Fully Funded Social Security: Now You See It, Now You Don't?

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A SOCIAL SECURITY SYSTEM IS A SYSTEM THAT USES REVENUE FROM TAXES ON WAGE INCOME TO PROVIDE PAYMENTS TO SENIOR CITIZENS. ONE OF THE MAIN GOALS OF SUCH A SYSTEM IS TO ENSURE THAT ELDERLY PEOPLE HAVE ADEQUATE INCOMES WHEN THEY RETIRE.[1] MOST DEVELOPED COUNTRIES ESTABLISHED SOCIAL SECURITY SYSTEMS AT SOME POINT DURING THE EARLY PART OF THIS CENTURY. THE UNITED STATES ESTABLISHED ITS SOCIAL SECURITY SYSTEM DURING THE MID-1930S, WHEN WIDESPREAD POVERTY PRODUCED BY THE GREAT DEPRESSION INCREASED PUBLIC CONCERN FOR THE PLIGHT OF ELDERLY PEOPLE AND OTHERS WITH SPECIAL NEEDS.[2] MEXICO ESTABLISHED ITS SOCIAL SECURITY SYSTEM LESS THAN A DECADE LATER, AS PART OF THE SOCIAL REFORM PROGRAM BEGUN BY THE REVERED LEADER LAZARO CARDENAS. CARDENAS WAS ONE OF THE FOUNDERS OF THE INSTITUTIONAL REVOLUTIONARY PARTY, WHICH HAS GOVERNED MEXICO FOR THE LAST SIXTY YEARS.

Mexico's social security system is of special interest to economists in the United States. Part of the reason for this interest, of course, is that Mexico is a neighboring country with which the United States has a close social, political, and economic relationship. The primary reason, however, is that the government of Mexico has recently implemented a social security reform program that is broadly similar to the social security reform programs advocated by many U.S. economists and policymakers.

Social security systems can be implemented in a number of different ways. These differences can have important effects on macroeconomic variables such as national saving, interest rates, investment, and growth. One particularly key distinction between different types of social security systems is the distinction between "pay-as-you-go" systems and "fully funded" systems. The principal goals of this article are to describe the basic differences between these two types of social security system, to indicate why these differences are important,

and to explain, using Mexico as an example, why it may be surprisingly difficult to determine which type of system a country actually has.

In any social security system, current workers pay taxes that are called their contributions to the system and retired workers receive payments, called their benefits, from the system. Under a pay-as-you-go system, the contributions of current workers are used, directly or indirectly, to pay benefits to current retirees. Under a fully funded system, in contrast, the contributions of current workers are not used to pay current benefits. Instead, these contributions are used to purchase assets, and the returns on these assets—that is, their principal and interest—are used to pay the future social security benefits of the workers who made the contributions. Thus, under a fully funded system there is a sense in which retired workers have financed their own benefits while under a pay-as-you-go system the benefits of retired workers are financed by current workers.

Although it is fairly easy to explain the theoretical difference between the two kinds of social security systems, as a practical matter it may not be so easy to determine which type of system a particular country has. The current situation in Mexico provides an interesting and instructive example of this practical problem. According to the Mexican government, one of the principal goals of its social security reform program is to convert the country's pay-as-you-go social security system into a fully funded system. As this article will explain, however, there may be some room for doubt that Mexico's new social security system is or ever will be fully funded. Instead, the new system may be a pay-as-you-go system of a somewhat different type. While a switch of this type may have some economic benefits, these benefits are likely to be considerably smaller than the ones produced by a genuine switch to a fully funded social security system.

It is important to note that Mexico is reforming its social security system in a number of different ways, many of which are not directly relevant to the question of whether the new system is fully funded. Some aspects of the reform program may represent significant improvements over the old social security system and may produce substantial benefits for the Mexican public, even if the new system does not turn out to be fully funded. A companion article scheduled for publication in the next issue of this *Economic Review* presents a detailed description of Mexico's old and new social security systems. This article confines itself to (1) presenting a general discussion of the characteristics of pay-as-you-go versus fully funded social security systems and (2) identifying the issues involved in determining whether Mexico's new social security system is fully funded.

Pay-As-You-Go Systems

Pay-as-you-go social security systems also come in two basic types. The simpler type is one in which the government social security agency—in the United States, the Social Security Administration—collects taxes from workers and uses them to make direct payments, sometimes called transfers, to retired people. In this article, a system of this type is referred to as a tax/transfer system.

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In an alternative type of pay-as-you-go social security system, the government social security agency uses workers' contributions to purchase financial assets. Typically, these assets are bonds issued by a government budget agency, such as the U.S. Treasury Department, although they may also include private bonds or stocks (see below). For the moment, however, it is simplest to assume that the assets consist exclusively of government bonds. In this case, the government budget agency uses the proceeds of the sale of new bonds to pay off previously issued bonds. These bond-financed repayments constitute the social security benefits of current retirees: the social security system bought the maturing bonds using their past contributions. The principal and interest on the currently issued bonds will constitute the social security benefits of future retirees. The government budget agency will pay these bond returns by issuing new bonds to the social security agency, the agency will buy them using the contributions of future workers, and so on. In this article, a pay-as-you-go

1. *Social security systems may also make payments to people who are not retired, such as workers who become disabled or dependents of deceased workers.*
2. *Sargent (1998) points out that the U.S. social security system was established at a time when academic economists believed excessive saving and overaccumulation of capital were a significant problem. In his view, this belief played a role in building support for the system.*

system of this type will be referred to as a bond/tax-or-transfer system.[3]

In a bond/tax-or-transfer system, if the social security agency wishes to pay benefits that are larger than the bond repayments, then it will have to ask the government budget agency for funds it can use to make supplemental transfers to retirees. The budget agency obtains these funds by selling more new bonds each year than it needs to obtain the funds necessary to pay off its maturing bonds. If the social security agency plans to pay benefits that are smaller than the bond returns, then it can ask the government to levy taxes on retired people that are equal to the difference between the bond returns and the desired benefits. The budget agency can use this tax revenue to reduce the quantity of new bonds it needs to issue to finance current social security benefits.

Fully funded social security systems are profoundly different from pay-as-you-go systems, and a successful transition to a fully funded system might have very significant long-run macroeconomic benefits for a national economy.

There is no fundamental difference between tax/transfer and bond/tax-or-transfer systems.[4] Under a tax/transfer system, the government social security agency collects contributions, in the form of taxes, from workers while they are working. It gives these contributions to retired people as their benefits. The agency also promises workers transfer benefits when they retire. It will get these benefits by taxing future workers, and so on. Under a bond/tax-or-transfer system, the social security agency also collects contributions from workers while they are working. It uses the contributions to buy newly issued bonds from the budget agency. However, the budget agency will use the contributions to pay off the bonds it sold to the social security agency a generation ago—when the currently retired workers were still working—and the social security agency will use these dollars to pay these workers' current social security benefits. Thus, current social security contributions end up in the hands of current retirees as benefits, just as under the tax/transfer system. Similarly, although workers will receive future social security benefits that are based, for accounting purposes, on the returns on bonds that the social security agency purchased with their contributions, these returns will actually be financed by the sale of new bonds to the agency. The funds to purchase these bonds will be provided by the social security contributions of young people who will be working when older workers are retired. In a practical sense, the older workers' benefits will come from the contributions of these young workers.

To understand the equivalence between these two different varieties of a pay-as-you-go system, it is important to remember that a government bond is simply a promise by the government to make a payment in the future. A government promise to make a payment to pay off a bond is not fundamentally different from a government promise to make a payment for social security benefits. If the government requires workers to buy bonds and promises them future payments to retire the bonds, then it is not doing anything essentially different from requiring them to pay taxes and promising them a future transfer payment.

As indicated above, the government of Mexico recently began implementing a social security reform program that it describes as involving a switch from a pay-as-you-go system to a fully funded system. This article argues that it is quite possible that the reform program represents a change of a much less substantive sort: a switch from a pay-as-you-go system of the tax/transfer type to a pay-as-you-go system of the bond/tax-or-transfer type.

Distinguishing Pay-As-You-Go from Fully Funded Systems

One source of confusion in distinguishing pay-as-you-go systems from fully funded systems is the fact that it is possible, under either system, for social security contributions to be used to purchase financial assets that include government bonds. As the previous section explained, under a pay-as-you-go system of the bond/tax-or-transfer type the social security contributions are used to purchase financial assets, and the assets in question may be government bonds. Under a fully funded system the social security contributions are always used to purchase financial assets; again, these assets may be government bonds.

When both types of systems purchase government bonds, the important distinction between them involves the question of why the government bonds are being issued—that is, what the proceeds of the bond sales are being used for. Under a pay-as-you-go system, when the social security system uses the contributions of current workers to purchase newly issued government bonds, the government uses the proceeds of the bond sales to pay off old bonds that were issued to finance social security payments to past workers. The existence of the social security system provides the only reason for the government to issue the new bonds, and it also provided the only reason the government needed to issue the old bonds.

Under a fully funded system, in contrast, the government bonds that the social security system purchases were issued for some other purpose—for instance,

to finance a current government project or to roll over bonds originally issued to finance a past project. The government does not use the proceeds of these bond sales to retire bonds that were issued to pay social security benefits, and the bonds would have been issued even in the absence of a social security system.

Why is the question of how the government uses the bonds it sells to the social security system so important? As the introduction notes, the key feature that distinguishes a pay-as-you-go system from a fully funded system is the source of the funds used to pay benefits to retired workers: do these funds come from current workers, or do they come from the returns on the retired workers' assets? If the funds used to pay benefits to retired workers are obtained by selling bonds to current workers, then it is clear that the current workers are the source of the retired workers' benefits. In this case, the system is not fully funded: the retired workers have not financed their own benefits, and current workers will not have to increase their saving to finance their future benefits (see below).

Defined Contributions versus Defined Benefits

Another important feature that distinguishes some social security systems from others is the nature of the relationship between the size of a worker's current social security contributions and the size of the same worker's future social security benefits. Under a defined contributions system, a worker's social security contributions are used to purchase assets, and the size of the worker's benefits depends on the rate of return on those assets. If the rate of return on the assets turns out to be high, then the worker will receive relatively large retirement benefits, and vice versa.[5] Under a defined benefits system, in contrast, the social security benefits paid to a retired worker are determined by a fixed formula that involves factors like total contributions to the system, total number of years worked, salary during the last few years before retirement, age at retirement, and so on. Workers' social security contributions may be used to purchase assets or to finance direct transfers to retirees, but in either case the workers' retirement benefits do not depend on the returns on any assets.

Currently, the United States has a defined benefits system. Before its recent social security reform, Mexico also had a defined benefits system. Mexico's new system features defined contributions. From the point of view of workers, the attraction of a defined benefits system is that it reduces the amount of uncertainty about the value of their future benefits. On the other hand, a defined benefits system produces considerable uncertainty for the government, which usually finances the future benefits out of revenue from taxes or assets whose value depends on future economic conditions. If the promised benefits turn out to be larger than the amount of revenue, then the government has to obtain supplementary financing by borrowing or by increasing taxes.

In the United States, Mexico, and many other countries, demographic changes are producing a rapid increase in the fraction of the population that consists of retired workers. As a result, the value of the social security contributions from young workers is growing more slowly than the value of the defined benefits due old workers. This situation has produced serious financial stresses. It is a big part of the reason that many countries have switched or are considering switching to defined contributions systems.

Under a fully funded system there is a sense in which retired workers have financed their own benefits while under a pay-as-you-go system the benefits of retired workers are financed by current workers.

Historically, pay-as-you-go social security systems have usually featured defined benefits, and fully funded systems have usually featured defined contributions. Other combinations are possible, however. Under a pay-as-you-go system with defined contributions, the benefits associated with a worker's current contributions could be indexed to the value of the future revenue produced by a fixed social security tax rate, allowing the level of benefits to vary with the economy's demographic evolution and growth performance. Under a fully funded system with defined benefits, the government could specify workers' future benefits and cover

3. The U.S. social security system includes a social security trust fund that holds U.S. Treasury bonds. However, most social security contributions are used more or less immediately to finance social security benefits. The social security trust fund acts as a buffer to help smooth out temporary differences between total current contributions and total current benefits. If current contributions are larger than current benefits, then the surplus contributions are used to purchase bonds. In the opposite case, some of the bonds are sold in order to provide a supplementary source of funds for the benefits.

4. This point is made briefly in Auerbach and Kotlikoff (1998, 161–62) and more completely in Murphy and Welch (1998).

5. In many cases, workers are not allowed to withdraw the entire value of their assets as a lump sum. Instead, the funds must be used to buy an annuity. In some cases, workers are allowed to withdraw their funds according to a schedule that permits them to withdraw a fixed amount each year over a fixed number of years.

any asset-returns shortfall via taxes or borrowing. Moreover, if the assets held by the system consist mostly of government debt, as in the case of Mexico, then there should be little difference between defined contributions and defined benefits. Presumably, the government's promise to repay its debt is no more or less reliable than its promise to pay future social security benefits directly.[6]

Privatized Social Security Systems

Another source of confusion about different types of social security systems involves the concept of a privatized social security system. The confusion occurs because the term privatized can be used in connection with several different aspects of social security systems. Sometimes it refers to who manages the system, sometimes to the relationship between a worker's current social security contributions and the same worker's future benefits, and sometimes to the type of assets held by the social security system.

According to the Mexican government, one of the principal goals of its social security reform program is to convert the country's pay-as-you-go social security system into a fully funded system.

Management versus Financing. One usage of *privatized* in the context of social security refers to the degree of government involvement in managing the system. If a social security system is extensively privatized in this sense, then the system is managed mostly by private firms, leaving a relatively limited role for the government. Under a conventional or unprivatized system, on the other hand, the government plays an exclusive or leading role in managing the system.

A second usage of *privatized* involves the ultimate source of the funds used to pay social security benefits. As noted above, under a fully funded social security system the social security benefits paid to a retired worker are financed by the worker's contributions made before retirement. This situation is often summarized by saying that the worker's benefits have been financed privately. Under a pay-as-you-go system, on the other hand, a worker's benefits are ultimately financed by the contributions of other workers, so they could be described as having been financed publicly rather than privately.

When a government announces that it is planning to privatize a social security system, people often assume that the government is planning to switch from a pay-as-you-go system to a fully funded system. However, the government may simply intend to turn the task of administering the system over to private firms. A pay-as-you-go social security system can be administered by the private sector or by the government; similarly, a fully funded system can be administered by the private sector or by the government.

To understand how a pay-as-you-go social security system can be privately administered, imagine a bond/tax-or-transfer system in which the government allows private financial intermediaries to set up social security accounts on behalf of workers. The intermediaries would purchase and sell bonds, make social security benefit payments, and provide associated accounting services. Workers might be allowed to choose which private intermediary would receive their funds and pay their benefits. The intermediaries might have considerable latitude about which government securities to buy, what sorts of accounting systems to use, what handling fees to charge, and so forth. This is the type of system that may have been established in Mexico.

To see how a fully funded system can be government administered, imagine a government social security agency that maintained social security accounts on behalf of active and retired workers. The agency would decide which government or private securities to purchase. It would handle all the accounting, and it would pay all the benefits. The benefits, however, would be funded entirely from the principal and interest on these securities, and the securities would have been issued for purposes unrelated to the needs of the social security system.

In order to avoid confusion, it might be better if the term privatized were used only to describe fully funded social security systems. It is difficult, however, for people to think of a social security system that is mostly privately administered as anything other than privatized, even though the system may be of the pay-as-you-go type.

Asset Holdings. Finally, a social security system might be described as privatized if the assets the system purchases are privately issued—that is, if they consist of corporate bonds or stock rather than government bonds. As noted earlier, people tend to think of fully funded systems as privatized and of pay-as-you-go systems as dominated by the government. Consequently, they often assume that it is possible to distinguish between pay-as-you-go systems and fully funded systems on the basis of whether the systems' assets are issued by the private sector or by the government. They may also assume that the economic impact of a given type of system depends on the type of assets it holds.

In reality, a pay-as-you-go social security system may hold privately issued or government-issued assets, and the same is true for a fully funded system. In addition, the economic impact of a social security system may not depend on the type of assets it holds. It is pos-

sible, for example, for a fully funded system that holds privately issued assets to have the same economic impact as a fully funded system that holds only government debt. Moreover, a system that holds privately issued assets and appears fully funded to casual observers may have exactly the same economic impact as a pay-as-you-go system.

Macroeconomic Implications

One of the principal goals of this article is to analyze the economic implications of alternative types of social security systems. To accomplish this goal, it is important to consider both the asset portfolio held by the social security system on behalf of current and past contributors and the overall asset portfolio of the public and the government.

Portfolio Substitution and Its Implications. Consider, for example, the case of a pay-as-you-go system of the bond/tax-or-transfer type that is being established in an economy that did not previously have a social security system. In Case A, the social security system holds only government bonds. In Case B, the system is allowed to hold private bonds and for the most part chooses to do so. (As a result, it may be mistaken for a fully funded system.)

Suppose that in both cases the government initiates the new system by issuing bonds to finance the social security payments made to current or near-future retirees. In Case A, these bonds will be purchased by the social security system. In Case B, on the other hand, the social security system does not purchase many government bonds. Does this mean that the government will be unable to market its initial bond issue so that the new social security system will collapse as it begins? Does it mean that the government will be able to sell its bonds only by offering very high interest rates that will drive up other market rates and have adverse repercussions across the economy?

Probably not. Consider Case A. Although the new social security system is likely to reduce the amount of private saving (as seen below), there probably will still be a significant amount of private saving. Much of this private saving is likely to take the form of purchases of private bonds. In Case B, there will also be substantial private saving, but many of the private bonds that workers would have liked to purchase will be purchased by the social security system. This situation will cause a decrease in the supply of private bonds. But since government bonds and private bonds are likely to be good substitutes, active workers who would have saved by buying private bonds (Case A) will now save by buying government bonds (Case B). Thus, the government will have no trouble selling its bonds at moderate interest rates, even though the social security system may not be buying them. Although the workers' social security benefits will now be based on the returns from private bonds and their private retirement income will be based on returns from government bonds, their total retirement income will be unchanged. Moreover, the funds the government uses to pay benefits to currently retired workers will continue to come from currently active workers, just as under any pay-as-you-go system.

Similarly, suppose (Case C) that a new social security system is allowed to hold stocks and for the most part chooses to do so. Stock portfolios have higher average returns than portfolios of government or private bonds, but they are also riskier. Thus, in Case C the benefits paid by the social security system will be higher, on average, than the benefits paid by the system in Case A, but their value will also be riskier. (This discussion assumes that the system features defined contributions.) Returning again to Case A, in which the social security system purchases only government bonds, the private saving that occurs outside the social security system is likely to include a substantial quantity of stocks. Workers will purchase these stocks because they like the high average returns and are willing to accept the increased risk, up to a point.

In Case C, however, workers will get high average returns from the social security system but also high risk. They are likely to want less risk in their private saving, and they are likely to be willing to accept lower returns in order to obtain lower risk. As a result, they will reduce their private stock purchases by the amount of stock the social security system purchases on their behalf. They will replace these stocks with safer government bonds. Thus, neither the total amount of retirement-income risk the workers will be accepting nor the total amount of income they will receive when they retire will be different from that in Case A. Again, the government will be able to sell its bonds at moderate interest rates even though the social security system will not be buying them. Again, the funds used to pay current social security benefits ultimately come from currently active workers.

Under a pay-as-you-go bond/tax-or-transfer system that features defined benefits, on the other hand, a social security reform program under which the system switches from holding bonds to holding stocks may have significant economic effects. Before the reform, the market presumably determined stock prices and return rates in a way that ensured that all the stock issued by

6. This discussion assumes that the social security system has the option of purchasing government bonds that are indexed against inflation. The new Mexican social security system has large holdings of indexed government bonds.

firms would be purchased by active workers as part of their private saving. When these workers reached retirement age, they would end up with relatively high retirement income if the stocks performed well but relatively low income if the stocks performed badly. After the reform, however, the social security system will be purchasing stocks. The market will have to adjust stock and bond prices and return rates in a way that induces young workers to increase their purchases of less risky assets (government or private bonds) even though their social security retirement income is not risky. If the rate of return on the stocks turns out to be relatively low, then the government may have to supplement the stock returns by increasing taxes on the active workers. If the return rate on the stocks turns out to be relatively high, then the government may be able to reduce taxes. The upshot is that allowing the social security system to hold stocks shifts risk from workers' retirement years to the years when they are still working. Retired workers receive income that is much more predictable than it otherwise would have been, but some generations of active workers end up paying relatively high taxes while others end up paying relatively low taxes.

There may be some room for doubt that Mexico's new social security system is or ever will be fully funded. Instead, the new system may be a pay-as-you-go system of a somewhat different type.

Saving and Interest Rates. As the introduction indicated, the principal reason that the distinction between pay-as-you-go social security systems and fully funded systems is potentially important is that the two different types of systems may have very different effects on saving, interest rates, and related macroeconomic variables. Perhaps the easiest way to see how and why the macroeconomic effects of the two systems differ is by conducting the "thought experiment" of starting with an economy that has no social security system and then introducing such a system. The effects of introducing a pay-as-you-go social security system will turn out to be very different from the effects of introducing a fully funded system.[7]

In the economy without a social security system, people will have to save substantial amounts while they are working in order to provide funds to support themselves after they retire. Under a social security system, regardless of which type, by contrast, active workers will be paying taxes they would not be paying otherwise. They also know they will have substantial retirement income even if they do not save large amounts. As a result, they are likely to reduce their current saving in order to try to restore their current consumption to its original level.

The reduction in current saving by workers (current private saving) will reduce the availability of credit in the economy. Under a pay-as-you-go system, moreover, the government will use the social security tax revenue to pay social security benefits (directly or indirectly, as discussed above), so it will not be able to use this revenue to reduce its borrowing. As a result, there will be no change in the amount of credit the economy requires. In terms of conventional supply-demand analysis, the credit supply curve will shift to the left along an unchanged credit demand curve. As a result, the equilibrium quantities of saving and credit will fall and the equilibrium interest rate will rise. Thus, a basic prediction of social security theory is that establishing a pay-as-you-go system should cause the amount of saving in an economy to fall and the interest rate in the economy to rise.

Next, imagine introducing a fully funded social security system into an economy that has not had a social security system. Under a fully funded system, the combination of current social security taxes and expected future social security benefits again leads to a decrease in saving by workers, reducing the availability of credit. In this case, however, the government does not use the social security tax revenue to pay current social security benefits; instead, it uses the revenue to retire existing government bonds. The retirement of these bonds will reduce the government's debt service payments in the future, creating surplus funds that it can use to pay future social security benefits without borrowing.

In terms of supply-demand analysis, under the fully funded system the leftward shift in the private supply of credit is accompanied by a leftward shift in government demand for credit of roughly equal size. As a result, there should be no significant change in interest rates. Private saving has decreased, but since government dissaving (borrowing) has decreased by a roughly equal amount, there should be no significant change in total saving in the economy.

Thus, a second basic prediction of social security theory is that establishing a fully funded social security system should have little or no effect on the economy. Stated differently, an economy with a fully funded social security system is not much different from an economy with no social security system.[8] It follows that switching from a pay-as-you-go social security system to a fully funded system has roughly the same economic impact as eliminating a pay-as-you-go system without replacing it. Consequently, switching from a pay-as-you-go system to a fully funded system should cause the total amount of saving to rise, producing a decline in the interest rate.[9]

Public Welfare. An important follow-up question is whether an increase in the amount of saving is good or bad for the economy. Since the principal role of saving in an economy is to finance the acquisition of physical capital, this question becomes the question of whether the economy would be better off trying to maintain a larger stock of capital. According to economic theory, the answer to this question depends on whether the long-run return rate on capital is higher or lower than the long-run growth rate of the economy—in the jargon of economic theorists, whether the economy is dynamically efficient or dynamically inefficient.[10] If the rate of return on capital is relatively high, so that the economy is dynamically efficient, then capital is productive at the margin. The next units of capital acquired via saving will produce additional goods in the future whose value exceeds the amount of future saving and investment that will be required to maintain them. In this case, an increase in the amount of saving makes the economy better off in the long run, and vice versa. Consequently, switching from a pay-as-you-go system to a fully funded system would make the economy better off in the long run.

In the opposite case, where the rate of return on capital is relatively low, so that the economy is dynamically inefficient, the last units of capital are unproductive at the margin. The amount of saving and investment necessary to maintain these units of capital is larger than the amount of additional goods they will produce. As a result, the economy could actually consume more each year by saving less and reducing both its annual investment and its capital stock. In this case, switching from a pay-as-you-go system to a fully funded system would make the economy worse off in the long run because the amount of saving would rise and the degree of dynamic inefficiency would increase.

Although there is some debate about the issue, most economists believe that most modern economies, certainly the U.S. economy and presumably the Mexican economy, are dynamically efficient.[11] As a result, most economists believe that switching to fully funded social security systems would make these economies better off in the long run. It seems likely that this belief is a large and perhaps dominant part of the reason the Mexican government would like to switch to a fully funded system.

Transition Problems

Unfortunately for the Mexican government, and for other governments interested in engineering this kind of switch, the price of achieving the long-run gain from switching systems may be considerable pain in the short run. For the reasons just outlined, switching to a fully funded social security system is arguably likely to benefit workers born in the relatively distant future. However, it is almost certain to hurt many current workers, active or retired, and it may also hurt workers who are born or who retire in the near future.

The biggest problem in managing the transition from a pay-as-you-go system to a fully funded system is how to finance the benefits that were due under the old system to workers who have already retired or who will retire in the near future. Under the old pay-as-you-go system, these benefits were to have been financed out of the social security contributions of current workers. Under the new fully funded system, however, current social security contributions must be used to purchase assets, and the sellers of these assets must use the funds for some sort of investment rather than transferring them to current retired workers. Consequently, an immediate switch to a fully funded system would deprive current and near-future retirees of their social security benefits, leaving many of them with little or no retirement income. Since current and near-future retirees are also current voters, it is likely that the government of a democratic or quasidemocratic country would face serious political opposition to trying to carry out such a switch. In the words of Thomas Sargent, "it is easier to vote an unfunded social retirement system in than to vote one out" (1998, 306).[12]

7. The discussion of the macroeconomic effects of social security systems will assume that workers' economic decisions are not very strongly influenced by altruistic feelings toward their ancestors or descendants. Most economists believe this assumption is appropriate, at least as a first approximation. Broadly speaking, the presence of intergenerational altruism tends to reduce the difference between the macroeconomic effects of pay-as-you-go versus fully funded systems.

8. Making this statement ignores a number of possible microeconomic effects of the establishment of social security systems—in particular, the tendency of many systems to redistribute income toward low-income people by giving them relatively generous benefits. It also ignores the possibility that some people are shortsighted and will not save economically rational amounts unless a social security system forces them to do so. Both these considerations have figured prominently in practical discussions of social security reform in the United States, Mexico, and elsewhere.

9. This point has been emphasized by Kotlikoff (1998), among many others.

10. One of the first economists to recognize the possibility of dynamic inefficiency was Samuelson (1958).

11. Abel and others (1989) make the case that the United States and a number of other developed economies are dynamically efficient.

12. Cooley and Soares (1999) discuss the possibility that a pay-as-you-go social security system may represent the outcome of a democratic political process in which different groups support policies that reflect their own economic interests.

An alternative method for executing an immediate switch to a fully funded system would be to finance the social security benefits due current and near-future retirees by some combination of increased taxes and cuts in government expenditures—including, possibly, reductions in the generosity of the social security benefits. Again, however, policies of this sort would impose a large financial burden on current workers and other groups of potential voters. In Mexico's case, moreover, a financing policy of this sort seems doubly unlikely because the government is trying to reform its social security system in the aftermath of an economic crisis that has sharply reduced workers' incomes and living standards.

Some aspects of Mexico's reform program may represent significant improvements over the old social security system and may produce substantial benefits for the Mexican public even if the new system does not turn out to be fully funded.

The transition strategies that seem most likely to be politically feasible would involve spreading the burden of financing the social security benefits due current and near-future retirees across a number of future generations of workers. Under a strategy of this type, the Mexican government would start by issuing long-term bonds in order to obtain the funds necessary to pay social security benefits to current and near-future retirees. When these bonds mature, the current workers will be retired, and they will have been replaced by a new generation of workers. At this point, the government would increase the taxes on current workers in order to obtain the funds needed to retire some of the bonds. The remainder of the bonds would be rolled over. When the second round of bonds matured, the government would use the same supplementary tax revenue—now collected from a second new generation of workers—to retire some additional bonds; it would roll over the rest, and so on. Eventually, there would be no bonds left to roll over, so the original debt would be fully retired. The government would have completed the transition from a pay-as-you-go social security system to a fully funded system.

It is now possible to pose the key question that provided the motivation for writing this article. How can an analyst observing the actions of a government that is implementing a social security reform program—a program which, according to the government, will convert the country's social security system from pay-as-you-go to fully funded—determine whether the government is really switching to a fully funded social security system as opposed to simply changing the form of the pay-as-you-go system?

As the discussion presented earlier in this section indicates, a central question in trying to determine the nature of a social security reform program is how the establishment of the program affects the government's overall budget deficit. If a government that is trying to switch to a fully funded social security system manages to pay the current social security benefits without increasing its budget deficit, then it may have financed these benefits via tax increases, spending cuts, or some combination of the two. In this case, it may have succeeded in engineering an immediate transition. On the other hand, if the government deficit rises by an amount equal to the total cost of paying the current social security benefits, then the government has presumably financed these benefits by additional borrowing, which means it has not yet taken any firm steps toward a successful transition. In the intermediate case, in which the government deficit increases by an amount that is smaller than the cost of the current social security benefits, the size of the step taken toward a successful transition can be measured by the fraction of the current benefits that is not covered by an increase in the deficit.[13]

Suppose that the fraction of the current social security benefits that the government is able to finance by spending cuts or tax increases is relatively small. In this case, how is it possible to tell whether there is likely to be a genuine transition to a fully funded system? The answer, it turns out, is "not very easily." The basic reason for the uncertainty is that the actions the government must take at the beginning of the transition process—the only actions our imaginary analyst can observe—are exactly the same in both cases: it must issue bonds to obtain the funds needed to pay most of the social security payments due current and near-future retirees. The government actions that will distinguish a transition to a fully funded system from a transition to a pay-as-you-go bond/tax-or-transfer system will occur in the future, not today. If the government is really switching to a fully funded system, then over the next few generations it will have to collect enough additional revenue, via new taxes or cuts in spending, to retire the aforementioned bonds. But if it is simply switching to a pay-as-you-go system of the bond/tax-or-transfer type, then it will not have to reduce its future budget deficits because it will roll the bonds over indefinitely without retiring any of them.[14]

Although a switch of the latter sort may have few or no economic effects, it creates the appearance of reform in two different ways. First, since switching to a bond-based system could (but does not necessarily) represent the first step in a transition to a fully funded system, this switch allows the government to claim that it has begun the transition process. Second, the switch

to a bond-based system allows the government to privatize a number of aspects of the administration of the social security system. This step may have some benefits in its own right, and many people are likely to misinterpret it as representing more effectual reform.

Conclusion

Governments of countries around the world, including Mexico and the United States, have implemented or are considering implementing social security reform programs. In virtually every case, one of the principal goals of the reform program is to convert a pay-as-you-go social security system into a fully funded system.

Fully funded social security systems are profoundly different from pay-as-you-go systems, and a successful transition to a fully funded system might have very significant long-run macroeconomic benefits for a national economy. However, it is not always easy to determine whether a country has a pay-as-you-go system or a fully funded system, and it may be even more difficult to determine whether a country is likely to succeed in switching from one type of system to the other. The economic circumstances of most of the countries that are conducting or contemplating social security reforms will force them to proceed with these reforms in a very gradual way. Many of the steps a country might take in order to begin a gradual transition to a fully funded social security system are identical to steps it might take if it is merely changing the form of its pay-as-you-go system—a change whose long-run macroeconomic benefits may not be very significant. And since the actions needed to push the transition process forward may have substantial political costs, governments have a potential incentive to claim that they intend to make the switch even when they have no such intention. Even if the government genuinely intends and expects a transition to take place, carrying out the transition will require cooperation from future governments, and these governments will also have powerful incentives not to take the steps needed. Finally, even if the public believes that a successful transition will occur, the fact that the transition is likely to be quite gradual means that the changes in their current behavior resulting from this belief may not be large enough to be identified with any confidence.

The bottom line is that information that is currently available, or that will become available in the near future, may give very little indication as to whether Mexico or other countries attempting gradual reforms are likely to succeed in replacing their pay-as-you-go social security systems with fully funded systems. The information needed to make this judgment is likely to be revealed very slowly over time.

13. *In practice, unfortunately, making judgments like this can be quite challenging. Interpreting government budget statistics is often very difficult, and the budget of the social security system is often reported separately from the rest of the government budget.*
14. *The government will have to pay the interest on the bonds, but it can do so without increasing its social security tax collections.*

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