

Building the fairer and sustainable social security system

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Every modern society has a social security system—to provide protection for vulnerable parts of society and insurance against risks that individuals face in situations where markets fail to do so, or do so imperfectly and often at very high costs. This paper will focus on only one aspect of such a system which aimed at providing income security for the aged. (I should emphasize that the other parts of society's social protection system, including for the disabled and the poor, are equally important; limitations on length necessitate focusing here only on the aged.) With increased longevity and the breakdown of the extended family upon which the elderly can rely on, such a system has become particularly important.

This short note explores what lessons China might take from the experiences of other countries, realizing that the circumstances of China are markedly different from those of any other country. There are many aspects of China's situation which are distinct. One of the legacies of the one-child policy is that in many cases, the aged simply cannot be supported by their children. As we will explain below, the rapid growth of income per capita implies the risk that large proportions of the elderly will live in *relative poverty*, were they to rely solely on their own savings, even were they to save prudently. The high household savings rate in China suggests that for most families, they are indeed saving prudently, in contrast, say, to households in the US. Moreover, one of the (often unfounded) concerns in Western social security systems, noted below, is that they depress aggregate savings rate; but China today is worried about its excessively high national savings rate.

The Global Debate about Social Security

Many countries today are concerned about their retirement security programs, both public and private. Some of the problems are an almost inevitable consequence of the long term nature of such programs and the rapid and marked changes in the economy and society. Fifty years ago few could have anticipated the extent of the increase in longevity. Yet, in spite of these large changes, it is remarkable how relatively small changes in the design of many countries' programs have been able to restore them to financial sustainability.

One has to be aware of the political context in which many of the debates about reforms of social security programs arise. There is an agenda on the part of some to downsize government, and those pursuing this agenda have an incentive to exaggerate the problems in public programs. Many in the private sector see the potential for large increases in their business—in their fees and profits—should a public program be replaced, even in part, with a private program. Obviously, these have an incentive to underestimate the problems and inefficiencies in private programs, the fact that the larger fees come

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out of the retirement incomes of the aged for these private programs, and the fact that the transactions costs in the private sector are much larger than in the public.²

Risk bearing and exploitation

The 2008 crisis and its aftermath highlighted another unfortunate aspect of private programs. They require pensioners to bear undue risk, and rather than helping them manage this risk, the private sector took advantage of their differential information to sell them unsuitable products. In most countries, there is ample evidence of the private sector “phishing for fools,” to use the expression of Nobel Prize winning economists George Akerlof and Rob Shiller.³ In the crisis, with the plummeting of asset prices, large fractions of the aged lost large fractions of their wealth. Still others have had to suffer in the aftermath of the crisis: those who had been risk averse and invested in government bonds (or even in corporate bonds) saw their incomes eviscerated as central banks brought interest rates down to zero.

While today inflation is not the problem, in the long run for which these programs need to be designed, inflation could be a problem. Private markets make the pensions bear that risk; typically only public programs provide insurance against this risk. And there is a good reason for that: inflation is a macro-economic risk. Who is capable and willing to provide insurance against a significant risk of inflation 30 years from now? And should a private market provide that insurance, there is no assurance that it will be able to honor that commitment: there is a substantial risk that it would go bankrupt should inflation increase to a high level.⁴

Private sector firms have been able to engage in massive exploitation of retirees in advanced countries, where there has long been a tradition of universal education, and where there is a strong regulatory and legal system attempting to protect investors against the worst abuses, including fraud. The potential for such private sector abuses in China would appear to be even larger. And the fact that the private sector has demonstrated such innovativeness in exploitation makes designing a set of regulations that prevent such abuses all the more difficult. (It is worth mentioning the excellent record of the public default retirement fund of Sweden—it is so well run that more than 98% of the new entrants to the retirement system choose the default fund.)

Relative poverty

There is another problem which is particularly acute in an economy like China with rapid increases in per capita income. Privately run programs inevitably result in pensioners being a distinct and relatively poor class. If per capita income increases even at only 5 per cent a year, it doubles every 14 years. A 75 year

² See P. Orszag and J. E. Stiglitz, “Rethinking Pension Reform: Ten Myths About Social Security Systems”, in *New Ideas About Old Age Security*, R. Holman and J. Stiglitz (eds.), Washington: World Bank, 2001, pp. 17-56, and Hacker, Jacob S. *The Divided Welfare State: The Battle over Public and Private Social Benefits in the United States*. Cambridge: Cambridge UP, 2002.

³ George A. Akerlof and Robert A. Shiller, *Phishing for Fools: The Economics of Manipulation and Deception*, Princeton: Princeton University Press, 2015.

⁴ The government, unlike the private sector, does not need to hedge against the risk of inflation, since it has the power to use the tax system to provide for efficient risk sharing. If the government believes that it is desirable to lay off some of the risk of inflation on individuals who are willing and able to bear a limited amount of such risk, it can do so.

old retiree's private pension will be based on his income in earlier years—on average something like one sixth of current per capita income. Even if he had saved well, he would be in poverty in terms of the standard measures of *relative* poverty. It should be viewed as unacceptable if the average pensioner lives in poverty. Public programs can be (and typically are) designed to provide some degree of risk and income sharing across generations, some degree of sharing the dividends of economic prosperity.⁵

Savings

In the West, some have worried that public social insurance programs have discouraged savings. That assertion has been challenged both empirically and as a matter of theory, and whether it is true or not may depend critically on the design not only of the social security system but also of other aspects of public policy. But *given* that one of China's current challenges is to move towards a more domestic demand driven economy in which consumption should play a more important role, for China, the fact that a public social security program may stimulate private consumption may be an advantage, rather than a disadvantage. Households, with a reduced necessity of providing for their own retirement or that of their parents, can consume more.⁶

Transactions costs

Recent research has highlighted the inefficiencies of private markets particularly in financial sector in terms of transactions costs compared to government.⁷ This is partially because government can avail itself of economies of scale and scope—modern economies of technologies which link them with all citizens, as part of systems of taxation and benefits. Moreover, there are significant private sector costs associated with marketing and exploitation—trying to identify those who can best be taken advantage of. (Scale is extremely important because it lowers the transactions costs and allows risk pooling—that is the strongest argument for a public system as opposed to a fragmented private system with many different funds and managers.)

There is a second set of problems, discussed later in this paper, arising from the management of any social security trust funds.

Combining public and private programs

Underlying any good social insurance program must be a public program providing sufficient funds to provide retirement security for the majority of its citizens. More wealthy/higher income individuals may complement this with private programs, often through employers. But even for these individuals, it is desirable for there to be a public option, to expand their participation in the public program beyond the level mandated. In the next section, we discuss the design of the public program, and in the following, of the private.

⁵ This is the case in the US, where benefits are indexed in part to current wages.

⁶ A further impetus to the economy can be provided if the funds in the "social security trust fund" are efficiently recycled to productive investments.

⁷ See, for instance, B. Chapman, T. Higgins, and J. E. Stiglitz (eds.) *Income Contingent Loans: Theory, Practice and Prospects*, with, Houndmills, UK and New York: Palgrave Macmillan, 2014.

The design of public programs

There are several key features in the design of the public social security program, including (a) the magnitude of the redistributive component; (b) the integration of the public program with other systems of social protection; (c) intergenerational risk sharing and intergenerational redistribution; (d) whether the retirement program should be organized as a pay as you go or fully funded system; (e) the management of transitional issues; (f) choice within the mandatory public program; and (g) the role of the private sector in the management of the public social security program.

Limitations of private markets

In addressing these issues, one must be aware of the reason that governments created social insurance programs. The underlying motivation was simple: individuals faced important risks in their lives (unemployment, retirement, disability) and the market did not provide insurance, or did so only at terms which made such insurance inaccessible to large fractions of the population. Individuals are (to use the economists' jargon) risk averse: they want at least a modicum of security, more than private sectors could then provide—and more than they still provide. In the last forty years, we have come to understand better the *inherent* reasons for these failures of markets, related to imperfect and asymmetric information.⁸ Private insurance firms spend considerable resources trying to avoid insuring bad risks; such expenditures, as privately profitable as they may be, are socially wasteful. Moreover, private insurance markets try to design contracts that enable them to identify low risk individuals.

Compounding these problems is the fact that a humane society cannot allow individuals to starve or otherwise suffer extremes of poverty, even when it is a result of their own actions. But if that is the case, then a “moral hazard” problem may arise: knowing that they will be “bailed out”, individuals may save too little. Recognizing this, governments have to force individuals to save a sufficient amount that they do not become a charge on society.⁹

In addition, as we have noted, large proportions of society are not well-informed, especially concerning matters of long-term financial investments. This opens up opportunities for more informed financial sector firms to take advantage of them, and the evidence is that all too often, they seize these opportunities for exploitation. Regulation has proved difficult and only partially effective. That is why there needs to be reliance on a mandatory, private program for basic retirement security.

Markets, on their own, typically result in high levels of inequality, both within and across generations—higher than is socially tolerable. While we now recognize that much of this inequality in market income

⁸ See J. E. Stiglitz, “Information and the Change in the Paradigm in Economics,” abbreviated version of Nobel lecture, *American Economic Review*, 92(3), June 2002, pp. 460-501; Michael Rothschild and J. E. Stiglitz, “Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information,” *Quarterly Journal of Economics*, 90(4), November 1976, pp. 629-649; Bruce Greenwald and J. E. Stiglitz, “Externalities in Economies with Imperfect Information and Incomplete Markets,” *Quarterly Journal of Economics*, Vol. 101, No. 2, May 1986, pp. 229-264; and Richard Arnott and J. E. Stiglitz, “The Basic Analytics of Moral Hazard,” *Scandinavian Journal of Economics*, 90(3), 1988, pp. 383-413. Reprinted in *Selected Works of Joseph E. Stiglitz, Volume I: Information and Economic Analysis*, Oxford: Oxford University Press, 2009, pp. 417-443.

⁹ J. E. Stiglitz, “Perspectives on the Role of Government Risk-Bearing within the Financial Sector,” in *Government Risk-bearing*, M. Sniderman (ed.), Norwell, MA: Kluwer Academic Publishers, 1993, pp. 109-130. (Paper prepared for Conference on Government Risk Bearing, Federal Reserve Bank of Cleveland, May 1991.)

is a result of the legal and institutional arrangements—it is not the result of inexorable laws of economics; markets do not exist in a vacuum but are structured by public policy—even with “rules of the game” that seek to limit the degree of market income inequality, it may be excessive. It can be shown that it is efficient to use the social security system as part of society’s redistributive mechanism.¹⁰ And only public social insurance programs can engage in socially desirable intergenerational redistribution and risk sharing.

Moreover, even if there were no redistributive element it would be desirable to have a public social security program, with an individual account, simply because of the economies of scale and scope that we noted earlier, allowing lower transactions costs.

We now turn to address the central issues in the design of the public program.

(a) The magnitude of the redistributive component¹¹

In the life-lottery, some individuals are going to be winners, others will be less fortunate. Behind the veil of ignorance, all individuals would like to have the government insure their life prospects. Because we cannot tell easily how much of the variation in life outcomes are the result of luck and how much the result of differential efforts, there is not full insurance. In a well-designed economy, individuals who make larger contributions get larger benefits, but not in proportion to their increased contributions.¹² Because governments should be particularly concerned with hardship and misery at the bottom, there should be a basic standard of income for pensioners, at least for those who have worked a minimal number of years. Some argue that the burden of redistribution should be on the income tax system, and that one should not confuse social security with redistribution. That is wrong: the optimal

¹⁰ Targeted redistributions may be more efficient (have less adverse incentive effects).

¹¹ The redistributive component of the social security program is defined simply as the difference between the (actuarial) present discounted value of contributions and benefits. In the US, for instance, low income individuals get back more than they contribute (using the government’s T-bill rate), high income individuals somewhat less. But the patterns are complex, depending on family size and other factors, some of which we note below. There are two subtle questions in defining the extent of redistribution. First, what should be the discount rate (equivalently, at what rate should the contributions be compounded)? At the actual rate earned by the social security trust fund? At the rate the individual might have earned had he invested the funds? In a pay-as-you-go system, what is the appropriate rate? In practice, there is no private asset with the risk properties of social insurance, so there really is no fully comparable rate. In that sense, even those at the top may be getting a very good “deal.”

Secondly, life expectancy of different groups differs markedly and few public programs make much adjustment for these differences. Often this is a matter of public policy. Thus, because women live longer than men, a program which doesn’t differentiate on the basis of gender has men, on average, subsidizing women. Life expectancy of low income individuals is lower than that of high income individuals, and any estimate of the redistributive component ought to take account of this.

¹² For a standard textbook treatment of these ideas, see A. B. Atkinson and J. E. Stiglitz, *Lectures on Public Economics*, McGraw-Hill Book Company, New York and London, 1980; Princeton University Press, 2015. See the work of Peter Diamond and Jim Mirrlees for advanced treatment of these subjects. Diamond, Peter A., and James A. Mirrlees. "A Model of Social Insurance with Variable Retirement." *Journal of Public Economics* 10.3 (1978): 295-336. Diamond, Peter A., and James A. Mirrlees. "Payroll-Tax Financed Social Insurance with Variable Retirement." *The Scandinavian Journal of Economics* 88.1 (1986): 25. JSTOR. Web. 8 Mar. 2016.

balancing between incentives and redistribution will typically be age sensitive. And it is especially wrong in the case of China, which has not yet developed fully a redistributive income tax system.

A question often posed is whether the redistributive component of social security should be financed out of general revenues, or limited to social security contributions. Given that funds are fungible, the answer is as much a question of political economy as anything else. Broad support for social security is based partially on the fact that for almost all individuals it is a “good deal”: the annuity individuals get is much better than they would have received had they purchased the annuity in the private market. It is, I believe, important to maintain that broad support. That implies that there is a limit to the redistributive component that can be provided through the social security contributions alone. It may be desirable to go beyond that, in which case, some reliance will need to be made of other sources of revenue.¹³

(b) Intergenerational risk sharing and intergenerational redistribution

The principles underlying the trade-offs in determining this aspect of redistribution within the social security system are well understood. But there is another aspect of redistribution to which we have alluded above and is of particular relevance for economies like China where there is rapid growth, and that is redistribution across generations. Even the United States, where growth is much slower, provides an element of this intergenerational risk sharing: individuals benefits are linked with current wages. Such linkage is essential if the disparity between pensioners and workers is not to grow too large. It is impossible to build such linkages into private programs, which is why the core social security program must be publicly provided.¹⁴

A standard question related to intergenerational distribution pertains to whether the social insurance system should be fully funded or be partly, or largely, pay-as-you-go. The answer largely depends on questions of intergenerational distribution: in the switch from a pay-as-you-go system to a fully funded system, the current generation has to pay both for his parents’ retirement and his own. In the case of China, where future generations are likely to be much better in any case, a move to a fully-funded system would, at least at this time, be a mistake.

(One solution to the transition from a pay as you go system to a fully funded system is for the government to issue variable-rate perpetual bonds (with the interest rate always set at the prevailing one-year bond rate so that the market value is always constant). The total amount of such bonds issued is just equal to the present value of all the future benefits to be received by all of those who are in the pay-as-you-go cohorts. The bonds will never mature but each succeeding generation will only pay for the interest on these bonds so that the cost of transition is equitably shared by all future generations. Of course this does not rule out the government buying back some of these bonds from the market if it

¹³ We do not address here the possible other revenue sources. These include general income, wealth, property, capital gains, and environmental taxes as well as value added taxes and financial transactions taxes. Suffice it to say that given China’s relatively low level of taxation, there is ample scope for levying additional taxation to finance a more redistributive social security system.

¹⁴ There should be, in addition, some intergenerational risk sharing. Even in countries with low growth, the rates of growth can vary greatly, and it is desirable to have some risk sharing across generations. Markets are not very good in intergenerational risk sharing.

has surplus revenue to do so or otherwise wants to shift intergenerational consumption across generations.)

(c) The integration of the public social security program with other systems of social protection

Social security (retirement) programs are only one part of a system of social protection. It makes sense to pool the risks together, and to provide lifetime risk protection. By doing this, one can provide better incentives at any level of risk mitigation, that is, one reduces the extent of moral hazard induced by insurance markets.¹⁵ Thus, by allowing individuals to borrow limited amounts against their social security in the event of a short episode of unemployment one can achieve better intertemporal smoothing with limited adverse incentive effects—welfare would be improved relative to relying solely on unemployment insurance.¹⁶

(d) Social insurance and national savings: fully funded or pay as you go?

Public social insurance programs can be either fully funded, partially funded, or pay-as-you go. From a macro-economic perspective, fully funded programs take money away from individuals, reducing their ability (and willingness) to spend. That by itself would create a deficiency of demand. But the government can use the funds to finance spending itself. How it spends that money should be a public decision, like any other public spending decision. But it makes sense to spend it on high return public investments, including infrastructure and technology. Institutionally, the investments can be organized in several different ways: the government can borrow funds from the social security fund (T-bills), paying the T-bill rate. Alternatively, the social security fund could lend to a development bank. In a fully funded or partially funded model, some or all of the funds could be invested in equity markets. Canada provides a good model of investment management of social security funds.¹⁷

The provision of retirement insurance by the government will reduce household's need for savings, as we noted. If the government organizes social security on a pay-as-you-go basis, then national savings will go down. Social security "contributions" are then a pure transfer across generations; since the recipients of the social security funds (the elderly) are not likely to save as much of what they receive as those who are taxed would have saved.

¹⁵ Whenever individuals have insurance, they have reduced incentives to avoid the insured-against event. In the case of annuities, there is no significant moral hazard problem; but there may be, for instance, with unemployment insurance.

¹⁶ See J. E. Stiglitz and Yungyoll Yun, "The Integration of Unemployment Insurance with Retirement Insurance," *Journal of Public Economics*, 89 (2005) pp. 2037-2067; and J. E. Stiglitz and Yungyoll Yun "Optimal Provision of Loans and Insurance against Unemployment from a Lifetime Perspective," National Bureau of Economic Research Working Paper 19064, May 2013

¹⁷ Some advocates of pay as you go systems for developing countries and emerging markets argue that there are excessive risks since funds in a fully funded system might not be used well.

In a fully funded system, essentially public savings replaces private savings. National savings is essentially unaffected.¹⁸ That is why if the objective is to reduce national savings, a pay as you go system or partially funded system would seem to be more desirable.

(e) The role of the private sector in the management of the public social security program

The public social security system is remarkable for its low transactions costs, partly because of the natural economies of scale and scope associated with a mandatory universal program. Its transactions costs are also low because it makes no effort to manage the funds: they are simply put into T-bills.

Once China gets a more developed, more stable, and broader stock market, it may find it desirable to invest some of the savings into capital markets. It should do that in a rules based way, e.g. relying on indexed funds. The costs of doing so should be very low, whether undertaken by the government or contracted out to a private sector firm. (In the US, one of the private firms has managed to lower the transactions costs associated with managing an indexed fund to a very low level.)

(f) The management of transitional issues

Creating a social insurance program gives rise to a large number of transitional issues. A fully funded system cannot be launched if commitment to such a system will result in a full generation to pass before benefits are received; there is a high cost to such delay. For China, this reinforces the argument made in the previous subsection for a pay-as-you-go system. This is especially important given the demographic changes that China is going through now, with large numbers of elderly with no or only one child to provide support.¹⁹ Over time, China could gradually make a transition from a pay as you go system to a partially funded system.

The social security system would replace the payment of “pay” currently received by those who worked for the public sector after their retirement. (Such payments are retirement benefits in all but name.) If the government wanted to create a *more* funded system, it could make a contribution to the Fund from general revenue, representing, in particular, the expected present discounted value of the pay that these individuals would have received. On the other hand, the government *should not* assume the burden from state owned enterprises. These enterprises could “buy” into the program, allowing the state to take over their pension obligations, by providing a sum equal to the capitalized value of pension payments.

There is another transition issue: what happens if the programs differ significantly from what individuals would otherwise have received, e.g. based on past income? I think the best way of thinking about this is that such differences would be viewed as a “private” pension, which is simply administered by the social security fund (a version of the public option discussed later in the paper).

(g) Choice within the mandatory public program

The essential objective of the mandatory part of the public retirement program is to ensure adequate retirement income, above the poverty level, recognizing the stress and social consequences of large

¹⁸ In fact, national savings is likely to increase, since the ability to use savings in one’s social security account as “precautionary savings” is limited. The creation of a “provident account” described below will reduce this effect.

¹⁹ There are estimated to be around 120 million baby boomers born between 1950-1959. From 1950 to 1973, some 340 million were born.

drops in income/consumption upon retirement. Still, there are large variations in circumstances and preferences among individuals, and the question is, how best to accommodate these differences.

For instance, later we note that different individuals may choose to retire at different ages. This can be affected by their health, or the obsolescence of their human capital. One can easily allow individuals a choice about retirement age, with a corresponding actuarial adjustment of benefits.

There can be some limited scope for differential risk taking, allowing individuals to “invest” a small proportion of their retirement savings in the stock market (in, e.g. indexed funds). I think the benefits of doing so are very limited, but this should be a subject of public discussion. Putting excessive amounts into risky assets would defeat the underlying purpose of the mandatory social insurance program.

(In the Chinese context, most farmers have use rights on the land they farm. The value of these use rights can be put into their individual retirement accounts as their contribution when they retire from farming.²⁰)

(h) Other design-features of social security

There are many other design-features of social security. Perhaps the most important one that we have not discussed so far is the age of retirement. With greater longevity comes the ability, *in general*, to work longer. And there is some evidence that individuals who have the ability to continue working and do are better off, in many different ways. Some countries have, in response, indexed the retirement age to life expectancy. Because individuals differ greatly, programs such as that of the US allow individuals to retire earlier, but at reduced benefits (based on an actuarial calculation, which, in principle, should take into account the different life expectancies of those who do retire early).

There are, however, two important caveats: The first is that individuals in different jobs differ greatly in their life expectancy and ability to work. Those working at jobs requiring high levels of physical labor cannot continue working. Moreover, some individuals age more rapidly than others. The social security program has to make some accommodation for these individuals, e.g. by having a supplemental program for those meeting certain qualifications regarding health or occupation.

The second has to do with the fast changing nature of today’s labor market. Individuals can become “obsolete.” Even if they are physically capable of working, they may not have the skills necessary to make them productive members of the labor force. Government policies must respond, for instance, by having retraining programs. And social security programs must again accommodate itself to the reality that even with good retraining programs, there will remain many individuals who do not have the human capital necessary to make them productive in the modern labor force. This will be especially important in the coming years, with the decline in manufacturing and the major restructuring of the economy that is expected.

(i) Incorporating farmers and the self-employed into the social security program

²⁰ This also has the benefit that the government will continue to control the use of the land and can enable eventually amalgamation of plots to facilitate large-scale mechanized farming, which is bound to come in a decade or two. Once the land is sold in a fragmented way to different new owners, mechanized farming is close to impossible. Japan is a perfect example, resulting in the high cost of rice and other agricultural commodities produced in Japan.

In principle, there is no difficulty in incorporating farmers and the self-employed into the social security program, provided they report accurately their income. Particularly if the social insurance program is designed to provide high returns on contributions for low income individuals, they would have a strong incentive to report accurately their income. For low income individuals (as we observe in footnote 16), the government should probably pick up the cost of part, perhaps a significant part, of their contributions.

(j) Adapting the social security program to the changing economic and demographic circumstances

Social security programs are, by their very nature, long term. Economists couldn't predict the global financial crisis two years before it occurred. How can they be expected to make reliable predictions going out seventy five years, standard in the world of social security (or even half that, reflecting half the length of a generation)? Today, there is a major debate among economists about whether long term productivity in the next seventy five years will be lower than in the past. If so, it would have important implications for the design of social security. But we won't know the answer for sure for decades. Much of the debate in the West over social security is "scaremongering" based on simplistic projections.

China should establish an independent *Social Security Commission*, to make reports every five years, on the underlying economics, projections on productivity, longevity, demography, morbidity, etc. and on the basis of this, to make recommendations on the specifics of the design—retirement age, provisions for those with poor health, funding of the trust fund, funding of the social security program out of general revenues, etc. Their report should analyze the impacts of any proposal on relative and absolute poverty among the aged, and the ability of the market to provide the elderly who do wish to continue working with jobs.²¹

China should begin to postpone the retirement ages for both women and men, which were set in the 1950s when the life expectancy was only 60+. Nowadays the life expectancy at birth is 76, there is no reason to force women to retire at 55 and men to retire at 60. What China should consider doing is to allow those men and women currently 50 and above the option to work to 65 if they want to but they can also retire at the original retirement ages. However, for everyone who is below 50, they will all retire at 65. This one change alone should make a reasonably comfortable retirement, whether financed publicly or privately, much more affordable.

As always, institutional details matter. One problem in ensuring retirement security in China is that the retirement contributions are only required on the "basic salary" which is very often less than half of the actual total compensation. This results in gross under-contribution to the retirement fund and as a result the retirement pension is only a very small fraction of the pre-retirement total compensation and hardly enough for retirees to make ends meet. China should go to a system in which most of the compensation should be included in the "basic salary" upon which the retirement contributions should be based.

²¹ In many countries, including the US, both the employer and the employee make contributions to social security. The general consensus among economists is that this division has, at least in the medium term, no substantive impact, except on those receiving the minimum wage. It might make more sense to think of social security as part of the *individual's* own retirement program, with the individual making all of the contributions, except for low income individuals, where the government and/or the employer would make matching contributions. This is especially true once we think of individuals as having an integrated social protection scheme.

Going beyond the basic public program

The public program described in the previous section was mandatory. All individuals would be required to contribute a particular fraction of their income, in return for which they receive an annual annuity upon death. Some individuals may, however, want to save more than that amount. Undoubtedly, the private sector will provide them with options for such savings.

This section addresses three questions: (a) to what extent should government subsidize such savings, e.g. through employers; and if it does so through employers, what should it do for the large number of self-employed, to be sure that they are treated fairly; (b) what should be the regulatory structure for such investments; and (c) should there be a *public option*.

(a) Subsidizing Savings

Many western governments, believing that their savings rate is too low, have subsidized savings. In fact, the subsidies in many cases have not increased national savings: the loss in government revenue (leading to larger government deficits) more than offsets the slight increase in private savings. For China, the case for subsidizing savings is even weaker: a central policy concern, as we noted earlier, is shifting from export led growth to domestically demand driven growth. Government wants to increase private consumption. Thus, such subsidies are, in general, counterproductive. The implication is that government should *not* give preferential treatment to savings in any form, whether through employer sponsored programs or individual accounts.

There is one important exception. The increase in China's income inequality has received extensive attention. Almost surely, wealth inequality is even greater. There are a number of reasons that China should want to encourage wealth accumulation in the bottom half of the population. One way of doing so is through matching individual contributions to registered savings accounts, and perhaps particularly, to individuals taking advantage of the public option described below.

(b) Regulatory framework

There is overwhelming evidence in other countries that the private sector has successfully engaged in extensive exploitation of financially ill-informed individuals, generating for themselves enormous revenues, at the expense of retirees. The effects on retiree income is similarly enormous—it is largely a zero sum game, with the additional transactions costs yielding little if any benefit to the retiree. By some estimates, in the UK retirement benefits are lowered by some 40% as a result of the excessive fees.

On the other hand, the most innovative firms have managed to reduce transactions costs to very low levels, and this has helped the financially well-informed individuals.

In some countries (such as the United States), those managing other people's accounts may not even have to satisfy fiduciary standards. They are allowed to have conflicts of interest. Proposals that they should satisfy basic fiduciary standards, and that they should stay clear of conflicts of interest, have met

with resolute opposition from some in the financial sector. I believe such regulatory standards are absolutely essential.

Regulation needs to go further, to ensure that the financial sector sells financial products that are understandable to those buying them, avoiding the excessive complexity that facilitates exploitation. These financial products need not only be understandable, it needs to be shown that the financial products meet the needs of individuals, e.g. helps them manage the risks which they are likely to face. Financial regulators will need not only to monitor the products but those selling the products. There is a long history of “overselling” and “mis-selling” of financial products. Government regulators need to be sure that salesmen are trained sufficiently in finance to understand what are appropriate products, and that inculcated with a culture of serving the client, with strong penalties (civil and criminal) for their misbehavior and that of those for whom they work.

Strong regulation and supervision are essential not, however, just to prevent the exploitation of retirees and those accounts that they manage, but to enhance the productivity of the entire economy. An increasing fraction of China’s wealth will, like that in Western countries, be managed by intermediaries; and unless due attention is paid to how these intermediaries exercise their fiduciary responsibility, there is a risk of serious problems in corporate governance, with knock on effects on overall economic performance. The evolution towards short-termism throughout the corporate sector, especially in the US, illustrates the dangers: it has had significant adverse effects on growth, stability, and inequality.

There is one more aspect of private markets that may be troubling. With asymmetric information, providers of annuities have an incentive to try to identify those with short life-expectancies. There are deep philosophical issues about whether government should allow blatant discrimination, e.g. in premiums charged men and women of the same age for a given annuity. But if discrimination is not allowed, private insurance firms have strong incentives to discourage women from applying and to seek out men, since men have significantly lower life expectancies²². Extensive resources may be spent in an attempt to attract those with low life expectancies. (Such expenditures may be one of the reasons that private markets are so much less efficient than the government.)

(c) The public option

Regulations may be able to prevent some of the kinds of widespread abuses in the management of retirement accounts found in Western countries; but it may not be able to fully do so. Competition from the government may provide a benchmark, encouraging better performance from the private sector. The government should allow individuals who want to contribute more to the public retirement scheme to do so, with commensurate increases in benefits.

In creating the public option, the government will need to address some subtle issues involving the interaction between the public and private sectors. If the private sector is allowed to discriminate, it will, as we have noted, target those with short life expectancies, leaving the high cost individuals with long life expectancy to the government. This would, of course, make the public option seem

²² According to the latest information from the World Health Organization, globally, life expectancy at birth for both sexes was 71 years in 2013, ranging from 62 years in low-income countries to 79 years in high-income countries. All over the world, women have higher life expectancy than men. The gap between the sexes was 5 years in 2013, the same as in 1990. The gap is much larger in high-income countries (more than six years) than in low-income countries (around three years).

uncompetitive; but its seemingly relative poor performance is based on cream skimming by the private sector. In the case of life insurance and annuities, there may be a simple remedy: a “pooling tax,” imposed on the annuity provider on the basis of the disparity between the life expectancy of his pool and that of society as a whole. If appropriately designed, this could remove any incentive for cream skimming by the annuity provider.

Concluding comments

With China’s aging population and changing family structures, it is imperative that the country create a cost effective system of social security. China can afford a well-designed system. Indeed, I would argue that China cannot afford not to create such a system.

Twenty years ago, the World Bank and others argued for the creation of a three pillar system, based on a mandatory public first pillar; an employer provided private second pillar; and an individual based private third. Events over the subsequent years have shown that such a system is both inefficient and ineffective: it was marked by high transactions costs and a high burden of risk borne by ordinary individuals.

This paper has provided an alternative framework, based on a robust and large public pillar, reflecting not only intergeneration risk sharing but also intergenerational “welfare” sharing. This should be complemented by a private retirement scheme, unsubsidized except for the poor, well-regulated to prevent the abuses observed throughout the world, and accompanied by the public option—the right of individuals to save additional amounts, voluntarily, through the public social security scheme.