially unemloyed, the numbers seem to add up: the severance payment may just about cover the welfare loss of the fired worker, as the model suggests. Again, this is under the assumption of some inflexibility of the wage: the firm would be contractually obliged to pay the worker his previous wage if the firm had chosed to keep the worker. This is probably not an unreasonable assumption for many countries.

Comparing the countries within the sample, the European countries tend to have a longer unemployment duration than other countries. Southern European countries tend to

have a higher level of severance payment than other countries, as the model suggests. The Northern European countries do not have a higher level of severance payment, but they instead have a higher level of unemployment benefit and a longer notice period. The net effect of greater unemployment benefit and a longer notice period is to effectively increase the severance payment, which improves the consistency with the model. The same thing can be said in terms of plots: There is some positive correlation between the severance payment and the unemployment duration, which becomes stronger when we make the adjument and augmentation for the unemployment benefit and the notice period.

Overall, the data seem to be consistent with the key result of the model: the severance payment (and notice period) is comparable to the welfare loss of the fired worker. I submit that the severance payment and notice period are the contractual response to the given unemployment duration and unemployment benefit. The literature has emphasized the opposite causality: the firing restrictions lead to a worse labor market condition. Perhaps the complete and balanced interpretation is some mix of the two. The model needs to be fully calibrated in order to see how much of the observed firing restriction can be interpreted as the contractual response to the labor market condition.

4. Work in Progress

As it stands, this reseach is imcomplete. In terms of modeling, I intend to be more rigorous about the wage infexibility, the notice period, and the unemployment benefit. The wage inflexibility is essential for the existence of severance payment. I intend to elaborate further on the rational for the wage inflexibility. Again, the informational asymmenty between the firm and the worker appears to be a fruitful avenue to pursue. I have considered the notice period as a perfect substitute for severance payment. There would in general be different reasons for, and differnt effects of, severance payment and notice period. I intend to think about these differences and whether and how to model them. The unemployment benefit has the effect of reducing the severance payment by lowering the welfare loss of

the fired worker. However, this is a partial effect. The unemployment benefit would lower the job creation and increase the unemployment duration, which would then increase severance payment. At any rate, here is a potentially important welfare implication: the privately-set severance payment may not be optimal since the firm and the worker would ignore the social cost of providing unemployment benefit. I intend to sort out the effects of unemployment beneft and see what is its net effect on severance payment and notice period.

After tiding up the loose ends, I will take the quantitative prediction of the model to the OECD data. Given a degree of wage inflexibility and given an unemployment duration and a level of unemployment benefit, the model would predict the level of severance payment and notice period, which can be compared to the data. I have alreday shown that the prediction of the model could be quite close to the observed level of severance payment and notice period across OECD countries. Any difference between the model and data can be attributed to the government (or union) policy on firng restriction that does not have to do with the private employment contract. To evaluate the effects of observed severance payment and notice period, I will calibrate the model to the key labor market data of OECD countries, and conduct policy experiments. Here the comparison should be made between the welfare under the current policy and the welfare that would obtain under alternative policy, and see what is the optimal policy on firing restriction. As alluded to above, there is a potential complication: the unemployment benefit could affect the optimal level of firing rectriction, and in principle the optimal policy on firing resticion should be studied in conjuction with that on the unemployment benefit. In any case, unlike in previous studies, the optimal level of severance payment and notice period is likely to be some positve level, and the calibration exercise will give us the sense of how far off the current level is from the optimal level in individual OECD countries.

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Table 1: Severance Payment and Notice Period (in Units of Monthly Wage)

Country	Severance Payment after:			Notice Period after:		
	9 months	4 years	20 years	9 months	4 years	20 years
Belgium	.0	.0	.0	2.0	2.8	9.0
France	.0	.4	2.7	1.0	2.0	2.0
Germany	.0	.0	.0	1.0	1.0	7.0
Ireland	.0	.2	2.2	.3	.5	2.0
Netherland	.0	.0	.0	1.0	1.0	3.0
Switzerland	.0	.0	2.0	1.0	2.0	3.0
United Kingdom	.0	.5	2.4	.2	.9	2.8
Greece	.3	1.0	5.8	.5	1.5	8.0
Italy	.7	3.5	18.0	.3	1.1	2.2
Portugal	3.0	4.0	20.0	2.0	2.0	2.0
Spain	.5	2.6	12.0	1.0	1.0	1.0
Turkey	.0	4.0	20.0	1.0	2.0	2.0
Denmark	.0	.0	1.5	1.8	3.0	4.3
Finland	.0	.0	.0	1.0	2.0	6.0
Sweden	.0	.0	.0	1.0	3.0	6.0
Czech Republic	1.0	1.0	1.0	2.0	2.5	2.5
Hungary	.0	1.0	5.0	1.0	1.2	3.0
Poland	.0	.0	.0	1.0	3.0	3.0
Canada	.0	.2	1.3	.5	.5	.5
Mexico	3.0	3.0	3.0	.0	.0	.0
United States	.0	.0	.0	.0	.0	.0
Australia	.0	1.0	1.0	.2	.7	1.2
Japan	.0	1.5	4.0	1.0	1.0	1.0
Korea	.0	2.0	6.0	1.0	1.0	1.0
Average	.4	1.1	4.5	.9	1.5	3.0

Table 2: Unemployment Duration and Benefits

Country	Duration	Gross Replacement	Net Replacement
Belgium	11.6 Months	39%	70%
France	22.8 Months	37%	52%
Germany	12.2 Months	30%	63%
Ireland	18.2 Months	29%	55%
Netherland	18.6 Months	51%	76%
Switzerland	8.1 Months	37%	83%
United Kingdom	7.9 Months	17%	69%
Greece	18.6 Months	19%	17%
Italy	21.7 Months	20%	13%
Portugal	10.6 Months	45%	62%
Spain	24.9 Months	31%	50%
Turkey	14.8 Months		
Denmark	4.2 Months	66%	81%
Finland	7.2 Months	40%	69%
Sweden	5.6 Months	26%	79%
Czech Republic	9.8 Months	7%	72%
Hungary	13.5 Months	24%	42%
Poland	14.7 Months	10%	60%
Canada	4.7 Months	30%	54%
Mexico	3.1 Months		
United States	2.6 Months	14%	32%
Australia	6.3 Months	25%	49%
Japan	6.1 Months	12%	64%
Korea	5.3 Months	8%	20%
Average	11.4 Months	28%	56%

Figure 1: Unemployment Duration vs Severance Payment

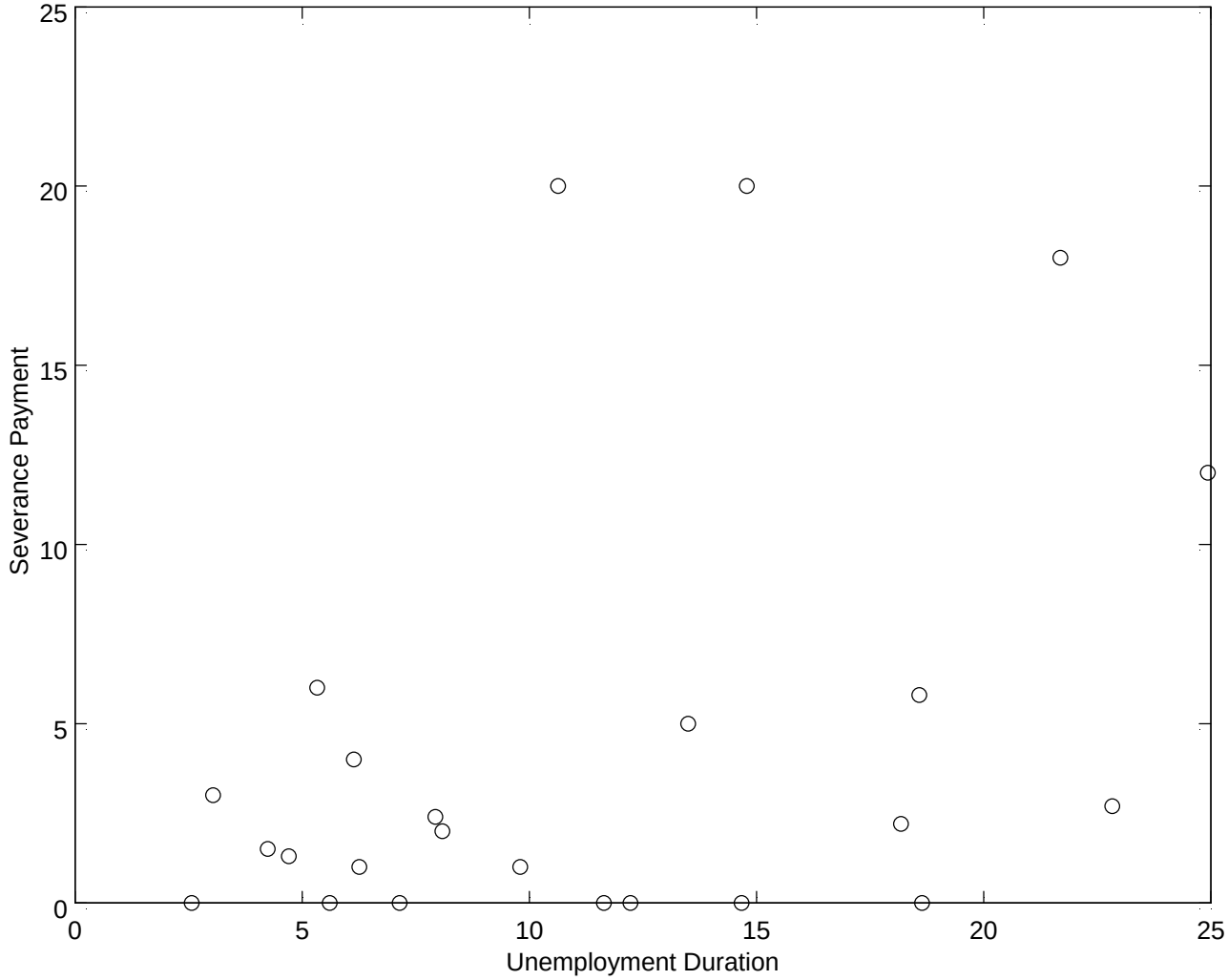

Figure 2: Unemployment Duration vs Severance Payment, Adjusted

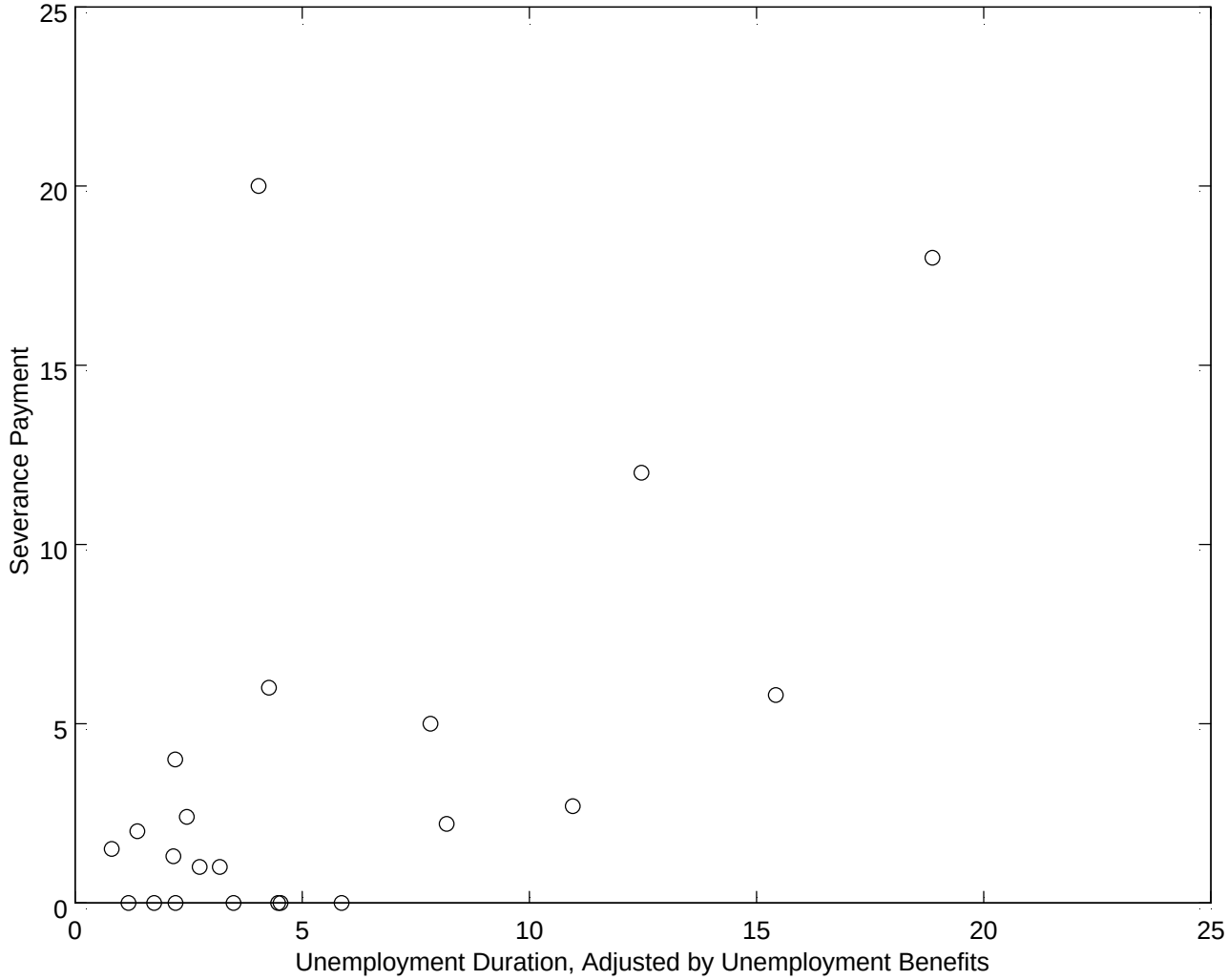

Figure 3: Unemployment Duration vs Severance Payment, Adjusted and Augmented