



Effects of the Austrian Severance Pay Reform

by

Helmut Hofer^{*)}
Ulrich Schuh
Dominik Walch

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**The Austrian Center for Labor
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the Welfare State**

JKU Linz
Department of Economics
Altenberger Strasse 69
4040 Linz, Austria
www.laborrn.at

Helmut.hofer@ihs.ac.at
phone +43 (0)1 59991 - 251, - 163 (fax)

1 Introduction

In 2002, Austria reformed its Employment Protection Legislation (EPL) regulations. The reform replaced a conventional severance payments system with a system of individual saving accounts. This reform of the severance pay law has received international attention as an example for a labor law measure supportive for employment transitions (OECD 2006 and the European Commission 2006). Bassanini et al. (2009) claim that, based on their estimates on the relationship of EPL and productivity, the Austrian EPL reform represents an increase in GDP per capita growth of about 5 % with respect to the Austrian average of the previous twenty years.

A considerable amount of research has been carried out to evaluate the impact of Employment Protection Legislation (EPL) on aggregate labor market variables. EPL reduces the layoff rate and unemployment incidence by making firing more costly to employers and increases unemployment duration because higher labor costs tend to weaken job creation, the overall effect on unemployment is ambiguous and apparently minimal in practice. However, strict EPL tends to compromise the employment prospects for young workers, women and the long-term unemployed (e.g., OECD 2006; Young 2003; European Commission 2006b). Recent literature uses differences in regulation within countries across time or firm-size to analyze the effect of EPL on job turnover. The results are mixed. Using Italian firm-level data Boeri and Jimeno (2005) find a significant effect of EPL on dismissal probabilities. Schivardi and Torrini (2008) report that EPL does influence employment dynamics, but the effects are quantitatively modest. On the contrary, Bauer et al. (2007) do not report any significant influence of EPL on job turnover for Germany. Martins (2009) examines the impact of dismissal-for-cause requirements on job turnover in Portugal. He do not find robust effects of differentiated change in firing costs upon job or worker flows, although some estimates suggest an increase in hirings. Marinescu (2009) uses individual data from the UK labor force survey to analyze the impact of job protection legislation on job duration. Her estimates show that tightening job security provisions does not have a negative impact on employment.

The aim of this paper is to provide an overview of the new severance pay scheme in Austria and to investigate its labor market effects. However, we do not claim to undertake a comprehensive evaluation of the previous and current severance pay law. We rather stick to available data to provide preliminary evidence on two issues related to severance pay: savings for old age pensions and labor mobility.

We use data from Social Security records, covering the universe of Austrian workers, to infer the impact of the change in EPL on labor mobility. The introduction of the new severance pay scheme in 2003 forms a quasi-experimental situation. We use a difference-in-difference strategy to test the hypothesis that the new severance payment scheme improves the

efficiency of labor reallocation by removing the incentives for workers not to move to better jobs. Our results tend to indicate that the impact of EPL on voluntary separations is very limited.

The remainder of the paper is organized as follows. Chapter 2 describes the severance payment reform in detail. As it was an explicit hope of the government that the severance pay reform would also contribute to the expansion of the second pension pillar in Austria, we simulate the potential future development of the system using the World Bank model PROST in Chapter 3. Chapter 4 contains the empirical analysis and present econometric results of our difference-in-difference approach. Chapter 5 concludes.

2 Severance pay law in Austria

Until 2002 Austria's employment legislation stipulated that severance pay had to be paid to private sector employees in the event of termination of the employment contract (by the employer or in mutual accordance), as long as the employee had worked for the employer at least for the last three years. Starting with two monthly wages after three years of company membership, payments increased with the duration of the job up to a maximum value of one yearly income after 25 years.¹ Within the accounting system of firms, severance payments were recorded as regular wage payments. Employers had to make provisions in their accounts for at least half of the severance pay entitlements that could fall due.

Reforming the system of severance pay in Austria had been the focus of controversy for a long time (e.g., Genser 1987; Holzmann, 1987; EIRO 2001; Klec 2007). The previous system was called into question for two main reasons. It was criticized because of its impact in terms of inhibiting mobility in the labor market and the restrictions on entitlement to severance pay. For employees the previous system of severance pay law reduced incentives to change employers as the employee lost the entitlement to severance pay in the case of self-termination of the employment contract.

The second major problem of the old severance pay law was the distribution of the entitlements among employees. The Austrian Trade Union Federation has been demanding the extension of severance pay entitlement to cover not only dismissals but also voluntary resignations and seasonal employment. According to Kristen, Pinggera and Schön (2002) only one third of all workers became entitled to severance payments.

The previous system also involved some drawbacks for businesses, especially for small and medium-sized enterprises (Kristen et al. 2002). Liquidity problems could occur if the firms had to make simultaneous severance payments at some point in time.

A comprehensive reform of the Austrian system took place in the year 2002. The new system was enacted at the beginning of the year 2003. The reform extends the entitlement to severance pay considerably. Entitlement now starts from the first day of employment and does not depend on the mode of termination of the contract. Employers have to pay a contribution of 1.53 percent² of the payroll into a fund, specified by an agreement between employer and work council, from the first day onwards. Existing severance pay entitlements under the old scheme remained unchanged.

¹ Workers receive 2 times their monthly gross wages for employment durations of at least 3 years, 3 times the monthly wage for at least 5 years, 4 times the monthly wage for at least 10 years, 6 times the monthly wage for at least 15 years, 9 times the monthly wage for at least 20 years, 12 times the monthly wage for at least 25 years.

² The contribution rate amounts to 1.5377 of gross salaries. It was set as a result of negotiations between social partners who aimed at moderate costs for employers on the one hand and adequate levels of severance pay claims for workers on the other hand.

In the case of dismissal by the employer after three years of job tenure the employee can choose between receiving her severance payment from the central funds at once, and saving her entitlement toward a future pension. The amount will not be paid out if the employee gives notice herself or job tenure is shorter than three years. The acquired claim, however, remains with the employee.

The new severance pay system offers advantages for employers and employees (see e.g. Hofer 2007). For employers liquidity problems due to simultaneous severance payments are prevented and there is no uncertainty related to the costs of severance pay at the time of hiring. For the workers, job mobility costs are reduced because they do not lose their entitlement to severance payment when quitting a job.

It was an explicit hope of the government that the severance payment reform would also contribute to the expansion of the underdeveloped second pension pillar in Austria. To a certain extent, the reform is indeed a first step in this direction: It replaces the former defined-benefit, final-salary severance payments scheme by a contribution-defined, fully funded system. The reform provides for tax incentives to use the savings of the severance pay scheme as a retirement income supplement.

Most existing studies on the impact of the previous Austrian severance pay system are based on theoretical arguments (e.g., Walther 1999) or anecdotal evidence. For low-qualified jobs the system created incentives for employers to terminate employment spells early to avoid accumulating severance pay claims that are not matched by productivity gains. According to OECD (2001), the propensity of employers to terminate employment peaks prior to employment durations was associated with discretionary hikes in accumulated claims for severance pay. Moreover, the system was biased against labor supply in industries with over-proportionate employment fluctuations due to structural change or seasonality as in tourism. Card et al. (2006) provide a profound empirical analysis of the impact of eligibility for severance payment on unemployment duration and subsequent job outcomes. They use a regression discontinuity design, comparing the search behavior of individuals who were laid off just before and just after the 36-month cut-off for eligibility. According to this study the hazard rate of finding a new job during the first 20 weeks of the unemployment spell is 8 to 12 percent lower for individuals eligible for severance pay. This longer unemployment spell is not compensated via the quality of the subsequent job. Mean wages, job duration and other measures of job quality are unaffected by entitlement to severance pay. Card et al. use a theoretical job search model to derive the welfare consequences of severance pay. According to the model, a pure wealth effect causes the reduced search intensity without any efficiency costs. Furthermore, Card et al. find no evidence for selective firing prior to the 36-month-cutoff.

Koman et al. (2005) provide an ex-ante evaluation of the effects of the severance payment reform. Based on retirement income projections and simulations of the pension reform for

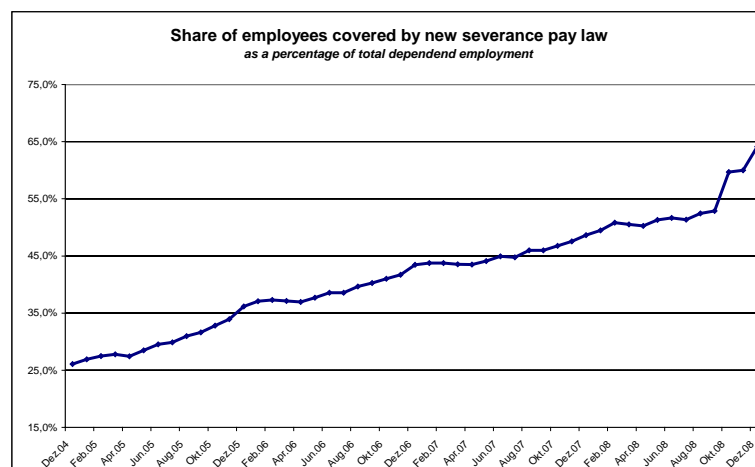
the blue and white collar workers' pension system, Koman et al. show that the contribution rate of 1.53 percent is too low to generate a significant second pillar retirement income that could help to maintain current replacement rates. An increase of the contribution rate up to 5 percent could already be a major step toward a sufficient second pillar retirement income. Moreover, Koman et al. perform an empirical analysis on a cross section of completed job spells of different durations for which they compare severance pay in the two schemes. According to the simulations severance payments will be 35 per cent lower in the new system in the sample mean. Differences in payments among groups will even be stronger in the new scheme. Note, however, that Koman et al. do not observe complete individual employment careers and hence cannot take the accumulation of severance payments during the working life into account.

3 Capital accumulation and the new severance pay scheme

In this section we focus on the relative importance of the new severance pay to provide for savings for old age pensions in Austria. We will provide a brief overview of the most recent development followed by a simulation about the possible future development.

Since its introduction the coverage of the new severance pay scheme has increased continuously. Figure 1 describes the evolution of the share of employees that have accumulated claims in the new scheme. The share of employees increased from about $\frac{1}{4}$ of total dependent employment at the end of the year 2004 up to $\frac{2}{3}$ in December 2008. Note that civil servants – accounting for around 10 % of total employment – do not participate in the severance pay scheme. The significant increase in the growth of participation at the end of the year 2008 may be due to the extension of the system that took place in this year. In 2008 all apprentices and self-employed were included. Freelancers and farmers may opt into the severance pay system. Until December 2010 the share of employees that have accumulated claims increased to 71.4 percent.

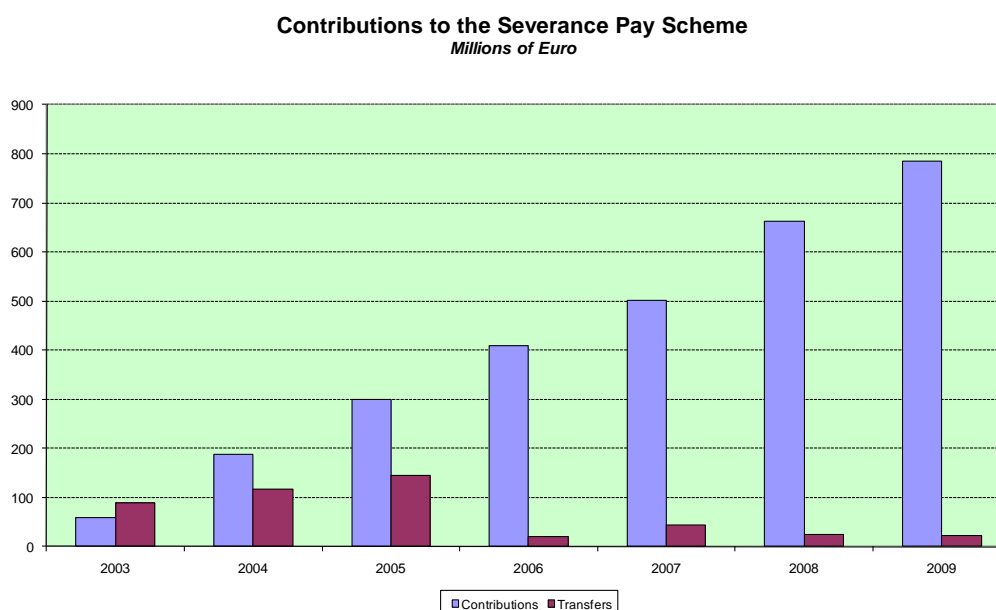
Figure 1



Source: Main Association of Austrian Social Insurance Institutions

In parallel with the development of persons included in the new scheme the volume of contributions has increased significantly. In the year 2003 60 mln euros were directly contributed to the system, an additional 90 mln euros were transferred from the old system into the new scheme. Over time the volume of transfers declined to 24 mln euros in 2008. The volume of contributions, however, increased to 662 mln euros in the year 2008. Consequently the amount of assets held by the Mitarbeitervorsorgekassen (MVK) increased from 146 mln euros in 2003 up to 2.8 billion euros in 2009.

Figure 2



Source: Plattform der Betrieblichen Vorsorgekassen

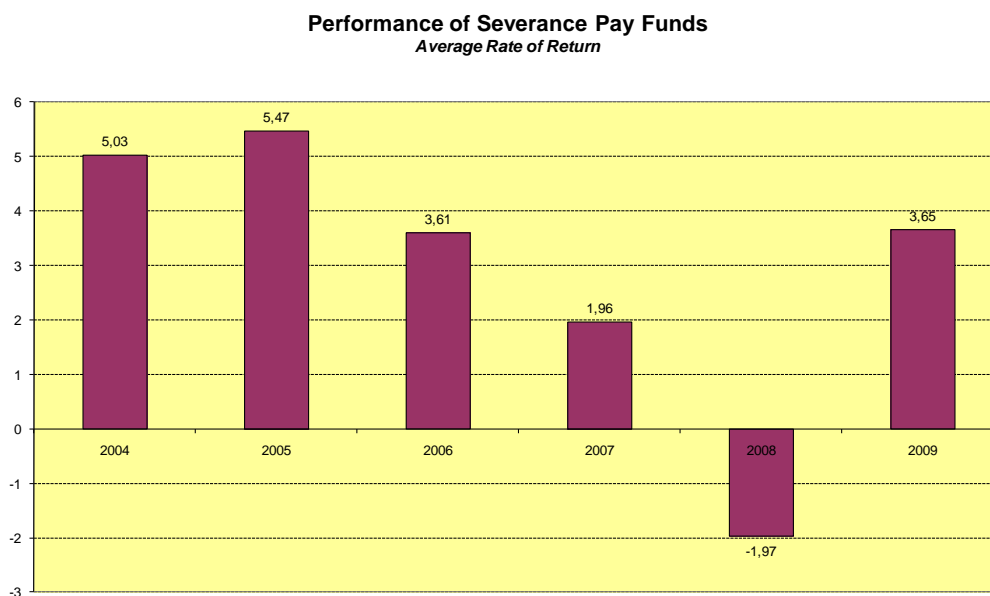
One original objective of the Austrian reform has been to contribute to the expansion of the underdeveloped second pillar of the Austrian pension system. In 2005 only 11 % of all Austrian employees had claims to a funded pension scheme on the enterprise level compared to an average value of 27 % in all EU-member states. The total savings in the funded pillar amounted to 4.7 % of GDP in 2005 compared to the average value of 87.6 % for all OECD member states.³ The structure of savings for old age benefits in Austria may be explained by the rather generous public pay-as-you-go pension system. However, recent pension reforms imply a significant gradual reduction in replacement rates in the pay-as-you-go system by 25 % in the coming decades. In this respect the savings from the severance pay system could serve as an option to fill the gap left from the pension reforms. By replacing the former defined-benefit, final salary severance payments scheme by a contribution-defined, fully funded system, the reform may be considered as a first step in this direction. The essential condition for establishing an instrument to increase savings for pension benefits is, however, not fulfilled: after 36 months of contribution to the system employees may withdraw their claims from the system. The legislator additionally provided tax incentives to motivate employees to leave their savings within the severance pay funds. Benefits from the new severance pay scheme are tax-exempt if they are transformed into a pension annuity otherwise a reduced income tax rate of 6 % of benefits applies.

Consequently the decision of employees whether to withdraw their claims from the system depends on the return of the severance pay funds. The returns of the new scheme have

³ See Felderer et.al 2008, data sources: Eurostat, OECD.

been, however, not very promising in recent years. At the outset of the reform it was assumed that in the long term the rate of return should be at 6 percent per annum.⁴ As can be seen from Figure 3 the rate of return in the new system turned out to be well below this very optimistic target level. Returns continuously declined from 5 ½ % in 2005 to -2 % in the year 2008. On average the rate of return amounted to 3.0 % for the period 2004 to 2009.

Figure 3



Source: Oesterreichische Kontrollbank

It thus comes as no surprise that withdrawals from the system have been the rule rather than the exception. In 2006 it became possible for the first time for those entering the system during 2003 to withdraw their claims. As a consequence withdrawals have increased sharply. The data for 2006 reveal that 88 percent of all participants that had the option to take out their claims from the system did so. Given the foreseeable decline in replacement rates in the public pay-as-you-go pension system it may be desirable to achieve higher rates of savings for old age income via this channel in the future.

⁴ See Koman et. al 2004.

Figure 4



Source: Plattform der betrieblichen Vorsorgekassen

From the perspective of the MVK there are two reasons – that are not independent from each other – that seem to explain the poor performance of the severance pay funds. First the MVK are obliged to guarantee the value of the capital corresponding to the contributions. This implies a costly insurance of the funds that reduces the potential rate of return. Second the participants in the system may withdraw their claims as soon as they have contributed at least for three years to the system. Therefore the MVK have to provide for sufficient liquidity to pay out potential claims. This implies that the MVK are forced to have large shares of their portfolio to be invested in short term assets, which also reduces the potential rate of return. As these two obligations reduce the potential rate of return – which can be seen from the current performance – the incentives of employees to actually withdraw their claims from the system increases which again has negative impact on the performance of the funds.

Consequently the MVK argue for modifications of the legal provisions in order to improve their performance. They propose to allow employees to opt out of the capital guarantee and to raise the minimum contribution period into the system to five years. Another possibility would be to stick to the original intention and to restrict withdrawals until the time of retirement.

In order to assess the potential of the new severance pay system as a prominent part of the development of a second pillar of the Austrian pension system we simulated the potential future development of the system using the World Bank model PROST (Pension Reform Options Tool-Kit). PROST has been developed to analyze the long-term structure and

financial sustainability of public and private pension systems around the world. It has been applied to Austria to analyze the options for pension reform in recent years.⁵

PROST contains several modules that depict the main features of pension systems of individual countries. The *demography module* captures the historical and prospective development of the population of a country. For the purpose of this paper the current population forecast of the Austrian Statistical Office has been used as an input for PROST.⁶ The *labor market module* describes the labor market participation rates, unemployment rates and wage rates of age cohorts. In this respect historical data and trend forecasts for the future have been used as an input for the model. The *macroeconomic module* combines the inputs from the demography module and the labor market module with assumptions about the growth rates of labor productivity to produce the evolution of GDP and the wage bill over time. For the time period 2010-2070 we assumed an average growth rate of labor productivity of 1.7 % per annum. The *pension module* combines demographic data and labor market parameters to calculate contributions and benefits from different pillars of national pension systems. We used the pension module to simulate the development of contributions, assets and benefits of the Austrian severance pay scheme.

In our simulation we start from the situation in the year 2006 where total assets of the new severance pay scheme amounted to 0.9 % of GDP and benefits of retirees from this source amounted to 0.01 percent of GDP. The existing data indicate that currently only 12 percent of total contributions remain within the system which implies that effectively 0.2 % of the wage bill may be regarded as potential savings for retirement. Mandatory contributions to the public pension system are currently 22.8 % of the wage bill and total expenditure for pension benefits amounted to 10.5 % of GDP in 2006.

In order to simulate the future development of the severance pay system as a source of pension income we have to make assumptions about the share of contributions that remains in the system. In this respect we assumed in a pessimistic scenario that in the long-term only 25 % of contributors leave their claims in the system until they retire. This implies effective contributions of 0.4 percent⁷ of the wage bill. In the optimistic scenario we assume that half of the contributions are used for savings for retirement income.

As can be seen from the simulations the relative importance of the severance pay system for the income of retirees may increase over time. In the year 2070 total assets in the system could increase to 8.8 % of GDP and pension benefits from this source could amount for nearly ½ % of GDP in the optimistic scenario. Still the figures indicate that the relative importance of the severance pay scheme for pension income will be limited.

⁵ See Koman et al. 2004.

⁶ See Hanika, (2006)

⁷ This corresponds to 25 percent of the contribution rate of 1.53 percent.

Table 1: Simulations of the Severance Pay Funds

	2006	2035	2070
<i>Pessimistic Scenario</i>			
Contributions*	0.2	0.4	0.4
Assets**	0.9	3.7	4.4
Benefits**	0.01	0.14	0.24
<i>Optimistic Scenario</i>			
Contributions*	0.2	0.8	0.8
Assets**	0.9	7.5	8.8
Benefits**	0.01	0.35	0.49

*as a percentage of the wage bill

**as a percentage of GDP

4 Mobility in the labor market

The former Austrian severance pay scheme has been under suspicion of distorting the labor market behavior of economic agents (see e.g. OECD 2001). The discrete increase in entitlements led to incentives on the part of employers to dismiss employees just before additional claims could arise. From the perspective of employees the severance pay scheme has reduced the attractiveness of changing jobs with increasing duration of the employment spell. In this section we investigate the effects of the change in severance pay legislation on the job termination probability around the former severance pay threshold of three years. Based on an administrative data set, containing all employment episodes in Austria, we use a difference-in-difference approach to estimate the impact of severance payment legislation on job mobility. We identify the effect by calculating the difference in the job termination probability between the third and fourth year of tenure for workers covered by, and, respectively, uncovered by the former severance pay legislation.

Theoretical considerations give reason to assume that the reform of the Austrian severance pay law should have increased labor mobility significantly. As a consequence beneficial effects on labor productivity should arise as the quality of matches between workers and firms would increase⁸. In addition to that economic growth may be supported as workers move faster to innovative sectors of the economy. Bassanini et al. (2009) estimate that the reform “will raise the annual TFP growth in EPL-binding industries by about 0.25 percentage points, which translates into an average estimated growth rate of at least 0.1 percentage points for the whole economy.” Precondition for these effects to materialize is, however, the assumed impact of the reform on labor mobility in Austria.

⁸ From a theoretical point of view, EPL may increase or decrease productivity (see the discussion in Bassanini et al. 2009). It is often mentioned that EPL stimulates firm specific investment of workers.

Data and descriptive results

For the empirical part of the study we use an administrative data set that contains all employment spells relevant for social security in Austria for the time period January 2001 to January 2009. For each employment spell personal characteristics (personal identification number, sex, age, wage) and firm data are recorded (firm identification number, economic sector, firm size).

Based on the available data we are in a position to compare the durations of job spells just before and after the introduction of the new severance pay scheme. As mentioned above we expect a positive impact on labor market mobility for jobs spells above a certain duration. The former system has reduced the incentive for employees to change the employer after three years as in the case of self-termination the worker lost the entitlement to severance pay. For very short job spells it is reasonable to assume that the former severance payment scheme did not affect the behavior of employers and employees. For this reason we restrict our analysis to employment episodes that have a duration of at least two years. In the sample remain 1,167,625 employment episodes that started between January 1st 2001 and December 31st 2004. We ignore job episodes that started later than 2004 in order to have sufficiently long observation periods. We find that a significant fraction of new jobs are recalls at the same employer, which would be relevant also for severance pay claims in the old scheme. In order to avoid a bias in the results we skip all employment episodes that are matches between the same employer and employee as in the immediately previous employment episode. Specific legal provisions for firing exist for apprentices (15-20 year old employees) and older workers (aged above 50 years) in Austria. In order to filter for the potential impact of these factors we restrict our analysis to employment episodes of persons aged between 20 and 45 years. Finally we account for the fact that a separate severance pay regulation existed for employees in the construction sector. We drop all employment episodes belonging to this sector. The adjustments mentioned above imply that we are left with 688,779 employment episodes for our empirical analysis.

We use all workers starting their employment episode in the years 2003 and 2004 as treatment group. The control group is formed by workers, starting their employment episode in the years 2001 and 2002. We apply a difference-in-difference approach to study the effects of severance pay legislation on job mobility. Severance payment can be a barrier to efficiency-enhancing labor reallocation by discouraging workers from quitting their current job to move to better jobs. The reform has reduced such mobility obstacles as workers now keep their entitlement to severance pay if they quit. Therefore the treatment group should have a relative higher probability to terminate the job within the fourth year (relative to the third year).

Table 2 displays the distribution of the duration of the employment spells that lasted for at least two years. The first two data columns present the frequencies and corresponding

percentage fractions for all employment spells. Twenty percent of all employment episodes with a duration of two years end within the third year, 14 % end in the fourth year. As our sample ends in January 2009 a significant fraction of all employment spells are censored. Columns three and four present the respective values for all completed spells. In our sample 338.283 of all employment episodes that had duration of at least two years have been already completed in January 2009. This amounts to roughly half of all employment spells in the sample.

Table 2: Job tenure

Duration	All Spells		Completed Spells	
	Frequency	Percent	Frequency	Percent
2 to 3 years	136,712	19.8	136,712	40.4
3 to 4 years	96,567	14.0	96,567	28.5
4 to 5 years	194,431	28.2	61,364	18.1
more than 5 years	261,069	37.9	43,640	12.9
Total	688,779	100.0	338,283	100.0

Table 3 describes the probability of terminating the job in year 3 and year 4 after the start of an employment contract in the sample. The calculated probability refers to all employment contracts that still existed at the beginning of the year under consideration (i.e. all employment contracts that had duration of at least 2 or 3 years respectively). Note that under the old severance pay scheme, entitlements for severance pay emerged after three years of job tenure. Therefore we expect a significant decline in the incentives to change a job in year 4 under the old scheme.

Table 3: Probability of job termination in year 3 and 4

	Aggregate	Pre-Reform	Reform
Job Termination Year 3	19.9	21.1	18.5
Job Termination Year 4	17.5	18.8	16.7
Difference	2.4	2.3	1.8
Difference in Difference			0.5

For the whole sample the probability of termination of an employment contract in the third year is 19.9 %. The respective value for the fourth year is 17.5 %. Our data set allows comparing the probabilities of job changes for the periods immediately before and after the implementation of the severance pay reform. Table 3 reveals that the probability of leaving a job was significantly higher before the reform. In the third year 21.1 % of all existing jobs ended within year three as compared to 18.5 % after the introduction of the new severance

pay scheme. The same pattern applies for job terminations in year 4: 18.8 % of all jobs had been terminated before the reform, 16.7 % in the post-reform sample.

The general decline in “job mobility” certainly cannot be attributed to the introduction of the reform. Rather the economic and labor market conditions may have had a significant impact on the turnover at the labor market. In our sample we compare job mobility in the years 2003/2004 with the period 2005/06. In the latter time span a strong economic recovery took place and employment growth accelerated significantly. These favorable conditions should have supported the stability of employment contracts and may explain the observed patterns of job mobility.

In order to control for unobserved and time-invariant effects we look at the difference in job mobility in year 4 compared to year 3. We expect a smaller difference in probabilities in between the years 3 and for 4 in the post-reform subsample as the dampening effect on job mobility in year 4 vanishes with introduction of the new severance pay scheme.

As can be seen in row three and four of Table 3 the difference in job mobility has indeed declined after the reform has been implemented. In the pre-reform subsample the difference in the probability of job termination was 2.3 percentage points compared to 1.8 percentage points for the post-reform period. The calculated difference in difference value indicates that the probability of job mobility has indeed increased by 0.5 percentage points after the introduction of the severance pay reform.

In Table 4 we present the results of the corresponding difference in difference calculations for females and males separately. The results confirm the finding of higher job mobility in the pre-reform time period and support the hypothesis of a positive impact of severance pay reform on job mobility in year 4. We find, however, a much stronger impact of the new severance pay scheme on job mobility for females compared to males. The difference in difference indicator amounts to 0.9 percentage points for women and is only 0.2 percentage points for men.

Table 4: Probability of job termination by gender

	Females		Males	
	Pre-Reform	Reform	Pre-Reform	Reform
Job Termination Year 3	21.5	18.0	20.7	19.5
Job Termination Year 4	18.8	16.2	18.1	17.1
Difference	2.7	1.8	2.6	2.4
Difference in Difference		0.9		0.2

In the analysis above we look at all employment contracts that end within the third and fourth year. Our considerations about higher job mobility in year 4 are based on the financial

incentives for employees that quit and consequently lost their entitlement for severance pay under the old system. As we have no information about the form of the termination of the employment contract in the data we try to identify quits by restricting the analysis to direct job changes. We define direct job changes as those employment contracts that end and are followed immediately by a new job without any unemployment spell in-between. We assume that employees who directly move to a new employer do have a much higher probability of a quit compared to the complete set of all terminated employment contracts.

In our sample 194.000 of all employment contracts or 28 % of the total number are followed immediately by a new job contract at a different employer. If we ignore all censored job spells we see, however, that the number of direct job changes is quite substantial. More than 57 % of all terminated job spells in the sample belong to this subset. As can be seen from Table 5 11.1 % of all employment contracts with duration of at least 2 years ended within the third year with a direct job to job change. The probability declines to 10.1 % in year 4. A comparison of the pre- and post-reform time period reveals that job mobility declined after the introduction of the reform. We find, however, no support for the hypothesis of increased job mobility in year 4 of employment contracts due to the reform. Our difference in difference indicator is exactly zero, which implies that for direct job changes no relative increase in job mobility occurred in year 4 for those persons in the new severance pay regime. This result clearly contradicts our expectations and it seems to indicate that the impact of the severance pay scheme on job mobility is limited. One possible explanation for our finding is that financial incentives of the old severance pay scheme (at least after three years of job tenure) were not sufficiently large to generate sizable distortions of job mobility behavior of employees.

Table 5: Probability of direct job change

	Aggregate	Pre-Reform	Reform
Job Change Year 3	11.1	11.6	10.7
Job Change Year 4	10.1	10.7	9.6
Difference	1.0	0.9	1.1
Difference in Difference			0.0

Differences-in-differences estimates

After presenting descriptive evidence we use micro-econometric techniques to control for various factors that may influence the probability of employees to terminate a job. In the following we set up a difference-in-difference probit model⁹. The method proposed in Ai and

⁹ Schnalzenberger and Winter-Ebmer (2009) also use a difference-in-difference probit model to analyze the impact of layoff taxes on the displacement rate of older workers.

Norton (2003) is used to calculate marginal effects for difference-in-difference estimates in the nonlinear case. The marginal effects are evaluated at the means of the covariates. As dependent variable we define the probability of terminating a job. We use the same sample as above and investigate the probability of terminating the job in year 3 and year 4 after the beginning of an employment episode. In the probit equation we control for age (dummies for 5 year cohorts), for the industry (11 industries are used) and the size of the firm (5 different types of firm sizes). The marginal effects of these controls behave according to theoretical considerations: the probability of job termination declines with the age of the employee and it increases with the size of the firm. The industry has also a significant impact on job termination. As already mentioned the general labor market conditions may have a significant impact on job mobility. Therefore we use yearly employment growth in Austria as additional variables. Furthermore, we control for gender and wage.

In Table 6 we report marginal effects for selected control variables.

Table 6: Probit DiD: Dependent variable job termination

	Marginal effect	z-value
After Reform	0.3	2.2
Female	1.3	16.4
Wage	2.5	29.4
Employment Growth	-1.6	12.0
Year 4	-1.5	12.9
After Reform*Year 4	0.8	6.1
Observations	1,240,514	
Log-likelihood	-583,000	

The dummy-variable “After Reform” takes the value of one for workers belonging to the reformed severance payment scheme. In contrast to the results obtained in the simple analysis above the marginal effect reveals that the probability of terminating the job is higher for the workers in the new severance payment scheme. Females have in general a significantly higher job termination probability. The variable “Wage” captures the wage level of the employees in the original job. The results indicate that employees with higher wages have a significantly higher propensity to move to another job. As there are no other variables for human capital included in the regression this parameter includes the impact of skills and productivity. As expected the macroeconomic labor market conditions have a significant impact on the mobility of the workforce. The variable employment growth captures the employment growth level in the respective year under consideration. Better economic and labor market conditions lead to a significant decline in the probability to terminate the job. The variable “Year 4” refers to the probability of changing job in the fourth year of an employment episode as compared to year 3. The marginal effect points to a declining outflow

from employment in year 4. The focus of our analysis is on the impact of severance pay reform on job mobility in the fourth year of employment. We model this impact with an interaction term of 'After reform' times 'Year 4' (see also Table 10). In line with our hypothesis of higher mobility caused by the reform we find a positive and significant marginal effect. An increase in the termination probability of 0.8 percentage points amounts to an increase in the overall termination probability of 4.5 %.

As our descriptive analysis showed considerable differences in the results by gender, Table 7 presents the probit results for females and males separately.

Table 7: Probit DiD: Dependent variable job termination by gender

	Females		Males	
	Marginal effect	z-value	Marginal effect	z-value
After Reform	0.3	1.2	0.4	1.9
Wage	1.3	12.7	3.8	26.2
Employment Growth	-2.6	13.9	-0.6	3.0
Year 4	-1.0	6.2	-1.9	12.0
After reform *Year 4	1.2	6.3	0.4	2.5
Observations	611,785		628,729	
Log-likelihood	-284,447		-297,730	

According to the direction of the impact of the individual variables on the probability of a direct job change the results (see Table 8) correspond to the results reported in Table 6. Again we are interested primarily in the outcomes for the dummy variable for the reform and the interaction term that measures the influence of severance pay on the mobility behavior in the fourth year. Although the marginal effect for the dummy variable is positive, the effect is significantly smaller than in Table 6 and furthermore the statistical significance is definitively lower. The effect of the severance payment reform amounts only to 2 % of the job termination probability. Only for females we find evidence for higher job-to-job mobility (Table 9). Again the analysis of direct job changes gives rise to doubts on the quantitative importance of the severance pay reform on job mobility.

Table 8: Probit DiD: Dependent variable direct job change

	Marginal effect	z-value
After Reform	0.7	6.2
Female	1.1	17.3
Wage	3.7	52.5
Employment Growth	-1.1	10.3
Year 4	0.3	3.5
After Reform*Year 4	0.2	2.0
Observations	1,240,514	
Log-likelihood	-410,198	

Table 9: Probit DiD: Dependent variable direct job change by gender

	Females		Males	
	Marginal effect	z-value	Marginal effect	z-value
After Reform	0.7	4.5	0.7	4.2
Wage	2.2	25.8	5.9	46.2
Employment Growth	-1.9	12.8	-0.2	1.4
Year 4	0.1	1.1	-0.8	6.2
After reform *Year 4	0.5	2.8	0.1	0.4
Observations	611,785		628,729	
Log-likelihood	-284,447		-213,870	

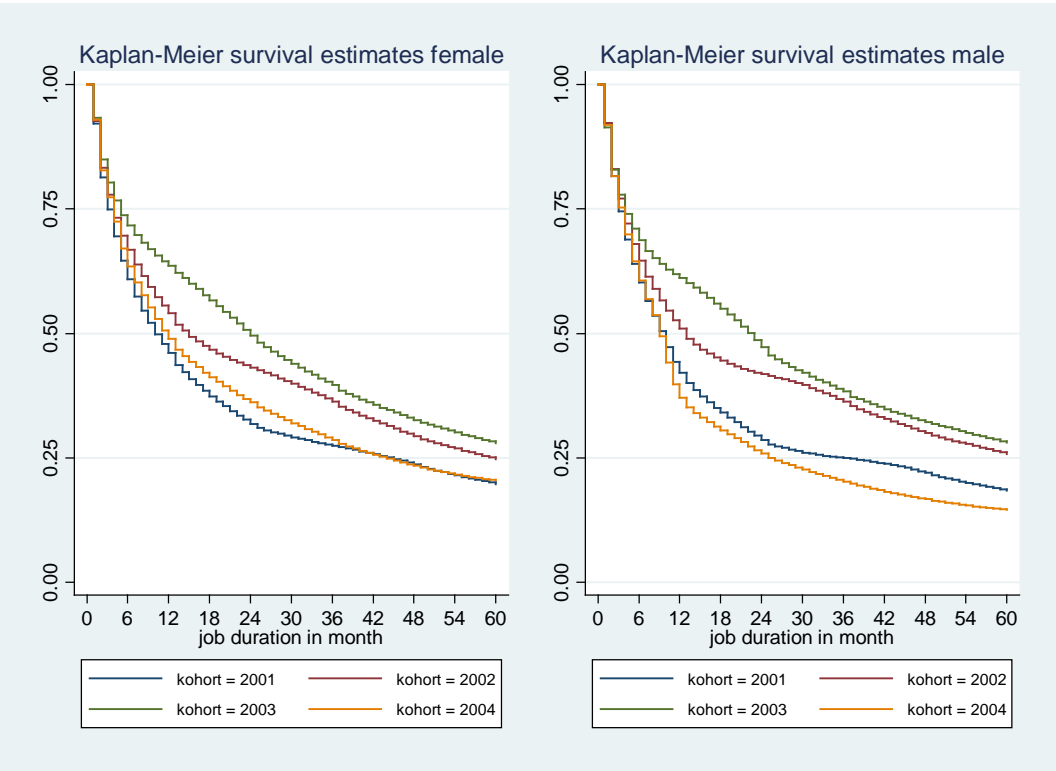
Robustness checks

We examine the robustness of our results with respect to our selection of workers with at least two years of tenure and the sample period. First, one may be worried that business cycle effects drive mobility decisions of workers. We control for business cycle effects by including macroeconomic labor demand as one explanatory variable. The business cycle might affect job duration also because of dynamic sorting into unemployment. In our analysis we consider only workers with job durations of at least two years. This would be misleading if the sample with a cut-off point of 2 years depends on the business cycle.

Figure 5 shows the survivor function based on job duration for all workers. The graph shows very similar survivor-functions for the cohorts 2001 and 2004, and the cohorts 2002 and 2003, respectively. There is no simple correlation between end of job duration within the second year and the stance of the business cycle as the business cycle conditions improved in 2005 at least compared to 2001¹⁰. Therefore we claim that dropping workers with job tenure below two years does not lead to biased results. However, the possibility of unobserved heterogeneity had to be considered in interpreting our result.

¹⁰ The years 2001 to 2005 were characterized by relatively unfavorable labor market conditions. The unemployment rate increased steadily over this time period (2001 to 2006: 6.2%, 7.2%, 7.5%, 7.5%, 7.7%, 7.1%). Labor demand was sluggish between 2001 and 2004 (employment growth 2001 to 2006: 0.4 %, -0.5 %, 0.2 %, 0.3 %, 1.0 %, 1.7 %).

Figure 5



Second, Table 10 shows the results of comparing only one year before and after introduction of new severance pay law. The comparison of the cohorts 2002 and 2003 only indicates that the new severance pay scheme has not lead to higher job mobility. Some estimates even suggest that voluntary separations declined, at least for females. Note, however, that it is not possible to include the business cycle variable in this specification.

Table 10: Effect of reform

	Marginal effect	z-value
Full sample 2001/2002 versus 2003/2004		
Job termination	0.80	6.10
Male	0.45	2.49
Female	1.21	6.32
Direct job change	0.21	1.96
Male	0.06	0.42
Female	0.45	2.80
Robustness check 2002/2003		
Job termination	0.08	0.43
Male	0.24	0.90
Female	-0.08	0.27
Direct job change	-0.54	3.21
Male	-0.06	0.30
Female	-1.04	4.15

5 Conclusions

In 2003 a comprehensive reform of the Austrian severance pay system came into force that has received substantial international attention. The reform extended the coverage of the system considerably as every employee collects entitlements irrespective of the duration of her employment spell. The new system has been regarded as a significant improvement as potential obstacles to job mobility in the Austrian labor market have been removed. Furthermore the reform was intended to form the nucleus of an improved second pillar for the Austrian pension system.

Since its introduction the coverage of the new severance pay scheme has expanded continuously. In the meantime 2/3 of all employees have an entitlement to a severance payment. Although contributions to the new scheme have increased significantly it has also become evident that 90 percent of those entitled to withdraw their funds from the system do so in practice. Recent pension reforms will lead to significant reductions of replacement rates in the Austrian public pay-as-you-go pension system in the coming decades. If it is the intention that the new severance pay system may reduce foreseeable income losses for old age pensioners it may be desirable that savings directed to old age pension benefits should increase in the future. The main reason for the behavior of Austrian employees is given by the rather modest rates of return that have been generated by the *Mitarbeitervorsorgekassen* (MVK) investing the funds. The performance of the MVK has been impaired by the legal obligation of a guarantee for the capital and by the possibility of withdrawal of funds after termination of jobs.

Given the observed empirical evidence it seems reasonable to aim for some modifications of the existing system. Options that are discussed currently are the possibility of opting out from the capital guarantee and an extension of the minimum contribution period before withdrawal of funds from the system. In order to increase potential returns in the system it could be helpful to allow for the option to agree on longer periods of commitment on an individual basis. In order to meet the objective of increased savings for retirement we would argue for considering a restriction of withdrawals to the time of retirement. As it turned out that initially assumed rates of return have been by far too optimistic this may be a reason to consider higher contribution rates in the future.

Using individual job spells in time periods immediately before and after the introduction of the new scheme we have been able to investigate the potential impact of the severance pay legislation on job mobility at the Austrian labor market. We found some evidence that in fact job mobility increased for longer job spells as a consequence of the reform. The estimated impact is significantly larger for females compared to men. The results, however, reveal that the quantitative impact of the former severance pay system on job mobility was rather limited. Other factors like economic conditions seem to play a much bigger role in affecting

job changes in Austria. The results indicate that the adverse financial incentives of the old severance pay scheme have been – at least for job spells lasting no longer than five years – too small to have sizeable effects on labor mobility in Austria.

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