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The Effects of Early Retirement on Youth Unemployment: The Case of Belgium

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The Effects of Early Retirement on Youth Unemployment: The Case of Belgium

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Abstract

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In this paper, we describe the changes of (early) retirement programs over time and study the link between trends in elderly labor force participation and youth unemployment. From a theoretical point of view, there is no convincing argument that the idea of a lump-of-labor should hold. Our empirical results comfort this finding, and indicate a very weak link, if any, between elderly retirement and activity among the young and the prime-age populations.

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Keywords: pensions, security, early retirement, unemployment, labor force participation

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I. INTRODUCTION

Belgium is characterized by a very low labor force participation rate at older ages. According to Eurostat, in 2001, Belgium was in the leading group of European countries with respect to early retirement. On average, workers dropped out of the labor force at an average age of 56.8 years. Since then, the long-standing trend towards lower retirement ages has tapered off. By 2005, the number increased to 60.6 years of age—and thus remains at a rather low level by international standards. Another indicator is the employment rate among the elderly workers, which is also far from satisfying the Lisbon criteria in terms of labor force activity rates of the elderly—and this in spite of the fact that more than half the time imparted by the EU has passed by without much action[2].

Since the studies of Blondal and Scarpetta (1999) and Gruber and Wise (1999, 2003), there is a widespread recognition by academics and policymakers alike that the generosity of the social security and retirement systems has had a potentially decisive role in shaping the retirement patterns. Beyond the sheer generosity of the systems in terms of their benefit levels, it is by now recognized that marginal incentives towards exiting work play a decisive role in individual and collective decision making. By imposing explicit or implicit taxes on continued work, the systems favor early retirement and thus early exit from the labor force.

While reasons for such incentives towards early retirement can be multiple, one prominent justification often encountered is that giving older workers an incentive to leave the labor market frees up space for younger workers. The present paper addresses this issue from several perspectives within the Belgian context. Our aim is to derive a conclusive answer on the often cited potential for substitutability of employment of the old with that of the younger age groups.

The paper is structured as follows. In the next section we give some institutional background on the systems and regimes applicable to the older workers, as well as some specificity applicable to the young. Section 3 gives some theoretical arguments regarding the relation of the different age groups. Section 4 proceeds on to a description of the data and some simple regressions of activity parameters of the different age groups. Section 5 estimates the effect of incentive variables on activity rates, and documents the overall weak impact of parameters regarding the old on behavior of the young. Section 6 contains an alternative and more comprehensive specification for the demographic situation of the country and Section 7 concludes the paper.

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[2] The Lisbon strategy was adopted for a ten-year period in 2000. It broadly aims to "make Europe, by 2010, the most competitive and the most dynamic knowledge economy in the world". One of the goals is to achieve a 50 percent employment rate of the elderly population (people aged 55–64). In Belgium, the elderly employment rate was 25 percent in 2000 and only 30 percent in 2005 which is far from the objective at half period.

II. INSTITUTIONAL BACKGROUND

The aim of this section is to describe the most important social protection schemes that provide for some form of replacement income when retiring from the labor market when older and both when young and inactive. The present paper focuses on the wage-earners. For the treatment of the young, this does not represent a significant limitation as unemployment benefits are anyway not accessible to the public sector. For the retirement, it thus exclusively models the wage-earner pension and early retirement systems and does not consider the special regimes applicable to either civil servants or the self-employed. The reason for this selective treatment lies in the severe data limitations which do not allow us to identify which system a person belongs to (see Section 4 below). Therefore, the paper opts for a selective but detailed modeling strategy focusing on the single most important regime covering a wide majority of Belgian workers—while emphasizing the multitude of options available to these wage-earners.

A. The Policy Framework Regarding the Withdrawal from the Labor Force

Anticipated retirement under the private sector wage-earner scheme

The public pension system is financed by tax-deductible employer and employee contributions and by contributions from the federal government's budget on a pay-as-you-go basis. Social security benefits are indexed to the cost of living and from time to time adjusted on a purely discretionary basis to the growth rate of the economy.

A pivotal year in the pension systems of the private sector wage-earners is the year 1967. As a result of the merger of several existing pension schemes for different categories of workers the pension system took on its current form. The basic attributes of the scheme were its PAYG financing mechanism, and the determination of a normal age of retirement set at 65 for men and at 60 for women. Anticipated retirement is allowed up to 5 years before the normal retirement age. Early retirement is accompanied by an actuarial reduction of 5 percent of the benefits by year of anticipation to compensate for the longer period of benefit claiming and the shorter period of contributions. The pension benefit is calculated on the basis of a 45 years career for men and 40 years career for women. In this framework, retirement at the age of 64, without reduction of the benefits, is allowed for men who have already 45 years of career or who have been employed in severe work conditions. A special treatment has been applicable to veterans, resistance fighters, and deported people who benefited from a national recognition. As of 1969, they can anticipate the date of retirement by a maximum of five years without any reduction of benefits. Special regimes also remained in place for some specific sectors, such as most notably the special regime for coal mining and the maritime sector.

In 1977, a first step was taken to allow for early retirement within the above general pension system. The special early retirement schemes (« Régimes de prépension spéciale ») give disabled workers or long term unemployed aged of at least 60 for men and of 55 for women a bonus equal to the difference between the actual pension and the one they would receive if it was not reduced by the « 5 percent rule ». This specific early retirement system was rather

short-lived and was only applicable for a few years. It was formally terminated in 1979 for disabled workers and in 1982 for unemployed.

In 1983, a new scheme of early retirement is introduced within the framework of the pension system. The program of « Prépension de retraite » allows for male workers retiring with a maximum of 5 years of anticipation without reduction of the benefits if the employer commits to replacing the worker by an unemployed who is benefiting from a full-time compensation from the unemployment insurance. This second early retirement scheme will only end in 1991 with the introduction of the concept of a flexible retirement age in the pension system. Since 1987, for female, and 1991, for male, workers can freely choose the age of retirement without reduction of benefits as soon as 60 while maintaining separate normal retirement ages and full-career requirements for the two sexes. This means that the system has become significantly more flexible and generous as both the « prépension de retraite » and the « 5 percent rule » are no longer applicable. As a consequence, early retirement possibilities for women were significantly worsened, as before 1987 they could retire at a minimum age of 55 which is now no longer possible.

The last reform affecting workers in our analysis dates back to 1997. Following up on a ruling by the European court of Justice requiring Belgium to put an end to the discrimination against men in the wage-earner pension system, the government decided to align the treatment of men and women by raising the female full career condition and the associated normal retirement age to the one applicable to men. Since 1997, the compulsory age of retirement for women has gradually been raised to 61 in 1997, 62 in 2000, 63 in 2003, 64 in 2006 and will attain 65 in 2009, with the corresponding increase in the full-career requirement from 40 to 45 years. While aimed at eliminating discrimination, the measure also had a clearly beneficial impact in budgetary terms and contributed positively to the longer term viability of the regime.

Finally, the most recent reform to retirement incentives was introduced into the system in early 2007. As a result of the Intergenerational Solidarity Pact[3] negotiated between the social partners and the government in late 2005, workers working beyond the age of 62 or beyond 44 years of career can benefit from a pension supplement. The pension bonus, of an amount of 2 EUR per day worked beyond these limits, augments the annual benefit payable, and this independently of the wage earned or the contributions accumulated. As such, it can be seen as a much stronger relative incentive for lower-wage earners that for higher wage earners.

Conventional early retirement

Next to the wage-earner pension system, a parallel system of complementary benefits for early retirement was created in 1973 for the old workers in case of firing: the conventional

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[3] The Belgian Intergenerational Solidarity Pact includes some 30 measures aimed at reducing early retirement without changing the legal retirement age or current benefits already granted. Measures include limiting the number of people taking early retirement, stimulating employers to retain or hire older workers as well as making early retirement less attractive for both workers and employers.

early retirement (« la Prépension conventionelle »). The announced goal of the scheme—which was not run by the pension administration—is to contribute towards a better distribution of jobs between young and old. The program has intended to achieve this goal by insuring a decent income to old workers that are forced to retire earlier than the normal pension age.

At the beginning, workers who were aged 60 and above who lost their job could be eligible for the benefits of the system. One condition to be eligible for the regime was that the worker had to be laid off by his employer, and a further condition stipulated that the employer had to recruit a person benefiting from full-time unemployment benefits as a replacement for the worker. The laid off elderly worker was then, in his turn, entitled to unemployment benefits with a top-up complementary benefit paid by the employer. This complementary benefit was equal to half the difference between net wage and the unemployment benefit. A particularity of the system was that these early retirees were exempted from job search and—as for all unemployed—the time spent in the early retirement program was fully credited in the earnings file for pension purposes. As the crediting in the earnings history is done at a constant real value, it means that the workers only financial loss is the immediate loss of purchasing power due to the lower level of the combined benefit with respect to the net wage previously earned.

If initially the age of early retirement was set at 60, the limit was rapidly lowered by means of collective bargaining agreements within industries. As a result, there ultimately existed a variety of different regimes with different career requirements, minimum ages, replacement of the worker, etc for different sectors and companies. In front of this imbroglio, the legislation was harmonized in 1986 by setting the minimum age at 58 years. However, numerous exceptions persist with respect to the general rules. For example, while workers below the age of 60 do in theory have to be replaced when they are put onto early retirement, this is not the case for companies that are considered in economic difficulty or in restructuring, or if the company is closing or unable to find a suitable replacement. Similarly, while the age of 58 is a priori the minimum access age, a lower age is possible in some sectors (steel, glass, textile, etc.) at the ages of 55, 56 or 57 depending on more stringent career conditions. Similar exceptions exist for some workers in the construction sector and some who worked in shifts. Even more pronounced reductions in the minimum age are possible when the company is recognized as being in economic difficulty, under which circumstance the age can be brought down to 52 years, or even 50 in special circumstances.

As a consequence of the Intergenerational Solidarity Pact of 2005, the conditions for access to the conventional early retirement scheme are scheduled to become more stringent for all cases of early retirement before the age of 60 but not directly linked to companies in economic difficulties. As of the first of January 2008, the access to the conventional early retirement route at age 58 will be restricted to people with long working careers and in exhausting jobs. The access to routes opening up at ages 55, 56 and 57 will also progressively be tightened and the reference ages increased over the next 5 years.

Legal early retirement

Between 1976 and 1982, another program of early retirement coexisted with those exposed above. The so-called system of legal early retirement (« Prépension légale ») holds that the workers have access to the same status as the one provided by the conventional early retirement system, with the major difference being that the worker did not need to be laid off by his employer but could freely opt into the system. As a consequence of this different setting, the cost of the complementary benefit was not supported by the employer but by the social security budget with the restriction that the employer had to hire a young unemployed aged less than 30 and benefiting from full-time unemployment compensation. Access to this scheme was possible under an age condition of 60 for men and 55 for women.

Part-time early retirement and the system of career breaks

In 1993 the possibility of work and half-time early retirement was introduced into the Belgian landscape. Access to the status is conditional on a written agreement between the worker and his employer. Further conditions relate to the age of the worker (no lower than 55) as well as the replacement of the worker by a fully indemnified unemployed for the reduced portion of his schedule. This path is complex and has been chosen by very few people, less than 1000 people were registered in 2005.

Another route to early retirement is opened by the career break scheme, which was originally introduced in 1985 but later modified in 2001 to make it more flexible for early retirement. It allows workers to reduce their working hours or take a career break for any reason, while maintaining their social insurance protection and even usually getting a career break benefit. The scheme specifically attempts to allow workers aged 50 and above to reduce their working hour and thus permit a progressive shift into retirement. It allows both a reduction to a four fifth schedule as a reduction to a half-time schedule.

Aged unemployed exempted from job search

The last exit path out of the labor market is known as the regime for the "Old aged unemployed", a status that was introduced in 1985 into the Belgian social insurance landscape. According to this regime, an unemployed person aged at least of 55 and who was out of his job for at least two years was exempted of job search and continued to receive the unemployment benefits without any restrictions in time or in availability for the job market. In 1996, the age of admission to the system was lowered to the age of 50 and the period of joblessness was lowered to 1 year. As a result, this scheme has been widely used in the Belgian retirement landscape. In its most extreme version, employers use it to separate from older workers by compensating them with (large) lump sum compensations/side payments— this way avoiding the more complicated and stringent conventional early retirement route. The latter mechanism is also known in the Belgian context by the name of "Canada Dry" retirement arrangements, as it looks and tastes like early retirement but it formally is none.[4]

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[4] This alludes to an old European commercial for Canada Dry ginger ale that was said to have the colour of beer without being it.

Faced with the growing importance of these arrangements, the government progressively introduced changes to the legislation to slow down the spread of its use and abuse. Since July 2004, new entrants to the system have to satisfy more stringent conditions to access the waiver with respect to the availability for job search. Under the new rules, only workers aged 58 and above or with very long careers can still benefit from the full job search waiver, while those below still have to be available for the labor market. However, while younger jobless are increasingly subject to stricter controls of their availability for the job market, these same rules are not enforced on those aged 50 and above—hence making the changes less dramatic than they may seem at first sight.

Figures 1 and 2 summarize the number of people involved in each one of the early exit paths by year. They show for each year, at the 31st of January how many people were recorded as beneficiaries of each program (thus stocks of people in each program). On Figure 1, we see that the number of men covered by these different exit paths has strongly increased starting at the beginning of the 1980s. Since the early 1990s the numbers have started to decrease slightly. Further, the figures also illustrate the timing of new paths opening.

Figure 1: Early retirement - Men
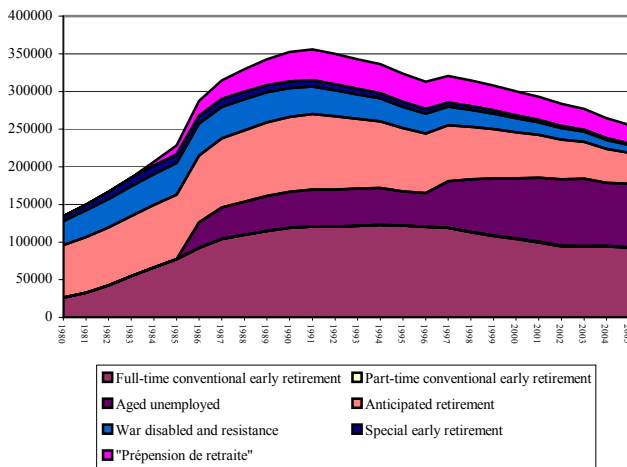
Source : Belgostat and National Office of Pension

Figure 2: Early retirement - Women
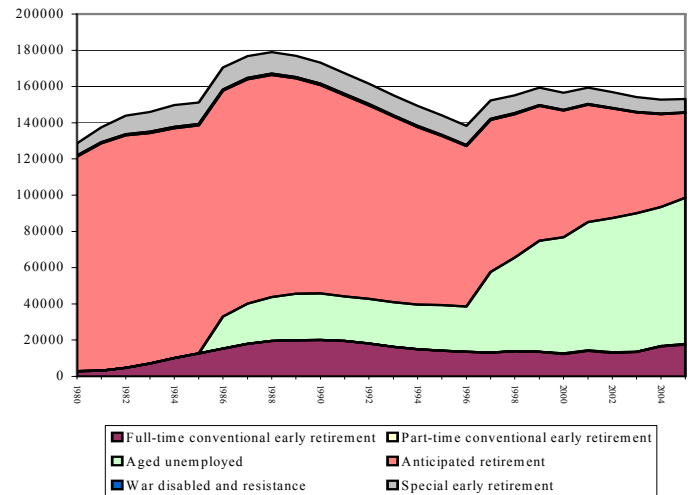
Source : Belgostat and National Office of Pension

B. Specific Unemployment Policies Targeted Towards the Young

A specificity of the Belgian social insurance system is the generalized availability of unemployment benefits (called "waiting allowance") for young people on the pure basis of education. As of 1945 unemployment benefits were given on the basis of studies. Initially it was only implemented for people that had followed vocational schooling. Formally, there was no age limit but the individual had to claim benefits in the first year following the end of his studies. In 1951, the status was extended to people having completed apprenticeships. The waiting period before claiming the first benefit was set at 75 days. In 1968, the list of admissible graduates was extended to all secondary education levels (technical or general)

and the age limit was generally set at 25 years of age. In 1980, the maximum age was pushed up to 26, the waiting period increased from 75 days to 150 days, and in 1983 the one-year deadline on first claiming was eliminated. In 1985, the possibility of first claiming these benefits was introduced for people aged between 26 and 30 subject to a waiting period of 300 days. 1994 is the year of the last major reform of the system with waiting periods further increased for people belonging to different age brackets below the age of 30. The new standards are 155 days for those aged less than 18, 233 days between 18 and 25, and 310 days between 26 and 30, corresponding to 6,9 and 12 months respectively.

Currently, almost every young person leaving school in Belgium is entitled to unemployment benefit without any work requirement. It is common for young people less than 30 to sign up with the regional Public Employment Service as a job-seeker immediately upon receiving one's school diploma (usually high school). This enrolment entitles the graduate to an unemployment benefit awarded after the above-mentioned age-dependent waiting period. This unemployment insurance benefit—which is awarded for an indefinite period of time— was at first based on the level of education attained by the graduate. Over time, it has progressively evolved into a lump-sum amount which is purely a factor of the family status of the person claiming the benefit. Administratively, the young unemployed receiving a waiting allowance is considered a job seeker and technically enters the category of persons benefiting from full-time unemployment benefits.

A number of jobs benefiting from tax and contributions exemptions are open to the young unemployed at the end of the waiting period. Consequently when the waiting period increases one observes a similar increase in the rate of youth unemployment (ONEM 2001).

III. LUMP OF LABOR FALLACY AND YOUTH UNEMPLOYMENT IN BELGIUM

The idea that forcing elderly workers out of the labor market before the statutory age of retirement would provide jobs for the unemployed young has been for a long time widely accepted in several European countries, particularly in Belgium where indeed youth unemployment is particularly high both in absolute and in relative terms. For most economists and fortunately an increasing number of Belgian this view is based on the erroneous belief in a fixed amount of work. Economists call this allegedly widespread view the "lump of labor fallacy".

Those who make the fallacy claim fail to offer specific evidence of the supposed belief in a fixed amount of work. Yet it is too convenient to yield the burden of the proof on the advocates of the lump of labor fallacy[5]. In our study we want to show that preretirement to make room for the young didn't work. Dolado *et al.* (2000) have started to do so by comparing for several countries and several periods the relation between preretirement and youth unemployment. Their conclusion is negative but their methodology is questionable.

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[5] This view is also called the lump-of-output fallacy since it assumes that output is unaffected by the job reallocation. While it seems that labour force exiting will affect the wage rate and inflation and then output (Layard *et al.*, 1991).

What we want to do in this section is to look at the main characteristics of youth unemployment in Belgium over the last decades and to see whether such unemployment would decrease with an increase in the demand of labor. Implicitly, we assume that preretirement policies imply an increased demand for labor and that such a demand is relevant for the unemployed young. In other words, for the sake of the argument, we follow the reasoning of the advocates of the lump of labor.

Belgian youth unemployment is high and has tended to increase in recent years from 15 percent in 2000 to 20 percent in 2005. The youth unemployment rate is about three times higher than the adult unemployment.

Figure 3 shows the differences across a number of OECD countries over the years 1984, 1995, 2000 and 2005 for the rate of unemployment of the young aged 15–24. One sees that Belgium is in the same league, as France, Italy, Spain and Sweden, countries with very high youth unemployment.

Figure 3. Youth 15–24 Unemployment Rates in OECD Countries
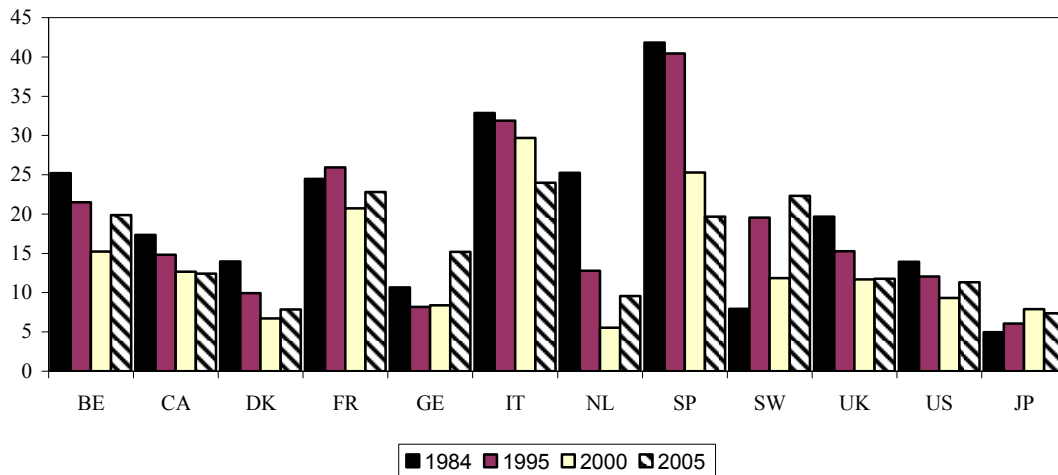
A key feature of Belgian youth unemployment is that it concerns unskilled workers. Figure 4 gives the evolution of unemployment for 3 levels of education. One clearly sees that the rate of unemployment of unskilled has been increasing over the period 1992–2004 for both genders and is above the double of the rate of unemployment of young with medium or high level of education.

Consider four standard explanations for youth unemployment in Belgium:

- Lack of professional training,
- Mismatching,
- Unemployment compensation combined with family arrangements,
- Minimum wages and employment regulation.

Figure 4. Youth Unemployment by Education Level and Gender
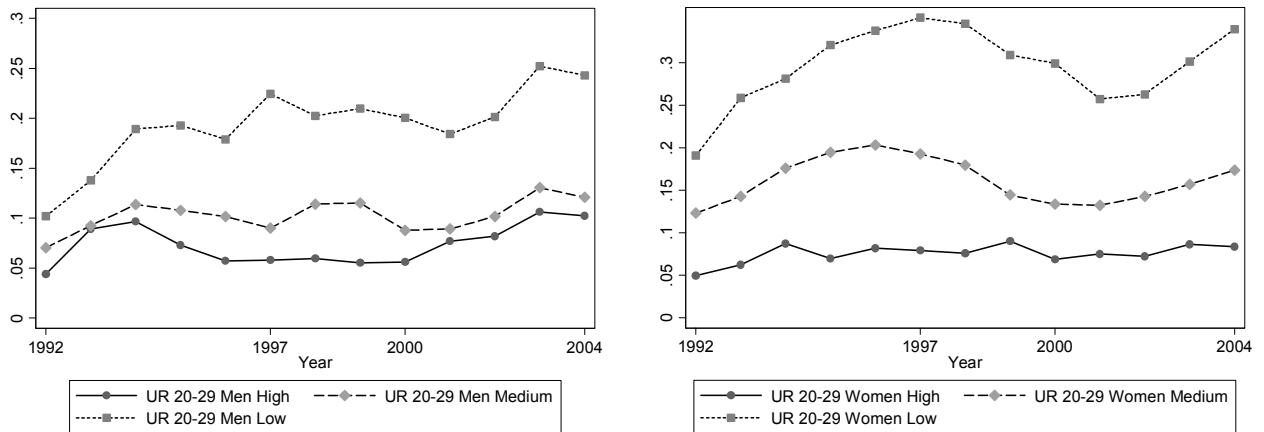
1.   In Belgium, the transition from school is very abrupt. Full time education is the norm with dual apprenticeship schemes remaining marginal. Internship is not an integral part of a student's school or university career.

2.   Mismatching is another important cause of unemployment. Mismatching can be due to the educational system that is not sufficiently aimed at the needs of the industrial world but also to the lack of geographical mobility.

3.   As we have seen, the young are entitled to unemployment compensations even without working experience. For unskilled young, these compensations are not high. However combined with the possibility of staying within the family, these compensations generate a rather high reservation wage.

4.   Belgian has a minimum wage, which is often viewed as a cause of unemployment particularly among young workers. There is no much difference between the wages earned by young people and by adults. These relatively high wages paid to young workers can act as a barrier to the recruitment of unskilled young.

Another barrier is the relatively strict set of employment regulation protecting insiders coupled with the rules restricting the temporary contracts that many young workers have.

Assume that forcing elderly workers out of the labor force through all sorts of routes such as early retirement, disability, and unemployment generates employment opportunities for the young. This assumption assumes that the labor market is a zero-sum game, which clearly is rejected by most economists. Making this assumption we want to show that even under this implausible case, it is not even sure that exiting elderly workers from the labor market does imply employment for the unemployed.

With mismatching, insufficient training and high reservation wages as explanatory factors of unemployment, it is unlikely that increasing the quantity of jobs will generate more employment of the young. In other words, to foster youth employment, the solution is not

early retirement but a better integration of the immigrant workforce as well as a reform of the educational system, of the unemployment insurance and of the minimum wage.[6] More importantly, a drastic change in values is crucial. But as Kipling wrote, this is another story.

IV. THE DATA

A. Labor Force Data

We subdivide the population into three subgroups: the older workers (50–65 years of age), the prime-aged workers (30–49) and the young (20–29). The precise cutoff points between these different groups are clearly of a key importance and mostly dictated by the institutional setting. Since in Belgium education is compulsory until the age of 18 and data is generally available in 5-year age brackets, we do not consider any 5-year age bracket including people subject to compulsory schooling. Therefore, the lowest age considered is the age of 20.[7] As we will detail below, the upper bound on the young groups logically derives from an administrative classification of people below 30 as being young for the purpose of some targeted programs. As for the key ages for the older workers, we have argued in previous papers (Pestieau and Stijns, 1999, Dellis *et al*, 2003, Desmet *et al*, 2007) that the age of 50 should be considered as the earliest possible retirement age, as during a significant period of time, this age represented the lowest access age to some early retirement schemes. The upper bound on the elderly group stems from the fact that the age of 65 is the normal retirement age.

Our analysis draws heavily on the European labor force survey (LFS) for the time period 1983–2004. The data are used to derive labor force measures such as employment rate (ER), unemployment rate (UR) and labor force participation rate (LFP). Similarly, indicators of school attendance, education level, and other various other demographic indicators are also computed for the individuals studied using the LFS data. For deriving the labor force indicators, we relied on the internationally recognized definitions as proposed by the International Labor Organization (ILO) rather than relying on administrative classifications.[8]

Other data are derived from OECD databases: the GDP indicators come from the OECD national accounts database (2006), the minimum wage and unemployment replacement rates come from the OECD labor force indicators database (2006). We also integrate an indicator of employment protection from the Labour Market Institution Data Base, a database set up

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[6] High Employment Council (2007) showed that a large part of the unemployment in Brussels and Flanders are of foreign origin.

[7] Furthermore, Belgian has a high rate of school attendance even between 18 and 20. In 1997, 90 percent of the young aged 18–20 was still at school.

[8] This means for example that people qualified as early retirees or aged unemployed according to the Belgian administrative classification would be classified as being out of the labour force under ILO standards.

by Nickell and Nunziata (2001), into some of our regression specifications.[9] Finally, we compute median wages for each age group based on the Individual Pension Accounts as constructed by the Belgian pension administration.

Figure 5 and 6 present some illustrative data to set the stage. They illustrate the weak link between the unemployment (UR) and employment rate (ER) of the two younger age groups in Belgium as compared to the labor force participation rate of the older workers (LFP). There does not seem to be a uniform relation between the labor force participation of the elderly and the employment possibilities of the young. While during the earlier period, reduced labor force participation of the elderly seemed to move in parallel with lower unemployment for the young, this relation does not hold anymore since the middle of the 1990s. Similarly, while youth employment rates have remained essentially unchanged over the entire period considered, the labor force participation of the elderly has undergone some major transformations—hence again illustrating the weak apparent link between the two group's labor force performances. These results are hard to match with any specific policy change described in Section 2. While the most important policy change was undoubtedly the reform of the 5 percent rule in 1991, no major effect seems to be observable in the labor market outcomes.

Figure 5. Belgium: Trends in Unemployment and Employment of the Young and Prime Aged Workers Compared to the Labor Force Participation of the Old (Men)

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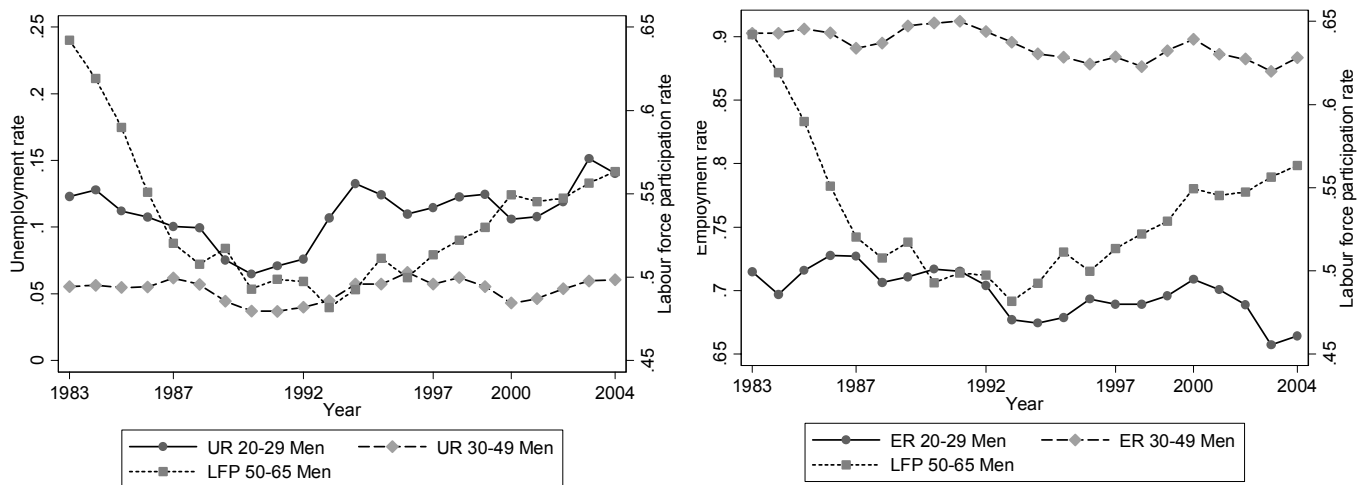
[9] According to the description of data in Nickell and Nunziata (2001), the employment protection indicator comes from various sources. Blanchard and Wolfers (2000) provide an employment protection time varying variable from 1960 to 1995, each observation taken every 5 years. This series was built chaining OECD data with data from Lazear (1990). Notice that the OECD data, used from 1985 onward, is constructed on the basis of a more extensive collection of employment protection dimensions, compared with data used by Lazear. The indicator used here includes an interpolation of the Blanchard and Wolfers series, readjusted in mean. Range is {0,2} increasing with strictness of employment protection. We applied a linear trend for the missing years in the original dataset.

Figure 6. Belgium: Trends in Unemployment and Employment of the Young and Prime Aged
Workers Compared to the Labor Force Participation of the Old (Women)
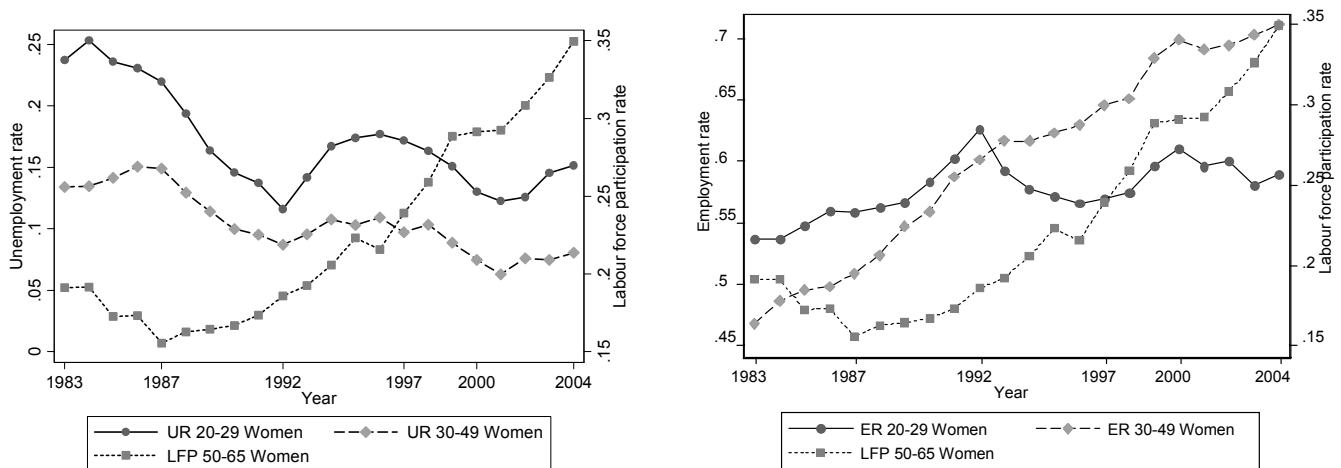
To highlight the importance of retirement and early retirement for the labor force statistics of the old workers, it is interesting to document their UR and ER rates and compare them to those of the young as in Figure 7. It becomes apparent that the low labor force participation of the old leads to a situation where they have disproportionately less unemployed than either one of their younger counterparts. It also illustrates how the three unemployment rates vary in a pro-cyclical manner, with swings in youth unemployment being stronger than for the other age groups. Similarly, the graphs reveal that the young are the only age group with a constantly falling labor force participation rate, and with stagnating employment rates over the entire time period. Prime age workers have experienced a sustained growth in employment and activity over the entire time period, whereas the same is also true for the older group since the middle of the 1990s.

B. The Inducement to Retire

Beyond these labor force data, we use another set of data to derive indicators of incentive measures. The reason for this approach of constructing separate incentive measures instead of using the survey data is that we want to use a measure of the inducement to retire to explain labor force behavior. To avoid endogeneity problems in our ensuing empirical analysis, we need to develop a simulation approach by which we compute hypothetical benefit levels for a typical worker for all possible year and age cells covered by the labor force data that we described in the previous subsection.

To compute the aggregate incentive measure, we perform benefit simulations akin to those presented by Jousten et al (2006) for all cohorts under study. We then use the various benefit amounts derived for a hypothetical representative individual corresponding to the median of the income distribution. We compute these benefits profiles for the three main exit paths that this median individual may encounter: unemployment compensation, conventional early retirement benefits and normal retirement. We then compute for each possible age and year the present discounted value of these benefits using a 3 percent discount rate. We will

continue to call the thus derived present discounted values Social Security Wealth (W) in accordance with the previous literature on individual retirement incentives.[10]

Figure 7. Belgium: Historical Trends in Unemployment, Employment and Labor Force Participation
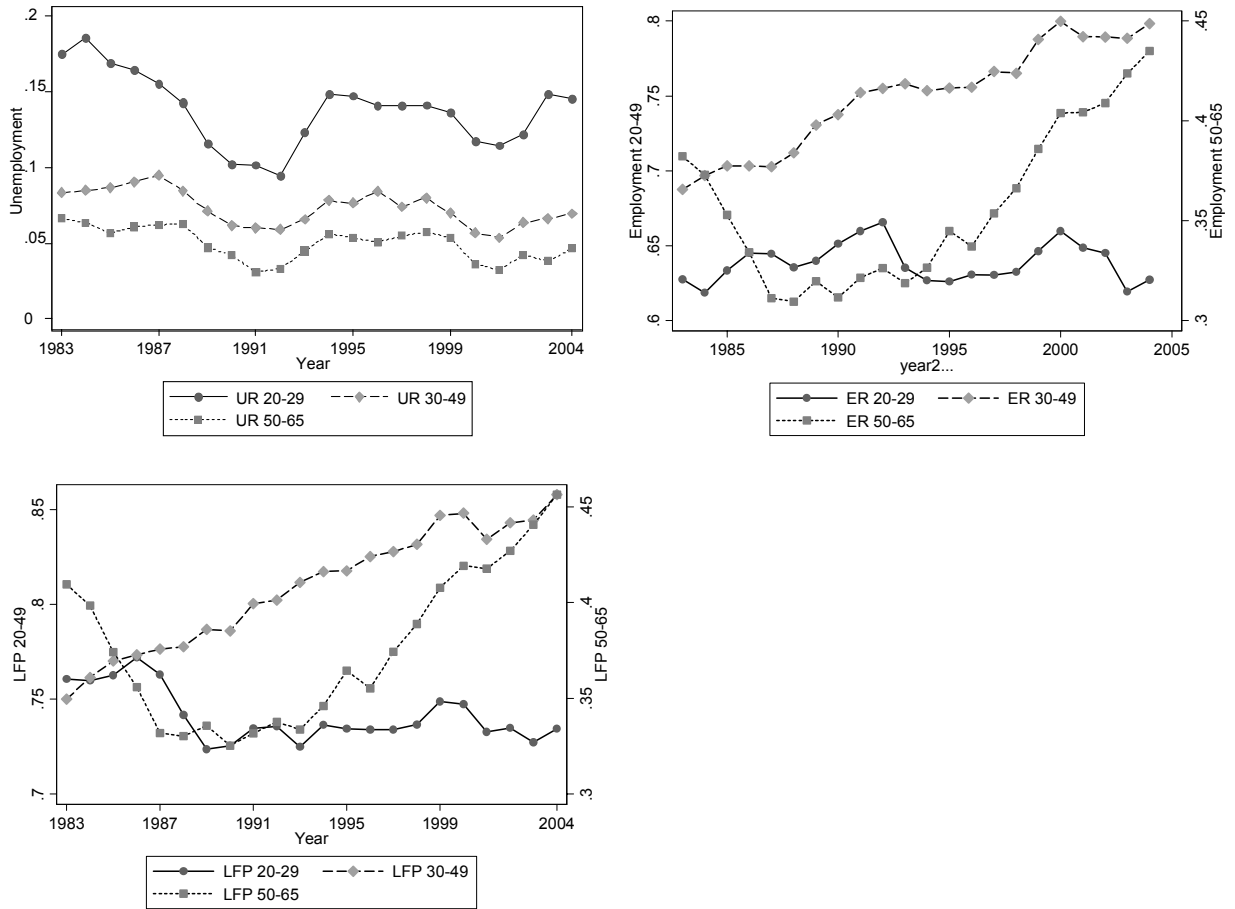
Once these W figures are obtained year by year for each individual exit path and possible retirement age, we aggregate those three incentives into one aggregate W incentive measure that represents the global incentive to retire according to year and to age. Expressed in symbols, this is equivalent to deriving

$$W = W_{pen} + p_{unem} * \max[0, W_{unem} - W_{pen}] + p_{ear} * \max[0, W_{ear} - W_{pens}]$$

where p_{unem} and p_{ear} represents the cohort and year-specific probabilities of exiting by the specified routes of unemployment or early retirement.[11] For pure reasons of simplicity, we

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[10] All these incentives are expressed in 2002 euros.

[11] We use the empirically observed age and cohort-specific cumulative hazard until the normal retirement as a proxy for the probabilities of departure through the early retirement and unemployment pathways.

assume that over the age span ranging from 50 to 65 the whole cohort leaves the labor market into retirement—a rather reasonable assumption in the Belgian context given the quasi-compulsory nature of retirement at the latest at the full retirement age.[12] The exit probabilities are calculated using the LFS for the period of 1983 to 2004, and the results are rescaled to obtain a total departure by the age of 65.

Figure 8 illustrates the trends in the incentive measure as experienced by successive cohorts of hypothetical Belgian median wage earners. It displays a secular upward trend in benefit levels for the successive cohorts, combined with a hump-shaped profile of benefit for each individual cohort. The only major benefit change over the period under study was the change in the actuarial adjustment rule in 1991. Unsurprisingly it has the biggest impact on cohorts close to the early retirement age of 60—which translates into an upward bump in the incentive variable for older cohorts in 1991. Other factors, such as the generalization of the exemption from job search in the middle of the 1990s has a very limited effect, thus leading one to conjecture that even in the absence of a formal ruling unemployment beneficiaries were anyway already *de facto* exempted from job search. The impact of the expansion of the conventional early retirement provisions to the age of 58 in 1986 was modest for retirement incentives, hence indicating that the prevalence of other routes must have been such that the importance of this legislative change was rather limited.

Figure 8. SSW by Cohort and Year (Men)

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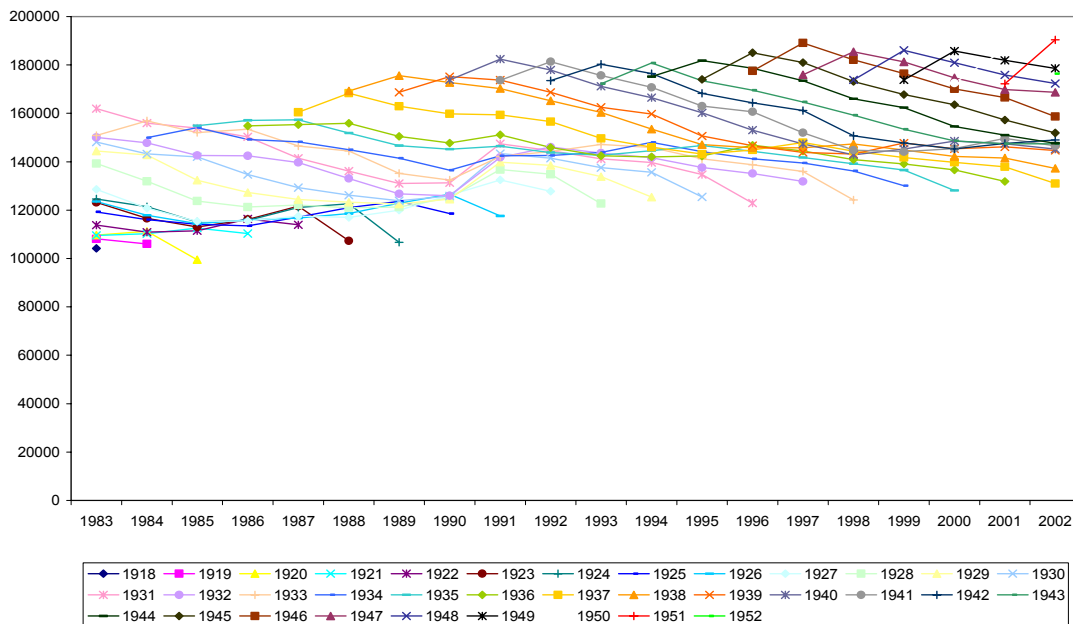
[12] Technically, an individual can continue to work but largely loses his protection against layoffs. Furthermore, the continuation of work is only possible with the explicit condition of having a written agreement on the part of the employer.

Further aggregating up these year and age specific W, it is possible to compute a yearly index that take into account of the various incentives by age. We proceed to estimate two incentive indices that are weighted sums of incentive indicators. The first one, denoted $\overline{\overline{W}}$ is purely based on the age-and-year specific W thus derived. The second indicator—that we will call the "inducement to retire", denoted $\overline{I}$—is a mix of the concept of W with the one of Peak Value (PV):

$$\overline{W}(y) = \sum_{a=50}^{a=65} \left[\frac{P(a,y)}{\sum_{a=50}^{a=65} P(a,y)} \right] \left[\frac{\sum_{t=0}^{a-50} W(a-t,y-t)*LFP(a-t,y-t-1)}{\sum_{t=0}^{a-50} LFP(a-t,y-t-1)} \right]$$

$$\overline{I}(y) = \sum_{a=50}^{a=65} \left[\frac{P(a,y)}{\sum_{a=50}^{a=65} P(a,y)} \right] \left[\frac{\sum_{t=0}^{a-50} I(a-t,y-t)*LFP(a-t,y-t-1)}{\sum_{t=0}^{a-50} LFP(a-t,y-t-1)} \right]$$

with $I(a,y) = \left[W(a,y) + \alpha \left[W(a,y) - PV(a,y) \right] \right]$

In the above expressions, *W* represents the SSW, and PV, the Peak Value. The PV at age *a* is defined as the maximum W the individual can obtain by optimally choosing the time of retirement between the current moment *y* and the statutory retirement age. *LFP* is the labor force participation and *P* is the proportion of retired persons of that age in that year, and both variables are derived using the LFS.

The concept *I* summarizes two broad pieces of information in one variable. The first element on the right hand side expresses the idea that larger the W, the larger the wealth a person has at his avail, and thus the easier it is for him to retire early. The second term expresses the idea that by waiting till the optimal time—as summarized by the gain in present discounted value between immediate retirement and the optimal retirement maximizing the present discounted value—the individual faces an incentive to stay at work. Finally, α is a coefficient that allows to introduce the notion of discounting future revenue gains with respect to present wealth—beyond the pure effect of financial discounting as captured by the 3 percent discount rate.[13] The idea behind this parameterization is to capture the individual's possible impatience making them less willing or incapable (α=0) to consider future revenue or wealth gains before they become available. By choosing different levels of α, one can derive different indicators of the inducement to retire.

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[13] Setting the financial discount rate to infinity is equivalent to assuming the individual is perfectly liquidity constrained.

We endogenously estimate the parameter value for α using two different procedures. The results of these estimations are displayed in Table 1, and the evolution of the corresponding inducement measures is depicted in Figure 9.

$$LFP_{old,t} = \gamma \overline{W_t} + \varphi(\overline{W_t - PV_t}) + \phi X_t + \varepsilon_t$$

where the first two terms on the right hand side correspond to the components of the incentive indicator I, and X is a vector of control variables. The implied value of α thus corresponds to the ratio of φ over γ.

Second, we validate the above results using an iteration process on α that attempts to maximize R^2 as an objective function—a process one could qualify as a simplified maximum likelihood approach.

Table 1: Estimating the Parameters of I

1. Iterating over gamma and alpha with 0.25 intervals and regressing LFP of old on I

	Gamma	Alpha	Ratio	R^2	Ibar weighting
LFP old	1	1.25	1.25	0.9970	1*W+1.25*(W-PV)

2. Iterating over alpha with gamma = 1 with 0.25 intervals and regressing LFP of old on I

	Gamma	Alpha	Ratio	R^2	Ibar weighting
LFP old	1	1.25	1.25	0.9970	1*W+1.25*(W-PV)

3. Time series regression of LFP old on W and (W-PV)

	Wbar	(W-PV)bar	ratio	R^2	Ibar weighting
LFP old	-0.055429***	-0.0686984***	1.24	0.9970	-0.055*W-0.069*(W-PV)

Note: Covariates include sex, year, GDP per head, median wage, minimum wage, and replacement rate of unemployment.

Figure 9. Aggregate Inducement to Retire by Sex : W (left) and I (right)
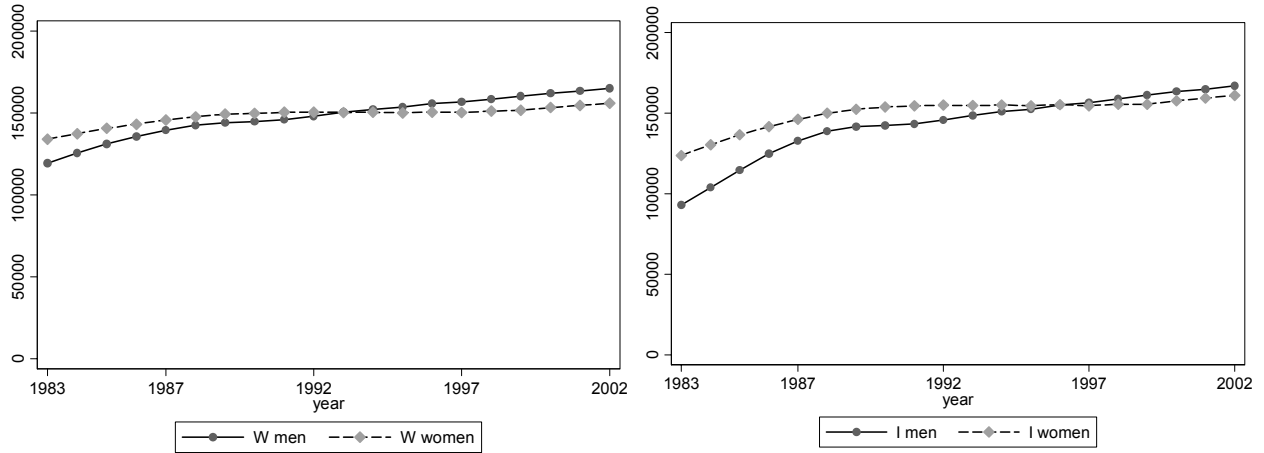
Figures 10 and 11 are similar to Figure 5 and Figure 6. It tries to relate incentive indicators of the old to the ER and UR of the younger cohorts. Whereas Figure 5 and 6 linked LFP of the old to these outcome parameters for the young, Figure 10 and 11 contains a plot of the trend in these incentive measures for the old as compared to the ER and UR for the young—again with no clear uniform pattern emerging.

Figure 10. Unemployment and Employment Rate with Incentive (Men)
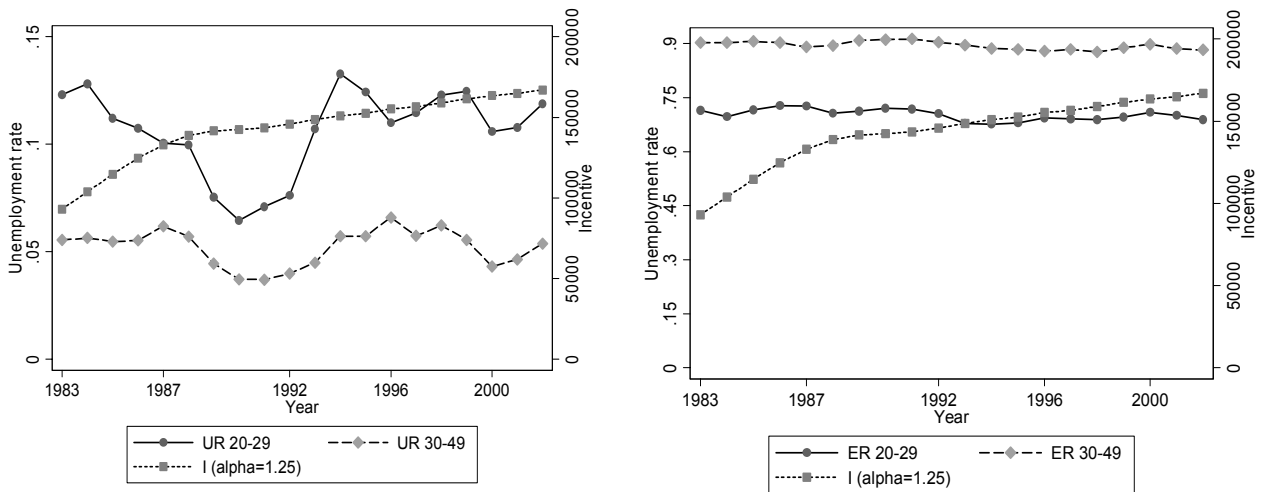
Figure 11. Unemployment and Employment Rate with Incentive (Women)
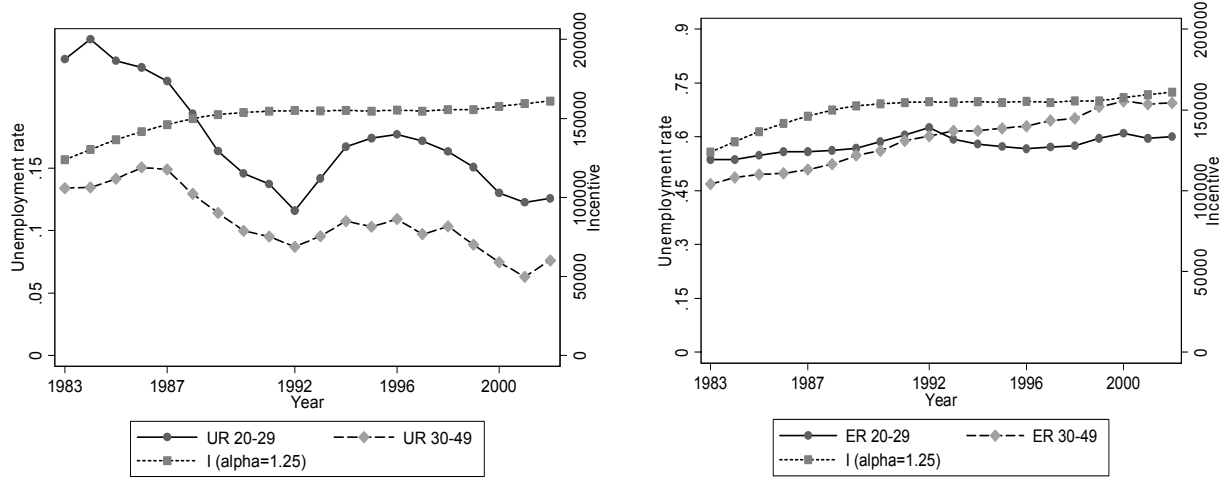
V. REGRESSION ANALYSIS

Moving beyond the purely descriptive analysis of the previous section, the paper now turns to OLS regression analysis. It proceeds in two steps. The first step is an econometric study of the direct relationship between the employment of the old and the employment of the young. The second step is an analysis of how the incentives faced by the old directly influence the employment outcomes of the young.

For the first type of analysis, we estimate both regressions in levels and in differences. The levels regression links the labor force performance measures of the young and middle-aged to those of the old:

$$A_t = \theta + \beta B_t + \delta X_t + \varepsilon_t$$

where A_t is the UR or the ER for either youth or prime age population. Similarly, by extension, we consider a regression of the percent of young still in an educational program. B_t is either the labor force participation or the employment rate of the old workers. X_t is a set of covariates that includes the minimum wage, the GDP per capita and the median wage in the group under study as well as the level of employment protection, the generosity of the unemployment benefits captured by their replacement rate and an indicator of the evolution of the demography with the ratio of the population in the group under study and the rest of the population in the bracket considered here, people from 20 to 65. We add as well an indicator of the evolution of education attainment with the percent of people who obtained a third degree diploma.

The difference specification takes the following form:

$$\ln A_{t+5} - \ln A_t = \theta + \beta\left[\ln B_{t+5} - \ln B_t\right] + \delta\left[\ln X_{t+5} - \ln X_t\right] + \varepsilon_{t+5} - \varepsilon_t$$

We run the regressions with and without covariates. Results for the pooled date are reported in Table 2. One immediate observation is that while incentive variables seem to play a major role when running levels regressions without covariates, their effect largely disappears when considering the more complete specifications. Similarly, difference specifications give a much weaker role for incentive variables even in the absence of covariates, with the only exception being an unexplainable effect on schooling. Regarding the control variables, while GDP per capita plays an important role in explaining the changes in labor market outcomes, other factors such as employment protection or school achievement only seem to play an unsystematic role for these outcomes. Overall, one can observe that the effect of the LFP of the old on the young—whenever significant—seems to be running contrary to claims that young and old workers are substitutes. Our results rather indicate that lower LFP of the old induces lower employment and higher unemployment for the young.

The estimates of the labor force indicators of the old on the various labor market outcomes of the young are generally consistent across indicators—with the strongest effects for the ER. This is an encouraging finding, as there should be little doubt that the ER is the best indicator of labor market performance. It is only the ER that measures the share of people actually at work, while the UR and the fraction at school are secondary manifestations of the labor market behavior of the young,

To illustrate that our results are not purely spurious, we explored numerous alternative specifications in order to identify possible weaknesses of the above approach linking labor force outcomes of the young to those of the old. As a matter of example the paper reports one such alternative specification. It recognizes the institutional rigidities involved in hiring and firing people and recognizes a lag structure between behavioral changes of the elderly on the outcomes of the young. Table 3 documents some regression results in levels for the pooled data where we have chosen a different ad hoc lag structure of 2 years between the presumed impulse and its effect on the dependent variable. While the results are somewhat stronger for the regressions with covariates, these results are still inconsistent with the often-heard claim that by entering retirement the old free jobs for the younger cohorts.

The paper now turns to the second type of models that directly links the incentives faced by the elderly to the labor market outcomes of the younger cohorts. As discussed in section 4, this approach has the advantage of being less prone to endogeneity problems as the incentive measure used as an explanatory variable is the concept of inducement to retire, which we derived using a simulation methodology independent of the data we use on the left hand side of the regression.

Table 2. Direct Effect of Elderly Labor Outcomes on the Young (Pooled data)

	Youth						Prime Age			
	UR		ER		School		UR		ER	
Levels no covariates										
Elderly LFP	-0.191***	-	0.363***	-	-0.157***	-	-0.171***	-	0.925***	-
Elderly ER	-	-0.201***	-	0.376***	-	-0.162***	-	-0.178***	-	0.959***
R^2	0.50	0.51	0.86	0.87	0.71	070	0.76	0.77	0.94	0.94
Levels with covariates										
Elderly LFP	-0.089		0.228**		0.016		-0.110*		0.501***	
Elderly ER		-0.112		0.250**		0.026		-0.136**		0.562***
GDP per head /1000	-0.035***	-0.034***	0.019**	0.017*	-0.013***	-0.014***	-0.032***	-0.031***	0.028**	0.024**
Min. wage /1000	0.019	0.022	-0.031	-0.033	-0.004	-0.005	-0.046**	-0.043**	0.064	0.057
Median wage/1000	-0.005	-0.005	0.004	0.004	-0.000	-0.000	0.006**	0.055**	-0.024***	-0.023***
Replacement rate	0.003	0.003	-0.005	-0.005	-0.003***	-0.004***	0.004	0.004	-0.014**	-0.014**
Employment protection	0.187	0.194*	-0.069	-0.079	-0.097***	-0.099**	-0.180***	-0.185***	0.491***	0.489***
School achievements	-0.775**	-0.737**	0.264	0.219	0.332***	0.317**	-0.296	-00252	0.866	0.760
Demo. ratio	-3.408***	-3.488***	1.693*	1.767**	1.136***	1.172***	-0.172	-0.200	0.429	0.466
R^2	0.92	0.92	0.96	0.96	0.98	0.98	0.94	0.94	0.99	0.99
Differences no covariates										
Elderly LFP	0.439	-	0.016	-	-0.312***	-	-0.064	-	0.153**	-
Elderly ER	-	0.254	-	0.036	-	-0.319***	-	-0.241	-	0.176***
R^2	0.04	0.01	001	0.01	0.21	0.22	0.01	0.02	0.16	0.20
Differences with covariates										
Elderly LFP	-0.504		-0.082		-0.176		0.179		-0.061	
Elderly ER		-0.641		-0.056		-0.178		-0.067		-0.019
GDP per head /1000	-7.502***	-6.990***	1.021**	1.019**	-2.308***	-2.213***	-8.804***	-9.172***	0.558***	0.367***
Min. wage /1000	0.634	1.357	-0.402	-0.444	0.195	0.292	-9.625***	-8.711***	0.688	0.549
Median wage/1000	-0.816**	-0.807**	0.216***	0.217***	0.013	0.016	-0.990**	-0.929**	0.075	0.066
Replacement rate	-2.079	-1.848	0.096	0.082	-0.825*	-0.795*	-0.397	-0.194	0.048	0.017
Employment protection	1.751	1.890	-0.191	-0.206	-0.889**	-0.877**	1.154	0.744	-0.084	-0.014
School achievements	-0.773	-0.732	-0.279	-0.275	0.314	0.326	-2.769***	-2.597***	-0.019	-0.047
Demo Ratio	-5.607	-6.456	-0.037	0.089	3.193**	3.155	2.969**	2.441*	-0.001	0.088
R^2	0.88	0.89	0.73	0.72	0.91	0.91	0.88	0.88	0.89	0.90

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies while differences regressions with covariates only include sex dummies.

Table 3. Direct Effect of Elderly Labor Outcomes on the Young in Levels: Lag Effect

(Pooled data)

| | Youth | | | | | Prime Age | | | |
	UR		ER		School		UR		ER	
				Levels no covariates						
Elderly LFP	-0.169***		0.346***		0.021		-0.156***		0.859***	
Elderly ER		-0.175***		0.358***		0.025		-0.162***		0.892***
R^2	0.49	0.50	0.89	0.88	0.01	0.02	0.71	0.72	0.93	0.93
				Levels with covariates						
Elderly LFP	-0.193**		0.350***		0.012		-0.214***		0.576***	
Elderly ER		-0.197**		0.359***		0.015		-0.228***		0.608***
R^2	0.92	0.91		0.97	0.98	0.98	0.96	0.96	0.99	0.99

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies and the same covariates as in Table 2.

The results of Tables 4 and 5 illustrate that a larger inducement to retire leads to a negative effect on elderly labor force participation, both for levels and difference regressions with and without the set of controls. The results of Table 4 indicate that a larger inducement to retire translates into a lower ER and a higher schooling rate of the young, but leaves the UR unaffected. Hence, we find another piece of evidence that incentives to early retirement directed at the elderly do not have a beneficial impact on the younger cohorts—the contrary being rather true. Table 5 reports the results for the corresponding specifications in differences. The general thrust of the results still prevails, notably the positive result on the fraction of the young cohort staying in school. However, we now find a significant negative effect on the UR of the young for the specification of α=1.25. This result should however be read with a lot of caution. First, there does not seem to be an effect on the ER of the young, which is the key labor market outcome. Second, and more importantly, the inducement variable summarizes two very different effects, a wealth effect stemming from the social security wealth and a dynamic incentive effect stemming from the flexibility with respect to the retirement date. Time-differencing this combined inducement variable generates a hard-to-interpret concept, which clearly merits further study beyond the present paper.

Table 4. Direct Effect of the Inducement to Retire : In Level

(Pooled data)

Value of alpha and specification	Direct Effect on the Young									Relationship to the LFP of the Old		
	UR			ER			School rate					
	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2
W/1000 Levels no covariates	-0.090	0.077	0.04	-0.019	0.111	0.00	0.097*	0.049	0.09	-0.137	0.279	0.01
Levels with covariates	0.182	0.114	0.93	-0.304**	0.119	0.96	0.191*	0.105	0.87	-0.923***	0.036	0.99
I/1000 (alpha = 1.25) Levels no covariates	-0.024	0.047	0.01	-0.084	0.065	0.04	0.092***	0.027	0.23	-0.294*	0.161	0.08
Levels with covariates	0.087	0.062	0.93	-0.153**	0.065	0.96	0.099*	0.057	0.87	-0.555***	0.021	0.99

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies and the same covariates as in Table 2.

Table 5. Direct Effect of the Inducement to Retire: In Differences

(Pooled data)

Value of alpha and specification	Direct Effect on the Young									Relationship to the LFP of the Old		
	UR			ER			School rate					
	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2
W/1000 Differences no covariates	-2.641	1.601	0.09	0.084	0.227	0.00	0.889*	0.508	0.10	-3.745***	0.354	0.80
Differences with covariates	-2.631	2.381	0.90	0.613	0.451	0.81	0.411	1.473	0.64	-0.743	0.871	0.93
I/1000 (alpha = 1.25) Differences no covariates	-1.509**	0.676	0.15	0.049	0.099	0.00	0.462**	0.217	0.14	-1.539***	0.189	0.70
Differences with covariates	-1.698**	0.761	0.92	0.085	0.162	0.80	0.110	0.511	0.64	0.251	0.327	0.93

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Differences regressions with covariates include sex dummies and the same covariates as in Table 2.

Given the results of Tables 4 and 5, we tested a series of alternative specifications. First, we modify the time structure of the difference specification. Table 6 presents the results under the assumption of a difference of 2 years rather than 5. While the sign of the effect on the labor force participation of the old is unchanged, the outcomes for the young are overall weaker in this specification, and only include a moderate positive effect on the ER. However, the same limitations regarding the interpretation of the differenced inducement to retire measure I persist as in Table 5. In light of the previous findings, we thus conclude that levels regressions provide the better specification and thus we focus on the latter in what follows.

Second, we test a different specification of the inducement to retire indicator I to better capture the influence of liquidity constraints. The preceding specifications only integrated such constraints in a very limited way as they only allowed for a certain weighting of the dynamic aspects through the parameter value α. Beyond this dimension, people were assumed to compute their inducement indicators using the real discount rate of 3 percent at all stages of their life cycle. In the present alternative scenario, we follow a different path and assume that the variables W and I are both equal to 0 prior to the first eligibility age. Even though such an extreme assumption may be unrealistic in the case of Belgium, it has at least the merit of given a bound on estimates. Table 7 reports the results. The levels regressions reveal a high degree of stability with respect to the effects reported in Table 4.

Table 6. Direct Effect of the Inducement to Retire: In Differences (2-years)

(Pooled data)

| Value of alpha and specification | Direct Effect on the Young | | | | | | | | | Relationship to the LFP of the Old | | |
| | UR | | | ER | | | School rate | | | | | |
	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2
W/1000 Differences no covariates	-1.202	1.664	0.02	0.164	0.264	0.01	-0.044	0.788	0.00	-3.058***	0.407	0.62
Differences with covariates	-2.534	2.598	0.61	1.003*	0.516	0.38	-2.286	1.785	0.16	-1.771***	0.569	0.81
I/1000 (alpha = 1.25) Differences no covariates	-0.706	0.697	0.03	0.082	0.111	0.02	-0.015	0.332	0.00	-1.229***	0.184	0.57
Differences with covariates	-1.442	0.99.	0.62	0.378*	0.202	0.37	-0.929	0.694	0.16	-0.566**	0.242	0.78

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Differences regressions with covariates include sex dummies and the same covariates as in Table 2.

Table 7. Direct Effect of the Inducement to Retire : In Level with W =0 before Eligibility

(Pooled data)

| Value of alpha and specification | Direct Effect on the Young | | | | | | | | | Relationship to the LFP of the Old | | |
| | UR | | | ER | | | School rate | | | | | |
	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2
W/1000 Levels no covariates	-0.004	0.027	0.00	-0.034	0.038	0.02	0.031*	0.017	0.08	-0.032	0.097	0.00
Levels with covariates	0.107**	0.040	0.94	-0.123**	0.044	0.96	0.008	0.042	0.86	-0.092	0.163	0.95
I/1000 (alpha = 1.25) Levels no covariates	-0.001	0.026	0.00	-0.038	0.037	0.03	0.032*	0.016	0.09	-0.041	0.094	0.01
Levels with covariates	0.106**	0.043	0.64	-0.112**	0.048	0.96	-0.003	0.044	0.86	0.014	0.172	0.95

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies and the same covariates as in Table 2.

VI. ALTERNATIVE SPECIFICATION FOR THE DEMOGRAPHIC VARIABLES

The present section explores a different baseline specification for the regressions. It allows for a richer set of demographic controls and eliminates the constructed employment protection variable that was used in the previous regressions to capture the institutional attributes of the labor market. While the earlier regressions only took into account the demographics in a very limited way by integrating only one variable capturing the relative size of the group of the population that we studied with respect to the total size of the population, the present specifications allow for a much richer set of demographic indicators. The basic motivation for this change is the perception that the pure size effect of the working age population—or expressed differently the potential labor force—in the country is inadequately taken into account in the preceding internationally comparable regression analysis. The same observation holds true for the composition of the population by age group. Therefore, we now enrich the set of control variables to include an indicator for the size of the population, as well as variables capturing the relative weight of the young and to old groups in the total population. This way, the specification better allows for the possibility that the relative size of the young and the old populations play an important role in determining the effect of changes in incentives and in policy on the observed outcomes in the labor market. For example, a strong measured inducement to retire for the elderly, will *ceterus paribus* have a much stronger effect on the ER and UR of the younger cohorts if the elderly are relatively more numerous in the population.

As documented in Table 8, the new specification has a strong impact on the significance of the regressions in levels linking the elderly LFP to the UR and ER of the young. For

example, the elderly labor force participation coefficients seem to be much stronger. Also, our results indicate that whenever the fraction of the elderly in the total working age population increases, it unequivocally increases youth and prime age unemployment. One possible explanation can be traced back to the PAYG nature of the Belgian social insurance landscape. A larger older cohort simply means that there are relatively more old people who are on average less active on the labor market than their younger counterparts. Therefore, in a PAYG setting, general social insurance contribution rates levied on workers have to be increased to finance the increasing share of benefit recipients.[14].

Similarly, one can rerun the regressions directly linking the variable measuring the inducement to retire to labor market outcomes. Table 9 presents the results of these regressions. The coefficients of the regressions with covariates are overall significantly stronger in absolute value than those previously reported in section 5. This would indicate that the integration of a fuller set of demographic variables has the potential to influence the regression results and the ensuing conclusions.

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[14] See Bozio (2006) for a general equilibrium analysis of the French early retirement agreements and their impact on the young and low-skilled unemployed.

Table 8. Direct Effect of Elderly Labor Outcomes on the Young
(Pooled data)

	Youth						Prime Age			
	UE		EMP		School		UE		EMP	
Levels no covariates										
Elderly LFP	-0.191***	-	0.363***	-	-0.157***	-	-0.171***	-	0.925***	-
Elderly EMP	-	-0.201***	-	0.376***	-	-0.162***	-	-0.178***	-	0.959***
R^2	0.50	0.51	0.86	0.87	0.71	070	0.76	0.77	0.94	0.94
Levels with covariates										
Elderly LFP	-0.206*		0.273**		0.101***		-0.229***		0.867***	
Elderly EMP		-0.232**		0.288**		0.115***		-0.262***		0.935***
GDP per head /1000	-0.051***	-0.049***	0.026**	0.023**	-0.002	-0.004	-0.029***	-0.028***	0.026***	0.018**
Min. wage /1000	0.002	0.005	-0.014	-0.016	-0.001	-0.003	-0.027	-0.022	0.019	0.007
Median wage/1000	-0.001	-0.001	0.001	0.001	-0.002	-0.002	0.001	0.001	-0.011***	-0.012***
Replacement rate	-0.001	-0.000	-0.005	-0.005	-0.000	-0.000	0.000	0.000	-0.004	-0.004
School achievements	-0.656*	-0.605	0.234	0.193	0.234**	0.207**	-0.092	-0.032	0.231	0.105
Pop2029/pop2065	-2.494*	-2.538*	1.700	1.793	-0.246	-0.227	-1.104*	-1.056*	2.851***	2.844***
Pop5065/pop2065	1.215*	1.261*	-0.216	-0.225	-1.008***	-1.034***	1.692***	1.732***	-4.426***	-4.532***
Log(Pop2065)	-0.695**	-0.677	0.359	0.313	0.522	0.517***	-0.578*	-0.565*	1.933***	1.761***
R^2	0.92	0.92	0.96	0.96	0.99	0.99	0.96	0.96	0.99	0.99
Differences no covariates										
Elderly LFP	0.439	-	0.016	-	-0.312***	-	-0.064	-	0.153**	-
Elderly EMP	-	0.254	-	0.036	-	-0.319***	-	-0.241	-	0.176***
R^2	0.04	0.01	001	0.01	0.21	0.22	0.01	0.02	0.16	0.20
Differences with covariates										
Elderly LFP	-0.363		-0.195*		0.315		0.824		-0.149	
Elderly EMP		-0.513		-0.172		0.309		0.459		-0.090
GDP per head /1000	-9.905***	-9.659***	1.108***	1.191***	-0.639	-0.788	-9.977***	-10.158***	0.893***	0.931***
Min. wage /1000	-0.872	-0.078	0.428	0.457	-2.615	-2.786	-11.099***	-10.147***	1.174*	1.030
Median wage/1000	-0.692**	-0.679**	0.190***	0.193***	-0.148	-0.154	-1.092***	-1.048**	0.087	0.080
Replacement rate	-1.257	-1.088	-0.305	-0.285	1.031	0.978	0.594	0.438	0.129	0.156
Pop2029/pop2065	-0.361	-0.918	-0.782	-0.709	2.227	2.235	4.561	2.088	-2.582*	-2.185
Pop5065/pop2065	0.163	0.356	0.534*	0.520*	-3.100***	-3.115***	-7.169	-4.932	1.718	1.359
Log(Pop2065)	-0.496	-0.501	-0.456	-0.404	1.885	1.819	4.654	3.787	0.760	0.905
School achievements	-1.158	-1.109	-0.112	-0.104	-0.363	-0.382	-3.831***	-3.448***	0.112	0.051
R^2	0.88	0.88	0.76	0.75	0.73	0.73	0.89	0.89	0.91	0.90

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies while differences regressions with covariates only include sex dummies.

Table 9. Direct Effect of the Inducement to Retire: In Level

(Pooled data)

Value of alpha and specification	Direct Effect on the Young									Relationship to the LFP of the Old		
	UR			ER			School rate					
	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2	Coeff.	S.E.	R^2
W/1000 Levels no covariates	-0.090	0.077	0.04	-0.019	0.111	0.00	0.097*	0.049	0.09	-0.137	0.279	0.01
Levels with covariates	0.282**	0.134	0.93	-0.326**	0.142	0.96	0.101	0.112	0.90	-0.878***	0.052	0.99
I/1000 (alpha = 1.25) Levels no covariates	-0.024	0.047	0.01	-0.084	0.065	0.04	0.092***	0.027	0.23	-0.294*	0.161	0.08
Levels with covariates	0.154*	0.078	0.94	-0.172**	0.084	0.96	0.035	0.066	0.89	-0.546***	0.029	0.99

Notes: ***, **, * represents significance at 1%, 5%, and 10% level. Levels regressions with covariates include a time trend and sex dummies and the same covariates as in Table 8.

VII. CONCLUSIONS

Belgium is characterized by a relatively high rate of unemployment of the young and a low rate of activity of the elderly workers. The latter is the consequence of high incentives to exit the labour force and these incentives are generally justified in the name of fostering youth employment.

In this chapter we have tested the validity of such a belief. At the outset, we were not expecting too much from these tests for two reasons. First, theoretically one knows that there is no foundation for the idea that there would be such a thing as a fixed lump of labour implying that less elderly workers means more young workers. Second, the nature of youth unemployment in Belgium is such that it is pretty insensitive to variations in labour demand, but rather is the result of structural weaknesses in the areas of education, unemployment compensation and wage formation.

In this chapter we have constructed average indicators of incentive towards early retirement and we have shown that these incentives explain well variations in activity rate among elderly workers.

We have then tried to relate either activity rate of the elderly or the incentive indicators to unemployment or non-employment of the young. We could not observe any positive link between early retirement and youth employment. On the contrary we observe a negative link indicating that the activity rates of both young and elderly workers are sensitive to business cycles.

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