Trends in old-age pension programs between 1989 and 2003

by Pascal Annycke[1]

Introduction

A set of tables has been produced that presents the most significant variables concerning old-age programs in the IFP-SES Social Security database[2]. These tables will be used for a forthcoming analysis of the changes in old-age pension programs between 1989 and 2003. The analysis is based on information provided by what has been identified as the main social security program in each country. Data is based on legal information available. In relation to the debate concerning the reforms of social security programs, a few trends seem to appear during both the 1990s and the beginning of the XXIst century.

A first part focus on the trends on pension contributions, employee and employer contributions being the main ways to finance pension programs.

The second part examine the required eligibility conditions for benefits. Different requirements may exist to be eligible for benefits such as retirement age, contributory period or residence period.

The third part tries to assess the changes in pension benefits. The indicator presented below takes into account the percentage of previous earnings in the pension formula.

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[1] Socio-Economic Security Programme, ILO. Analysis is largely based on the data from IFP-SES social security database. Thanks are due to Smita Barbattini for her statistical assistance.

[2] This database on social security has been developed by IFP-SES on the basis of information collected from *Social Security Programs Throughout the World* 1989, 1999 and 2002/2003 and from information available on the Web site of the Social Security ILO department.

This IFP-SES social security database is now available on: www.ilo.org/ses

I. Financing the old age pensions: trends in contributions between 1989 and 2003

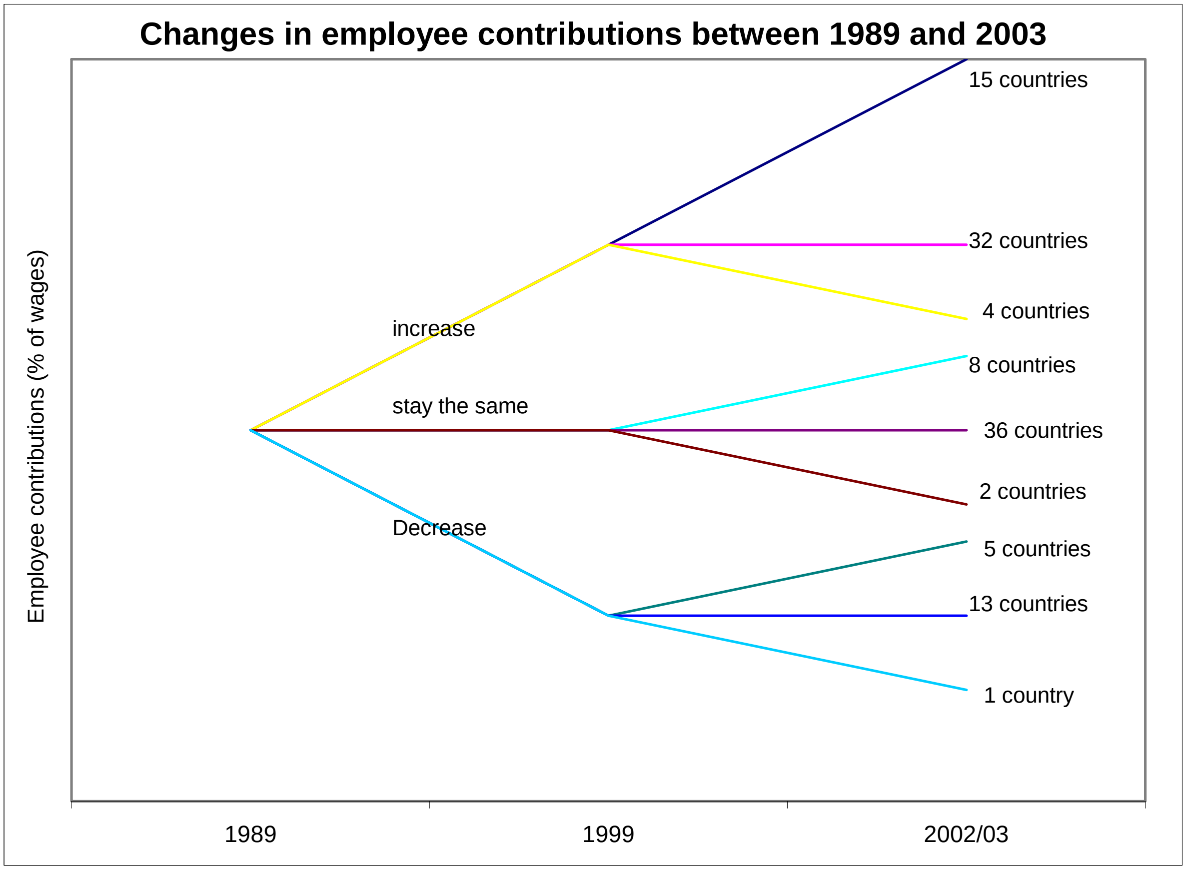
1 – Employee contributions (percentage of earnings) in 1989, 1999 and 2003:

One of the most significant results from the SES social security database is the increase in employee contribution rates. During the period, the average employee contributions have increased by about a third (32.5 %).

	Employee contributions		
	1989	**1999**	**2002/03**
N *	116	116	116
Mean	**4.15 %**	**4.98 %**	**5.50 %**
Std. Deviation	4.19	4.07	4.07
Minimum	0 %	0 %	0 %
Maximum	24 %	20 %	21.75 %
* N: common cases for years 1989, 1999 and 2002/03 on employee contributions			

The high level of standard deviation shows that employee contribution rates differ enormously from one country to another.

Within this general trend in employee contributions, we can distinguish several types of changes. Within each period (between two dates), there are three possible changes in the level of contribution: an increase, a decrease or the contributions staying the same. Therefore, in the 2 periods we have collected information for, there are 9 different cases (presented below).
In 64 countries out of 116, there was at least one increase in employee contributions during the period 1989-2003. In 36 countries there was no change at all, and in 26 countries, there was at least one decrease in employee contributions. An assessment of whether this increase in employee contributions corresponds to a similar increase in benefits appears later in this note.



When analysing the different types of social security programs, it is noticeable that the most common social security programs are social insurance ones. On the basis of the insurance principle, benefits are dependent upon contributions. Therefore, contribution levels are very relevant to benefit levels.

Employee contributions, by the main type of programs between 1989 and 2003						
	1989		1999		2002/03	
	Mean	N	Mean	N	Mean	N
Social insurance	4.15 %	98	4.97 %	99	5.48 %	101
Universal	0.875 %	4	0 %	3	0%	3
Mandatory private insurance	10%	1	7.41 %	7	7.98%	7
Provident funds	5.06 %	12	6.03%	10	6.19%	10
Social assistance	0%	1	0%	1	0%	2
Employer's liabilities	0%	1				

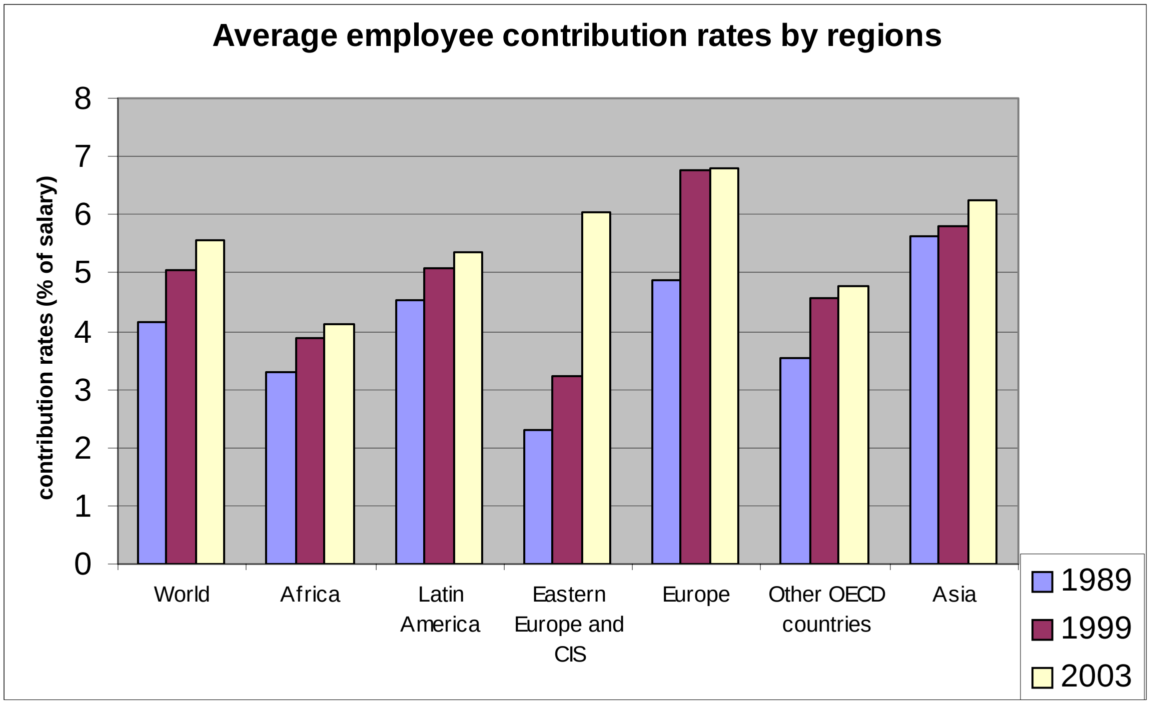
Employee contributions for mandatory private insurance schemes are on average much higher than any other type of program. These mandatory private insurance programs are usually phased in when a social insurance program is phased out. The actual difference in contribution rates could be even largerthan it appears at first glance, as there are cases where the social insurance contribution for social security pension schemes is a total contribution, which covers other social security branches. For example, in Portugal, the total contribution rate also finances family allowances, sickness and maternity, and unemployment insurance.

Social insurance is the most common old age pension social security provision. When the 91 countries with a social insurance program during the whole period (common N to 1989, 1999 and 2003) are considered, there is not a large difference in the results for employee contributions, which increase from 4.26% in 1989 to 5.61% in 2003.

Over the period under discussion, there was a slight increase in the number of social insurance programs. At independence, The Commonweath of Independent States implemented a social insurance program in the early nineties, which increased the number of countries in that category of program. But at the same time, some Latin American countries shifted their policy from social insurance to private insurance. Therefore, the higher number of countries with a social insurance program is simply the result of additional countries in the database and not the result of a global political conversion towards social insurance principles. However, the implementation of mandatory private insurance programs does seem to correspond to a political will, as they replace social insurance.

Employee contributions by regions:

As a general trend, employee contribution rates have constantly increased in all the regions.
The “world” average employee contribution rate increased from 4.15% in 1989 to 5.04% in 1999, and to 5.57 % in 2003. That is an increase of more than a third (34.31%) over the period.
Data from all the regions confirms this trend: in each region there has been a constant increase in employee contributions at each point of the time series.
The most significant increase over the period concerns Eastern European and CIS countries, with an average growth rate of 164 % (with an average employee contribution for that region going up from 2.28% in 1989 to 6.05% in 2003), while at the over extreme, the increase was limited to 11% in Asia. This huge increase in Eastern European and CIS countries is largely due to the construction of a new social security system with the collapse of the USSR. There were no employee contributions in the former soviet pension scheme, which relied on employer contributions and some government expenditure. All the newly independent states of the region have introduced employee contributions since then the Russian Federation being the only exception, where there are no employee contributions at the time of writing.

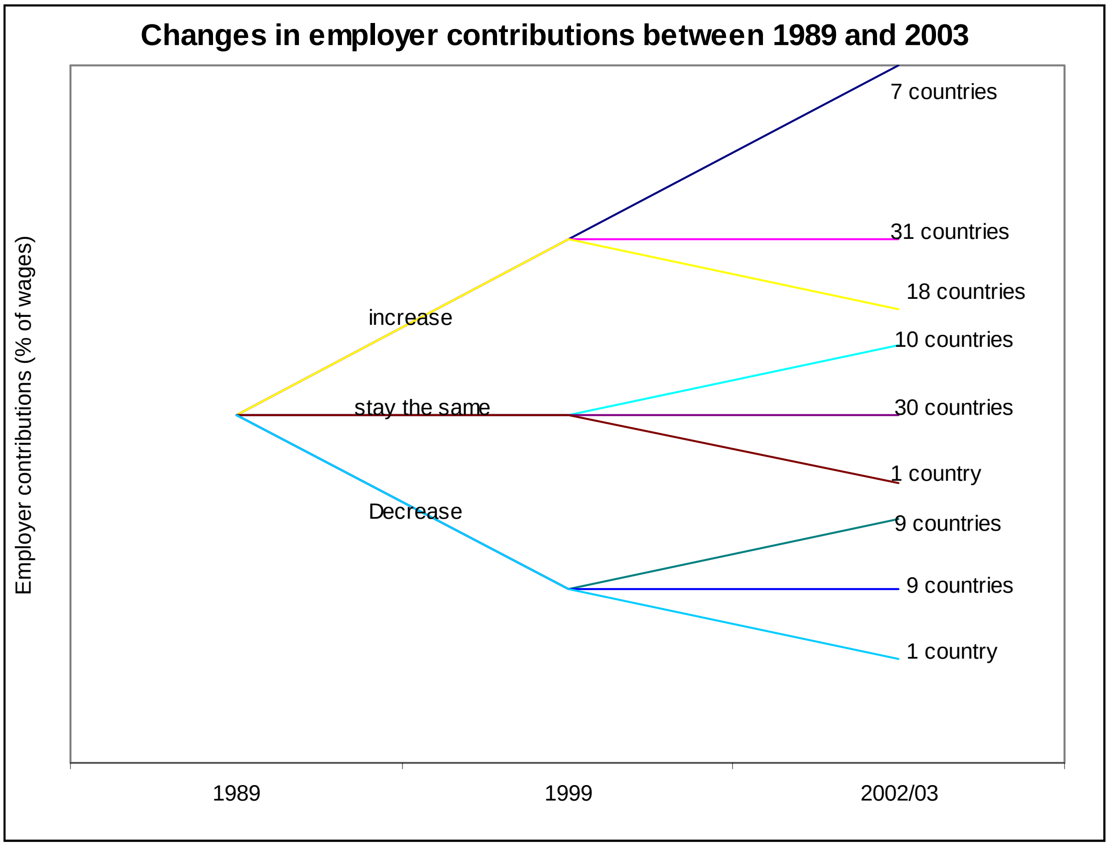


Source: IFP-SES, Social Security Database.

2 – Employer contributions (percentage of earnings) in 1989, 1999 and 2003:

Employer contributions have also increased during the period 1989 and 2003. However, the increase in employer contributions of 26% over the period has been less significant than the increase in employee contributions. Despite the fact that there has been an increase over the whole period, it should be noted that there has been a recent decrease (a slight one of 3.6%) in employer contributions between 1999 and 2003.

	Employer contribution rates		
	1989	**1999**	**2002/03**
N	116	116	116
Mean	**8.32 %**	**10.89 %**	**10.48 %**
Std. Deviation	8.77	9.27	8.29
Minimum	0 %	0 %	0 %
Maximum	50 %	38 %	37 %



Similarly as with employee contributions, it has been more common to increase employer contributions than to decrease them. During the period 1989-2003, there has been at least one increase in employer contributions in 75 countries, at least one decrease in 38 countries, while there was no change at all in 30 countries.

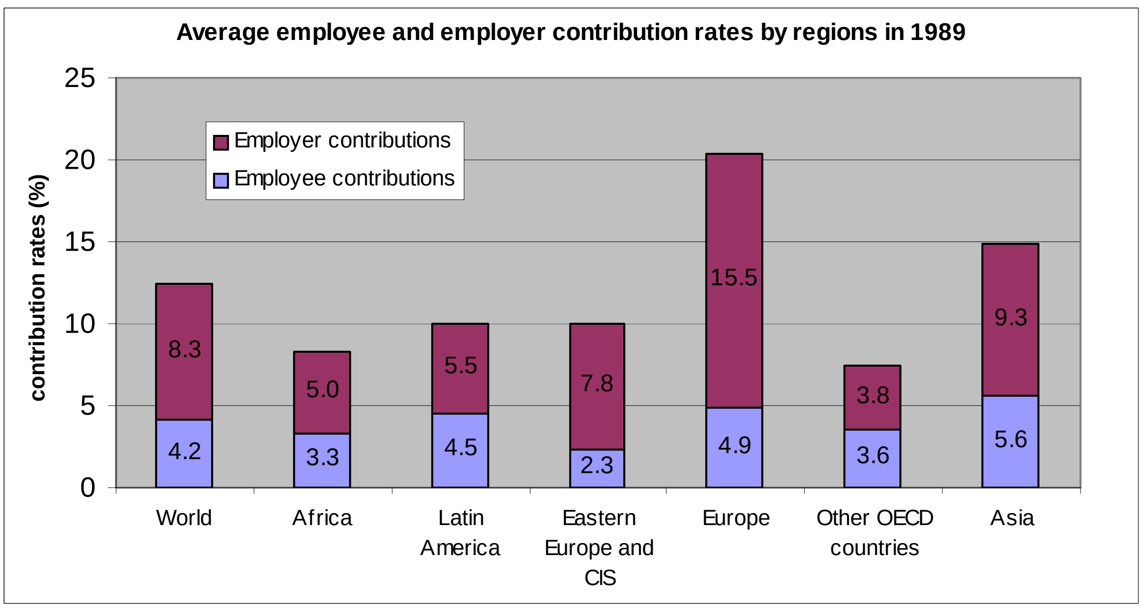
Social security pension schemes have significantly used contributions as a variable of adjustment. However, the increase in contribution has in most cases been biased in favour of the employer and against the employee, i.e. employee contributions have increased at a much higher rate.

Employer contributions by the main type of programs between 1989 and 2003						
	1989		1999		2002/03	
	Mean	N	Mean	N	Mean	N
Social insurance	8.80 %	98	11.84 %	99	11.41%	101
Universal	0.5 %	4	1.68 %	3	1.94%	3
Mandatory private insurance	0%	1	5.82 %	7	5.20%	7
Provident funds	7.70 %	11	8.04%	10	7.19%	10
Social assistance	0%	1	0%	1	0%	2
Employer's liabilities	14.9 %	1				

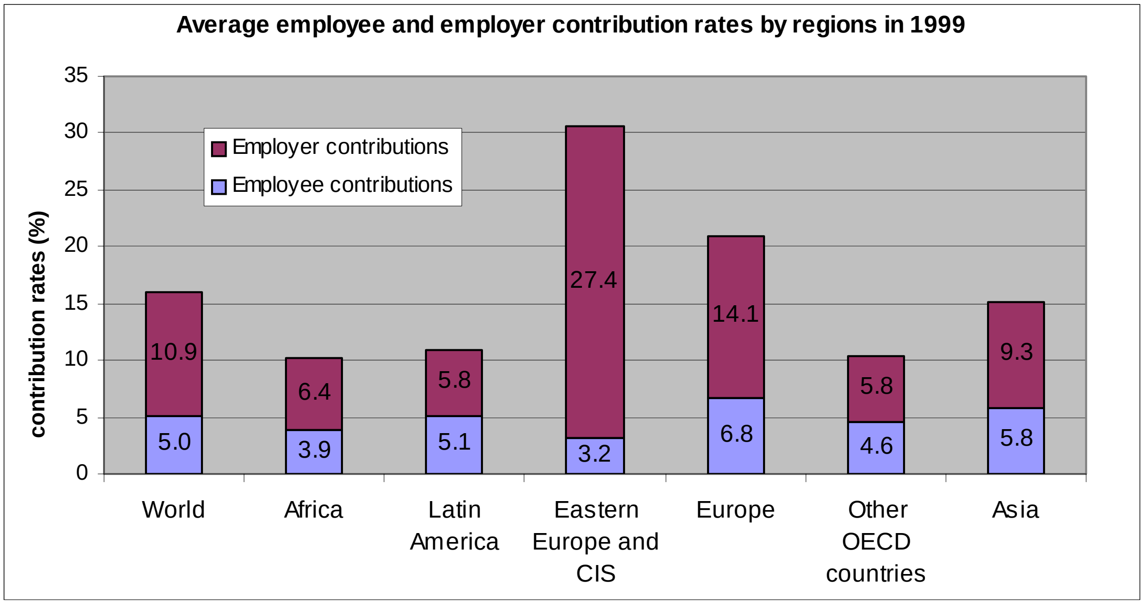
A comparison of employee and employer contributions by type of program (table above and table page 4) reveals that the average employer contribution level is much higher than employee contributions. However, the split between employee and employer contributions often results from broader collective bargaining: pension schemes financed by higher employer contributions could simply be the result of wage moderation. As with employee contributions, there are 91

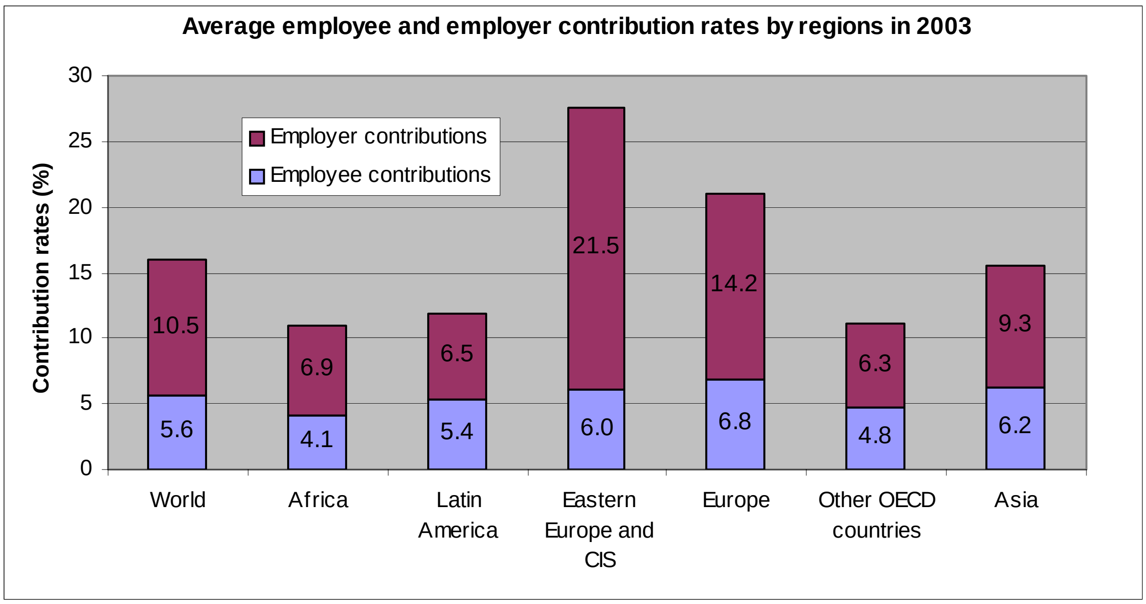
countries keeping a social insurance program over the period and there is no significant difference between the employer contribution rates in these countries and the total number.[3]
Only mandatory private insurance schemes have a lower employer contribution rate than employee contributions and sometimes the implementation of such programs are combined with the complete removal of employer contributions all together, such as in Chile, Peru, Bolivia and Kazakhstan (see table below). Such practices, which consist of financing social security provisions only by employee contributions are not in conformity with article 71 of ILO Convention 102 on minimum standards on social security and, if generalised to all social security branches: "*the total of the insurance contributions borne by the employees protected shall not exceed 50% of the total of the financial resources allocated to the protection of employees and their spouses and their children*". The average share of employer contributions in total contributions is below 40% in 2003 for mandatory private insurance programs (5.2% out of 13.18%).

In respect of social insurance programs, the total contribution rate has increased from 12.95% in 1989 to 16.89% in 2003, while the share of employer contributions in total contributions has started to slightly decrease between 1999 and 2003, from 70.4% to 67.5%. This shift from employer to employee contributions is even more accentuated for mandatory private insurance programs. The changes of mandatory private insurance reforms and their influence on contributions are presented below. As shown in the 3 graphs below, this trend can also be distinguished by regions.



[3] The average contribution rate is of 8.29% in 1989, 11.78% in 1999 and 11.38% in 2003 for the 91 countries with a main program as social insurance during the period





As an example of pension reforms in the world during the last decade, it is interesting to measure the changes in employee and employer contributions due to a shift from a social insurance scheme to a mandatory private insurance scheme. This type of reforms corresponds to the "classical" World Bank reform.

Cases of changes in employee and employer contributions with reforms from social insurance to mandatory private insurance schemes during the period 1989 to 2003[4]						
Countries	Year	Employee contributions before reform	Employer contributions	Year	Employee contributions	Employer contributions
Bolivia	1989	5 %	3.5 %	1999	10 %	0 %
Costa Rica	1999	2.5 %	4.75 %	2003	1 %	3.25 %
Mexico	1989	1.5 %	4.2 %	1999	1.12 %	2 %
Peru	1989	3 %	6 %	1999	10 %	0 %
Kazakhstan	1999	1 %	30 %	2003	10 %	0 %
Hungary	1989	10 %	43 %	1999	8 %	22 %
Poland	1989	0 %	38 %	1999	9.76 %	9.76 %
Average		**3.29 %**	**18.49 %**		**7.13 %**	**5.29 %**
Std. Dev.		3.36	17.74		4.20	8.15

Following the "World Bank model of reforms", 7 reforms have been identified in our social security database that were undertaken at different moments during the period under review, either between 1989-1999 or between 1999-2003. These 7 reforms are examples of the phasing in of mandatory private insurance schemes and the phasing out of social insurance schemes.

These 7 examples clearly show that the burden of contributions is shifting from employer to employee.

Before reforms, employee contributions represented on average 15.1% of total contributions, while they rose to 57.41% of total contributions after reforms.

There is a significant decrease of total contributions from 21.78% of wages before reforms to 12.42% of wages after reforms. Therefore, such a decrease in the total contributions is also likely to correspond to a decrease in pension benefits.

The "World Bank" model of reforms doubled employee contributions, while employer contributions were divided by three and a half. In a context of ageing and higher old age expenditure, how can it be justified to reduce so much the sources of funds for pension schemes?

[4] Employee and employer contributions may also finance some other social security contingencies. For exemple, in Kazakhstan, the 1999 contributions not only finance old age, disability and death benefits but also cash sickness, maternity, work-injury and family allowances.

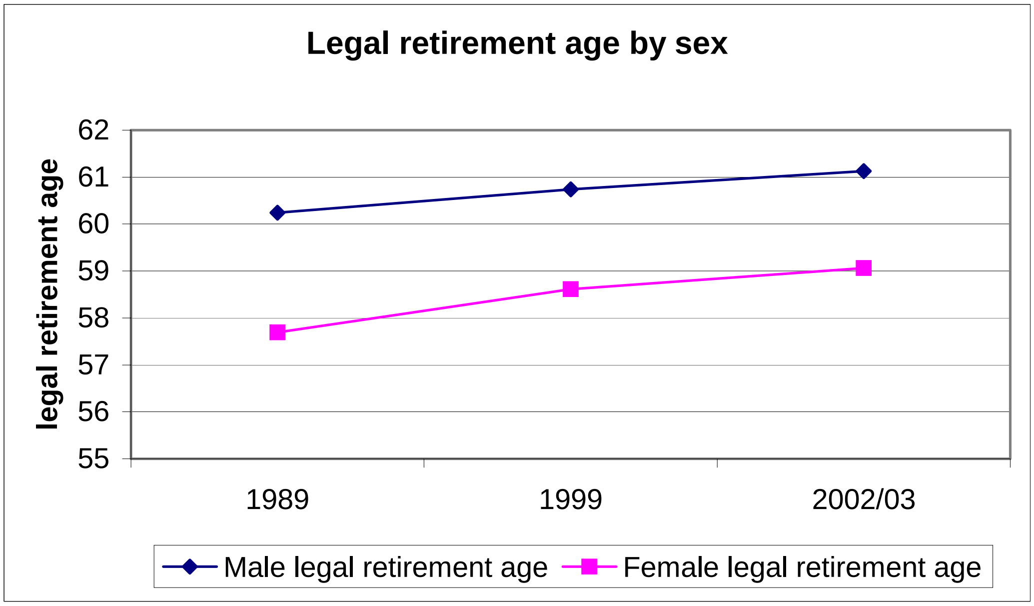
II. Changes in eligibility conditions between 1989 and 2003

3 – Legal retirement age in 1989, 1999 and 2003:

Legal retirement age for male and female						
	1989		1999		2002/03	
	Male	Female	Male	Female	Male	Female
N *	116	116	116	116	116	116
Mean	**60.24**	**57.69**	**60.74**	**58.61**	**61.13**	**59.06**
Std. Dev.	3.55	3.98	3.59	3.86	3.51	3.75
Minimum	55	50	55	50	55	50
Maximum	67	67	67	67	67	67
* N: common cases for years 1989, 1999 and 2002/03 on legal retirement age						

Both men and women have experienced an increase in legal retirement age between 1989 and 2003. This increase is greater for women than for men. The average legal retirement age has increased by 1.37 year for the women, from 57.69 in 1989 to 59.06 in 2003, while the increase for men rose 0.89 year during the same period, from 60.24 to 61.13.

On average, there is still a gap in retirement age between men and women. This gap came down from 2 and a half years to 2 years between 1989 and 2003. At the same time as this increase in retirement age, there is a slow trend towards gender equalization in retirement age.



A majority of countries have the same legal retirement age for men and women. However, some countries have a lower retirement age for women. This measure has been regarded as an element of positive discrimination. However, this element of positive discrimination is being questioned more and more. The trend today seems to be to reduce or eliminate this difference in retirement age. This paper does not intend to take a position on an equal treatment in retirement age between men and women, or to favour positive discrimination policy towards women, but simply to point out the trend. This equalisation is occurring in tandem with a general increase in retirement age, both for men and women, but a faster rate for women. This is presented as a measure to deal with the increase in life expectancy.

Portugal, Japan and Bolivia are examples of recent equalization of retirement age during the assessed period.
The EU approach on equality between men and women has been applied in EU jurisprudence and there is a tendency to apply it strictly. Therefore, more and more benefits are paid at an equal age between men and women. The Article of the Treaty of Rome below is particularly important in this context.

The Article 119 of the Treaty of Rome (Article 141 of the consolidated Treaty) states:
"1. Each Member State shall ensure that the principle of equal pay for male and female workers for equal work or work of equal value is applied.
2. For the purpose of this article, "pay" means the ordinary basic or minimum wage or salary and any other consideration, whether in cash or in kind, which the worker receives directly or indirectly, in respect of his employment, from his employer.
Equal pay without discrimination based on sex means:
(a) that pay for the same work at piece rates shall be calculated on the basis of the same unit of measurement;
(b) that pay for work at time rates shall be the same for the same job.
3. The Council, acting in accordance with the procedure referred to in Article 251, and after consulting the Economic and Social Committee, shall adopt measures to ensure the application of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation, including the principle of equal pay for equal work or work of equal value.
4. With a view to ensuring full equality in practice between men and women in working life, the principle of equal treatment shall not prevent any Member State from maintaining or adopting measures providing for specific advantages in order to make it easier for the underrepresented sex to pursue a vocational activity or to prevent or compensate for disadvantages in professional careers."

In quite a few cases, there has been no official change in legal retirement age. However, other parameters have changed and incentives have been provided to retire later. In particular, this is the case with respect to tightened eligibility conditions as shown in the next point.

4 – Years of contribution for an old age pension in 1989, 1999 and 2003:

Eligibility conditions may also be differentiated by gender. This "positive discrimination" approach has influenced countries to differentiate between men and women during their contributory period. National pension schemes consider that a woman has more chance to have carreer interruptions due to family obligations, particularly as child bearer and mother. Therefore, in some countries, women might have to contribute a shorter period to be eligible for the same pension rights as men.

Years of contribution to be eligible to a minimum pension						
	1989		1999		2002/03	
	Male	Female	Male	Female	Male	Female
N *	91	91	91	91	91	91
Mean	**12.40**	**11.66**	**13.01**	**12.46**	**13.47**	**13.02**
Std. Dev.	8.04	7.07	8.99	8.33	9.01	8.44
* N: common cases for years 1989, 1999 and 2002/03 on minimum period of contribution to be eligible to a pension						

It is of note that the required contributory period for a minimum pension has slightly increased over the period, of about one year for men and of about one year and 4 months for women. It is not always clear if the information on eligibility conditions refers to a minimum condition or a maximum one. However, we tried to collect the same type of information over the period for each country. Therefore, in terms of trends, this data series is nonetheless meaningful and relevant in highlighting increase in eligibility conditions.

In addition, other old-age pension provisions may exist when a person has not reached the minimum eligibility requirements yet. A few universal benefits exist to cover the entire old-age population on a condition of years of residence in the country. More commonly, means-tested social assistance benefits are paid to the elderly in most regions of the world, with the exception of Africa and Asia.

Concerning the eligibility conditions to get a full state pension, data could only be collected for less than 40 countries. Therefore, the results may not be as significant. However based on what was assessed, the average contributory period for entitlement to a full rate pension is around 38 years with insignificant changes between 1989 and 2003, and with a difference of less than half a year between men and women.

III. Pension benefits and their reforms

5- Pensions benefits

As the calculation of pension benefits can integrate many elements, it is difficult to evaluate this major component of a scheme.

The indicator used is based on the maximum calculation rate of the pension in relation to previous earnings. This calculation rate is usually applied in social insurance programs based on a defined benefit principle.[5] The advantage of such a principle is to guarantee the pensioner an income in relation to previous earnings.

[5] For person not familiar with defined benefit schemes, just a simple theoretical exemple: an employee with 30 years of contributions to a pension scheme will receive a pension of 50% their last earnings.

	Pension benefits (as a % of previous earnings)		
	1989	**1999**	**2002/03**
N	61	61	61
Mean	**64.65 %**	**66.40 %**	**65.29 %**
Std. Deviation	19.57	20.08	19.91
Minimum	25 %	20 %	20 %
Maximum	100 %	100 %	100 %

The pension benefit rate has slightly increased over the period 1989 to 2003, from 64.65% to 65.29%. However, a stronger decrease intervened during the latter part of our time series after a peak in pension benefits in 1999 at 66.40%. Between 1999 and 2003, the pension benefit rate decreased by 1.11 percentage point.

The common number of pension benefit cases is limited to 61 out of 124 countries in the social security databases. All these 61 country cases correspond to social security defined benefit schemes. This limited number over the period is accompanied with a decrease in schemes based on a defined benefit principle, from 96 defined benefit schemes in 1989, to 91 in 1999 and to 83 in 2003. While some countries have introduced a defined benefit scheme during the period (it is the case of African countries such as Ghana, Nigeria, Siera Leone), the trend shows a significant decrease in such programs (particularly in Latin America - Argentina, Bolivia, Mexico, Peru, and in the former Communist block region - Poland and Kazakhstan). These defined benefit schemes have been replaced, sometimes fully, sometimes partially, by defined contribution schemes. These defined contribution schemes could also be called undefined benefit schemes has one of the main difference is the removal of the pension guarantee level. Here is below a table with the main countries which introduced such reforms, either with a complete phased out of the social insurance defined benefit schemes (when the mandatory private defined contribution schemes has become the main program) or with a partial reform (when the defined contribution has been considered as a secondary pension program).

Shift from social insurance defined benefits to mandatory private defined contribution schemes			
Countries	Implementation (year)	As a main program	As a secondary program[6]
Chile	1981	yes	
Switzerland	1982		complementary
Peru	1993		Choice with S.I.
Argentine	1994		Choice with S.I.
Colombia	1994		Choice with S.I.
Uruguay	1995		complementary
Bolivia	1997	Yes	
Mexico	1997	Yes	
Kazakhstan	1997	Yes	
Hungary	1998	Yes	
El Salvador	1998	Yes	
Sweden	1999		complementary
Poland	1999	Yes	
Croatia	1999		complementary
Costa Rica	2000		complementary
Latvia	2001	Yes	
Bulgaria	2002		complementary
Estonia	2002		complementary
Dominican Republic	2003	Yes	

The scope of reforms undertaken during the 1990s can vary as shown by the table above. The implementation of a defined contribution social security scheme is, in cases such as Uruguay or Estonia, limited to a complementary role and come as a second pillar, that is to say in addition to the existing social security program, which is often a defined benefit program. It can also be one way to "diversify the range of pension product". However, the implementation of such a defined contribution scheme can be extended in the future and can also restrict any feasible further development of the defined benefits.

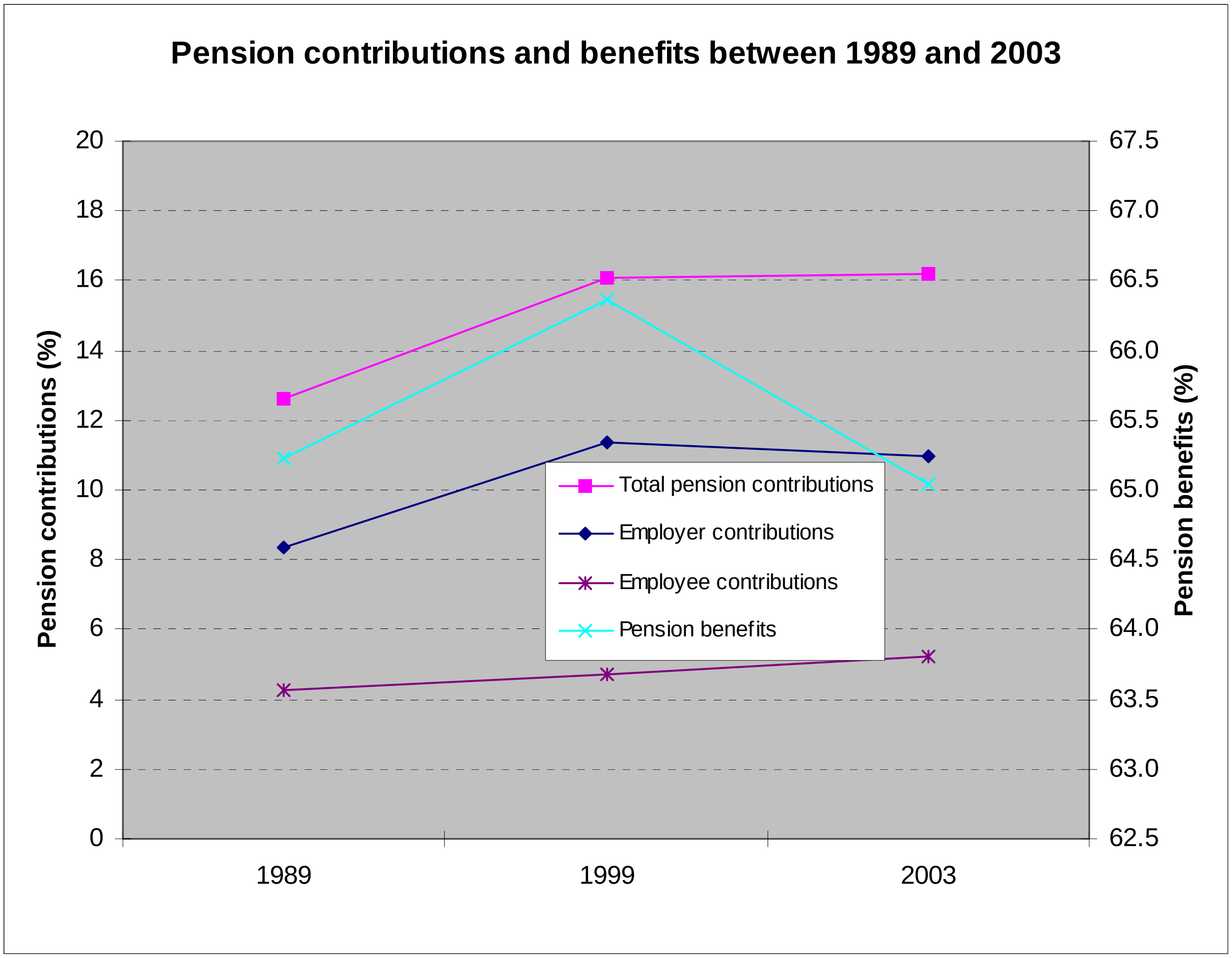
The second case corresponds to a situation where the contributor has the choice to opt out from the defined benefit social insurance program and opt into a defined contribution plan. The participation to one of these plan is mandatory for the contributor. However, his choice might be crucial in his future pension benefit level. The original social insurance scheme guarantees a benefit level, while the defined contribution scheme correspond to an individual account where the value of the annuity is dependent on the amount of contributions, plus (or minus) the financial interest, minus the administrative fees… In other terms, these mandatory private defined contribution schemes correspond to undefined benefits, maintaining the financial risks on contributors while the target of a pension scheme is to cover such a risk.

The third and last case presented on our table above is called "systemic reform". In the SES social security database, it corresponds to the change in the main type of pension program from a social insurance to a mandatory private insurance. It means that the social insurance program is phased out while the mandatory private insurance is phased in and replace completely the former program. There is no choice for the contributor in his future pension system. That is the reason why this radical change from a defined benefit social insurance scheme to a defined contribution

[6] Mandatory private insurance plans have been consisedered as secondary when a person can choose voluntarily this plan and opt out from another or when this plan comes in addition or complement the main program.

scheme. The Chilean pension reform is the typical case of such a reform. Former rights are in some cases kept under the former social insurance system, or transfer to the new system.

The graph below tries to compare the different changes in pension contributions and benefits. The average contribution and benefit levels presented below are based on 58 countries where the information is both available for both benefits and contributions.



The comparison in changes between contributions and benefits reveals that contributions increased over the period, while benefits slightly decreased. As shown in the data concerning employee and employer contributions, the increase in contributions after 1999 is solely borne by employee contributions. Employees are contributing more and more to pension schemes, while entitled to fewer and fewer pension benefits. In the current context of ageing in many countries, it can be understood that contributions have to increase to finance higher old age pension expenditure. However, there is no justification for an unbalanced increase beared only by employee contributions.

These changes correspond also to the defined benefit principle. The actual changes in benefit over the period are rather limited, while contributions are most often the variable of adjustment. There are 14 out of 58 countries that did not modify contributions during the 14 year period, among the 44 others, 8 decreased their total contributions and in 34 there was an increase. For the last two countries, the slight increase in employer contribution rates compensate exactly the decrease of 0.2% and 0.4% in employee contributions. However, 32 out of 58 countries have not changed their maximum benefit rate over the period. In social insurance pension reforms, contribution rates have been much more used than benefit rates since the early 1990s.

Conclusion

On the basis of these indicators, a few conclusions can be drawn on the recent trends in reforms of state-related pension schemes.

Countries, which have used parametric changes of their state-related pension schemes, are mainly increasing the contribution rates, and tend to maintain the pension benefits to the same level, as fewer countries have modified the earnings-related benefit rate. This corresponds with the rationale of the defined benefit principle. To some extent, the period of contribution required to be eligible for a pension has also been increased as well as the legal retirement age. Eligibility requirements for old-age pensions have been tightened slightly, but there is no drastic change as such.

A more worrying fact appears with the extension of systemic reforms, following the 1980 Chilean reform. More than 20 countries in Latin America and Eastern Europe have implemented such reforms with the phasing in of mandatory private insurance provisions and the phasing out of their social insurance programs in the 1990s. These reforms seem to be penalizing employees in particular as they have to bear most of the contributions, while the guarantee on their pension levels has been cut back. The recent debate on pension reforms during the Chile presidential election with a general political consensus on the failure of Pinochet’s pension reform could be of use in the reflection of future major reforms.