Retirement Policy in a Post-Covid World

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Abstract

In this paper we evaluate the challenges of funding retirement in the aftermath of the Covid pandemic. We first show that the pandemic had only modest effects on life expectancy and employment. These effects were small relative to longer term trends. Nevertheless, they worsened pension funding problems, highlighting the need for future pension reforms. Next, we highlight key evidence on how labor supply responds to pension reforms. Evidence suggests that incentivising later retirement can reduce pension deficits.

1 Introduction

Developed countries face challenges in financing public pensions for two key reasons. First, populations are aging rapidly due to declines in fertility and increases in longevity. Second, labor supply has not kept up with with increasing longevity. These two reasons will create a serious strain on public pensions. As we show in this paper, Covid has likely worsened this strain.

In order to help public and private pension programs to remain solvent, there have been significant pension reforms across many countries over the last 30 years. These reforms have

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been accompanied by non-trivial increases in the labor supply of the age 55+ population over the same period, possibly due to these reforms. Increasing employment among the those 55 and older can help countries deal with financing pensions for aging populations.

In this paper, we first document employment rates among the age 55+ population in developed countries over recent decades, including the post-pandemic period. Next, we discuss evidence on the impact of pension reforms on age 55+ labor supply. The paper proceeds as follows.

In Section 2, we describe trends in life expectancy and employment over recent decades. Then we discuss life expectancy and employment changes during and after the Covid pandemic and place these changes in the longer historical context. Next, we review how Covid impacted pension finance. We show that changes in life expectancy and employment over the pandemic were modest, and thus they had little impact on pension finances. More important were the large expenditures on unemployment and other benefits that have increased public debt in many countries, meaning that problems of funding future pension obligations will be even more difficult after Covid.

In Section 3 we present evidence on the sensitivity of labor supply to four types of pension reforms. Employment amongst the 55+ population has increased in recent decades in many countries. To better understand whether pension reforms have been important for explaining the increases in employment amongst the 55+ population, it is essential to know how sensitive labor supply is to pension reforms.

Our analysis in this paper draws heavily on Blundell et al. (2016) and French and Jones (2012), although there are many other excellent surveys of retirement. See for example Lumsdaine and Mitchell (1999); Gruber and Wise (2004). Our main conclusion is that the labor supply of older workers is responsive to pension reforms. Hence, reforms that incentivise later retirement are likely to significantly reduce the financial strain on public pension schemes.

2 Trends in Longevity and Employment amongst the Elderly

In this Section, we review trends of life expectancy and employment for the United States, the United Kingdom, Japan, Korea and Singapore. Next, we discuss the post-Covid changes in expectancy and employment, place these changes in the longer historical context, and discuss the impact of these changes on pension finance.

2.1 Historical Trends

While in the last several decades life expectancy has increased rapidly in most countries, the age of pension eligibility has grown slowly if at all.[1] This has led led to a rapid expansion of the number of people receiving retirement benefits and thus the cost of providing those benefits, significantly increasing the strain on the public pension system.

Figure 1 shows that many countries have experienced similar rises in life expectancy in the last 45 years (see also Table 2.1). In fact, life expectancy increases in East Asia have been more rapid than in the US and UK. Whereas life expectancy for men at age 65 rose 2.9 years (from 14.1 to 17.0 years) between 1980 and 2020 in the USA, it rose 8.7 years in Korea and 5.5 years in Japan. We see similar gains in life expectancy for women and similar gains for life expectancy at birth.

[1] Until the late 20th century, the age of pension eligibility in many countries was 65 and life expectancy conditional on age 65 was low. For example, the pension eligibility age for men in the UK was 65 between 1925 and 2018. When the pension age was set at 65 in the UK, in 1925, life expectancy for men at that age was 11.2 years. Life expectancy changed little over the preceding 80 years. However, since then, it was to increase rapidly, reaching 18.5 years by 2020.

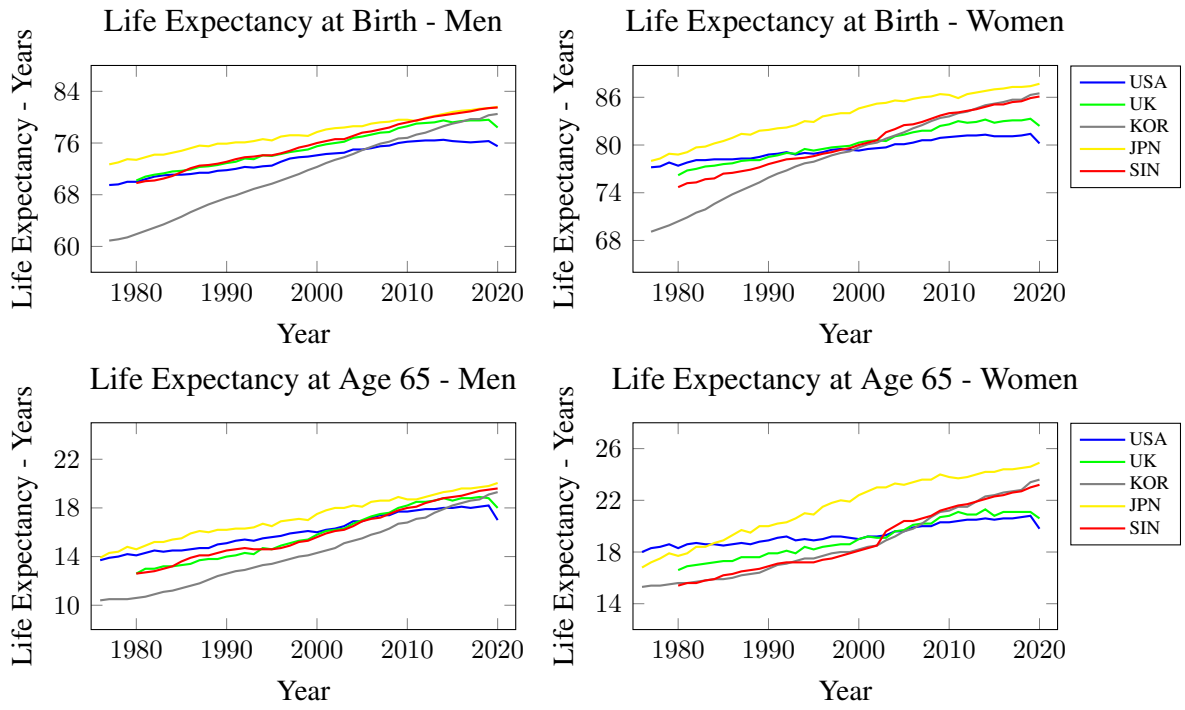

Figure 1: Life expectancy at birth and at age 65 between the calendar years 1976 and 2020 for both men and women. Sources: OECD and Singapore Department of Statistics.

Increased labor supply at older ages can potentially offset the higher pension expenses from increased longevity. Figure 2 shows employment rates (for men and women combined) for three age groups[2]. The top panel shows the 15 to 24 age group, the middle panel the 25 to 54 group and the bottom panel the 55 to 64 group. It shows that although there has been no strong trend in labor supply for the younger age groups, labor supply increased among the oldest age group. This increase in labor supply and the added tax revenue from the increase can help fund longer lives.

The top panel shows that for the 15 to 24 age group over the period 1999-2021, employment rates decreased in the UK (from 63.1% to 54.2%), Korea (from 28.7% to 27.6%) and US (from 59.1% to 51.2%), but increased in Japan (from 42.5% to 47.6%) and Singapore (36.7% in 2011, the first year available, to 41.3%).

The middle panel shows that for the 25-54 age group over the period 1999-2021, employment rates increased in the UK (80.9% to 83.9%), Korea (71.7% to 74.5%), Japan (78.9% to 85.8%) and Singapore (85.4% in 2011, the first year available to 89.9%). In contrast, employ-

[2]For the 15 to 24 age group we have data up to 2021 for every country. For the other two age groups, we have data up to 2021 for Singapore and 2020 for US, UK, Korea, Japan. We have quarterly data for every country apart from Singapore where we have yearly data. [ebf]

ment rates decreased (81.5% to 76.1%) in the US over the same time period. There is an active debate in the US about what factors explain the historically unprecedented steady decline in labor force participation of both men and women since the turn of the century (Moffitt, 2012).

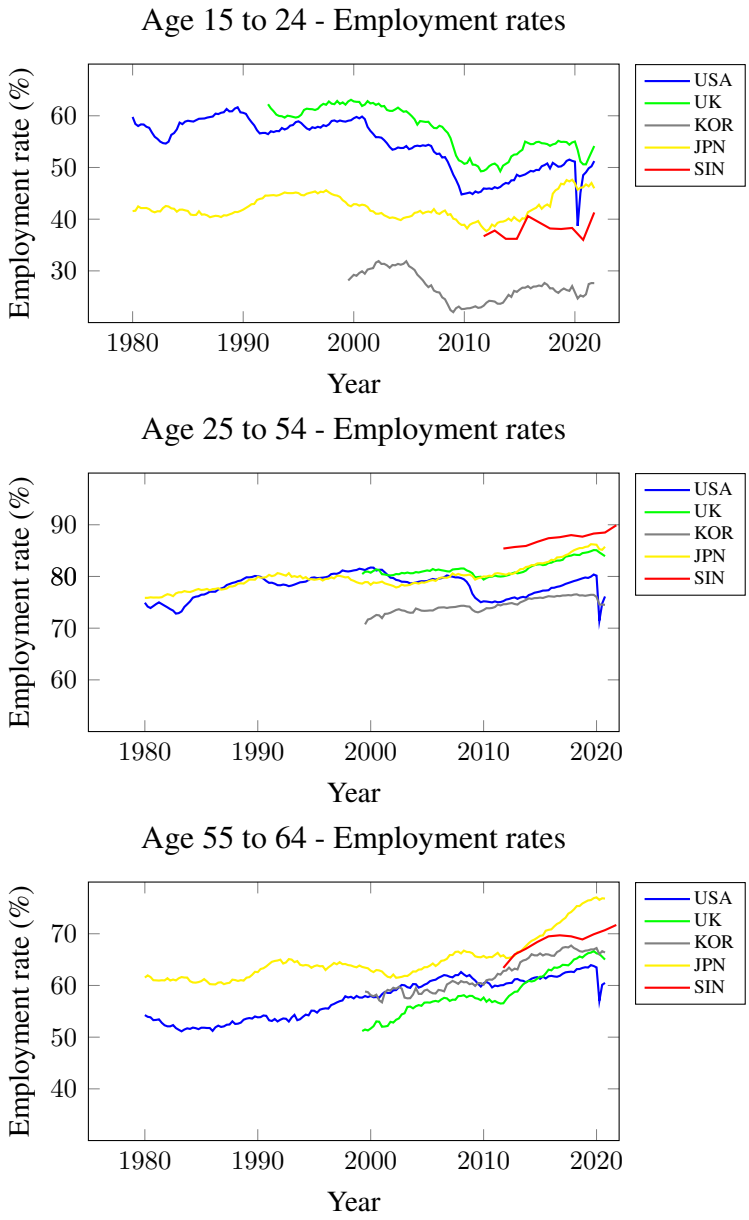

Figure 2: Employment rates between the years 1980 and 2020 (measured on a quarterly basis) for the age groups 15-24, 25-64, 55-64. Sources: OECD and Singapore Manpower Research and Statistics Department (Labor force advance release 2021).

Figure 2 shows that in the period 1999-2021 employment rates of the age 55 to 64 population increased in the US (from 57.8% to 60.5%), the UK (from 51.3% to 65.0%), Korea (from 58.7% to 66.4%), Japan (from 63.3% to 76.8%) and Singapore (63.4% in 2011, the first year available, to 71.7%).

Blundell et al. (2016) shows that employment rates of 55-64 year old individuals have followed remarkably similar patterns in Western countries over the last half century, and have increased over the last 30 years. As we see from Figure 2, employment rates have also been increasing among those 55-64 in the East Asian countries we consider for the years that we have available data.

In summary, over the 1999-2021 period, employment rates increased approximately 10 percentage points over the 55-64 age range, an increase of one additional year of work. While significant, over the same time span, age-65 life expectancy rose approximately three years, depending on the country. For this reason, years in retirement have increased, putting further strains on government retirement programs. The next subsection shows that the pandemic has only exacerbated these problems.

2.2 The Effects of Covid-19

The Covid pandemic impacted the funding of retirement and other government spending programs in three ways: (i) it reduced life expectancy and thus the size of the retired population declined, reducing public pensions spending; (ii) it reduced employment, reducing tax revenues; (iii) it caused higher spending on unemployment insurance and other programs, increasing debt levels and making it more difficult to cover future pension liabilities. We show that changes in life expectancy and employment over the pandemic were modest. More important were the large expenditures on unemployment and other benefits that have increased public debt in many countries, meaning that problems of funding future pension obligations will be even more difficult after Covid.

As seen in Figure 1, the Covid pandemic reduced age 65 life expectancy in the US and UK for both males and females. Specifically between 2019 and 2020, in the US life expectancy at age 65 dropped by 1 year for women and 1.2 years for men. In the UK it dropped by 0.5 years for women and 0.8 years for men. In East Asia we see a different story: life expectancy increased approximately 0.2 years in Korea, Japan and Singapore between 2019 and 2020 for both men and women. Despite this heterogeneity, life expectancy is significantly higher than it was 20 years ago in all countries we consider. Even in the US, the drop in life expectancy was

modest compared to the long run improvement in life expectancy: see Table 2.1.

Using provisional mortality data for 2021, Masters et al. (2022) find that life expectancy at birth for the US declined by an additional 0.4 years relative to 2020. Even after this decline, age 65 life expectancy is still significantly greater than in 2000. Also, with the vaccines being broadly available and the mortality rate of Covid decreasing over time, we may see the age 65 life expectancy recover over the following years.

	Life Expectancy at age 65 (men)						**Life Expectancy at age 65 (women)**					
	Year						Year					
	1980	1990	2000	2010	2019	2020	1980	1990	2000	2010	2019	2020
US	14.1	15.1	16.0	17.7	18.2	17.0	18.3	18.9	19.0	20.3	20.8	19.8
UK	12.6	14.0	15.8	18.2	18.8	18.0	16.6	17.9	19.0	20.8	21.1	20.6
KOR	10.6	12.6	14.3	16.8	19.1	19.3	15.6	16.7	18.2	21.2	23.4	23.6
JPN	14.6	16.2	17.5	18.7	19.8	20.1	17.7	20.0	22.4	23.8	24.6	24.9
SIN	12.6	14.5	15.6	18.0	19.5	19.6	15.4	16.9	18.1	21.4	23.0	23.2

Table 2.1: Age 65 Life expectancy between 1980 and 2020. Sources: OECD and Singapore Department of Statistics.

Employment declined post-Covid in most countries, with an especially sharp drop in the US. Interestingly, the largest employment drops were among the young. For example, in the US the employment rate dropped by 12.6 percentage points for the 15-24 and 6.8 percentage points 55-64 age groups after the start of the pandemic. Although employment partially recovered by the fourth quarter of 2020, the pandemic likely drove some individuals permanently from the labor force. For example, Owen et al. (2022) find that much of the fall in employment of older workers is among those over age 70. It is possible that many of these individuals will never return to the labor market.

In summary, the pandemic reduced both life expectancy and employment rates. Reduced life expectancy reduced pension payments while reduced employment reduced tax contributions. Covid had additional impacts on pension finances, since it likely impacted wage growth, interest rates, fertility, and many other variables. The US Social Security Administration has attempted to predict how these variables affect Social Security's financial position. The 2022 report of the Social Security Board of Trustees indicates that Social Security's trust fund will be

	Employment rates 15-24				Employment rates 55-65			
	Year				Year			
	2019-Q2	2019-Q4	2020-Q2	2020-Q4	2019-Q2	2019-Q4	2020-Q2	2020-Q4
US	51.3	51.3	38.7	48.5	63.5	63.8	57.0	60.5
UK	54.9	54.8	53.4	50.6	66.2	66.6	66.1	65.0
KOR	26.3	27.1	24.7	25.0	66.8	67.0	66.0	66.4
JPN	47.6	47.6	45.7	46.2	76.4	76.9	76.5	76.8
SIN	38.2	38.3	37.2	36.0	69.4	69.9	70.3	70.7

Table 2.2: Employment rates for Ages 15 to 24 and 55 to 64. Sources: OECD and Singapore Manpower Research and Statistics Department (Labor force advance release 2021).

exhausted in 2035, which is exactly the same as the 2020 report (using forecasts created prior to the pandemic) (OASDI Trustees Report, 2022). In short, Covid had little impact on Social Security's finances.

However, Covid worsened government finances overall, with high unemployment and other benefit payouts as well as lower tax receipts leading to significantly higher debt. Table 2.3 shows the public debt for the five countries we consider. The largest percentage point increase in debt to GDP ratios between 2019 and 2020 was in the US (25.4 percentage points), followed by Singapore, Japan, UK and finally Korea (with a 6.8 percentage point rise).

In summary, Covid is unlikely to have a significant long term impact on the age 65 life expectancies and employment rates of the elderly. Nevertheless, it likely worsened the problem of funding public pensions and covering their liabilities due to Covid related expenditures that increased government debt.

	Debt to GDP ratio		
	2019	2020	Difference
US	108.8%	134.2%	25.6%
UK	85.4%	104.5%	19.1%
KOR	42.1%	48.9%	6.8%
JPN	236.1%	259.0%	22.9%
SIN	126.3%	131.0%	5.3%

Table 2.3: Public debt to GDP ratio and their difference for 2019 and 2020. Sources: IMF, World Bank and the Government of Singapore

Public pension reforms are inevitable in aging economies, and the fiscal cost of addressing Covid makes the necessity of pension reforms more pressing. The next section discusses how governments can mitigate the fiscal sustainability problem by creating policies that delay retirement and encourage work in older ages.

3 Retirement Incentives and Retirement Behavior

In response to the fiscal strain caused by population aging, many countries have reformed their pension systems to encourage delayed retirement over the last 40 years. A large literature studies the labor supply and pension claiming responses to these reforms. Blundell et al. (2016) reviews this literature and concludes that retirement is sensitive to financial incentives, meaning that encouraging later retirement will partially address issues of fiscal sustainability.

Here we highlight four types of reforms to encourage labor supply at older ages. Some reforms that seem to have strongly encouraged labor supply, and some that have had more modest effects[3]. The reforms we consider include (1) eliminating "earnings tests" which tax away benefits of high earning beneficiaries; (2) raising the pension eligibility age; (3) tightening eligibility criteria for early retirement benefits through disability and unemployment; and (4) switching from (unfunded) Defined Benefit Schemes to (usually unfunded) Defined Contribution schemes. In this section we highlight a few key reforms to highlight labor supply responses.

We should note that reforms which raise labor supply usually lead to lower benefits, reducing the costs of these programs. However, these lower benefits expose households to the risk of having low resources during their retirement period. Furthermore, because retirement programs tend to transfer resources from rich to poor, benefit cuts increase inequality. Below we focus only on labor supply incentives of pension reforms, but we acknowledge that any pension reform should also take into account distributional implications of that reform.

[3]These reforms usually entail transition costs. However, they are inevitable in aging economies and delaying them will likely increase the cost associated with the reform (e.g. Kitao (2018) argues that fiscal uncertainty about future public pension reforms has an additional adverse effect on the elderly).

3.1 Eliminating Earnings Tests

Until recently, pension beneficiaries in most countries faced "earnings tests". Earnings tests are taxes on benefits among beneficiaries. If earnings rise above the earnings test threshold, benefits are be taxed away. Reducing work disincentives of those receiving benefits by eliminating the high implicit tax rates through earnings tests raises employment.

Earnings tests have been removed in multiple countries over the last 35 years. The UK had an earnings test for men aged 65-69 and women aged 60-64 who earned above a certain threshold, which was abolished in 1989. Disney and Smith (2002) study this reform and find that removing the earnings test increased work hours of men by around 4 hours per week; they find smaller effects for women. Likewise, the repeal of earnings tests for those above the Normal Retirement Age in the United States after 2000 also also appears to have increased labor supply. See for example Song and Manchester (2007) and other papers discussed in Blundell et al. (2016) .

3.2 Shifting Forward the Pension Eligibility Age

Shifting forward the (early and normal) pension eligibility age has been shown to increase labor supply for many countries. Often there is a strong incentive to draw benefits at this age because there are often unfair actuarial adjustments for delayed benefit claiming. Furthermore, many households may be borrowing constrained and may wish to receive benefits at the earliest possible age. Finally, households may take this age as a signal of when it is best to draw benefits. Once drawing benefits, there are often high implicit taxes on their benefits due to "earnings tests", described above.

We describe two examples where the pension eligibility age has increased in European countries. Staubli and Zweimüller (2013) and Manoli and Weber (2016) use administrative data from Austria and document that there are very strong pension claims and labor force exits at the pension eligibility age, or "Early Retirement Age", in Austria. Prior to 2000, the Early Retirement Age for men was 60 and the Normal Retirement Age was 65 in Austria. For women, the Early Retirement Age was 55 and the Normal Retirement Age was 60. Figure 3 from Manoli and Weber (2016) shows steep employment drops for both men and women at

these ages. They use the Austrian pension reforms in 2000 and 2004 to to quantify labor supply responses to increases in the Early Retirement Age. These impacts on employment are consistent with the view that the significant penalties for working upon reaching the Early Retirement Age impact labor supply. They estimate that a one year increase in the Early Retirement Age leads to a 0.4 year increase in the average job exiting age and a 0.5 year increase in the average pension claiming age.

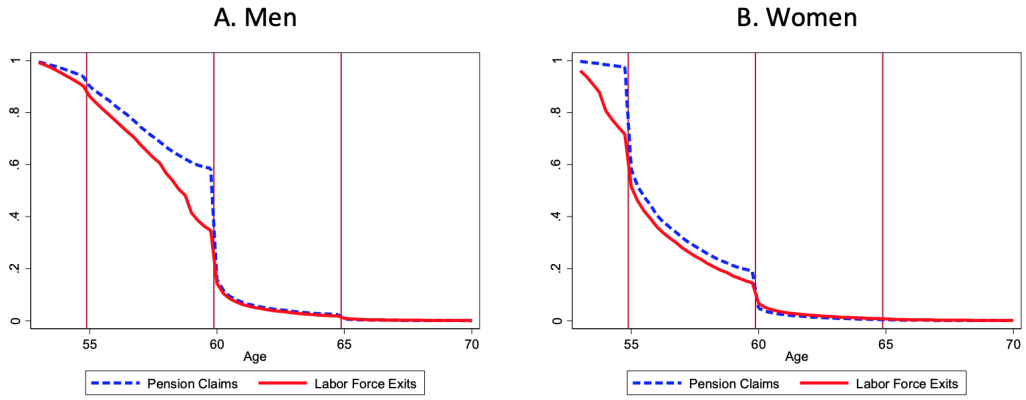

Figure 3: Pre-Reform Pension Claims & Job Exits. Source: Manoli and Weber (2016).

Cribb et al. (2016) examine the impact of increasing the State Pension Age (SPA) for women in the UK where the financial incentive to retire at the SPA. Until 2010 the SPA was age 60, and rose to age 66 by 2020. They find that women's employment rates at the old SPA increased by 6.3 percentage points after the increase in the SPA. They also argue that wealth effects, credit constraints and changes to marginal financial incentives to work do not drive this effect but instead that most of the excess retirements observed at the SPA are likely driven by a signal to retire.

3.3 Tightening Eligibility Criteria for Benefits

Multiple countries have tightened eligibility criteria for early retirement benefits through disability and unemployment programs. French et al. (2022) exploit a radical change in eligibility for a generous old age unemployment benefit program (or "pre-retirement benefit") in Poland. Before 1st August 2004, the eligibility age for this benefit was 55 years. On 1st August 2004, the eligibility age for this benefit increased from 55 to 60 years for those born after 1st August

1949. This created a cohort-based discontinuity in access to the benefit.

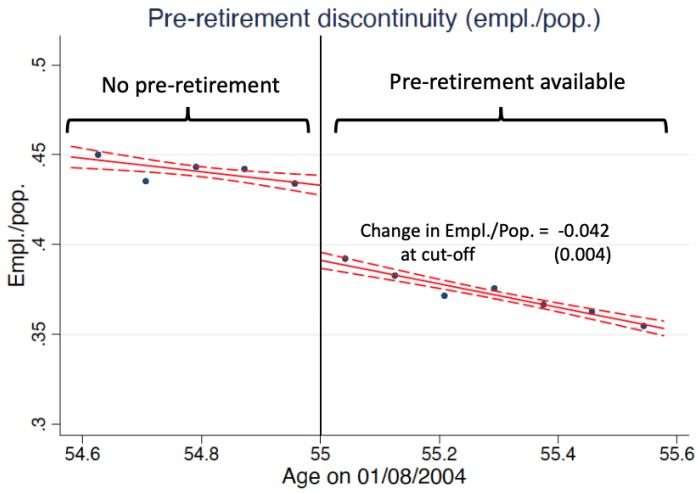

Figure 4: Employment rates the the groups with and without pre-retirement option. Source: French et al. (2022).

As figure 4 shows there is a sharp discontinuity caused by the availability of pre-retirement unemployment insurance benefit. The availability of the pre-retirement benefit reduces employment rates by roughly 4.2 percentage points. This finding highlights the powerful impact these programs have on late in life labor supply.

3.4 Shifting to Notional Defined Contribution Schemes

Finally, many countries have moved their pension systems from Defined Benefit (DB) to Defined Contribution (DC) a scheme. In a DB scheme, benefits are often a complicated function of an individual's best earnings years. In a DC scheme, individual contributions accumulate in an account, and thus the resulting benefits are a function of all earnings years.[4] On this type of reform, the labor supply evidence is less clear. These reforms have ambiguous impacts on labor supply because both DB and DC schemes provide work incentives that vary by ages. DB systems provide strong work incentives during an individual's best earning years, whereas the DC system provides more modest work incentives at all years.

French et al. (2022) evaluate the impact of a 1999 Polish pension reform that shifted the system from a DB scheme to a Notional Defined Contribution (NDC) scheme, which is an

[4]Singapore also has a (funded) DC system.

DC scheme. The system was unfunded both before and after the reform. They find that for individuals who were likely to be in in their highest earnings years, the DB system provided stronger work incentives. Consistent with this fact, they find that in regions of the country with high earnings growth, the shift to the NDC system reduced employment. On net, they find that the switch to the NDC system did not increase labor supply.

They key takeaway from this type of reform is that implicit taxes at every age matter. Reforms that have clear changes in labor supply incentives (such as shifting forward the pension eligibility age or eliminating earnings tests or other early retirement programs) have clear impacts on labor supply. Reforms such as switching to a NDC system have less clear impacts on labor supply incentives and outcomes.

4 Conclusions

In this paper we evaluate the challenges of funding retirement in the aftermath of the Covid pandemic. We document trends in employment and life expectancy, showing that the Covid pandemic's impact is modest relative to long terms trends for both employment and life expectancy. We review the literature and argue that labor supply is sensitive to the financial incentives of public pension schemes. Our findings suggest that reforms that incentivise later retirement are likely to significantly reduce the financial strain on public pension schemes.

As a final caveat we note that many of the reforms we have considered have strengthened labor supply incentives. However, there has been less research of how the reforms impact the distributions of benefits received. Reforms that reduce lifetime benefits relative to contributions often expose households to more risk which might be welfare decreasing. For instance, an important value of pensions is that they provide insurance against inability to work late in life. Policy makers must balance the efficiency losses from government pension schemes with with welfare gains from redistributing resources. Recent studies shows that small but redistributive pension schemes can balance these objectives (Harenberg and Ludwig, 2019).

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