

Marianne A. Ferber, Patricia Simpson\*

## **Whither Systemic Reform? A Critical Review of the Literature on the Distributional and Income Adequacy Effects of Systemic Pension Reforms\*\***

What is the relationship between the introduction of defined-contribution accounts into public pension systems and changes in elderly poverty and income inequality?\*\*\* The present study examines the current state of knowledge with regard to these relationships. The study is divided into four parts: 1) an overview of data indicating that elderly poverty began to rise at least in developed economies in recent years; 2) a discussion of a body of conceptual and empirical studies that suggests defined-contribution accounts will adversely impact elderly poverty and income inequality; 3) a review of confounding factors that make it difficult to project the direction of such relationships; 4) suggestions for future research.

**Key words:** **pay-as-you-go (PAYG), defined-benefits accounts, defined-contribution accounts, parametric reforms, systemic reform**

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\* Marianne A. Ferber, Professor Emerita, Department of Economics, University of Illinois. Patricia Simpson, Associate Professor, Institute of Human Resources and Employment Relations, School of Business Administration, Loyola University Chicago, 304 E. Madison, Philo, IL 61864, USA.

For comments and enquiries, please contact Marianne A. Ferber, 101 W. Windsor, Apt. 4105, Champaign, Urbana, IL 61821, USA. E-mail: m-ferber@illinois.edu.

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\*\*\* For an interesting discussion of the pros and cons of privatizing public systems, see Pedersen (2004). We would also note that for some time now this subject has received a good deal of attention in the *Journal of European Policy*.

## Introduction

For almost thirty years we have witnessed a worldwide trend of public pension reforms. Beginning in Chile in 1981 (Corbo/Schmidt-Hebbel 2003), the trend gathered momentum, spreading first to other countries in Latin America (Calvo/Williamson 2008; Campbell 1992; Cottani/Demarco 1998; Claramunt 2004; Kritzer 2000)<sup>1</sup> and later to Central and Eastern Europe (CEE) (Fultz/Ruck/Steinhilber 2003), as well as Western Europe (Kremers 2002) and Australia (Edey/Simon 1998; Saunders 2002) during the 1990s.<sup>2</sup> Although approaches to reform varied, a fairly common pattern was to move away from pay-as-you-go (PAYG) defined-benefit programs towards systems that incorporated defined-contribution plans closely linking retirement benefits to the value of pre-retirement contributions (Feldstein/Siebert 2002; Smetters 1999).

Various systems were implemented, from partial to full reliance on mandatory defined-contribution accounts, generally privately administered, to state-administered notational defined-contribution systems (NDCs) (Feldstein/Siebert 2002). In all of these approaches, benefits for retirees are a function of accumulated contributions plus or minus returns from investments in securities markets. In NDCs, earnings contributions are credited and revalued annually in accordance with an index (e.g., the rate of increase in covered wages, or of GDP), but benefits may also be implicitly limited by the amounts that governments can finance through existing tax rates (Feldstein/Siebert 2002). Policy analysts have labeled all changes to defined-contribution approaches, whether privately or publicly administered, “systemic” reforms because they entail a radical, qualitative change from PAYG defined-benefit public pension systems. Reforms that more nearly maintain the status quo and merely adjust existing rules and regulations (e.g. age of eligibility, benefit formulas) are called “parametric” reforms (Zaidi/Marin/Fuchs 2006).<sup>3</sup>

The motivation for systemic reform differed somewhat between developing, CEE and developed countries. In Latin America and to some extent CEE, debt-strapped governments with limited resources for investment turned to defined-contribution approaches, often at the strenuous urging of the neo-liberal administrators of the World Bank, not only in the hope of reducing the burden on government budgets but also in order to spur economic growth. Even in Western Europe, a neo-

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<sup>1</sup> Conservative economists, foremost among them Martin Feldstein, were critical of existing public Social Security programs and advocated radical changes even before these countries began their experiments (see Feldstein 1974 and 1975). Further, their enthusiasm for privatization does not appear to have been dampened either by the Enron scandal or by the worldwide recession/depression that began in 2008.

<sup>2</sup> Because so little has been written about pension reform in Africa, we ignore that continent in this analysis. We note, however that in the 1990's Ghana and the United Republic of Tanzania have both reformed their pension systems, moving to scale back private accounts while expanding public defined-benefit programs. Similar efforts were under consideration in Swaziland, Uganda, and Zambia.

<sup>3</sup> Schokkaert and Van Parijs (2003) shed a good deal of light on this controversial subject

liberal agenda became increasingly influential, mainly among rightwing and centrist parties, but to some extent also social-democratic administrations (Davis/Moffett 2005).<sup>4</sup>

The main concern, however, was the projected rise in the “old-age dependency ratio” as the size of the economically active population was expected to become smaller relative to the size of the retired population. In spite of evidence that their PAYG systems have, for the most part, been running considerable surpluses in recent decades (Aaron/Orszag 2004: 95), some researchers and policy analysts argued that bankruptcy in these systems was inevitable as the ratio of working age adults to seniors would continue to decrease. Critics of this gloomy prognosis pointed out that decreasing birth rates and the increasing labor force participation of women might well more than offset changes in the dependency ratio caused by the aging of the population (Ferber/Simpson/Rouillon 2006),<sup>5</sup> but this more optimistic assessment has received less attention in both the scholarly and popular literature.

Myopia has been even more characteristic of the literature addressing the impact of systemic pension reform. Thus far most of these studies have focused on anticipated effects of defined-contribution accounts on balanced budgets, expansion of investment resources, and the potential for economic growth. Many held out high hopes for positive economic and fiscal outcomes, but empirical analysis of privatized pension systems in Latin America and CEE countries have produced decidedly mixed results, and recent reports have been increasingly critical.<sup>6</sup> At the same time, remarkably

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<sup>4</sup> Although concern about inadequate funds for private investment is acute mainly in developing countries, advocates of privatizing Social Security, notably Martin Feldstein in many of his numerous publications on that subject, also claims that only private investment is productive, so that funds used by the government inevitably reduce total output. This clearly ignores the contributions government expenditures make, for instance those on education, public transportation and maintenance of law and order make. Furthermore, to the extent that many of these conservatives strongly support huge expenditures on the military as not only useful but essential to the wellbeing of their country they can hardly believe that these expenditures are unproductive. Hence there is little reason for concern about an unfavorable effect on the aggregate economy.

<sup>5</sup> Peng (2008) does, however, offer evidence that a rapidly aging population may not lead to a declining standard of living even in China, where the population is aging particularly rapidly as a result of the one child policy. Rather he concludes that in spite of the more modest supply of labor and the slower rate of physical capital formation living standards in that country will continue to improve, albeit at a declining rate.

<sup>6</sup> Examples of studies that question the efficiency of privatization for Latin American countries include: Claramunt (2004), Matijascic and Kay (2006), and Schwartz (1998). Casey (2004) has similar doubts about the effects of private savings accounts in CEE. Further, although the program in the UK is ostensibly voluntary, it has been plagued by issues of high transition and administration costs as well as by corruption and moral hazard problems. Problems of the later type were first uncovered in the Maxwell scandal and have been documented by Blake (2002) among others. Last but not least, Hagberg and Wohlner (2004) have noted the quadrupling of administrative costs associated with private accounts in Sweden.

few studies have offered even a conceptual investigation of the effects of these reforms on poverty and income inequality and such empirical evidence as has been produced is largely derived from simulation studies of single countries. This neglect is particularly disturbing given that most public pension systems originally incorporated social security and social solidarity goals.

The purpose of this paper is to critically evaluate the current state of knowledge regarding how systemic pension reform impacts poverty and income inequality of the elderly. Part one presents evidence from an analytical study of recent poverty trends, and offers descriptive data on pension levels of low-income workers pre- and post-pension reform. Taken together, this information suggests that: 1) changes in public transfer programs are associated with reductions in incomes of the elderly, at least in economically advanced countries, and 2) absent more sophisticated analytic approaches, the link between specific public pension reforms and rising poverty as well as income inequality is not entirely clear. Part two covers both the theoretical and empirical literature that addresses the latter relationships. It is for the most part imperfect and typically alludes to the central concerns of this study only indirectly, but it offers highly suggestive insights implying that defined-contribution accounts adversely impact the economic status of low-income elderly and potentially widen the income gap among this group. Part three presents discussions of potentially confounding factors bearing on these relationships. In Part four we suggest directions for future research.

## 1. Recent data on poverty and pensions

Some intriguing evidence has emerged concerning changes in the economic status of the elderly in many countries. The importance of pre-reform pensions, which comprised a significant share of the income of retirees and their dependents and hence played an important part in preventing poverty among them, has been well documented for many countries (e.g. Hauser 1999). It undoubtedly was an important factor in reducing both absolute and relative poverty rates after World War II in economically advanced nations (OECD 1998). Moreover, there was less income inequality among older people than in the working-age population, although poverty remained high in this group, especially among single women. As would be expected, the situation was worse in developing nations (Hauser 1999; Heinrich 2000; Barrientos 2006).

Since the mid-1990s, however, income gains made by the elderly after WWII have, in numerous instances, stalled or have even been reversed. A recent study of 27 OECD countries (Förster/d'Ercole 2005) found relative income declines among the elderly in half of them and that this reversal was mainly the result of changes in taxes and public transfer programs although it is not clear which particular changes in transfer programs contributed to the rise. Further, the same study shows that absolute elderly poverty rates rose both in countries that implemented systemic pension reforms and those that did not.

Another study of OECD countries calculated the impact of recent pension reforms on relative pension levels for low-income workers (those earning 50% or less of the average). Table 1 presents the estimates from this study. Some sizeable drops in income are found in countries that have adopted systemic pension reform. For example, the pre-reform benefit level in Poland was 50.0% for men and 47.1% for

women; after reform the levels were 38.8% and 29.9% respectively. In the United Kingdom, however, where systemic pension reform was also implemented, the pension level rose from 29.0% to 36.0%. It is also notable that large declines in pension levels appear in countries that chose to pursue parametric reforms. For instance, in Portugal the decline was from 58.5% to 45.0% and even in Germany it was from 39.7% to 32.6%.

**Table 1: Net relative pension levels for low-income workers before and after pension reform** (Source: OECD 2007)

Country	Pre-reform: Men	Post-reform: Men	Pre-reform: Women*	Post-reform: Women
Austria	57.8	52.2	53.1	53.2
Finland	44.6	44.8		
France	42.8	42.1		
Germany	39.7	32.6		
Hungary	52.5	58.4	42.9	58.4
Italy	55.9	46.7		
Japan	32.2	26.9	51.1	36.3
Korea	54.3	54.2		
Mexico	38.7	28.2		
New Zealand	41.7	41.7	38.7	28.2
Poland	50.0	38.8	47.1	29.9
Portugal	58.5	45.0		
Slovak Republic	41.8	36.5		
Sweden	44.7	42.8		
Turkey	77.2	52.0	73.2	52.0
UK	29.4	36.0		

\* If different for women

Clearly poverty among the elderly has been rising in many OECD countries in recent years and the modification in public transfer programs appears to have played a part. Additionally, relative pension levels for low-income workers have declined in most OECD countries. These findings do not, however, provide any evidence that parametric reforms would have less adverse effects on poverty among the elderly than systemic reforms have had. To shed further light on this question we have to look further.

## 2. The contribution to increasing poverty and income inequality among the elderly: Proposed effects and case study evidence

Proponents of mandatory defined-contribution accounts have long argued that one of their advantages is that their impact on income distribution among the elderly is neutral because the retirement income of participants is equal to their pre-retirement contributions. Turner (2000: 27) counters this perspective by pointing out that defined-contribution accounts are neutral in their distributional impact only if the “rate of return on investments, net of expenses and taxes, is constant across income classes.” This assumption is, however, very unrealistic. In fact, there are substantial differences by class and gender.

For one, low-income people tend to be less knowledgeable about investment (Hinz/McCarthy/Turner 1997) and consequently bear a greater comparative risk in managing their accounts. If they opt to minimize their risks by purchasing lower-risk assets, they tend to receive lower returns. Research shows that this is generally the case (Turner 2000). In Sweden, for example, where covered employees have the option to identify their preferred investment fund, a substantial proportion of low income workers choose not to do so. Consequently their contributions are automatically earmarked for a default category, typically a low-return fund, and this pattern has resulted in a decline in benefit levels for the elderly in that country. This problem has been exacerbated by the fact that in Sweden pensioners must choose five out of 650 mutual funds offered by 75 institutions (Hagberg/Wohlner 2004).

Another reason why the effect of defined contribution accounts is expected to be regressive are the high fixed costs of privately managed investment accounts for small investors. Generally charges for opening accounts and related administrative expenses are relatively higher for smaller accounts, while, in some instances, they are waived fully or in part for larger accounts. Notably, administrative costs for small accounts have been as high as 20 to 40 percent in Chile (Turner 2000), 18-19 percent in Bolivia and Uruguay (Mesa-Lago 2001), and 19 to 30 percent in the United Kingdom (Blake 2002). For the CEE countries, Casey (2004) projects that administrative costs reduce returns by as much as 7.5 percent. Australia and the United Kingdom have tried to reduce this problem by requiring that firms handling mandated accounts have a single entrance fee and a cap on administrative fees, but these policies appear to have backfired. In contrast to the pattern for accounts without such caps, these defined-contribution funds tended to bring no returns or even losses (Turner 2004).

An additional reason for the frequently regressive effect of mandatory defined contributions is that low-income workers frequently have to choose between retirement saving and immediate basic survival needs like food and housing (Calvo/ Williamson 2008). In both Chile and the United Kingdom, sizeable numbers of individuals had not contributed to their established defined-contribution plans for extended periods of time by the mid 1990's (Turner 2000). More recently Mesa-Lago (2005) showed that the percentage of account holders who had made contributions in the past month had declined in all Latin American countries with such programs.

Intermittency is also problematic because low-income workers may have to pay administrative charges on accounts even during periods when they do not make con-

tributions nor benefit from tax write offs associated with contributions to and earnings from defined-contribution accounts (Turner 2000). Vittas/Iglesias (1991) concluded that intermittency reduced the rate of return for low-income workers in Chile by as much as 2 percentage points between 1981-1990.

Then there is the problem of evasion. Informal labor markets, which typically employ the most poorly paid workers, have been expanding worldwide in recent years. They have become particularly common in Latin America (Baker 2006; Schwartz 1998) and in CEE countries (Fultz 2004), but exist even in advanced capitalist countries (Carré et al. 2000). Given that informal workers are basically invisible, it is not surprising that they often evade making contributions to their accounts. Of course, evasion is also common among informal workers under PAYG systems, but the problem is substantially mitigated in at least some countries by other means-tested income support programs available to the elderly.

In several countries that have had systemic reforms intermittency and evasion have led to an increased gap in public pension coverage. In a study of ten Latin American countries, Mesa Lago (2001) analyzed the extent of pension system coverage pre- and post- reform in Latin America. He found that the coverage had declined in all countries where such reforms had been implemented, with an average decline of between 27 and 38 percent. Especially in the countries most plagued by economic distress in the late 1990's, the declines were quite dramatic. In Peru, for instance, coverage fell from 31 to 11 percent and in Argentina from 50 to 24 percent. Fultz (2004) indicates that similar coverage problems have become evident in CEE due to the growth in self-employment and the informal economy. Obviously the future holds financial distress and hardship for many aging individuals not under the protective umbrella of a public pension system.

Other problems may well result from the annuitization of defined-contribution accounts, intended to guarantee that an individual does not outlive available resources. This process can have an adverse impact on elderly poverty and income inequality for two reasons. First, transaction costs of annuitization are comparatively higher for smaller accounts. Second, when some countries offer low-income workers a phased withdrawal of benefits to compensate for the fact that, on average, they do not live as long as wealthier ones, insurance companies tend to expect an adverse selection problem to develop because the long-lived will be most likely to purchase annuities. Hence companies are likely to set prices accordingly. The poor will then have to pay higher prices. Further, poor individuals who choose not to buy the annuities and do live long may then run out of income and end up destitute (Turner 2000).

Defined-contribution accounts are also problematic because they make pension systems less progressive. A recent OECD (2005: 4) report notes that the advent of pension reform in Italy, Hungary, and Poland has basically eliminated any redistributive features of their pension systems and observes that "if the pension system itself does not redistribute funds to prevent pensioner poverty, means-tested safety-net provisions will have to play an ever more prominent role in the retirement incomes of elderly people."



All else equal, a shift away from progressive redistribution is inherent when pension systems tighten the linkage between contributions based on disposable income and future benefits. Thus, quite apart from returns and administrative costs, the contributions to these accounts characteristically replicate earnings and wealth differentials associated with different work histories. Obviously this increases the potential for low-income workers to receive inadequate pensions even when they have had a continuous work history in the formal labor market. The problem is further magnified for those whose work histories are discontinuous or who have spent many years in the informal sector. Therefore, as many researchers have pointed out, systemic pension reform poses particular hardships for women who, despite gains in most countries, still tend to be more heavily concentrated in low-pay jobs, have more episodic work histories and are more frequently employed in the informal sector of the economy due to their lingering traditional family roles and remaining labor market discrimination (Zajicek/Calasanti/Zajicek 2007). For example, in Chile in 2002, 63.6 percent of the male economically active population is covered by the pension plan, compared to 60.9 percent for females (Gill et al. 2005).

Remaining gender differences in labor market participation and discrimination can also interact with targeted approaches to annuitization that widen the gender gap in pensions. While arguably addressing the transfer of wealth that occurs when pension annuitization is based on uniform life expectancy tables, the use of separate tables by gender further reduces women's already low pensions. In some CEE countries gender inequities have crept in through this aspect of the annuitization process. Presently the average pension paid to a woman who retired at age 60 in these countries is only 74 percent of that paid to a man retiring at the same age, while under the old pensions system they received about 82 percent as much (Fultz/Ruck/Steinhilber 2003).

Although based largely on projected rather than measured trends, a study that compares the effects of pension reform in Australia, Chile, Italy, Poland, Sweden, and the UK concludes that pension systems dominated by private defined-contribution programs generally have increased income inequality by gender (Evans/Falkingham 1997). Another simulation study of the private defined-contribution (superannuation) accounts in Australia reached the same conclusion (Korczyk 2003), as do projections by Stahlberg et al. (2006) for private accounts in Sweden.

Suggestive data on overall elderly poverty also showed that a rise in elderly poverty in the United Kingdom coincided with privatization and the United Kingdom's Pension Commission projected further increases of poverty among Britain's elderly in the near future (Krugman 2004).

### 3. Confounding factors

We turn now to some alternative perspectives concerning the impact of systemic pension reform. At the heart of these is the view that income adequacy and distributional outcomes associated with any reforms are likely to be determined by a broader set of public policy determinants than merely the introduction of defined-contribution accounts. For one, systemic reforms in Western Europe also introduced specific regulations intended to temper some of the regressive effects of defined-contribution ac-



counts. For example, financial counseling was offered to low-income individuals in the United Kingdom (Turner 2004). In Australia, legislation was introduced that limits fixed costs so that they will not constitute an undue burden on low-income people (Turner 2000). In Sweden a guaranteed minimum pension, financed outside of the NDC, counteracts the regressive effect of privatization. Further, a number of other countries introduced a strong, “first-pillar” basic pension designed to assure minimally adequate incomes for all elderly (Gillion 2000).

It is also argued that for any pension reforms, whether systemic or parametric, the magnitude of elderly female poverty depends to a great extent on the rules concerning survivor benefits.<sup>7</sup> Convinced they will have a positive redistributive effect, James, Edwards, and Wong (2003) laud the requirement under the systemic reform systems of Chile, Argentina, and Mexico that married men must take out joint annuities at the time of retirement. Similarly, Stahlberg et al. (2006) view the basic guaranteed pension, use of uni-sex annuitization tables, and pension credits for child rearing as having offsetting effects in the Swedish system.

A third argument points out that in many countries that did not embrace defined-contribution accounts, parametric reforms like increasing the retirement age, changing the contribution rates, introducing new indexation approaches, or recalculating the benefit formula have caused marked declines in the generosity of public pension systems. For example, several parametric reforms in Germany are projected to result in one of the largest declines in the generosity of pension systems among countries of the European Union (Zaidi/Marin/Fuchs 2006). This is all the more notable in a country that has already had one of the largest increases in elderly poverty since the mid-1990s (Förster/d’Ercole 2005).

Finally, private accounts do not have a monopoly on linking contributions to disposable income. Although progressive ways of calculating benefits can redress the problem, pension income in most PAYG defined-benefit programs is largely a function of income generated in the formal labor market. Interestingly, in a recent study that takes a fully comprehensive view of the impact of all public pension programs and tax policies in place as of 2002, Germany is among the countries with the highest correlation between earnings and retirement income, higher, for instance, than Sweden, which had introduced private accounts (Queisser/Whitehorse 2006).

Indeed, income adequacy and distributional problems that arise whenever retirement pensions closely mirror pre-retirement earnings are an important reason why a

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<sup>7</sup> Some supporters of PAYG argue that substantial savings could be made by eliminating SS payments provided to non-employed spouses of covered workers. As Ferber, Simpson, and Rouillon (2006) point out, this would not only result in substantial savings but also considerably increase the incentive for the secondary earner to enter and remain in the labor market. Others object to this proposal because they believe homemakers deserve to have a guaranteed pension, but it is a long time now since the traditional family with a male breadwinner and a full-time female homemaker was widely taken for granted. In fact, there is today growing agreement that if we were to start over, we would create a different system. Hence a strong argument can be made that each individual should receive the SS benefits s/he is entitled to, just as each is paid the wage s/he earns.

new movement has emerged in Western Europe that promotes a citizen's pension. Pointing to the increase in informal and contingent work there (Gillion 2000; Augusz-tinovics 2002), as well as serious unemployment problems, advocates for the poor are proposing that universal minimum pensions should be available to all citizens. (McKay 2005).

#### 4. Future research

This overview of the relevant literature suggests that we still lack a definitive answer to the question of precisely how systemic pension reform impacts elderly poverty and income inequality. Much of what has been written projects hypothetical relationships purely on the basis of indirect, albeit suggestive evidence, including the studies that have considered account administration, annuitization, intermittency, and coverage. Where there has been direct evidence concerning the linkages it was derived primarily from simulation studies for one or a few countries. Such evidence is problematic, not least because no matter how methodologically sound these studies may be, they are necessarily based on presumptions about future behavior and trends that may eventually prove false.

Based on what we have learned, a better approach would be a multi-country study that allowed for comparisons not only between countries having used systemic as opposed to parametric reforms, but also between countries using various approaches within each of these categories. This would make it possible to exercise some measure of control not only as to whether a system has incorporated private accounts, but also whether the effects of these changes were mitigated by such other features as, for instance, minimum pension benefits.

Further, broad social and cultural factors such as the composition of elderly households and additional social welfare programs must also be considered. For, as Calvo and Williamson (2008) observed, wider social and cultural factors influence the effects of pension reform. For example, in a society where education is highly valued, low-income families are likely to divert more income to paying for education and less to defined-contribution accounts than in societies where education is less valued.

More reliable results could be obtained from comprehensive quantitative studies of countries with relatively similar socio-cultural environments, such as those of Western Europe, Latin America or CEE than a study of a mixed group of countries. Yet there must be enough variability in approaches to pensions within the group to make meaningful comparisons possible. Regrettably, data that would allow for such an ambitious study are, for the most part, not available. Reliable standardized data permitting cross-country comparisons over time of items such as income, poverty thresholds, and even demographic categories are often available only for developed industrialized nations.<sup>8</sup> Many of the developed industrial nations have, however, introduced

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<sup>8</sup> Data for these countries are readily available from organizations like the European Union (EU) and the Organization for Economic Development (OECD) and, in recent years, the Luxembourg Income Study (LIS) which, in time may well prove the best source for data permitting us to see whether defined-contribution accounts have a uniquely negative bearing on elderly poverty and income inequality.

pension reforms as recently as the late 1990's, so that even the most recent data do not permit an adequate assessment of their long-term effects.

Thus it will take time before we can better assess the effects of various types of reforms. Meantime, we have learned enough to suggest that great caution is needed concerning the effects of both systemic and parametric reforms is warranted. On the one hand, because of their great concern about systemic reforms, opponents of this radical step appear to have lost sight of the possibility that parametric reforms can also prove a source of considerable disadvantage to the retiree population. On the other hand, proponents of systemic reforms appear oblivious to the fact that the impending problems of the systems that have not yet been "reformed" could be forestalled by far less drastic measures than they are proposing.

## Conclusion

Clearly, further research is required, and a recent call by the ILO to slow down the rush to introduce and extend systemic pension reform is certainly supported by the level of uncertainty attendant on it. To risk increasing economic distress and increasing inequality among the elderly through the introduction of defined-contribution accounts is to risk much, not least the promise of social security and social solidarity that in the past have been overarching goals of public pension programs. These concerns have been brought into sharp relief by the recent meltdown of the global economy, including investment institutions that are an integral part of reformed pension systems. There are already legions of older people worldwide who have seen the value of their retirement savings linked to private investment vehicles decline dramatically. *News N Economics* (Oct. 10 2008) estimated that the value of assets under defined benefit plans had dropped by about 15% over the last year. These experiences must be expected to make efforts to "privatize" more public pension systems less politically feasible.

At the same time our review of the literature also suggests that discussion of reform must not focus too narrowly on the issue of defined contributions as opposed to defined benefits. For, on the one hand, there is a number of ways to counteract the negative effects of private accounts and, on the other hand, there are ways to tighten the linkage between earnings and benefits without introducing private accounts. In fact, drastic reductions of the generosity of public pension systems can occur (and have occurred) as a result of the cumulative impact of seemingly modest parametric reforms. To this we would add that because of the growth of the proportion of people in the informal labor market and of contingent workers, pension reforms of the future must find new ways to meet a wide variety of challenges.

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