# SOCIAL SECURITY AND POPULATION AGEING IN MEXICO: ANALYSIS OF THE INDIVIDUAL ACCOUNT RETIREMENT PENSION SYSTEM

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Mexico's Social Security Act was amended in late 1995 with a view to the establishing an individual retirement savings scheme. These amendments were promulgated in December 1995 and entered into force on 1 July 1997. Under the new version of the Act, individuals who were already employed when the reforms entered into force may choose to retire under the rules of the old system. Under those rules, rights acquired through a recognition bond or similar entitlement were not counted, since payment of pensions under the old system remains the responsibility of the Federal Government, as are other costs arising from the transition to the new system. Workers in the formal labour market (primarily in the private sector) participate in the social security scheme, and the conditions for civil servants and members of the armed forces have remained unchanged.

Based on eight years of experience with the current system and as a result of the situation created by the system's own rules, as well as by the conditions of the economy and the labour market, the forecast for a high percentage of workers is rather bleak. This situation is compounded by the limited and, in recent years, shrinking proportion of the economically active population that is covered.

This paper provides a medium-term forecast. It begins by describing the situation of the economically active population (EAP) in terms of the protection it enjoys in retirement and compares recent trends within this population group with the trend among members of the Mexican Social Security Institute (IMSS) and of pension fund management companies (AFOREs). It describes the features of the system in terms of its contributor and sub-account structure, management commissions currently in effect or proposed for the immediate future, and probable yields on savings. It surveys the insured population and, with a view to analysing the results, selects a subgroup equivalent to 80 per cent of the total number of insured, namely, those who contribute at the five lowest wage levels. It then identifies the various contribution densities — that is, the amount of time spent contributing to social security as a proportion of the total amount of time worked[1] — that workers can be expected to achieve during their working lives, distinguishing between the probable situation of men and women, based on the experience of Chile's pension system.

The study proposes and utilizes a model to generate analyses of the possible combinations by sex, wage level, contribution density and rate of return. It then presents a set of results showing the number of workers classified by sex and pension level, distinguishing between those who reach retirement age without having contributed for the minimum number of years needed to qualify for a pension, those whose savings are insufficient to guarantee a minimum pension and must therefore be supplemented by the State, and lastly, those who have exceeded this minimum.

All of this information is then used to determine, by sex and wage level, the subsidies needed both to supplement the pensions of contributors who do not have the minimum length of service

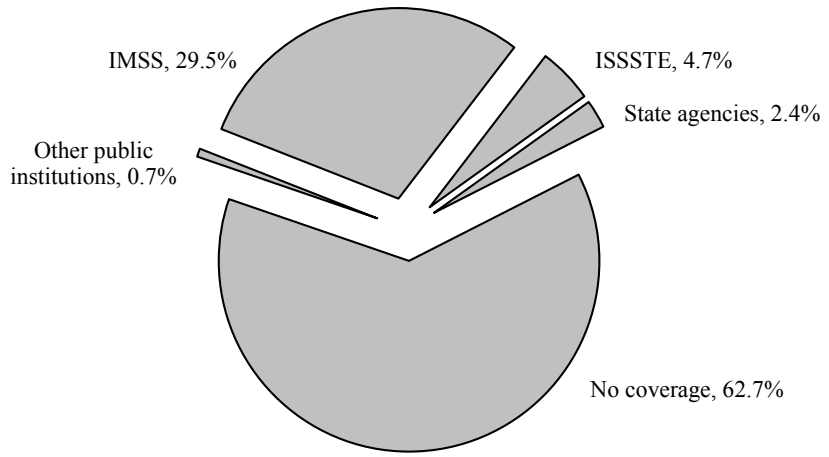
* The author wishes to thank the Sub-secretariat for Social Welfare of Chile for making its database available. All results of the study are the responsibility of the author and in no way commit the Sub-secretariat.

needed to qualify for a pension and to guarantee a minimum pension for those whose individual savings accounts cannot provide them with this minimum.

## A. COVERAGE OF PENSION SYSTEMS

The percentage of the national population that is able to enjoy a retirement pension is an indicator of the level of protection provided by the institutions that offer this type of benefit. Figure 1 shows the approximate distribution of the economically active population among the main retirement systems during 2004. The majority, 63 per cent, lack institutional coverage, while the members of the Mexican Social Security Institute (IMSS) account for 30 per cent of the economically active population, and the remainder, approximately 7 per cent, are covered by the Government Workers' Social Security and Services Institute (ISSSTE), other governmental institutions, and various State social security agencies.

**Figure 1. Coverage of the economically active population in employment and with pension plans in 2004**




Institutional coverage of approximately 15.8 million, for an economically active population in employment of 42.4 million

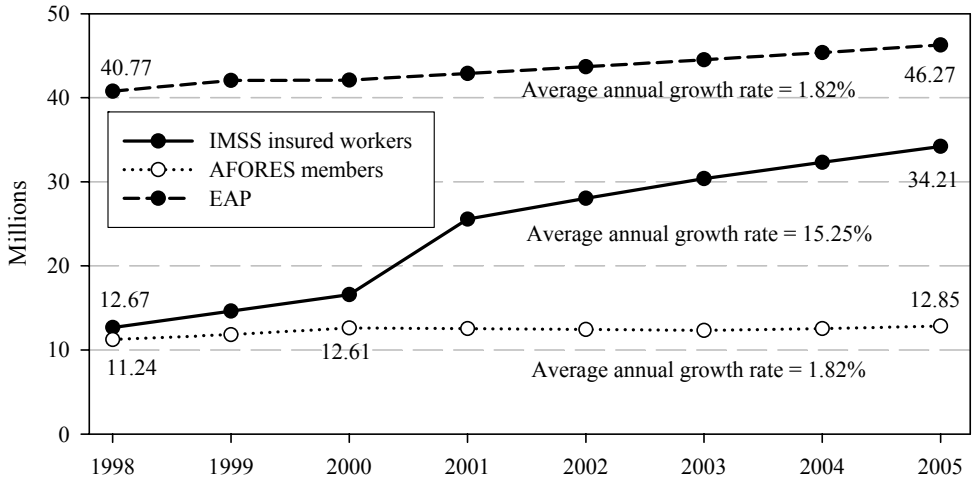
*Sources:* Standardized valuations of the Federal Public Administration (1998); CONAPO (2005); CONSAR (2005); INEGI (2005b).

For IMSS, the number of workers insured during the period from June 1998 to June 2005 rose by 1.61 million, or the equivalent of an average annual growth rate of 1.93 per cent. This is in contrast with the trend for the economically active population, which, during the same period, increased by 5.5 million at an average annual growth rate of 1.82 per cent. The difference between these figures, in absolute terms, reveals a shortfall in the creation of jobs in the formal sector, which gives rise to greater competition for jobs and less labour stability. In this connection, ILO (2005) has warned of the risks and consequences of the growth of the informal economy in Latin America and the Caribbean, which ultimately affects the formal labour market.

All of these factors may help explain the peculiar trend in the membership of AFOREs, which increased during the same period by 21.6 million, at an average annual growth rate of 15.3 per cent. The fact that the number of AFOREs members in 2005 was 2.7 times greater than the number

of workers insured under IMSS may be due to some extent to duplicate accounts but also to a high rate of job turnover, with the consequent lack of continuity in contribution periods and wage earning histories. Figure 2 provides data on the aforementioned trend among insured and economically active persons.

**Figure 2. Economically active population (EAP), workers insured by IMSS, and members of AFOREs**




*Sources*: CONSAR (2005); CONAPO (2005); INEGI (2005b).

## B. CHARACTERISTICS OF THE SYSTEM

### *Contributors and sub-accounts*

Mandatory contributions to the individual accounts system, which began in July 1997 with the entry into force of the reforms to the IMSS Act, are paid by three categories of participants, namely, employers, the State and workers, and into three sub-accounts, namely, retirement, unemployment and old-age benefits for older workers, and housing benefits. Figure 3 shows the percentage contributions for each type of participant and sub-account in accordance with the Act.

The housing sub-account, which is funded by the 5 per cent employers' contribution (calculated from the base salary of each worker) is managed by the National Workers Housing Fund Institute (INFONAVIT), and its assets are pooled to finance pensions only for those workers who did not use their entitlements to purchase a home.

Sub-accounts for retirement, unemployment benefits for older workers and old age benefits are managed in practice like a single account and the percentages shown below refer to the base salary of each worker, unless otherwise indicated. For these sub-accounts, the employers contribute 5.150 per cent, making their total contribution (including for housing) 10.150 per cent. Workers contribute only 1.125 per cent of their salary, and the State contributes an additional 0.225 per cent for unemployment and old age benefits, plus 5.5 per cent of the minimum wage as a social contribution, the amount of which declines as the wage level increases.

The total contribution (of the three participants) is therefore 17 per cent for a worker earning the minimum wage, 14.250 per cent for a worker earning twice the minimum wage, 13.33 per cent

for workers earning three times the minimum wage, declining to 11.72 per cent for workers earning 25 times the minimum wage.

If the 5 per cent for the housing sub-account is deducted from the above percentages, the amounts remaining specifically for retirement are 12 per cent for workers earning the minimum wage, 9.250 per cent for workers earning twice the minimum wage, and 8.33 per cent for workers earning three times the minimum wage, declining to 6.72 per cent for workers earning 25 times the minimum wage.

In Chile, the percentage is a flat 10 per cent and is contributed only by the workers themselves.

**Figure 3. Percentages of contribution to the individual account system by participant, sub-account and wage level**


*Source*: IMSS Act of 2004.

*Management commissions*

Retirement, unemployment and old age benefit funds are managed by AFOREs at a cost of 6.5 per cent of the wages of each worker. These management companies are responsible for channelling the resources collected to pension fund investment companies (SIEFOREs)[2] so that they can be invested and produce financial returns. Moreover, the social contribution (5.5 per cent of the minimum wage), which is deposited into the individual account of each worker, is not subject to commission and its value is adjusted every quarter for inflation.

AFOREs have established various mechanisms for collecting their commissions for managing the workers' resources. Some charge a variable commission, calculated as a percentage of the contribution of 6.5 per cent of the worker's wage. Others use a combination of the variable commission and the account balance to determine their rates.

Using the variable commission method, the proportion of the 6.5 per cent represented by the commission is deducted from the amount contributed by each worker. Thus, at a rate of 1.67 per

cent that is common among the group of AFOREs that handle some 60 per cent of the current portfolio, the sum of 25.7 centavos (ratio of 1.67 to 6.5) is deducted from each peso deposited, so that 74.3 centavos go into the individual account. At a 5 per cent real rate of return per annum, it would take 74 months (six years and two months) for the peso to regain the purchasing power it had at the time it was first deposited, which gives an idea of the true cost of such commissions, even though they represent a relatively small percentage. Commissions based on account balances, as the name suggests, are charged annually based on the balance in the individual account.

TABLE 1. VARIABLE COMMISSIONS AND COMMISSIONS BASED ON ACCOUNT BALANCES TO BE COLLECTED BY PENSION FUND MANAGERS (AFOREs) IN 2005 AND 2014

| AFORE | *Commission (percentage)* | |
|---|---|---|
| | *2005* | *2014* |
| *A. Variable* | | |
| Inbursa | 0.50 | 0.50 |
| Actinver | 1.03 | 1.03 |
| Invercap | 1.03 | 1.03 |
| Azteca | 1.10 | 1.10 |
| IXE | 1.10 | 1.10 |
| Metlife | 1.23 | 1.23 |
| XXI | 1.30 | 1.30 |
| Banorte Generali | 1.40 | 1.40 |
| HSBC | 1.60 | 1.60 |
| Principal | 1.60 | 1.60 |
| Santander Mexicano | 1.60 | 1.60 |
| Profuturo GNP | 1.67 | 1.67 |
| Bancomer | 1.68 | 1.68 |
| ING | 1.68 | 1.68 |
| Banamex | 1.70 | 1.70 |
| *B. Based on account balance* | | |
| Azteca | 0.15 | 0.15 |
| Actinver | 0.20 | 0.20 |
| Invercap | 0.20 | 0.20 |
| XXI | 0.20 | 0.20 |
| Metlife | 0.25 | 0.20 |
| IXE | 0.35 | 0.26 |
| Principal | 0.35 | 0.30 |
| HSBC | 0.40 | 0.25 |
| Banorte Generali | 0.50 | 0.30 |
| Inbursa | 0.50 | 0.50 |
| Profuturo GNP | 0.60 | 0.50 |
| Santander Mexicano | 0.70 | 0.15 |

*Source*: CONSAR (2005)

Table 1 shows the commissions charged by the various pension fund management companies in June 2005 and the forecasts for 2014. As the table shows, there is practically no change in the percentage rate of variable commissions from 2005 to 2014, while the level of commissions based on account balances will decline.

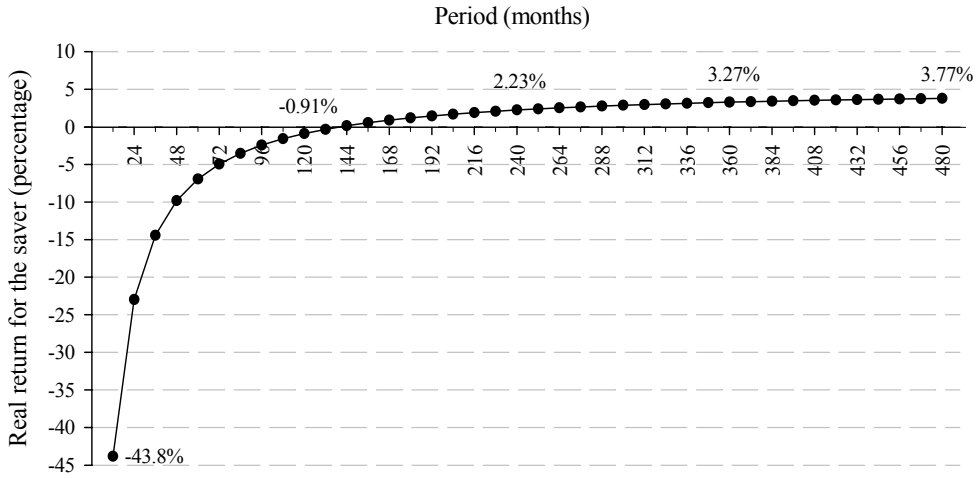
*Returns*

The amount of savings depends on several factors, the most important of which include: (i) the amount of regular contributions; (ii) the contribution period; and (iii) the rate of return. Depending on how the commission is calculated, the final rate of return obtained by workers is affected by the length of their contribution period.

For example, for a variable commission of 1.67 per cent, a real rate of return of 5 per cent per year and 10 years of uniform, uninterrupted contributions for each month of that period, the equivalent rate of return would be negative (-0.91 per cent) over a period of 120 months (figure 4).

As figure 4 shows, it takes up to 144 months, or 12 years, for the equivalent rate of return to cease being negative, and the value reaches a maximum of 3.77 per cent after 40 years of uninterrupted contributions.

**Figure 4. Real net return for the saver, net of administrative fees: equivalent rate for the period shown**
*(With 5 per cent real return on funds annually and variable commission of 1.67 per cent)*




*Source*: CONSAR (2005).

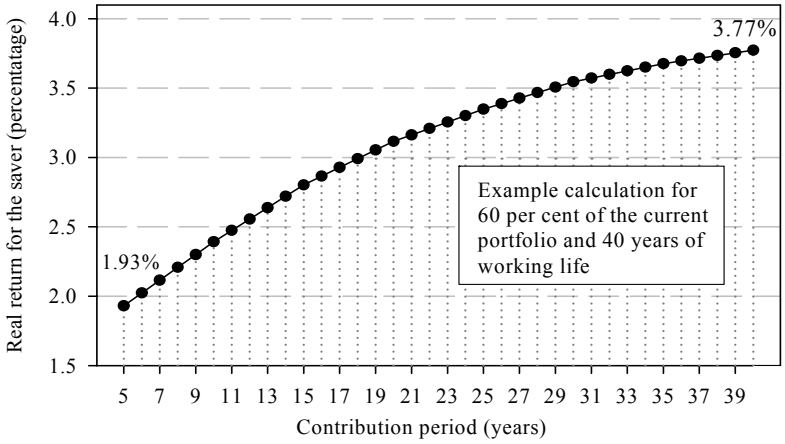
To continue with this example, in a working life of 40 years, 10 years of contributions could be situated at the beginning, in the middle or at the end. If they were at the beginning, and assuming a real rate of return of 5 per cent on the funds accumulated during the remaining 30 years, the equivalent rate would be 4.05 per cent; if the 5 per cent were capitalized for 20 years, the equivalent rate would be 3.63 per cent; if the capitalization were only for 10 years, the equivalent rate would drop to 2.80 per cent, and if there were no additional capitalization after 10 years of contributions, then the equivalent rate would be -0.91 per cent.

If we calculate the average of the foregoing figures, we arrive at a value of 2.39 per cent for the 10-year period. Because of the uncertainty about how contributions are made, the average values obtained by a method similar to that described will be used for different periods. We thus

obtain the average rate of return shown in figure 5. The values set out are an estimate of the likely returns that might accrue to savers who make contributions to their accounts during the contribution periods shown.

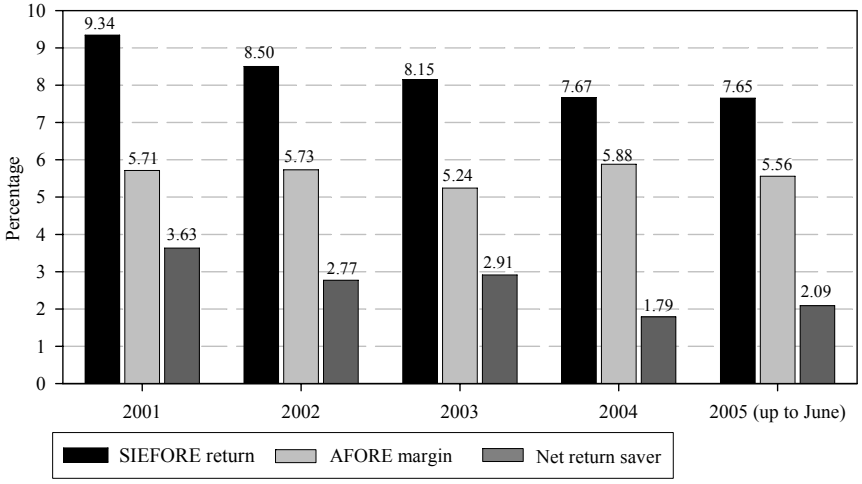
**Figure 5. Estimated equivalent rate of return on deposits in an individual account, for different contribution periods**

*(With 5 per cent real return on funds annually and variable commission of 1.67 per cent)*




*Source*: Author's calculations.

**Figure 6. Rate of return of pension fund investment companies (SIEFOREs) and net return for the saver (real rates), and margin of AFOREs, 2001-2005**




*Source*: CONSAR (2005).
NOTE: Historical mean values up to the date indicated.

The way returns behave, with values ranging from 1.93 per cent for 5 years of contribution to 3.77 per cent for 40 years of contribution, clearly shows that contributing for a limited number of years has the unfavourable effect of not only saving a smaller amount, but also reducing the rate of

return on savings. This disadvantage is in addition to others that stem from the informality of the labour market and the instability of employment.

The National Commission for the Retirement Savings System (CONSAR) has been producing statistics on historical returns virtually from the time the system was established on 30 September 1997[3] up to June 2005. These statistics highlight the difference of 5.56 per cent between the rate of return (7.65 per cent) obtained by the pension fund investment companies (SIEFOREs) and the net return for workers (2.09 per cent), a margin that favours the pension fund management companies. Through June 2005, this margin is 2.7 times the average return received by workers (see figure 6). By way of a benchmark, the system's technical rate was set from the inception at 3.5 per cent; thus the net return to date is approximately 60 per cent of that rate.

## C. CHARACTERISTICS OF THE POPULATION CONTRIBUTING TO SOCIAL SECURITY

Having commented on the main rules governing the operation of the system of individual accounts, we shall now provide information about the population to which these rules apply. The characteristics of that population and its behaviour in the formal labour market, as expressed through its social security contributions, define both current results and medium-term projections.

### *Contribution densities*

It was noted earlier that the amount of savings in individual accounts depends basically on the following factors: (i) the amount of regular contributions; (ii) the contribution period; and (iii) the rate of return. The amount of contribution is determined by the worker's wages. The contribution period will depend on the length of active employment and whether employment is in the formal or informal sector. Unfortunately, for one important concept associated with the contribution period, which is the contribution density, statistics for Mexico are not available. The contribution density refers to the period of time during which contributions are made to social security as a proportion of the total time worked.

With regard to the contribution density and its importance for the future of individual accounts, one key benchmark is the survey of the working population conducted by the Sub-secretariat for Social Welfare of the Government of Chile in 2002. According to the survey, the contribution density, which had been presumed to be 80 per cent on average, was actually 52.4 per cent overall, 59.8 per cent for men and 43.7 per cent for women. The survey also highlighted the need to obtain more detailed basic information from individuals rather than make calculations based on individuals assumed to be representative of the community.

Drawing on the Chilean data as a framework for analysing the situation in Mexico, and in the absence of specific data for that country, the following indicators have been selected to compare the situation of the two countries. These indicators, which have been selected for their likely impact on the level of activity and employment status of the working population, refer to the period 2000-2003 and the average for 2001-2003, and are taken from documents issued by the Economic Commission for Latin America and the Caribbean (ECLAC, 2005).

From the figures in the far right column of table 2, it is clear that Chile's performance is better than Mexico's in terms of GDP growth, per capita GDP growth, inflation level (measured by variations in Consumer's Price Index - CPI), and visible under-employment. Therefore, applying the results from the Chilean survey to the case of Mexico could be regarded as a rather optimistic scenario.

The results obtained cannot be seen as indicative of the real situation in Mexico but rather as highlighting the significant effect that different contribution densities may have on the system of individual accounts, the aim being to encourage special studies on the subject. The situation would of course need to be analysed by sex. The present paper accordingly endeavours to quantify the most significant differences in the results between men and women.

TABLE 2. COMPARISON BETWEEN CHILE AND MEXICO: SELECTED VARIABLES
(*Percentage*)

| Variable | Country | *2000* | *2001* | *2002* | *2003* | *Average for 2001 - 2003* | *Ratio of Chile/Mexico averages* |
|---|---|---|---|---|---|---|---|
| GDP growth | Chile | 4.50 | 3.50 | 2.00 | 3.30 | 2.93 | 5.50 |
| | Mexico | 6.70 | -0.30 | 0.70 | 1.20 | 0.53 | |
| Per capita GDP growth | Chile | 3.20 | 2.30 | 0.90 | 2.20 | 1.80 | 4.00 |
| | Mexico | 5.10 | -1.80 | -0.70 | -0.20 | -0.90 | |
| CPI variations (average annual rates) | Chile | 3.80 | 3.60 | 2.50 | 2.80 | 2.97 | 0.56 |
| | Mexico | 9.50 | 6.40 | 5.10 | 4.50 | 5.33 | |
| Visible under-employment rate (average annual rate)[a] | Chile | 5.40 | 6.40 | 5.60 | 5.90 | 5.97 | 0.57 |
| | Mexico | 11.70 | 11.10 | 10.00 | 10.50 | 10.53 | |

*Source*: ECLAC (2005a and 2005b).
[a] Refers to percentages of the economically active population in urban areas.

We shall now look at the contribution densities obtained directly by processing information from the First Social Welfare Survey of Chile database, entitled Employment History and Social Security 2002 (Secretariat for Social Welfare of the Government of Chile, 2002).

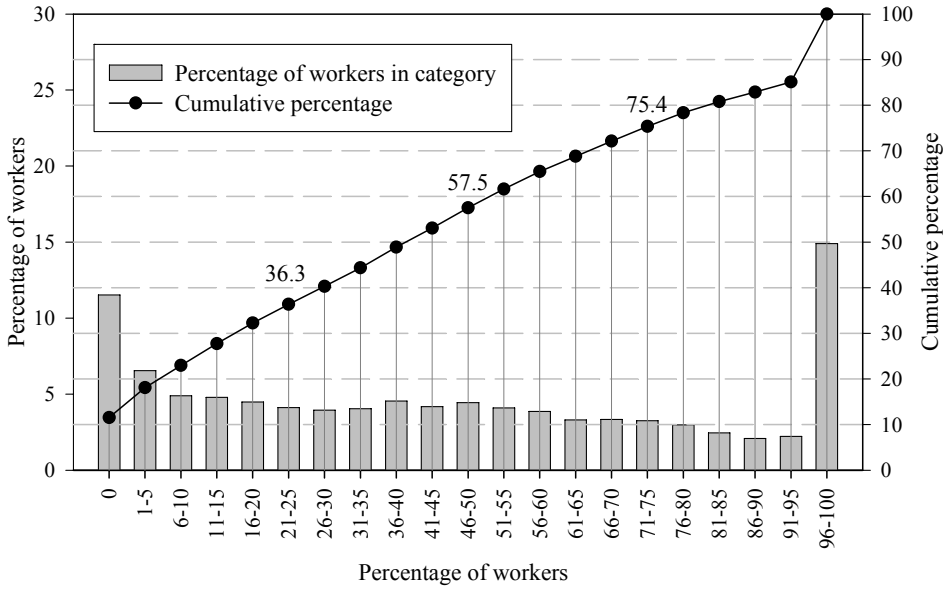
Figure 7 shows the distribution of female workers in Chile according to the contribution density. The left vertical axis indicates the percentage of working women at each level of contribution density. The right vertical axis indicates the cumulative percentages. Generally speaking, the values on the left side of the figure occur more frequently (indicative of lower rates). As for the cumulative values, 36.3 per cent of women have a contribution density up to 25 per cent, 57.5 per cent have a contribution density up to 50 per cent, and 75.4 per cent a contribution density up to 75 per cent.

The same comparison yields different results for men, for whom the values on the right side of the figure are the most frequent, indicating higher contribution densities. That conclusion is confirmed by the aggregate values: 24.9 per cent of men have a contribution density up to 25 per cent, 40.3 per cent a contribution density up to 50 per cent, and 61 per cent a contribution density up to 75 per cent (figure 8).

The figures also show a relatively high percentage of men and women with a zero contribution density. In applying this scheme to Mexico, that group has been eliminated and the results adjusted proportionally for both sexes so that the sum of the remaining values is 100 per cent. The

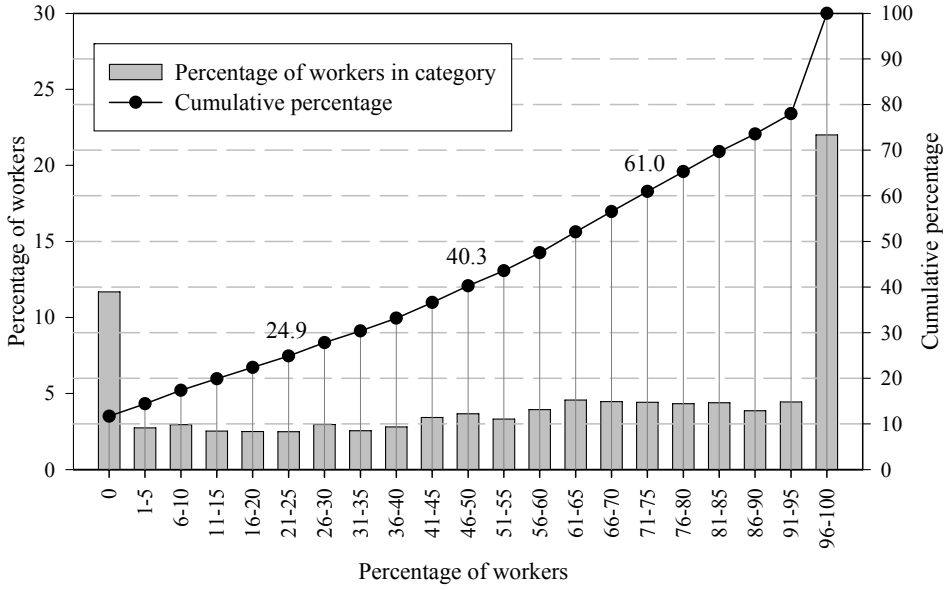
rationale for this is that, in this specific case, we are dealing with the pool of IMSS affiliates who work in the formal sector and whose contribution density will always be greater than zero as they need to contribute at least one day to be registered with the institute. The adjusted values are shown in figure 9. What is most noteworthy in this direct comparison between men and women is that relatively more women are towards the left of the horizontal axis (low contribution densities) and more men are towards the right.

**Figure 7. Percentage distribution of workers by contribution density, women (Chile)**



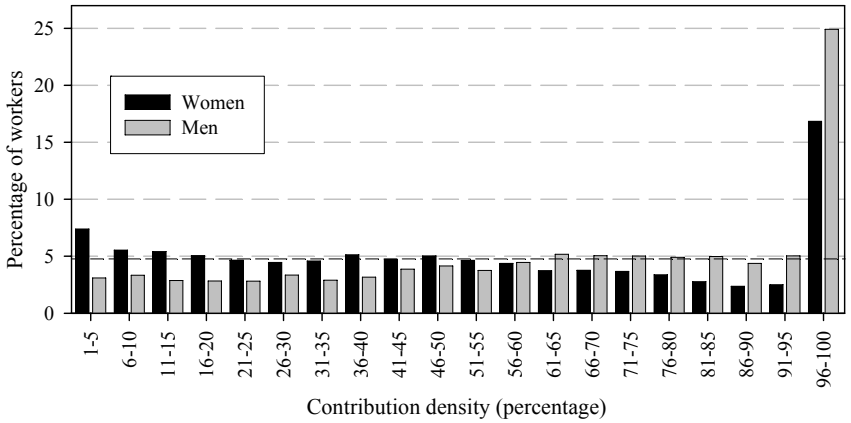

*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

**Figure 8. Percentage distribution of workers by contribution density, men (Chile)**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

**Figure 9. Percentage distribution of workers by contribution density, men and women (Chile)**



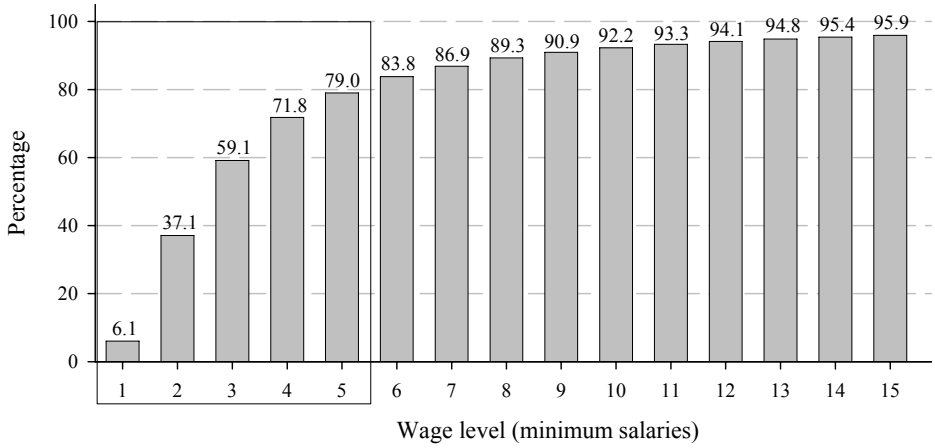

*Source*: Author's calculations based on First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

NOTE: Data adjusted to eliminate the group with zero contribution.

## *Wage level of workers*

Figure 10 shows IMSS affiliates classified according to their level of remuneration for contribution purposes, from 1 to 15 times the minimum wage, in aggregate percentages, as of March 2005. It should be noted that most are concentrated at the lowest wage levels, with 59 per cent falling in the 1 to 3 times the minimum wage category and 79 per cent in the 1 to 5 times category.

**Figure 10. Cumulative distribution of contributions to IMSS by wage level**
*(March 2005)*




*Source*: IMSS (2005).

The predominance of workers with low earning power is one of the major limitations of the system. Although the social contribution made by the Federal Government, which is proportionally greater for those who earn less, partially compensates for this limitation, it is still difficult for most workers to accumulate sufficient capital for an adequate pension. This is due to factors determined by the labour market such as low wages and intermittent formal employment, over which workers have little real control.

Since they have no real influence over their employment situation, one might think that workers would be more responsible and save for their retirement by increasing the 1.125 per cent of their salary they currently contribute, but that option clashes with the practical difficulty of doing so for the great majority earning a minimal subsistence-level income.

Those factors underscore the risks and limitations of a funded benefit system under conditions of scarce capital.

### D. Model for simulating expected results of the system

With a view to estimating the foreseeable results for the system, a model was developed which takes into account gender, income level (1 to 5 times the minimum wage), the different contribution densities (1 to 5, 6 to 10, ... 96 to 100) and the resulting contribution periods, as well as the rate of return relative to the contribution periods.

For each sex and wage level, the model calculates the following:

1. number of workers who have not had the minimum number of contribution years during their reported working life to qualify for a pension, even after reaching the required age (65 years);

2. estimated cost of supplementary assistance for workers who do not qualify for a pension, at 50 per cent of the minimum wage;

3. number of workers who do not qualify for a pension but who fulfil the requirements for obtaining health-care benefits;

4. number of workers who do not achieve the minimum pension, and the estimated cost to the State to provide a supplement in such cases; and

5. number of workers having a pension equal to or greater than the minimum.

The model was applied to the 9.9 million workers (60 per cent men, 40 per cent women) currently contributing at levels 1 to 5 times the minimum wage, who represent 79 per cent of the participants in the system. Given the uncertainty over whether income from the housing subsidy would actually be available (it could be used for the purchase of real estate), this kind of subsidy was excluded from the model. Additional costs arising out of any widow's or orphan's benefit were not taken into account.

The model incorporates the following assumptions:

The age structure of the workers is normally distributed with a mean age of 42 years for both men and women. Although statistics on the age distribution of current workers are not available, this average age can be considered a reasonable working estimate, given that IMSS is an

institution that has existed for more than 55 years and whose affiliates could easily be around that average age.

The mortality tables used for the system assume that 91 per cent of women and 85 per cent of men will survive to age 65 (retirement age), for a total of 8.7 million workers (87.3 per cent of the current population at that wage level).

Wages remain the same over 40 years of working life (no salary increase).

There is entitlement to pension after contributing for 1,250 weeks (24 years).

There is entitlement to health-care benefits after contributing for 750 weeks (14.4 years).

The rate of return on assets in an individual's account varies according to the contribution period (see data in figure 4).

A supplement of 50 per cent of the minimum pension is assumed for individuals who have not contributed for at least 1,250 weeks (as part of supplementary benefits not currently paid under any head).

The contribution densities calculated from the First Social Welfare Survey of Chile (2002) are assumed to apply to Mexico.

## E. Expected results

The results shown below relate to a number of workers equal to the number currently insured by IMSS (in the range of one to five times the minimum wage) and whose retirement pension depends exclusively on their individual savings. They show detailed figures for a closed group, which is analysed by way of example. Should we wish to calculate the results for a specific period, a more complex exercise would need to be undertaken with an open group, in which the workers retiring or leaving the group permanently for some other reason are replaced, in order to keep the number of insured persons at a pre-established level.

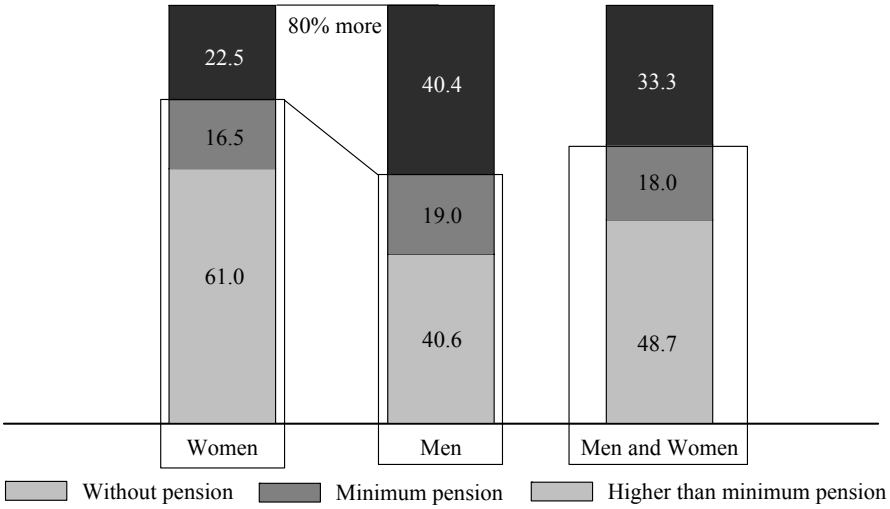
### *Demographic results by sex and pension level*

Figure 11 shows the results obtained for the pool of 8.7 million workers — those who survive to age 65 out of the 9.9 million who currently contribute in the range of one to five times the minimum wage — based on the likely situation of their individual savings.

The results show that, among women, 61 per cent would not be entitled to a pension, 16.5 per cent would find themselves obliged to receive the guaranteed minimum pension, and only 22.5 per cent would receive a pension higher than the minimum. In sum, 77.5 per cent— approximately 2.7 million women—would not have achieved a sufficiently high level of savings for retirement.

As for the male workers, 40.6 per cent would not qualify for a pension, 19 per cent would have to apply for the minimum pension and the remaining 40.4 per cent (practically the same percentage as those who would not qualify for a pension) would exceed the minimum pension. In sum, 59.6 per cent—approximately 3.1 million men—would not have achieved a sufficiently high level of savings for retirement.

**Figure 11. Expected results of the individual account system by sex**
*(Percentage)*




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

In the comparison between the sexes, women are at a notable disadvantage. There are proportionally more women who would not have a pension and fewer who would have a pension equal to or higher than the minimum.

In the aggregate, 67 per cent of men and women would not have achieved a sufficiently high level of savings for retirement (approximately 5.8 million workers).

Moreover, the maximum replacement rate[4] for those who contribute at five times the minimum wage is 53.9 per cent, which is equivalent to 2.7 times the minimum wage and 2.3 times the urban poverty line[5] (ECLAC, 2005a). The replacement rate is within the range observed for most international references (between 40 and 60 per cent), but the value of the pension, at 2.3 times the urban poverty line, cannot be considered adequate in terms of its purchasing power (figure 12).

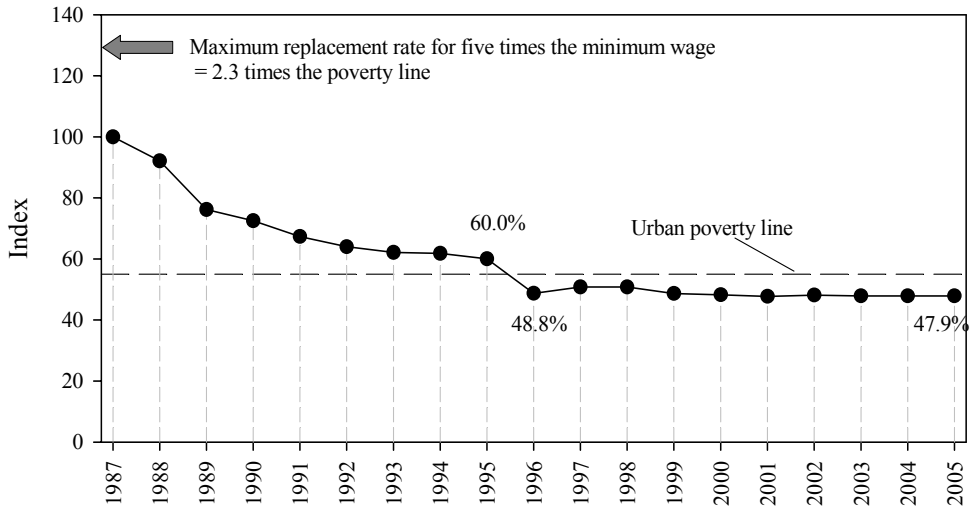
*Demographic results by pension level and sex*

In the previous section, the primary focus was on the situation according to sex, while this section focuses first on the pension level, thereby complementing the picture that has emerged thus far (see figure 13).

Despite the fact that only 40 per cent of the working population are women, the number of women who would not qualify for a pension (25.4 per cent of the total workers) is slightly higher than that of men (23.6 per cent). Overall, nearly half of all workers (49 per cent) would be in this unfavourable position. Of the 18.1 per cent of workers who would have to rely on the minimum pension guarantee, 11.1 per cent are men and the remaining 6.9 per cent women.

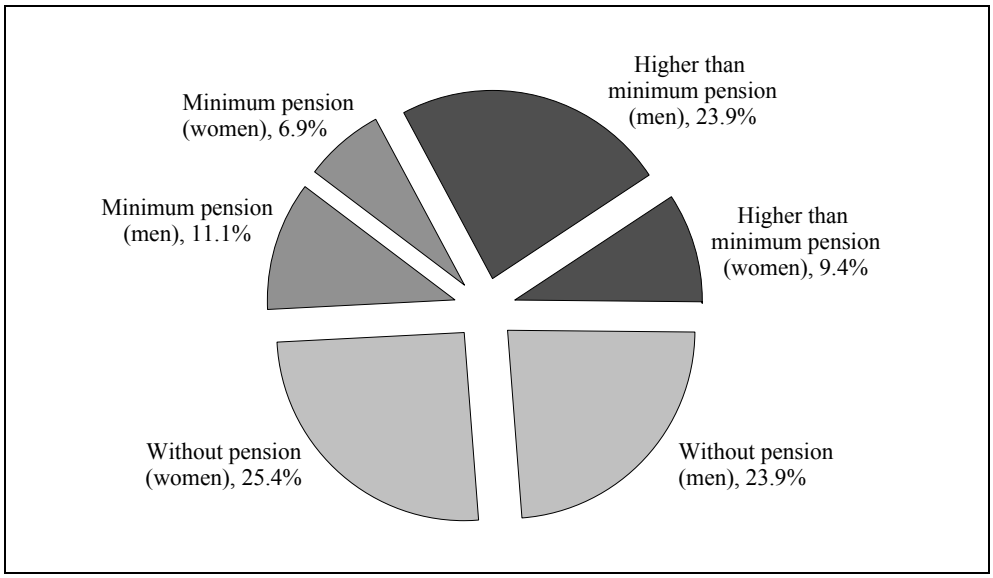
Among those who would receive a pension higher than the minimum (33 per cent), the proportion of men (23.6 per cent) is much greater than the proportion of women (9.4 per cent). Within the group of those who would not qualify for a pension there are some who do fulfil the

**Figure 12. Evolution of the real minimum wage, 1987-2005**
(*January 1987 = 100*)



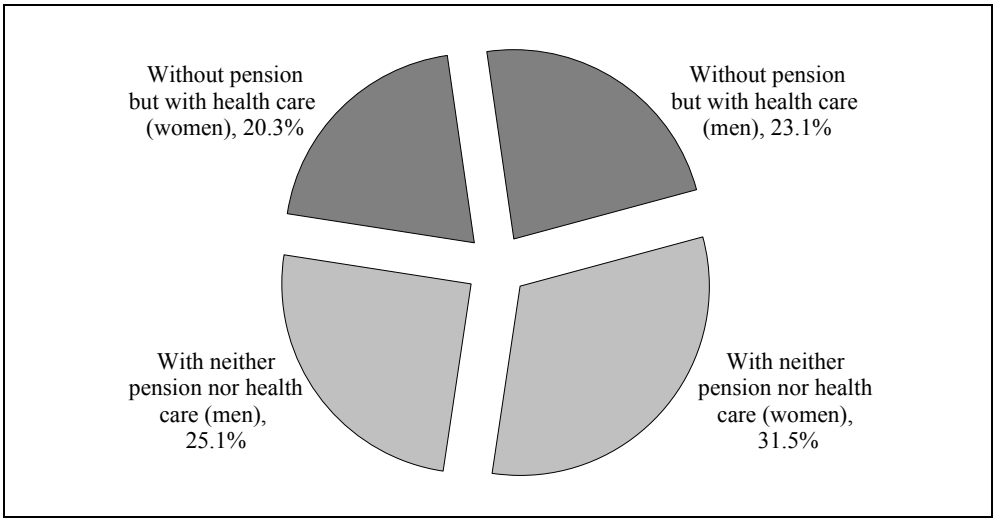

*Sources*: ECLAC (2005a); Banco de México (2005).
NOTE: Figures are for January of each year.

**Figure 13. Estimated distribution of workers according to pension eligibility and sex**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

**Figure 14. Estimated distribution of workers who would not qualify for a pension according to sex and eligibility for health care benefits**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile.

750 weeks requirement to qualify for health-care benefits. They represent 43.4 per cent of the total. The remaining 56.6 per cent are those who would have neither pension nor health care. In absolute terms, this pool consists of some 2.4 million workers. Figure 14 shows the respective percentages.

*Financial results by sex and minimum wage level*

The financial results refer to the resources that would be needed as supplementary assistance equivalent to 50 per cent of a minimum wage for those who do not qualify for any pension, and to supplement a minimum pension for those relying on the guaranteed minimum.

It should be made clear that the situation presented here refers to the point at which all current workers reach the retirement age. However, this is not something that would happen overnight. Rather, as workers started reaching retirement age the subsidies would gradually increase up to the values described in figures 16 and 17, after which they would decrease.

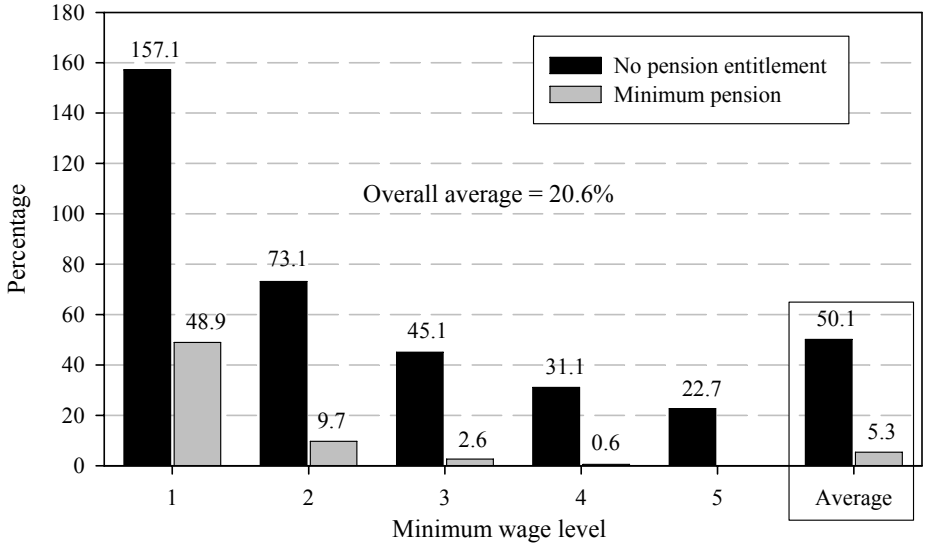
Figure 15 illustrates the situation for women. It shows the estimated subsidy needed as a proportion of the annual pre-retirement wages for different wage levels, taking into account the corresponding contribution densities.

The percentages of annual subsidy for the group not entitled to a pension and with a low wage level are particularly high, beginning at 157.1 per cent for the minimum wage and declining to 22.7 per cent for five times the minimum wage. The average value for those who contribute at one to five times the minimum wage is 50.1 per cent.

For those entitled to receive the minimum pension, the subsidy percentage starts at 48.9 per cent for the minimum wage and decreases to 0.6 per cent for four times the minimum wage. The average for the group of one to five times the minimum wage is 5.3 per cent.

Taking into account the two types of subsidy, the overall percentage needed would be 20.6 per cent. In absolute terms, the overall amount is equivalent to 17.7 billion pesos, which represents about 0.22 per cent of GDP for 2005.

**Figure 15. Proportion of annual earnings required as a subsidy to supplement retirement assistance and pensions, in relation to the amount of annual earnings (women)**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

For men, the subsidy percentages for the group not entitled to a pension begin at 131.8 per cent for the minimum wage and decrease to 16 per cent for five times the minimum wage. The average value for the group contributing at one to five times the minimum wage is 39.6 per cent (figure 16).

Those who are entitled to the minimum pension would require a subsidy percentage beginning at 37.8 per cent for the minimum wage and declining to 0.1 per cent for four times the minimum wage. The average for the group contributing at one to five times the minimum wage is 3.4 per cent.

For both types of subsidies, the overall percentage necessary would be 10.8 per cent, which is about half the percentage for women (see figure 15). In absolute terms, the total is equivalent to 16.4 billion pesos, which represents approximately 0.20 per cent of the 2005 GDP.

Taking men and women together, the average subsidy for those who contribute at one to five times the minimum wage is 44.7 per cent for those not entitled to a pension and is 4 per cent for those who are entitled to the minimum pension (figure 17).The overall percentage necessary for both types of subsidy would be 14.3 per cent. In absolute terms, the overall amount is equivalent to 34.1 billion pesos, which represents approximately 0.42 per cent of the 2005 GDP (0.33 per cent of the GDP for those who fail to qualify for a pension and 0.09 per cent to supplement the minimum pension guarantee).

While the necessary support is modest as a percentage of GDP, it should be recalled that this support refers to only one generation of workers, those currently employed. Furthermore, the subsidies do appear high in relation to the annual earnings of workers at the lower wage levels.

These financial results highlight the disadvantages of women in relation to men and imply that the support required by women will be greater than that required by men. In addition, support for women is expected to last longer than for men, as women's life expectancy is higher.

## F. Conclusions and recommendations

At present, only about 37 per cent of current workers have retirement pension coverage through social security mechanisms and institutions in the formal labour market. Of this percentage, IMSS members account for the majority, with 30 per cent, and the remaining 7 per cent are covered by various agencies. Therefore, 63 per cent lack any form of protection.

The percentage of contributions specifically for retirement, particularly contributions by the workers themselves (1.125 per cent of their salary), is very low, although there is little real possibility that the percentage will be increased so long as the purchasing power of the minimum wage remains low. Moreover, the housing sub-account (amounting to 5 per cent of the worker's base salary) is applied to retirement only if those resources are not used to acquire housing.

The commissions collected by pension fund managers significantly reduce the capital available to savers for their retirement. This reduction is accentuated when the periods of contribution to social security are shorter.

The precarious nature of the labour market results in lower contribution densities, which ultimately reduces the opportunities to save for retirement. This is the situation of 79 per cent of the members of IMSS, who contribute at one to five times the minimum wage and whose future savings will also be affected by their low earnings.

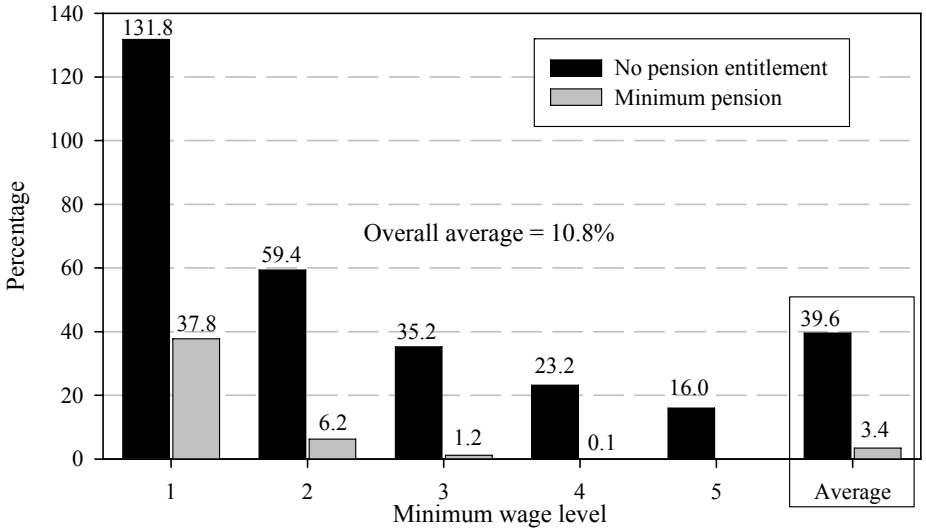
According to the results of the analyses, most workers in the formal labour market are likely to have insufficient savings for retirement. Specifically, this would apply to 78 per cent of women, 60 per cent of men and 67 per cent of men and women combined. In absolute terms this amounts to approximately 5.8 million workers.

Significant subsidies will be needed to offset the deficit in workers' savings — approximately 14 per cent of overall annual earnings, 21 per cent for women and 11 per cent for men — either to supplement the minimum pension or to round out assistance for those who do not meet the required number of contributory years when they reach retirement age.

The results show that the situation is significantly less favourable for women than men, revealing a considerable gender inequality, which is contrary to the principles of social security.

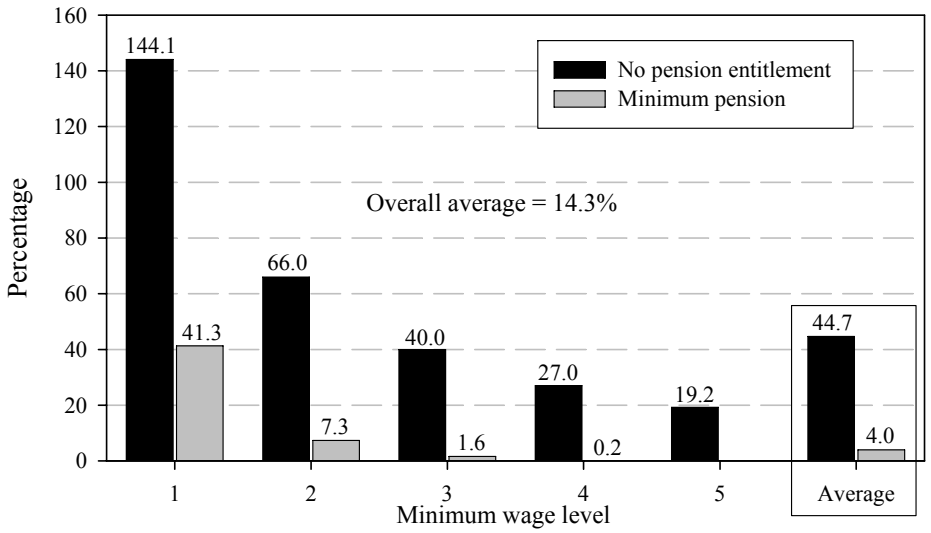
The differences by sex, wage level and contribution density suggest that any calculation based on a supposedly average individual cannot be considered as being representative of a larger group.

**Figure 16. Proportion of annual earnings required as a subsidy to supplement retirement assistance and pensions, in relation to the amount of annual earnings (men)**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

**Figure 17. Proportion of annual earnings required as a subsidy to supplement retirement assistance and pensions, in relation to the amount of annual earnings (men and women)**




*Source*: Author's calculations based on the First Social Welfare Survey of Chile, Subsecretariat for Social Welfare of the Government of Chile (2002).

Measures will be necessary to ensure financing for health care for future pensioners and for those who, while not qualifying for a pension, receive health care benefits.

A critical and in-depth review is also needed with a view to amending the rules of the current retirement savings system with respect to eligibility, commissions and contribution rates, among others elements, since the predictable results in the current economic and social environment are not very encouraging in terms of offering an adequate pension to savers, particularly because of the manifest inequality suffered by women. A fundamental part of such a review involves collecting information similar to that found in the Social Welfare Survey of the Government of Chile.

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NOTES

[1] If, during a working life of 40 years contributions are paid during a period equivalent to 24 years, then the contribution density is expressed as the ratio of 24 to 40, or 60 per cent.

[2] Investment companies specializing in pension funds whose exclusive aim is to invest the funds in the individual accounts of workers who are members of an AFORE.

[3] The reforms to the IMSS Act were adopted in 1995 but did not come into force until July 1997.

[4] The replacement rate indicates the extent to which the pension replaces the wage that the worker received when actively employed. If the pension is equal to the wage, then the replacement rate is 100 per cent.

[5] Although the data for the poverty line determined by ECLAC correspond to 2002, the same ratio is used for 2005, since the real minimum wage remained practically unchanged during that period.

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