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THE RETIREMENT OUTLOOK FOR CHILE'S INDEPENDENTLY EMPLOYED WORKERS:

A CASE STUDY OF ATTITUDES AND SAVING BEHAVIOR.

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Abstract

Nations enacting privatized pension reforms face challenges in ensuring the adequate retirement preparation of independently employed individuals. A chief requisite for designing optimal reform measures is a clear understanding of the retirement saving behavior of the independent sector.

In this paper, results are presented from a case study of 360 independently employed workers in Chile. Although retirement preparation is often approached at the level of the *individual*, the study bases its analysis on the premise that total *household* retirement preparation provides a more fitting measure of a population's future economic welfare. Using survey data, the study attempts to measure household preferences for economic welfare during old age as well as estimations of future retirement income needs. Then, using sample information on pension and non-pension retirement wealth, the overall adequacy of household retirement preparation is analyzed. The study determines that an alarming percentage of independently employed households are not saving enough in a retirement pension, or on their own, to afford to retire by age 65. Unless serious pension reform is undertaken, the vast majority of these households face the uncertainties of continued employment well into old age.

The paper concludes with a discussion of substantive pension reforms. It is proposed that the expansion of pension coverage to more independently employed workers must occur concurrently with reforms in the areas of worker retirement education, state economic assistance and retirement saving incentives, if the retirement welfare of independently employed households is to be improved.

Introduction

The Chilean privatized pension system has gained international recognition, as a model worthy of emulation, in the provision of old-age, survivor and disability pensions. A salient feature of the Chilean pension system is the accumulation of retirement wealth in an "Individual Retirement Account", whose funds are the exclusive property of each contributing worker. These retirement accounts are privately managed, in a carefully regulated market, by institutions established under federal authorization and denominated Pension Fund Administrators (AFPs)[1]. Workers enrolled in the system retain the right to select from over 15 competing AFPs in their choice of fund managers. Once enrolled within an AFP, the workers' retirement contributions are invested by the AFPs in corporate stock, mutual funds, corporate bonds, government bonds, mortgage backed assets, time deposits and overseas investments, and earn a real market return over time. Individuals who work for an employer (defined as those employees who receive compensation in the form of a wage, salary, or commission) are legally obligated to participate within this privatized pension system. The minimum required contribution, for this group, has been established at 10% of the employee's taxable income[2].

To date, the retirement fortunes of Chile's dependent workers have prospered under the AFP system. For instance, since the system's inception in 1981, the average real annual return across all funds managed by the AFPs has exceeded 11%. A 1994 study of the AFP Santa Maria, deemed to be representative of the system as a whole, analyzed the pensions of recent retirees to provide a measure of the replacement rate of average annual taxable income earned during the final 10 years of employment[3]. The study found that the cohort of new retirees, despite having a maximum of only 13 years of enrollment in the AFP system, on average, achieved a 78% income replacement rate in retirement. Projections for newly retired workers (with 40 years of contributions to the system) for the year 2020 forecast an annual income replacement rate of 120%![4] In evaluating the sufficiency of retirement pensions, the standard measure for an adequate or "fully funded" pension calls for an annual income replacement rate of 70%. In general, the Chilean pension system has garnered international respect for its profitability, as well as its sound financial management, and administrative stability[5].

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[1] The acronym AFP derives from their Spanish appellation "Administradoras de Fondos de Pensiones".

[2] An exception exists in the case of public sector workers, for whom some non-taxable income is included in the calculation of the mandatory contribution. Special calculations for additional required contributions also exist for the receipt of fringe benefits (such as a company car). Also, workers may voluntarily contribute more than 10% of their taxable income if they so choose.

[3] Baeza, Sergio and Raúl Burgër Torres in "*Quince Años Después. Una Mirada Al Sistema Privado de Pensiones*" Sergio Baeza and Francisco Margozzini (Editors), December, 1995.

[4] Eliziaga B., Juan Carlos, "*Una Valuación Cuantitativa de los Fondos de Pensiones de Chile: 1990-2020*," March 1997. Note: Eliziaga's model assumes a 6% annual return on pension fund assets, real wage growth of 2% per year and a contribution rate of 10%.

[5] The system administration has shown a strong willingness and ability to adapt to changing circumstances and new challenges. The administrative and financial stability of the system also rests on its insulation from political pressures and its individual capitalization scheme, both of which result in less demographic risk than may be encountered in traditional "pay as you go" pension systems.

Nevertheless, there remains a sizable sector of the economically active population (29.7% in 1996)[6] that is not legally required to contribute "a single peso" to an AFP, and hence its retirement: **The Independently Employed Workers.** In this context, the term "independently employed" refers to those individuals who are employers, self-employed, or choose to work within a business without formally receiving monetary compensation (such as a family member who "helps out" in the store). According to Chilean law (D.L.) No. 3500 of 1980, article 89: "The AFP pension system protects not only salary and wage earners, but also provides optional protection for independently employed workers. Independently employed workers choosing to participate in the pension system must declare a monthly income level in excess of the prevailing federally mandated minimum wage (about U.S. $160/month[7]), with a ceiling of 60UF[8] (approximately U.S. $1,900/month). Over this "declared income", analogously to salary/wage earners, independently employed workers are required to contribute 10% to an AFP[9].

Are independently employed workers earmarking funds for retirement by contributing to an AFP? If not, what are the barriers preventing them from doing so and what can be done to overcome them? Are these workers saving on their own for retirement, outside of the formal pension system? What, if anything, can be said about the "adequacy" of their retirement preparation at the present time? The remainder of this paper is dedicated to a discussion of these questions. The next section features a discussion of the size and dichotomy of the independently employed sector in Chile and other Latin American countries. The final section of Part I examines the available evidence on the retirement preparation of independently employed workers.

Part II introduces a recent survey, conducted by the author of this paper, of 360 independently employed workers in Santiago, Chile. Commentary is provided on the aim, methodology and sampling techniques of this survey. Next, survey results are presented, focusing on two areas in particular, as they pertain to the independently employed sector: (A) *Plans and Preferences for Retirement* (B) *Non-Pension Retirement Savings and the Overall Adequacy of Retirement Preparation.* Finally, Part III summarizes the major findings of this paper and discusses the need for pension reform. Particular attention is given to policy prescriptions targeted at increasing pension fund participation and contributions, as well as awareness of retirement issues among independently employed workers.

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[6] Instituto Nacional de Estadísticas - INE, "*Encuesta de Hogares y Personas, 1996*".
[7] All monetary quantities are expressed in US dollars, based on an exchange rate of 450 Chilean pesos per dollar in June of 1998.
[8] The U.F. (Unidad de Fomento) is a Chilean monetary unit of constant purchasing power.
[9] Bowen, Alfredo, "*Introducción a la Seguridad Social*", Tercera Edición, 1992.

PART I

1. Sizing Up the independently Employed Sector

The term "independently employed worker" encompasses a wide variety of occupational characteristics and applies to a significant portion of the working population in Chile and throughout Latin America. This section provides an overview of the three main types of independently employed workers: Employers, Self Employed Individuals and Non-Remunerated Family Members[10]. Although the workers within these groups share the common bond of not being legally obligated to contribute towards their retirement, they differ widely in their type of employment, educational attainment and income level. To gain an idea of the diversity embodied by this group, table 1 features a brief sampling of occupations of independently employed workers[11].

Table 1

Independently Employed Worker Occupations

Occupational Category		
Self Employed	Employer	Non-Remunerated Employee
Private Consultant	Lawyer	Waiter/Waitress
Architect	Dentist	Store Clerk
Plumber	Architect	Office Assistant
Hairdresser/Barber	Restaurant Owner	Fisherman
Taxi Driver	Repair Shop Owner	Kiosk Vendor
Ambulatory Vendor	Grocer	Assistant Gardener
Farmer	Farmer	Farmer

Source: Author.

To assess the magnitude of each of the three subgroups of independently employed workers, Table 2 presents data from a 1996 survey of the Chilean Labor Force.

[10] Naturally, this category also includes friends and other individuals who are employed within a business, but who do not receive monetary compensation (and are often a dependent of the owner).

[11] Insinga, Ralph P., "*The Retirement Preparation of Chile's Independent Workers: A Problem of More Than Just A Lack of Interest*", Universidad de Chile, October 1997 (unpublished manuscript).

Table 2

Dichotomy of Chile's Labor Force

Classification	Population	% of Labor Force
Salary/Wage Earning Employees	3,718,034	70.3%
Self Employed Individuals	1,273,201	24.0%
Employers	165,103	3.1%
Non-Remunerated Employees	137,814	2.6%
Total:	5,294,151	100.0%

Source: INE, op. cit.

These types of figures are not merely pertinent to Chile. Similar statistics for other Latin American countries show that between 20% and 30% of the workforce is currently employed in the independently sector. In general, issues affecting the independent sector are of growing concern. For all of Latin America, its relative proportion of the labor force has risen by over one-third in recent years, from just 19.2% in 1980, to an average of 26.5% in 1995[12]. Thus, in analyzing the Chilean case in this paper, it will be important to keep in mind that many other countries within the region, and around the world, are grappling with the quandary of how to best ensure the adequacy of retirement preparation of the independent sector.

2. Pension Coverage and Contribution Rates Among Independently Employed Workers

Earlier, it was established that salary/wage earners covered by the Chilean AFP pension system can look forward to receiving generous retirement pensions in the years ahead. The data presented in this section, however, shows that the future of workers in the independently employed sector appears uncertain at best; with wide gaps in coverage, contributions, and a dearth of information on the overall retirement preparation of the independent sector. It also concludes that a measure of total household retirement preparation provides a better approximation of the future welfare of the independently employed sector than that of individual pension accumulations.

Although all workers who became active subsequent to the 1981 pension reform are limited to enrollment within the AFP system, those workers previously covered within the old "pay as you go" system were given the option of either switching to the new AFP system (and receiving compensation for previous contributions) or remaining within the old system until retirement. The old pension system is currently regulated and supervised by the INP (Pension

[12] International Labor Office Annual Report For Latin America and the Caribbean (1996).

Insurance Administration). Combining information on the AFPs and the INP, it is possible to analyze the number of workers presently participating in a pension system.

Table 3
Pension Coverage Among Chilean Independently Employed Workers Age 20-70

Pension System	Self Employed Subgroup	Employer Subgroup	Cumulative % Of Independently Employed Labor Force
AFP	29.8%	58.2%	34.2%
INP	11.9%	9.5%	11.5%
Not Covered	58.3%	32.3%	54.3%
Total	100.0%	100.0%	100.0%

Source: Based on Author's Calculations Using the CASEN 1996 Survey.

Although the table omits data for non-remunerated employees, the data show that less than half of all independently employed workers have some form of pension coverage. Attaching a strict interpretation to these results is difficult, however. The CASEN survey merely asks, "Have you enrolled in a pension system?". Some individuals may have contributed towards a pension for a short period in the past, be eligible to receive a paltry pension, and yet still be considered to have pension coverage. An alternative measure of pension fund participation focuses upon *retirement contributions*.

Table 4 provides data on pension fund contributions made by self employed workers and employers. Once again, these results must be viewed with caution because survey respondents were asked "Are you contributing towards a retirement pension?". This question does not specify whether the respondent has contributed regularly during his or her labor history or even if he or she has contributed during the most recent month per se. Thus, even this measure does not really tell the full story regarding the state of retirement preparation of independently employed workers.

Table 4
Pension Contributions Among Chilean Independently Employed Workers Age 20-70

Pension System	Self Employed Subgroup	Employer Subgroup	Cumulative % Of Independently Employed Labor Force
AFP	16.1%	46.7%	20.8%
INP	5.4%	4.7%	5.3%
Not Contributing	78.5%	48.6%	73.9%
Total	100.0%	100.0%	100.0%

Source: Based on Author's Calculations Using the CASEN 1996 Survey.

If one compares the above results with the official data collected by the AFP and INP respectively, some notable differences emerge. For instance, the INP reports that only 3.3% of independently employed workers contribute toward a pension fund within the old system during the previous month[13], while the AFP Superintendent shows only 3.8% of this group contributing within the AFP system[14]. The cumulative total for those contributing would then be just 7.1% rather than the 26.1% reported using the CASEN survey of households. Can both sources be correct? Perhaps if evaluated according to their own measurement techniques. More likely than not, however, both sources are misleading. The bottom line for the Chilean worker is: "Will he or she be able to maintain an adequate standard of living during retirement?" The answer to this question for these workers is likely to depend more on a *household measure of retirement preparation*, including spousal pension eligibility and non-pension retirement assets, rather than solely on individual pension assets. Throughout the remainder of this paper, the term **Independently Employed Household**[15] will be defined as that family unit composed of one or more independently employed individuals. Thus, under this definition, a married couple in which one spouse is self employed, while the other works in the salary/wage earning sector, would be categorized as an "independently employed household". It will now be instructive to lay out the difficulties in evaluating household retirement welfare based on the scant data currently available.

Current statistical evidence is likely to both overestimate and underestimate the projected household retirement welfare of independently employed workers. On the side of overestimation, independently employed workers may have contributed to an AFP sporadically during the past 12 months, with gaps of months or even years prior to that, and yet still be officially recorded as contributing to an AFP. As a result, their pensions are likely to be severely underfunded, relative to future economic needs.

Second, even if workers have been contributing regularly, many are likely to be underdeclaring their true income. Among the prominent reasons for this are A) To purchase private health insurance, workers must contribute towards an AFP. Many contribute at the minimum contribution level solely to retain health insurance eligibility. B) Individuals may simply not be able to save 10% of their true income given budget and liquidity constraints and opt through preference or necessity to contribute at a lower level by underdeclaring their income. C) Commissions paid to the AFPs are levied in proportion to "declared incomes". A tax loophole, however, allows workers to contribute to a separate, Voluntary Savings Account (CAV), originally intended for those who wish to save more than 10% of their income for retirement or for other purposes. In practice, there is no fee charged for contributions to, or withdrawals from these accounts[16]. When they are ready to retire, independently employed workers can transfer the balance of their CAV to their Individual Retirement Account and add to

[13] Instituto de Normalización Previsional - INP-*Anuario Estadístico 1996.*

[14] Superintendencia de A.F.P., *Boletin Estadistico No. 137*, Diciembre 1996.

[15] The term household refers to a collection of one or more individuals whose pooled income(s) provide for subsistence.

[16] Chilean law does allow for a tax to be levied by the AFP on transfers between the CAV and the Individual Retirement Account, however the AFPs have never opted to collect this tax.

their total pension[17]. Nevertheless, a priori, it is difficult to assess whether funds in the CAV are indeed allocated for retirement, or some other use, such as purchasing a home. Statistics from the AFP Superintendent show that 75.2%[18] of independently employed workers are contributing over a declared income of under U.S. $220/month. For those enrolled in the INP, 98.4% are contributing at or below an analogous level[19]. In contrast, median income levels for independently employed workers as a whole are in excess of $500/month[20]. Furthermore, those workers who are actually contributing towards their retirement are likely to have a higher natural propensity to save, and thus higher incomes, than those not contributing. This would indicate that the actual median income of those contributing is likely to be far higher than the above estimate, resulting once again, in a tendency towards low retirement income replacement rates, even among those contributing regularly to an AFP or the INP.

Finally, there are likely to be a substantial number of workers who are included in the measure of Salary/Wage Earning Employees who previously were independently employed for a period of their career and through gaps in coverage and low levels of contributions are likely to face the prospects of low retirement pensions as well. Each of the aforementioned factors are likely to negatively impact household retirement welfare.

Naturally, in a perfect world, policy makers would seek to promote full pension coverage and contributions for all independently employed workers. Reality dictates, however, that programs to induce such saving are likely to bear significant government costs in ensuring that every worker is added to the system, each contributes regularly, and all contribute at the proper level given their varied incomes. It is not necessary, or economically practical, however, for every single independently employed individual to contribute towards a retirement pension to ensure an adequate level of household retirement welfare. As economists evaluate plans to expand coverage and promote higher contributions, it is important to recognize those groups of independently employed workers who should be targeted and those who should not, so that realistic estimates of the costs and benefits of such efforts can be developed. This section concludes with a discussion of how the *total pool* of independently employed workers may be winnowed down to create a target group for retirement savings promotion.

First, of the roughly 1.5 million independently employed workers in Chile, a significant portion of individuals may already receive a retirement pension. Many of these workers will have opted to receive a pension prior to attaining the legal retirement age (age 65 for men and 60 for women), while others may have continued to work well beyond this threshold, with or without a pension, either for economic or non-pecuniary reasons[21]. The CASEN survey shows that 8.1% of the independently employed population is over age 65. Obviously, it does not make sense to fault this group for not contributing towards a pension.

[17] Interview with Dr. Salvador Valdés, Pontificia Universidad Católica de Chile, September 1997.
[18] Superintendencia de A.F.P. op. cit.
[19] Instituto de Normalización Previsional - INP, op. cit.
[20] Instituto Nacional de Estadísticas - INE, op. cit.
[21] These reasons often include a need to remain occupied or the simple enjoyment of one's work.

Second, some spouses may work together within a small business such as a kiosk or grocery store. Although both spouses will be recorded as independently employed workers, they both derive their income from the same source, and thus, to guarantee household retirement welfare, it is only necessary for one to contribute towards a pension over that income[22]. For instance, a recent survey of independently employed workers in Santiago found that 28.7% of small grocers and 23.1% of kiosk operators fall into this category of joint employment[23]. Third, some individuals may work independently, but contribute only a small fraction of total household income, while a spouse working in the salary/wage sector or the independent sector earns the brunt of household income. In these types of scenarios it is quite likely that the primary wage earner's pension coverage (if he or she is covered), will be more than sufficient to accommodate future household needs and that further extending coverage is not a major priority.

In a fourth scenario, there are some households in which both spouses work, however one spouse may work for only 5 or 10 years, earning a fair salary, and then decide for reasons of child rearing, domestic preferences, illness etc. to exit the labor force. It is thus only the second spouse, who continues working, whose pension coverage is most important for household welfare. Fifth, there are a significant number of individuals who choose to accumulate pension wealth in other assets, such as financial instruments, businesses, property and other real estate, whose lack of pension coverage does not necessarily indicate a total lack of preparation for retirement. These outside savings must be taken into account in evaluating future household retirement welfare. Sixth, there are quite simply some independently employed individuals who do not earn enough to save for a pension. The fact that this group is not contributing towards a pension, is less of a worry than that government social welfare programs will provide little or no financial support to these individuals when they reach retirement age[24].

Box 1
Breakdown of Independent Sector Workers

Total Pool Of Independently Employed Workers

- Individuals Over Legal Retirement Age or Already Receiving Pension
- Affluent Households
- Poor and Indigent Households
- Households Saving Adequately On Their Own For Retirement
- Spouses Jointly Employed, Working Temporarily or Sporadically, or Earning A Small Fraction Of Total Household Income

= Middle Class Workers, Employed Full Time, Until Retirement Age

Source: Author.

[22] This does indeed occur quite frequently in practice. One possible danger is that the couple will later become separated, leaving destitute the spouse without coverage. In the author's opinion, the solution to this problem lies in the provision of fairer legal settlements, rather than increasing pension coverage.
[23] Data taken from SRPAIS (1998) survey. Further details will presented in Part II.
[24] The current value of the social welfare pension, for members of the elderly without pension coverage, is a mere $51/month.

Once the aforementioned subgroups have been subtracted from the total measure of the independently employed population, the remaining portion of workers consists of a much smaller group of *middle income, single and joint heads of household, working full-time until an advanced age*. The term "middle income" refers to households earning between two and twelve times the minimum monthly salary in Chile ($320-$1920/month). It is really only this subgroup that has both the means and the need to contribute towards a retirement pension through which they may tangibly impact household retirement welfare. Thus, for analytical purposes, a measure of *total household retirement welfare* rather than individual pension coverage or even total individual welfare, is necessary. It is precisely the retirement preparation of these middle income households, that will be analyzed in the survey to be introduced in Part II.

In summary, there is likely to be a significant portion of the independently employed population for whom a lack of pension coverage is not particularly problematic and others for whom it is simply not feasible. This should reduce considerably the number of independently employed individuals who would need to be contributing regularly, and at sufficient levels, in order for the household retirement welfare of the independent sector to be considered "adequate". Since merely analyzing statistics for the coverage and contribution levels of independently employed workers provides a hazy and distorted picture of the real magnitude of the problem, and the true costs of viable solutions, further microeconomic analyses of household saving behavior are necessary to best tailor policy to economic reality.

PART II

In Part I of this paper, it was established that there exists a core group of "middle income" independently employed workers who lack pension coverage, or contribute irregularly and at low levels towards a pension. Among the pertinent questions provoked by this finding are: What plans are this segment of the independently employed population making for its retirement? Why are these individuals choosing not to contribute towards a retirement pension? Are they saving for retirement outside of the formalized pension regimes? In order to learn more about the answers to these questions, a 71 question survey of 360 independently employed workers was administered in Santiago, Chile, entitled **"Survey of Retirement Preparation and Attitudes In the Independent Sector" (SRPAIS)**. This study will henceforth be referred to as "the survey" or "the SRPAIS".

1. Survey Overview

The survey was designed to measure retirement attitudes and preparedness through an analysis of five areas: Demographics and Labor History, Retirement Plans and Expectations, Financial Sophistication in Formalized Retirement Planning, and Retirement Asset Accumulation. It was administered via on site interviews at the respondent's place of employment from January through March of 1998. The interviews were strictly confined to three specific sets of 120 independently employed workers: **Small Grocers[25], Kiosk Operators, and Gardeners**. These particular employment categories were deemed to represent typical middle-income independent sector occupations.

It should be made clear from the start that by its very design, the survey was not intended to be representative of the independent sector for all of Latin America, Chile as a whole, or even Santiago. Rather, survey results were hoped to be merely "typical and indicative of trends and basic characteristics of the Chilean independently employed sector ". Thus, the SRPAIS was a case study that did not attempt to substitute for what could be accomplished through a national survey, but rather complemented it by reporting on areas not easily investigated in larger surveys and offering insights into areas for further study.

The SRPAIS survey was administered in four specific districts of Santiago, Las Condes, Vitacura, Providencia, and La Florida . Therefore, to measure its applicability, to the general population of independently employed households, information from the SRPAIS survey was compared with known benchmarks from the nationally representative 1996 CASEN survey of over 30.000 Chilean households. Since individuals in the SRPAIS sample were not employed as professionals, data comparisons were limited to the non-professional independently employed sector. In Chile, this subgroup of non-professionals is composed of roughly 1.000.000 independently employed workers and represents nearly 20% of the total labor force. Despite its

[25] "Small grocers" are defined as those grocers who employ 20 or fewer employees. In practice, however, the vast majority of private grocers employ 1-4 workers, and thus 88% of the sample falls into this category.

limited scope, the SRPAIS survey data exhibited remarkable similarities to that of the CASEN national survey. Thus, although it was not explicitly designed to be representative of all Chilean independently employed workers, it appears that the SRPAIS survey should provide a reasonable approximation of retirement saving behavior among non-professional independently employed households. Further information on the methodology, scope, reliability, and representativeness of the SRPAIS survey are provided in Appendix A.

2. Retirement Planning Preferences

In section A, it was established that the SRPAIS data set should provide a reasonable tool for evaluating the retirement savings behavior of non-professional independently employed workers. It will now be instructive to view survey results, beginning with a look at preferences for varied levels of retirement preparation among members of the independently employed sector.

Public policy reforms should be designed to take into account the preferences and expectations of the groups to be affected by them. This axiom applies no less to the case of pension reform proposals that will affect independently employed workers.[26] With this aim in mind, the SRPAIS survey attempted to gain a reading of preferences for retirement welfare among independently employed workers. Respondents were asked:

(a) If you could balance the allocation of your economic resources between present and future needs, would you prefer an economic level[27] during old age that is *much worse, somewhat worse, the same, somewhat better or much better*, than that which you will enjoy prior to age 65?

Despite the length of the question, considerable care was taken during the interview to ensure that all respondents understood precisely what was being asked. It was especially important to emphasize that households faced a tradeoff in allocating their disposable income towards future, versus present needs, and that respondents were not simply being asked whether or not they would like to better off during old age (to which, one would expect 100% to answer in the affirmative).

The question was posed in an effort to analyze respondents' preferences for future versus present economic welfare. Three plausible scenarios emerge. First, some households may prefer to live "the good life" during their younger years and then settle for a more mundane existence during old age. At the other extreme some households may be inclined to sacrifice a

[26] For the sake of brevity, in the remainder of this paper, unless noted, the term "independently employed workers" will be used when referring to the "non-professional independently employed workers" in the SRPAIS sample.

[27] It was important to distinguish between "economic level" and "quality of life" in the phrasing of the question. Economic level refers specifically to the capacity to satisfy economic needs, such as the ability to satisfy one's need for necessities, with money left over to allocate to luxury goods. Quality of life, on the other hand, might easily be affected by the individual's health status during old age and other extraneous factors that are, at least in part, independent of personal income.

significant portion of their economic welfare during their working years, to ensure a retirement that permits greater freedom and more time to enjoy life's pleasures. An intermediate scenario would predict that households would prefer to maintain the same level of economic welfare throughout their lifetimes. Depending upon societal preferences, a public program *requiring* households to save for retirement may or may not correspond with individual aims. With 98% of the sample providing a response, results are presented in Box 2:

Box 2
Present vs. Future Economic Welfare

Preferences For Future Economic Welfare

(When Balanced Against Competing Demands For Present Economic Welfare)

Much Worse	0%
Somewhat Worse	2.5%
The Same	17.9%
Somewhat Better	45.8%
Much Better	33.9%

Source: SRPAIS.

Of immediate note is that only 2.5% of the total sample would prefer to live worse off during old age. This finding contradicts the view that independently employed households are inherently disinterested in their welfare during old age, and hence preparing for retirement, because they simply prefer to live well today while eking out a meager existence later on. Second, it appears that the opposite scenario, that households would prefer to live slightly better off during old age than during their younger years, is the predominant trend. The median household would prefer to live somewhat better off during old age, while a full third of the sample expressed a preference for living much better off. A related survey question focused on respondents' perceptions of future household needs in an attempt to quantify these preferences. Individuals were asked:

(b) In today's dollar terms, what would you regard as a <u>minimum</u> monthly expenditure needed to support you (and your spouse) during old age?

Table 5
Perceived Future Income Needs

Retirement Income Needs (By Quartiles) Age 20-65		Ratio of Retirement Income Needs To Current Household Income (By Quartiles)	Age 20-39	Age 40-65
25th	$270			
50th	$450	25th	34%	39%
75th	$670	50th	60%	64%
		75th	80%	100%
		Social Welfare Pension (6/98)		$50
		Minimum Retirement Pension (6/98)		$120

Source: SRPAIS, AFP Superintendent, INP.

Answers given by survey respondents, along with related information are provided in Table 5 above. Several important observations emerge from the data. First, households at the median regard $450/month as the minimum monthly income level needed to support themselves during old age. This figure contrasts markedly with the current value of the federally funded social welfare pension ($50/month) and even that of the minimum retirement pension offered by the AFP and INP systems of $120/month. It is notable that not a single respondent indicated that the social welfare pension would even reach halfway towards meeting household retirement income needs (the minimum response was $100/month). Furthermore, only 2.0% of the sample forecast that the minimum pension offered by the pension funds would meet this need. Among married couples, even if both spouses were to receive the minimum pension, they would still likely fall short of the income level needed to support themselves. The availability and impact of these particular pensions on retirement welfare will be discussed further in Part III. For now however, it will suffice to note that the safety net for independently employed households is likely to be grossly inadequate given their projected retirement income needs.

Using household incomes and projected retirement income needs, it was possible to construct minimum required retirement income replacement rates for each household in the sample, which are also presented in Table 5. Since some household incomes would be expected to rise significantly by the time respondents reached retirement age, results have been separated for respondents age 20-39 and those age 40-65. Those households in the latter group could be expected to have already entered their prime earning years, and therefore, by dividing estimated household retirement income needs by current household income from employment, it should be possible to approximate the median required retirement income replacement rate for each household. For the age 40-65 subgroup, this figure is 64%. While a quarter of the sample estimates that it could be supported by a replacement rate of under 40%, another quarter would require a full replacement of its current household income.

Recalling that in Part I it was established that a 70% income replacement rate is considered a benchmark for a fully funded pension, additional comparisons are possible. First, in pursuing the goal of a 70% retirement income replacement rate, the AFP and INP systems do not appear to inherently "oversave" for a household's retirement, assuming full employment prior to age 65. This goes against the argument that by forcing households to save at a 10% annual rate for retirement (and hence achieve a fully funded pension), the system simply does not coincide with the preferences of the working population. In fact, the 70% replacement rate for income seems to be exactly what the typical household would require, as a minimum, to support itself during old age. It is true that not *all* households would seem to require such a high income replacement rate. Nevertheless, based on the personal preferences expressed in the data, one would still expect a far greater portion of the independently employed sector to contribute towards a retirement pension, and at much higher levels, than are currently being observed. Rather than a structural difference in preferences for future income, this failure to save for retirement may thus be due to other underlying factors, such as an inability to save, a lack of discipline, a lack of information etc. These issues and the reasons for the schism between perceived saving needs and observed saving behavior will be explored in depth in Part III.

In summary, based on their own preferences, it appears that independently employed households would prefer to live as well or better off during old age as during their younger years. Empirical evidence shows that, in the absence of continued employment beyond age 65, the income levels in old age needed to satisfy retirement income needs would require households to save at roughly the levels imposed upon salary/wage earning employees within the AFP and INP systems. Although it is certainly worrisome that independently employed households are, for the most part, not saving at these levels within the formalized pension systems, there is a second possibility that must be examined before arriving at any definitive conclusions on this front. It is still conceivable that independently employed households simply prefer the flexibility of saving on their own, and are accumulating significant assets to be used during retirement outside of a formal pension regime. The next section is dedicated to a discussion of empirical evidence related to this hypothesis.

3. Non-Pension Retirement Savings and the Adequacy of Retirement Saving

Analogous to statistics for the population, only a small proportion (24.7%) of independently employed workers in the SRPAIS sample were contributing towards a pension at the time of the survey. This section explores private saving outside of these pension plans and combines data from both pension and non-pension retirement sources to provide a total measure of welfare for the independently employed sector.

The SRPAIS survey solicited information on various forms of potential retirement wealth outside of pension savings. These assets included: **Cash, Savings Accounts, Time Deposits, Stocks, Bonds, Land, Housing Wealth, and Business Wealth**. It is important to stress the fact that these are "potential sources" of retirement wealth, because most respondents considered them to be allocated for general purposes and not necessarily exclusively towards retirement. This classification is most important for financial assets, which could clearly be used to make consumer purchases prior to retirement, and somewhat less important for fixed investments like housing wealth or other real estate. Thus, information presented in this section should be regarded as an upper bound for retirement wealth.

The survey also solicited responses on pension wealth accumulation. In the case of wealth accumulated in an AFP, most individuals were able to provide responses based on information contained in their monthly account statements. Respondents who had switched from the old INP pension system to the AFP system since 1981, however, were also entitled to receive a compensation bond for contributions made within the old pension system. This bond becomes available when the individual reaches retirement age and earns 4% annual real interest until that time.[28] Calculating the compensation bond value for 75 respondents and spouses within the sample involved a detailed set of calculations which are summarized in Appendix B. Similarly, individuals who opted to remain in the old INP system, and have contributed regularly, may be entitled to receive a retirement pension based on income earned during their final years of employment. Once again, calculating the value of this pension involved a special set of assumptions, with a total of 40 individuals in the sample being affected. A summary is available in Appendix C. Table 6 provides a measure of the relative proportion of total household wealth that each particular type of wealth represents.

Table 6
Composition of Total Household Wealth

Quartile	Primary Residence	Business/Other Real Estate	Non-Pension Monetary Wealth	Pension Wealth
25th	87.5%	6.6%	5.9%	0.0%
50th	58.3%	17.3%	7.1%	17.3%
75th	53.9%	13.5%	8.9%	23.7%

Source: SRPAIS.

[28] An exception exists for those individuals who switched to the AFP system after 1981. For these workers, the government will only honor the real peso value (adjusted for inflation) of the sum of the original contributions and not offer a 4% real return. The system was structured in this way to give an incentive for individuals to switch quickly to the new AFP system in 1981 and, in the long run, ease the government's financial liabilities.

In real dollar terms, total household wealth for the sample at the first, second, and third quartiles was $6.700, $20.000 and $50.000 respectively. The results show that pension wealth, at the median represents only about one-sixth of total wealth. Since this figure is a relatively small portion of total wealth at all quartiles, it opens up the possibility that the current generation of independently employed households will be able to tap into non-pension assets as a significant source of economic support during old age. In order to gain an idea of the impact on retirement welfare from liquidating each form of wealth it was necessary to construct an economic model of wealth accumulation for each household. The idea was to be able to compare what households <u>should</u> be saving for retirement to achieve a given target pension with what they truly <u>are</u> saving.

Using this framework, there are several possible choices for measuring the adequacy of retirement preparation. First, it is possible to use some absolute measure of pension benefits required for each household. In this scenario, retirement income replacement rates of $200/month and $450/month have been chosen in conducting the analysis. While actual expenditures during old age may vary from one household to the next, it was assumed that the former figure virtually corresponds with living in poverty, while the second figure provides a level of support, likely to be on the margin of comfort, but far from extravagant. To estimate the retirement wealth required to finance these income levels during retirement, comparisons were made to what independently employed households might accumulate in the AFP system during their working lifetimes. Model assumptions were as follows:

(1) Individuals are employed continuously between ages 20 and 65 and contribute 10% of total household income from employment to an AFP.

(2) Real wages grow at a constant 2% annual rate during the individual's working lifetime.

(3) Contributions to the AFP earn a 4% real return[29], compounded annually.

(4) Households earn an average income of $643/month when the respondent is between ages 55 and 65 permitting eligibility for a pension of $450/month at age 65 (a 70% replacement rate).

(5) Households earn an average income of $286/month when the respondent is between ages 55 and 65 allowing eligibility for a pension of $200/month at age 65 (a 70% replacement rate).

[29] A 4% real annual return was chosen because, at the time of the AFP system's design, this was considered to be the long run equilibrium return required to satisfied household retirement income needs (i.e. to provide a 70% retirement income replacement rate).

Applying these criteria, it was possible to calculate asset levels that households of any age between 20 and 65[30] would need to accumulate for retirement to be eligible for what is, by AFP system standards, considered to be a fully funded pension at age 65. In practice, if drawn directly from household retirement account(s) each month, funds would last for 15.5 years, or until the individual(s) reached 80.5 years of age. To be "on track" to receive each target pension, each household would have to accumulate wealth equal to 100% of what would accumulate in an AFP (according to the above assumptions) for a household with an identical age profile. Dividing wealth actually accumulated by the sample, by wealth that would be accumulated in this manner, a measure of each household's retirement preparation progress can be estimated.

In this model, non-housing wealth refers to total wealth minus the value of the respondent's primary residence (if a home-owner), but includes the rental value of other real estate and property.[31] In the subsample of 55 to 65 year olds, 11.3% owned a house not used as a primary residence, 6.3% an apartment not used as a primary residence, 3.8% land apart from their residence and 3.8% transportation vehicles (i.e. taxis, school buses). 23.1% of grocers were owners of their business property. In all of the preceding cases, respondents indicated that these investments would be used as a source of income during retirement (unlike some of the other measures of wealth like financial assets).

Table 7 presents results for these two scenarios. Data is presented for those households age 55-65 only. It is this group that is most likely to continue to work independently until age 65. Also, given the fact that this group is at the threshold of the legal retirement age, their saving behavior should provide a proxy for the path to be followed by younger independently employed workers in the future. The numbers to the right of each measure of wealth refer to the percentage of each pension amount available to a household if the decision were made to liquidate the entire sum of each category of that household's wealth. For instance, at the median, if a household liquidated its entire stock of wealth, it could expect to receive a pension of $450 X .85, or $383/month for roughly 15 years. Figures above 100 indicate that households will be able to fully achieve a particular replacement rate ($200 or $450) for each measure of retirement wealth. Analogously, figures below 100 indicate that households would be unable to afford the corresponding retirement income replacement, given model assumptions.

[30] The age of the head of household was used in calculating the "age of each household".

[31] Respondents were asked to estimate the rental value of any real estate, property or vehicular assets within their ownership. These rental values were then incorporated into the model by adding their contribution to an income replacement rate to that represented by all other investments to provide a comprehensive measure of income replacement.

Table 7

Absolute Measures of Retirement Preparation

Quartile	$200/Month Pension		$450/Month Pension	
25th	Total Wealth	68	Total Wealth	30
	Non-Housing Wealth	0	Non-Housing Wealth	0
	Monetary Wealth	0	Monetary Wealth	0
	Pension Wealth	0	Pension Wealth	0
50th	Total Wealth	191	Total Wealth	85
	Non-Housing Wealth	41	Non-Housing Wealth	18
	Monetary Wealth	16	Monetary Wealth	7
	Pension Wealth	0	Pension Wealth	0
75th	Total Wealth	484	Total Wealth	215
	Non-Housing Wealth	149	Non-Housing Wealth	66
	Monetary Wealth	108	Monetary Wealth	48
	Pension Wealth	61	Pension Wealth	27

Source: SRPAIS.

The data show that less than half of households, in the age 55-65 subsample, are on track to be able to afford to sustainably live on over $450/month during retirement, no matter what measure of wealth is used. Well over three-fourths of the subsample would have to liquidate all assets except for its home to afford this same level of income during retirement. Extrapolating from the data in the table, only 4% of the subsample is accumulating enough savings in a pension fund to be on pace to afford a $450/month retirement income.

Naturally, the figures are amplified for a retirement income of only $200/month, estimated to represent a life at, or near, the poverty level for most households. If all wealth were liquidated, nearly three-fourths of the subsample would be able to achieve a monthly income above this figure. Nevertheless, extrapolating from the table, just over one-third of the subsample would be able to afford this income level if the primary residence were not sold. It is further estimated that less than one quarter of the subsample would be eligible to receive a $200/month income from a retirement pension alone.

It is likely that non-housing wealth represents the most common source of retirement income, without going to extreme measures (such as moving in with children). While it is certainly possible that by selling one's house and purchasing an apartment, or moving into a smaller house, one could take advantage of some capital gains, the most vulnerable portion of the subsample would at best be able to squeeze a fairly modest amount of wealth from such a transaction. Using non-housing wealth as a measure, over one-fourth of the subsample would have 0 assets accumulated for retirement. More than 50% of the subsample would have resources permitting an expenditure of less than $100/month, with well over 60% subsisting below the $200/month threshold. These figures are quite alarming and are a clear indication that pension reform is necessary.

Through a more refined approach it is possible to incorporate individual preferences for retirement income into the analysis. Recall that respondents were asked to state a minimum threshold required to support their households during old age. Using this figure, and following a nearly identical analysis to that described previously, it is possible to measure each household's progress towards this target income. The results are, in some ways, even bleaker when a preference based measure of retirement preparation is used rather than an absolute one. Less than one-fourth of the 55 to 65 age group is accumulating enough non-housing wealth to meet their minimum required income level during retirement. Just 15% of the subsample is accumulating enough pension wealth to meet their stated need for retirement income. It should be reiterated that these figures refer to an economic level in retirement that was given by respondents as a <u>minimum</u> level of support during old age. Thus, these figures can also be viewed as "individual" poverty lines for each household, indicating that at least two-thirds of the subsample would have to work well into old age to meet household needs.

Finally, in similar analyses, it was found that younger cohorts within the sample were likely to be no better off upon reaching retirement age than the 55-65 year old subgroup. In formalized retirement planning, pension contribution rates were 33% for those in the 55-65 age group (excluding those already receiving a pension) and only 26% among 20 to 54 year olds. Likewise, retirement income replacement rates by non-housing wealth were at similar levels to those present among the older cohort. Although, it is probable that the younger group will be able to save at higher levels once children have moved out of the house, it is also true that the effects of compound interest on savings are most dramatic during the latter years of one's career. In this sense, it will be very difficult to make up for lost time later on. If no further action is taken to motivate these households to save, it is questionable whether they will be able to achieve even the level of welfare of households currently nearing retirement age.[32]

Having established the likelihood that the majority of independently employed households in the sample will lack the resources to comfortably retire by age 65, there remain three options for this group: (1) Receive support during old age from family and friends. (2) Continue working past age 65 for as long as possible. (3) Try to save enough between now and age 65 to increase household economic welfare during old age. It is likely that some households would resort to all three options, but for the purposes of analysis each option will be discussed separately. The first two options will be discussed in the remainder of this section, while factors inhibiting household retirement saving and methods to counteract them will be explored in Part III.

[32] Their future welfare could depend in part on wage growth in Chile (which may not continue at the high rate that has benefited those late savers currently nearing retirement). It may also be affected by rising costs of education, medical care etc.

It has been argued that the retirement preparation of, particularly lower income households, is not as much of a concern because these households often will receive economic support from children, friends and other relatives during retirement. In the SRPAIS survey, respondents were asked:

(a) Will your children, friends or other relatives provide for a significant portion of your necessities (more than 25%) during your retirement?

A neutral phrasing of the question is important, because a biased set of responses could emerge if the question is phrased pejoratively (i.e. Will you require economic assistance from others during your retirement?) or, at the other extreme, in a decidedly favorable light (i.e. Will your children and relatives be of any help to you during your old age?). Of the portion of the sample under the age of 65,[33] just 22% expect to receive some form of non-self/non-government financial assistance during retirement. While this is not an insignificant figure, neither is it an overwhelming one.

To test for factors that influence whether or not an individual perceives he or she will receive such financial assistance, a series of probit regressions were run (to conserve space, full results are available from the author upon request). From these results, neither age, income level nor household wealth was a significant predictor[34] of whether or not an individual felt that he or she would receive retirement assistance. This goes against the hypothesis that "lower income groups plan to take care of each other" and therefore should be regarded with less concern than the rest of the population. It also supports the hypothesis that there is not a sizable generational difference between younger households, perhaps living in a more individualistic age, and older ones coming from an era of greater solidarity.

In summary, only a relatively small fraction of independently employed households expect to receive financial assistance during retirement from outside sources, with the vast majority expecting to be reliant on personal resources. Even for the group that does expect to receive financial assistance, this discussion ignores issues of intergenerational equity, which, from a public policy standpoint, would influence the desirability of such transfers.

Although most households may not plan to rely on outside income sources during their elderly years, perhaps they believe that they will be able to save enough on their own to retire by age 65. To address this issue, a second survey question asked:

(b) Do you feel that you will continue working, out of economic necessity, beyond age 65?

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[33] Those over age 65 are excluded because there is likely to be a bias between those receiving familiar assistance who are not employed, and those not receiving assistance, employed by financial necessity.

[34] Throughout the rest of the paper, a variable will be considered significant, under the t-distribution, if the probability $X > |T|$ is less than .10.

Since some households might choose to continue working for non-pecuniary reasons, such as the need to remain occupied or simply enjoying their profession, it was important to specify the phrase "out of economic necessity". Among heads of household under age 65, a full 73% expect to continue working past the legal retirement age out of economic necessity. Of those who did not expect to work past age 65, only two-thirds could identify a specific age at which they planned to retire. Demographic information from the CASEN survey supports the fact that the proportion of workers in the independent sector actually remains constant between ages 65 and 70. From the 1996 survey, 23.0% of the economically active population between ages 20 and 64 works in the independent sector. Including those who have retired from active service, 23.1%[35] of the population between ages 65 and 70 are working in the independent sector. Naturally, some of these workers may have been wage/salary earning workers prior to age 65 or may not be working out of economic necessity, however these figures are also consistent with the idea that many workers independently employed today will work into their late 60s or even 70s due to inadequate retirement preparation. On the other hand, the percentage of actively employed individuals in the salary/wage earning sector drops precipitously from 71.7 % (ages 20 to 64) to just 16.2% (ages 65 to 70).

In summary, it has been found that the majority of independently employed households would prefer a state of economic welfare that is somewhat better than that enjoyed prior to age 65. Levels of household saving, both within and outside of a pension, however, would permit an income during retirement that is below the estimated subsistence level for nearly three quarters of independently employed households. Unfortunately, consistent with current expectations among independently employed households, the vast majority will be forced to continue working well beyond the legal retirement age, with little guarantee of support if health problems necessitate a withdrawal from the labor force. Statistics on the working elderly support this finding and indicate that independently employed households are likely to be unwilling or unable to save adequately for retirement on their own. What factors are inhibiting these households from achieving their retirement saving objectives? What can be done to improve the economic welfare of this group during old age? Issues related to these topics will be explored in the final part of this paper.

[35] This figure excludes those who are considered to have been inactive from age 20 to 64.

PART III

The empirical evidence presented in Part II supports the conclusion that a large proportion of independently employed households will be required to work well past the legal retirement age due to inadequate retirement preparation. The final part of this paper explores factors that inhibit household saving for retirement. The discussion highlights potential reform measures, designed to mitigate obstacles to retirement saving, and improve retirement welfare as a whole for the independently employed sector.

1. Why Independently Employed Households Are Not Saving For Retirement

The SRPAIS survey asked all non-pensioned respondents, neither participating nor contributing, within the AFP system:

- Why are you not saving for a retirement pension within the AFP system?

It should be emphasized that although respondents were only asked for one response, many provided several. To provide a sense of the relative importance of each type of response, only the principal reason given by each respondent is provided below. Even before exploring the content of each response, the sheer variety of reasons given for not saving within an AFP is a clear indicator that the system has a long way to go if independently employed households can be expected to voluntarily save for their retirement. A total of 17 separate explanations were provided, the top ten of which are listed individually in Box 3.

Box 3
Principal Reasons For A Lack Of AFP Pension Saving

Explanation	Frequency (%)
Lack Of Information/Never Thought Of It	20.9
Can't Afford To Save	20.9
Better Benefits Available In INP	9.3
Will Rely On Spouse Pension	7.7
Not Interested In Saving	6.6
Fund Returns Are Uncertain	6.0
AFP System Is Corrupt	5.5
Too Old To Begin Saving When System Began	5.5
In Good Health/Able To Work Beyond Legal Retirement Age	5.5
Afraid To Lock Up Assets	4.4
Other	7.7
Total	100.0

Source: SRPAIS.

To begin, some of the responses are quite legitimate and these particular workers really should not be expected to save within an AFP, no matter what reforms are undertaken. For instance a significant portion of the sample indicated that they would be better off remaining within the INP. As noted earlier, workers who did not switch to an AFP at the system's inception in 1981 are indeed penalized, in receiving a 0% return on their previous pension contributions, if they decide today to switch to the AFP system.

A second set of respondents indicated that they would prefer to rely on their spouse's pension during old age. The legitimacy of this response pre-supposes that the spouse has contributed regularly to a retirement pension and that couples will not separate later on. With reference to the latter scenario, Chilean law currently provides no legal recourse to the non-pensioned spouse if couples do separate. Thus, when spouses do separate, there is the potential for an extremely unjust division of assets, including pension wealth. As the first, of numerous, reform measures to be proposed in this section, *the Chilean legal system should provide a fair settlement procedure, for couples that can prove separation, to ensure that both spouses receive a fair share of pension income during retirement.* Assuming that couples will remain happily married, however, as noted in Part I, there are likely to be a fair number of spouses for whom retirement pension saving simply does not make much sense, such as spouses who A) Work part-time or sporadically B) Maintain an income level that is only a small fraction of that of the head of household C) Function as a non-remunerated employee, receiving a joint income from a business in which the head of household maintains financial control.

An important distinction should be made between spouses that work as non-remunerated employees, and other family members occupying the same position (children, siblings, cousins etc.). While pension coverage is not viewed as being necessary for spouses in this case, it <u>should</u> be required for other relatives in similar circumstances. The reason is that these other relatives will not necessarily be eligible for survivor's benefits, or in a position to share a pension with the business owner when they reach retirement age. On the other hand, they will have worked full-time for a significant period of years, contributed to the profitability of the business, and deserve pension compensation, albeit not monetary remuneration. As a second reform measure, *employers with non-remunerated employees of this type could be required to contribute towards an AFP retirement pension (and health insurance) for these workers*[36] *at some basic level.* While such a reform would surely raise costs for small businesses, it would essentially remove a discriminatory policy adversely affecting individuals choosing to work within a family establishment.

With the exception of the two types of responses previously noted, the remainder of reasons listed for not contributing to an AFP reflect genuine areas for concern. These responses can be divided into two subgroups: (A) *Those that require financial reforms within the pension system.* (B) *Those that reflect myopia and misinformation and require public enlightenment.*

[36] Workers under the age of 21 could be excluded from the requirement.

Although reforms in these two areas are closely intertwined, and their success reflects a degree of interdependence, each type will be discussed separately.

2. <u>Financial Barriers To Retirement Saving</u>

Among the explanations provided for a failure to contribute towards a retirement pension, three (*Can't afford to save, AFP system is corrupt, Afraid to lock up assets*) reflect legitimate financial concerns that must be overcome if pension reform is to succeed. In this section, commentary will be provided on each specific concern as well as potential policies for reform.

There are numerous constraints placed upon the income of independently employed households. This is particularly true in the case of small business owners or sole proprietors who often have an irregular income, face liquidity pressures, and are continually investing in, and expanding, their businesses. The tradeoff between saving for future retirement, versus assuring the continued and expanded profitability of one's business or livelihood is a difficult one. Even in the case of self-employed individuals, who do not face these particular obstacles to saving (e.g. gardeners, migrant farm workers, ambulatory vendors), saving for retirement is not easy. The minimum wage level in Chile is very low ($160/month) by developed country standards and, despite the fact that most independently employed households in the SRPAIS sample earn a monthly income well above this wage, many are just scraping by.

Middle and lower income salary/wage earning employees are saving for their retirement in AFPs largely because the government has forced them to. It is thus absurd to expect that, even through strong incentives, the independently employed sector would *voluntarily* do the same, even if it would be to their own long term benefit. For this reason, the solution to the pension puzzle for independently employed workers may lie in a *compulsory yet progressive pension program*. Before discussing specific options for the creation of such a program, it will be fruitful to review the impact on household welfare of guarantees provided by the current pension system with respect to the independently employed sector.

It has previously been shown that the independently employed sector would prefer a level of economic welfare during old age far superior to what it is likely to achieve given present asset accumulations for retirement. In fact, most independently employed households are not saving enough to meet even minimum stated retirement income needs. As life expectancies have risen, this has become a classic problem for society, and has justified state intervention in the design and enforcement of the AFP retirement pension system. Although households may indicate a preferred economic level during retirement equal to, or somewhat better than, that during their years of active employment, the discipline required to sacrifice a portion of current welfare to benefit future welfare is often too great. Thus, the voluntary nature of contributions for the independently employed sector, means that there is little guarantee that such retirement saving will occur. This leaves independently employed households living slightly better off during their years of employment, but with the potential for being *much worse off* during old age. To help steer households away from this sub-optimal outcome, the Chilean pension system currently obligates salary/wage earning households to save for retirement.

The Chilean pension system guarantees a minimum pension of roughly $120/month to households in which a member has recorded at least 20 years of contributions towards a retirement pension. Among heads of household age 50-65 in the SRPAIS, only 26% had worked for more than 20 years in the salary/wage earning sector before turning independent. This means that nearly three-quarters of this group would be required to continue contributing towards a retirement pension while working independently to be eligible even for this minimum level of assistance. Sample statistics show just 28.7% of those in the subgroup, with less than 20 years of salary/wage earning employment, contributing towards a retirement pension. Thus, it may be surmised that this minimum pension is available to only a minority of independently employed heads of household.

The only other pension option for the remaining majority is the government funded social welfare pension of $51/month. The scant resources provided by this pension are likely to be beyond the reach of most households, however, who would not meet eligibility requirements. These regulations stipulate that households demonstrate economic indigence, with a monthly income of less than $67/month per capita, prior to its concession[37]. From the SRPAIS data, only 1% of households would meet such requirements. As was shown in section B of part II, these guaranteed pensions provide for only a small fraction (27% for the minimum AFP pension and 11% for the social welfare pension at the median) of minimum stated household retirement income needs. Hence, even if a household is granted one of these pensions, the income generated is likely to be insufficient to satisfy basic economic needs, prompting continued employment. Thus, based on this information, it is clear that a greater state role in ensuring the retirement welfare of the independently employed sector is sorely needed. Reforms should move in the direction of increasing coverage and raising benefits for independently employed households. Without such reforms, independently employed households are likely to be unwilling or unable to save adequately for retirement on their own. Since salary/wage earning employees <u>are</u> receiving adequate retirement protection from a compulsory pension system, the absence of an identical standard for the protection of the independently employed sector could be viewed as a form of sectoral discrimination. It will now be instructive to comment on several aspects in particular that should be targeted by pension reform.

<u>Enrollment and Contribution</u>:
To minimize administration and compliance costs, not *all* independently employed workers should be required to join an AFP. Compulsory enrollment could be subject to certain criterion. For instance, *1) The worker is between the age of 21 and 65 and works full time for at least six months out of the year (1.000 hours). 2) The worker does not have a spouse contributing more than $70/month to an AFP or who receives a retirement pension of over $500/month. 3) The worker is not a spousal non-remunerated employee. 4) Households earn above a subsistence*

[37] Information provided by the Municipality of La Florida.

level of income. The reasoning behind the second criteria is that the household's retirement welfare is likely to be already safeguarded by the contributing spouse's pension. *If the other spouse were to contribute less than $70/month to an AFP, a portion or all of the difference could be made up by the independently employed spouse, up to 10% of household AFP taxable income, until a $70 household contribution was reached. If the contributing spouse were to die or exit the work force, the independently employed spouse would then be required to contribute over his or her full income to an AFP.* The reasoning behind the third criterion has been explained previously in Section A. The fourth criterion refers to the fact that not all households receive sufficient earnings to contribute towards a retirement pension. These groups should be exempted from social security contributions, while retaining eligibility for a state funded pension at retirement age. The specific income levels receiving this exemption should be determined by household size and number of dependents. A further discussion of this topic will be provided later in this section.

If enrollment is to be compulsory, AFP contributions will essentially function as a tax on income earned by the independent sector. Thus, one possibility for gathering data during the enrollment and contribution process would be to *base social security contributions on information stated on household tax returns. The filing of such returns should be made annually and would require independently employed households to keep track of income earned throughout the year.* This has been essentially the model for social security contributions by independently employed households in the United States. Many independently employed households in Chile currently do not keep careful track of monthly income, much less annual revenue. This phenomenon complicates financial planning for all purposes, and threatens household economic stability in general. Section C discusses specific measures that must be taken to enhance household financial management, creating positive externalities beyond the realm of retirement preparation.

Households could send contributions to an AFP at any point during the year (which would act as a withholding tax) or wait until the end of the year and contribute in one lump sum. Any excess contributions made prior could either be refunded or applied as a tax credit towards the following year's contributions. An annual contribution, rather than a monthly contribution would serve two main purposes:

1) It would give households ample time to plan ahead for their annual contribution.
2) It would smooth out differences in income from one month to the next, giving households greater flexibility in meeting their consumption needs in months of low income, while permitting higher saving during peak income periods.

These fluctuations are particularly important for households, affected by large seasonal adjustments in income, that would have difficulty contributing at a constant rate if pension contributions were collected monthly.

<u>Retirement Age Adjustments</u>

The legal retirement age for men in Chile is currently 65, while it is 60 for women. This arrangement is largely grounded in cultural biases, rather than economic principles and adversely affects the retirement preparation of independently employed workers as well as those in the salary/wage earning sector. In effect, because women tend to live longer than men, are more likely to support children in the event of a separation, and tend to earn less than men on average, the discrepancy in the retirement age is to their detriment. *A uniform retirement age of 65 should be established.*

Second, as an option, the reform plan might be altered to *allow for retirement at age 70, for individuals in good health who prefer to continue working.* Individuals could opt to select this later retirement age at any point in their career, with the result being lower annual household contributions towards a pension. Although, households would be required to contribute at a slightly higher rate for disability insurance, there would likely be a net positive impact on total social security costs.

Enforcement and Compliance
To enforce that households are contributing at the proper income level, the government can adopt and strengthen measures, specific to each type of independent employment that provide for the measurement and periodic auditing of income. A strong set of penalties for social security tax evasion should be developed. While some households are still likely to underdeclare income, it is probable that far fewer would declare the minimum income than is currently occurring, for fear of drawing an immediate audit and facing conviction for tax evasion.

Financial Incentives To Contribute
One goal of reform should be *"to provide a basic pension that guarantees a decent standard of living in retirement to all independently employed households"*. The current system clearly does not accomplish this with a social welfare pension of $51/month or a minimum AFP/INP pension of $120/month. The government cannot raise the amounts of these pensions overnight, but can *set a timetable for gradually increasing them to benefit the generation currently in retirement and those nearing retirement age. All other independently employed households, meeting the previously cited criterion, could begin to contribute towards an AFP, with the government matching contributions up to a certain level.* A hypothetical example of how this might work for an unmarried individual is presented in Box 4. It should be noted that the marginal tax rates refer to those that apply over each income bracket.

Box 4

Independent Sector Retirement Contributions

Annual Income Level	Marginal Tax Rate	Total Tax Rate	Government Subsidy	Total Contribution
$0-2000	3%	3%	$0-140	$0-200
$2001-4000	5%	3-4%	$140-240	$200-400
$4001-6000	7%	4-5%	$240-300	$400-600
$6001-8000	10%	5-7%	$300-240	$600-800
$8000-10000	10%	7-9%	$240-100	$800-1000
$10000-12000	10%	9-10%	$100-0	$1000-1200

Source: Author's Calculations.

Although the numbers presented in this example are hypothetical, the basic premise is not. The idea would be to create *a compulsory system for pension contributions in which there is a progressive marginal tax rate. Ideally, a significant portion of lower middle income households would only have to pay for a small portion of their pension coverage. Those earning higher incomes would be given incentives to contribute more, as matching contributions made by the government would rise with income. At a certain annual income level, in this case $8.000, the government subsidy would peak in absolute terms, with a declining subsidy available for income earned above that level. The subsidy would be phased out completely at the $12.000/year level.*

For middle income independently employed households, this type of structure has four important benefits. First, it ensures that all households in this category, have some retirement insurance. Even if households contributed at the minimum income level for their entire careers, given increases in the minimum wage during their lifetime, they would accumulate a monthly pension well in excess of 100% of the minimum wage at the time they began contributing and certainly well above the current social welfare pension. Gaps in contributions and the failure to contribute towards a pension at all, could be eliminated. Second, it provides financial incentives for households to contribute at higher levels towards a retirement pension. This would remove some of the impetus for underdeclaring income that exists under the current system.

Third, the government is explicitly supporting the independently employed sector's retirement preparation. This will help families allocate resources towards other important objectives such as food, clothing, housing and education, without compromising their ability to prepare for old age. It will also foster a better relationship between the government, the AFPs, and the independent sector, which could have a positive influence on the saving behavior of independently employed households. Fourth, a different subsidization scale would be used for married couples and those supporting children, with income exemptions available to allow for greater flexibility than is available in the current AFP contribution. In the current system, a 10% contribution is required regardless of the presence of children or other dependents, which leads to a regressive outcome for many families.

Social Assistance and Other Forms of Insurance

For some low income households, the ability to sacrifice present consumption, to benefit future welfare, may simply present too great an economic burden. Households earning below a certain income level (e.g. under $250/month for a household composed of a single individual) could be exempted from contributing towards a retirement pension. Specific exemption thresholds would be determined by the size of the household and the number of dependents. To be eligible for an exemption, households should annually file a social security tax return stating information on income, employment, living conditions etc. A determination will then be made as to whether or not grant an exemption for that calendar year.

When household members reach retirement age, an evaluation of financial resources for retirement must be made. Households that have received exemptions during all years of labor force participation could be eligible to receive a minimum social welfare pension. The sum of this pension should depend on household size, however, a pension below the $200/month level is likely to further impoverish many households; even beyond the precarious existence led during their economically active years. Households with some level of prior retirement contributions, but whose retirement pension would be below the prevailing minimum retirement pension should receive a retirement pension above the minimum level. This pension be initially financed by previous household retirement contributions to an AFP and later, if these funds run out, by the State. The amount that this pension exceeds the minimum retirement pension should be determined by the level of funds available within the household's AFP retirement account(s). In this way, the incentive to contribute towards a retirement pension, during years in which household income exceeds the minimum threshold for retirement contributions, will be preserved. Care should be taken to ensure that the rewards provided for partial system contributions (a somewhat more generous retirement pension) do not outstrip the pension benefits received by households regularly contributing towards a retirement pension throughout their economically active years.

Although this paper has focused specifically on the case of retirement pensions, household financial welfare for retirees also depends upon adequate health and disability insurance coverage. In enacting pension reform for the independently employed sector, it may make sense to introduce a larger reform package that includes improvements in the provision of health and disability insurance as well. In this way, households could make one annual contribution towards social insurance (perhaps, with a single government subsidy) rather than several. Specific reforms to other types of social insurance and policies for integrating them with the provision of retirement pensions, however, are beyond the scope of this paper.

Fees

The commission costs for independently employed households could be subsidized on a progressive scale. In doing so, however, incentives should be provided for the AFPs to control costs and lower fees. The average current commission charged by an AFP is 30% of the annual retirement contribution, which greatly reduces the overall economic benefits provided by the system as a whole. Recent legislation has made some progress in reducing system costs, such as by discouraging frivolous fund transfers between AFPs, that have greatly increased sales and marketing costs over the past decade. Still, if the government is to be expected to subsidize AFP fees for the independently employed sector, these costs should reflect an efficient and competitive market for financial services. Since the government essentially sanctions and preserves the financial existence of the AFP system by making participation compulsory for most households, it should also take an active role in ensuring its efficiency. A partial or total subsidization of fees for the independently employed sector would provide added incentive for the government to fulfill this role.

As a specific reform measure, the government might agree to pay only a certain "estimated cost plus 10%" per independently employed worker who joins an AFP. Although further analyses are required to specify what this "estimated commission" would be, it is clear that a determination of whether current commissions reflect fair and efficient business practices would benefit all involved.

System Administration

Throughout the survey period, independently employed respondents manifested a widespread distrust of the AFP system. Some criticized the AFPs merely for charging exorbitant commissions and profiting handsomely from the toil of contributors. Others pointed to specific instances of corruption in which others, or they themselves, were the victims. While it was obviously not possible to verify these claims, as a general observation, the reputation of the AFP system will require an overhaul, before pension reforms take place.

While the next section indicates how this might be accomplished from a public relations standpoint, there should also be a legal mechanism for doing so. First, many respondents felt that even if they had a legitimate claim against an AFP, given their means to afford legal counsel, and tremendous economic clout of the AFPs, they would have little chance in winning a settlement. In announcing reforms, I believe that it would also be fruitful to declare *a period of declaration and review of purported past injustices committed by the AFPs. Proceedings could be handled by the Superintendent of AFPs.*

Areas to be investigated would include embezzlement of funds from individual retirement accounts, illegal transfers, overcharging of commissions etc. These examples of criminal behavior come from actual testimony provided by survey respondents. During this period, which could last up to one year, the State could provide legal assistance to plaintiffs, such as the reimbursement of some settlement costs, public legal representation and other incentives, to ensure that individuals have a right to fair representation. These proceedings would provide legal recourse to households who, for economic or other reasons, have been previously unable to pursue them. Of equal importance, it would send a very positive gesture towards the independently employed sector by the federal government, and would help clear the air before imposing a compulsory pension regime for independently employed households.

Liquidity Constraints

A significant portion of independently employed households indicated that they were unable to save for a retirement pension because they could not afford to lock up their money in a retirement savings account until age 65. This was especially true of small business owners, who require ample cash flow to conduct transactions and expand business operations.

In a related matter, in other studies it has been found that the independently employed sector often lacks access to credit markets[38] . This results from 1) An inability to demonstrate a steady income. 2) A lack of financial collateral. 3) An inability to maintain a sufficient portion of business income in a bank account (often required by banks as a condition for a loan, in addition to collateral, as a form of reciprocity)[39] . In turn the independently employed sector is often dissuaded from seeking credit for a variety of reasons: 1) Fear of maintaining debts. 2) Lack of confidence in the ability to obtain credit. 3) Insufficient documentation. 4) Inability to provide the proper collateral for credit approval. Survey respondents in the SRPAIS frequently cited difficulties in obtaining consumer credit, mortgage loans etc. due to the independent nature of their operations.

So that households are well prepared for retirement, it is crucial to ensure that a certain portion of assets are allocated specifically for retirement purposes. These funds must, therefore, be protected to a certain degree from discretionary spending prior to retirement. It may be possible, however, to improve the availability of credit to qualifying households through a variety of policy options. One idea would be *to allow for a limited portion of the AFP portfolio to be lent out for specific types of credit needs (e.g. home mortgages, educational loans), in the same way that a portion of the current funds are invested in stocks, bonds and mortgage backed securities.*

In this sense, the AFPs would perform a role of financial intermediation not adequately fulfilled by the banking sector. *Households would be eligible to receive credit only for certain purposes and according to strict criteron. The provision of credit and_amount to be borrowed should depend on factors such as 1) The use of the loan 2) The previous credit history of the household 3) The perceived ability of the household to continue contributing towards the individual retirement account(s) during the period of the loan and to eventually repay the loan in full. The funds would be repaid over a designated period at an interest rate established by the AFP and the borrower. If the borrower defaults on the initial loan, the terms could be*

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[38] Urmeneta, Roberto, and Uribe, Verónica; *Modelos de Intervención en Salud Para el Sector Informal de los Países del Area Andina.* Informe de Investigación para la OPS. PET. Santiago, Chile, Marzo, 1997.

[39] Mezzera, Jaime; Ed. *Crédito Informal: Acceso Al Sistema Financiero.* Santiago: OIT/PREALC, 1993.

restructured. The AFP, of course, would lose nothing, since households are essentially borrowing their own money in the first place.

Potential criticisms of this idea include that it may be too costly for the AFPs to offer banking services to private households, and that these type of activities may be too risky given the probabilities of credit default. A more complete discussion and analysis of these critiques is beyond the scope of this paper. Even if further research shows that such an option would not be feasible, however, there is a second possibility for reform.

The banking sector and the federal government, working together, should look for ways to increase the availability of credit to private households who typically lack access to such funds. A household's capacity to save on its own for retirement is likely to depend in part on its ability to secure credit for other purposes. Thus, the accessibility and affordability of private credit may be a key factor in ensuring the success of retirement pension reforms.

The reforms discussed in this section provide examples of measures that can be taken to improve the retirement welfare of the independently employed sector. Such reforms could potentially improve upon the present system by: 1) Expanding total coverage 2) Raising contribution levels 3) Enhancing incentives to contribute 4) Increasing social assistance provided to low income households 5) Increasing system efficiency and fairness 6) Easing the burdens imposed upon financially constrained independently employed households 7) Redressing past injustices committed by the AFPs and 8) improving their overall image among the independently employed sector. The final goal would be to promote retirement saving among middle income households with the capacity to save, and provide a subsidized retirement pension to low income households. These ideas have been enumerated here to provide an idea of specific areas requiring reform and the issues at stake, however the adoption of any particular measure would require a comprehensive cost-benefit analysis in relation to other policy options. In particular, the economic costs of policy enforcement and compliance, as well as government subsidization, must be carefully evaluated. To gain a better idea of their effectiveness, and the total costs involved, reforms could be adopted partially or applied gradually to different subgroups within the independently employed sector. This would also help facilitate a less disruptive transition period.

Regardless of whether actual future reforms are similar to the steps proposed here, it is certain that pension reform will require major changes in the manner in which the government, the AFPs and independently employed workers themselves approach the retirement preparation of this sector. To ensure a smooth transition to a new pension regime, therefore, an effort must be made to ensure that independently employed households understand both the significance and the benefits of such reforms. The political and economic path to reforms will be hastened if there is a well informed populace ready to receive them. The next section explores particular areas where information is lacking, and the means to combat misinformation and financial myopia.

3. **Financial Sophistication and Retirement Saving Behavior**

The explanations given for not contributing to an AFP were replete with examples of financial myopia (i.e. *Never thought of it; Not interested in saving; In good health*) as well as simple misinformation (i.e. *Lack of reliable information; Fund returns are uncertain; Too old to save*). Both financial myopia and misinformation can be combated if both the quantity and quality of information available to independently employed households are enhanced. This section explores specific problem areas and offers substantive reform proposals.

Financial myopia occurs when households are short-sighted and fail to perceive financial vulnerabilities that will effect them well into the future; in this case during old age. Given that the typical respondent provided more than one reason for not contributing to an AFP, it could be estimated that between one-third and one-half of this subgroup suffers to some degree from financial myopia.

At the furthest extreme were those who reported that they simply had never really thought of saving for retirement. Also affected, however, were those who believed that, due to good health, they would simply be able to continue working to support themselves indefinitely in old age and those who had contemplated retirement saving and simply decided it was unimportant. The latter two groups simply failed to acknowledge the reality that events well outside of their control are likely to determine until what age they will be able to remain active members of the labor force. They also were unaware of the importance of having a retirement nest egg in general (e.g. to cover health care costs for a spouse or meet other unexpected contingencies). The truth is that no one knows what the future holds and for that reason alone it is necessary to maintain some level of old age insurance, regardless of intended career plans.

Related to a simple lack of information is misinformation. For instance, a number of respondents indicated that they were hesitant to save for retirement within an AFP because the funds could have a negative return. This sort of response simply fails to take into account the relevant time frame for analyzing retirement saving performance. After all, the only point at which the total return on retirement assets matters is when they are ready to be withdrawn at retirement age. In looking at the longer term, it has already been mentioned that the AFP pension funds have exhibited an average return in excess of 11% annually since 1981. In all of that time, there has only been one calendar year that has actually featured a negative real return (1995). It is likely that with system maturation, overall real annual returns will eventually settle into the 3-6% range. Thus, there is little evidence at the present time that would indicate a threat to the long term viability of the AFP system in the provision of adequately funded retirement pensions. Hence, while there is a tradeoff between risk and return in the short run, given the asset allocation of the AFPs and careful state regulation, it is likely that the effects of this tradeoff virtually disappear in the long run. In this sense, the idea that the AFPs are too risky is not based on factual information and can be regarded as a misperception.

A second source of misinformation among survey respondents was the idea that he or she was too old to begin saving in an AFP (having not saved anything prior) when the system began in 1981. For one thing, not a single member of the sample was over the legal retirement age in 1981. Second, even if these individuals would not have been eligible to receive a retirement pension, they still would have earned a considerable return on assets invested within an AFP. In this way, they would at least have maintained a source of funds to be used in an emergency once the individual did reach the legal retirement age. Thus, the idea that these particular individuals were too old to save is simply a fallacy.

Finally, when asked why they had never considered saving for a retirement pension, numerous respondents cited a lack of accurate and readily understandable information at the crux of the problem. To gain a better measure of exactly what sort of information those surveyed had received, a set of seven questions were designed to measure respondent knowledge about the AFP system. Areas discussed included the annual return on pension fund assets, costs of transferring from one AFP to another, service fees charged by the AFPs, tax benefits, system administration, and guaranteed pension benefits. In general, respondents performed poorly on the AFP quiz, with nearly 50% of the sample failing to even hazard a guess to six of the seven questions. Selected results are presented in Table 8 and apply strictly to heads of household in the sample, below the legal retirement age[40].

Table 8

Independently Employed Worker Knowledge of AFP System

Average AFP System Fund Returns		Average Commission Costs (As % of Income)		Contribution Tax Exemption	
0%	8.1%	1%	8.8%		
4%	22.6%	3%	21.2%		
8%	11.4%	5%	13.1%	Yes	30.6%
12%	7.7%	7%	11.8%	No	24.9%
Don't Know	50.2%	Don't Know	45.1%	Don't Know	44.5%
Total	100.0%	Total	100.0%	Total	100.0%

Source: SRPAIS

For instance, respondents were asked to estimate the average real annual return on pension fund assets within the AFP system since its inception. Choices of 0%, 4%, 8% and 12% were provided. Over half of the subsample was unable to even provide a guess at the answer. Only 7.7% of this group picked the correct answer of 12%[41] while a much larger 30.6%

[40] It is assumed that the primary wage earner will make the financial decisions for the household and for this reason, the opinions of the head of household are used as a barometer for each household's financial knowledge.
[41] The average annual return of the AFP system was still above 12% at the time of the survey's administration.

estimated an annual return of 4% or less. A second survey question asked respondents to estimate the average commission charged by AFPs to system participants, as a percentage of taxable income. Choices of 1%, 3%, 5% and 7% were provided. Once again, nearly half of the subsample (45.1%) failed to even select one of the given choices. Just over one-fifth of the subsample identified the correct response of 3%, while an even greater proportion (24.9%) felt that the commission was 5% or more of taxable income.

In a third case, respondents were asked whether or not funds contributed toward a retirement pension were subject to income taxes, at the time of contribution. Less than one quarter of the subsample correctly noted that the funds are tax exempt at the time of contribution. Much larger groups of respondents (30.6%) felt that the funds were subject to an immediate income tax or confessed an inability to respond to the question (44.5%). This is particularly disturbing because one would expect that by random guessing alone, at least half of individuals would select the correct answer. Similar patterns emerged in responses to other survey questions measuring knowledge of the AFPs. The aforementioned results include those individuals who contribute regularly to an AFP. If this group were to be taken out, the remaining subsample would be even less informed.

The overall conclusion from the answers provided by respondents is that independently employed heads of household generally lack the information required to make informed decisions, one way or the other, about voluntary retirement saving within the AFP system. Previous research in this area by Insinga (1998)[42] and Bernheim (1996)[43] has shown that there is a powerful link between financial knowledge and saving behavior. In these studies, it was found that, even after controlling for outside variables[44], individuals possessing greater financial knowledge were likely to be saving a higher percentage of household income for retirement. In particular, those at the median were found to be saving roughly 50% more for retirement than the fifth of the sample with the lowest degree of financial knowledge. In both studies, it was also concluded that workplace retirement education programs provide an effective means for increasing financial literacy among those previously least inclined to save and, in this way, promote significantly higher levels of retirement saving. The results from these previous studies may hold promise for Chilean independently employed households as well. Although workplace financial education programs may not apply in this case, there are other policy alternatives that can enhance the financial awareness and knowledge of the independently employed sector.

First, the AFPs can enhance financial advisory services available to the independently employed sector. Independently employed households, in general, tend to view the AFP system as a quasi-governmental revenue collecting agency, rather than an independent provider of retirement investment services oriented towards its clients. In a sense, the propagation of this

[42] Insinga, op. cit.
[43] Bernheim, op. cit.
[44] These included age, education, income, proxies for underlying propensities to save, marital status, sex and the receipt of inheritances.

narrow viewpoint of the AFPs is the result of the very regulations designed to safeguard the system. Namely, that participation is compulsory for salary/wage earning employees and that returns are fairly uniform across AFPs (due to strict mandates on the portfolio composition of the pension funds). These features of the system do not promote an environment in which either the worker, or the AFP, develop a market for financial advisory services.

In the case of the salary/wage earning worker, he or she views most AFPs as providing a similar, if not identical product. Furthermore, since it is the employer who actually sends the contribution to the AFP each month, at a fixed level of 10% of income, the worker really bears little involvement in the process. Hence, he or she has to think little about retirement preparation, since the government, the employer and the AFP system have taken care of everything ahead of time. In fact, the AFPs themselves have been notorious for competing for client transfers based on gifts and other questionable fringe benefits that have little to do with real differences in pension fund yields or client related services. Since the salary/wage earning sector does not create a demand for financial advisory services, there is hence little supply generated by the AFPs, to the detriment of the smaller and more difficult to capture independent sector market. How can this be remedied?

Once reform has begun, independently employed households[45] *could be required to attend a seminar on retirement preparation prepared by the AFP Superintendent. The seminar should cover three topics in particular: A) The importance of adequate retirement preparation to household welfare. B) The specific characteristics of the reformed pension system. C) The availability of additional assistance in adapting to changes brought about by pension reform.* For instance, earlier, it was mentioned that households often do not keep careful track of monthly income, calling into question the viability of imposing compulsory annual contributions to a retirement pension. The importance and benefits of accurate financial record keeping should be encouraged throughout the reform process. Materials and information to this respect could be provided in state sponsored workshops geared towards specific employment categories. *Each household could then be assigned a financial advisor within their particular AFP who should meet at least once a year with his or her client(s) to review progress towards retirement saving objectives.*

The overall goals of these requirements are threefold. *1) To eliminate financial myopia within the independently employed sector.* In providing a frank discussion of the importance of retirement preparation, each independently employed household will at least be made aware of the importance of careful retirement planning. *2) To assist households in making specific changes in behavior necessitated by pension reforms.* The success of pension reform will likely require a set of behavioral changes that will influence cultural as well as economic values. In addition to promoting a "culture of retirement saving", mechanisms must also be created to aid households in financial planning. *3) To encourage greater interest in retirement preparation*

[45] This seminar should be attended even by those who receive an exemption for retirement pension contributions, since these households should also be made aware of pension system characteristics. The subsequent meeting with an AFP advisor would not apply to this group during years in which an exemption has been received.

and higher contribution levels. Through compulsory annual meetings with their AFP financial advisor, independently employed households will sense that they are taking a more active role in their future economic welfare. They will also have a more detailed explanation of their progress towards a retirement pension, than is available on a monthly statement. Furthermore, the institution of these meetings should provide a forum to voice concerns, educate households on retirement issues, and engender greater trust between the contributor and his or her AFP. The combination of these factors should also help to reduce evasion in the declaration of income and lead to higher retirement contributions.

Another set of reforms should focus on educating the general population as to the importance of retirement saving (as well as other financial topics, such as health insurance and personal finances). In fact the AFP Association and the AFP Superintendent have collaborated on a pilot program in Chile's sixth region that has introduced materials on social security into public school curriculums[46]. *Appropriate for students at the high school level, coverage of these topics could be expanded throughout the country to provide an early familiarity with issues pertaining to social security.*

At the national level, there is also ample room for a greater government role in the provision of retirement information. Up until now, the independently employed sector, due to a lack of organization and political influence, as well as myopia, disinterest, and an inability to save, has not clamored for the national government to take much notice of retirement issues affecting them. As a natural result, Chilean politicians and government bureaucrats have also faced less of an incentive to delve into such areas. This has been an unfortunate occurrence and has led to the postponement of pension reform for the independent sector, placing thousands of elderly households in financial jeopardy. A more constructive approach is needed. To pave the way for pension reform enactment, the government should provide greater publicity for retirement issues facing the independently employed sector. *1) The reforms being sought should be announced publicly. 2) The press could be encouraged to provide coverage, interviews and analysis to generate public interest and debate on retirement issues and reform policies. 3) The interests and concerns of the independently employed sector should be dealt with in an open and forthright manner. Such dialogue could take place in the form of a televised town hall meeting, a national survey, an information letter sent to businesses and households soliciting suggestions etc.*

In this section, it was found that many independently employed households lack the information necessary to make informed decisions regarding retirement preparation within the AFP system. Even if a reform plan is to require compulsory enrollment in a pension regime, it is still important for participants to be educated as to the importance of retirement preparation. They should also have a basic understanding of how the system operates, their legal recourse in the event of a dispute, their own progress towards a retirement pension and the penalties for

[46] *II Congreso Iberoamericano: Sistemas de Fondos de Pensiones*; Asociación Gremial de Administradoras de Fondos de Pensiones (AGAFP), Mayo 1996.

evading contributions. Retirement education is important both for building public support for reforms as well as compliance once the reforms are in place. Although opinions may not change overnight, public education programs in countries like Japan (during the post-World War II period) have been shown to have a profound impact on cultural perceptions of the importance of saving.

Conclusions

In this paper, it has been found that a significant portion of the independently employed sector is approaching retirement age with only a small fraction of the pension savings required to meet its needs during old age. Even if non-pension assets are included in the calculation of retirement benefits, the unfortunate reality is that an estimated three-fourths of independently employed households will have to continue working to support themselves well beyond the legal retirement age. This estimate is likely to be optimistic given that not all non-pension wealth may be available during retirement.

The government of Chile has gone to great lengths to establish an economically sound privatized pension system that provides compulsory retirement coverage for the salary/wage earning sector. Significant costs have been incurred in the establishment of the system, payment of compensation bonds during the transition period, and continuous regulation of the system. Due to myopia, insufficient information and economic constraints, the benefits of the system are, for the most part, not reaching the independently employed sector at this time. While this lack of participation is voluntary, it is to the long run detriment of all independently employed households. It is clear that, for all sectors of the economy, government intervention in the area of social security is both just, and necessary, to safeguard the financial future of today's workers. Up until now, the future retirement preparation of the independently employed sector has, for the most part, been neglected, while that of the salary/wage earning sector appears brighter than ever.

In concluding this paper, it will be useful to review a few key characteristics that render the independently employed sector in a more vulnerable position than that of the salary/wage earning sector. These factors make their future financial status even more precarious than has been discussed previously, and highlight the urgency of pension reform for these households. First, to support themselves and their families, independently employed households tend to work far longer hours than those in the salary/wage earning sector. Table 9 provides quartile estimates for the number of hours worked per week by gardeners, kiosk owners and small grocers in the SRPAIS survey.

Table 9
Length of Independent Sector Work Week

	Occupation		
Percentile	Gardeners	Kiosk Owners	Small Grocers
25th	42	70	72
50th	48	84	84
75th	60	100	98

Source: SRPAIS

From the survey data, it is clear that independently employed households often work, out of necessity, much longer hours to support themselves and their families than do households in the salary/ wage earning sector. Thus, when they arrive at old age, the physical requirements for maintaining such a stiff regimen are likely to be much higher than for those households in the salary/wage earning sector.

Despite the hard work and long hours they put in, the independent sector receives no automatic benefits of health insurance, old age insurance, disability insurance, survivor's insurance, minimum wages, sick leave, vacation time, unemployment insurance/severance pay or overtime pay. In all of these areas, independently employed households have been left to fend for themselves, with often times tragic consequences.

This paper has proposed a number of reform measures that will help improve the fate of the independent sector in one particular area: *Retirement Preparation*. Significant advances in nutrition, sanitation and medical prevention and treatment during the past century have greatly increased life expectancies. Today, Chilean men at age 65 can expect to live an average of 15.2 more years, while, in the same context, women face an average life expectancy of 18.4 years[47]. For Chile, and many other countries around the world facing similar issues, the question now is not whether reforms should be put in place, but when. Although for policy makers the cost of postponing reforms may be minimal, for the independently employed sector, the economic and human welfare costs are enormous.

[47] CELADE Demographic Bulletin; *Latin American Life Expectancy Tables*; Vol. 31, No. 61, January 1998.

Appendix A

This appendix provides detailed information on the methodology, scope, representativeness and reliability of the SRPAIS survey.

(a) Survey Methodology

The SRPAIS survey sampled three specific groups of independently employed workers: *Gardeners, Small Grocers and Kiosk Operators*. These particular groups were chosen both for their relative accessibility and their representativeness of distinct classes of independently employed workers. As was discussed in Part I, the goal was to study middle income households that are likely to be able to afford to save for retirement, but may or may not be doing so in practice. In a rough comparison of survey income data for these three occupational groups, it could be said that small grocers represent the upper middle income level of the labor force, kiosk operators the middle income level and gardeners the lower middle income level. Naturally, some exceptions do exist, however, they should contribute to, rather than interfere with, the goal of being able to compare behavior across a wide variety of income groups. Also, there is a dispersion in the level of occupational formality exhibited by the three groups. Occupational formality, in this sense, is based on factors such as technical sophistication, number of employees, invested capital, and the level of government knowledge and regulation of business operations. In general, grocers, operating at a fixed location, with the greatest amount of invested capital and financial planning experience, represent a higher degree of formality. Gardeners, on the other hand, operating in an ambulatory environment, with little fixed capital investment, and relatively low levels of financial planning, are in a less formal and more precarious labor environment.

Furthermore, surveys were conducted in diverse communities of Santiago to ensure that an element of geographic variation could be incorporated into the study. In the case of small grocers and kiosk operators, sampling occurred in the districts of Las Condes, Providencia and La Florida. The populations inhabiting these districts can be roughly summarized as upper class/upper middle income (Las Condes), upper middle income/middle income (Providencia) and middle income/lower middle income (La Florida). Since private gardeners were predominantly employed in wealthier neighborhoods, Vitacura, an upper class district, was substituted for La Florida in the sampling of gardeners. In all cases, individuals interviewed earned at least two-thirds of their taxable income from independent employment (and thus would categorize themselves as independent and not salary/wage earning employees). Also, individuals interviewed worked full time and, under the strict definition of being independently employed, were not legally obligated to contribute towards a retirement pension[48]. Finally, those surveyed were considered to be at least medium term members of the labor force. That is

[48] This is an important distinction because there are some individuals who actually earn a wage or salary who are not contributing towards a retirement pension because their employer has evaded the monthly contributions. Although these workers essentially function like independently employed workers in this sense, their incomes do not exhibit the same fluctuations and they are not legally classified as independently employed.

to say, a student working a summer job, or someone filling in at a kiosk as a substitute for a friend on vacation were not surveyed.

(b) Survey Scope

Having reviewed the basic attributes of the survey, a logical question to be asked is: "To what groups can survey results be directly applied?"

As noted earlier, equal numbers of workers (120) were sampled from each occupational category. Furthermore, within each district of Santiago these subsamples are representative. Through information from the departments of Commercial Patents of the Municipalities of Las Condes, Providencia, and La Florida, it was possible to sample a proportional number of kiosks in each district and also sample representatively based on areas of high commercial transit and more residential zones. Similar techniques were employed in sampling small grocers proportionally by district[49]. In the case of grocers, it was not necessary to correct for levels of commercial transit since their income level is more a function of the size of the firm and level of stock, than geographic location[50]. For independently employed gardeners, no such information on location is available and sampling took place in a variety of middle and upper middle income residential neighborhoods where the property size and wage for gardeners could be expected to vary. The distribution of sampling is summarized in Box 5.

Box 5
Sample Distribution of Households Surveyed By District

Occupation	District	Sample Size	Representativeness
(1) Small Grocers	Las Condes	29	(1) Distributed Proportionally By
	Providencia	24	District.
	La Florida	67	Total = 120 households.
(2) Kiosks	Las Condes	39	(2) Distributed Proportionally By
	Providencia	40	District and Transit Level.
	La Florida	41	Total = 120 households.
(3) Gardeners	Las Condes	50	(3) Sampled In A Variety of
	Providencia	20	Residential Zones.
	Vitacura	50	Total = 120 households

Source: SRPAIS.

[49] Information on the distribution of small grocers by district was graciously provided by a source from the Soprole Corporation ®.
[50] In contrast, because they are state sanctioned and regulated, kiosks are far more uniform in their size and stock of goods and income levels are more a function of location.

In summary, although not explicitly designed to be statistically representative of the country as a whole, the survey was intended to be representative within the particular districts of Santiago in which sampling took place, with the aim of highlighting basic trends and characteristics of the entire independently employed sector.

(c) Survey Reliability and Representativeness

Even if the methodology and scope of a survey are known, it is still important to evaluate the reliability and representativeness of responses by comparing them to known benchmarks.

In terms of the reliability of responses, the survey methodology holds several key advantages over other types of household surveys. First, interviews were conducted in person, at the workplace of the respondent. This interview style aids the surveyor in establishing trust and confidence among respondents. It also allows for greater interaction and flexibility in tailoring the interview to particular circumstances, than in the case of a phone interview or mail-in survey. Second, in providing a carefully worded 60 second introduction to the survey, it was strongly emphasized that the results would be "anonymous and form the basis for research towards a doctoral degree in Economics". A significant number of respondents explicitly stated their normal policy of refusal to participate in such surveys, but since the results would help the surveyor achieve his educational goals, they would be happy to grant an interview. Such generosity would be far less likely if the survey had been conducted by an AFP or Chilean government official.

Third, the survey was administered by a United States citizen rather than a native Chilean. This immediately lent a certain novelty to the interview, since it is not every day that someone from another continent comes over to chat. For many respondents, this opportunity provoked a sense of national pride and hospitality, characteristic of Chileans that also fostered higher participation rates and enhanced the quality of responses. Fourth, independently employed workers are somewhat marginalized as members of the population. Some work alone all day without anyone to talk to beyond the customary greetings, while others simply feel that they do not have much of a voice in society and government policies the way that workers organized in labor unions might. Thus, there was a genuine interest in voicing opinions and commenting on issues relating to retirement and the AFP pension system, because the survey provided perhaps a unique forum to do so.

Finally, employing a survey methodology adapted from professional surveys of household finances conducted in the United States, the survey was designed to put the respondent at ease in answering fairly invasive questions. Straight forward questions (e.g. number of family members, spousal occupation and educational attainment) and opinionated questions (e.g. "Why are you not contributing to an AFP?" or "Do you think that your children will support you in retirement?") were placed at the start of the survey. This gave the respondent a chance to put him/herself at ease with the interviewer, get into the habit of answering questions and become interested in the topics being discussed. The most invasive questions on income and wealth were postponed until the very end of the survey after a considerable build up. In many respects, in its final form, the interview more greatly resembled a lively conversation between neighbors than a formal interrogation, and the most sensitive questions slipped into the dialogue quite naturally.[51]

In general, survey response rates were very high. Of those solicited, 89% of kiosk operators, 84% of small grocers and 75% of gardeners[52] agreed to participate in the interview. There was a 100% response rate to questions on respondent and household income. There was also a 100% response rate to all questions on household wealth except for that soliciting the value of the respondent's primary residence (96.4%) and business value (99.4%)[53], in which some individuals were unsure of a reasonable approximation. Although the level of responses received and the perceived frankness of the responses provide some assurance of the quality of the data, a comparison with known benchmarks from national surveys is necessary to determine where the data lie within the overall distribution of the population.

Table 10 compares the survey data with benchmark statistics taken from the 1996 CASEN survey, which gathered data on roughly 130.000 Chileans and is considered to be representative of the national population. The CASEN data presented below includes only non-professional independently employed workers[54] who are self-employed or employers. This group represents approximately 75% of the total independently employed population and 80% of all self-employed workers and employers. The distinction has been made for two reasons. First, none of the individuals sampled in the SRPAIS were professionals or non-remunerated employees. Second, the group of independently employed workers classified as professionals have substantially higher household incomes and greater educational attainment than non-professionals. They, for the most part, belong to the upper income levels of society. As was outlined in part I, the retirement preparation of upper income groups is not deemed to be at risk and for this reason, the SRPAIS has been confined to households most likely to belong to the middle income group. Even after winnowing out professionals and non-remunerated employees, the remaining group of non-professional independently employed workers (approximately 1.000.000 in total) represents nearly 20% of the total workforce.

Table 10

Comparison Of Survey With Known Benchmarks

[51] This rather detailed accounting of the interview framework has been elaborated here because many Chilean academics, and economists in particular, inexperienced in field surveys, expressed considerable skepticism as to the viability of conducting such interviews. Although valid under other circumstances, in light of the aforementioned characteristics unique to this survey and practical experience in this area (corroborated by high participation rates, high response rates and correspondence with benchmark comparisons), this skepticism proved to be unfounded.

[52] The figure for gardeners is somewhat lower because the interview could often times not be conducted while the gardener worked. For this reason, some gardeners in a hurry to finish a job were unable to participate. In contrast, grocers and kiosk operators, due to the more relaxed nature of their work, had more time to give to interviews.

[53] In only 2% of interviews conducted did respondents exhibit even anxietal hesitation in providing information on personal finances. In these cases, I reiterated the purpose of the study, and the use of the data and as the figures show, in all cases the individual later provided, what was deemed to be a realistic figure for income or wealth.

[54] The professionals omitted fall under Occupation codes 0, 1, and 2 of the International Labor Office classification of employment.

CASEN (1996)		SRPAIS
Variable	Survey Statistics	Survey Statistics
Age		
20-30	18.5%	8.6%
31-40	27.4%	23.1%
41-50	26.0%	26.3%
51-60	18.0%	30.9%
61-70	10.1%	11.1%
Education (Last Level Completed)		
Elementary	47.0%	48.8%
High School	45.4%	43.9%
University	7.6%	7.3%
Annual Household Income (in $U.S.)		
25th Percentile	$5,100	$5,400
50th Percentile	$8,760	$8,400
75th Percentile	$14,400	$14,640
Pension Contributions		
AFP	16.2%	16.1%
INP	5.4%	8.6%
Not Contributing	78.4%	75.3%

Source: Author's Calculations and CASEN (1996)

Previous research by Bernheim[55] and Insinga[56] has shown that age, educational attainment, household income, and pension contribution rates are key variables in studying household retirement preparation. In general, the data collected in the SRPAIS is remarkably similar to that in the CASEN. One notable discrepancy exists for the variable age, however, in which there was a significant undersampling of individuals aged 21 to 30 and oversampling of individuals aged 51 to 60. A main reason for this result is that in the SRPAIS, individuals interviewed were typically the owner of the grocery store or kiosk (who would be most able to provide financial information on household finances). Nevertheless there were frequently two, or even three, generations of a single family working at these establishments. It is important to remember that not all family members working within a business are non-remunerated, yet since

[55] Bernheim, B. Douglas and Garrett, Daniel, *"The Determinants and Consequences of Financial Education In the Workplace: Evidence From A Survey of Households"* mimeo. Stanford University, 1996.

[56] Insinga, Ralph P., *"Financial Education In the Workplace and Household Savings For Retirement: An Evaluation of A Pre-emptive Strike At Financial Vulnerability"*, Stanford Journal Of Economics, Spring 1998.

many receive a wage or salary from a parent, aunt, or uncle, many do not legally make pension contributions either.

It is this group of workers, who are in their twenties and often still live at home within a nuclear family, that were omitted from the SRPAIS sample. It is interesting to note that it is precisely the age group of their parents (in the 51 to 60 year old group) that has a virtually identical oversampling. The statistics on household income seem to back up this hypothesis because, if the younger workers were treated as separate households, one would expect that the SRPAIS would overestimate household income (since the 51 to 60 year old cohort earns roughly twice as much as the 21 to 30 year old cohort). The fact that this does not occur in practice supports the hypothesis that the younger workers are part of a nuclear family, whose household income is measured as a single unit. Since the idea of the SRPAIS survey was to gain a total household measure of retirement preparation, these differences do not seem to pose a problem for statistical analyses of household data. Finally, it could be argued that the survey lacks occupational and regional diversity and therefore makes a poor tool for analysis. The SRPAIS data does provide a good fit with the other benchmark statistics on education, income and pension contribution rates, lending credibility to its accuracy. From the benchmark statistics, it is not entirely clear how, if it all, adding such occupational and regional diversity to the sample would affect results. While such a fine tuning procedure would not be undesirable, it is likely that other factors such as those analyzed in the benchmark comparisons are more telling indicators of retirement saving behavior[57].

Thus, while data biases undoubtedly exist[58], their overall effects on the sample appear to be minor after a comparison with known benchmarks.

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[57] Indeed, other studies of household savings behavior (e.g. Bernheim) have not included occupational dummies among the explanatory variables in regression analyses, opting instead to rely on data deemed to be representative of the population with respect to other variables.

[58] Before conducting the survey, the author of this paper was understandably concerned about the truthfulness of responses to questions regarding income and wealth. After consulting with an expert on economic field surveys, however, it was determined that biases (i.e. overstating or understating one's true income or wealth) even where they do exist, do not follow a standard pattern (are indeed unbiased). According to Roberto Urmeneta of the PET (Institute For Labor Economics), typically there is a roughly equal level of both types of bias, with some individuals, fearing reprisal from government authorities, understating income, while others, out of personal pride, making overstatements. The net effect on results reported from the data, even if it could be predicted beforehand, was deemed to be relatively minor. As was discussed previously, in light of the particular circumstances governing the administration of this survey, these effects are likely to be further minimized.

Appendix B

Calculation of Compensation Bond

Individuals who switched from the AFP to the INP pension system prior to 1982 are entitled to receive a compensation bond compensating them for their contributions to the old pension regime. This bond earns a 4% real return (after adjustments for inflation) until the individual reaches retirement age, at which point the bond's value is added to the balance of the individual retirement account. If individuals switched pension systems during or after 1982, they are entitled to receive compensation for their contributions to the old pension system that are adjusted for inflation, but that do not earn a real return over time. Assuming that the individual made regular contributions towards a pension for the 12 months prior to June of 1979, the formula for the calculation of the bond is as follows:

Nominal Value of Bond = [Sum of 12 Declared Incomes prior to June 1979 * (.80) * Gender Adjustment Factor * Age Increment * (Years Contributed / 35) *Inflation Factor] + Employer Compensation

- where the gender adjustment factor is 10.35 for men and 11.36 for women.
- where the age factor did not figure into calculations in practice (due to the relatively young age of the sample in 1979)..
- where the inflation factor is simply (CPI at age 65/ CPI of June 1979).
- where the employer compensation was estimated at 5% of the total bond value for those employed in the salary/wage earning sector in 1979.

Real Value of Bond = Nominal Value of Bond * $(1.04)^n$

where n = Year of Retirement - 1981

To calculate the bond's value, it was necessary to estimate each individual's earnings from employment during 1979. Using information on real wage growth in Chile, estimated returns to experience for self employed workers, employers, and salary/wage earners, and an earnings adjustment factor switches made between the salary/wage earning sector and the independent sector, it was possible to calculate an estimated wage for each individual during 1979. Four distinct scenarios emerge:

(1) If the individual worked in the salary/wage earning sector in 1998 (for spouses only), and worked in the same sector in 1979, a 1979 wage was calculated and used as a reference for calculating the compensation bond. If he or she worked in the

independently employed sector in 1979, the individual was considered ineligible to receive a compensation bond.

(2) If the individual was independently employed in 1998, and he or she was contributing towards a pension regularly in 1998, it was assumed that he or she contributed at the same relative level, based on earnings in 1979. The bond, in this case is based on the estimated declared income that would have resulted, after adjustments, in 1979.

(3) If the individual was independently employed, but not contributing towards a pension in 1998, and was independently employed from 1975-1979, the individual was considered ineligible for a compensation bond.

(4) If the individual was independently employed, not contributing to a pension in 1998, and worked as a salary/wage earning employee for at least 12 months during the 1975-79 period, he or she was credited as declaring the income earned in the salary/wage earning sector in calculating the bond's value.

Computed Coefficients for Years of Experience, Real Wage Growth and Sector Switches were calculated using information from the CASEN 1996 survey, the National Statistics Bureau of Chile, the International Monetary Fund's *International Financial Statistics*, and *Historical Statistics of Chile: Demography and Labor Force* by Markos J. Mamalakis.

Further information is available from the author by request.

Appendix C

Calculation of INP Pension

Individuals in the sample choosing to remain within the old pension system (INP) may be entitled to receive a retirement pension when they reach age 65. The rules on pension eligibility vary depending upon the particular pension regime (based on different employment categories) to which the worker belongs. In all cases, however, an individual's pension is based upon a calculation making use of the respondent's declared income during the final 5-10 years of contributions to the pension system. The vast majority of independently employed workers belong to the SSS (Social Security Service) and it was the regulations of this particular system that were employed in the calculations. These criteria can be summarized as follows:

(1) In the SSS system, men must contribute a minimum of 1,040 weeks to be eligible for a pension, and women at least 520 weeks.
(2) If an individual meets these requirements, but did not contribute during his or her final 5 years prior to retirement age (age 65 for men, 60 for women) he or she is only eligible to receive the minimum pension ($120/month).
(3) To receive a fully funded pension (a 70% replacement rate for income), both men and women must contribute 1,500 weeks to the system.
(4) The income replacement rate is discounted by 1 percentage point according to the following formula **[(1,500 - # weeks contributed) / 50]**. Thus an individual contributing for only 1.000 weeks would receive a 60% replacement rate of income.

Using this information, it was possible to estimate the value of old age pensions likely to be received by each respondent according to the following scenarios:

(a) If the respondent was contributing regularly to the system, it was assumed that he or she would receive a fully funded pension based on 70 percent of the income currently declared. This implicitly assumes that the individual will continue contributing until 29 years of contributions have been made and that contribution levels will rise in proportion to increases in real income in the case of those contributing above the minimum level.
(b) For those contributing regularly at the minimum level it was assumed that the minimum contribution level would also rise in proportion to real wages. Pension estimates were made using 70% of the minimum declarable income.
(c) For those who would not achieve a fully funded pension, an estimate was made, based upon years in the salary/wage earning sector (where contribution were compulsory) and the date on which the individual stopped contributing regularly towards a pension (once in the independent sector). In most cases, individuals were eligible for a minimum pension only.

Once these calculations were made, the INP pension was added in, as a percentage of total household income earned from employment, in calculating the likely replacement for income based on each household's total retirement wealth. A complete listing of calculations is available from the author upon request.

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