



Pension reform and labor supply



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ABSTRACT

We exploit a comprehensive restructuring of the early retirement system in Norway in 2011 to examine labor supply responses to increases in work incentives and actuarially neutral reductions in the age of first access to pension benefits. We find that increasing the returns to work is a powerful policy: The removal of an earnings test, implying a doubling of the average net take-home wage, led to an increase in average labor supply by 7 h per week (30%) at age 63 and by 8 h (46%) at age 64. The responses primarily came at the extensive margin. In contrast, reducing the access age has almost no effect on labor supply, in our setting with actuarially fair work incentives.

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1. Introduction

In response to rapid aging of the population many countries are considering reforms to increase labor supply among workers near to the retirement age by encouraging them to work longer. In this paper we estimate the labor supply responses to a reform package embodying two common elements: changing the earliest age at which workers may access their pension, and increasing work incentives for those already eligible to claim their pension.

Increasing the pension access age implies longer labor force attachment and a reduced life span of pension payouts. More than a dozen countries have either undertaken such a reform, or have announced plans to do so (OECD, 2012). Policy changes of this type will almost certainly result in later retirement (Gruber and Wise, 1999, 2004). In contrast, only a few countries have comprehensively removed pension-related work disincentives for those who have reached the access age. This requires breaking the nexus between retirement age and the access age for benefit payments, leaving workers to decide work patterns and

pension drawdown independently. Examples include the US in 1983 and 2000, Canada and Sweden in the 1970s, the UK in 1989, Japan in 1985 and 2002, and Norway in 2011. In an idealized reform of this type, benefits are actuarially adjusted by take-up age.

We use the comprehensive 2011 Norwegian pension reform, which was primarily focused on increasing work incentives, to examine the labor supply responses to alternative reform paths. As we explain below, the reform had widely different implications for different groups of workers, depending on pre-determined factors such as sector of employment and accumulated pension entitlements. Some workers were subject to increases or decreases in access age only, some were subject to large changes in work incentives, and some were more or less unaffected. The reform therefore presents a surprisingly complete quasi-experimental set-up for our investigations. No other country has simultaneously implemented such diverse reforms.

We base our analysis on two complementary empirical strategies. Both use comprehensive administrative registers with panel data on employment and earnings for the first birth cohorts potentially affected by the reform and the last unaffected cohorts. First, we compare labor supply patterns before and after reform implementation for groups who were affected in different ways and directions, and use intra-group regression analysis to quantify the labor supply impacts of the reform for the most strongly affected groups. Second, we use the reform-generated changes in work incentives to quantify the relationships

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between take-home wages and labor supply outcomes, and derive the implied labor supply elasticities. Here, we address the simultaneity problem associated with non-random work incentives by controlling for both hypothetical and actual take-home wages faced under the pre- and post-reform regimes. Intuitively, the *non-causal* associations between labor supply behavior and each of the two incentive variables (calculated on the basis of pre- and post-reform rules, respectively) are likely to be the same before and after the reform, but a causal association will shift between the pre-reform incentives prior to the reform and the post-reform incentives afterwards.

We find that increased work incentives have the potential to raise labor supply considerably. The repeal of the early retirement earnings test in the private sector (leaving the early access age of 62 unchanged) increased average work-hours substantially, with aggregate labor supply elasticities of 0.31 and 0.45 at ages 63 and 64, respectively. Most of the labor supply response occurred at the extensive margin, and the probability of staying on in the labor market with roughly the same work-hours and earnings as at age 60 rose by approximately 17 percentage points at both ages 63 and 64, from initial levels of 41 and 30 per cent, respectively. Although eliminating the earnings test adds a substantial fiscal cost, we show that the labor supply response to the reform under consideration was such that the government budget actually benefited from it, as tax revenues rose more than pension outlays.

We also find that given actuarially fair work incentives, the access age is of minor importance for labor supply behavior. Workers who as a result of the reform faced a lower access age with an actuarially fair early retirement pension (i.e., improved liquidity only) responded by reducing labor supply only slightly at the intensive margin, while maintaining employment status.

Our paper relates to an existing literature which has indicated that earnings tests reduce labor supply both when the tests are “real” in the sense that benefits are not deferred (Baker and Benjamin, 1999; Brinch et al., 2017; Hernæs and Jia, 2013) and when benefits are merely deferred (Friedberg, 2000; Song and Manchester, 2007; Haider and Loughran, 2008; Engelhardt and Kumar, 2009; Disney and Smith, 2002). If labor supply and deferral choices are linked, a labor supply impact of earnings tests with actuarially fair deferral may result from workers perceiving the earnings test as a tax, possibly because the deferral schemes are complicated and poorly understood (Haider and Loughran, 2008), or because actuarial fairness does not apply to persons with high expected mortality (Engelhardt and Kumar, 2009). In the context of Norway specifically, the 2011 reform has also been studied by Brinch et al. (2015), who in line with our findings report a strong labor supply response to the removal of the earnings test and a muted response to the actuarially neutral reduction in access age.

A related literature indicates that reforms which solely reduce access to – or the generosity of – early retirement programs may have the unintended side-effect of increasing the pressure on alternative subsidized escape routes from the labor market, such as disability insurance programs (Duggan et al., 2007; Staubli and Zweimuller, 2011; Bratberg et al., 2004; Vestad, 2013; Røed and Haugen, 2003). Our findings confirm that changes in the access age indeed have spillover effects to disability insurance claims, but that increased work incentives alone do not entail such side-effects.

2. Institutional setting

Before the 2011 reform, the earliest access age for the public pension (hereafter referred to by its acronym FTP) in Norway was 67 years. But all public sector workers and roughly half private sector workers had access to a supplementary early retirement system (hereafter referred to by its acronym AFP), in essence offering a full pension from age 62. Both these pensions were subject to a full earnings test, implying that continued employment after retirement resulted in reduced lifetime pension entitlements. With a full pension, the earnings test became effective from the first dollar earned, such that labor earnings constituting

a certain percentage of the pre-retirement earnings level resulted in the same percentage cut in the annual pension.¹ There was no deferral option by delayed take-up, in effect implying very high implicit tax rates on continued work. Hence, the AFP system embodied a strong disincentive to work after the age of 62, particularly for persons with relatively low wages.

The Norwegian 2011 pension reform changed both these systems radically, but the AFP was reformed only in the private sector. The reform implied large and immediate changes in the work incentives for many elderly workers. In this paper, we focus on two system parameters of paramount importance for labor supply: i) the earliest access age and ii) the returns to continued work as determined by earnings tests and the degree of actuarial fairness in deferred pension entitlements.²

2.1. Adjustments to the FTP

The reform reduced the earliest access age to FTP from 67 to 62 years, thus giving all Norwegian workers access to a pension at the same age. Further, this early retirement option is based on an actuarially fair recalculation of annual benefits.³ Hence, there are no work disincentives at all.

The new system is designed such that the decisions regarding the timing of pension claims and the timing of employment are decoupled; i.e., one is largely free to combine labor and pension income at will, as long as annual pension claims do not exceed the annuitized value of total pension wealth (lump sum withdrawal is thus not possible).⁴ A partial pension can be taken in steps of 20, 40, 50, 60, 80 and 100% of the full annual pension. The percentage can be altered annually and a full pension can be taken out at any time.

The actuarial adjustment implies that the annual pension becomes lower with early withdrawal. A precondition for early take-up is that the actuarially adjusted pension entitlement ensures a pension level at age 67 at least as high as the minimum pension, which is effective from that age. A number of workers have such low entitlements that they are prevented from drawing a (full) pension at 62 and thus have to delay claiming, either until age 67 or until their adjusted entitlements provide a pension that at age 67 equals the legislated minimum, which is defined at age 67.

2.2. Adjustments to the AFP in the private sector

Concurrently with the FTP reform, the AFP was also radically changed into an actuarially fair system for all private sector workers. The earnings test was completely removed, and the AFP was redesigned to become a life-long top-up annuity that could be taken only in combination with the FTP. As a result, work incentives increased dramatically

¹ To avoid adjustments in cases of “negligible” labor earnings, there was a so-called “tolerance amount” of approximately \$2,000 per year that could be earned without adjustment of benefits. All the monetary amounts reported in this paper are inflated to 2013-values using the Norwegian official pension benefit inflator, which in the period covered by this paper roughly corresponds to the wage growth, and then converted to USD (\$) with exchange rate of mid-2013, \$1 = NOK 6.04.

² The reform implied a number of fundamental changes in the Norwegian public pension system which are *not* part of the evaluation in this paper. The most important are i) a transition from a system where pension point accumulation was based on the 20 years with highest earnings to a system where all years count equally much, and ii) the introduction of automatic longevity-adjusted annuities, implying that future increases in longevity will result in lower annual pension entitlements. These reforms will be implemented gradually, however, such that those who were close to retirement age at the time of the reform were completely unaffected by them.

³ Deferral calculations are based on *average* life-expectancy within birth-cohorts. This implies that individuals with shorter (longer) life-expectancy than the average may find the deferral scheme disadvantageous (advantageous) for them, and thus choose to draw on their pensions as early (late) as possible, regardless of labor supply behavior.

⁴ Given the progressivity of the Norwegian tax system, it may still be economically advantageous for some workers to postpone claiming the pension until they have reduced their annual labor earnings.

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