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Means Testing Social Security: Modeling and Policy Analysis

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Means Testing Social Security: Modeling and Policy Analysis

Abstract

Means testing can balance the need to provide adequate retirement incomes with the requirement that such provision is fiscally sustainable and economically efficient. Critics of the policy suggest that to reduce benefits as a retiree's income and/or wealth increase is to discourage work and savings. Yet such distortions are small compared to those resulting from large earnings related pensions that, due to demographic change, require greater levels of financing via payroll taxes. Some form of means testing exists in most countries, usually involving small, safety-net schemes that target the poorest retirees (e.g., the Supplemental Security Income program in the U.S.). But an appropriately designed means-testing instrument can also be used to reduce the liability of large, publicly financed social security promises by excluding the affluent. This paper summarises means-testing design and implementation in a number of OECD countries as well as tackling key criticisms of means testing. In doing so, we discuss a number of recent, cutting-edge modelling approaches and empirical insights that examine economic impacts of means testing in the Australian and U.S. contexts.

Citation

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1. INTRODUCTION

Means testing can balance the need for adequate incomes in retirement with economic efficiency objectives to an extent that is seldom appreciated by policymakers. It is an inexpensive way of ensuring a minimum level of retirement income. The means test may create disincentives to work and save for those wishing to target a certain benefit level, but such distortions are dwarfed by disincentives from much larger earnings related pensions with associated payroll taxes or social insurance premiums.

While some form of targeting exists in most countries, it is rarely exploited to its full potential. Commonly, means testing is deployed in programs that address destitution, such as in the United States' Supplemental Security Income program. An appropriately designed resource testing instrument can also be used to reduce the liability of large, publicly financed pension or social security promises by excluding the affluent. Policies of this kind are in place in only a few developed economies (e.g., Denmark, Australia, and Chile) but have recently been advocated to address both fiscal stress and inequality issues, notably by the IMF (2014). [1]

This paper summarises means-testing design and implementation issues as well as tackling a key criticism relating to the claimed distortions created by means testing. In doing so, we discuss a number of recent analytical and empirical insights based on state of the art macroeconomic modeling.

Much of the background and analysis summarised in this paper takes its cue from the arrangements for the means-tested Age Pension scheme in Australia, one of the largest means-tested programs in the OECD yet one of its the cheapest pension schemes. It also draws on recent work of Chomik and Piggott (2014a), Kudrna (2015), Dabbs and Kumru (2015), and Kumru, Piggott, and Thanopoulos (2015).

2. MEANS TESTING AS A POLICY TOOL

In this section we consider the extent to which means testing is applied in retirement income systems around the world and the Organisation for Economic Cooperation and Development (OECD) countries. We also look at the different design elements and administrative issues related to means testing and the approaches that different countries have implemented. Finally we make note of recent proposals for means testing of Social Security before economic implications are discussed in Section 3.

2.1. Prevalence of pension means testing

Most pension systems are made up of a number of pension programs and there are different ways to classify these. One way is to think of them as: earnings related, universal, or targeted.

[1] IMF Policy Paper: "Fiscal Policy and Income Inequality," January 23, 2014.

Under universal and earnings related programs, pension benefits are provided as a matter of right. Under means-tested programs such benefits are based on a comparison of a person's income, assets, some combination of these, or other proxy measures of disadvantage.

These categories can be further subdivided. Earnings related schemes can be provided on the basis of: notional accounts or a defined benefit social insurance formula (e.g., U.S. Social Security); mandated occupational pensions (e.g., Korea); mandated but privately managed individual accounts (e.g., Australia); or via a public provident fund (e.g., Singapore). The financing is entirely or largely from contributions (usually a percentage of earnings) made by employers, workers, or both, with potential subsidies or tax concessions from government.

Pure universal programs provide pensions to residents or citizens, regardless of employment history, income or means (e.g., New Zealand's main pension scheme) and are typically noncontributory, social pensions funded by tax revenues. In other countries, universal benefits are provided as a basic flat-rate pension where benefits change with years of residence (e.g., Netherlands) or years of employment (e.g., United Kingdom), with financing either via tax or the contributory scheme of the pension system.

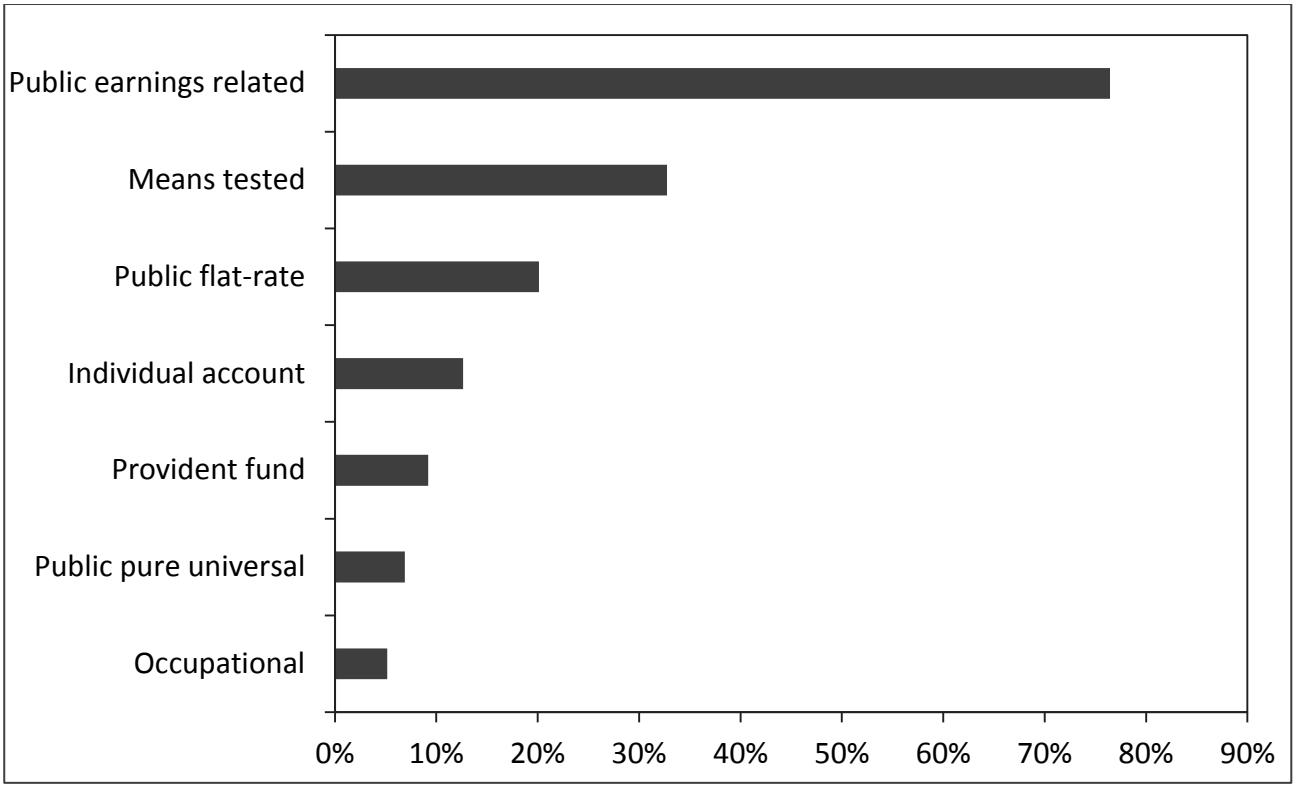
Targeted, or means-tested programs, also often referred to as social pensions, base eligibility and level of benefit on individual or family resources. By their nature, means tested programs have a redistributive role and are funded from general taxation.

Note that such programs do not have a monopoly on redistribution. Many earnings related schemes, including U.S. Social Security, often include a level of implicit, *ex ante* means testing via redistributive formulas or by making pension benefits subject to progressive tax, *ex post*.

As shown in Figure 1, standard earnings-related schemes are the most common type of pension. About three-quarters of surveyed countries report the existence of such a program. These often co-exist with other types of schemes (e.g., U.S. Social Security and the means-tested Supplemental Security Income). A third of countries have some form of means tested pension and only 7% have a pure universal scheme.

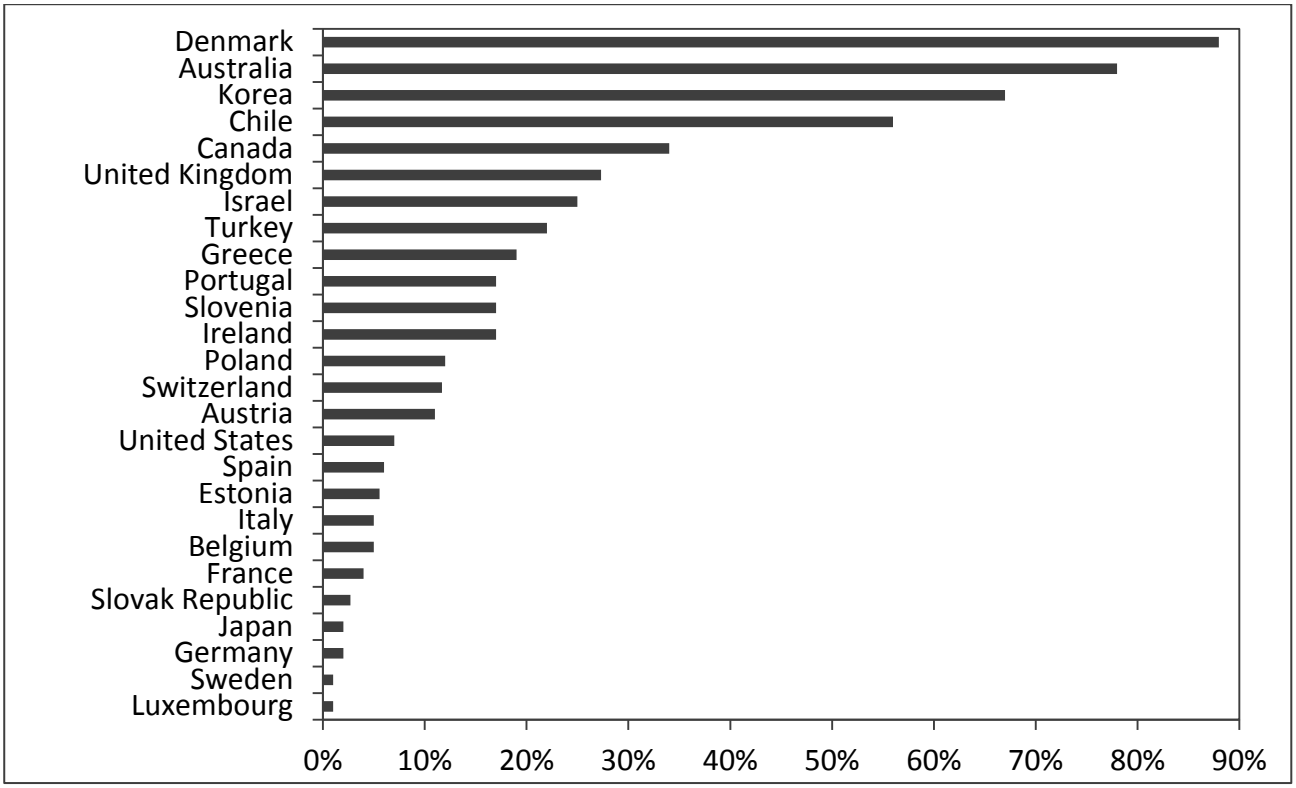
Yet while 57 of 174 countries report having a means tested pension scheme, many of these programs are very small and play a marginal role in retirement income provision. In Figure 2 we narrow our focus on the OECD, showing the proportion of the population aged 65 and older that receive means-tested pension benefits. The chart shows that only in four countries do such benefits extend to more than half of the older population (Denmark, Australia, Korea, and Chile) and only in two do these cover between a quarter and a third (Canada and the U.K.).

Figure 1. Prevalence of pension scheme by type, world (% of countries), 2012-2014



Note: Based on 174 countries. Some countries have multiple scheme types within the one retirement income system.
Source: Authors' analysis of SSA (multiple years)

Figure 2. Coverage of targeted pensions, OECD countries (% of over 65s)



Source: OECD (2013)

2.2. Designing a means test

Developing a means-tested pension scheme requires defining basic rules that fall into three categories: basic eligibility, scope of resource testing, and benefit value (i.e., the operation of the means test itself).

Who is eligible? Most countries apply current residence (or citizenship) requirements for eligibility (e.g., U.K. and Belgium). It is also common to require a certain number of years in a lifetime, either after a certain age or within a certain number of years of claiming the pension. In Australia eligibility requires residence of at least 10 years with one continuous period of at least five years.

The other basic criterion is age. This is consistent with the policy's purpose—to provide financial support to those who have largely depleted their productive capacity. As with other types of pension schemes, fairness and sustainability are relevant to the choice of access age. The average pension age in the OECD declined between 1950 and the mid-1990s, but has since been increasing in most OECD countries (and equalizing between the sexes; Chomik and Whitehouse, 2010). Australia has legislated to increase its Age Pension age to 67. A further increase to age 70 has been announced. If enacted, it will be the highest legislated pension access age in the OECD. Eligibility age for means-tested schemes are not always the same as that for other parts of the pension system: Private pensions are often available earlier, while public, earnings-related schemes sometimes allow for a "retirement window" between specified ages with actuarial adjustments to pension benefits. Such adjustments are more difficult to implement with a means-tested pension.

In Chile, initial eligibility is based on the "technical targeting instrument," a formula that calculates whether the household is in the poorest 60% of the population, using information on assets, income, earning capacity, and degree of child dependence.

Which resources are tested? Whether and how each class of asset or source of income is included is usually the outcome of trade-offs between comprehensiveness to minimize avoidance behaviour, the feasibility of credible valuation, and political sensitivity.

In Denmark, there are two types of means-tested pensions: one that is income tested and a smaller pension that is asset tested. In Chile, once the technical targeting instrument is passed, only the income from other pensions is assessed. In Australia, the means test consists of separate income and asset tests, with the pension amount determined by the lower benefit level of the two. The setting of test parameters means that the income test tends to be binding for more people. Having a separate asset test takes account of the fact that people can live off both asset income and principal and ensures that, where individuals own significant wealth, it is not simply shielded from the income test by investment in low-income-producing assets. Secondary residences, such as holiday homes, are also captured under the assets test.

How resources are assessed can have a bearing on behavioural outcomes (see Section 3). For example, excluding earnings may incentivize work, and excluding pension income may incentivize pension saving. For example, in Australia, the total labor-earnings disregard is valued at about 13%

of average full-time earnings. An asset test can also exempt the family home. Empirical assessments in Australia do not suggest that people spend down their assets to receive more Age pension (Wu et al. 2015), though it is unclear the extent to which people overinvest in their family home to gain pension income.

Whose resources should be included – the individual's, those of a family unit, or household? Pooled resources are usually more indicative of need. Consistent with the approach that targeted benefits are paid based on means, it's often the case that couples are assessed jointly. In Chile, the whole household is taken into consideration.

How much benefit is paid? The operation of the means test: Determining how much means-tested benefit is paid requires specification of three sets of parameters: the maximum benefit, the disregard (an initial threshold or 'free area' of income or assets that is not tested), and the taper (or withdrawal) rate. These are illustrated in Figures 3 and 4 as they apply to selected OECD countries with the largest coverage of means-tested pensions (Denmark, Australia, Chile, Canada, and the United Kingdom) plus the United States.

The maximum benefit: Choosing a maximum level of benefit is value-laden and relates to social views regarding adequate pensions. A number of benchmarks can guide this decision: absolute measures such as a basket of goods; or relative measures such as minimum wages, community budget standards, or relative poverty lines. For example, Australia opted to benchmark the maximum Age Pension to a given proportion of average wages, based on poverty studies. This translates to a benefit of approximately 28% and 42% of Male Total Average Weekly Earnings for singles and couples, respectively. In other countries where large means tested schemes exist, the maximum benefit tends to be lower. In fact, it ranges between 15 and 20% of average full-time earnings (Figure 3). In Korea, which also has a large means tested pension component (not shown in Figure 3), the maximum is around 5% for singles and 8% for couples.

The different benefit levels for singles and couples take account of the cost-sharing economies of scale available to households. The majority of OECD countries maintain such a difference in non-contributory pension benefit levels (OECD, 2013).

The disregard: While the maximum amount affects the pension received by those at the bottom of the income (or asset) distribution, the disregard and taper determine how those with greater means are affected. These instruments can also act as useful policy levers to control the receipt of pensions and the benefit level. As noted earlier, the income test can include an additional disregard for earned income to encourage mature age labor-force participation.

Australia is one of only few counties with a broader means test under which both income and assets are assessed. However, the asset test is far more generous compared to the other countries (Figure 4). Within its asset test, the level of assets disregarded is higher for renters than home owners, to reflect a greater need for renters to store savings in what would otherwise be assessable assets.

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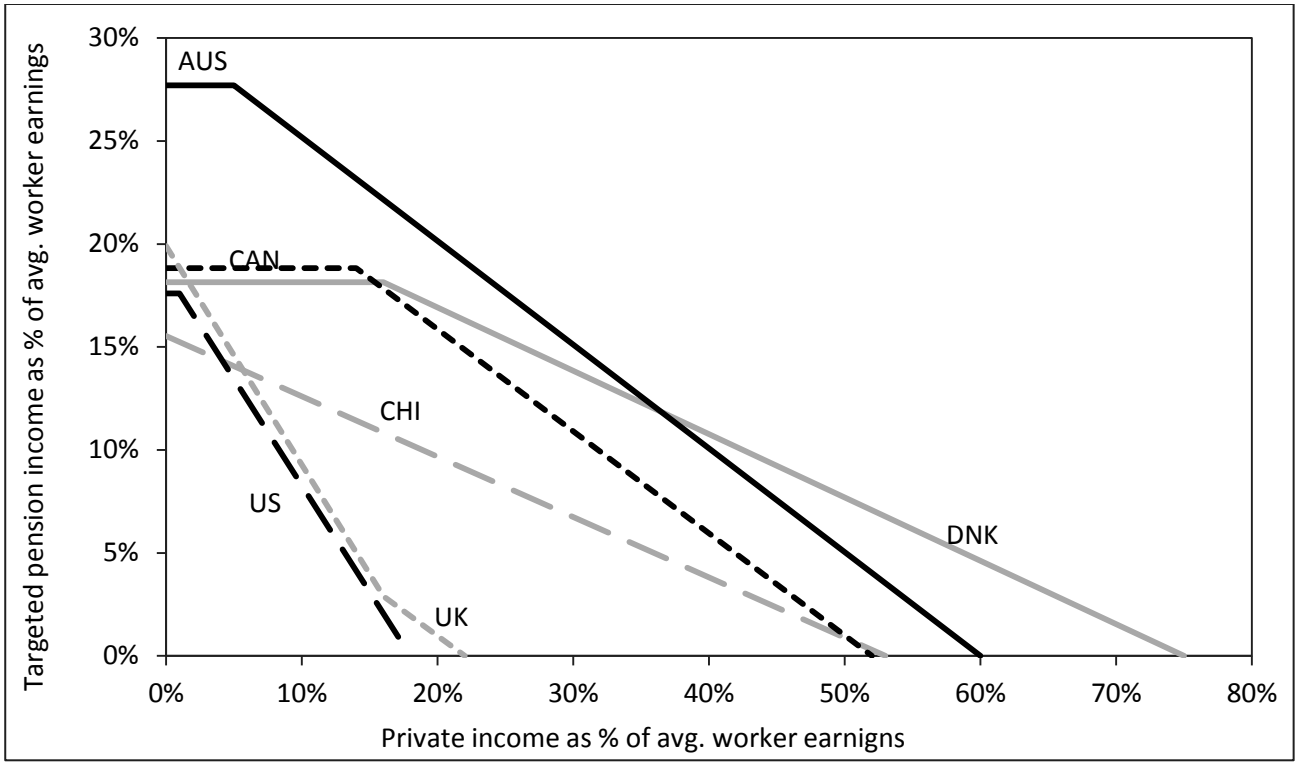
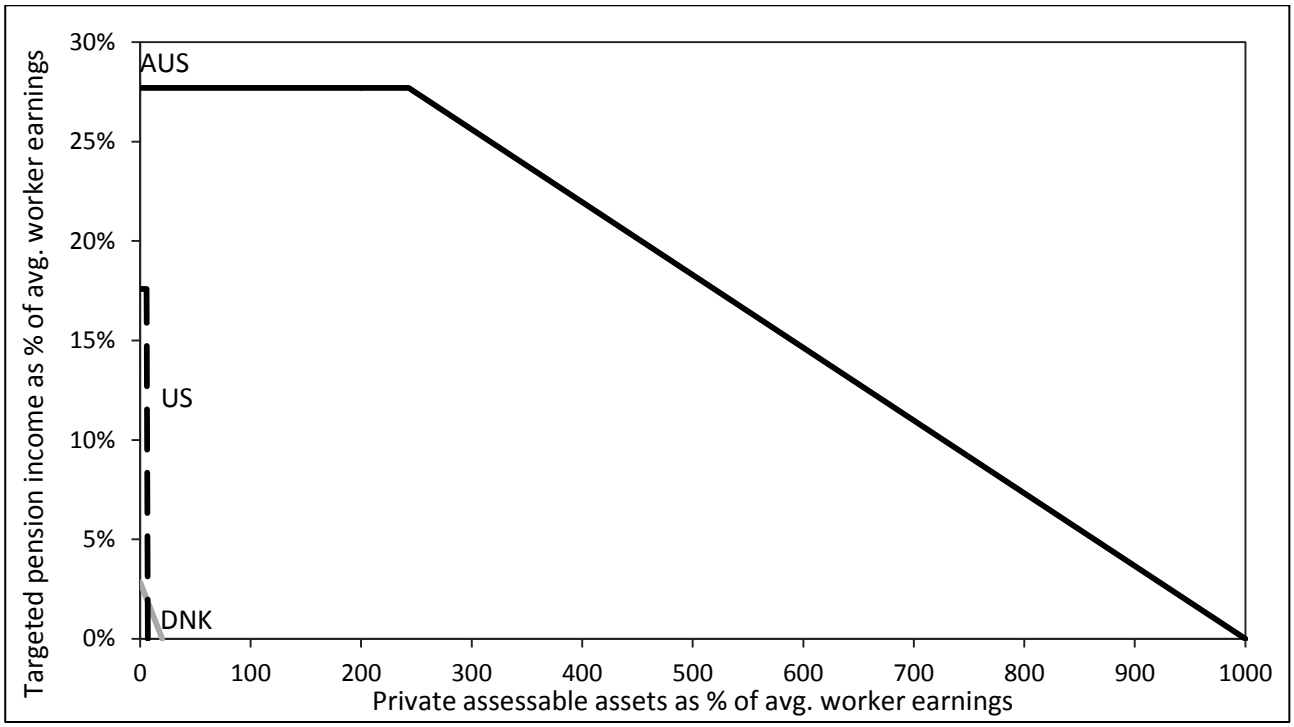
Figure 3. Design of income test, Selected OECD countries, 2012-2014



Note: Avg. worker earnings: full-time adult total gross wages before deductions, including overtime and employee cash supplements); Based on single pensioner; In Chile, the test is against pension income only, but requires passing 'technical targeting instrument,' a formula based on assets, income, earning capacity, and degree of child dependence. In Canada there are two types of means-tested pensions: Guarantee Income Supplement (shown here) and a basic pension, which is income tested and withdrawn at a taper of 15% beyond about 150% of average earnings. Source: Authors' compilation based on country sources and OECD (2013).

Figure 4. Design of asset test, Selected OECD countries, 2012-2014



Note: Based on single (home-owning) pensioner. In Australia, assessable assets exclude owner occupied housing. In Denmark, two means tested pension elements exist, one is income tested, the other is asset tested. Source: Authors' compilation based on country sources and OECD (2013).

The taper: Beyond the disregard, the benefit is reduced for every extra dollar of income (or assets) based on a taper. In the countries shown in Figure 3, the income test taper ranges from about 30% for Denmark and Chile to 100% for the U.S. In the U.K., there are two parts to the taper, with 100% on the "Minimum Guarantee" and 40% on the "Savings Credit" part of the means tested pension.

A shallower taper is more generous but will mean that less of the pension is clawed back, making it more expensive and affecting more people up the income or asset distribution. Taking Australia as an example, where the taper is 50% beyond the threshold, a single person with a private income of just over $30,000 (US, PPP) still receives some Age Pension.

With the Australian pension asset test, every $1000 in excess of the disregard results in $1.50 less pension per fortnight (or $39 p.a.).[2] Since the asset test is designed to capture those holding low-income-producing assets, it has a large disregard but an aggressive taper. Nevertheless, it results in a couple being able to hold more than a combined $850,000 (US PPP) in assets, in addition to their home

2.3. Administering the means test

A common criticism of the means test is that it is administratively burdensome. Yet various procedures can be deployed to make the means test administratively manageable and remain effective. Several lessons can be drawn from the means test implementation experience of countries such as Australia.[3]

Integrating operations: One method to reduce costs is to integrate services and generate economies of scale and scope. Merging customer-facing government services relating to social security, employment, education and health benefits can be provided by a single agency on behalf of client departments. Such initiatives have been implemented to a greater or lesser extent in Australia and the U.K. Alternatively, it may be possible to "piggyback" means-testing operations on the back of existing arrangements; for example by way of the tax system, as has been done for the Canadian pension and, to some extent, for a proportion of U.S. Social Security that is subject to tax.

Streamlining assessment: Administering a means tested scheme requires processing an initial claim, with the requisite assessment, and dealing with existing claims, which may require subsequent reassessments.

To some extent, an initial claim entails similar processes and costs found in any payment system: identity, age, residency, and bank account details. For means testing, it involves the initial collection and assessment of income and asset information. Where benefits are tested only against other pensions income (e.g. Chile), the procedure becomes simpler. Indeed, in countries with low administrative capacity, this is one viable way of providing minimum pensions.

[2] Increasing to withdrawal of $3 per $1000 of assets from 2017.

[3] See Chomik and Piggott, 2014a (or http://www.humanservices.gov.au/customer/services/centrelink/age-pension)for more details about current procedures in Australia.

Some assessments are easier than others. For example, in Australia, about 8% of assessments, involving 2% of benefits paid were deemed complex, involving income from business holdings or trusts (ANAO, 2007).

Reassessments of circumstances can be triggered by recipients who are asked to report significant changes. A proportion of recipients are registered as a "variable reporters" and need to report earnings on a regular basis. But automatic reassessments of financial investments also take place every six months, where information about values of listed securities and managed investments are linked.

Both the initial assessment and further self-reporting can be made via online systems. Though, as the U.K. government is discovering with implementing its Universal Credit system, face-to-face services cannot be ignored. In Australia, current self-service options include a smartphone app that allows pensioners to update contact details, report labor income, view payments and capture and upload documents (DSS, 2013)

Establishing a quality control framework: It is important to put in place a framework of prevention, detection and deterrence of fraud and error. For example, in Australia this involves an automated sample survey and audit that identifies systematic problems, whether these are related to errors by customer, staff, procedure, or guidance material (ANAO, 2012).

Simplifying design: Rules around the design of means tested benefits can complicate and add costs to administrative processes. This is one of the drivers for the U.K. implementing its Universal Credit system, which seeks to merge six means tested programs for working age people into one.

In Australia, the income test is designed to be less generous than the asset test. This makes the processes cheaper since income is easier to identify and value than some assets. In addition, income from financial assets is assessed on a "deemed" basis, using a set rate, rather than by examining actual asset income received.

Administrative costs: Taken together, a number of features can contribute to the operational cost efficiency of a means-testing regime.

It is not easy to isolate the cost of administering the means test itself, let alone compare it to an alternative of collecting and keeping over 30 years' worth of social security claims. In terms of overall operational costs of the benefit system, we calculate that benefit administration of the Australian Age Pension (including depreciation of assets) costs approximately 3.6% of total benefit outlays (Chomik and Piggott 2014a). It assumes equal administrative effort across all benefits. This is similar to our calculation of the cost of administering existing claims of the means tested element of the U.K.'s pension system: about 4% of average payment (NAO, 2011; DWP, 2012).

By comparison, administrative expenses of the U.S. Social Security Administration are estimated at around 1.4% of total benefit outlays in 2013 (SSA, 2014). Administering New Zealand's universal pension, one of the simplest pension schemes in the OECD, is estimated to cost approximately 0.3% of benefit outlays (Chomik and Piggott 2014a)).

2.4. Outcomes of means testing

So what are the practical outcomes of running a large means tested pension program compared to an earnings related one? Chomik and Piggott (2014a) and Chomik and Piggott (2014b) compare the poverty and fiscal outcomes for Australia and the United States. They use a poverty line measure that is equivalent to that used in the US, to show that elderly poverty is less prevalent in Australia than in the US. Using the OECD convention of drawing the line at 50% of median income, elderly poverty rates can still be considered low in Australia when home ownership is taken into account. Yates and Bradbury (2010) show that the elderly poverty rate is 13.5% after taking account of housing costs (like in the US, many older people in Australians own their own homes).

While providing an adequate level of retirement incomes, fiscal costs of Australia's public pension are lower than in the U.S. (3.6% compared to 4.8% in the US). Spending is projected to remain lower under current policy settings until at least mid-century (4.9% versus 6% in U.S.). The two countries have a similar demographic trajectory, so the lower levels of spending flows from the different pension design features.[4] The Australian Age Pension remains affordable because public liability, rather than increasing with a claimant's earnings, decreases with means.

2.5. Means testing proposals for U.S. Social Security

US Social Security is a good example of an earnings related scheme under fiscal pressure due to population aging. Unsurprisingly, reforming the system to limit future pension liabilities is particularly topical in the US, with means testing offering one solution.

Past reforms have already introduced an element of implicit means testing to improve finances. The benefit formula has progressive features (taking account of earnings differences before retirement) and changes in the 1980s and 1990s have made an increasing proportion of Social Security subject to income taxes, some of which flow back into the pension fund (SSA 2015b; which takes account of income differences in retirement).

Still, costs are expected to increase and are outpacing contributions. According to the Social Security Administration (SSA 2015a), the current median estimate year by which the trust fund is expected to deplete is 2033.

Past studies looked at ways of introducing explicit means testing into Social Security. Baker and Rho (2011) estimated the fiscal impact of a withdrawal rate of 10% or 20% for income levels beyond about 87% or 218% of average earnings[5]. Comparing these parameters to those in Figure 3

[4] Note, however, that comparability is difficult. For example, the comparison is complicated by the inclusion of the Disability Support Pension for Australia and Disability Insurance for the US. Excluding these costs for Australian reveals that the cost of the Age and Service pension is 2.9% of GDP, increasing to 3.6% by the 2050s (Treasury 2015). Equivalent figures for the U.S. are not reported for the OADSI (Old Age, Survivor and Disability Insurance; SSA 2015a). Furthermore, differences in projections also depend on long-term assumptions. For example, compared to Australian Treasury assumptions (e.g., Treasury 2015), OADSI projections assume slightly higher future productivity and fertility – which will make the relative cost appear lower compared to more pessimistic assumptions used in Australia.

[5] See note to Figure 3 regarding definition of average earnings.

shows that such a means test would only start reducing benefits at a point that is higher up the income distribution than in other countries with large means tested pillars. They found that costs would reduce by between 0.58% and 4.65% without accounting for behavioural responses, and between 0.07% and 2% given an arbitrarily defined behavioural response.

The SSA provides regular analysis of different reforms including imposing an income tested reduction in benefits of between zero and 50% for people with incomes between about 120% and 240% of average earnings (double for couples)[6]. Again, this captures only the high end of the benefit income distribution. The costs savings were found to be low, improving the long-range actuarial balance by 10%, which would not alter the forecast for the year in which OASDI assets are depleted.

A proposal by The Heritage Foundation (2011) was to reform Social Security into a means tested social insurance program. The proposed parameters comprised a maximum benefit of $14,400, or about 30% of average earnings, a disregard of 115% of average earnings, and a taper of 26%, which would mean people on about 230% of average earnings would receive no benefit. As above, comparing such numbers to Figure 3 shows that the proposed means test is weak relative to other countries. The authors also suggested complementing such a reform with a mandatory private savings – creating a pension system not dissimilar to that seen in Australia. The plan was estimated to see continuous reductions in spending on Social Security, halving (as a proportion of GDP) the projected cost in 2035.

Many opponents to such reforms cite the distortions and inefficiencies that arise as a result of means testing. We turn to such economic considerations in the next section.

3. ANALYSIS OF ECONOMIC IMPACTS OF MEANS TESTING

A common concern about means testing is how it affects incentives and distorts economic activity. Yet, recent analytical insights reveal that means-tested programs can enhance economic efficiency because they cost less and distort fewer decisions than alternative arrangements. But the analysis also highlights how parameter settings matter. The optimal means test requires careful design to take account of a number of complex interactions.

In what follows we consider the results of three papers that use state of the art methodology to study means testing, Kudrna (2015), Dabbs and Kumru (2015), and Kumru, Piggott and Thanopoulos (2015). The papers are readily applicable to discussions about reforming schemes such as U.S. Social Security.

3.1. The usual starting point for understanding incentives

A means test reduces pension benefits for those who have higher incomes and savings. It therefore acts like a tax. In many cases, this is on top of actual taxes and other income related benefits. The result is captured by measuring “Effective Marginal Tax Rates” (EMTRs). High EMTRs

[6] The results are available on the SSA website (reference for this reform option is B7.7).

reduce incentives to work and save for individuals close to or within the withdrawal range. Why earn an extra dollar if it reduces the benefits you would otherwise get?

But EMTRs are only part of the story. Unfortunately, many analyses of means test incentives start and end there. The full account involves an analysis of trade-offs between EMTRs, the number of people affected by the targeting, and other explicit taxes in the economy and across different stages in life.

Indeed, a full analysis requires us to be clear about the benchmark. Are we comparing a means tested program to a universal payment such as seen in New Zealand, a progressive social security scheme as seen in the United States, or to a world with no pension system at all?

Take the U.S. Social Security as an example. To reject targeted cuts is to maintain a status quo in which government will need to re-fund the program by raising contributions (either via payroll or other taxes) – also introducing disincentives to work and save.

3.2. Modeling approach: interactions across the economy and over time

A standard procedure for comparing alternative policy characteristics is to analyse the aggregate changes when we solve the model under alternative structures (bearing in mind the differential impacts on different groups of people during and after the transition). The model needs to be one in which agents and firms can make choices through these behavioural functions. State of the art modeling of this type involves the Overlapping Generations (OLG) models which can track agents' employment, consumption, saving paths over their entire life with different agents being at different stages of this path at each given year.

Such modeling allows us to see not only differences in work, consumption, and savings but also to assess wellbeing. This is based on the idea that there is some aggregation of individual wellbeing which can be thought of as the overall wellbeing in the economy. Policy interventions change the level of wellbeing for individuals via redistribution or induced changes in economic behaviour and choice. The changes can be quantitatively evaluated based on a set of functions relating to utility trade-offs between choices that are theoretically defined but which are calibrated to comply with empirically confirmed outcomes at the aggregate level.

3.3. Is a pension system better than nothing at all?

In a simple framework, the absence of a pension appears best. Starting with the seminal work on the topic, Auerbach and Kotlikoff (1987), using an OLG model, show that imposing any pension system on an economy can be economically inefficient and welfare reducing. This stylised result is based on the idea that a pension system introduces taxes and payments that inhibit and alter the otherwise free financial choices that individuals are assumed to want and are capable of making.

But results change with more realistic assumptions. In reality, choices are more restricted than those originally modelled. A number of risks, such as income shocks and the possibility of outliving ones savings, may be uninsurable. Incorporating risk and incomplete insurance markets into an

OLG model improves the impact of public pension programs on household welfare (Hugett and Venture 1999; Nishiyama and Smetters 2007; Hugett & Parra 2010).

Another simplification relates to the ability of individuals to commit to saving. The lack of self-control means that individuals incur a cost from the temptation to consume now at the expense of their future self. In such a setup, individuals may value the commitment device inherent in pension schemes (Kumru and Thanopoulos 2011).

Dabbs and Kumru echo the findings by Auerbach and Kotlikoff: even when the benefits of insurance inherent in a pension program are taken into account, they find that overall welfare is lower with a public pension, as defined in their model, than under no pension at all. That is, the incentive distortions in having a pension scheme dominate the benefits from insurance of having any scheme, whether such a scheme is means-tested and specified to Australian parameters or an earnings related PAYG resembling U.S. Social Security (but at the same cost as the Australian scheme).

3.4. Is means testing better than a universal pension?

If society seeks to provide some minimum level of pension benefits, should it do so universally or by way of a means test? Kudrna answers this question in a world calibrated to the Australian economy, modeling the difference between Australia's means tested pension and a hypothetical pension scheme in which the Age Pension is offered to everyone at the maximum benefit level.

He finds that replacing the means test with a universal pension raises the pension outlay by 42% to over 4% of GDP. The increased pension outlay requires a proportional 11% tax increase in average and marginal income tax rates (or a 28% increase in the consumption tax). Households respond to this hypothetical policy change by reducing their lifecycle labor supply and saving. These behavioural effects are due to (i) higher pension payments acting as a substitute for private retirement income and (ii) labor and saving disincentives arising particularly from higher progressive income taxation.

Consequently, relative to the existing means testing structure, the switch to a universal pension generates negative effects on per capita labor supply, domestic assets and consumption, which in the long run decline by 1.4%, 4.4% and 2.3%, respectively. Similarly to related literature on the means testing of public pensions (e.g., Kumru and Piggott 2009; Tran and Woodland 2014), this counterfactual policy also reduces average welfare in the long term. The conclusion is that, relative to a universal pension, targeting is welfare-improving in the long run.

3.5. Within a means tested program, how aggressive should the means test be?

In general high tapers appear to be advantageous. Both Kudrna and Dabbs and Kumru find that a 100% taper results in least distortion and highest welfare and that a 0% taper (i.e. a universal pension) is most distorting. The effect is driven by the lower cost of the pension program under aggressive means tests since the higher taper restricts the number of people who receive benefits.

Kudrna shows that strengthening the Age Pension income test in Australia from 50% to 100% could reduce pension outlays by 17%, allowing for lower income tax rates to maintain a balanced government budget. This has positive effects on per capita labor supply, domestic assets and average welfare in the long run. Interestingly, average labor supply at older ages also increases since most older households see their pensions reduced, with some elderly not qualifying for any pension and, therefore, no longer facing high EMTRs on their earnings. The results also highlight the importance of transitional effects of the changes to means-tested pensions, which show significant welfare loses to current retirees experiencing large cuts in their pensions.

Dabbs and Kumru and Kumru, Piggott and Thanopoulos also demonstrate how lower costs drive the welfare-improving outcomes of a 100% taper shown above by running an additional experiment where they hold the total pension program cost fixed while changing the taper. They do this by adjusting the maximum benefit level alongside the taper. Dabbs and Kumru show that the advantage of a high taper disappears if the program cost is constant. That is, a very high benefit that is withdrawn aggressively and only goes to a few people can be worse than a very low benefit that goes to everyone regardless of income.

On the other hand, Kumru, Piggott and Thanopoulos suggest that a withdrawal rate of 80% is optimal when comparing taper rates while keeping costs constant. The authors argue that in their model, calibrated to the U.S. economy, the 80% taper allows a higher fraction of the population (including those with higher incomes) to enjoy public retirement benefits than if the taper were 100%, but at the same time, the fact that the taper rate is not very low, allows for the maximum benefit (mainly going to those on lower incomes) to remain high.

The analysis implies that some results can be sensitive to the modeling methodology, especially the nature of the revenue requirement. But one clear set of conclusions is as follows: (1) a high taper lowers program costs; which (2) lower taxes necessary to fund the program; which (3) reduces disincentives across the many (that pay tax throughout their lives); despite (4) increasing them for the few (who face high EMTRs at point of receipt).

3.6. Should labor earnings be excluded from the means test?

It is impractical for most people to structure their life decisions and hours of work, especially earlier in life when decisions about education and occupation are made, to target a particular means test position. It's more likely that people of retirement age are more affected by the means test.

For this reason the Australian Age Pension means test already excludes a small amount of labor earnings from the Age Pension income test in addition to the standard income disregard. This means that older people keep more of their pension even if they continue working. Kudrna examined the economic and welfare implications of extending this policy further, by exempting all earnings.

He found that exempting earnings has much smaller aggregate effect compared to increasing the taper. This is due to the relatively small numbers of people affected and given their assumed low

productivity rates.[7] More importantly, he finds that the labor earnings exemptions from means testing have largely positive implications for the average labor supply of older Australians. This result supports the findings of empirical literature that examined labor supply responses to changes in the earnings tests of social security benefits in other developed countries (e.g., Friedberg (2000) for the US).

3.7. Is means testing better than an earnings related scheme?

If policymakers were choosing a system based on economic efficiency within a given spending envelope, should they choose an earnings related PAYG or a means tested one? According to the model in Dabbs and Kumru, the means tested version may be preferable.

This result is not immediately obvious and indeed it appears to be small. It depends on the effects of policy on different parts of the population, which in turn depends on the model and policy specification. For example, the authors show that low earners would receive a means tested benefit regardless of their behaviour and are unaffected by disincentives at the point of receipt. The authors argue that under an earnings related, PAYG system of the same total cost, such low earners receive lower pension benefits than they would under means testing, but their low earnings mean that they cannot increase their labor supply sufficiently to increase retirement income to the means tested level. As a result, the utility of low earners is higher under means testing than PAYG. By contrast, the authors claim that higher earners are affected by the means test disincentives, which make them save less than they would under PAYG and lowers their utility. Taken together, the authors conclude that replacing a PAYG system with one that costs the same but is means tested results in less work effort, but more savings and higher welfare.

While this analysis is interesting, the policy lessons are unclear. The more pressing concern for policy makers is whether means testing can reduce the cost of earnings related pensions without creating overwhelming distortions. Kumru, Piggott and Thanopoulos show the welfare outcomes for a PAYG earnings related scheme compared to a means tested scheme in a standard OLG framework (as well as with non-standard behavioural outcomes – see below). They find that the cost savings from a means tested scheme results in fewer overall distortions and increased welfare compared with an earnings related PAYG scheme. Indeed, the higher the taper the better the outcomes.

3.8. Relaxing assumptions

As noted above, in the real world many people don't behave in the way some models assume. Many individuals, regardless of income, find it difficult to save even if their over-arching preference is to do so. Kumru, Piggott and Thanopoulos consider this scenario by employing an OLG model with uninsurable individual income shocks, borrowing constraints and missing annuity

[7] The authors assume an inverse U relationship between productivity (and wages) and age. Since the model outcomes depend on decisions taken by individuals, such an assumption is necessary to achieve an inverse U relationship between labor force participation and age. That is, as one's productivity and wages drop, more people choose leisure over work and retire.

markets, calibrated to the U.S. economy. Importantly, the model also assumes that individuals lack the self-control to save.

Given this setting, how do the answers to the above questions change? Where self-control problems exist, means testing still appears to be more advantageous than providing universal pensions. The higher tapers are also favoured, even more so than in a model where people have standard preferences. Finally, the authors find that the cost saving from any means testing at all, whether with a taper of 20% or 100%, is welfare-improving when compared to a PAYG earnings replacement scheme.[8]

4. CONCLUSION

In an era of population aging and fiscal pressures, better targeting of precious public funds is an option that can still ensure an adequate level of basic retirement income.

This paper examined the nature of means testing as a policy tool, its design features, implementation and outcomes. It also presented the latest analytical insights from a set of state of the art models, where possible relating the Australian and U.S. pension structures.

The bottom line from such analysis is that disincentives created from high contributions to fund an earnings related pension scheme tend to outweigh those created be a cheaper means tested scheme. It suggests that reforming a pension scheme such as U.S. Social Security by employing appropriate targeting structure could generate significant savings.

Means tests, where they do exist, are often crudely and arbitrarily designed and have received limited attention from academic researchers. For policymakers they represent a policy lever with an unrealised potential.

[8] Still, if working within the same spending envelope, as with above studies, the paper finds that, where agents have problems with self-control, an earnings related scheme is might provide better outcomes than either universal or means tested schemes.

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