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ECONOMIC RISKS, THE LABOUR MARKET, AND OLDER WORKERS IN LATIN AMERICA

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ABSTRACT

This paper examines the economic status and labour supply of older workers in Chile. It examines the extent to which the labour market is an important source of economic risk diversification for older workers and their households, and the influence of alternative sources: the family, social security, and accumulated assets. The main findings are firstly that there are important differences by age and sex in the extent to which the labour market performs this insurance function. Secondly, that self-employment is important among older workers, it extends labour market attachment, and constitutes a distinct transition path for older workers. And thirdly that household size and structure, and social security institutions are key determinants of older workers' labour market participation.

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INTRODUCTION

The labour market is the main source of income for the majority of households, and it is also a key source of diversification of economic risks. Employment in the covered sector of the labour market provides workers and their households with insurance cover against a wide range of contingencies including unemployment, sickness, and disability or death. Search for paid employment by hitherto inactive household members is a frequently observed response to worsening economic conditions by poor households. In addition to the labour market, the household, social security, and accumulated assets are also important sources of economic risk diversification. Behavioural responses to changes in the availability or effectiveness of these sources of economic diversification suggest trade-offs within a household's economic risk insurance portfolio.[1] Labour market exit for older workers typically involves a rebalancing of their economic risk insurance portfolio. This paper analyses the labour supply of older workers in Chile with the aim of throwing light on this process.

Economic conditions and structural reforms have produced large scale changes in Latin American labour markets in the last two decades. The 1980s economic crisis particularly affected labour markets, with rising unemployment, fall in real wages, and employment restructuring. In the 1990s, de facto labour market liberalisation aimed to facilitate these changes and adapt human resource management practices to new economic conditions. Social security reform has also played an important part in reducing labour costs and encouraging greater flexibility in employment relationships. A number of studies have evaluated these changes in the region, and their implications for the economy and society as a whole (Edwards and Lustig 1977; Márquez 1995; Lora and Pagés 1997). Older workers as a group have not received sufficient attention, since the literature targets prime age workers, and especially younger workers and women. The paper hopes to make a contribution to fill in this gap. Chile provides an excellent ground on which to examine the role of the labour market in economic risk diversification, and its findings should extend to other Latin American countries and elsewhere. Chile

underwent structural adjustment earlier than other Latin American countries, and therefore the impact of the 1980s reforms can be observed more clearly. Also, labour market and social security reforms were of a more fundamental nature than elsewhere in the region.[2]

The structural changes in the Latin American economies have altered the sources and opportunities for household's economic risk diversification. The household has traditionally provided an important source of economic risk diversification, but longer term changes to the family structure have accelerated in the last two decades leading to declining fertility rates and smaller family units (ECLAC 1995; IADB 1998). The expansion of both population and contingency coverage in the 1960s and 1970s, raised the importance of social security in providing social insurance, but recent social security reform has focused on transferring responsibility and choice to individuals, and enhancing private provision (World Bank 1994; Barrientos 1998). A key outcome is a reduction in the insurance provided against economic risks. The labour market will therefore need to assume greater importance, especially as asset accumulation is, for the great majority of the population in Latin America, principally dependent on labour market outcomes. The study of older workers' labour supply will help address two specific issues: the extent to which labour markets facilitate older workers' economic risk diversification; and the extent to which social security, and social security reform, influences work incentives for older workers.

The paper is organised as follows. The next section examines the economic status of older persons. The section that follows looks at the labour supply of older workers, it also identifies patterns of withdrawal from the labour market, and the impact of labour market conditions and social security affiliation. Another section reports on the estimation of a sequential model of labour force participation and earnings. A final section discusses the key findings and concludes.

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[1] These are commonplace in the labour market and social protection literature, but see especially recent papers by Cox and Jimenez (Cox and Jimenez 1992; Cox and Jimenez 1998).
[2] The paper uses household survey data from Chile, from the Survey *Caracterización Socio-Económica Nacional* (CASEN) carried out in November 1994. This is a nationwide survey collected by the *Ministerio de Desarrollo y Cooperación* (Mideplan) for the purpose of evaluating the impact of social programs. I am very grateful to Mideplan for allowing access to data from CASEN 94.

THE ECONOMIC STATUS OF OLDER PERSONS

This section outlines and discusses the economic status of older workers, and underlines the importance of the labour market to the economic risk diversification of older workers. It begins by examining the self-reported economic status of older workers, and later compares self-reported and objective measures of economic activity.

In considering self-reported economic status, it is useful to focus on a small number of categories, defined around the relationship of older workers with the labour market. The *Active* group includes the employed plus the ILO unemployed (that is those who are not in a job, but are actively seeking one). The inactive group can be usefully subdivided into four distinct categories. The *Retired* group includes those who are self-reported as such, and it is important to note that this group does not overlap exactly with those who are receiving some form of pension benefit (the latter are discussed below). The *Home Responsibility* group includes those who are inactive because of their household or childcare responsibilities.[3] The *Chronic illness/disability* category is self-explanatory. The *Other* group includes rentiers, students, discouraged workers, and those with sporadic employment.

Figure 1 shows the shares of these categories within each age group that. The trend lines become less reliable at later ages due to the small numbers in these age groups. Overall some interesting trends are apparent. The *Active* group declines more or less steadily as a proportion of each age group from age 55 onwards, but an important number of older workers remain active until very late ages. The *Retired* group, as expected, grows during the 'normal' retirement window of 60 to 65, but both 'early' and 'late' retirement are significant.[4] The figure roughly shows that the *Active* and *Retired* categories account for just over 50 percent of each age group, and suggests that a conventional transition path from labour market activity to retirement applies to just one half of the population sampled.[5] The share of the *Chronic illness/disability* group remains steady initially, but increases at later ages. The *Home responsibility* category declines steadily over the entire age range.

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[3] Not a single male respondent gave either of these as the reason for their inactivity, and therefore this group includes only women.
[4] The issue of retirement is explored in more detail in Barrientos (1999).

Figure 1. Self-reported economic status of older persons by age
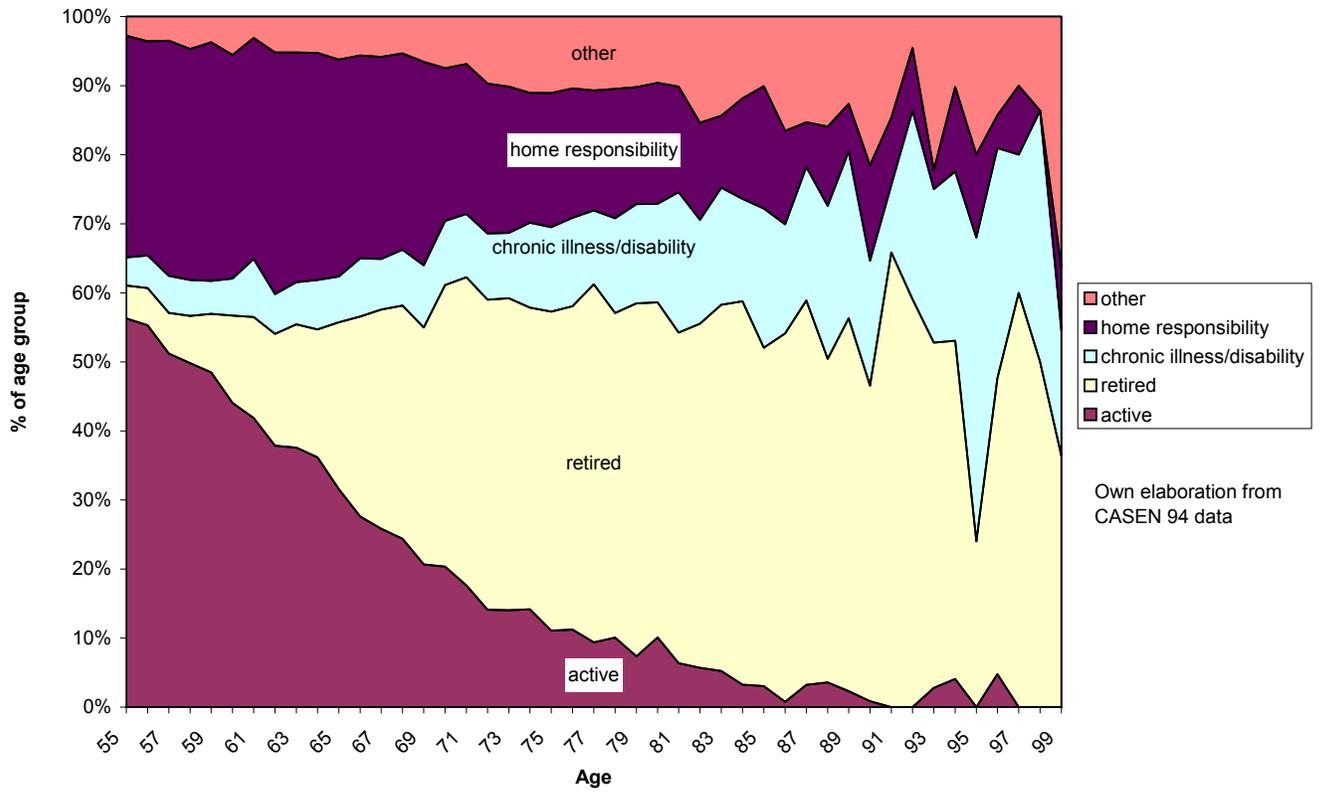
Own elaboration from
CASEN 94 data

Figure 2. Self-reported economic status of males

Own elaboration
CASEN 94 data.
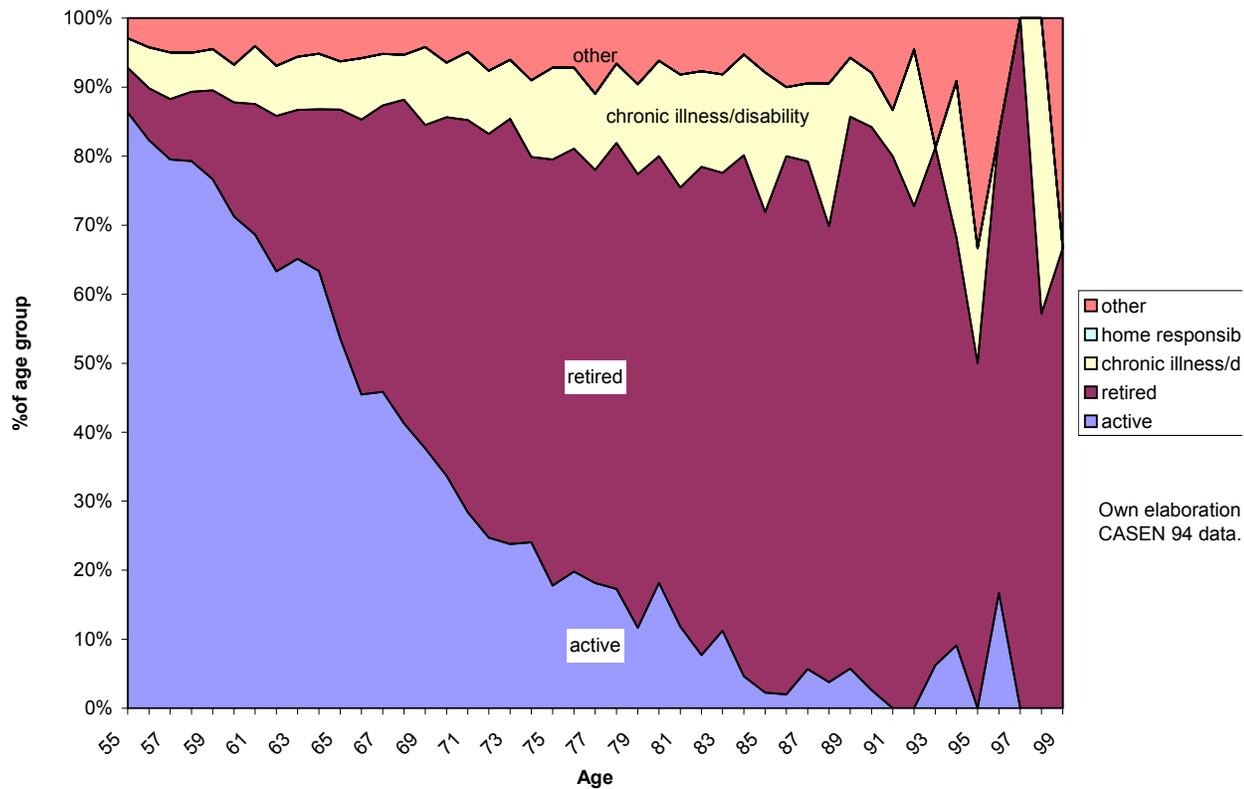
Figure 3. Self-reported economic status of females

Own elaboration
CASEN 94 data
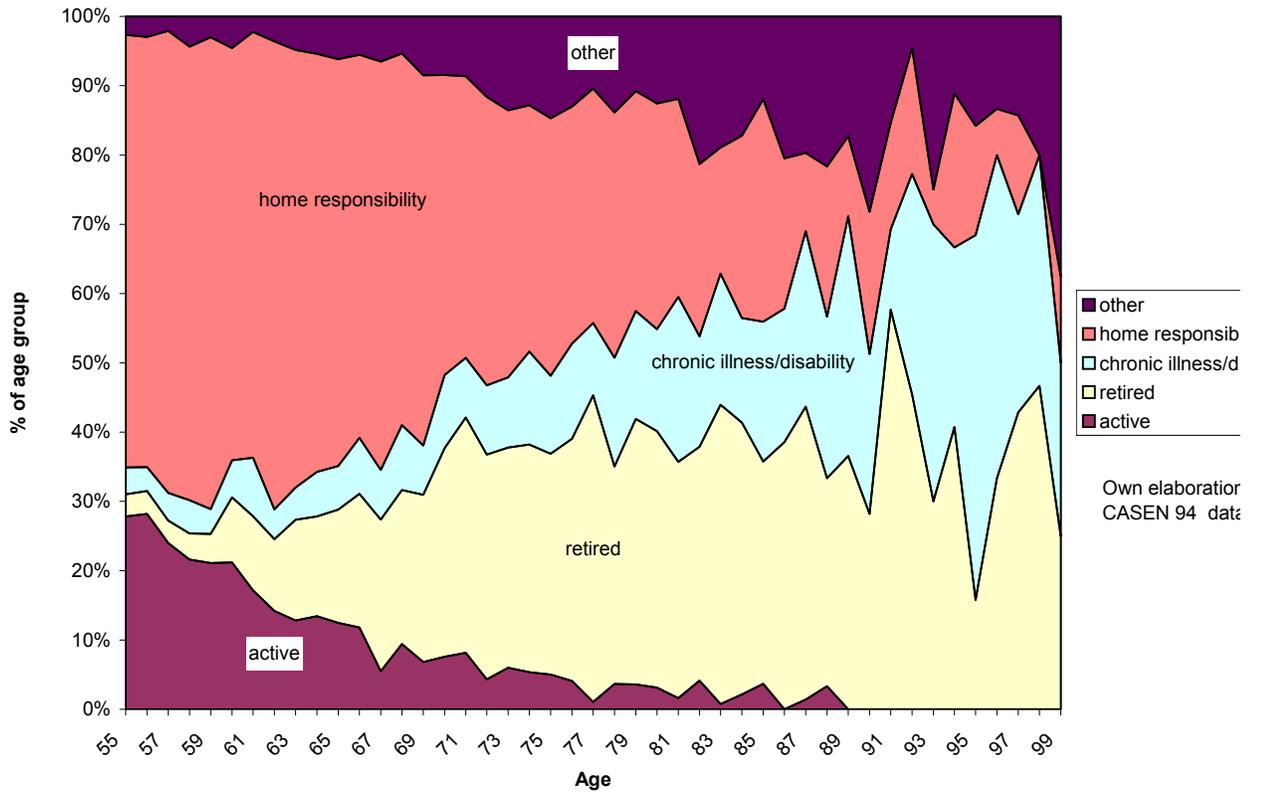
There are important differences in the self-reported economic status of older persons by sex. Figures 2 and 3 show the self-reported economic status of males and females respectively. When only males are examined, it is apparent that activity and retirement are by far the larger categories. They account for about 80 percent of the sample. For men, the conventional transition path from labour market activity to retirement can be observed, as there is a step decline in the share of the *Active* category at age 65, and a corresponding rise in the Retired category. Disability is not an important category among males, although a small rise occurs from age 70 onwards.

When only females are considered, activity and retirement are not as important. *Home responsibility* is the dominant category at earlier ages, but it declines for later age groups. *Retired* and *Chronic illness/disability* are the largest categories at later ages, with the latter category steadily rising as a share of age groups from age 70 onwards.

The differences in self-reported economic status for males and females reflect, to an important extent, their different labour market experiences. High activity rates for males raise the likelihood of a transition to retirement at a later age. Low activity rates for females, and the associated household division of labour, close this transition route for them. Given the low activity rates of older females, retirement is, for a large number of them, a status arising indirectly via entitlements of spouses. This is suggested by the fact that the share of the *Retired* category rises for women after age 69.

The sex differences in the share of *Chronic illness/disability* category are interesting and difficult to account for. One possible explanation is that, compared to females, older males with disability are more likely to be pensioned. Another, less likely, explanation points to possible differential morbidity and mortality rates by sex not captured in cross-sectional data. The sex differences in morbidity and disability appear to be overstated in the self-reported data, which underlines issues surrounding the social construction of economic status. The *Home responsibility* category is largest for the younger age groups of women. This is a category which does not have a clearly defined transition route, certainly not as clearly defined as retirement for active men. For the female sample there are two main transition paths suggested by the data, from home responsibility to retirement, and from home responsibility to disability. The former is more important

earlier on, with the latter more important later on. It is also an issue whether the size of the *Chronic illness/disability* group among women is at all influenced by non-contributory benefit entitlement regulations. In any case, the self-reported economic status of older males and older females show important differences.

Self-reported economic status may differ from objective measures of activity and inactivity constructed from other response data. It is possible to cross-tabulate self-reported economic status with receipt of pension benefits to determine the extent to which these indicators overlap. Of the *Active* group, 26 percent were also receiving some kind of pension benefit (17 percent reported receiving a retirement pension benefit). Over one third of the *Home responsibility* group, and 69.4 percent of those in the *Chronic illness/Disability* group, were receiving a pension benefit (although only 15 percent of the latter group were receiving a disability pension). This comparison reinforces the fact that self-reported economic status primarily reflects how individuals relate to the labour market.

The main conclusions from this section are firstly that there are important differences in the economic status of males and females, as well as in the transitions of economic status at older ages suggested by the cross-section data. Secondly, the labour market is an important source of economic risk diversification for older males, continuing into late ages.

LABOUR SUPPLY OF OLDER WORKERS

This section focuses on active older persons, and examines their labour supply and employment status. These will provide important clues as to the kind of labour market opportunities open to older workers, and the main factors influencing their attachment/exit from the labour market. Standards models suggest that decisions on labour supply would constitute a preference-based response to labour market opportunities (Lazear 1986). Individuals and households maximise utility from labour income and non-market activities. There are factors which apply especially to older workers. Disutility from work in all likelihood rises with age leading to a rise in reservation wages, while wage offers decline with age as human capital depreciates.

Non-wage income rises with age due to the life cycle pattern of asset accumulation, and in the case of pension income there is probably a step rise around retirement age. The standard model predicts older workers will at some point withdraw from the labour market. Labour market opportunities (Shapiro and Sandell 1985), the rules regarding pension benefit entitlements (Quinn, Burkhauser et al. 1990), and job characteristics (Hurd and McGarry 1993; Filer and Petri 1998), are important factors influencing this decision.

There are factors relating specifically to the labour market and social security conditions prevailing in Latin America. In Latin America, the social security and employer provided pension plans are, in most countries, relatively recent and have restricted coverage. The proportion of the population close to subsistence income thresholds, and therefore vulnerable to poverty, is many times larger than in the developed world (Altimir 1997). Labour contracts and labour markets in general are less regulated, and as a consequence employment relationships show greater heterogeneity (Márquez 1995). Household composition and income pooling are likely to be important factors in the labour supply of older workers (ECLAC 1998; IADB 1998). These would suggest that conventional retirement would be less prevalent in Latin America; that attachment to, and exit from, the labour market would be heterogeneous, and probably extend to a later age; and finally that household factors would play a stronger role in older workers' labour supply.

The employment rates of older workers in Chile followed closely the activity rates described in the previous section, especially as unemployment rates are low among older workers. Employment to population rates decline from 53.7 percent at age 55; to 30.4 percent at age 65; and to less than 10 percent after age 75. Unemployment rates are 3.5 percent when all workers over the age of 55 are lumped together, well below the unemployment rates for the labour force as a whole. The unemployment rate measured for workers over the age of 65 must be taken with considerable care as it becomes difficult to distinguish clearly between alternative states, for example disability and unemployment, and because the number of cases in the sample are very small for ages over 75.

There is very little variation in the hours worked by older workers. Table 1 below shows measured weekly hours of work for selected deciles. The large majority of older workers work a more or less 'standard' working week. This conclusion stands even where workers are distinguished according to age, sex or employment status. The small difference in hours of work of men and women is slightly surprising given women have greater access to part-time work in domestic service.[6] It is likely that workers have little choice in their weekly hours of work.[7] The lack of diversity in hours of work by age group suggests that retirement or withdrawal from the labour force is 'lumpy', in that a reduction in the hours worked does not constitute a significant or distinctive form of exiting the labour market for older workers in Chile.[8] With both economic theory and international comparisons in mind, labour demand, rather than labour supply, factors must be responsible for the absence of 'partial retirement'.

Table 1. Weekly hours of work of older workers				
	n°	2nd decile	median	8th decile
All workers	7585	40	48	60
Males	5916	40	48	60
Females	1669	30	48	63
Aged 55-59	3021	40	48	60
Aged 60-65	2822	40	48	60
Aged 65 plus	1742	35	48	60
independent workers	3859	35	48	70
Source: own elaboration from CASEN94 data.				

Self-employment is important and may constitute both a way of extending labour market attachment into later ages, as well as a distinctive exit route from the labour market for older workers.[9] The figures show that self-employment is very prominent among older workers, and the share of older workers who are self-employed actually rises for older age groups. A number of explanations can be offered for this. It is a feature of most

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[6] Domestic work is also responsible for the longer hours of work of some women workers.

[7] There is considerable variation in hourly earnings as shown below.

[8] Studies of retirement in developed countries indicate that 'partial retirement' understood as a reduction in hours, or work responsibilities, is an important mode of retirement (Honig 1985; Honig and Hanoch 1985).

developing countries that labour market opportunities decline significantly with the age of the worker. In the context of Latin America, and Chile in particular, the impact of economic restructuring and liberalisation on older cohorts in the 1980s and 1990s was strong, and contributed to the expansion of self-employment and the informal sector. Older workers may have been 'pushed' into self-employment. On the other hand, economic restructuring was also accompanied by a dramatic fall in real earnings, which may have made self-employed earnings more attractive and therefore 'pull' workers into self-employment. Self-employment may also be associated with the desire to avoid social security contributions, whether due to pressing consumption needs or to a lack of confidence in the capacity of the social insurance system to fulfil its future obligations. Although it is difficult to discriminate between these different explanations in a cross section study, the multivariate analysis in the next section will attempt to throw some light on these issues.

Kaplan-Meier survival functions were estimated for active workers in order to detect significant differences in labour market survival probabilities by employment status and by pension scheme affiliation.[10] These are shown in Figures 4 to 6 below. As can be seen in Figure 4, labour market survival probabilities are consistently higher for self-employed workers than for dependent workers. The issue is whether this is a factor of 'push' or 'pull' factors arising from changes in the employment structure or in earnings opportunities. 'Push' factors would be consistent with self-employed earnings lower than those of the employed, while 'pull' factors suggest the opposite relationship. This is explored further in the next section.

The influence of social security in the labour market exit of older workers is also an important issue. The survival probabilities by pension plan affiliation were estimated separately by sex. As can be seen in Figure 5 and 6, affiliation to individual capitalisation pension plans is associated with significantly lower survival probabilities for both men and women, although the effect is more marked for women. The introduction of the individual capitalisation pension plans, which took place in 1981, gave existing workers

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[9] Evidence for the US shows that jobs with a higher proportion of self-employed and part-time workers had on average later retirement (Hurd and McGarry 1993; Filer and Petri 1998).

[10] The Kaplan-Meier non-parametric survival estimate *(S)t* is a measure of the probability of surviving period t, having reached period t. With hs_t denoting the numbers exiting at t, and ns_t the numbers surviving at the beginning of t, $(S)t = \Pi_t \, (ns_t - hs_t)/ns_t$.

the choice to continue in the pay-as-you-go social insurance pension schemes, or to switch to the new pension plans. The government offered a bond to workers switching to the new pension plans, which calculated their acquired pension entitlements under a very generous formula. This bond accumulates returns at 4 percent in real terms, and is redeemed by workers at the time of their retirement. As the individual capitalisation pension plans are more flexible with regard to the timing of retirement (effectively whenever the worker has accumulated entitlements above a minimum level), workers with large entitlements under the pay-as-you-go pension schemes had a strong incentive to switch. This could explain their lower labour market survival probabilities.

Comparing the survival probabilities of workers in the old pay-as-you-go pension scheme with those workers without a pension scheme affiliation reveals only marginal, but statistically significant, differences. Pension affiliation does, as expected, facilitate labour market exit of older workers, with affiliation to individual capitalisation pension plans having a much stronger effect, and this effect being more marked for women than men.

Figure 4. Survival Functions for employed versus self-employed

whether self-employed

- - - -
◇ yes

— —
○ no

age
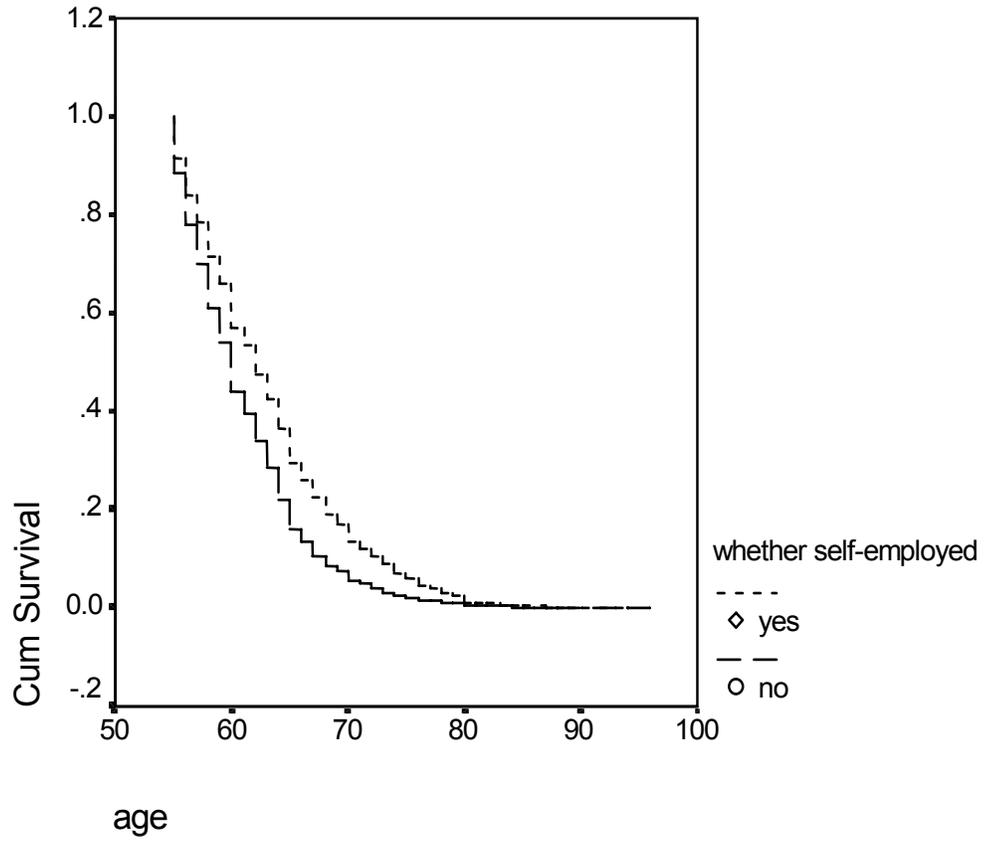
Figure 5. Survival Function for female workers

pension scheme affiliation

△ inp,capredena,other

◇ afp

○ none
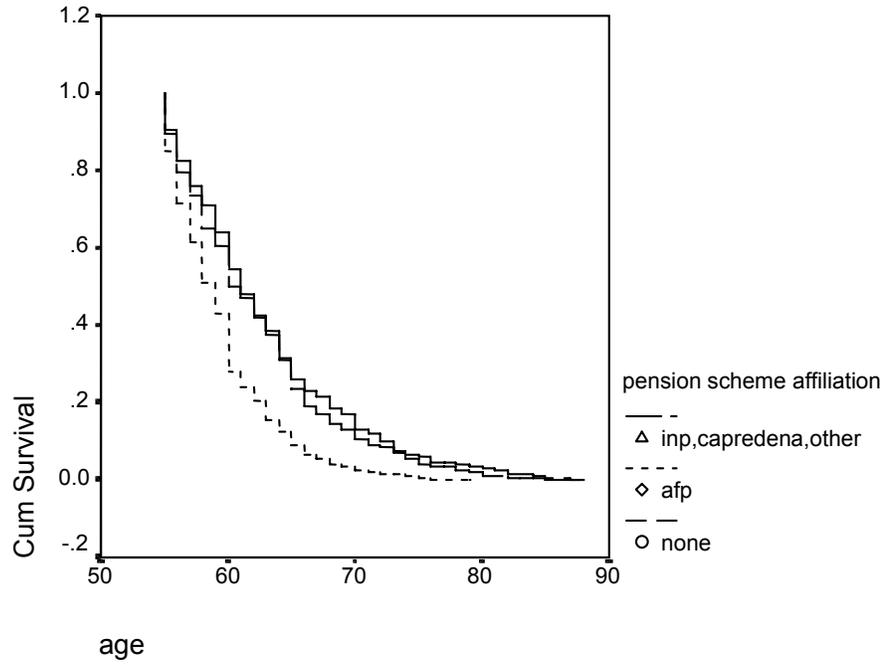
Figure 6. Survival functions for male workers

pension scheme affiliation

△ inp,capredena,other

◇ afp

○ none
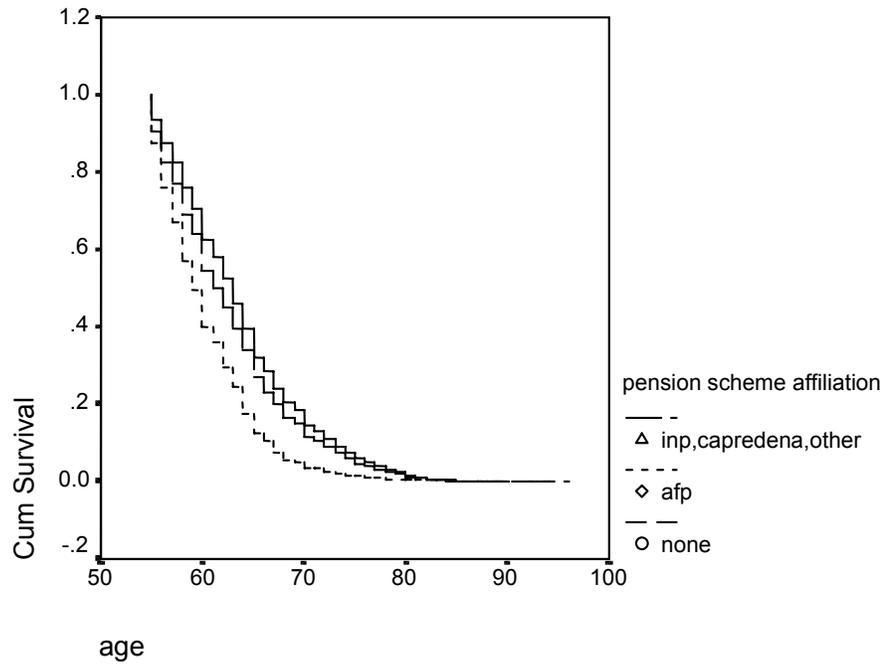
The conclusion of this section is that the labour supply of older workers is adequately represented by activity rates, as the number of weekly hours worked is very similar across age, sex and employment status. Self-employment is very important, it is associated with stronger attachment to the labour market at later ages, and may represent a distinct form of exit from the labour market for older workers. Both employment status and pension scheme affiliation influence labour market survival probabilities.

LABOUR MARKET PARTICIPATION AND EARNINGS OF OLDER WORKERS

In order to explore in more detail the labour market participation, and opportunities, of older workers, a sequential estimation of participation and earnings equations were carried out using the CASEN94 data. In the participation equation a set of personal, household, and social insurance and benefit receipt variables are regressed on a dichotomous activity status variable. In a second step a standard earnings equation is estimated, which includes, in addition, employment status and occupation among the independent variables. The inverted Mills ratio is also included among the independent variables to allow a Heckman correction for the covariance of the errors in the participation and earnings equations. The results are presented in Tables 2 and 3 below.

Table 2. Labour market participation equation: probit estimates
   (Dependent variable is 1 if active, 0 if inactive)

	parameter	t-stat	mean
Constant	1.22	10.6	
Personal characteristics:			
Male	1.24	37.9	0.47
Age	-0.05	-32.6	66.7
Years of Schooling	-0.006	-2.6	5.33
Household characteristics:			
Married	-0.14	-5.5	0.62
Widow	0.12	2.5	0.17
Number in household	0.04	7.7	3.76
Head of household	0.68	21.8	0.61
Quintile of per capita total household income	0.25	27.4	3.00
Social security affiliation and benefit receipt:			

Public pension plan	0.28	10.5	0.34
Private pension plan	0.85	26.3	0.14
Armed forces pension plan	-0.38	-4.5	0.01
Private health plan	-0.11	-2.4	0.06
Receiving retirement pension	-1.39	-46.5	0.32
Receiving dependant pension	-1.00	-18.5	0.09
Receiving disability pension	-1.35	-25.2	0.05
Region:			
Region 1	0.18	2.3	0.01
Region 2	0.20	3.4	0.03
Region 3	0.05	0.8	0.03
Region 4	0.12	2.6	0.07
Region 6	-0.02	-0.4	0.03
Region 7	0.15	3.8	0.12
Region 8	-0.02	-0.7	0.21
Region 9	-0.19	-2.8	0.03
Region 10	-0.09	-1.6	0.04
Region 11	0.23	2.5	0.01
Region 12	-0.01	-0.1	0.01
Region 13	0.08	2.4	0.20

n   = 25366
LL   = - 9059.5
LL(0)= -15365.0
pseudo R^2 = 0.66

The probit regression produced parameters of expected sign, and the model fit statistics are satisfactory. The personal characteristics variables show, as expected, that participation probabilities are greater for men, and decline with age.

As indicated above, the household variables are particularly important for older workers. In effect, the departure of older workers from the labour market signifies a change in the sources of income, economic risk diversification, and social status not only for the older workers themselves, but also for their household. The mix of opportunities for economic risk diversification need to be rebalanced for both the individual concerned and his/her household, especially as the labour market is perhaps the most important source of risk diversification for low asset/income households. Following the exit of older workers from the labour market, the household, social insurance institutions, and asset ownership acquire a more important role in sustaining older persons and helping diversify their economic risks. It is to be expected, therefore, that household size and composition, as well as the status of the worker within it, are strong influences on labour market participation, and exit. The model estimates show that labour market participation probabilities are inversely related to the size of the household. The status of the individual within the household is also important. Head of household status, and widowhood for females, raises the probability of participation. Being married, on the other hand, lowers it. A variable identifying the quintile of per capita total household income for each individual shows that the probability of participation rises strongly with per capita household income.

For the same reasons, affiliation to social insurance institutions, and receiving some type of pension benefit, are likely to impact upon labour market participation. Affiliation to a pension scheme raises the probability of labour market participation, with the exception of the affiliation to the armed forces and police pension scheme, *Capredena*. It is a feature of pension schemes for military personnel and police that they incorporate incentives for early exit from employment in these institutions. This is because the decline in job-specific productivity is thought to occur earlier, and matter more, than in civilian jobs. Also because the military have hierarchical structures with up-or-out promotions systems for officers. Affiliation to private health plans is also associated with lower participation probabilities.

As expected, receipt of pension benefits increases the reservation wage for older workers, and is therefore consistent with lower participation probabilities. The model estimates show that all three types of pension benefits identified (retirement, survivor and disability pension benefits), are strongly associated with lower probabilities of labour market participation.

The earnings equation, estimated on active workers with positive earnings, provides some indicators of labour market opportunities for older workers. In addition to personal characteristics and household variables, the model includes establishment size, occupational affiliation, employment status, and work location variables. The results of the estimation accord, in the main, with expectations from theory (as apply generally to the average worker). Schooling, establishment size, and white collar, managerial, and professional occupations, are all positively related to labour earnings.

Table 3. Earnings equation (Dependent variable is log of hourly earnings)			
	parameter	t-stat	mean
Constant	5.484	8.3	
Personal & household characteristics:			
Male	-0.070	-2.0	0.78
Age	-0.039	-1.9	62.09
Age squared	0.00034	2.2	
Schooling	0.027	12.0	6.30
Married	0.187	8.3	0.74
Widow	0.127	2.7	0.05
Number in household	0.068	15.4	3.86
Head of household	0.122	4.2	0.83
Private health plan	0.283	9.1	0.11
Quintile of per capita total household income	0.320	40.3	3.29
Employment status & job characteritics:			
Self-employed	0.365	14.8	0.51
Homeworker	-0.182	-7.2	0.21
Ambulatory	0.081	2.6	0.10
Establishment size 2-4	0.042	2.0	0.25
Establishment size 6-9	0.253	6.1	0.05
Establishment size 10-49	0.160	5.1	0.15
Establishment size 50-199	0.134	3.3	0.06
Establishment size 200+	0.222	5.2	0.05
Occupation:			
Managerial	0.334	7.5	0.11
Professional	0.294	6.0	0.07
Administrative	-0.181	-2.9	0.02
Personal Services	-0.011	-0.2	0.03
Sales	-0.039	-0.8	0.06

Agricultural	-0.067	-1.6	0.17
Skilled	0.029	0.7	0.14
Unskilled	-0.081	-2.1	0.30
Region:			
Region 1	-0.043	-0.7	0.02
Region 2	-0.236	-5.0	0.04
Region 3	-0.102	-2.1	0.04
Region 4	-0.097	-2.6	0.07
Region 6	-0.013	-0.2	0.02
Region 7	-0.110	-3.4	0.12
Region 8	-0.024	-0.8	0.17
Region 9	0.187	3.3	0.02
Region 10	0.092	2.0	0.04
Region 11	-0.020	-0.3	0.01
Region 12	0.059	0.8	0.01
Region 13	0.060	2.1	0.22
Lambda	-0.280	-11.3	0.63
n= 7316			
Adjusted R^2= 0.533			
Mean of LHS= 6.117			
Rho = -0.394			

Some parameter estimates can be rationalised only in the context of the specificity of labour market conditions for older workers. It is unusual for the parameter associated with males to be negative, suggesting that males with otherwise the same characteristics of females would receive on average lower earnings than their female counterparts. This is precisely what the relevant parameter estimate suggests. It is likely that this result arises from a variety of sample selection processes embedded in the data. Perhaps high earning males exit the labour market sooner than their lower earnings counterparts. It is very likely that the opposite effect would be observed for women, as higher earning females may stay longer in the labour market to make up for inactivity spells earlier in their careers, or to reap the benefits from having revealed their productivity. The fact that the economic and employment restructuring that took place in Chile in the 1980s affected males working in industry more strongly than female workers in the service sector, may be another explanation. These factors may also help explain in part the positive parameter relating female widowhood to earnings.

The positive parameter linking self-employment to earnings is also one that makes sense only in the context of labour market conditions for older workers. As was discussed above, self-employment appears to be associated with 'late' retirement/withdrawal from the labour market. This parameter is likely to be negative for younger age groups, reflecting perhaps that self-employment is a second choice employment for them. The model estimate indicates that this is not the case for older workers, as the parameter is both positive and large. Having controlled for participation probabilities, self-employment is more rewarding to the average older worker than dependent employment. In the context of the discussion in the last section, this would suggest that self-employment is, for older workers, more likely the product of 'pull' rather than 'push' factors. This also helps to explain the non-linear relationship shown to exist between age and the earnings of older workers, with earnings falling with age at a declining rate.

The quality of employment can be examined on the basis of the parameter estimates associated with work location. Interestingly, again, working from home is negatively related to labour earnings, but working on the street or in customers' domiciles impacts positively on pay. The parameters associated with establishment size and occupation are very much as expected. The sample selection parameter is significant and negative.

FINDINGS AND CONCLUSIONS

For the majority of the population in developing countries, the labour market constitutes an important, if not the most important, source of economic risk diversification. Labour earnings are the main source of income, and therefore consumption, for the majority of households. Employment is also key to asset accumulation over the life cycle, as well as a source of insurance coverage against a variety of contingencies such as longevity, short working lives, sickness, disability, and unemployment. Older workers can rely to a lesser extent on these benefits from labour market participation. Exit from the labour market closes one source of economic risk diversification, with alternative sources such as the family, social security, and accumulated assets becoming more important. This is the perspective in which the labour market behaviour of older workers was examined in this paper.

The findings for Chile indicate that the labour market continues to be an important source of income and economic risk diversification until a late age for males, but much less so for females. Activity rates decline for males steadily until the retirement window at age 60 to 65, and more precipitously afterwards, yet, even at age 80 around 20 percent of males are active. In contrast, the labour market is of much less direct importance to females, although it can be so indirectly through the pension entitlements acquired via partners. Consistent with the sex differences in labour market activity, retirement is the primary exit route for males, but not so for females. Retirement is therefore defined by individual's labour market attachment, and is strongly gendered.[11] The dominant transition paths suggested by the cross-section data for older women are from home responsibilities to retirement and disability.

The labour supply of older workers is very homogeneous both in terms of weekly hours, and days, worked. The majority of older workers work a 'standard' working week. This is the case even if workers are considered separately by age, sex, or employment status. The hours worked by female workers are slightly more dispersed,

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[11] The evidence on women's participation rates and on labour market attachment in Latin America show the presence of large cohort effects (ECLAC 1998), which counsel against extrapolating the labour market experience of older women cohorts for younger cohorts.

probably due to the incidence of domestic work among them. This is an indication that the labour market in Chile is not very flexible as regard hours of work, or as regard part-time work. It is likely that older workers face a choice of full-time employment or no employment, a situation that precludes any form of gradual or 'partial retirement'.

The probability of labour market participation into old age rises with self-employment. Self-employment accounts for the majority of active workers, and its importance rises with age. There are a number of possible explanations for this phenomenon. A 'push' into self-employment is consonant with a decline in opportunities for paid employment for older workers arising from age discrimination, or, mainly for males, from the 1980s employment restructuring. A 'pull' effect into self-employment could arise from the lack of flexibility in hours noted above, or from the decline in real earnings and employment during the 1980s. It could also be consistent with the desire to avoid social security contributions. The sequential estimation of participation and earnings equations throws some light on this issue. Self-employment is associated with higher earnings, suggesting that, at least for the average worker, the 'pull' effect may be dominant.

Labour market participation declines with affiliation to individual capitalisation pension plans, and with pension benefit entitlements. Social security reform introduced greater flexibility as regard the time of retirement, but affiliation to the individual capitalisation pension plans may also signal income effects. The labour market participation and earnings model estimates also confirm that household size, composition, and status are important predictors of economic activity. The findings confirm the importance of the economic risk diversification provided by the labour market, and that withdrawal from the labour market involves crucial trade-offs with alternative sources of economic risk diversification. As expected, household size and composition as well as social security entitlements are key predictors of labour market participation.

The implications arising from these findings can only be sketched here. The empirical findings of the paper understate the stochastic factors involved in the process of rebalancing insurance against economic risk by older groups. Those households involved in this process are likely to be especially vulnerable to adverse economic and social conditions. Labour market policy ought to acknowledge the important role that the

labour market makes to the welfare of older workers. Social protection for older groups at this juncture is crucially important. Pension policy ought to consider the characteristics of the exit behaviour from the labour market discussed in the paper.

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