The French Pension Reforms and their Impact on Unemployed Older Workers[☆]

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Abstract

The sustainability of Social Security financing have pushed authorities to reform their policy to increase the labour market participation of older workers. We analyse the effects of two French pension reforms, which increased the period of contribution and the minimum retirement age, on transitions out of unemployment and into employment with a difference-in-differences approach. We find that both retirement reforms have positive effects on the re-employment of older unemployed workers. The reforms are accompanied by an increase of the transitions into inactivity. These reforms have significant effects by reducing the unemployment of older workers.

Keywords: Older workers, unemployment, retirement age, policy reforms, labour supply.
JEL: J14, J26.

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1. Introduction

Since the early 1970s, the labour market of older workers, aged 50 or over, has been characterized by a low employment rate for most of European countries. The situation is particularly worrying in France where the labour force participation rate is one of the lowest among developed countries. For example, 47.1 % of those aged between 55 and 64 were employed in 2014, and only 23.3% for the group of 60 to 64 years old, while the mean employment rate in the European Union (EU27) is 51.9% (see Figure 1a).

An important concern is that, these low rates have been recently accompanied with a rising unemployment rate. Since the 2008 crisis, the situation for the over fifties is getting worse with an unemployment rate increasing, from 4% in 2008 to 7.5% in 2014[1]. This is largely due to the economic crisis and measures which exempt older unemployed workers from actively seeking employment. This fact is illustrated in Figure 1b, where we present the French unemployment rate of workers aged between 55 and 64 years old for the past fourteen years. Average unemployment rates are nearly around 4.5% until 2007 and displays an important increase by 1.4 percentage points in 2009. This trend is persistent up to now. Although older people are less exposed to unemployment than the young, they face more obstacles in leaving this state. This is particularly salient for older jobseekers who tend to be trapped in long-term unemployment. For example, in 2012, 61% of workers aged over 55 years where in long-term unemployment, compared to 47% of workers aged over 55 years in the OECD. As a result, one over two older workers do not move directly from employment to retirement. Indeed, older unemployed tend to experience a lengthy spell of unemployment at the end of their working life[2].

The low employment rate of older workers and the difficulties encountered in returning to employment have attracted attention in public and political debates in many European countries. It has also raised questions about the sustainability of contribution-based state pension systems in context of ageing population. This issue leads to the rise of the minimum retirement age, while policy makers have taken several measures to improve the employment of older individuals.

This paper evaluates the effects of pension reforms on the unemployment of older workers, aged 55

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[1]Source: OECD, available at https://stats.oecd.org/Index.aspxDataSetCode=LFS_SEXAGE_I_R#, accessed December 2015

[2]Source: OECD (2014)

and older, in France. These reforms essentially consisted of an increase in the number of years of contributions, and in the gradual raise of the minimum retirement age. The main objective is to assess the impacts of these changes on older workers' transition out of unemployment and into employment. This study also investigates their effects on the use of other programs related to older workers, such as disability and retirement insurances.

We take advantage of the dataset that allows us to identify the impact of the 2003 and 2010 French reforms on the pension system. We find that the different pension reforms implemented in France have limited effects on the re-employment probability of older unemployed persons. The 2003 French reform has a positive effect on the re-employment of older females by increasing their reemployment by 17 percentage points. The 2003 pension reform is accompanied by an increase of the transitions into inactivity by 20 percentage points, regardless of gender. For the 2010 reform, the results indicate that the likelihood of going back to work increases by 30 percentage points among males. The raise of the retirement age also increases the transitions out of the labour force by 13 percentage points, but it is only significant for males. Consequently, the two pension reforms have reduced the unemployment rates among older unemployed workers

The paper's contribution to the literature is to evaluate the effects of the recent pension reforms on the labour market behaviour of unemployed older workers. Mostly studies which have analysed the effect of pension reforms suggest that these measures are effective in increasing the employment of seniors already employed. However, few studies assess how the pension reforms affect the labour market behaviour of unemployed older workers. Our study examines the impact of these policy changes on older workers' transition out of unemployment and into employment.

This paper is organised as follows. First, we provide an overview of the literature on older workers' employment in Section 2. Section 3 introduces the French Social Security system to understand the reforms recently enacted, and their consequences on the labour market. Section 4 describes the dataset used before presenting the empirical strategy followed to analyse the effects of reforms on the labour market of older workers. Section 5 reports the results before concluding in Section 6.

2. Institutions and Unemployment of Older Workers: Evidence from the Empirical Literature

Even though an improvement of the participation rate among older persons is observed in recent years in France, the employment of older people remains low compared to most of the major EU countries. France is also faced with the challenge of higher unemployment among older persons for whom it remains difficult to find employment after age of 55 in France. One in four is unemployed workers aged over 49. The re-employment rates one year after displacement is weak among OECD countries, but particularly for France, in which these rates are less than half than those in the prime-age group (OECD (2013)).

Prevalent labour market institutions is part of the explanation of these low labour force participation and re-employment rate of older workers, by creating strong disincentives to work. Institutions generate through pension and other benefits financial incentives to leave the labour force prior the legal age of retirement (Gruber and Wise (1998), Gruber and Wise (2009)). This is especially true for France which has a tradition of early retirement and special treatment for older unemployed workers since 1980, since the access to disability benefits or unemployment benefits enabled them to exit early from the labour market.

These trends toward early retirement have been extensively examined in the literature. One of the first models which analyse the effect of distance to retirement on employment decisions dates back to Seater (1977). In this paper, he constructs a lifecycle model of labour supply, job search and consumption. He shows that an individual's job search is dependent on age and decreases sharply at older ages. Older people are less inclined to seek employment as time horizon for returns to investment is shorter, and consequently, less profitable. However, job search behaviour at the end of the lifecycle and retirement decisions are not taken into account in this lifecycle model.

Recently, studies by Hairault et al. (2010), Legendre and Sabatier (2016) have emphasized explicitly the role played by the effect of *distance to retirement* on the labour market participation of older workers. The distance to retirement, which is the time remaining until eligibility age for the state pension benefits, explains how the retirement age decision affects older workers' employment prior to retirement. The model is based on the expected returns of employment. A short distance to retirement exerts negative feedbacks on both labour supply and labour demand by first discouraging older

workers for actively seeking job, and secondly because the investment returns become less profitable as retirement approaches. Hairault et al. (2010) demonstrate in their theoretical approach that the probability of employment of older workers decreases as distance to retirement is shorter. A rise of the distance to retirement i.e delaying retirement, not only encourage workers to remain in employment, but also motivates older unemployed workers to actively look for work when a reduction in tax on continued activity is applied (such as a decrease in unemployment benefits). The evidence of such effect following the 1993 pension reform is empirically supported on French Labour Force surveys. Legendre and Sabatier (2016) confirm the existence of distance to retirement effect. In their job search model, the authors emphasize the importance of health status, which is a relevant factor for job search decisions among older individuals, and they show that distance effect is reinforced by poor health conditions.

As a result, increasing the age of retirement could boost the employment rate of older workers who delay their retirement. Working longer also has beneficial effects on the public finances through the increase of employment rate among older workers. Encouraging individuals to remain longer in employment will increase tax and contribution revenues, and reduce the pressure on public pension systems. These positive effects of postponing retirement age have pushed many countries to raise the pensionable age. France used this lever to finance the social system in 2010 by increasing the legal age of retirement from 60 to 62 year old.

Having a job or being able to find an employment at older ages is essential for the sustainability of the French social model. Given the difficulties for a senior to find a job, getting older unemployed workers back into work becomes a major problem. In an attempt to address these issues, public authorities and social partners have taken numerous measures to keep seniors in employment and to promote participation of seniors in the labour market over the last 20 years. These measures have been strengthened by the National Action Plan on employment for seniors (i.e. between 2006 and 2010) with the aim of reaching an employment rate of 50 % for the 55-64 age group in 2010 (such as the "contrat senior" temporary contract, for up to 18 months, for those aged over 56). The reforms implemented in France, with the raise of the legal minimum retirement age and the measures to encourage workers to remain longer in the labour force, are keys to increase the labour market participation of older workers, and to limit the consequences of aging population on financing social welfare and on economic growth.

Previous studies have analyzed how pension reforms affect the labour force behaviour of seniors. They have found that the raise of the retirement age entails an increase in labour force participation. Mastrobuoni (2009) examines the impact of the pension reform which raised the normal age of retirement and reduced benefits in the United States. He finds that the policy changes have significant effect on the labour supply of older workers. Retirement is delayed for the cohorts affected by the reform by one month for each of two month increased in the normal age of retirement (or the statutory retirement age). Garcìa-Pérez et al. (2013) analyse the impact of the 2002 pension reform implemented in Spain on older workers. The reform delays the minimum age of retirement from age 60 to 61 to reduce the strategic use of the unemployment benefit program by employers and employees as a mean of early retirement. Using a double difference approach on administrative data, the authors find that the reform has significant effect on workers' decisions. The flow transition from unemployment to employment decreases significantly after the implementation of the law. They also show that employers' decisions change after the application of the law. The firing rate at 58 and 59 increases, reflecting the strategic use of unemployment insurance by companies for their employees to withdraw early from the workforce.

The French case has also been studied by Aubert (2012) who examines the impact of the 1993 French pension reform on the retirement age. Using administrative data from "régime général" for French wage-earners of the private sector, Aubert finds a significant increase in the age of retirement for individuals affected by the 1993 pension reform. He also shows that the probability of retiring early increases significantly by encouraging individuals to claim specific benefits such as disability pensions and benefits for long careers. Bozio (2008) reports similar results of the effects of the 1993 reform. The extension of the minimum contribution period for pension eligibility has a positive effect on the employment of older workers aged between 55 and 60. The author shows that the increase in senior's employment is driven by two mechanisms: the distance to retirement age, at the age of 60, and the missing years to the full rate pension. He finds a negative impact of the distance to retirement on the labour supply for men over 56 years of age. The probability of leaving employment is lower when the distance to retirement increases. The results suggest there are strong incentives to leave the labour market when the duration until the minimum contribution years is short. Benallah (2011) analyzes the financial incentives induced by the 2003 pension reform on the employment of older workers. For the 1944 generation, the "surcôtes" (i.e. penalty rates) lead to a raise in the probability of employment

after 60, the age of minimum retirement, by 7 percent points and an increase around 0.2 years of the age of liquidation rights. However, Benallah points out that these results are specific to the cohort studied, and the impact on all cohorts should be examined to evaluate the effect of the reforms in a long-term perspective.

Finally Staubli and Zweimüller (2013) evaluate the impact of the 2000 and 2003 reforms in Austria which have increased the age of early retirement. Using administrative data on private-sector wage earners, they show that the policy changes have reduced retirement of seniors by 19 percentage of points among men affected, and 25 percentage points among affected women. They also find that the increase in the early retirement age leads to a higher unemployment rate of older workers with an increase in the demand for unemployment insurance of 10 percentage points among men, and 11 percentage points among women. Tightening access to retirement can moderate the effects of pension reforms on employment and leads to substitution effects between early retirement schemes. Alternative schemes such as unemployment, sickness or disability leave can be used to drop out of the labour force before being eligible to full pension entitlement.

3. A Brief Overview of the French Pension System and Its Reforms

The French pension system is divided into three major occupational groups: the private sector, the public sector and the self-employed. The pension of the wage-earners in the private pension, which represent about 70 percent of the labour force, depends on two mandatory pillar schemes. The first pillar, the "Caisse Nationale d'Assurance Vieillesse des Travailleurs Salariés" (CNAV) is a general regime (régime général) which pays a basic pension based on years of contributions and on a reference wage. The pension system is based on pay-as-you-go (henceforth the PAYG) financing. The system is based on solidarity between generations: current contributions from workers and employers, based on earnings, are used to pay current pensions of the retired individuals. Pensions received are proportional to the number of years that a worker has made contributions and to a reference wage. The conditions required to receive a full rate pension are: to have contributed a minimum duration (from 40 years to 41.5 years following the reforms, see in Section 3.1 for details), and to have reached the minimum age of retirement (from 60 to 62 years after the 2010 reform) or to have reached the

mandatory retirement age (from 65 to 67 years after the 2010 reform). For a full career, workers are entitled to a pension equal to 50 percent of a reference wage computed on the basis of their past wages. However, the amount of pension can be reduced (increased) in the case of missing (additional) quarters (see next section).

The second pillar is a compulsory complementary scheme constituted of two pension funds, depending on the occupation categories. The "Association pour le Régime de Retraite complémentaire de Salariés" (ARRCO) for all workers, and the "Association Générale des Institutions de Retraite des Cadres" (AGIRC) for executives only. These schemes are also based on a PAYG financing, and pensions from these supplementary schemes are based on system of points. Employees accumulate points during their careers, the value of which determines the level of the pension received. Wage-earners belonging to the public sector (around 20% of the labour force) or to large national firms and self-employers (around 10% of the labour force) have their specific schemes and are covered by a single pillar. Public sector schemes provide more generous pensions (based on the final six months salary rather than the last 25 years for the private schemes). However, since 2003 special schemes have been integrated to the Social Security pension scheme to standardize the French retirement system.

In the remainder of this section, we discuss the changes in the public pension scheme induced by these measures.

3.1. The 2003 Pension Reform

Reforms have been implemented over the last decade to remove the incentive to leave the labour force early. Summary of the main changes introduced by these two pension reforms are presented in Table A1. The 2003 pension reform act introduced a series of measures to encourage seniors to remain in the labour force. The first of these measures was to reduce the differences in the length of contributions between public and private sector. This measure extended the number of years of contributions to qualify for a full rate to 40 years (it was previously 37.5 years) in the public sector and bring it in line with the private sector between April 1st 2004 and January 1st 2009 (not studied in this paper). After this convergence of conditions between public and private sectors, the duration of contributions required for a full rate pension was progressively increased for both sectors. The number of contribution years required to receive a full pension at age 60 was increased gradually

from 40 to 41 by January 2009. They increased by one quarter each year until 2012 for generations born between 1949 and 1952 (see Table A2).

To encourage people to work longer and to delay their exit from the labour force, a system of bonus (i.e. the "surcôte") was introduced. In case of delayed retirement after reaching the full rate, the pension would increase by 3% from January 1st 2004 per additional year of contribution (this rate was increased to 5% January 1st 2009). In contrast, the social security pension was reduced for those retiring early. The 2003 reform corrected the penalty difference between sectors by reducing the penalty for early retirement in the private sector and increasing it in the public sector where it was weaker. A penalty of 5% per missing year is applied instead of 10 % in the private sector (i.e. the 1993 Balladur reform).

Another aspect of the 2003 reform affected the eligibility conditions for early retirement. Early retirement schemes allow older employees to stop work before the legal retirement age, while maintaining their income. In the private sector, early retirement schemes can be partially or fully supported by firms. While private early retirements depend entirely on the company, the State finances three types of mechanisms. The first early retirement scheme is entirely financed by the State including the Allocation Spéciale du Fonds National pour l'Emploi (AS-FNE), the Cessation Anticipée de certains Travailleurs Salariés (CATS), the Cessation anticipée des Travailleurs de l'Amiante (CAATA), the Préretraite progressive (PRP) allowing part-time work until retirement and the l'Allocation de Remplacement pour l'Emploi (ARPE). With the aim of increasing the labour supply and labour demand of older employees, the 2003 pension reform tightened conditions for early retirement before age of 60 through an increase in the number years of contributions (CATS, AS-FNE) or the abolition of several measures (ARPE, FNE and PRP).

The second early retirement scheme was introduced as a part of the 2003 pension reform and allows workers who started working at a very early age, who are disabled and with difficult working conditions, the possibility of retirement before the age of 60. One of the aims of the August 2003 law was to provide equity between generations of workers. From January 1st 2004, individuals with long careers or with disabilities could retire before the minimum age retirement (i.e. 60 years old in 2003). Workers with long careers, disability or who have worked in an unhealthy or physically environment can retire and claim their pensions before reaching the legal minimum retirement age.

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The third component is the Dispense de Recherche d'Emploi (henceforth the DRE). The DRE allows unemployed older persons aged above 55 to continue receiving unemployment benefits and to be exempted from actively seeking employment. The DRE recipient is no longer considered as a job-seeker. It is equivalent to early retirement because it provides unemployment insurance until the unemployed person becomes eligible for a full pension. Among the measures to increase the employment rate of seniors was the progressive abolition of the DRE[3]. Eligibility criteria were progressively tightened after January 1st 2009 to lead to full abolition by January 1st 2012. The minimum age to qualify for job search exemption was progressively increased from 57 to 60 (i.e. an increase of one quarter per year in the requisite contributory period for entitlement to a full retirement pension since January 1st 2009). Measures taken for the 2009-2012 period (i.e. extending the required number of contribution years to reach 41 years in 2012) have made it more difficult to retire early.

3.2. The 2010 Pension Reform

The 2010 pension reform has gradually increased the qualifying age of retirement from 60 to 62 years effective as of July 1st 2011 to 2017 among generations born from 1953, that is to 61 years and 2 months for those born in 1953, 61 years and 7 months for the 1954 birth cohort, and so on for private sector workers. The minimum age for the full pension without the required years of contributions will be raised from 65 to 67 between 2016 and 2022 (see Table A2). Once the age of automatic entitlement to a full pension is reached, workers receive full pension even if the qualifying conditions are not satisfied.

At the same time, the conditions for earlier exits have been reduced for a few exceptions such as early retirement for those with difficult working conditions. Since July 1st 2011, employees affected by this measure can receive a full pension benefits from the age of 60. Eligibility to retire at the age of 60 is maintained for workers whose state of health has deteriorated as a result of difficult working conditions, aggressive physical environment or due to specific working patterns. Workers with a permanent disability of at least 20% as a consequence of an occupational disease or of a professional activity can also retire early. Since November 1st 2012, measures for those with long careers have extended to those who started working before the age of 20. For these workers, retirement at the age of 60 is possible, provided that required years of contributions for the full pension has been validated

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[3]Law of 1 August 2008 concerning the rights and duties of job seekers

and the length of contributions should exceed two years than the length required for their generation. Next to this reform, another took place in 2013 which increase the length of contribution period and the minimum retirement age[4].

3.3. Expected Effects of The 2003 and 2010 Pension Reforms

In this section, we discuss the expected effects of the two pension reforms on the re-employment prospects of older unemployed workers. The pension reforms enacted in France aim to maintain sustainability of public finance, but also encouraging higher employment rates among older people.

With the increase of number of years contributions required for a full pension and the restriction to early retirement schemes introduced by the 2003 pension reform, unemployed workers should be encouraged to return to work. These may result in an increase of exits from unemployment to employment, and in a reduction of transitions into retirement among the treated individuals. In addition, we expect an increase in the re-employment of older unemployed workers since the 2003 pension reform introduced a system of bonus (malus) which increases (decreases) the pension by 5% per additional year of contribution. The decrease of implicit tax on continued activity at older ages should give incentives to workers to actively seek work and to remain in employment (Hairault et al. (2010), Benallah (2011)). At the same time, there is evidence that raising the early retirement age is accompanied by a rise of unemployment among workers affected by the reform (Staubli and Zweimüller (2013)). Unemployment could be used as a bridge until entitlement to pension, and this should have negative effects on transitions into employment. Thus, it is not clear whether the probability of re-employment will go up or down.

Similarly, the 2010 pension reform which raises the legal retirement age from 60 to 62 years should boost the re-employment of unemployed workers. Indeed, the 2010 pension reform implies an increase of the time horizon. Consequently, individuals who lose their employment see their unemployment length extended before being eligible for a full pension. Related literature on the distance to retirement supports the idea that increasing the time to retirement has a positive impact on the re-employment probability (Hairault et al. (2010), Staubli and Zweimüller (2013)). On the other hand, the increase of the legal age of retirement and the possibility for early retirement schemes may

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[4]but not study here

change the labour market behaviour of unemployed workers. Older individuals could use alternative pathways to early retirement such as disability and sickness schemes which become more financially attractive (Behaghel et al. (2011)). Papers which assess the impact of a raise of retirement age find a significant increase in the enrolment in disability programs, and a small increase in re-employment rates for older workers (Staubli and Zweimüller (2013)).

Both effects which affect differently the probability of finding a new employment could potentially offset each other, and mitigate the effects on the hazard of returning to work. The aim of this paper is, therefore, to investigate empirically the impact of both retirement policy changes on the probability of leaving unemployment in late stages of working careers. Before that, we set out the empirical analysis below.

4. Empirical Analysis

4.1. The French Labour Force Survey and Descriptive Statistics

The data used for the analysis are taken from the quarterly French Labour Force Surveys (FLFS) for the period 2003-2014, conducted by the National Institute of Statistical and Economic Information (INSEE)[5]. The FLFS is a 18 month rotating panel of households where one sixth of the sample is replaced every quarters and each person who participates in the survey appears at most in 6 consecutive surveys. The survey is representative of the French population aged fifteen and over. The FLFS provides information on socio-demographic status such as age; gender; education level and occupation, and labour market status is known at each interview. One of the advantages of using a rotating panel data is the large number of observations contained in each sample, which guarantees a greater degree of representativeness compared to a long run of panel data (such as the PSID or the BHPS).

In this paper, we want to examine how the probabilities of re-employment and of early retirement are affected by the pension reforms. For that, we focus on three dependent variables: The probability to exit unemployment (Exit henceforth) which will then be distinguished between exit to employment (Employment henceforth) and exit to inactivity (Inactivity henceforth). The FLFS allows us to

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[5]the period before 2003 is not covered since there was a methodological change to the FLFS in 2003. Until 2002, households are interviewed in March of each year during three consecutive years. One third of the households are replaced each year.

construct flows of workers between three labour market states according to the International Labour Office definitions (ILO): Employment, Unemployment and Inactivity. Economic inactivity includes persons who are retired or with an incapacity for employment that is for disability, sick and family care.

The FLFS might be used to examine the economic impacts of pension reforms over time because individuals are followed for up to six quarters. We can observe the labour force state at each quarter and when therefore workers experience a transition into employment or out of labour force. Some of them remain unemployed throughout the period of the analysis. Therefore, we can construct the sample which is comprised by individuals aged between the ages of 54 and 64 for males and females. To construct the transition rate from unemployment, we select individuals who are unemployed in period t (i.e quarter t) and could potentially leave unemployment in period $t + 1$. We apply the same principle to construct the transition from unemployment to employment (or to inactivity) and select unemployed individuals in period t which could leave unemployment state to employment (or to inactivity) in period $t + 1$.

Table 1 contains characteristics of all individuals in the sample for the 2008-2009 period (column (1)) and for the 2011 period (column (2)), which corresponds to the period before and after the pension reforms. Means and proportions are displayed for both periods. Overall, the individual characteristics are stable between these two periods except for few cases. For instance, the share of men is slightly higher than women in 2008-2009 period. There is a slight decline in the average age which is around 58 years old, and we also find some differences in educational level. However, the sample is characterized by a low educational level, and more than one third of individuals have only basic secondary education. They are also characterized by a long spell of unemployment, and more than 20% of them have experienced an unemployment duration of more than 36 months.

We now present interesting stylised facts obtained by the data from the FLFS for the period 2003-2014. Figures 2 and 3 depict the trends in employment, unemployment and inactivity over age, and birth cohort. Figure 2 shows that employment rates tend to increase among the 55-59 age group from 2008 while, at the same time, inactivity rates started to decrease. Unemployment rates display an important increase from the last crisis, within the same age group. More especially, the pension reforms appear to have effects among the treated group. As presented in Figure 3, we observe that employment rates increase among individuals affected by the reform (i.e. the 1950 and 1952 cohorts),

compared to those who are not (i.e. the 1948 cohort). At the same age, employment rates are higher than those observed among the 1948 generation. Simultaneously, inactivity rates decrease. These changes of labour market outcomes could reflect the effects of the policy changes.

However, a slightly different picture emerges when we look at the transitions out of unemployment of older workers compared to the younger ones. Figure 4a shows the exit rate from unemployment to employment drawn from the same dataset, for the same period, and from unemployment to inactivity (Figure 4b) for all the sample (males and females together). The exit rate from unemployment to employment is low for the seniors and decreases with age. The exit rate is generally lower for the 55-59 age group than for the 45-49 age group. From 2003 up to 2008, workers aged 55 and older tend to experience fewer exits to employment than unemployed workers with younger age groups. After 2008, the exit to employment for seniors increased thereby reducing the gap between age groups. Similar conclusions appear for the exit to inactivity which is higher for the unemployed in the 55 and over age bracket. Between ages 55 and 59, transition from unemployment to inactivity is greater than to employment, due to the possibilities of leaving the labour force through early retirement or specific schemes for older unemployed workers. A decrease is observed after the crisis for the over 50s, but the decline is more pronounced for the 55-59. At the same time, there is a slight increase in the exit to employment for seniors, although older unemployed workers remain longer in unemployment.

Yearly exits out of unemployment are presented separately for males and females in Figures 5 and 6, respectively. Since the quarterly exit rates have large sampling variability, we present the average exit rates from unemployment to employment, and from unemployment to inactivity per year. The data show differences in exits from unemployment to employment between age groups and gender. Figure 5a indicates that there is an upward trend for exits into employment among males except for those aged between 45 and 49 who experience less transitions from 2009. The increase in re-employment rates suggests that retirement policy changes have positive effects on employment of male workers. As we can see in Figure 5b, unemployment-to-employment exits exhibit substantial variation over time among female workers. There is no clear increasing trend in the re-employment rates. However, the pattern in exits from unemployment to employment is declining towards the end of the sample period, with the exception of the elderly. This drop suggests that, since the onset of the crisis, the chances of unemployed females to return to work have been reduced.

A different picture emerges concerning the transitions into inactivity. The exit rates into inactivity

are higher for females than the males (Figures 6a and 6b). In general, flows into inactivity decline for both genders. Then, from 2011 the series show an upward trend in inactivity exit rates, except for unemployed workers in the 60-64 age group, which is more marked in magnitude and last longer for females, perhaps suggesting that the second policy variation is accompanied with a rise in the use of disability and retirement routes to permanently leave the labour force.

Finally, Tables 4 and 5 summarize flows and transition rates of unemployed workers before and after the two pension reforms. Transition matrix display flow out of unemployment for sample by groups affected or not by policy reform. In Table 4, we report transition of unemployed workers for the 2008 to 2009 period, which corresponds to one year before and one year after the 2003 pension reform. First, we note that a large share of unemployed workers leave the labour force for inactivity before the reform. After the 2003 pension reform, we observe fewer exits to employment and the transitions to inactivity decrease, while the proportion of workers who remain unemployed increases after the policy changes. More than 50% of workers remain unemployed after the implementation of the law. This period also corresponds to the 2008 economic crisis, characterized by a high level of job separation and which could explain the high level of unemployed workers flows. The proportion of workers who remain in unemployment is more important for the control group, while the increase in exits to employment is slightly stronger for the treated group. Unemployed individuals experience less exits into employment and remain longer in unemployment. Unemployment seems to be used as a bridge until retirement for older individuals.

For the 2010 pension reform (see Table 5), the share of transition of unemployed workers in different labour market states has changed significantly from January 2011 to December 2011. Exits to employment and to inactivity decrease after the implementation of the 2010 pension reform. Over this time period, the share of unemployed workers who shift back to work decreases from 27.9% to 14.2%, and to 37.9% to 20.6% among those who become inactive after the policy reform. These decreases are accompanied by an increase of the share of unemployed workers who remain unemployed after the reform. This increase of unemployed proportion is particularly strong for individuals not affected by the pension reform.

Our descriptive statistics indicate that the share of workers which remain in unemployment increases with the policy reform. To clearly assess the effects of the pension reforms on labour market outcomes, we present in the next section the difference-in-differences approach used.

4.2. The Empirical Model: A Difference-in-Differences Estimation

In this section, we explore the effects of both pension reforms on labour market outcomes for unemployed older workers. We focus especially on the effects on policy changes on job take-up, and also on exit to inactivity. The approach used to analyze the potential effects of these measures is a standard difference-in-differences method. The idea is to compare the evolution of the variable of interest, that is the exit from unemployment to employment or to inactivity, for the treatment group relative the control group. In regression terms, the approach as follows:

$$Y_{it} = \alpha + \beta_1 D_{Treated} + \beta_2 Post_t + \gamma(D_{Treated} * Post_t) + X_{it}\delta + \psi D_t + u_{it} \tag{1}$$

where Y_{it} equals 1 if the individual i leaves unemployment for employment/ inactivity in the quarter t given that she was unemployed in the previous quarter, $t - 1$, and 0 otherwise. $D_{Treated}$ is the treatment group, β_1 is the treatment-group specific effect which accounts for average permanent differences between the treated and control groups, and which is constant over time. $Post_t$ is a dummy variable which indicates whether the dependent variable is observed after the implementation of the policy change. It is a control for the time trend common to the control and treatment groups. β_2 is therefore the estimated post-treatment which is the same for both treated and control groups. ψ_t are seasonal effects (quarters) and X_{it} represents individual specific characteristics to control observable differences between individuals such as gender, education level, marital status. The key policy coefficient γ, the interaction term between the treatment group dummy and the policy year dummy, captures the average effect of pension reform on exit rates.

The implementation of pension reforms, which affects specific groups of workers, creates a setting similar to a natural experiment. The effects of the reforms can be identified because they introduce heterogeneity in treatment among individuals. The gradual implementation of the reforms does not affect cohorts in the same way. The number of years of contributions and the age at which the full rate pension will be reached is different depending on year of birth. For individuals belonging to the same generation but with different careers, reforms affect them differently. Whatever the reforms, individuals are not affected in the same way. For example, workers born in 1949 have to contribute 161 quarters while those born in 1950 could contribute 162 quarters, and those born in 1951 could

contribute 164 quarters (see Table A2). The heterogeneity in the reform implementation over time and across cohorts creates a natural experiment and allows us to define the treated and control groups.

In our context, the treated group is composed of individuals affected by the pension reform. We define two distinct treated groups because we analyse the effects of two pension reforms. For the 2003 pension reform, the group of treatment is composed by individuals born between 1949 and 1952. The control group is by definition the group of individuals not affected by the policy changes. For the 2003 pension reform, the control group is composed by individuals born between 1944 and 1948. We choose to define the control group by older generations of unemployed workers, aged between 61 and 64 in 2009, because the 2003 reform did not modify the minimum age of retirement which was still possible at the age of 60 at this time, until the 2010 reform, for these cohorts. Younger generations of unemployed workers are not used as alternative control group first, because these generations are gradually concerned by the increase of length of contributions even if they are not affected at the time of study; secondly, because when we test the common trend assumption we detect significant effect on the 'fake' reform (see Section 4.3), which suggests that this group is not a good control group. Therefore, we can exploit the heterogeneity introduced by the reform because the control group is not subject to the 'treatment' during the whole period, while the treated group is subject to the new regulation. We proceed in the same way to define both the control and the treated groups for the 2010 pension reform. Individuals born from 1952 to 1957 are defined as the treated group, while those born from 1947 to 1950 are referred as the control group since there are not affected by the 2010 pension reform. Individuals born in 1951 are excluded from the sample because half of individuals belonging to the 1951 cohort is eligible to the 2010 reform, while the other half is not. We chose to restrict the age of individuals between 49 and 64 years old to have homogenous groups as far as possible due to the identifying assumption behind the difference-in-differences estimation, which is that trends in employment outcomes would have been the same between the treated and the control groups in the absence of a change in the policy.

We need next to define the period before and after the policy becomes effective. For the 2003 reform, the law was passed in August 21st 2003 but its implementation was January 1st 2009 for the private sector (and July 1st 2011 for the 2010 Reform as noted in section 2). The year 2008 is therefore defined as the control year and 2009, 2009-2010 as the treatment years. January 2010 until June 2011 is defined as the pre-treatment period and July 2011 to December 2011 as the post-treatment period

for the 2010 reform, as the policy was effective as of July 2011. We check the robustness of the results by varying the window of period around the reform threshold by taking years before 2008 as control years (i.e. from 2003 to 2008), and by increasing the policy years until 2014.

The validity of quasi natural experiment requires that the pension reforms are exogenous to shocks to participation rates of older workers. The difference-in-differences method is based upon the assumption that seasonal effect would have been the same for both treated and control groups in the absence of the pension reform. We test the common trend assumption in Subsection 4.3. Moreover the control and the treated groups seem to be comparable in terms of observable characteristics. Tables 2 and 3 summarize the demographic characteristics of unemployed individuals in each group. Overall, the null hypothesis of equality of means between the treated and the control groups cannot be rejected apart from two cases: significant differences are found for college/university degree (significant at 1%) and spell in unemployment for 18 to 23 months as depicts in Table 3.

4.3. Testing The Common Trend Assumption

The difference-in-differences approach assumes a common trend between the treated and the control groups. In other words, the trend in exits out of unemployment would have been the same for workers affected by the reform and for those not affected without the reform. We perform a placebo test to check the assumption of the common trend. For that, we estimate Equation (1) for 2007 and 2008, two years before the implementation of the reform. We use the same treated and control groups and we assume that there is a change in policy that begins in 2008, while in reality there is no change in pension entitlement criteria during this period. If the common trend assumption is valid, we expect to find not evidence of effect of the reform. In Table A3, the coefficient which refers to the effect of the 'pseudo' pension reform is close to zero and statistically insignificant. It implies that macro effects or other institutional changes had a similar impact on both groups and provides the validity of results. The identification strategy seems to be appropriate.

The implementation of the 2003 pension reform starts with the onset of the 2008 recession, that is in 2009. The crisis could have different impacts on the labour market decisions of older unemployed workers in the sample. The pre-crisis/after-crisis period analysis provided by the placebo test shows that labour market behaviour of older workers individuals of our sample, that is in the treated and in the untreated groups, are affected in the same way. Based on this evidence, the economic crisis is not

expected to have affected differently the pattern of older workers in the sample. We also include year dummies in all specifications to ensure that events that occur in specific year are controlled for, and that the difference-in-differences approach captures the effect of the pension reform.

5. The Effect of Pension Reform on Exit from Unemployment

In this section we analyse the effects of the reforms on leaving unemployment for employment, and on leaving unemployment for early retirement. First of all, we begin by presenting the effects of the 2003 reform on exit rates. Then, we examine how the 2010 pension reform affects the transition out of unemployment. All the specifications are estimated separately for males and females due to differences in career paths between gender, which are more likely discontinuous for females and could affect differently the behavioural responses to the retirement policy variation.

We begin with the results of difference-in-differences estimates in Table 6 for exit out of unemployment (columns (1)-(2) for males and (7)-(8) for females), then we distinguish between two transition exits which are presented separately: the transition from unemployment into re-employment (columns (3)-(4) and (7)-(8)), and the transition from unemployment to inactivity (columns (5)-(6) and (11)-(12)). The dependent variable Y_{it} is a dummy equal to 1 if a worker in quarter t leaves unemployment in quarter $t + 1$ and 0 otherwise. The control group consists of individuals born between 1944 and 1948, and the treated group refers to those born between 1949 and 1952.

5.1. Effects of the 2003 Reform on Re-Employment

5.1.1. Short Run Effects of the 2003 Reform

We begin by presenting the effects of the 2003 pension reform on the re-employment probability of older unemployed workers. The 2003 pension reform mainly increased the number of contributions years required for a full pension from 40 to 41 by January 2009. Other measures such as the restrictions of early retirement were introduced, but early retirement pension can be claimed before the age of 60 under certain conditions. Table 6 presents the results of the estimation on the probability of an unemployed older individual to go back to work after the implementation of the 2003 pension reform. The first column reports the difference-in-differences estimates which control for seasonality.

Columns 1 through 12 provide estimates of our key explanatory variable which is the effect of the pension reform ($D_{Treated} * Post_t$). We do not report estimated results of other controls in Table 6 because the main interest of our study is the impact of the policy changes on leaving unemployment states. The other explanatory variables include age in months, sex, household composition characteristics, level of schooling and year dummies.

The estimate which refers to the effect of the 2003 pension reform on unemployed workers, aged between 55 and 59 is $D_{Treated} * Post_t$, and it reports the average treatment effect on the treatment group. A positive and significant coefficient of γ means that the 2003 pension reform increases the exit rate out of unemployment. In our case, the coefficient is negative and significantly different from zero among men. The 2003 reform reduces the probability of leaving unemployment after the age of 50 for male workers. Column (7) of Table 6 presents the estimates for females over the same period. The estimated coefficients indicate that the policy changes do not significantly affect the behavioural responses among the treated women.

However, because older unemployed workers are facing different choices, we investigate the effects of pension reform on two distinct exits. For this reason, we distinguish two separate exit destinations (columns (4) to (6) and (7) to (12)): Unemployed workers can return to employment or leave the labour force for sickness, family leave or retirement which we group together under the label 'inactivity'.

To begin with the effects of the reform on unemployment exit to employment, Table 6 column (3) shows that the differences are strong and statistically significant between men in the treated and the control groups, but not for females. The coefficient which measures the change of the re-employment rate is strongly negative for males, which suggests a decline of exit to employment. The 2003 reform reduces the probability of leaving unemployment for employment by 57 percentage points. The reform does not produce the desired effects on employment for the oldest, that is to say an increase in the re-employment of unemployed workers. Part of this finding may be attributable to influence of social security benefits. Older workers in unemployment are not encouraged to actively search for employment, given that, they are eligible for long unemployment benefits. This is confirmed by the sharp increase of unemployment rate of older workers after the 2008 crisis. The French unemployment rate of workers aged between 55 and 64 years old increases by 1.4 percentage points just after the 2008 crisis and rose continuously thereafter (see Figure 1b). This raises issues related to

difficulties encountered by senior unemployed to find a new job and reluctance of employers to hire them.

Tightening eligibility criteria of early retirement schemes results in fewer exits to inactivity, at least for one birth cohort, and in fewer exits to employment. Older workers use unemployment as an alternative way to leave the labour force before being eligible to the pension age. On the other hand, the deterioration of state of health could also explain why the unemployment route is used as bridge until retirement. Indeed, the literature reports that a poor health tends to decrease job opportunities for individuals. For instance, the study of Behaghel et al. (2011) on French data shows the correlation between being unemployed and being in bad health. Unemployed workers are more prone to poor health than employed workers. Therefore, older unemployed workers in bad health are condemned to remain unemployed because they have a lower probability of being hired than those in good health. Transition out of the labour force then takes place via unemployment.[6].

Reforms can affect the transition out of unemployment in different way. To see whether the pension reforms have different effects within the treated group, we split the treated group into four birth cohorts. The interaction between birth cohort and the post-treatment period provides the effect of pension reform across birth cohorts (see Table 6 column (4) and (8)). The coefficient estimates on the interaction between post-treatment period and cohort dummies, $D_{1949}*Post_t$ to $D_{1952}*Post_t$, indicate whether the pension reform has a heterogeneous effect among birth cohorts. The interaction terms show that the reform has not the same intensity among treated birth cohorts. The reform implies a significant decline of the probability to experience an exit from unemployment only for males, while the coefficients associated to the effect of the reform are statistically insignificant and smaller for females.

Concerning the transition into employment by birth cohort, the results indicate that the pension reform does not affect generations of males in same way. The effects of pension reform have the unexpected sign (i.e. we expect a positive sign for pension reform, which would mean that the reform increases the probability of re-employment of unemployed workers), and are strongly negative and significant among the oldest cohorts. The implementation of the pension reform tends to decrease the job take-up of older unemployed male workers. Moreover, the oldest generations of men have to wait less time

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[6]Unfortunately there is no information available on health status in the FLFS

before reaching the retirement age, and they could be encouraged to remain longer in unemployment. This could explain the large effects of the extension of pension contributions years near the retirement age.

5.1.2. Medium Run Effects of the 2003 Reform

Policy changes may take several years before producing effects in terms of results on employment among older workers. To investigate the medium-run effects of the pension reform, we analyse how the 2003 pension reform affects the flows of older workers out of unemployment to re-employment over a longer period, from 2003 to 2014. 2008 and earlier years are defined as the pre-treatment period, and 2009 and later years refer to the post-treatment period.

Table 7 presents estimates of the medium-run causal effects of the 2003 pension reform on re-employment by gender. As previously, the first six columns correspond to the medium run effect estimates for males, and the other six for females. The results for males show that estimated coefficient $D_{Treated} * Post_t$ is no longer significant, in contrast with the short-run effects. Effects are cancelled one year after the implementation of reform for unemployed older men. However, the co-efficients of the policy change are positive and statistically significant at the 5 per cent level among unemployed women. The employment response goes up by 16.5 percentage of points among affected females.

Given these results, we can suppose that the non significance of coefficient for the pension reform five years after the implementation of the pension reform suggests that the decrease observed in transitions from unemployment to employment are probably attributable to the social measures introduced during the last economic crisis. Indeed, the policy changes occur in time of unstable economic conditions, and this could affect the sign of estimated coefficient $D_{Treated} * Post_t$. The strong impact of the crisis on the economy with deterioration of unemployment rates have led countries, France included, to make adjustments to unemployment insurance systems to cushion the impacts of the economic crisis on unemployment. Extension of the duration of unemployment benefits, flexibility in conditions for recipients of unemployment insurance benefits have been taken following the 2008 crisis. These measures could explain the negative effect on re-employment of older unemployed workers. Evidence shows that hazard rates into employment are reduced when length of the unemployment insurance benefits is extended as in Mortensen's model, and this can lead to the persistence in unemployment

state of older workers. Extending unemployment benefits during the crisis can create incentives to not search for employment because it increases unemployment duration for eligible individuals (Kyyrä and Ollikainen (2008)).

5.2. Effects of the 2003 Reform on Exit to Inactivity

5.2.1. Short Run Effects of the 2003 Reform

Turning now to the effects of the 2003 reform on exit to inactivity, Table 6 columns (6)-(7) and (11)-(12) shows that the estimated coefficient $D_{Treated} * Post_t$ is not statistically significant between the treated and control groups after the policy change for males and females. The decomposition of the reform effects by birth cohorts reveals that the increase of number of contribution years required is accompanied with a reduction of transitions into inactivity for one generation of unemployed men. For men born in 1951, the probability of leaving unemployment for inactivity decreases by 32 percentage of points. However, in almost all cases, there is no evidence that the pension reform reduces the exit to inactivity one year after the passage of the 2003 reform, regardless of gender.

To sum up, the 2003 pension reform has some effects on leaving unemployment, particularly on the exit to employment. The findings indicate that the effect of the reform is driven by male unemployed workers. As there are fewer exits from unemployment to employment and to inactivity for cohorts affected by the reform, unemployed workers stay longer in unemployment after the policy change. Unemployment is used as a bridge to early retirement mostly due to strengthening of early retirement schemes and, given that in France, older workers have favourable unemployment insurance cover. The French insurance system encourages unemployed older individuals not to look for work, since they can remain unemployed and draw insurance benefits until they reach the age of retirement. Unemployed older workers can claim unemployment insurance benefits for up to three years for individuals over 50; it is while it is two years for those under 50 but seven years after the age of 58. Older persons continue to receive benefits until they reach the full retirement age. All these measures do not encourage older unemployed persons to look for work. It is for this reason that a large number of older workers leave their jobs voluntary through a negotiated separation with the employer ("Les ruptures conventionnelles") which allows them to receive unemployment insurance benefits until the age of full rate retirement is reached.

Next, we assess the effects of the increase of length of the pension contribution period several years following the passage of pension reform.

5.2.2. Medium Run Effects of the 2003 Reform

Five years later the implementation of the measure, pension reform has only significant effect on inactivity exits, regardless of gender. Table 7 reports the medium term effects of the 2003 pension reform on hazard rates out of unemployment and into inactivity. The coefficients which measure the change in the transition from unemployment to inactivity is strongly positive for males and females. The probability to retire early or to claim disability benefits jumps significantly by 21 percentage of points for men, and by 20 percentage of points for women, which suggests that disability and other inactivity programs serve as alternative routes for early retirement.

The decomposition by birth cohorts shows that all cohorts treated are significantly affected by the retirement policy change, and the effects are more pronounced in size for unemployed females. For both genders, the positive effects of pension reform are strong for the oldest birth cohorts affected by policy change indicating that being closer to the minimum retirement age encourages individuals to leave unemployment by disability or retirement routes.

5.3. Effects of the 2010 Reform on Re-Employment

5.3.1. Short Run Effects of the 2010 Reform

We discuss the effects of the 2010 reform on the probability of re-employment. The main change of the pension reform undertaken has been to gradually raise the qualifying retirement age from 60 to 62 years by July 1st 2011. However, early retirement at the age of 60 is possible for workers with long careers, or whose state of health has been deteriorated as a consequence of a professional activity. The results are shown in Table 8.

We examine the effects of 2010 pension reform through a comparison between the period just before the implementation of the reform, that is six months before (from January to June 2011) and six months after (from July to December 2011). Individuals born from 1947 to 1950 represent the control group, and those born from 1952 to 1957 are the treated group. We start with the exit out of unemployment, then with the transition from unemployment to employment and conclude with the

results for the transition into inactivity. We exclude individuals born in 1951 because one of them are affected by the retirement policy change, while others are not. Individuals born in 1952 are affected by the both pension reforms studied in this paper. Estimates of the effects of the 2010 pension reform could be biased because both policy changes can affect behavioural responses differently within the treated group. We repeat the estimations by excluding the 1952 birth cohort from the treated group, the results remain similar but are slightly smaller in magnitude.

Table 8 presents the results of the 2010 reform on the probability that an older worker leaves unemployment to go back to work or to inactivity. Columns (1)-(2) and (7)-(8) show the estimated effects of the retirement reform on the exit from unemployment, all exits taken together. Differences in exit between both groups are statistically significant at the 10 per cent level for treated males. Results suggest that men affected by the pension reform have lower exit rates than those not concerned by the reform. However when the exit state is distinguished between exit to employment or to inactivity, other interesting results emerge. The effect of the reform on the re-employment of unemployed workers given in columns (3) and (9) is positive and significant at 5 percent level, regardless of gender. The implementation of the 2010 pension reform increases the probability of going back to work by 26.3 percentage points and 22.4 percentage points for males and females, respectively.

Columns (4) and (10) of Table 8 report estimates across the different cohorts affected by the reform. As with the 2003 pension reform, there is heterogeneity in effects among cohorts. The coefficients are statistically different from zero for the 1953 and 1956 birth cohorts in the case of males. For females, the coefficients on the interaction terms show that the reform affects only the transition into employment for two birth cohorts, the 1954 and 1956 birth cohorts. Our results indicate that re-employment is higher among the treated group. We conclude that the policy change did increase transitions from unemployment to employment.

5.3.2. Medium Run Effects of the 2010 Reform

Table 9 presents estimates of Equation 1 for the period 2011 to 2014. Columns (3)-(4) and (9)-(10) show that the increase of the retirement age affect significantly the flows out of unemployment into employment of older workers but only for men. After the first year after the implementation of the 2010 pension reform, the positive effect is still significantly positive for unemployed men. On average, unemployed workers in the treatment group display a higher probability of being re-employed

than unemployed workers in the control group. Our estimates indicate that the increase of the minimum age of retirement boosted the re-employment probability of older males by 30 percentage points.

The differentiation of policy change effects among the treated group shows that the effects of pension reform on job take-up are only significant for males belonging to the last three birth cohorts. The results are presented in column (4) of Table 9 and suggest birth cohorts farthest from the minimum age of retirement response positively to the policy changes compared to those close to this legal age.

The results suggest that the measures introduced in 2010 tend to improve the labour market participation of older male unemployed individuals. The reform has the expected effects by encouraging older workers to get back into employment after unemployment spells. Measures taken to encourage the employment of older workers seem to influence positively the reintegration of seniors into employment. These results are consistent with the findings of Hairault et al. (2010) who examine the effect of distance to retirement on early retirement behaviour. Using simulations, Hairault et al. (2010) find that increasing the minimum age of retirement from age 60 to age 62 will increase the employment rate of older workers through various channels. From a labour demand point of view, employers will invest more in employing older workers because the horizon is longer, and returns become more profitable. From a labour supply standpoint, workers in employment will invest more in training while workers in unemployment will increase job search effort and will actively look for a job when the distance from the retirement age increases.

5.4. Effects of the 2010 Reform on Inactivity

5.4.1. Short Run Effects of the 2010 Reform

We next investigate the effect of the 2010 pension reform on the exit out of the labour force, separately for males and females. Regression results displayed in columns (5) and (11) of Table 8 indicate that the coefficients which capture the impact of reform on inactivity are positive and significant only for males, whether seasonal effects are taken into account or not. The 2010 pension reform increases significantly the probability of leaving unemployment to inactivity of male older unemployed workers by 20 percentage points.

Columns (6) and (12) of Table 8 present estimates across cohorts affected by the pension reform. The results indicate that the pension reform significantly influences only two cohorts, the 1953 birth cohort

and to a lesser extent the 1956 birth cohort. Older cohorts are especially affected by the retirement policy change. The reform increases the probability of leaving unemployment for inactivity by more than 40 percentage points for these cohorts, while the transition to inactivity is not affected for the others. The reform does not modify the pathways into inactivity among females.

5.4.2. Medium Run Effects of the 2010 Reform

As in the case on transitions from unemployment to employment, the coefficients related to the impact of reform on exits to inactivity are also significantly positive for the men sample. Effects on transitions from unemployment to inactivity persist over the period of analysis (Table 9 columns (6)-(7) and (11)-(12)) but only for men. Column (5) shows that the inactivity response increases by 12.7 percentage points among treated males, while for females, effects on transitions into inactivity disappear already from one year after the reform comes into effect. The results support the idea that increasing retirement age lead to an increase of the use of inactivity as an exit route to early retirement, but do not improve the employability of unemployed workers at older ages. Effects on re-employment are transitory and disappear within 3 years after the reform.

The decomposition undertaken by birth year provides some interesting results. Transitions into inactivity are strongly positive and significant for the oldest generations of unemployed males affected by the 2010 reform, but not significant for the female sample. The treated group which leave the labour force is characterised by high proportion of individuals who have dropped out of school early. More than 70% of those who are moved into inactivity had left school before the age of 20. They should be eligible to the long careers measures for those who started working before the age of 20, if they have enough qualifying years to get a full pension. The non-significance of the estimates among the treated females could be attributable to interruptions through female lifecycle labour force participation, who probably have contributed fewer pension contributions than males. They are, therefore, less encouraged to retire early than their male counterparts.

To sum up, the 2010 pension reform creates spill-over effects which increase the exits into inactivity. One reason for the positive sign associated to the effect of policy change on transitions into inactivity could be explained by a substitution effect that leads individuals to the use inactivity route (which includes sickness benefits, disability pensions and pre-retirement) rather than the 'normal' retirement due to the restriction on early retirement schemes but still maintained for some categories of workers,

and the increase of the minimum retirement age from the age of 60 to the age of 62. Studies have highlighted the role played by the disability benefits route to explain the low labour force participation of older workers in France (Behaghel et al. (2011), Behaghel et al. (2014)). They point out that disability and sickness benefit claims increased significantly as a consequence of the pension system. They explain that this rise in invalidity/disability benefits demand is due to the fact that individuals who used to not claim invalidity benefits (i.e. disability, sickness benefits) because they were eligible for a full-rate pension at the age of 60 – more financially attractive – before the pension reform, apply for it (if they are eligible for these benefits) after the reform since the latter removes the possibility to take retirement early at the age of 60. This results in substitution between inactivity and other retirement pathways. The rise in take-up of invalidity benefits after changes in required contributions is also found in Bozio (2008) in which an increase in required number of quarters for a full-rate pension involves a rise of receiving disability benefits of 2 percentage points. Hence, the increase in the minimum retirement age added to the progressive abolition of the exemption from seeking employment for unemployed workers aged above 55 (i.e. the DRE program) can explain why pension reform increases the probability of leaving labour force early through the inactivity pathway. The claims related to the DRE program decline of around 35% from January 2011 to December 2011 in comparison with a fall around 8% over the 2008-2009 period[7]. Restricting access to unemployment insurance increases the importance of other routes which become more accessible (with, for example, the extension of long careers, disability schemes or early retirement for workers with difficult working conditions) to exit the labour force early.

6. Conclusions

In this paper, we use a difference-in-differences approach to explore the impact of French reform pension on employment outcomes of unemployed older workers. Using the French Labour Force Survey for the 2003-2014 period, we attempt to identify the effects of two main pension reforms, decided in 2003 and 2010, on the exit out of unemployment of unemployed older workers. We look at the effects of these reforms on the re-employment of older unemployed workers, as well as on their exits to inactivity. Table 10 provides a summary of results for the two reforms.

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[7]Figures can be found at http://www.pole-emploi.org

We find evidence of an effect of the 2003 French reforms on the re-employment of unemployed seniors. In the short term, the coefficients associated with the effect of the reform pension are significantly negative. The 2003 pension reform decreases the exit of unemployed older workers to employment only among males affected by the reform. However, the 2003 pension reform does not influence the probability of leaving unemployment for inactivity. When the analysis is undertaken over a longer period, we find that the observed negative effects of pension reform on the re-employment are in fact temporary. Several years after the 2003 reform, we do not find evidence of decline in employment exits but, in the contrary, the re-employment probability among females is boosted. Moreover, the transitions into inactivity significantly increase in the post-policy years.

We also investigate the effects of the 2010 reform on the probability of re-employment and inactivity of unemployed older persons. The reform increases the probability to return to work of older workers, and also leads to a rise of the transition from unemployment for inactivity especially among unemployed men. Based on these results, the two pension reforms have reduced the unemployment rates among older unemployed workers by increasing both their re-employment and inactivity probabilities.

Reforms of the pension system implemented in the last decade have pushed up the exit to inactivity of older unemployed workers: Disability programmes or other types of inactivity are used as alternative pathways to leave the labour force early. However, the pension reforms also address the difficulties encountered by unemployed older people by increasing the probability of going back to work.

These findings are important in a policy perspective. Understanding how past pension reforms have affected the behavioural responses of older workers can help to improve efficiency of future reforms. Overall, the French pension system needs further reforms to encourage older workers to actively participate into labour market.

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Table 1: Means of the demographic variables for individuals present in 2008-2009/2011 and which experience an exit to employment or not

	Mean	Mean
	2008-2009	**2011**
Age	58.9	57.4
	(0.0772)	(0.0752)
Male	0.5585	0.5031
	(0.0183)	(0.0149)
Highest degree		
College/University	0.1811	0.1466
	(0.0142)	(0.0105)
Baccalauréat	0.1280	0.1262
	(0.0123)	(0.0099)
Brevet/CAP/BEP	0.3092	0.344
	(0.0170)	(0.0141)
No qualification	0.3814	0.3831
	(0.0179)	(0.0145)
Duration in unemployment		
Less than 1 month	0.0230	0.0287
	(0.0056)	(0.0050)
1 to 2 months	0.1294	0.1259
	(0.0127)	(0.010)
3 to 5 months	0.1539	0.1277
	(0.0136)	(0.0101)
6 to 11 months	0.1294	0.1583
	(0.0127)	(0.011)
12 to 17 months	0.1510	0.1416
	(0.0135)	(0.010)
18 to 23 months	0.0676	0.0722
	(0.0095)	(0.0078)
24 to 36 months	0.1237	0.1388
	(0.0124)	(0.0105)
More than 36 months	0.2215	0.2064
	(0.0157)	(0.0123)
Number of observations	734	1125

Note: Standard deviations in brackets
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Source: own calculations based on FLFS, 2003-2011

Table 2: Means of the demographic variables in treatment and control groups for individuals present in 2008-2009 period and which experience an exit out of to unemployment or not

	Treatment	Control	Difference
Age	57.9	61.9	-4.00***
	(0.0485)	(0.0945)	(0.1021)
Male	0.5488	0.5889	-0.0400
	(0.0215)	(0.0386)	(0.0444)
Single	0.4078	0.4478	-0.0399
	(0.0213)	(0.0390)	(0.0399)
Highest degree			
College/University	0.1684	0.2180	-0.0495
	(0.0160)	(0.0301)	(0.0325)
Baccalauréat	0.1153	0.1648	-0.0495
	(0.0136)	(0.0271)	(0.0282)
Brevet/CAP/BEP	0.3223	0.2712	0.0510
	(0.0200)	(0.0325)	(0.0390)
No qualification	0.3937	0.3457	0.0480
	(0.0209)	(0.0347)	(0.0410)
Duration in unemployment			
Less than 1 month	0.0207	0.0307	-0.010
	(0.0061)	(0.0135)	(0.0134)
1 to 2 months	0.1355	0.1104	0.0249
	(0.0148)	(0.0246)	(0.0300)
3 to 5 months	0.1616	0.1288	0.0328
	(0.0159)	(0.0263)	(0.0323)
6 to 11 months	0.1428	0.0858	0.0569
	(0.0151)	(0.0220)	(0.0300)
12 to 17 months	0.1447	0.1717	-0.0270
	(0.0152)	(0.0296)	(0.0320)
18 to 23 months	0.0620	0.0858	-0.0238
	(0.0104)	(0.0220)	(0.0676)
24 to 36 months	0.1259	0.1165	0.0093
	(0.0143)	(0.0252)	(0.0093)
More than 36 months	0.2067	0.2699	-0.0631
	(0.0175)	(0.0348)	(0.0371)
Number of observations	734	546	188

Note: Standard deviations in brackets
*** p<0.01, ** p<0.05, * p<0.1
Source: own calculations based on FLFS, 2003-2011

Table 3: Means of the demographic variables in treatment and control groups for individuals present in 2011 and which experience an exit out of unemployment or not

	Treatment	Control	Difference
Age	55.9	60.3	-4.4***
	(0.0517)	(0.0833)	(0.0945)
Male	0.4901	0.5303	-0.0402
	(0.0181)	(0.0262)	(0.0319)
Single	0.4311	0.4364	-0.0052
	(0.0179)	(0.0260)	(0.0316)
Highest degree			
College/University	0.1218	0.1988	-0.0770***
	(0.0118)	(0.0210)	(0.0224)
Baccalauréat	0.1192	0.1408	-0.0216
	(0.0117)	(0.0183)	(0.0212)
Brevet/CAP/BEP	0.3486	0.3342	0.0143
	(0.0172)	(0.0248)	(0.0303)
No qualification	0.4102	0.3259	0.0842***
	(0.0178)	(0.0246)	(0.0309)
Duration in unemployment			
Less than 1 month	0.0430	0.0416	0.0013
	(0.0211)	(0.0237)	(0.0318)
1 to 2 months	0.1182	0.0972	0.0210
	(0.0336)	(0.0351)	(0.0492)
3 to 5 months	0.1182	0.1212	-0.0067
	(0.0159)	(0.0263)	(0.0323)
6 to 11 months	0.2043	0.125	0.0793
	(0.0420)	(0.0392)	(0.0589)
12 to 17 months	0.1397	0.1666	-0.0268
	(0.0361)	(0.0442)	(0.0565)
18 to 23 months	0.0860	0.0138	0.0721**
	(0.0292)	(0.0138)	(0.0721)
24 to 36 months	0.1182	0.125	-0.0067
	(0.0336)	(0.0392)	(0.0515)
More than 36 months	0.1505	0.1666	-0.0161
	(0.0372)	(0.0442)	(0.0575)
Number of observations	1125	763	362

Note: Standard deviations in brackets
*** p<0.01, ** p<0.05, * p<0.1
Source: own calculations based on FLFS, 2003-2011

Table 4: Transition matrix from unemployment before (January to December 2008) and after policy changes (January to December 2009)

	Before			After		
	All	**Control**	**Treated**	**All**	**Control**	**Treated**
Unemployment	**47**	29	18	**255**	198	57
	(20.3%)	(17.4%)	(27.7%)	**(50.8%)**	(52.2%)	(46.3%)
Employment	**53**	46	7	**66**	46	20
	(22.8%)	(27.5%)	(10.7%)	**(13.1%)**	(12.2%)	(16.3%)
Inactivity	**132**	92	40	**181**	135	46
	(56.9%)	(55.1%)	(61.6%)	**(36.1%)**	(35.6%)	(37.4%)

Table 5: Transition matrix from unemployment before (January to June 2011) and after policy changes (July to December 2011)

	Before			After		
	All	**Control**	**Treated**	**All**	**Control**	**Treated**
Unemployment	**93**	17	76	**553**	164	389
	(34.2%)	(18.9%)	(41.7%)	**(65.2%)**	(60.3%)	(66.9%)
Employment	**76**	22	54	**120**	23	97
	(27.9%)	(24.4%)	(29.7%)	**(14.2%)**	(8.5%)	(16.7%)
Inactivity	**103**	51	52	**180**	85	95
	(37.9%)	(56.7%)	(28.6%)	**(20.6%)**	(31.2%)	(16.4%)

Table 6: Effects of the 2003 reform one year before (2008) and one year after the policy change (2009), by gender

| | Males | | | | | | Females | | | | | |
| | Exit | | Employment | | Inactivity | | Exit | | Employment | | Inactivity | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$D_{Treated}*Post_t$	-0.157		-0.569***		-0.041		-0.069		0.072		-0.148	
	(0.099)		(0.146)		(0.111)		(0.126)		(0.174)		(0.135)	
Date of Birth												
1949		-0.106		-0.637**		-0.0003		-0.122		0.229		-0.287
		(0.143)		(0.254)		(0.161)		(0.154)		(0.287)		(0.181)
1950		-0.0632		-0.498**		0.086		-0.072		-0.024		-0.114
		(0.106)		(0.205)		(0.166)		(0.169)		(0.267)		(0.182)
1951		-0.381***		-0.940***		-0.317***		0.034		0.339		-0.010
		(0.111)		(0.137)		(0.121)		(0.194)		(0.273)		(0.234)
1952		-0.0518		-0.383**		0.083		-0.095		0.069		-0.152
		(0.133)		(0.176)		(0.154)		(0.154)		(0.234)		(0.166)
Seasonality	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	410	410	241	241	347	347	324	324	179	179	276	276
Adjusted R^2	0.221	0.237	0.257	0.284	0.242	0.245	0.191	0.201	0.174	0.211	0.211	0.228

Note: In addition to variables shown, an intercept and controls for education, sex, marital status, household composition, a dummy for the treatment group and a dummy for the post-treatment period were included in all specifications.
Standard errors in parentheses are clustered at individual level, *** p<0.01, ** p<0.05, * p<0.1
Source: own calculations based on FLFS, 2003-2014

Table 7: Effects of the 2003 reform 5 years before (2003 to 2008) and 5 years after the policy change (2014), by gender

	Males Exit		Males Employment		Males Inactivity		Females Exit		Females Employment		Females Inactivity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$D_{Treated} * Post_t$	0.132***		-0.0264		0.211***		0.165***		0.1654**		0.203***	
	(0.0450)		(0.0777)		(0.0525)		(0.0490)		(0.0795)		(0.0561)	
Date of Birth												
1949		0.2109***		0.1597		0.270***		0.2009***		0.2819**		0.223***
		(0.0629)		(0.1182)		(0.0738)		(0.0674)		(0.1301)		(0.0786)
1950		0.2028***		0.0906		0.285***		0.1847***		0.2421**		0.215***
		(0.0597)		(0.1096)		(0.0727)		(0.0664)		(0.1190)		(0.0765)
1951		0.0527		-0.1545		0.119*		0.2145***		0.2058**		0.293***
		(0.0589)		(0.0987)		(0.0712)		(0.0584)		(0.1006)		(0.0700)
1952		0 .0949*		-0.1155		0.213***		0.1219**		0.0638		0.166**
		(0.0571)		(0.0945)		(0.0714)		(0.0597)		(0.0945)		(0.0709)
Seasonality	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,040	2,040	906	906	1,612	1,612	2,019	2,019	891	891	1,594	1,594
R-squared	0.0728	0.0747	0.0988	0.1053	0.0887	0.0894	0.0556	0.0588	0.615	0.0663	0.0662	0.0721

Note: In addition to variables shown, an intercept and controls for age in months, education, sex, marital status, household composition, a dummy for the treatment group and a dummy for the post-treatment period were included in all specifications.

Standard errors in parentheses are clustered at individual level, *** p<0.01, ** p<0.05, * p<0.1

Source: own calculations based on FLFS, 2003-2014

Table 8: Effects of the 2010 Reform, 6 months before (January to June 2011) and 6 months after the policy change (July to December 2011), by gender

	Males Exit		Employment		Inactivity		Females Exit		Employment		Inactivity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$D_{Treated} * Post_t$	0.142*		0.263**		0.202**		0.117		0.224**		0.099	
	(0.074)		(0.118)		(0.092)		(0.079)		(0.104)		(0.093)	
Date of Birth												
1952		-0.0819		0.1912		-0.0807		0.1146		0.276		0.1158
		(0.0986)		(0.184)		(0.106)		(0.127)		(0.181)		(0.146)
1953		0.333		0.600***		0.4476***		0.1479		0.3096*		0.254
		(0.144)		(0.167)		(0.163)		(0.141)		(0.175)		(0.180)
1954		0.031		0.335**		0.1585		0.2474*		0.5647***		0.1864
		(0.103)		(0.139)		(0.141)		(0.137)		(0.170)		(0.152)
1955		0.005		0.2466*		0.0862		0.1383		0.238		0.2565
		(0.109)		(0.147)		(0.157)		(0.139)		(0.175)		(0.182)
1956		0.314**		0.6075***		0.4246**		0.2643		0.5953***		0.1279
		(0.149)		(0.175)		(0.176)		(0.151)		(0.204)		(0.1729)
1957		0.027		0.3353**		0.0267		0.215		0.394**		0.1371
		(0.094)		(0.142)		(0.113)		(0.137)		(0.186)		(0.161)
Seasonality	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	566	566	422	422	466	466	559	559	420	420	477	477
Adjusted R^2	0.331	0.333	0.290	0.299	0.334	0.342	0.315	0.313	0.239	0.246	0.333	0.325

Note: In addition to variables shown, an intercept and controls for age in months, education, sex, marital status, household composition, a dummy for the treatment group and a dummy for the post-treatment period were included in all specifications.

Standard errors in parentheses are clustered at individual level, *** p<0.01, ** p<0.05, * p<0.1

Source: own calculations based on FLFS, 2003-2014

Table 9: Effects of the 2010 Reform, before (January 2010 to June 2011) and 3 years after the policy change (July 2011 to December 2014), by gender

| | Males | | | | | | Females | | | | | |
| | Exit | | Employment | | Inactivity | | Exit | | Employment | | Inactivity | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$D_{Treated} * Post_t$	0.0808		0.299***		0.127*		-0.0958		-0.174		-0.0832	
	(0.0500)		(0.0979)		(0.0675)		(0.0742)		(0.195)		(0.0890)	
Date of Birth												
1952		0.0344		0.237		0.0357		-0.0362		-0.0358		-0.0260
		(0.0641)		(0.197)		(0.0792)		(0.103)		(0.253)		(0.125)
1953		0.142		0.244		0.239**		0.153		0.0198		0.212
		(0.0934)		(0.164)		(0.115)		(0.106)		(0.234)		(0.138)
1954		0.215**		0.325**		0.408***		0.224*		0.274		0.229
		(0.0989)		(0.141)		(0.132)		(0.119)		(0.238)		(0.141)
1955		0.0956		0.301*		0.164		0.0331		0.0536		0.0623
		(0.104)		(0.157)		(0.152)		(0.108)		(0.235)		(0.146)
1956		0.0837		0.327*		0.189		0.0415		0.122		-0.0207
		(0.112)		(0.170)		(0.149)		(0.111)		(0.248)		(0.141)
1957		0.000249		0.262*		-0.0412		0.177		0.251		0.147
		(0.0865)		(0.147)		(0.117)		(0.122)		(0.237)		(0.158)
Seasonality	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,621	1,621	857	857	1,284	1,284	1,598	1,598	846	846	1,258	1,258
R-squared	0.1584	0.1574	0.1821	0.1786	0.1774	0.1798	0.1215	0.1241	0.1189	0.1154	0.1407	0.1428

Note: In addition to variables shown, an intercept and controls for age in months, education, sex, marital status, household composition, a dummy for the treatment group and a dummy for the post-treatment period were included in all specifications.

Standard errors in parentheses are clustered at individual level, *** p<0.01, ** p<0.05, * p<0.1

Source: own calculations based on FLFS, 2003-2014

Table 10: Summary Results of the 2003 and 2010 Pension Reforms: Expected and Estimated Effects

	Males		Females	
	Employment	**Inactivity**	**Employment**	**Inactivity**
2003 Pension Reform				
Expected	+	?	+	?
Estimated SR	-57pp	ns	ns	ns
Estimated MR	ns	+21pp	+16.6pp	+20.3pp
2010 Pension Reform				
Expected	+	+	+	+
Estimated SR	-57pp	ns	ns	ns
Estimated MR	+30pp	+12.7pp	ns	ns

Notes: *pp* refers to percentage points, *SR* and *MR* are Short and Medium run effects

8. Appendices

Appendix 8.A   The French pension reforms

Table A1: Main changes of the 2003 and 2010 pension reforms

Changes	2003 Pension Reform	2010 Pension Reform
Minimum age of retirement	Number of years contributions gradually increases from 40 to 41 by 01/01/2009, by one quarter from 1949 to 1952 birth generations.	Minimum age of retirement increases from 60 to 62 from 1953 birth cohort.
Early retirement conditions	Restriction of early retirement (ER) conditions, Tightened condition before 60 and abolition of several measures, ER for long careers: 01/01/2004.	ER possible at 60 for difficult working conditions from 07/01/2011, and for long careers extended (i.e. for those started working before age 20) since 11/01/2012.
Bonus/Malus	Increase of 3% from 01/01/2004 per additional year of contribution, Increase by 5% from 01/01/2009 and a penalty of 5% per missing year.	

Table A2: French pension reforms and their main changes on length contributions for a full-rate pension and on age of retirement

Pension Reform	Date of birth	Contribution length (in quarters)	Minimum age of retirement	Age of retiremet without required years of contribution
	1943 and before	150 (37 years and 2 quarters)	60	65
1993 Reform (2003 Reform for public sector)	1944	152 (38 years)	60	65
	1946	156 (39 years)		
	1947	158 (39 years and 2 quarters)		
	1948	160 (40 years)		
2003 Reform (public and private sectors)	1949	161 (40 years and 1 quarter)	60	65
	1950	162 (40 years and 2 quarters)		
	1951	163 (40 years and 3 quarters)		
	1952	164 (41 years)		
2010 Reform (public and private sectors)	July to Dec.1951	163 (40 years and 3 quarters)	60 years and 4 months	65 years and 5 months
	1952	164 (41 years)	60 years and 9 months	65 years and 9 months
	1953-54	165 (41 years and 1 quarter)	61 and 2 months\7 months	66 and 2 months\7 months
	1955-57	166 (41 years and 2 quarters)	62	67
	1958-60	167 (41 years and 3 quarters)		
	1961-63	168 (42 years)		
	1964-66	169 (42 years and 1 quarter)		
	1967-69	170 (42 years and 2 quarters)		
	1970-72	171 (42 years and 3 quarters)		
	1973 and over	172 (43 years)		

Appendix 8.B   Robustness analysis

**Table A3:** Placebo test: One year before (2007) and one year after the 'pseudo' reform (2008)

	Exit		Employment		Inactivity	
	(1)	(2)	(3)	(4)	(5)	(6)
$D_{Treated}$	0.0141	0.0205	0.154*	0.169**	-0.00787	-0.0137
	(0.0566)	(0.0573)	(0.0882)	(0.0828)	(0.0661)	(0.0675)
$Post_t$	-0.106	0.00303	-0.144	0.0203	-0.0695	0.0384
	(0.0678)	(0.0664)	(0.0929)	(0.0933)	(0.0741)	(0.0738)
Quarter 1		0.125**		0.0317		0.165***
		(0.0589)		(0.0741)		(0.0626)
Quarter 2		0.378***		0.410***		0.411***
		(0.0434)		(0.0706)		(0.0519)
Quarter 3		0.329***		0.214***		0.374***
		(0.0463)		(0.0755)		(0.0529)
$D_{Treated} * Post_t$	-0.0655	-0.0470	-0.0236	-0.0522	-0.116	-0.0754
	(0.0790)	(0.0757)	(0.108)	(0.101)	(0.0881)	(0.0857)
Constant	0.678***	0.432***	0.124	-0.0564	0.702***	0.425***
	(0.102)	(0.105)	(0.123)	(0.130)	(0.109)	(0.114)
Observations	734	734	397	397	610	610
Adjusted R^2	0.059	0.160	0.084	0.182	0.046	0.155

Note: In addition to variables shown, an intercept and controls for age in months, education, sex, marital status, household composition, a dummy for the treatment group and a dummy for the post-treatment period were included in all specifications.
Standard errors in parentheses are clustered at individual level, *** p<0.01, ** p<0.05, * p<0.1
Source: own calculations based on FLFS, 2003-2014

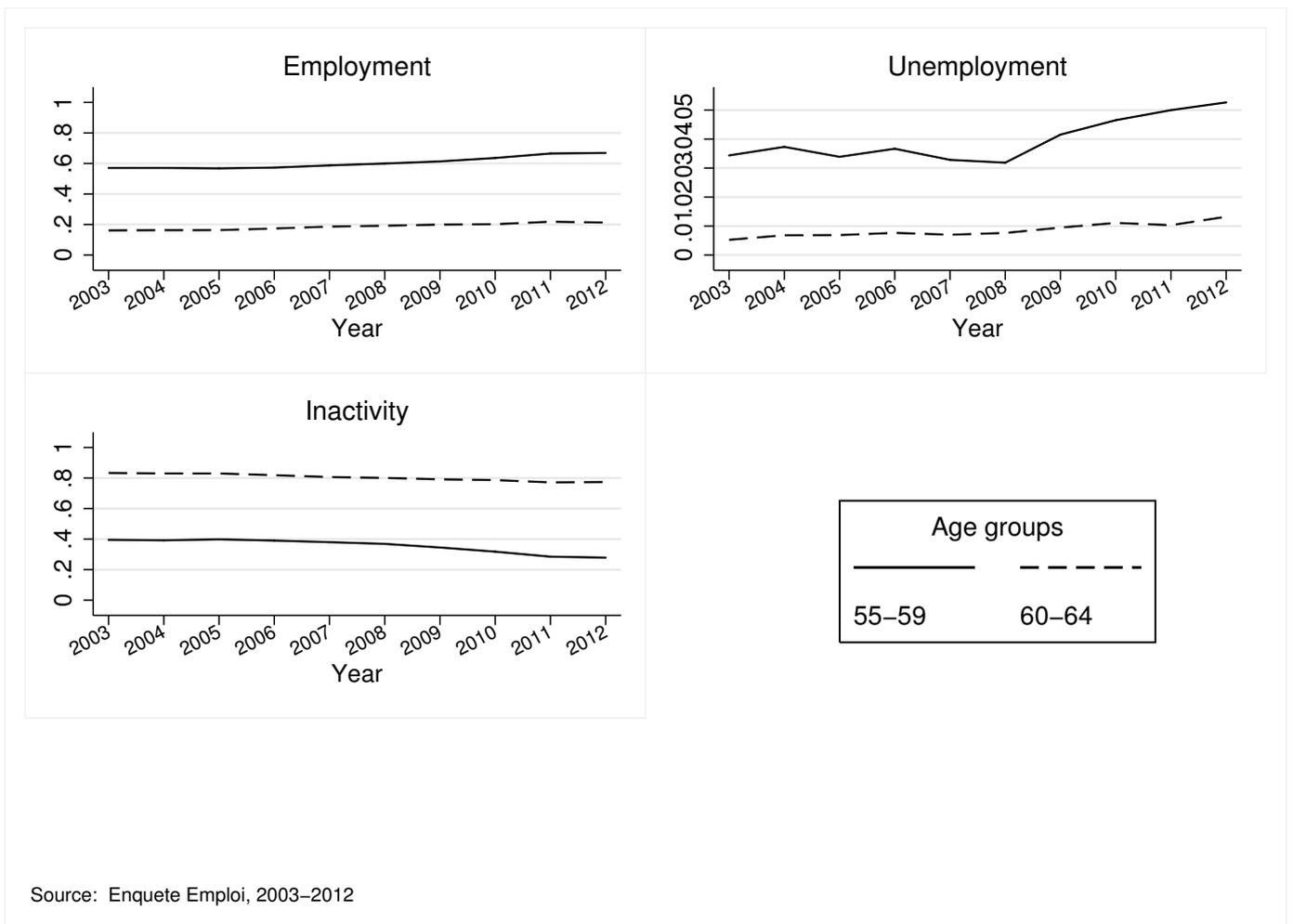**Figure 1:** Labour Force Statistics for the 55-64 years old
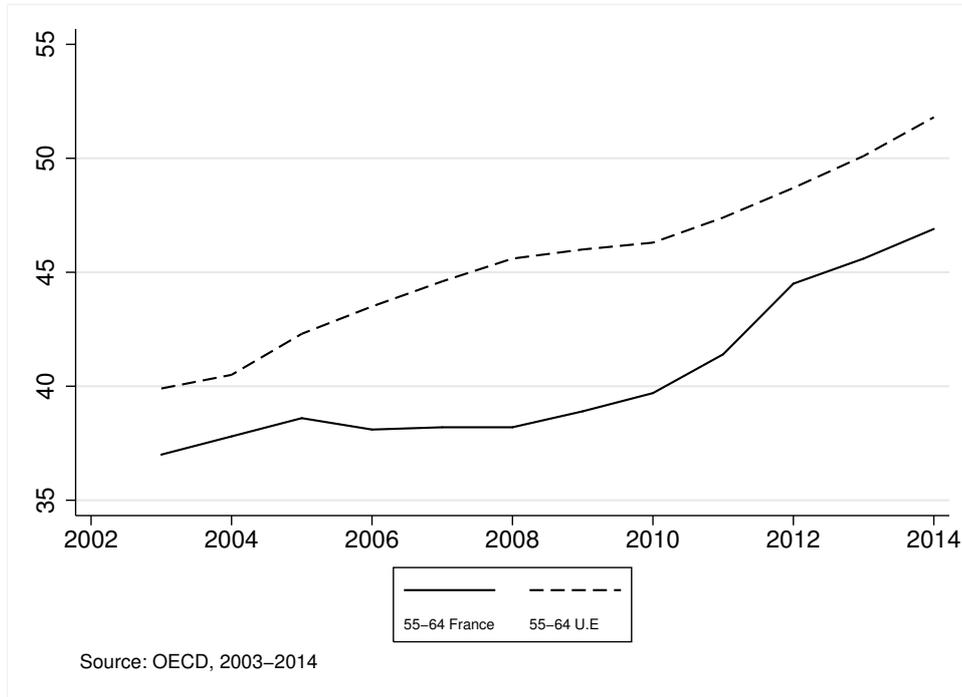
(a) Employment rates, France and E.U
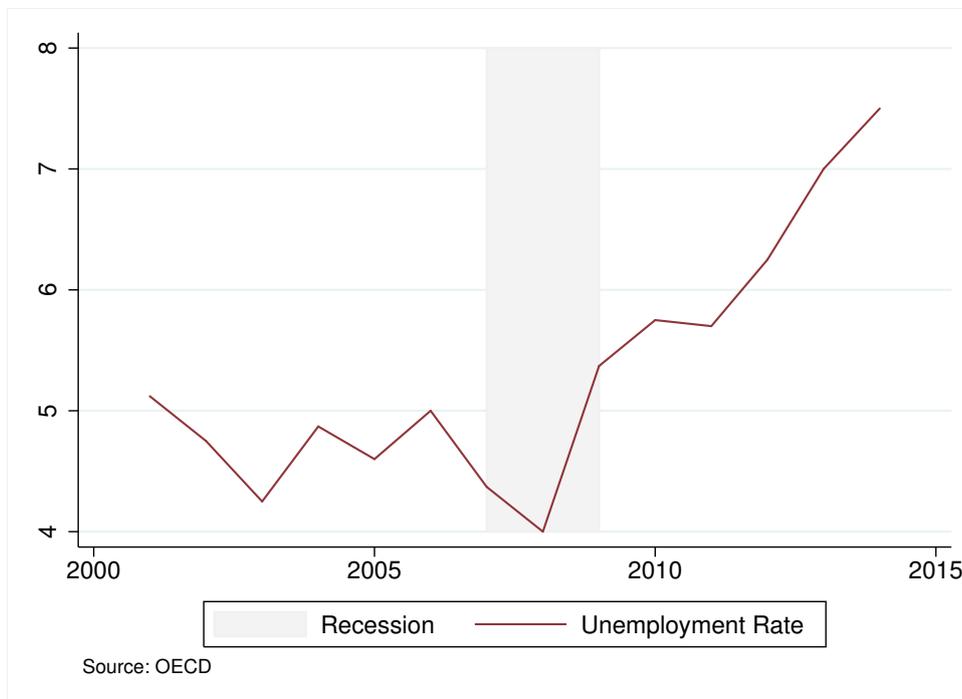
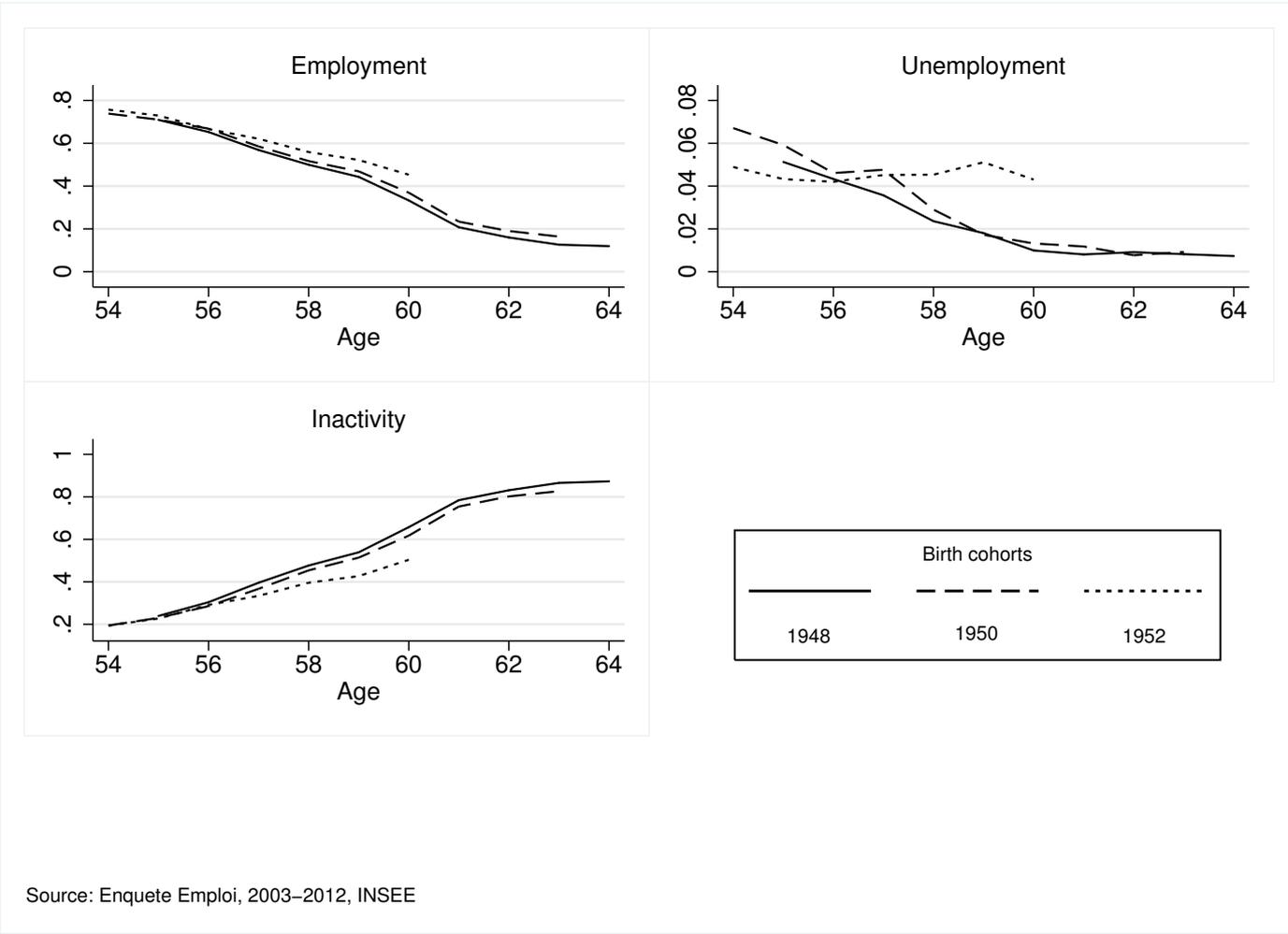(b) Unemployment rates, France

45

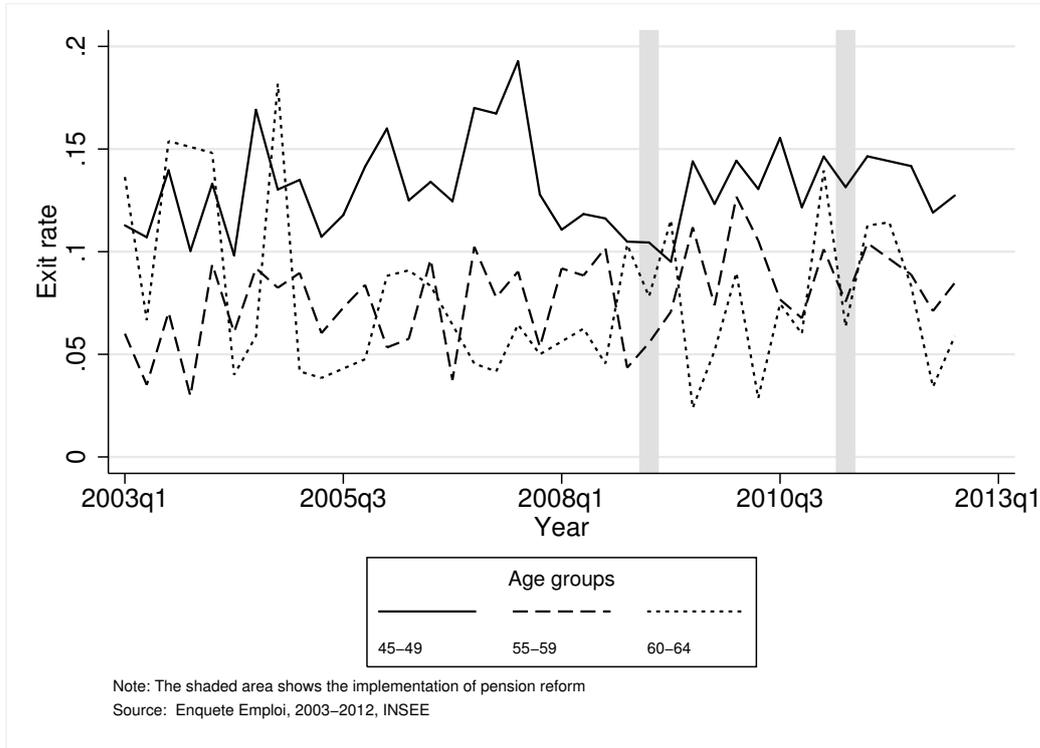**Figure 2:** Trends in employment, unemployment and inactivity over age by birth cohorts, France
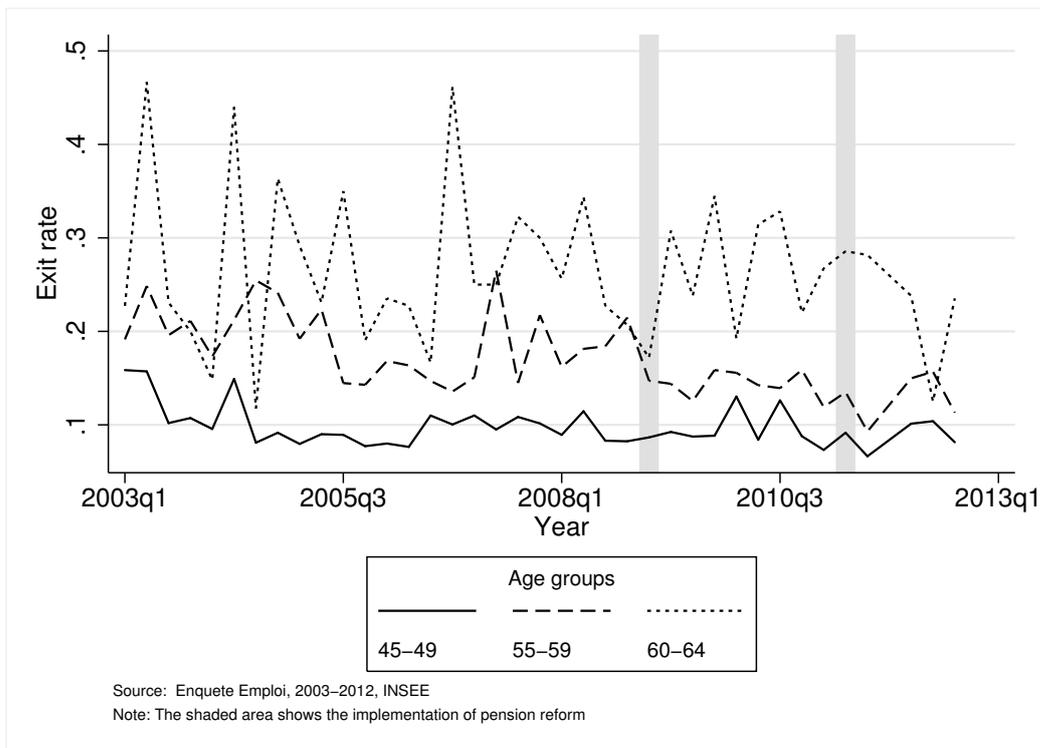

Source: Enquete Emploi, 2003–2012

Figure 3: Trends in employment, unemployment and inactivity over age by birth cohorts, France

Source: Enquete Emploi, 2003–2012, INSEE

Figure 4: Exit rate from unemployment, all sample

(a) to employment

(b) to inactivity

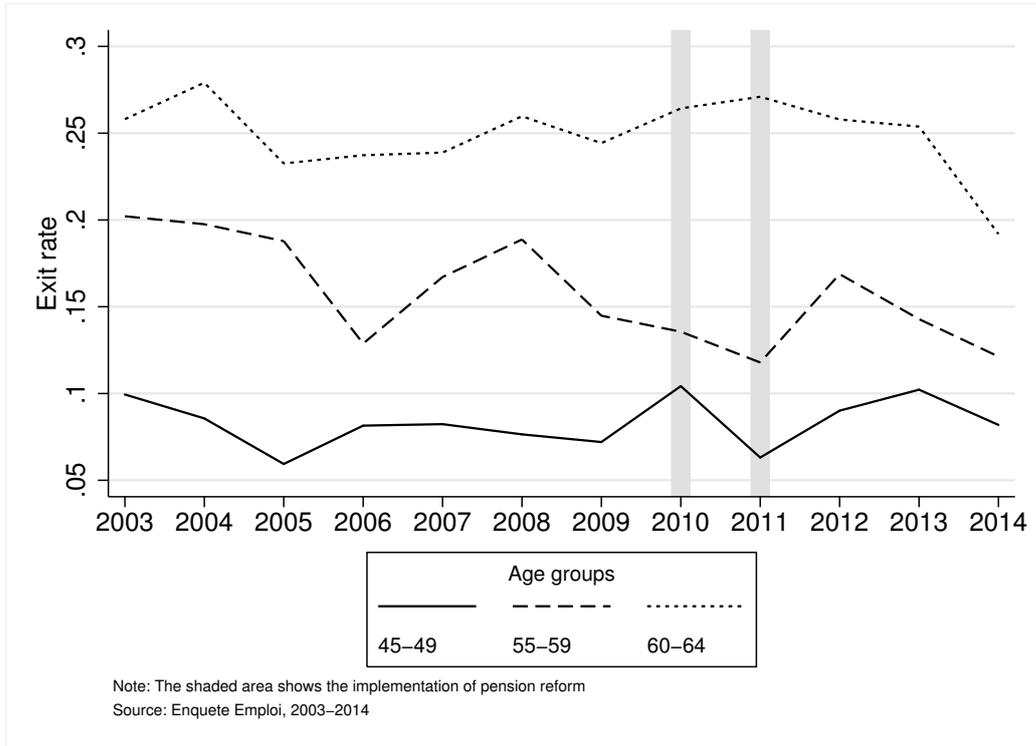**Figure 5:** Exit rate from unemployment to employment by gender

Note: The shaded area shows the implementation of pension reform
Source: Enquete Emploi, 2003–2014, INSEE

(a) Males

Source: Enquete Emploi, 2003–2014, INSEE
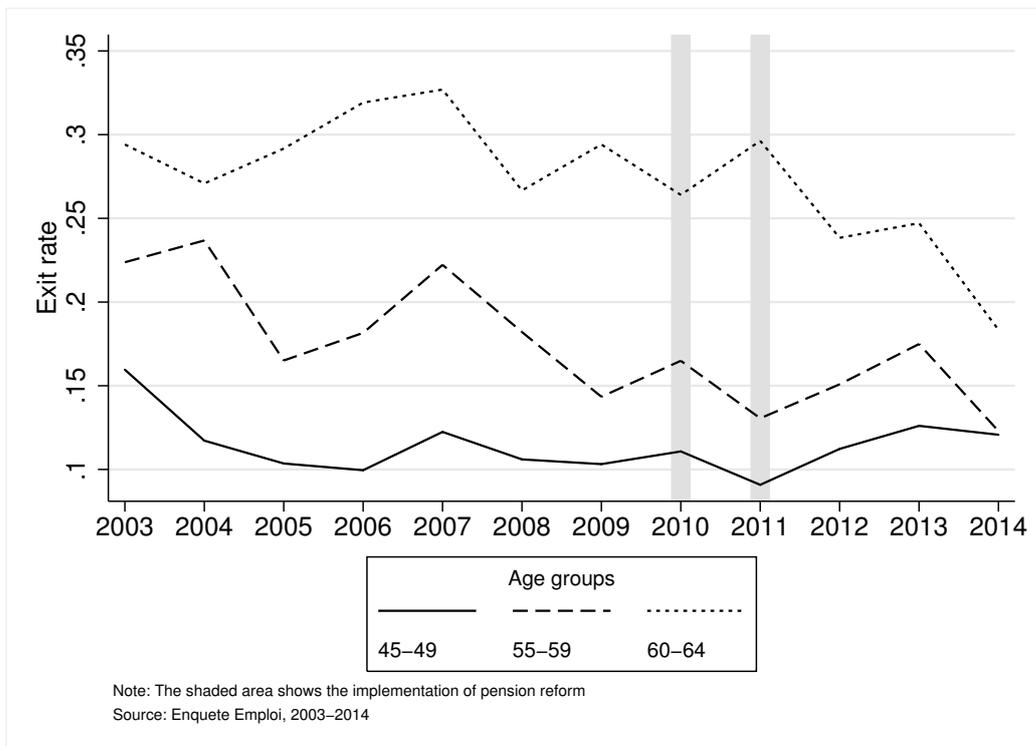Note: The shaded area shows the implementation of pension reform
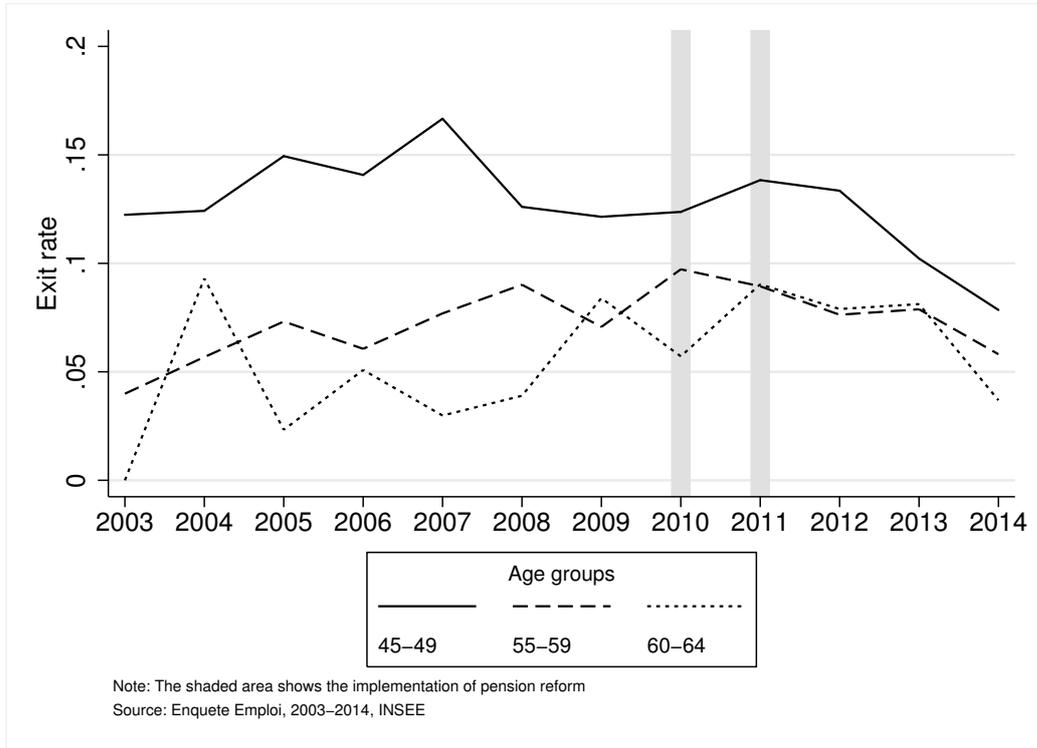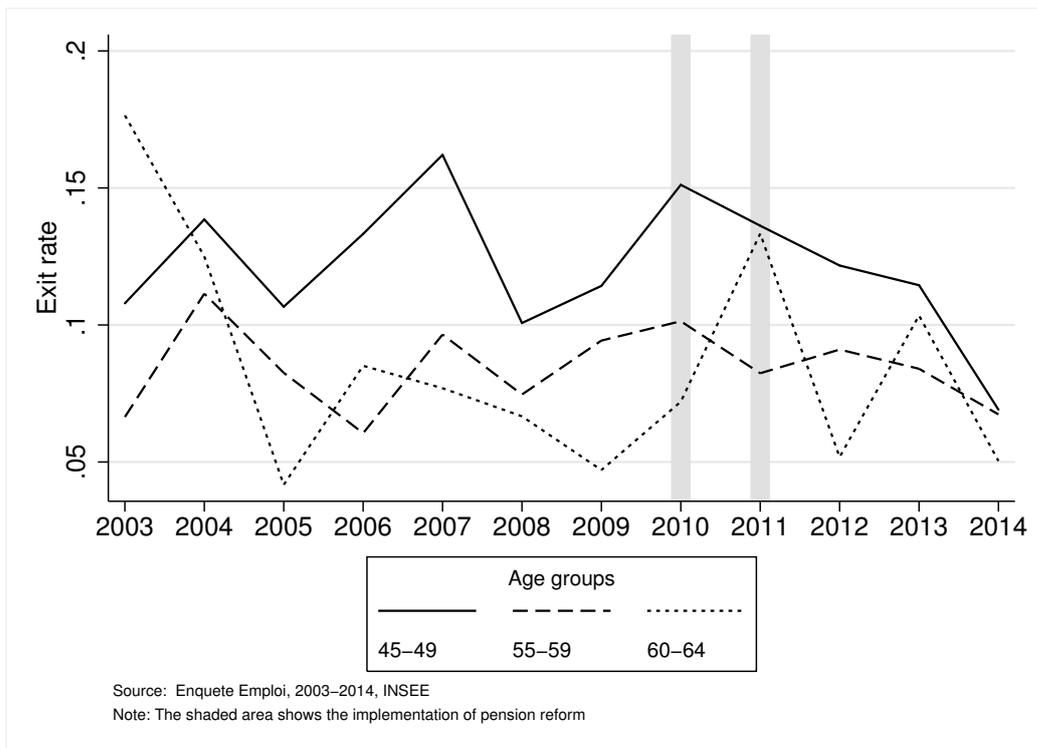
(b) Females

Figure 6: Exit rate from unemployment to inactivity by gender

(a) Males

(b) Females