

The Labor Consequences of Financializing Pensions

Teresa Ghilarducci and Amanda Novello

Schwartz Center for Economic Policy Analysis (SCEPA)

Department of Economics
The New School for Social Research
6 East 16th Street, New York, NY 10003
economicpolicyresearch.org

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Introduction

Governments in the OECD are changing pension arrangements in two major ways: one, reducing benefits in the pay-as-you-go state social insurance plans by raising the age people can collect a full benefit and two, emphasizing personal wealth as a source of income in retirement instead of social insurance. Sometimes the policy shift to financialization from social insurance is described as governments doing what citizens want – giving workers more personal responsibility and control over their assets. And sometimes the policy shift is described as providing incentives for people to extend their working lives in order to cope with the rapid aging of rich economies.

In this chapter we focus on the latter public policy goal of increasing work effort by transforming promises to pay a stream of income for the rest of a person's life into an individually owned retirement account. The process of replacing retirees' claims to annuities with draws on an individual retirement account -- as major sources of retirement income -- is what we define as "financialization." Financialization is atavistic. People retired before Social Security was established by relying on household and individual saving. When men were "superannuated" in the beginning of the last century their labor was no longer demanded at reasonable wages – they relied on personal savings (Lee 2005, Carter 2003). If they had no financial (or familial resources) they needed to work. Almost 46% of men over 65 worked or looked for work on their farms or in industry before the United States Social Security Act was operating in the early 1940s (Toossi 2002). The investment and financial risks were placed on individual workers and their families. Over time, social insurance programs took the place of individual arrangements to help spread the risks and efficiently insure adequacy and retirement income security. As more elders work, their labor is "commodified." As the security of lifetime pension income erodes and pension benefit levels fall, workers are less able to replace their preretirement income with pensions and more workers are forced to work – some into their seventies -- to maintain their living standards. Therefore, we find evidence that financialization leads to older people "commodifying" their labor, commodifying is a concept revived by political theorist Epsing Anderson (1990) from the work of Karl Polanyi. In contrast, the PAYGO system and the development of defined benefit plans lifted millions out of poverty and paved the path towards retirement, not more work.

Older workers across the OECD are working more, but only in some nations working longer means shorter time in retirement, according to the OECD measure of retirement time. Life expectancy of older people has increased in many rich nations so that, since 1958, the average time in retirement, measured using the OECDs “life expectancy after pensionable ages” has increased in most nations despite the increase in work effort. However, the increase in retirement time varies considerably among nations because many people retire later or earlier than the pensionable age. Also, only with micro data on actual retirement ages and death can we evaluate whether the distribution of retirement time is equitably distributed across income class. There is deep doubt that the valuable resource of retirement time is equitably distributed. Middle class and working class workers have both lost pension security and have not had the largest gains in life expectancy. It is logical to assume that abundant increase in retirement time is not shared across class. However we do not discuss the distribution of retirement time in this chapter, rather we focus on averages.

Key Findings.

- From 1958 to 2020 (projected), twenty seven nations out of 29 experienced an increase in retirement time for men and, in all but one nation, women had more retirement time than men.
- Most of the increase in retirement time has come from increases in life expectancy not a decrease in work effort.
- There is only a weak general relationship between cutting retirement benefits and increases in retirement ages and there is a great deal of variation.
- Older people are generally working more in countries with greater financialization of pensions – meaning more income in old age comes from capital –
- Further, in countries where older people are more dependent on earnings in old age, rates of old age poverty are higher.

This chapter links the variation in the degree of financialization to various outcomes by describing a conceptual framework and expanded methods to assess the relationship between the increase in the share of elder income coming from capital and work, and the reductions in the replacement rates of state pensions.

This chapter describes how retirement leisure is a good that nations consume more of as they get richer. Leisure is a normal good in the parlance of economics. (As people get more income they want more of a normal good. In contrast, an “abnormal” good or service is a good for which, like potatoes and mobile homes, when times are tough the demand increases and when times are good, demand decreases.) The impact of increasing wealth and prosperity on the choice of nations in the form of national policy and among workers in choosing between leisure and more income is to choose for more retirement leisure. This tradeoff between pay and retirement leisure, in other words the impact of wealth on retirement leisure, varies across nations.

Economists have long held that pension policy is labor policy. National policy toward pensions attempts to influence when people retireⁱ. Gruber and Wise’s influential paper in 1998 set off alarms and urged nations to act boldly because people across the OECD were retiring at younger and younger ages. Nations did act. As a consequence, as life expectancy at age 65 has in general increased faster than the average age of retirement in most nations, workers have more time in retirement than they did in 1958, but the pace of retirement time improvements is slowingⁱⁱ.

The U.S. retirement income security system has been eroding the pension system mainly by increasing the normal retirement age of Social Security. But that isn’t the only source of erosion of state pension benefits. In the US, as is true in most voluntary systems, the voluntary employer based retirement account system covers about half of the workforce. The form of pensions have also changed from the defined benefit (DB) design to an individualized 401(k) system. Both trends have eroded coverage and adequacy of pensions and have led Americans to work longer. Because of the world wide push to shrink retirement time, most people are working longer and most of the increases in retirement time across the OECD is attributable to improved longevity.

If Retirement Time is a Normal Good and Nations are Getting Richer What Explains the Slowdown in the Growth of Retirement Time?

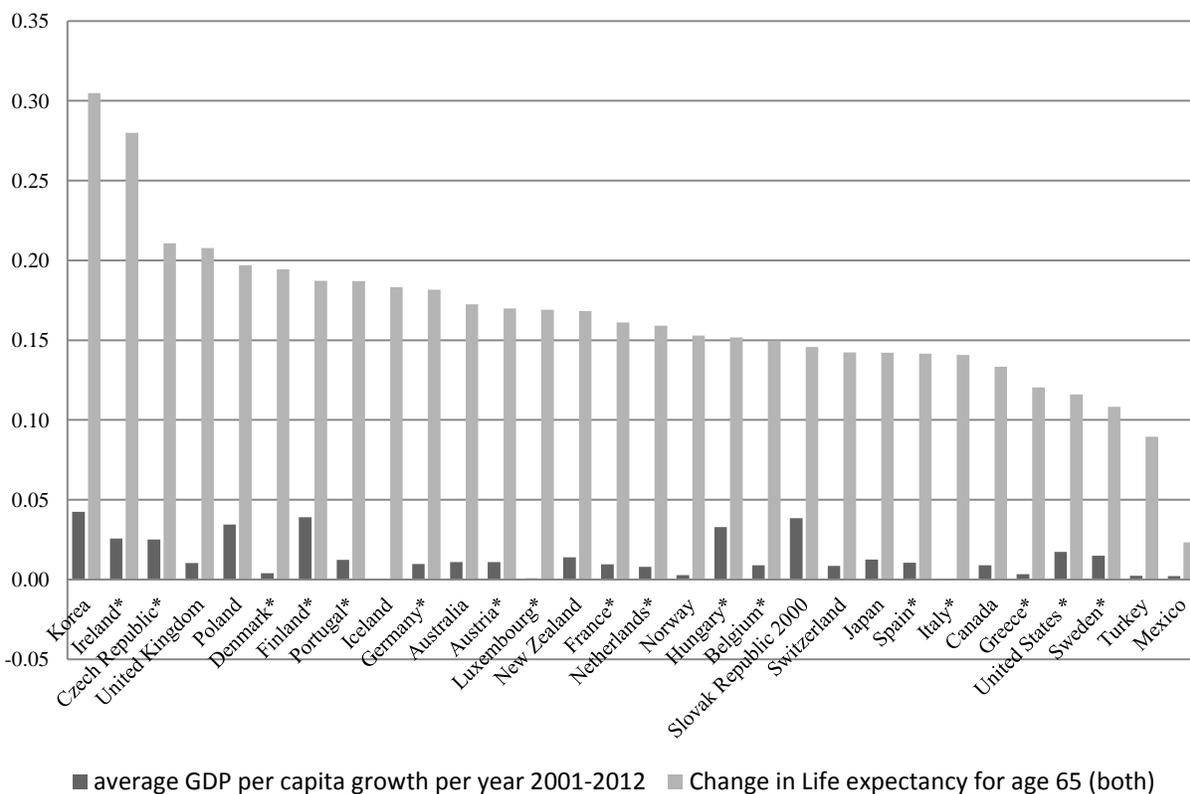
In economic terms, it is thought that when nations get richer their inhabitants consume more of everything counted as normal goods including commodities, services, health and leisure,

in what is understood as a standard income effect. Work becomes safer, holiday pay and vacation time is negotiated and parents take parental leave. The non-working weekend becomes a norm and working hours shrink. In like manner, retirement – pay for time not worked -- is a normal good, the demand for retirement time increases as nations get richer. However, some economists, like Gruber and Wise, pose an argument that the consumption of leisure induced by affluence could cause a reversal in that affluence. This proposal needs critical evaluation.ⁱⁱⁱ

First, there is evidence that as nations get richer they devote some of their resources to increasing the length of life for all people including older people, perhaps through a combination of more enforcement of public health initiatives (especially anti-smoking campaigns), better environment with cleaner air and water, better health care (certainly true in the United States with Medicare, or national health insurance for those over 65, which was implemented in 1965), and technologies for treatment of heart disease and cancer, etc. Simple two-way correlations between the GDP growth rate in each OECD nation and the growth of life expectancy for people over age 65 is 50% for men and women together and 64% for females.

Over all, people are consuming more leisure time, which would be expected as nations become wealthier. But the terms on which that increased leisure time is enjoyed may not be as good as they once were. People at retirement age may be working more because they need to supplement lower and riskier retirement incomes. This motive in turn would not be good for growth. The economic logic is as follows: if older workers are working more because they are

Exhibit 1: Very little relationship between GDP growth rate and an increase in life expectancy



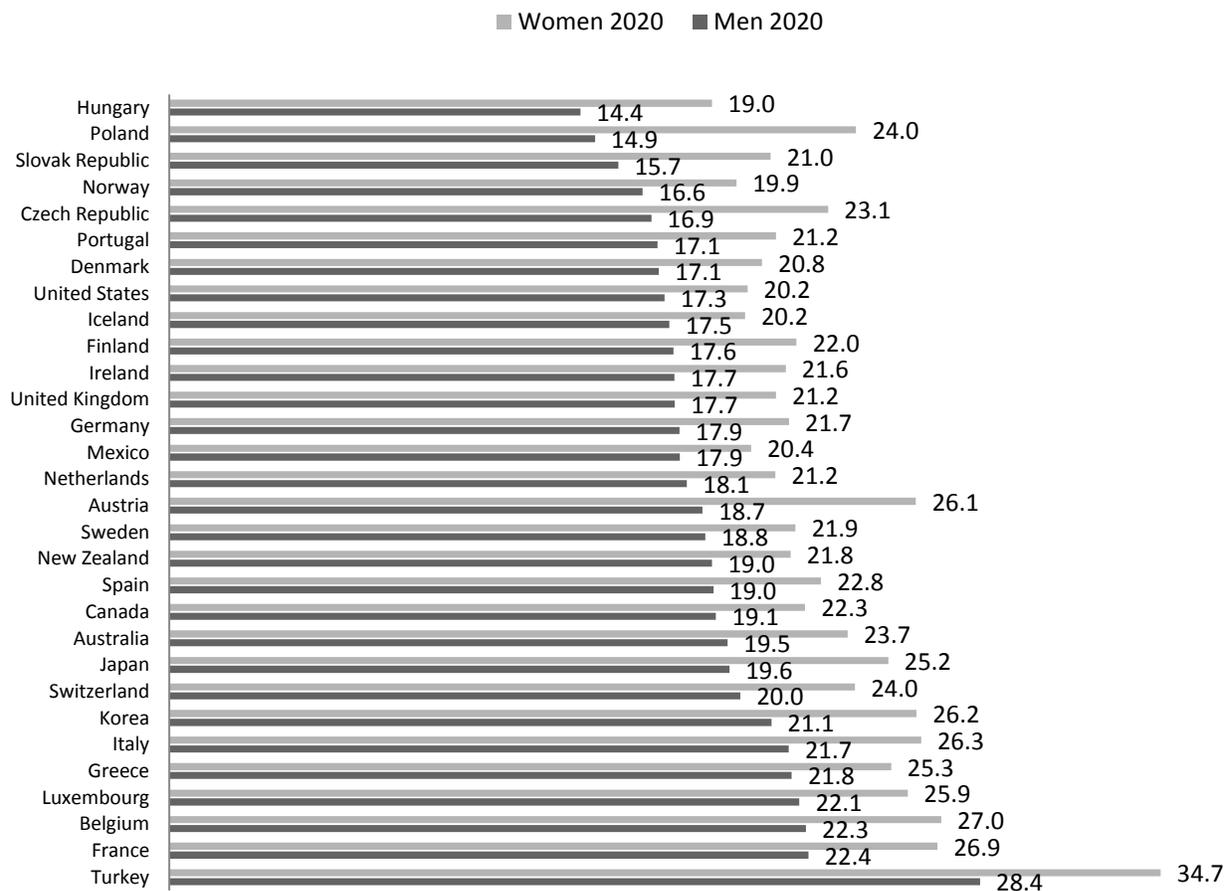
losing pension security, and not because they are being lured into the market with better wages and working conditions, the people with the lowest levels of productivity will be forced to stay in the labor force longer which causing average productivity to fall (Burtless 2013). This “forced to work” hypothesis is consistent with the evidence that elder LFP rate increases are not correlated directly with GDP growth. This evidence suggest wealthy, growing countries fully employ prime age workers and does not “pull in” marginal workers such as retirement-age workers.

The bottom line is, on balance, despite the increase in the labor force participation of older people in the OECD (measured two ways in this chapter: the OECD’s definition of pensionable age which is the youngest age a person can receive pension benefits from the state, and the “effective date of retirement”) the average worker in the OECD has come to consume more “end-of-work-life leisure” because life expectancy has increased since 1958.

Controlling the pace and content of time is another way to define leisure, and in old age, it is another way to describe retirement. People tend to enjoy time they can control, especially at the end of life. Since the amount of “retirement time” depends on two events, namely when one

retires and when one dies, we use the OECD’s measure of “pensionable age”, which is the average age of retirement for a particular nation’s workers, to calculate retirement time. We subtract pensionable age from expected age of death for people over 65 in that nation to calculate an average amount of retirement time in that nation.

Retirement time has increased but the rate of improvement has decreased. We calculate the expected retirement time an average worker could expect to consume in each OECD nation as the difference between the age of death and the age a worker could collect the “normal” (without reductions or incentives like a delayed retirement credit) public pension, in accordance with rules in each OECD nation. On average, we found that the estimated average retirement time for the 30 OECD nations, since 1958 (some countries only had data from 1971) increases over 20% between 1958 and 1993, with a 29% improvement for women and a 23% improvement for men. The rate of improvements slowed down to 8% improvement for women and 13% for men in the second period 1993 to 2010.ⁱⁱ See Exhibit 2:

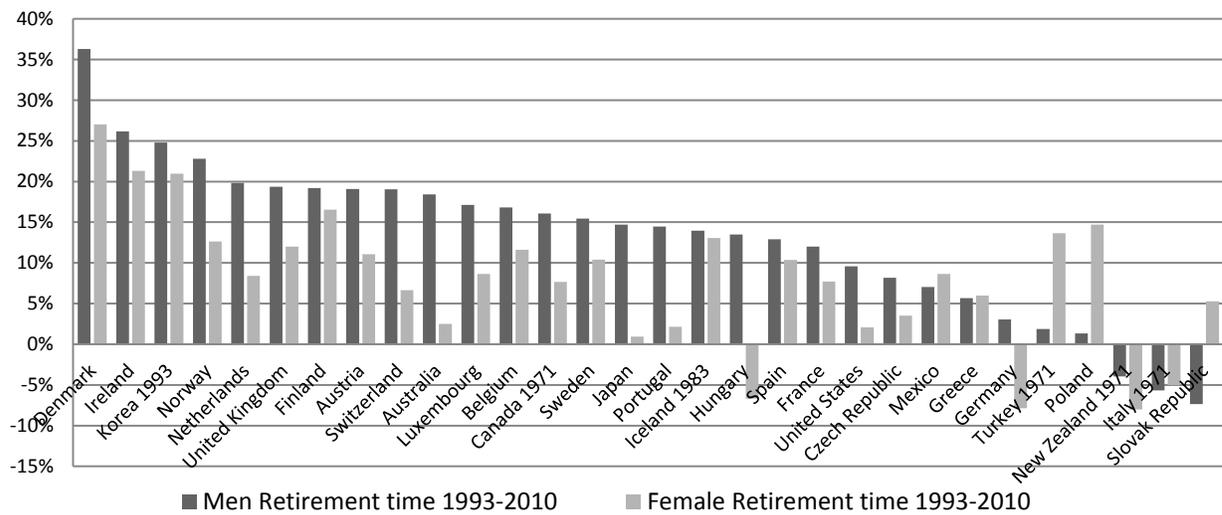


Perhaps rich nations are more likely to permit an increase in retirement time. How does GDP effect retirement time improvements? For both men and women, a relatively small growth in GDP per capita between 2001 and 2012 is correlated with a large gap in the growth in retirement time between the first and second periods. Fast growing nations in the last ten years saw improvements in retirement time, life expectancy, and resistance to increasing retirement age. Correlation of retirement time improvement gap between the first period compared to the second and increases in the GDP growth per capita.

Between 1971 and 1993 men improved their retirement time (change in retirement time – life expectancy after the age in which nations set their pensionable age) which is the by 22% and women 19%. The retirement time slowed to 12% and 7% for men and women (this is easily calculated from the OECD data referenced throughout). Mathematically, the slowdown in the growth of retirement time is due to two factors -- life expectancy improvements is slowing as one would expect and LFP rates are increasing. On balance, though the retirement time is increasing, the level and rates vary across nations. Exhibits 3 displays the life expectancy after pensionable age in each nation for older men and women separately. The Exhibits display the difference in the level of retirement time in 1958 for most nations (others indicate that data is only available from 1971). The biggest increases in retirement time are in Turkey for men and women mainly because life expectancy at 65 is increasing. Retirement time for men improved in all 30 nations except Poland, Slovak Republic, and Hungary and retirement time increased for women in all nations but Hungary. The United States has had a moderate increase in retirement time for men and it has decreased for women.

A serious flaw in the estimations of retirement time is that when using the measure of "life expectancy after pensionable age", we know that people do not stop working at their age of full pension eligibility, so we are not measuring actual increases in retirement time. And, crucially, the OECD data does not control for whether the men and women whose longevity is being calculated at age 65 were workers in their lifetime. Most men were workers in their lifetime but many women do not work all the time period between age 25 and 65. Therefore, older women's superior longevity and increased measured retirement time could be partly due to not measuring the actual retirement time of actual women workers. The hypothesis that lifelong women workers could be more broken down by working both in a paid job and in unpaid care and domestic work is a subject for further research.

Exhibit 3: Change in Retirement Time for Women and Men 1993 – 2010 in OECD Nation



Improvements in Life Expectancy for all people

Digging deeper into distribution of the level and growth of retirement time in the OECD requires investigating the variation in the increase in life expectancy at age 65. Men were more likely to be consistent workers, so their life expectancy is a good measure of the life expectancy of life-long workers. Both sides of the calculation, including the age set for full pension benefit collection and the average age of death after age 65, is discussed to achieve a measurement for retirement time. For instance, the Japanese have the longest age 65 longevity but not the longest period of measured retirement time. There is some evidence of convergence in the nations with the lowest levels of age 65 longevity in 1958 showing the greatest improvements. However, the relationship between level and improvement is not what we would want if the goal were convergence in normal human life span after age 65. Indeed, South Korea had among the lowest levels of age 65 longevity in the early period and the largest improvement. However, Hungary and Turkey had low levels of post 65 life expectancy and some of the lowest rates of improvement by 2012.

The next section describes the other side of the calculation of retirement time: the changes in the LFP of older people.

Government Policy and Changes in the LFP Rates in the OECD

This third section has two parts. The first relates the actual average increase in the LFP rate of workers in the OECD to changes in the policies towards elder work. The second part discusses the widely read and cited Gruber and Wise study that concluded that if nations wanted to reverse the decline in labor force participation rates they may need to cut pension benefits. Gruber and Wise argued that across the OECD, the older the age at which workers can collect full pension benefits, called normal retirement age, the greater the increases in their participation in the labor force. This makes sense given that people who do not have access to income without working are more likely to work. Gruber and Wise's 1998 article^{iv} coincided with the political project to induce more work among the elderly^v. The paper systematically related the social security provisions with retirement behavior. Using data from 11 industrialized countries they related trends of declining LFP of old age workers over the course of 30 – 40 years to the generosity of the state pension plans. They argued that population aging along with retirement leisure made the strain on pension financing more expensive.

Older male LFP (LFP, age 60-64) declined dramatically from about 1965 to 1992. Older men in France, Belgium, and the Netherlands had over 60% LFP rates in the earlier years and less than 20% in the later years. The US LFP rate fell from 82% to 53% between 1960 and 1994 (which was a modest decline compared to other countries). Gruber and Wise infer that the fall in older workers' labor force productivity foregoes national wealth because of productive capacity, or "unused productive capacity." This point is straightforward, more work from any supply of labor – a 7 day work week for instance – would raise national output. One economic concern would be the effect on productivity.

Burtless (2013) argues that elders working more lowers productivity. That productivity levels off and falls over time, as the worker gets older, is part of a widely-recognized reason firms offered retirement plans (Burtless 2013). Also unions bargained for pensions in certain industries which helped set a norm for the legitimate and normal time in the labor force. Older workers, on average, have declining productivity in most occupations (Lallemand, Rycx, 2009). More importantly is not the absolute decline in productivity but the relationship of pay to productivity. Because health care costs increase with age. Though older people are healthier than

they were in the past, there is evidence that the speed of technology has made for speedier rates of skill obsolescence so that productivity decline after age 60.

Gruber and Wise argue that the increase in state old age pensions drives the lower LFP rates by setting an early-retirement age (ERA) that may be too low, and puts an “implicit tax on work”. The ERA is the earliest age at which social security benefits are available. Each system’s rules determine how much an extra year of work yields in extra old age income accrual. If the change in social security wealth due to working one more year is negative, this is conceived as an indirect (implicit) tax on earnings and the authors call it a “penalty on labor earning beyond the early-retirement age” which they assume produces a disincentive to continue working. They find that pension accrual is negative at older ages for all countries at different magnitudes. The variation in the penalty allows them to relate the penalty to the observed LFP. They note the extreme case of France, where at the early-retirement age; the implicit tax rate is nearly 70% for those with median earners.

Mathematically the implicit tax rate on work is high when older workers have to pay a high tax and there is “insufficient actuarial adjustment for fewer years of pension receipt”, meaning that early retirees do not get a monthly benefit decline that is actuarially fair. A “fair” benefit decline at younger ages equates the lower benefit over a longer time to a higher benefit collected at a older age for a shorter period of time (p.161).

Gruber and Wise analyzed 11 nations in depth to calculate implicit tax rates for older work. We examine 30 nations for the correlation to life expectancy after pensionable age to economic growth and the other policy changes such as the financialization of pensions, measured here as the percentage of the income source that comes from assets and work rather than from social security or occupational type pension plans.

Gruber and Wise infer that that nations intentionally sought to encourage older people to retire because changes in social security provisions preceded declines in elder LFP. They call for nations to reverse the decline in elder LFP by decreasing the generosity of early retirement benefits and lowering the tax rates for older workers.

This paper updates some of the key findings and assumptions in this influential twenty year old paper by not just examining the generosity and adequacy of the replacement rates at retirement but also to adjust to differences in life expectancy among nations. An earlier

retirement date may be warranted if older people die early. Also earlier retirement and longer lives could indicate that nations view retirement time as a normal or even luxury good.

The Gruber and Wise paper itself was published at the same time austerity programs were being implemented (Huber and Stephens 2001). Old Age programs that are funded by PAYGO funding mechanisms (that become more expensive if a large cohort is followed by a small one) were projected to rise in cost (expressed as payroll tax rates) and so became an obvious target for austerity policies. Gruber and Wise's analysis provided a path to obtain social and economic benefits without obvious costs. Older people working more grows economies, increases household income with no extra effort from state programs – a classic “win-win.” All that was needed to obtain the gains was for states to change their pension design to induce older workers to work.

According to standard economic theory, pensions or any other kind of non labor income suppresses labor market participation by raising what is called an individual's “reservation wage” (which is the lowest wage a person will accept to sell their time for work). That means an older person with a hefty pension will only work if the wage and working conditions are attractive. Without pensions older people will accept a lower wage or worse working conditions. Evidence shows that the labor force participation rate of older people is sensitive to changes in non labor income, such as pensions (Cesarini et. al. 2015) who finds a notable decrease in hours worked by lottery winners in Sweden, especially among older workers. California teachers aged 55 to 75 were 2-3 percent less likely to work an additional year per \$100,000 of accrued pension wealth. An unexpected increase in pension generosity was also associated with decreased labor force participation by workers aged 55 to 75 (Brown, 2013). Older workers are also more sensitive to temporary take home pay wage changes than younger workers are (Reichling and Whalen, 2012) a conclusion derived from studies on the effect of the Earned Income Tax Credit (Blundell, Bozio and Laroque, 2013).

The effect of the OECD pension design changes after 1990 are consistent with Gruber and Wise's recommendations that nations cut pensions to induce more work. Between 1990 and 2011 over half of the OECD nations cut pension benefits by raising the normal retirement age (NRA) (19 raised the NRA for women and 16 raised the NRA for men) (Pensions at a Glance 2011). Raising the NRA – the age people can collect full benefits – effectively cuts benefits for everyone collecting at any age.

This is also the time period men and women increased the age of effective date of retirement. Just a few decades ago, Gruber and Wise were animated by the declining LFP of older workers and the associated problem for the economy and society. Gruber and Wise viewed the LFP rate slide to be caused by the incentive structures of national pension systems.

Variation In The OECD's Age of Retirement, Related To Government Policy?

The OECD's "age of effective retirement" is computed based on the average age people withdraw from the labor force in a given period. In most nations, people retire at younger ages than age they can collect full retirement benefits under their nation's state pension rules. For instance, in the US, covered workers can collect a much reduced Social Security pension benefit at age 62 or wait to receive maximum benefit, worth more at age 70. Each person decides their rate of time preference and makes an estimate of their longevity and morbidity in order to choose the age to collect reduced or full benefits. On average, people retire much sooner than the age to collect full benefits. This is quite extraordinary because it means the state systems are less generous than it would appear. In the US, the penalty for collecting at 62, four years before the normal retirement age of 66 (for people born after 1960), is 30%, and the delayed retirement credit for collecting at 70 is 32%. Together that means for every \$1,000 of benefit owed at 66, a worker could collect \$700 per month at 62 for life, or \$1,320 at 70 for life. Over 40% collect at age 62. Retirees in Japan and Korea are notable exceptions to this regularity, where the effective age of retirement is close to 70 for men despite a normal retirement age of 60. The demand for labor could be quite high so that the wage offer for older workers is high or the benefits are low and to meet a target income these men need to work.

Men, on average, are still in the workforce at age 65 in Denmark, Iceland, Ireland, Portugal and Switzerland, but have left the labor force by age 60 in Austria, Belgium, France, Hungary, Luxembourg and the Slovak Republic. Women, in general, retire around one to two years earlier than men do (OECD 2015).

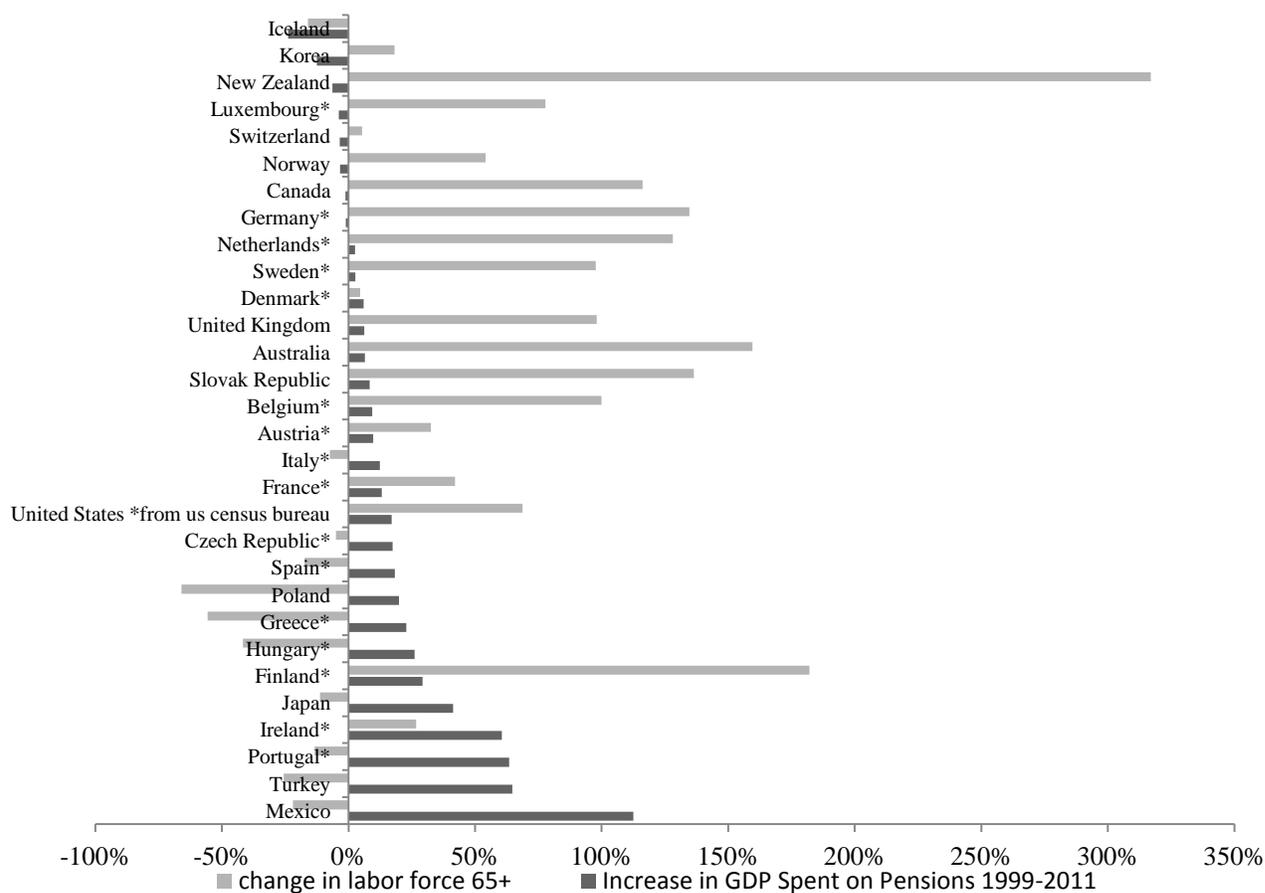
Overall, since 1995, the LFP of men and women is increasing to older ages. In most OECD nations men and women's age of effective retirement has increased in the period between 1995-2011. However in 10 out of the 30 nations, women's age of retirement is decreasing and in 15 nations the age of men retiring is decreasing. Women are working less and men more in New

Zealand, Australia, Russia. Whereas in Greece, women are working longer and men are retiring at younger ages. The conclusions we draw from the international experience is that there is a general tendency for national policy toward cutting retirement benefits to lead to increases in retirement ages but there is a great deal of variation. (See Table A2 Retirement Ages Fell Only Slightly Where They Were the Highest).

One can imagine that a compelling motive for Gruber and Wise's research was that if elders reduced their labor force participation the costs to society would increase. This motive would imply that elders were being encouraged to work less in nations which caused retirement costs to increase (We compared the change in the retirement costs to society as the share of GDP paid for pensions in 2011 with changes in the labor force participation). We would expect that nations would correct for runaway retirement costs and raise retirement ages where older people were retiring at younger and younger ages. And we did find a relation between the increase in the LFP at age 65 and the changing pension expense of a nation. But the correlation between the increase in the share of GDP paid for pensions and elder LFP is small. For example, France, Portugal, and Italy spend the highest share of GDP on pensions – quite high in fact between 13% – almost 15% (compared to the US which is about 6% which supports Gruber and Wise's point that generous pensions may lead to lower work effort).

But the causation could be in the reverse. Older people not able to find work caused pension spending to increase. Only Finland's correlation that a nation's past increase in pension spending would be move to increase the retirement age (see Exhibit 4). Explaining the increase in labor force participation rates in each country would be a challenging and likely not promising investigation for a multivariate analysis because of the lack of sample size and identification of the determinants, the point of the correlation exercise is to sort out the logic of financialization and how it bears on commodifying elder people's labor.

Exhibit 4: Weak relationship between increase in LFP at age 65 and pension expense of a nation.



What explains the increase in normal retirement ages, or the cut in benefits? The age at which workers collect full benefits is a matter of policy. Worker bargaining power and retirement time should be related. One way to measure whether workers are able to resist the increase in their labor commodification is whether the national labor movement can prevent the decrease in pension benefits. One general way to test whether unions are able to maintain workers access to retirement time is to correlate the strength of the labor movement to the changes in the actual retirement time accumulated, but the association we find is weak. The slowdown in the growth of retirement time is lightly associated with weaker unions for men - retirement time and weaker unions were slightly associated with a 3% correlation. For women, the union strength decline was inversely related (-13%) to retirement time falling. The interpretation is that in nations where unions weakened, retirement time for women improved. More research is needed to investigate why there should be an inverse relationship. In other words, stronger unions would be expected to be associated with better-protected pensions and

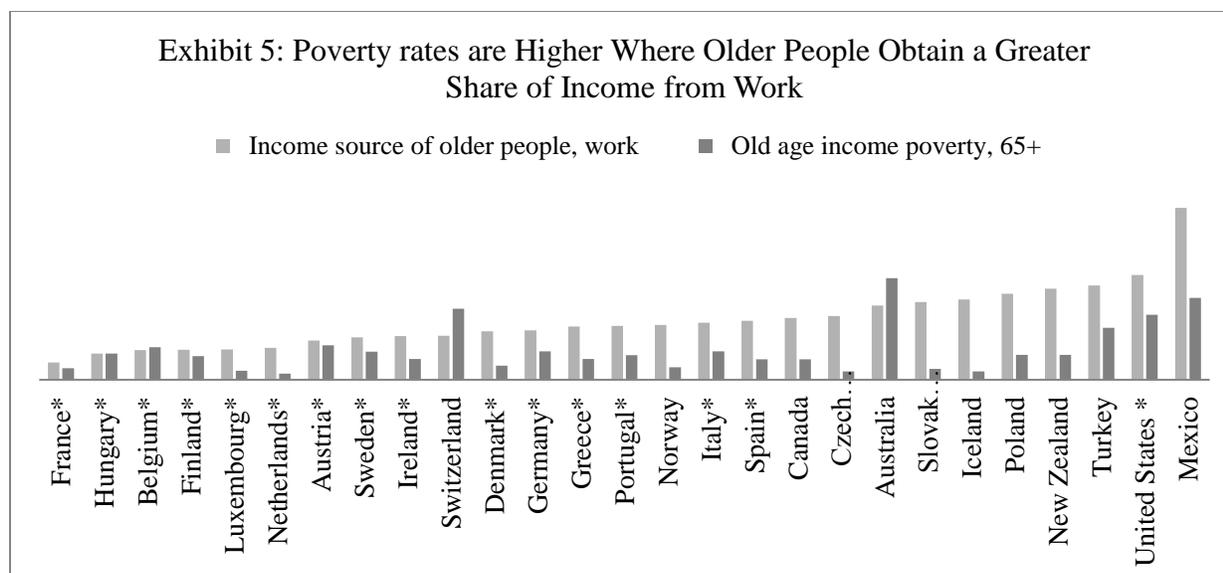
retirement time, but there are many variables that could confound the analysis, including definitions of "labour strength" (many OECD countries have low union density but cover large shares of the labor force).

The concern is the possibility of a reactionary response to an increase in pension spending due to more people collecting benefits as populations age. When cutting benefits, either by increasing the normal retirement age or raising the early retirement age, elders won't be able to find work and may retire with lower benefits. In only a few nations do workers retire after the age at which they can collect full benefits (OECD 2015).

In the 30 wealthy nations we see that the LFP of men and women has grown significantly since 1993. However, the increase in LFP is not explained by growing countries bringing in more workers through the added worker effect and increased prosperity (measured by the changes in GDP). Older workers work more when their reservation wage is low, and when the generosity of pensions is low, the reservation wage is low. Therefore, we expect a negative relationship between generosity and LFP. Indeed, when the replacement rate decreases by one percentage point, from say 30% to 29%, the labor force increases by 21%.

In the 25 nations where we have data on the financialization of pensions – percent of income coming from capital we find an increase in the work effort. The correlation is 35% and the relationship is displayed in Table A3.

And more work is linked to old age poverty. The relationship between elders getting a larger share of their income from work is positively related to the poverty rate among the elderly population. The correlation is and the positive relationship can be observed in the chart in Exhibit 5.



We used a simple ordinary least squares regression of the LFP rates of older workers regressed on the generosity of the pension amount measured two ways: one, the replacement rate and two, the share of GDP spent on pensions per older person. There were no significant results when using GDP spent on pensions as a measure of generosity and a slightly negative effect (but not large) when replacement rates proxy for benefit generosity. The results are weakly consistent with the hypothesis that nonlabor income, eg. state pensions, reduces the reservation wage and increases work effort. We would expect this based on Gruber and Wise and common familiarity with labor economics (results are available from the authors).

We also tested the hypothesis for patriarchy and the differential policy responses that might come about because of it. If patriarchy is present we expect older women to be devalued and the relationship between male and female old age to be weak. The conjecture is not supported. The simple correlation of male poverty rates and female poverty rates in every year is almost one to one. The superficial correlation suggests that a country's concern and support for the elderly poor is equal across sexes. More research and theorizing is needed to investigate the poverty differentials by sex in old age.

Case Study: The US Produces Insufficient Retirement Savings and more Inequality

The United States was one of the first nations to cut pension benefits for mid to late boomers (born 1945 – 1962) by increasing the normal retirement age from 65 to 67 over a period of 25 years, starting in 1984. In addition to the benefit cuts, the United States economy grew from 1984, people got healthier, educational attainment was much higher for boomers than previous generations. So, since the 1990s, older Americans have increased their LFP by a considerable extent.

For all workers born after 1960 the normal retirement age, what the OECD calls the pensionable age, is 67. Another age is necessary for research in the incentives for older age work. The US rewards workers for not collecting Social Security before age 70 when the Social Security benefit is at the maximum. Gruber and Wise painstakingly calculated the implicit tax on working, and the OECD could help by reporting the age at which state pensions stop increasing. In some nations, as in the US, the maximum benefit is collected in one age and the normal retirement age is younger.

An "individualized - financialized" system is one that depends upon workers making paycheck-to-paycheck decisions to save and invest for the purposes of insuring against the risk of living a long life and suffering through periods of real sustained rate of return losses in finance markets (Clark, et. al 2012). Many OECD nations and developing nations have changed their system to be more financialized.

As we do in this chapter we define a "financialized" pension system is one in which older people are expected to work. The post-war 'class compromise' included a widespread agreement that all workers were entitled to paid time off at retirement age. In the US, this expectation was made concrete by an expanding Social Security system and a system of DB plans, as well as single payer national health insurance, Medicare, for everyone over 65.

The financialization of pensions is based on the mathematical promise of compound interest or returns on savings. Unions and employers wanted the financial markets to pay for pension as they do in advanced funded DB plans. When higher returns are expected, the sacrifice from current consumption to smooth future experience(?) is easier. This conclusion follows directly from the math. The higher the assumed rate of return on savings, the lower the required amount of absolute savings is needed. . In the era of secular stagnation, the political ramifications of the low rates will give us an opportunity to reform pensions progressively. The DC model

requires of people what humans can't do or control. One could have a sizable retirement account if some of the following conditions are met: returns are positive and stable; people make pretty good decisions about investments and savings; and people pay low fees.. The current system fails at all three requirements. A young person must be equipped with foresight and financial literacy and rely on the tax subsidized institutions to arrange for her to save for her 30 year retirement. She also needs the luck to be born in the "right" cohort. People nearing retirement lost on average 40% of their retirement assets in the financial crash of 2008-2009. For people nearing retirement they did not have time to make up for all the losses, much less gain what they had expected to earn in a steady rate of return environment

The saver also needs to predict her death. Longevity risks impact adequacy. A sizable account is inadequate if one lives longer than expected or interest rates are lower than average. This makes planning for an adequate savings out of the person's control which is exactly the environment for social insurance, not self-capitalizing of risk. Annuity markets are extremely sensitive to prevailing interest rates and ultimately, central bank policy. Going back to the factors out of the saver's control. Maybe she knows all four grandparents lived past age 90, she studies the literature on productivity slowdowns and secular stagnation, and takes the IMF predictions to heart for a low rate of return. She assumes a 1 percent real return on assets rather than 6 percent. With the lower rate assumed, her required savings rate explodes. She would need to save 37 percent of her income in order to ensure her consumption is smooth throughout her lifetime. If she assumes a 20-year retirement and a 6 percent real return, she only has to save a manageable 5.2 percent.

The shift away from a pooled collective DB plan to a financialized, voluntary, individual account, voluntary system encouraged more research attention to how humans behave. Hope was placed in a policy framework called "nudge" (after Obama advisors and University of Chicago professors Cass Sunstein and Richard Thaler, and/or "libertarian paternalism"). There are a number of stylized facts about the way humans behave that do not adhere to the behavioral economics and the nudge model and therefore support the calls for more social insurance instead of design changes that create a choice architecture that aid in better decision-making. But by targeting "better decisions" behavioral economics focuses on the wrong policy lever. In the commitment to libertarianism, facilitating financialization by providing frameworks in which individual account management could work better misses the obvious point that managing risks

isn't about knowing the risks better and how to self-capitalize on risk, but by creating a pool of assets to insure the risks faced by everyone. Take, for example, that we all face a risk of kidney failure. Libertarian paternalism would emphasize a choice architecture to get me to save every paycheck in an account, and with intervention that improves my financial literacy, I would manage the account well. The policy hope is that I would save enough to pay for dialysis should I need it. If I don't, the remainder would go to my heirs. To capitalize my risk I only need to know my risk of kidney failure, the cost of transplants or dialysis, the state of financial markets, and my life span. A better designed system is health insurance.

People who don't save for retirement in the behavioral economics framework are accused of myopia, of caring about the immediate and the local (Clark, et. al 2012). Behavioral economists explain that myopia could be rational because the present is important for surviving – a strong instinct. But the compelling logic of compound interest penalizes most people who are present oriented. The basic findings of behavioral economics also point to the difficulty of managing assets over a lifetime to yield a constant stream on income. Some scholars have provided evidence for an obvious point that financial planning ability is related to a person's social economic status (beyond just the effect of increased education on the ability to make financial calculations. The social connections lead to information and attitudes which determines the proclivity and success in financial planning. Most people get their information from families, or workplaces (Stumm et. al, 2013).

People do not carry through with plans, and jump at shadows, when they ought to stand by informed commitments. And, we are poor at data analysis and befuddled by even the most elementary notions of probability and calculating risks that are contingent on likely and unlikely events (more people have too much life insurance and not enough disability insurance (Clark, et. al 2012). People suffer from confirmation bias; we tend to collect information to confirm their already held points of view and opinion, not to inform and change them. And we have problems with saliency, individuals tend to put more probability weight on events that have just occurred. (Kahneman 2013). Education significantly changes decision making by helping individuals be comfortable in the probability domain, numerate in future valuation and present valuation calculations, able to recognize underlying patterns of data, events and processes, to process information in a timely manner, to cut through the clutter of events, and to apply relevant rules for decision making (Clark et al 2012).

The current system of 401(k)'s generates low returns for most people after the regressive tax benefit, high fee, and risk adjustment made for undiversified liquid portfolios are taken into account. Returns are contributing factors. Since individuals in the bottom 60 percent or so of households get little tax relief due to their low marginal tax rate, the retirement accounts for the households at the bottom of the income distribution can easily earn negative real returns after deductions for fees are taken into account.

In the United States, the share of income to the middle-class 67 year old born in 1946-1955 coming from insurance based sources (Social Security and DB plans) was 47%. The share is predicted to fall to 40 percent for people born between 1966 and 1975 (Butrica Smith & Iams 2012). The poverty rate is expected to stay stable but the inequality of income among the retired population is expected to grow (Gist & Hatch 2014).

Retirement ages have been increased, benefits cut, and the state pay-as-you-go pillar has been eroded in favor of an OECD 401(k) system.

The system works for a minority of highly paid employees, but the experience of the top 25% is very different than the bottom 75%. Since the liberalization of the welfare state has taken place and more households are expected to take on risks, there are consequences for households, the distribution of wealth, income and security in old age (Clark, Strauss and Knox-Hayes 2012).

401(k)s and IRAs are the American financialized retirement system, but it is important to recognize that there wasn't a grand plan to create a DC system at the expense of the DB system. And, the 37 year experiment has failed most Americans. The 401(k) and IRA system makes inequality worse. The system works to create inequality in retirement wealth, retirement income and retirement time. The top 10% of workers with stable lives and consistent employment and the highest incomes get the most tax subsidies, pay the lowest investment fees and have the best investment advice. The top 10% win under a financialized system.

In such a system, all workers are concerned about their personal situation. For a middle class person to be a middle class retiree, they need \$640,000 in savings at retirement. Fortunately, Social Security provides about \$200,000. To get \$440,000 in a retirement account, the \$80,000 per year worker in 2016 would have had to save about 6% of their uninterrupted paycheck for 45 years and earned a 5% return each year. That is what a typical, now waning, DB plan does. In a financialized system the average account balance for American workers over 50

is \$12,000. It is about \$65,000 for the half of workers with an account not consistently contributed to from which workers can take withdraw savings whenever they want. When people withdraw, which they may do for many reasons, they pay a penalty which reduces the amount of saving even more.

The upshot? The 37 year old experiment with 401(k) and IRA system has failed because it is a voluntary, individual directed, commercial, lightly regulated and it is subsidized by top-heavy and ineffective tax deductions.

In the current system, taxpayers, employers and workers lose from the massive inefficiency of a misalignment of long term savings to liquid accounts. Who wins? Retail brokers and powerhouse bond and stock mutual funds.

Most workers would do much better in a pooled, professionally managed account with which, due to its greater scale, it can bargain for lower fees. We call for a new kind of personal account. The Guaranteed Retirement Account will build on an expanded pay as you go Social Security account (Ghilarducci and James 2016).

The Current System Generates Inequality

Most working families starting in the 1950s could count on access to adequate retirement income through an expanding defined-benefit and Social Security system: both the SS system and the maturing workplace systems allowed the rich and working class to retire.

Now, broad based access is gone and only the privileged can count on retirement time and adequate incomes. Earners who do best in a 401(k) or IRA system are those that,

- 1.) Contribute more and more consistently;
- 2.) have employers that contribute more;
- 3.) have nonemployment spells when asset prices are low so that they can buy assets in their 401(k) in down markets;
- 4.) have more diversified portfolios because their employer is large (large employers have better run 401(k) plans or networks of formal and informal advisors help them with more sophisticated strategies);

5.) pay lower fees, which come about with having larger balances and being in a plan sponsored by a large firm (because larger firms provide better choices and have more clout to lower fees in their 401(k) plans);

6) have good tax breaks.

The different economic lives of the bottom 90% of earners, compared to the top 10%, interacting with the system's design is causing downward mobility for middle-class workers as they age.

Ian Ayres at Yale law school concludes one third of workers, those at the low end of the earnings distribution, obtain little benefits from IRAs (Ayres 2015). Their accounts are small, fees disproportionately high, low income households withdraw money before retirement and more likely pay a tax penalty for early withdrawal, and they get little tax relief because they are at a low tax rate. Some IRAs are linked to checking accounts for easy access. This means, for many Americans, a mattress is a better vehicle for their retirement money than an IRA because a mattress doesn't charge excess fees, it is heavy and hard to withdraw from, and if you do withdraw, you don't pay a penalty. The erosion in secure retirements cannot be fixed with minor tweaks.

A financialized system generates blame directed toward the individual, inevitably invoking shame that dovetails into further financial inadequacy. The financial literacy literature points to impulsive spending habits instead of the system's design. However the retirement crisis is not caused by flawed people but a flawed system that only works for the most well off.

Implications and Conclusion

In conclusion higher income workers are most likely to have the economic lives that dovetail well with a financialized retirement system. Highest earners have better and more stable jobs, they have larger and more sophisticated employers, and they pay lower fees. Higher income people have more access to financial information networks, and they benefit disproportionately from the tax breaks in the nations that deduct retirement earnings and contributions from the income tax system.

Many nations in the OECD have taken on some of the characteristics of the US workers' retirement, eg. more elders will be obtaining their income in retirement from individually saved or invested assets. The privatization of risk, and the provision against risk has been the most dramatic change in the form of pension provision in the OECD. The shift away from PAYGO financing, which is a direct transfer from current workers to pensioners, toward pre-funded pensions that pay for future income, form a general pattern, but they have taken place very differently, at different paces and to different extents, in the various OECD countries. Income security rests on a financial system that is not oriented to providing insurance against the contingency of old age and work relief, the condition known colloquially as "too old to work, too young to die." However, the age considered too old is shifting upward on average, and older workers need to stay employed in order to earn the security that the system is taking away.

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Appendix

Table A1 Average GDP growth and Life Expectancy of Women over 65

Country (EU*)	average GDP per capita growth per year 2001-2012	Change in life expectancy at age 65 (1995-2012, female)
Italy*	-0.05%	11.1%
Iceland	0.06%	12.6%
Luxembourg*	0.07%	8.6%
Mexico	0.21%	2.2%
Turkey	0.24%	10.3%
Norway	0.28%	9.4%
Greece*	0.34%	12.4%
Denmark*	0.40%	14.8%
Netherlands*	0.80%	9.4%
Switzerland	0.85%	9.3%
Belgium*	0.90%	10.4%
Canada	0.90%	9.0%
France*	0.95%	13.6%
Germany*	0.97%	13.4%
United Kingdom	1.04%	14.8%
Spain*	1.05%	12.9%

Austria*	1.10%	13.3%
Australia	1.10%	12.8%
Portugal*	1.24%	17.7%
Japan	1.26%	13.9%
New Zealand	1.39%	11.6%
Sweden*	1.50%	6.0%
United States *	1.73%	8.5%
Czech Republic*	2.50%	18.5%
Ireland*	2.57%	22.7%
Hungary*	3.29%	13.1%
Poland	3.45%	20.0%
Slovak Republic 2000	3.84%	14.2%
Finland*	3.90%	15.5%
Korea	4.24%	29.4%

Table A2: The share of GDP Spent on Pensions in 2011 varies considerably by nation

	Share of GDP Spent on Pensions in 2011
Mexico	1.8
Iceland	2.1
Korea	2.2
Australia	3.5
Canada	4.3
New Zealand	4.9
Ireland*	5.3
Norway	5.4
Netherlands*	5.5
United Kingdom	5.6
Denmark*	6.2
Switzerland	6.6
United States *from us census bureau	6.7
Slovak Republic	7.0
Sweden*	7.4
Turkey	7.5
Luxembourg*	7.7
Czech Republic*	8.9
Hungary*	10.0
Belgium*	10.2
Japan	10.2
Finland*	10.3
Spain*	10.5
Germany*	10.6
Poland	10.8
Portugal*	13.0
Austria*	13.2
France*	13.8
Greece*	14.5
Italy*	15.8

Table A3: Increased Source of Income from Capital causes More Labor Force Participation

Country (EU*)	Income source of older people, capital	Change in labor force 65+
Slovak Republic 2000	0.7	1.36
Poland	1	-0.66
Czech Republic*	1.5	-0.05
Hungary*	2.5	-0.42
Greece*	4.3	-0.56
Austria*	4.7	0.33
Belgium*	5.8	1.00
Ireland*	6.3	0.27
Netherlands*	6.6	1.28
Portugal*	7.1	-0.13
Italy*	7.7	-0.07
Norway	8.6	0.54
Finland*	8.8	1.82
Germany*	10.8	1.35
Iceland	11.2	-0.16
Switzerland	11.2	0.05
Luxembourg*	11.3	0.78
Sweden*	11.9	0.98
Spain*	12.4	-0.17
Mexico	12.8	-0.22
United States *	12.9	0.69
Australia	17	1.60
Denmark*	18.7	0.05
France*	19.7	0.42
Turkey	19.8	-0.26
New Zealand	24.4	3.17
Canada	40.6	1.16

ENDNOTES

ⁱ Retirement policy is labor policy in that incentive structures target the “unused labor-force capacity” of older workers (Gruber & Wise, 2009).

ⁱⁱ The Social Security Act made the normal retirement age 65, which remained until an amendment in 1983 raised the age from 65 to 67. However retirement time changed drastically – life expectancy for those born in 1935 was only 60, whereas in 1983 it was over 74 (data from the World Bank).

ⁱⁱⁱ

Life expectancy after age 65 could be a normal or luxury good. And so could retirement. Retirement leisure is certainly not an inferior good is a good whose demand decreases when income increases. An example of an inferior good is cheap coffee. When income increases rises the demand for specialty coffee increases. Retirement leisure is certainly a normal good, an increase in income causes an increase in demand more or less than the increase in income. A luxury good is a normal good plus. An increase in income causes a bigger percentage increase in demand than the increase in income. When income rises, people or nations spend a higher percentage of their income on the luxury good. (Note: a luxury good is also a normal good, but a normal good isn't necessarily a luxury good).

The life expectancy gains for older men was higher than women: 19% versus 13%. Author's calculations using Pensions at a Glance 2015. Tables available upon request .

^{iv} Gruber, Wise. *Social Security and Retirement: An International Comparison*. The American Economic Review, Vol. 88, No. 2., 1998. These shifts are documented in their later book, Social Security and Retirement Systems around the World (2009)

^v Arguments for people working longer for the sake of their household finances and the nations growth are made by Munnell et. al. 2015 and the National Research Council 2012.