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Disability benefits: The impact of increasing the age of retirement eligibility

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1. Introduction

Populations in most developed countries have been rapidly aging in the last decades thanks to improved living conditions. Ageing populations represent a significant challenge for public pension systems. For this reason, many governments are reforming since the 1990s their retirement policies with the aim of extending working lives and decrease the public finance burden. However, the effectiveness of these retirement policies revisions depends on the induced labour market effects (Engels et al., 2017). It is fundamental to understand what the real impact on employment is and which are the spillover effects into other social insurance programmes. Recent studies have shown that pension reforms which solely reduce access to early retirement programmes may have the side-effect of increasing the pressure on other programmes, which are used as alternative escape routes (Hernæs et al., 2016). In this light, the question we will investigate is if incentivizing later retirement is an effective tool to increase the employment rate of older workers or if alternative income support programmes are entered. We add to the literature as other institutions (as the OECD) have been dealing with the recent pension reforms, however our study analyses the question from a health point of view, looking in particular at the interaction of the reforms with the disability programme.

This work has been carried out in the context of the Technical Committee pensions who wished to elaborate on the issue. The aim of this report in particular is to highlight the most important findings from recent studies of the impact of pension and early-retirement eligibility age on programme substitution, in particular on disability pension benefits, and to present the situation in several countries globally.

1.1. The effects of rising retirement age on entries in disability

Several studies analysed recent pension reforms as effective tools to increase employment of older workers (Börsch-Supan and Coile, 2018) and their spillover effects on other social insurance programmes (Staubli et Zweimüller, 2013; Ardito, 2017; Cribb et al., 2016; Geyer and Welteke, 2017). The reforms have not had a one-to-one transfer effect, because of the possibility to exit through other social security programmes (Gruber and Wise, 1999). It has been shown that disability insurance is an important pathway to early retirement (French and

Jones, 2017), however the effects found on programme substitution are instead mixed depending on the country considered and the policy implemented. The difference in the results could be partly due to the specific system in place in each country which provide for different incentives. The presence or absence in different contexts of spillovers on other social security programmes will depend potentially on several factors, as the consequences a decision of early withdrawal from the labour market through another social security channel has on the generosity of the expected pension, the unemployment situation of the country, and the retirement age change (as increasing the threshold might not entail the same effect at different ages).

1.2. Retirement eligibility age

An aging population and the consequent issue of designing a sustainable pension system is a challenge many countries have been facing in recent years. In order to diminish the pressure on retirement programmes, governs have decided to take measures, most often by increasing the eligibility age with the aim of increasing the working live of the population. However, the magnitude of the effect on employment and the spillovers on other programmes have been very different according to the country evaluated. Ardito (2017) finds a strong substitution effect with disability claims after a tightening of the minimum age in Italy. A substantial effect on disability pension is also found by Atalay and Barrett (2015) studying the effects of the Australian pension reform on female labour supply. On a more global level, through a simulation model based on US data, Bound et al. (2010) find very little effect on disability inflow for changes in the retirement programme. In Sweden the incentives schemes for retirement have been changed; in their model Laun and Wallenius (2015) predict that the spillovers towards disability insurance will be negligible.

The study of Ardito (2017) analyses the labour market effects of the Italian Pension Reform of 1992. The author shows that the employment response was smaller than other side effects. Results indicate that labour supply increased by 4.7 percentage points while the individuals without any welfare support increased by 7.3 percentage points and the disability benefits take-up rate increased by 2.4 percentage points. Although it seams of small magnitude, the take up rate of the disability pension with respect to its pre-reform levels almost doubled. The increase is mainly driven by individuals with worst health and weaker financial conditions. A substantial increase in disability pension claims is also found by Atalay and Barrett (2015) in their study on the 1993 Age Pension Reform in Australia which increased progressively the retirement eligibility age for women from 60 to 65 years old. The authors show that the increase in the number of disability support pensions exceeded the direct impact on labour force participation; while the former increased by 13 percentage points when increasing the pension eligibility age by one year, the latter only increased of around 12 percentage points. On the other side, Laun and Wallenius (2015) predict a decline in the disability claims of around 0.5 percent for the age range of 60 to 64 years old after a major pension reform which has started to phase-in in 2001 in Sweden. This reform, contrary to the most commonly implemented increase of the legal age, modified the system of pension benefits calculation, notably by moving from defined benefit to defined contribution schemes. This shift provides a double incentive to delay retirement. With the old system, the net present value of lifetime pension benefits was only marginally higher for those who decided to continue working after 65. Instead, in the new system, stopping at 65 would give right to lower benefits with respect to before, but if the person continues to work, they increase rather steeply. In other words, there is a loss, with the new system, for the individuals who stop working early, while there is a large gain for those who choose to remain in employment longer. A model is developed to quantify the expected labour supply implications and outcomes predict an increase of the retirement age of 2.5 years.

Table 1. *Summary scheme of the results regarding the retirement eligibility age studies*

Authors and year	Country	Effect on other social insurance programmes
Ardito (2017)	Italy	Disability take-up rate increased significantly
Atalay and Barrett (2015)	Australia	Significant increase in the enrollments in disability programme
Bound and al. (2010)	Simulation model	Small effect estimated on disability
Laun and Wallenius (2015)	Sweden	Negligible effect on disability insurance claiming predicted
Ardito (2017)	Italy	Disability take-up rate increased significantly

1.3. Early-retirement eligibility age

Other studies analysed the effects of the increase of early retirement age programmes on the entrance in disability insurance. Staubli and Zweimüller (2013) find that the reforms in Austria had larger spillover effects on unemployment than on the increase in employment, but negligible spillovers on disability insurance, while Geyer and Welteke (2017) find no evidence of active programme substitution when studying the 1999 pension reform in Germany. Iskhavov (2010), instead, developed a dynamic model for Norway accounting for health and shows a negligible inflow into full-time disability when the early retirement programme is suppressed.

In Austria two pension reforms have taken place in 2000 and 2003 for which the major change was the eligibility age for an early retirement pension which increased step-wise. The study of Staubli and Zweimüller (2013) focuses on the first period when the age was increased from 60 to 62 for men and from 55 to 58.25 for women. The authors, comparing labour market behavior of younger birth cohorts to older ones, find that this increase did not lead to a one-to-one increase in the employment rate: increasing the eligibility age by one-year lead to a increase in the working population rate of 9.7 percentage points during that year among men and 11 percentage points among women. However, even larger effects were found for unemployment, which increased by 12.5 percentage points for men and 11.8 percentage points for women. On the other side, the reforms had an effect of small magnitude on disability benefits claims (even if statistically significant); it accounted for 1 percentage point increase in the inflow for men and 0.14 percentage points for women. The authors also investigated which type of workers responded in which way and verify that the low-wage workers and the less-healthy were mostly those who decided to retire through the unemployment or disability insurance, while high-wage workers in good health were the largest component of the employment increase. A different situation is reported for the reforms in US and UK. Duggan et al. (2007) study the Social Security Amendments of 1983 in the US and find a substantial effect on disability insurance; the authors state that the reform can explain more than one third of the rise in the disability programme enrollment among men and one fourth for women. The U.K. context has been analysed by Cribb et al. (2016), who study the case of the 1995 Pension

Act when the government legislated to increase progressively the early retirement age for women. They focus on the impact of increasing the age from 60 to 62 and show a 6.3 percentage point increase in the employment level for the cohort but also a 4.0 percentage point increase in the proportion of women declaring to be economically inactive due to sickness or disability, while only a 1.2 percentage point effect on unemployment rate. Geyer and Welteke (2017) investigated in their study the situation in Germany; they analyse the effect of the pension reform of 1999 which raised by three years the early retirement age among female workers at once. Results show that the cohort of women who lost the early retirement option remained in their respective labour market states, meaning that women in employment continue working while those unemployed or inactive remained in that status until retirement entry. They do not find marked increases in inflows and outflows between the different labour market states and, therefore, speak about a passive programme substitution rather than an active one. Most importantly, the reform had heterogenous effects on the different socio-economic groups.

Lastly, a simulation study calculating a structural dynamic model to account for the interplay between health, institutional design and economic incentives in the case of older workers has been conducted by Iskhakov (2010). Through his simulation he finds that substitution into full-time disability is negligible when the early retirement programme is eliminated; the number of inflows into the former increase of 0.11 percentage point.

Table 2. *Summary scheme of the results regarding the early-retirement eligibility age studies.*

Authors and year	Country	Effect on other social insurance programmes
Cribb et al. (2016)	United Kingdom	Increase of disability and unemployment rates
Duggan et al. (2007)	United States	Important spillover effects on disability insurance
Geyer and Welteke (2017)	Germany	Passive rather than active programme substitution found
Iskhakov (2010)	Simulation model	Substitution into full-time disability almost negligible
Staubli and Zweimüller (2013)	Austria	Small effect on disability, significant effect on unemployment

1.4. The effect on public finances

The question of the net effect of the pension reforms on the government finances is complex, therefore it is difficult to make general estimations. The overall net effect at government level depends on the tradeoff between the savings on pension payments and increased tax revenues on one side and the costs of increased claims in other social security programmes on the other side, combined with the effect of longer working lives on health and therefore on the use of public health infrastructures. At individual level, extending working lives can have two ambiguous outcomes depending on the effect dominating; retirement can lead to a feeling of social role loss, of decreased social capital (Kim and Moen, 2002) or to a relief effect (Blake and Garrouste, 2012). In other words, working longer could prolong the feeling of contributing to society or prolong a job strain situation (Barnay and Defebvre, 2018). Based on this, individuals' health can be maintained better or deteriorate faster increasing the active live period. For instance, Saporta-Eksten et al. (2018) find that an additional year of work decreases the survival probability past age 80 by 12 percent, but the effect is mainly driven by blue-collar jobs. This further indicates that the dominating effect will depend importantly on the previous employment condition. As studies have shown (Ardito, 2017; Staubli and Zweimüller, 2013), low wage workers and those with ill-health are the ones who become the most dependent on disability and unemployment benefits. Therefore, increasing retirement age homogenously for all individuals could lead to an increase of social and health inequality, but also to increased collective costs for the deteriorated conditions of this part of the population. Mazzonna and Peracchi (2017), for instance, show that the effect of retirement on health and cognition is heterogenous across the population and estimate that for physically demanding jobs the effect is positive.[1] As one of the main reasons old age individuals require long-term care is cognitive decline, delaying retirement could lead to higher costs related to health later in life in these groups of the population. Therefore, besides the overall net effect, it seems to us relevant to investigate whether a wealth transfer between different classes of the population takes place by delaying retirement.

Consequently, the substitution effect between social security programmes is an important element that should be investigated, but other potential impacts related to health should be included as well. Moreover, the social security design of the countries varies in terms of rights and benefits levels, requiring a specific analysis of the effects on public finances of the pension reforms undertaken for each context. Staubli and Zweimüller (2013) calculate the effect for Austria and find that an increase of one year of the early retirement age has an overall effect of decreasing the government budget deficit by an amount equal to 1.1 percent of the expenditure in the old-age security. The estimation is carried out by summing the decrease or increase of the expenditures of the different social security programmes and of the additional tax revenues. However, no other considerations are made on other side effects. As most of the other studies analyzed in the literature review do not include this exercise, we do not deepen this aspect in this report.

2. Countries' situation and transition opportunities

Having reviewed the literature on the potential spillover effects on other social insurance programmes of reforming retirement pensions, this section will analyse the current situation at country level worldwide. This empirical part is deemed to be relevant and complementary to the first theoretical one for two reasons: to share the knowledge on the pension system design in place in other countries and to provide the context in which reforms are (or are not) taking place. As for the latter, the transition opportunities available in each nation have a role in explaining the reasons of changing the retirement age or rules; factors as the possibility to retire based on the job's arduousness impact the structuring of present and future pension reforms.

To understand the transition possibilities from disability benefits to pensions in the different countries, a questionnaire has been sent with specific questions on the social system in place (see Annex 1). Nine countries answered the questionnaire, they are: Austria, Canada, Germany, Hungary, Oman, Republic of Moldova, Republic of Kazakhstan, Russia, Sweden. First the answers for each country are presented in detail, then a summary is made of the different contributions and exceptions through a table.

[1] The definition of physically demanding jobs relies in this study on an "external" occupational index based on the Job Exposure Matrices (JEMs) constructed by Kroll (2011). The "physical job index" measures the physical burden of a job based on its ergonomic stress and environmental pollution.

2.1. Countries' social security system

We report the answers received through the questionnaire in alphabetical order (together with those of Belgium). We focus on two questions which we deemed the most insightful:

- *The transition opportunities* (Question 2)

  "Does your social security system provide special transition system to retirement pension for disability pension beneficiaries like early pension schemes? In which conditions?"

- *Retirement age* (Question 3)

  "Is the retirement age set in your country according to the physical and/or mental arduousness of the professional careers of the beneficiaries? If this age is the same for everyone, are there nevertheless any exceptions?"

▪ Austria

- *Transition system*

There are different possibilities for early retirement. A first kind is available for given birth years and specific years of insurance. Another form of early retirement pension with long term insurance can be made use of beneficiaries who were born in specific years at the age of 55 (women) and 60 (men) and have worked under difficult circumstances for 10 years. The legislative body defines which jobs are performed under difficult circumstances (for instance jobs in shift work, jobs performed under chemical or physical influences). Lastly, there is an early retirement pension possibility related to the health situation. However, further eligibility requirements are necessary than the health situation; for instance, depending on the age of the beneficiary a different number of years of insurance is required.

- *Retirement age*

Austrian Social Security Law stipulates a retirement age of 60 for women and 65 for men. An earlier retirement age according to the physical and/or mental arduousness of the professional careers exists for women at the age of 55 and men at the age of 60.

▪ Belgium

- *Transition system*

There are two different systems of early pensions in Belgium. These systems are open to all beneficiaries without eligibility requirement related to the health situation of the beneficiaries. The first system is a conventional system that is negotiated in economic sectors or companies. However, it has been very limited in recent years. The general early retirement system has also been reformed recently. An early pension is possible at the age of 62.5 with a reduction in the amount if the career period is less than 45 years. It is also possible at age 60 if the career is equal to or greater than 43 years.

- *Retirement age*

The age of the statutory pension in Belgium is 65 for all workers except magistrates and university professors who have the possibility to retire at 70. A discussion is underway to define a list of profession characterized by their arduousness. These professions could be granted retirement age exceptions in the context of the raising of this age to 67 for all workers in 2027.

- Canada

- *Transition system*

The Government of Canada offers the Canada Pension Plan (CPP) Disability benefit. To be eligible for a CPP Disability benefit, an applicant has to meet both administrative (e.g., be between 18 and 65 years of age and having made valid contributions to the CPP while working) and medical criteria (e.g. be determined to have a “prolonged” and “severe” disability). At age 65, the CPP Disability benefit is automatically converted to a CPP retirement pension. This latter, together with other benefits, may provide individuals with an income equivalent to, or even higher than, their former disability benefit. From 2019, a new Post-Retirement Disability benefit will be introduced; this monthly benefit will be payable to CPP retirement pension beneficiaries, who meet the contributory requirements, are under the age of 65, and are disabled. Prior to this change, CPP retirement pension beneficiaries who were disabled were not able to receive a Disability benefit. This change will provide a monthly flat-rate benefit to be paid in addition to the retirement pension to recognize the added expenses related to disability.

- *Retirement age*

Canada’s public pension system is comprised of two programmes - the residence-based non-contributory Old Age Security (OAS) programme and the contributory Canada Pension Plan (CPP). Particular rules apply with respect to the eligibility requirements of the pension benefits paid under the OAS programme and the CPP. The CPP is not tailored to the unique circumstances of specific occupations and the eligibility age is not explicitly set in accordance with the physical and/or mental arduousness of the careers of the beneficiaries and there are no exceptions. While for the OAS pension the age of eligibility is set at age 65 and eligibility requirements are based solely on age, legal status and years of residence in Canada.

- Germany

- *Transition system*

The German statutory pension insurance provides both old-age and disability pensions (i.e. pensions due to partial or full reduction in earning capacity) within one system. If an individual reaches statutory retirement age, the payment of disability pension ends and instead an old age pension is paid. Thereby, the amount of the old pension shall add up to at least the amount of the former disability pension. Severely handicapped people may receive an old age pension up to five years prior to the statutory retirement age, irrespective of the type of job/sector they have been working in.

- *Retirement age*

The German statutory pension insurance does not consider special early retirement options for selected employment groups; exceptions are only applied for miners with a long employment record in the mining industry. For insured persons who have accrued contribution years of 45 or more years, the possibility of an early pension without pension decrements was introduced in 2012. This new pension shall benefit insured with an extraordinary long, and potentially also arduous, work and contribution career. Beyond the system of the statutory pension insurance early retirement schemes are existent for selected occupational groups, for instance air traffic controllers, which are then based on collective agreements and/or occupational pension funds.

- Hungary

- *Transition system*

Early exit routes were narrowed in 2012; since then some cannot be awarded anymore while others have been transformed into benefits prior to retirement age which are financed from the National Fund for Family and Social Policy, thus no longer will be pensions as a benefit for old-age income substitution. The only notable exception is the special early retirement programme for women having collected 40 years of eligibility. Workers employed in dangerous and hazardous jobs could gain entitlement to early retirement due to hazardous working conditions until 31 December 2014. A full revision was in the focus of debates several times in the past. Instead, the government made employers pay for the preferential treatment.

- *Retirement age*

The Hungarian pension system is a mandatory, uniform, defined benefit pay-as-you-go system with earnings related public pension combined with a minimum pension. Qualifying conditions for an old age pension are reaching retirement age, obtaining the required minimum service period and ceasing gainful activity. The standard retirement age is 63.5 years in 2018 and is gradually increasing to 65 in 2022.

- Oman

- *Transition system*

PASI generally provides an early pension option to all insured people with discounting factors based on the age until normal retirement age. However, for someone with full disability, the law establishes as pension the best between Old age pension or X per cent of the last salary (75 per cent for occupational full disability, 50 per cent for the non-occupational). For those cases that have an Occupational partial disability pension, they can retire with early pension or normal retirement age pension and they will combine both pensions (the partial disability pension plus the other pension).

- *Retirement age*

For the time being there is no consideration for different retirement age based on the career physical and mental requirements.

- Republic of Kazakhstan

- *Transition system*

According to legislation people with disability of first and second group (lifetime disability) become eligible for early PAYG pension and early withdrawal of pension savings from Unified Accumulative Pension Fund (UAPF). Nevertheless, for people with disability of mentioned groups it is possible to continue working.

- *Retirement age*

Starting from 2014 employers contribute compulsory occupational pension contributions (5 per cent of the monthly income of employee) to UAPF in favor of workers working in hazardous conditions. Upon reaching 50 (age) people that worked in hazardous conditions become eligible to buy retirement annuity from insurance company and transfer savings to insurance company subject to savings sufficient level (to ensure payment not less than the size of minimum pension established for the relevant financial year). Compulsory occupational pension contributions from employers boost the total amount of savings that shall match the sufficient level of savings needed to buy a pension annuity.

- Republic of Moldova

- *Transition system*

The early retirement pension for old-age pension was abolished starting with 1st January 2018. The Government is supposed to come up with a new early retirement scheme in 2018.

- *Retirement age*

The retirement age is 63 years for men and women and will be increase in the following years. Nevertheless, the pension system provides some exceptions for some categories, as judges and pilots. However, individuals who worked in heavy/hazardous conditions have the possibility to retire at 54 years for men and 49 years for women.

- Russian Federation

- *Transition system*

Insurance retirement pensions are awarded to insurance disability pension beneficiaries without any application due to the data existing at the disposal of the authority carrying out pension provision, in case of having appropriate pension entitlements. An amount of an insurance retirement pension, including an early pension, cannot be less than the amount of disability pension as on the day of termination of this disability pension payment. If a person receiving an insurance disability pension does not have an entitlement to an insurance retirement pension, he will be awarded to a social old age pension which is provided under the state pension provision system, but five years later than statutory retirement age (in 2018, 65/60 men and woman respectively).

- *Retirement age*

The statutory age for an insurance retirement pension is 60 and 55 for men and women respectively (starting from 1 January 2019 will be gradually increased up to 65 for men and 60 for women, for social old age pensions – up to 70 and 65 respectively). For some special categories of citizens there is an opportunity to receive an insurance retirement pension before reaching the statutory retirement age (5–10 years early). The qualifying conditions are reduced for persons who have worked in regions of the Far North and in certain other areas, or in hazardous or dangerous work (22 categories of professional groups), and for some specified professional categories, such as teachers and doctors. Mothers of 5 or more children can retire at age 50 years (4 children – 56 years and 3 children – 57 years respectively under new statutory retirement age regulation). Men with 42 years of career and women with 37 years of career can retire earlier by 2 years than a new statutory pension age since 2019, but not earlier than at 60 and 55.

- Sweden

- *Transition system*

Benefits from the social security system, with a few exceptions, end when the person turns 65, which is the same age at which the person can apply for Guarantee Pension from National Public Pension. Guarantee Pension is a pension benefit that provides a base level of income for pensioners that receive low or no income-based pension.

- *Retirement age*

National Public Pension can be drawn at the earliest at 61 years old. Individuals may receive Sickness Compensation (a form of disability benefit) from the social insurance until the month they turn 65 years old, after which they may receive their income based pension complemented with Guarantee Pension from National Public Pension if the income based pensions do not cover the set base level income for pensioners. Also a housing allowance may be paid from age 65. There are no special treatments for any groups in the public scheme, neither for disability benefits or old age pensions.

2.2. Cross-country comparison

Table 3 (see on next page) schematizes the results of the questionnaires sent and provides a more visual synthesis of the different characteristics of the social security system of each country the retirement possibilities. It shows the current retirement age, the country specific exceptions to the standard transition from disability benefits to pension at retirement age and whether considerations of job's arduousness are included.

Table 3. *Summary scheme of the (early-)retirement possibilities in the different countries*

Country	Retirement age 2018*: M	F	Exceptions	Retirement age based on job's arduousness?
Austria	65	60	Possibility of early retirement pension based on the health situation. Early retirement also possible on the basis of specific years of birth and/or insurance.	Yes, possibility of early retirement if worked under difficult circumstances.
Belgium	65	65	Two systems of early pension open to all, a general one and one at the level of sector/ company.	No, but discussion in place.
Canada	65	65	Possibility to receive contributory pension at 60 with a reduction or 70 with an increase. A non-contributory public pension system is also in place. From 2019 a new Post-Retirement Disability benefit is introduced.	No.
Germany	65	65	Severely handicapped people may receive an old age pension up to five years prior to the statutory retirement age. Also early retirement schemes are existent for selected occupational groups.	No, but exception applied for miners.
Hungary	63.5	63.5	Early retirement pensions closed in 2012, only exception programme for women with 40 years of eligibility.	No, possibility of early retirement for hazardous working conditions stopped in 2014.
Oman	60	55	PASI pension funds: Early pension option with discounting factors based on number of years to normal retirement. People with full disability receive a disability pension, if the disability is partial the pension can be combined with an early or normal old age pension.	No.
Kazaksthan, Rep. of	63	58.5	People with disability become eligible for early PAYG pension and early withdrawal of pension savings.	When working in hazardous conditions at 50 eligibility to buy retirement annuity from insurance company subject to sufficient level of savings.
Moldova, Rep. of	62.8	57.5	Early retirement pension at 60 possible until 2017, new one should be proposed.	Yes, there are exceptions for some categories.
Russia	60	55	No special earlier retirement regime under the statutory pension insurance scheme. Since 2019 the early retirement will be available for men with 42 years of career and women with 37 years of career, but not earlier than at 60 and 55.	Yes, for 22 professional categories under hard and hazardous working conditions and in some North territories.
Sweden	65	65	National Public Pension can be claimed at the earliest at 61.	No.

Note: *These ages will be changing over the years in some cases. In some countries, reforms were launched which will increase the retirement age in the next ten years.

3. Conclusions and policy recommendations

Population aging presents a challenge for public pension systems and many governments are faced with the question of how to reform retirement programmes. Several countries have implemented an increase of the legal retirement or early-retirement age. However, in many cases spillover effects into other social security programmes have taken place at some degree. The programme substitution effect, meaning that people not having access to (early) retirement enrol in other social insurance schemes, concerns in particular certain categories of the population. These are especially the less healthy and the low-skilled workers (see Staubli and Zweimüller (2013), Ardito (2017)), showing a certain social gradient in the pattern of reactions. Therefore, increasing the legal retirement age of the population mostly extends the working life, but workers having poor health and weaker labour market positions are more negatively affected. However, an important distinction that should be made in this context is the active and passive programme substitution as Geyer and Welteke (2017) analyse in their study. The cohorts not having access to the early retirement option often remain in their labour market status for an extended time, be it employment, unemployment or inactivity, so in essence these workers "passively" substitute this option with their former status. For this reason, the aggregated rates seemingly increase in many cases as the outflow is delayed.

An exception has been represented by Sweden, which is implementing a major pension reform consisting, most notably, in a shift from a defined benefit to a defined contribution scheme (Laun and Wallenius, 2015). The two economists estimate that the new pension system creates large incentives for working longer and a small decline of disability insurance claiming. The incentives for continued employment are twofold: on one side, there is a reduction in the generosity of the pension benefits if the age is held constant, on the other side there is a large increase in the benefits if retirement is deferred. This "carrot-and-stick" approach, as the authors call it, can be seen as a good practice example when designing pension reforms.

For policy makers another crucial and both theoretically and empirically difficult question to answer is what the net effect on public finances will be. If at a global level public finances are expected to improve by reforming pension plans, there will be some redistribution effect on the other government programmes which have to be taken into consideration, as they counterbalance the fiscal effect of pension reforms. These effects differ according to the country analysed and the specific design of the social security system in place.

Significant differences are indeed existing among countries in terms of pension systems and emerged from the questionnaires submitted to national institutions. The questionnaires had the aim of understanding the current situation worldwide at country level, also in relation to disability pension. From the information collected, for instance, we can apprehend that some countries provide the possibility to retire earlier based on health conditions, while others provide exceptions according to physical or mental job's arduousness.

In conclusion, we suggest focusing on two points when designing pension reforms. First, following the positive example of Sweden, to reform the incentives for continued employment rather than increasing the legal (early) retirement age. Second, because of the heterogeneity of the effects of pension reforms on the different groups of the population, especially the weaker segments, flexibility for adjustments may be considered.

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Annex 1. Questionnaire on transition from disability benefits to pension

Question 1: Are retirement pension beneficiaries entitled to receive full / partial retirement pensions with combination of a professional income?

Question 2: Does your social security system provides special transition system to retirement pension for disability pension beneficiaries like early pension schemes? In which conditions?

Question 3: Is the retirement age set in your country according to the physical and/or mental arduousness of the professional careers of the beneficiaries? If this age is the same for everyone, are there nevertheless any exceptions?

Question 4: Is it possible to combine a professional income with a disability/invalidity pension?

Question 5: Could you provide us some statistics and data related to:

- The invalidity rate in your country labour market (ratio between working age population and beneficiaries of any kind of disability benefits);
- The level of inclusion of people with disabilities and chronic illness in the labour market;
- The level of expenditure of disability benefits and pensions, both expressed in percentage of the GDP;
- The employment rate of 59 to retirement worker (global and per gender).