



HAL
open science

Participation and earnings of older people in Argentina: nice work if you can get it?

Armando Barrientos

► **To cite this version:**

Armando Barrientos. Participation and earnings of older people in Argentina: nice work if you can get it?. The Journal of Development Studies, 2011, 47 (07), pp.1061-1079. <10.1080/00220388.2010.514333>. <hal-00720854>

HAL Id: hal-00720854

<https://hal.science/hal-00720854v1>

Submitted on 26 Jul 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization



Participation and earnings of older people in Argentina: nice work if you can get it?

Journal:	<i>Journal of Development Studies</i>
Manuscript ID:	FJDS-2009-Sep-0037.R1
Manuscript Type:	Original Manuscripts
Keywords:	Employment Trends < Employment and Law, South America < Geographical Area, Poverty < Social Issues, Human Security < Social Issues

SCHOLARONE™
Manuscripts

Participation and earnings of older people in Argentina: nice work if you can get it?

Abstract:

The paper explores the potential contribution of better labour market participation among older people in Argentina to addressing old age poverty and vulnerability. The acute financial crisis in 2001 led to a steep rise in poverty and renewed concerns over the deterioration of old age support. Broadly, two main strategies took shape: to strengthen pension provision for poorer and vulnerable older people, and to improve their labour market participation. Using data from a dedicated survey of older people, the paper tests the feasibility and effectiveness of the second strategy through a detailed analysis of the labour market participation and earnings of older people in Argentina.

INTRODUCTION

The main objective of this paper is to assess the contribution which improved labour market participation among older people in Argentina could make to an effective strategy to address old age poverty and vulnerability. Argentina has a demographic profile comparable to that of Southern European countries and one of the oldest social security systems in Latin America. Successive crises, labour market liberalisation, and social security reform in the 1990s undermined the reach and effectiveness of old age income security (Bertranou and Sanchez 2003; Gill, Packard and Yermo 2004). The acute financial crisis in 2001, and the steep rise in poverty it produced, led to renewed concerns with the deterioration of old age support. Broadly, two main strategies took shape: to strengthen pension provision for poorer and vulnerable older people, and to improve their labour market participation. This paper tests the feasibility and effectiveness of the second strategy through an analysis of the labour market participation and earnings of older people in Argentina.

1
2
3 Labour market liberalisation and social pension reform in the 1990s in Argentina
4 contributed to a rapid decline in the coverage of the social security system. Whereas
5 in 1993, 77 percent of the population aged 65 and over were receiving a retirement
6 pension, and 87.5 percent were receiving some form of old age support; by 2001
7 these measures of coverage had declined to 66.5 percent and 77 percent respectively
8 (Rofman 2004). The deterioration in the reach of social security accompanied
9 worsening social indicators. Between March 1994 and March 2000, the poverty
10 headcount rate almost doubled from just above 15 percent to just below 30 percent
11 (Maurizio 2009). The crisis which followed the abandonment of convertibility in 2001
12 led to a further steep rise in poverty, from 35.9 percent in March 2001 to 57.5 percent
13 in October 2002. Rising unemployment and a sharp contraction in earnings were
14 mainly responsible for the rise in poverty. The recovery in employment after 2002,
15 together with improved social policies, including pensions, have successfully reversed
16 the poverty trend. The crisis sharpened concerns with the decline in pension coverage
17 and helped delineate two main strategies. Studies looking at the dynamics of poverty
18 during this period found that labour market factors (changes in employment and
19 earnings) and access to social transfers explained the majority of observed exits from
20 poverty in the period following the crisis (Maurizio, Perrot and Villafane 2007).
21 These findings suggest that improvements in the labour force participation of older
22 people and in pension provision could be effective in addressing old age poverty and
23 vulnerability.

24
25
26 There is a growing literature on the effectiveness of non-contributory pensions in
27 reducing poverty in developing countries (Bertranou, Solorio and van Ginneken 2002;
28 Holzman, Robalino and Takayama 2009). Studies of the impact of the Argentina
29 crisis confirmed this. Households with pensioners were less likely to succumb to
30 poverty during the crisis and were more likely to exit poverty after it (Cruces and
31 Wodon 2003; Maurizio 2009). However, older people with no access to pensions had
32 few options to protect themselves against the impact of the crisis.

33
34
35 By contrast, there is very little research on the contribution that improved labour
36 market participation among older people could make to strategies to strengthen old
37 age security. This is the focus of the paper. There is early evidence that labour market
38 participation rates among older groups in Argentina have risen in the period preceding
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 and following the crisis. Figure 1 below shows participation rates by age taken from
4 nationwide household surveys covering the period 1997-2004. The datasets are not
5 strictly comparable, and care must be exercised in interpreting the data, but they
6 provide some indication of a rising trend over time, especially for those aged 65 to 75.¹
7
8
9

10
11
12 (Figure 1 about here)
13
14

15
16 Few studies have looked at this issue in developing countries. In developed countries,
17 withdrawal from the labour market at late age is largely explained by employment-
18 based pension systems and public assistance programmes (Gruber and Wise 1999). In
19 low-income countries, the absence of pension systems makes continued employment
20 a necessity for older people, with health factors becoming important later on
21 (Benjamin, Brandt and Fan 2003). In middle-income countries, it is likely that a mix
22 of factors apply. The influence of pension systems on labour market withdrawal is
23 stronger for workers in formal employment, but considerably attenuated for the rest
24 (Clark, York and Anker 1999). Analysis of the labour market participation of older
25 people in Argentina can make an important contribution to the scarce literature by
26 providing a middle-income country perspective.
27
28
29
30
31
32
33
34

35
36
37 The paper will take advantage of survey data provided by a the ETEEP Survey
38 (*Encuesta a la Tercera Edad sobre Estrategias Previsionales* or Survey of Older
39 People's Income Security Strategies). This dedicated survey is a unique source of
40 information on older people in Argentina. Standard household surveys usually yield
41 few observations from older people, and from the very old in particular. The ETEEP
42 sample is comparatively larger, and contains fine grained information on respondents'
43 lifetime pension and employment profiles, thus enabling a more detailed analysis of
44 the factors determining labour market participation.
45
46
47
48
49
50
51

52
53 The paper is organised as follows. Section 1 presents the research strategy, including
54 a description of methods, data and a discussion of relevant literature. Section 2
55 examines the labour force participation and earnings of older people in Argentina.
56 Section 3 assesses the potential contribution of improved labour force participation as
57 a strategy to address old age poverty and vulnerability and draws out the main
58
59
60

conclusions and policy implications. A final section summarises the main conclusions.

1. RESEARCH STRATEGY AND LITERATURE

This section develops a strategy for the empirical work, reviews the relevant literature and describes the data.

Model

A starting point is the standard, static, one-period model of labour supply (Pencavel 1986; Blundell and MaCurdy 1998). For an individual i with personal characteristics X , which are observed, and unobserved ‘tastes’ ε , and with a quasi-concave continuous utility function U defined over her consumption of commodities c and hours of work h ,

$$U_i = U_i(c_i, h_i; X_i, \varepsilon_i) \quad (1)$$

Given a total time endowment of T , which is allocated to market work hours h or to other activities l , the linear budget constraint is:

$$pc_i = wh_i + y_i \quad (2)$$

where p is the fixed per unit price of commodities c , w is a fixed hourly wage and y_i is non-labour income. The individual chooses $c > 0$ and $h \geq 0$ to maximise (1) subject to the budget constraint (2). For individuals with positive hours, the familiar first order condition for a constrained maximum indicates that c and h are chosen so that the negative of the marginal rate of substitution m of working hours for commodities equals the real wage.

$$\frac{w_i}{p} = -m(c_i, h_i; X_i, \varepsilon_i), \quad (3)$$

For those with $h = 0$, on the other hand, the marginal rate of substitution of working hours for commodities is:

$$\frac{w_i^*}{p} = -m(c_i, 0; X_i, \varepsilon_i), \quad (4)$$

and w_i^* is the reservation wage, that is, the individual i 's implicit valuation of her time at the margin between participating and not participating in the labour market. It follows that

$$h_i = h_i(p_i, w_i, y_i; X_i, \varepsilon_i) > 0, \quad \text{if } w_i > w_i^*(p_i, y_i, X_i, \varepsilon_i) \quad (5)$$

$$h_i = h_i(p_i, w_i, y_i; X_i, \varepsilon_i) = 0, \quad \text{if } w_i \leq w_i^*(p_i, y_i, X_i, \varepsilon_i) \quad (6)$$

To summarise, in this basic model the decision whether to participate in the labour market follows from a comparison made by individuals of the market valuation of the time devoted to paid employment (wage offers) as against their private valuation of this time (reservation wage). If the market valuation is greater than the individual's private evaluation, s/he will have a strong incentive for continuing in employment, and vice-versa. In the context of older people, this framework can incorporate a wide range of factors influencing their continuation/withdrawal from the labour market. They are discussed briefly below.

Literature

In developed countries, pension schemes are a dominant factor in determining the labour force participation of older people (Diamond and Gruber 1999). Withdrawal from the labour market is supported and encouraged by old age income support programmes. Pension receipt, usually in the form of an annuity (a regular income for the full lifetime of a beneficiary), raises y and therefore the reservation wage for older workers (Hanoch and Honig 1983; Mitchell and Fields 1984). The strength of the incentives provided by pension schemes in developed countries ensures that retirement and work are to a very large extent non-overlapping states (Hurd 1990b).² In developing countries, limited pension provision reduces incentives for withdrawal

1
2
3 and enforces continued engagement in employment. A study on rural China finds that
4 rapidly declining fertility and the migration of younger people to the cities forces
5 older people to a lifetime of work, described as 'ceaseless toil' (Benjamin, Brandt and
6 Fan 2003). Withdrawal from the labour market is not a feasible option for older
7 people in rural areas. Middle-income countries probably experience a mix of these
8 two situations. Where pension schemes are in place and cover a large proportion of
9 older people, withdrawal from the labour market is linked to pension receipt
10 (Barrientos 2000; Carvalho 2000b; Bertranou 2001; Camarano and Pasinato 2002),
11 but compared to developed countries, there is significant overlap between pension
12 receipt and participation.
13
14
15
16
17
18
19
20
21

22 Household characteristics and support are the second most important factor in
23 determining the labour force participation of older people in developing countries.
24 This comes up in different contexts,³ for example in studies of the income effects of
25 pensions on living arrangements (Carvalho 2000a), or the extent to which pensioner
26 household dynamics responds to economic conditions (Barrientos 2004).
27
28
29
30
31

32 The health status of older people and other members of their households, has been
33 identified as an important factor. This has been well researched in the context of
34 developed countries (Bound, Schoenbaum, Stinebrickner et al. 1999), but less so in
35 developing countries (Kochar 1999; Parker 1999; Benjamin, Brandt and Fan 2003).
36 Haider and Loughran (2001) find that the probability of men aged 68 and over in the
37 USA being in employment is strongly correlated with wealth, good health, and
38 positive preferences for work. Benjamin et al. (2003) find that the effects of health on
39 labour supply of older people in rural China are complex. On the one hand, poor
40 health reduces time available for work, and productivity, but on the other hand higher
41 health costs, whether actual or expected, encourage continued employment in old age.
42 Their study finds that "declining health explains about half of the decline in hours
43 worked by age seventy" (p.35) in rural areas in China. Parker (1999) estimates that
44 poor health reduces the earnings of older Mexicans by just over a quarter.
45
46
47
48
49
50
51
52
53
54
55
56

57 Another important set of factors relates to the type of work that older people do, and
58 their employment status. Some authors find a relationship between employment in
59 certain occupations and retirement (Hurd and McGarry 1993; Filer and Petri 1998).
60

1
2
3 Physically demanding occupations are associated with early withdrawal. There is also
4 a strong correlation existing between labour force participation and self-employment
5 among older workers (Fuchs 1982). Because few employers hire older workers
6 (Hutchens 1988; Paz 2003), mobility is very restricted and the kind of jobs and
7 occupations older people have could be important in facilitating continued
8 employment.⁴
9
10
11
12
13

14 15 16 *Methods*

17 The analysis below should pay particular attention to the labour market opportunities
18 for non-participants. Gronau (1973) developed a methodology for estimating potential
19 earnings of non-participants, from the estimated earnings of participants corrected for
20 participation propensities. This methodology was later refined by Heckman into a
21 two-stage estimation which corrects for selection bias (Heckman 1974, 1976). This
22 issue is especially relevant for studying earnings among older people, as we are only
23 able to observe earnings for a small sub-sample. Estimating a standard wage equation
24 for this sub-sample such as: $\ln w_i = BX_i + e_i$ using OLS produces biased estimates
25 because from (5) above it is apparent that $(e_i | w_i > w_i^*) \neq 0$. Heckman (1976) suggests
26 a two-stage estimation method, in which a probit model of participation yields the
27 inverse Mills' ratio λ , a measure of the propensity of participation, which is included
28 into the wage equation to provide consistent estimates of the coefficients, as
29
30
31
32
33
34
35
36
37
38
39
40

$$41 \ln w_i = \alpha_i + BX_i + \delta \hat{\lambda}_i + \nu_i, \quad (7)$$

42
43
44 The estimated coefficients from (7) can then be used to predict potential earnings for
45 the full sample. The empirical work below will apply this methodology to construct a
46 measure of potential earnings for both participant and non-participant older people.
47
48
49
50

51 52 53 *Data*

54 The examination of the labour force participation and earnings of older people relies
55 on data collected in October-November 2003 under the ETEEP Survey (*Encuesta a la*
56 *Tercera Edad sobre Estrategias Previsionales* or Survey of Older People's Income
57 Security Strategies). The survey targeted households with a member aged 60 and over
58 in urban areas of Argentina, excluding the Patagonia Region. It interviewed one
59
60

1
2
3 individual aged 60 or over in 3,014 households identified through stratified
4 probabilistic sampling.⁵ The survey instrument contained questions on individual and
5 household characteristics, household income, assets, expenditure, and livelihood
6 strategies; labour and pension history of respondents, and summary information on
7 the economic status and characteristics of other household members. As noted in the
8 Introduction, The ETEEP sample of older people in Argentina is comparatively larger
9 than the coverage of this group in standard household surveys. It also has the very
10 significant advantage of including detailed information on respondents' lifetime
11 pension and employment, absent from standard household survey data. As seen from
12 the analysis below, this information is essential to the study of older people's labour
13 force participation and earnings.
14
15
16
17
18
19
20
21
22
23
24
25

26 2. LABOUR FORCE PARTICIPATION AND EARNINGS OF OLDER 27 PEOPLE 28 29 30 31

32 In Argentina, participation in the labour market and pension receipt are overlapping
33 categories. Figure 2 below shows the distribution of respondents in the ETEEP dataset
34 across labour market participation and pension receipt categories. Just under a quarter
35 of the population are active in the labour market (employed and looking for
36 employment), while just over three-quarters are inactive. Those in receipt of a pension
37 benefit, shown by the ellipse and including all pension types, comprise 61 percent,
38 while the residual are non-pensioners. The overlapping categories are important: 6.9
39 percent are in receipt of a pension and also active in the labour market, while 22.4
40 percent are inactive and not in receipt of any pension.
41
42
43
44
45
46
47
48
49
50
51
52

(Figure 2 about here)

53 The ETEEP Survey contains information on respondents' assessment of the main
54 reason behind their pension/participation status. Non-pensioners were asked to select
55 one reason why they had not accessed a pension. Two thirds gave as the main reason
56 the fact that they had not been able to meet eligibility requirements for contributory
57 pensions (the vast majority because they lacked the required contribution history). A
58 minority (14.7%) selected as the main reason the fact that they had never worked.
59
60

Respondents in receipt of a pension and active in the labour market were asked to select a reason for continuing in work. The vast majority responded that they continued participating in the labour market because their pension benefits were insufficient to meet their needs (69.6%)⁶, with a minority responding that they had a preference for continuing in work (12.4%). It is clear from these responses that engagement in the labour market is important for their standards of living, but also that a range of other factors contribute directly to this engagement.

Participation

Analysis of the determinants of the labour force participation of older people proceeds by estimating a probit model of participation as follows:

$$LP_i = \beta_0 + BX_i + \Gamma Z_i + \Psi H_i + \Omega O_i + \Xi R_i + \varepsilon_i \quad (8)$$

Where LP is a (0,1) variable denoting whether the *i*th respondent participates in the labour market (i.e. if s/he is employed or unemployed and looking for employment), X_i is a vector of personal and household characteristics, Z_i is a vector of cash flow gap strategies, H_i is a vector of health status variables, O_i is a vector of occupation and employment status characteristics, R_i is a vector of region dummies, and ε_i is the error term (variable definitions can be found in Appendix 1).

The full sample includes all respondents aged 60 and over, reflecting the population sampled by the dataset. Other studies have used different age restrictions. Bertranou (2001), for example, estimates a probit model of labour market participation for people aged 55 to 75. The rationale for the upper age restriction is that few observations are usually available for very advanced ages. Setting a lower age restriction is dependent on the focus of the analysis. In this paper, the objective is to throw light on the labour market participation of older people, and on the extent to which employment constitutes an effective livelihood strategy for households with older people. The analysis therefore focuses on all respondents aged 60 and over.⁷ An advantage of using the full sample in the analysis is that its findings will apply to the older population as a whole.

1
2
3 The model was estimated on a full sample, and on a sample of males only. Males
4 make up the majority of participants, so the results are unlikely to be substantively
5 different across the two samples; nonetheless it is useful as a check of whether the
6 results are sensitive to the inclusion of a minority of women participants.⁸
7
8
9

10
11
12 The main coefficients of interest are presented in Table 2 below. The Table reports
13 marginal effects.
14

15
16
17 (Table 2 about here)
18
19

20
21 As expected, participation declines with age.⁹ Being male is a strong predictor of
22 participation, although this finding is to an extent influenced by the fact that women
23 can access retirement pensions earlier than men, and are more likely to access non-
24 contributory pensions. Self-reported health status is significant, with those who
25 reported good health more likely to be in the labour market, and those with poor
26 health less likely to be in the labour market, compared to those with average health
27 status. The coefficients associated with health status are strongly significant, and
28 robust to the inclusion of different variables in the model, but the marginal effects are
29 not especially large relative to other factors. Participation in the labour market is
30 inversely related to the presence of other pension recipients in the household.¹⁰
31
32
33
34
35
36
37
38
39

40
41 Household exposure to shocks might be a factor in continued employment. Although
42 it is not possible to observe these directly in the survey data, information is available
43 on strategies adopted by households to cope with cash flow gaps, or financial stress.
44 Aggregating three of these strategies (whether households had to borrow from family
45 and friends, or use consumer credit, or sell belongings in the last three months)
46 provides some information on the presence of threats to consumption and on active
47 efforts by households to protect it. The use of multiple strategies can be taken as an
48 indicator of financial stress. Interestingly, labour force participation is positively
49 associated with the number of financial distress strategies used by households. This
50 perhaps suggests that continued work is, to some extent, a response to financial stress,
51 although it is also possible that earnings facilitate access to credit.
52
53
54
55
56
57
58
59
60

1
2
3 The employment-related coefficients are very important, both because of the strength
4 and significance of the estimated effects, and also because they point to the relevance
5 of a range of factors not typically included in standard household surveys, and
6 therefore seldom included in the estimation of participation models for older people.
7 The estimated coefficients suggest strong path dependence in participation for older
8 people, with very specific features. Labour market participation of people aged 60 and
9 over is inversely related to density of contributions, and positively related to density
10 of employment, over the working life. This confirms that being in work earlier on
11 strengthens attachment to the labour force later on.
12
13
14
15
16
17
18
19
20

21 Restricting the estimation of the model to males only does not, as expected, change
22 the sign of the estimated effects, but the marginal effects are larger in all cases.
23
24
25

26 *Earnings*

27 Before moving on to the results from the estimation of the earnings equation, it is
28 necessary to note some issues relating to the earnings measure used. It was
29 constructed by aggregating all monthly earnings from labour, including earnings from
30 dependents and self-employment, earnings from additional employment where
31 relevant, and a self-reported monetary value of in kind labour compensation. Given
32 the high incidence of self-employment in the sample, using this measure of labour
33 income helped to maximise the number of observations with labour earnings. Even so,
34 just below one half of active respondents could be associated with a valid observation
35 for the earnings measure thus constructed. This raised concern over potential biases
36 arising from non-response, but detailed checks on non-response biases confirmed they
37 are not important.¹¹ There is no information in the dataset on hours of work, so the
38 estimation of the earnings equation has to rely on this aggregate measure of monthly
39 earnings.
40
41
42
43
44
45
46
47
48
49
50
51
52

53 The model estimated is a standard earnings equation augmented by the Heckman
54 correction term:
55
56
57

$$58 \ln E_i = \alpha_0 + BX_i + \Psi H_i + \Omega O_i + \Xi R_i + \delta \lambda_i + \nu_i \quad (9)$$

59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Where $\ln E_i$ is the natural log of the measure of earnings described above, and as above X_i is a vector of personal and household characteristics, H_i is a vector of health status variables, O_i is a vector of occupation and employment status characteristics, R_i is a vector of region dummies, λ_i is the inverse Mill's ratio, and v_i is the corrected error term. Identification is ensured by the exclusion of the number of financial distress strategies, which is taken to influence participation but not earnings, and by the inclusion of the size of establishment in the last job in the earnings equation but not in the participation equation. The influence of the size of establishment on earnings is well documented in the literature (Evans and Leighton 1989).

As with the participation equation, the earnings model is estimated on the full sample and a sample of males only. The models have reasonably good fit. Table 3 reports on the key coefficients, which are in line with expectations. Earnings decline with age, and are higher for males. They are higher for those with higher education. The health coefficients have the expected sign. Poor health status is associated with lower earnings, while good health status is associated with higher earnings. Self-employment is associated with lower earnings, and being an employer is associated with higher earnings. Higher lifetime contribution density and employment density are associated with higher earnings. The latter is particularly strong, and shows the impact of both experience and labour force attachment. Interestingly, the size of establishment is negatively correlated with earnings at later ages.

The correction term is significant for the full sample, but not for the male only sample. There are a few other differences to note in the estimates for the male only sample. Having only primary school education significantly reduces the earnings of males; poor health does not significantly affect male earnings; being an employer in the last job significantly increases earnings. On the whole, estimates for the male only sample are not substantially different from those for the full sample.

(Table 3 about here)

The models of participation and earnings estimated in this section provide important information on their main determinants. The next section interrogates these findings,

1
2
3 in order to test for the potential contribution of improved labour force participation as
4 a strategy to address old age poverty and vulnerability.
5
6
7

8 9 3. IMPROVED PARTICIPATION AS A STRATEGY TO ADDRESS OLD 10 AGE POVERTY? 11

12
13
14 The estimates from the models of participation and earnings enable the next step in
15 the analysis, which is to predict earnings for the whole sample. The exercise aims to
16 provide information on potential earnings for the full sample, including non-
17 participants. This will make it possible to locate participants in the labour market
18 within the distribution of predicted earnings for the whole sample, and to draw some
19 implications for the feasibility and effectiveness of improved labour force
20 participation as a strategy to address old age poverty and vulnerability.
21
22
23
24
25
26
27

28 *Locating participants and the distribution of predicted earnings*

29
30 The basic model of labour at the start of the paper suggests some hypotheses we could
31 pursue. Firstly, continuation in the labour market results from a comparison of the
32 market valuation of older people's time (wage offers) and their own private valuation
33 of this time (reservation wage). It follows from this that older people with strong
34 economic need are likely to have a low reservation wage; whereas older people with
35 high income or assets are likely to have a high reservation wage. It is not possible to
36 observe wage offers or reservation wages directly, but it is possible to draw inferences
37 from the location of participants in the distribution of potential earnings.
38
39
40
41
42
43
44

45
46 A good range of wage offers would be consistent with an even distribution of
47 participants across potential earnings. At least it should then be possible to observe a
48 good number of workers with a low reservation wage participating in the labour
49 market. Improved participation in the labour market could constitute an effective
50 strategy for poor and vulnerable older people to ensure basic living standards. The
51 presence of generous pension provision for formal sector workers, tied to labour
52 market withdrawal, would skew the distribution of participants towards the lower
53 deciles of the distribution of potential earnings.
54
55
56
57
58
59
60

1
2
3
4 Alternatively, a restricted range of wage offers – effectively pricing out low
5 productivity older workers – would skew the distribution of participants towards the
6 higher deciles of the distribution of potential earnings. Under these conditions,
7 improved participation in the labour market is unlikely to constitute an effective
8 strategy for low income and vulnerable older people.
9
10
11

12
13
14 Figures 3 and 4 show the location of actual participants within the distribution of
15 potential earnings for the full sample and the sample of males only. Figure 3 shows
16 the percentages of respondents within each of the deciles of potential earnings who
17 are participants. Figure 4 shows the percentages of all active respondents to be found
18 in each of the deciles of potential earnings.
19
20
21
22

23
24
25 (Figures 3 and 4 about here)
26
27

28 As can be seen from the Figures, participants are actually concentrated on the higher
29 deciles of predicted earnings. Taking the information in Figure 3 first, few of those
30 with predicted earnings in the low deciles of predicted earnings are participating in
31 employment. Participation is highest for those in the higher deciles of predicted
32 earnings. The vast majority of respondents predicted to have earnings in the top decile
33 are active (91.7%) and this also applies to the ninth decile (67.4%). This is the case
34 when considering the full sample and the sample of males only, although marginally
35 more active males can be found in the lower deciles of predicted earnings.
36
37
38
39
40
41
42

43
44 Figure 4 shows that the majority of respondents participating in the labour force can
45 be found in the higher deciles of predicted earnings. Over three quarters of active
46 respondents can be found in the top three deciles when the full sample is considered.
47 This is attenuated for the male sample, but even then over one half of active males can
48 be found in the top three deciles of predicted earnings.
49
50
51
52

53
54 These findings confirm that participants in the labour market are also those with
55 higher potential productivity. The findings are consistent with labour market
56 conditions in which less productive older workers are filtered out through voluntary or
57 involuntary withdrawals and/or pension incentives. If the sample is restricted to men
58 only, marginally more participants are to be found in the lower deciles of predicted
59
60

1
2
3 earnings than when the full sample is used. This suggests that the opportunities for
4 low productivity males to continue in employment are marginally better than those
5 available to low productivity females, or that females with low potential labour
6 market productivity and/or higher reservation wage are filtered out much earlier. The
7 main conclusion is that only males and females with higher predicted earnings are
8 likely to be in employment in later life.¹²
9
10
11
12
13

14 15 16 *Implications for appropriate strategies*

17 The introduction to the paper posed the question of whether improved participation in
18 the labour market among older people is a viable and appropriate strategy to address
19 old age poverty and vulnerability. The findings in this paper suggest that participation
20 in the labour market can be an effective strategy for older people with high potential
21 earnings, but that it is unlikely to be effective for older people with low or average
22 skills and productivity. In particular, improved participation in the labour market is
23 unlikely to be an effective strategy for older women with low or average skills and/or
24 low lifetime engagement in employment.
25
26
27
28
29
30
31
32

33 The opportunities and benefits from 'active' ageing appear to be skewed towards
34 healthier and wealthier old people, at least as far as remunerated work is concerned.
35 The analysis in the paper benefited considerably from the work history information in
36 the ETEEP dataset, as it enabled an examination of the influence of longer term
37 factors. The relevant findings in the paper strongly suggest that policy-makers
38 wishing to enhance opportunities for employment among older people must give
39 consideration to policies that improve health status and continued employment for
40 workers well before retirement age. As younger generations of workers improve their
41 human capital, including education and health endowments, labour force participation
42 might become a more significant strategy for addressing old age poverty, and the
43 opportunities arising from 'active ageing' might become more widely distributed. In
44 the medium and longer term, social investment is a valuable response to population
45 ageing.
46
47
48
49
50
51
52
53
54
55
56

57
58 The analysis in the paper confirms that strengthening social policies directed at older
59 groups will remain an urgent policy challenge in Argentina in the short term. Since
60 2005, the Government of Argentina has taken several steps in this direction. In

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

January 2005, a Social Protection Inclusion Plan (*Plan de Inclusión Previsional*) was introduced. It provided a two-year window for age qualified persons lacking social insurance contributions and for contributions-qualified persons just below the retirement age and unemployed, to access a minimum pension. This measure led to an additional 1.4 million individuals accessing pension benefits, equivalent to a 15 percentage point rise in pension coverage, to 78 percent of people aged 65 and over (D'Elia 2007; Maurizio 2009). The Government also introduced legislation enabling self-employed workers to reduce pension arrears, and the level of the minimum pension has been increased significantly in real terms.¹³ The Social Inclusion Protection Plan was designed as a short-term measure to address the deterioration in pension coverage. It has been successful in raising coverage rates, but there are concerns about its implementation and financial sustainability. The Plan excluded the very poorest and those with little engagement in formal employment. This could explain the findings of a study comparing poverty among older people before and after the Plan, confirming a very high incidence of chronic poverty (D'Elia 2007).

There are a number of implications from the analysis in the paper for policy responses to ageing in Argentina. Social transfers to poorer and older people are the most effective strategy to address old age poverty in the short term. Improved participation of older people in the labour force could, however, make an important contribution in the medium and long term, providing that social investment raises skills and health among younger generations.

CONCLUSIONS

Argentina has one of the longest established old age support systems in Latin America, but successive economic crises, labour market liberalisation, and social security reforms have undermined its reach and effectiveness. The acute financial crisis in 2001 led to rising poverty and unemployment. The recovery shaped two main strategies enabling households to exit poverty: improved employment and earnings, and social transfers. There are some indications that participation rates among older people have been climbing in Argentina. The findings in the paper showed that in 2003 around one in four individuals aged 60 and over were participating in the labour

1
2
3 force and close to 7 percent in the same age group combined receiving a pension with
4 participating in the labour force. The paper examined whether improvements in labour
5 market attachment among older people could help address old age poverty and
6 vulnerability.
7
8
9

10
11
12 The analysis focused on the labour force participation and earnings of older people,
13 and their determinants. The starting point was a static model of labour supply, in
14 which the decision to continue in employment or withdraw is based on a comparison
15 of the market value of time (wage offers) and the individual's own private valuation
16 of that time (reservation wage). Whilst it is not possible to observe wage offers and
17 reservation wages directly, the approach was to extract relevant information from the
18 observed outcome of the decision. The fact that a minority of older persons are in
19 employment necessitated a two stage estimation to account for selectivity issues.
20
21 Firstly, a model of labour market participation was estimated, which confirmed that
22 household characteristics, limited access to pensions, health status, and occupational
23 and employment status are the main determinants of participation for this age group.
24
25 Employment path dependence appears to be an extremely important factor. Higher
26 employment density over the whole working life has a strong effect on continued
27 participation at more advanced ages. This is an important finding, made possible by
28 the fact that the ETEEP dataset includes information on working life histories. The
29 second stage involved the estimation of an earnings model, corrected for participation
30 propensities.
31
32
33
34
35
36
37
38
39
40
41
42

43
44 The coefficients from the earnings equation were then used to predict earnings for the
45 full sample of older people. Examining the distribution of labour market participants
46 and not-participants along predicted earnings confirmed that participants are mainly
47 drawn from those with higher potential earnings, with over three quarters of active
48 respondents to be found in the top three deciles of predicted earnings. This is
49 consistent with labour market conditions in which less productive workers are filtered
50 out through voluntary or involuntary withdrawals and/or pension incentives. It is also
51 consistent with limited opportunities for low productivity older workers to continue in
52 employment at later ages.
53
54
55
56
57
58
59
60

1
2
3
4 The Introduction to the paper posed the question of whether improved participation in
5 the labour market among older people constitutes an effective strategy for addressing
6 old age poverty and vulnerability. The findings in the paper suggest that under current
7 conditions, this would be an effective strategy for older people with high potential
8 earnings, especially males with sustained labour force attachment. However, it is
9 unlikely to be an effective strategy for older people with low potential earnings. In the
10 medium to the long term, improved participation in the labour market could make an
11 important contribution to addressing old age poverty and vulnerability, providing that
12 policies are put in place which enhance the health status and labour force attachment
13 for younger workers. In the short term, strengthening social policies providing income
14 security for poorer and vulnerable older people remains an urgent policy challenge.
15 Since 2005, the Government of Argentina has sought to raise the coverage and value
16 of pensions directed at poorer and more vulnerable older groups.
17
18
19
20
21
22
23
24
25
26
27

28 With rapid population ageing in the South, important lessons can be drawn from
29 Argentina. In the short run, there are few policy options for policy makers concerned
30 with old age poverty and vulnerability. Income transfers to older people remain a
31 primary instrument to address old age poverty and vulnerability. In the medium term,
32 improving the health status and employment prospects of younger workers will pay
33 dividends later on, not only in terms of improved productivity, which helps generate
34 resources to finance higher pension expenditure, but also in terms of facilitating their
35 extended labour force attachment.
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Peer Review Only

REFERENCES

- Alós, M.; Apella, I.; Grushka, C. and Muinos, M. (2008) Participation of seniors in the Argentinian labour market: An options value model, *International Social Security Review*, 61 (4), pp. 25-49.
- Barrientos, A. (2000) Work, retirement, and vulnerability of older workers in Latin America. What are the lessons for pension design?, *Journal of International Development*, 12.
- Barrientos, A. (2004) Latin America: towards a liberal-informal welfare regime, in I. Gough; Wood, G.; Barrientos, A.; Bevan, P.; David, P. and Room, G. (eds.), *Insecurity and welfare regimes in Asia, Africa and Latin America*, (Cambridge: Cambridge University Press).
- Benjamin, D.; Brandt, L. and Fan, J.-Z. (2003), Ceaseless Toil? Health and Labour Supply of the Elderly in Rural China, mimeo, Toronto: Department of Economics, University of Toronto.
- Bertranou, F. (2001) Empleo, Retiro y Vulnerabilidad Socioeconómica de la Población Adulta Mayor en Argentina, mimeo, Cuyo: Universidad Siglo 21.
- Bertranou, F. and Sanchez, A. (2003) Características y determinantes de la densidad de aportes a la seguridad social en la Argentina 1994-2001, in Ministerio del Trabajo and OIT (eds.), *Historias Laborales de la Seguridad Social*, (Buenos Aires: Ministerio del Trabajo), pp. 37-64.
- Bertranou, F.; Solorio, C. and van Ginneken, W. (2002) *Pensiones no-contributivas y asistenciales. Argentina, Brazil, Chile, Costa Rica y Uruguay*, Santiago: ILO.
- Blundell, R. and MaCurdy, T. (1998) Labor Supply: A Review of Alternative Approaches, Working Paper W98/18, (London: Institute for Fiscal Studies).
- Bound, J.; Schoenbaum, M.; Stinebrickner, T. R. and Waidmann, T. (1999) The dynamic effects of health on the labor force transitions of older workers, *Labour Economics*, 6, pp. 179-202.
- Burtless, G. and Moffitt, R. A. (1985) The Joint Choice of Retirement Age and Postretirement Hours of Work, *Journal of Labor Economics*, 3 (2), pp. 209-236.
- Camarano, A. A. and Pasinato, M. T. (2002), Envelhecimento, condicoes de vida e politica previdenciaria. Como ficam as mulheres?, Discussion Paper 833, (Rio de Janeiro: IPEA).
- Carvalho, I. (2000a), Elderly Women and their Living Arrangements, mimeo, (Cambridge MA: MIT).
- Carvalho, I. (2000b), Old-Age Benefits and the Labour Supply of Rural Elderly in Brazil, mimeo, (Cambridge MA: MIT).
- Clark, R. L.; York, E. A. and Anker, R. (1999) Economic development and labour force participation of older persons, *Population Research and Policy Review*, 18, pp. 411-432.
- Cruces, G. and Wodon, Q. (2003) Transient and chronic poverty in turbulent times: Argentina 1995-2002, *Economics Bulletin*, 9 (3), pp. 1-12.
- D'Elia, V. (2007) Pobreza en hogares con adultos mayores: Un análisis a partir del Plan de Inclusión Social, Report, (Buenos Aires: ANSES).
- Diamond, P. and Gruber, J. (1999) Social Security and retirement in the United States, in J. Gruber and Wise, D. A. (eds.), *Social Security and Retirement around the World*, (London: University of Chicago Press), pp. 437-474.
- Evans, D. S. and Leighton, L. S. (1989) Why do smaller firms pay less?, *Journal of Human Resources*, 24, pp. 299-318.

- 1
2
3 Filer, R. K. and Petri, P. A. (1998) A Job Characteristics Theory of Retirement, *Review of*
4 *Economics and Statistics*, 70 (1), pp. 123-129.
- 5 Fuchs, V. R. (1982) Self-employment and labor force participation of older males, *Journal of*
6 *Human Resources*, 17 (3), pp. 339-357.
- 7 Gill, I. S.; Packard, T. and Yermo, J. (2004) *Keeping the Promise of Social Security in Latin*
8 *America*, (Washington DC: Stanford University Press and the World Bank).
- 9 Gronau, R. (1973) The Effect of Children on the Housewife's Value of Time, *Journal of*
10 *Political Economy*, 81 (2), pp. S168-S199.
- 11 Gruber, J. and Wise, D. A. (1999), *Social Security and Retirement around the World*,
12 London: University of Chicago Press.
- 13 Haider, S. and Loughran, D. (2001) Elderly Labor Supply: Work or Play?, Working Paper
14 CRR WP 2001-4, (Chestnut Hill, MA: Centre for Retirement Research at Boston
15 College).
- 16 Haider, S. and Loughran, D. (2003) How Important are Wages to the Elderly? Evidence from
17 the New Beneficiary Data System and the Social Security Earnings Test, Working
18 Paper WP 2003-049, (Michigan: Michigan Retirement Research Center, University of
19 Michigan).
- 20 Hanoch, G. and Honig, M. (1983) Retirement, Wages, and Labor Supply of the Elderly,
21 *Journal of Labor Economics*, 1 (2), pp. 131-151.
- 22 Heckman, J. J. (1974) Shadow Prices, Market Wages and Labor Supply, *Econometrica*, 42
23 (4), pp. 679-694.
- 24 Heckman, J. J. (1976) The common structure of statistical models of truncation, sample
25 selection and limited dependent variables and a simple estimator for such models,
26 *Annals of Economic and Social Measurement*, 5 (4), pp. 475-492.
- 27 Holzman, R.; Robalino, D. and Takayama, N. (2009) *Closing the Coverage Gap. The role of*
28 *social pensions and other retirement income transfers*, (Washington DC: The World
29 Bank).
- 30 Hurd, M. and McGarry, K. (1993) The relationship between job characteristics and
31 retirement, Working Paper 4558, (Cambridge, M.A.: National Bureau of Economic
32 Research).
- 33 Hurd, M. D. (1990a) The Joint Retirement Decision of Husbands and Wives, in D. Wise (ed.)
34 *Issues in the Economics of Aging*, (Chicago: University of Chicago Press), pp. 231-
35 254.
- 36 Hurd, M. D. (1990b) Research on the Elderly: Economic Status, Retirement, and
37 Consumption and Saving, *Journal of Economic Literature*, 28, pp. 565-637.
- 38 Hutchens, R. M. (1988) Do job opportunities decline with age?, *Industrial and Labor*
39 *Relations Review*, 42 (1), pp. 89-99.
- 40 Kochar, A. (1999) Evaluating Familial Support for the Elderly: The Intra-household
41 Allocation of Medical Expenditures in Rural Pakistan, *Economic Development and*
42 *Cultural Change*, 47 (3), pp. 621-656.
- 43 Maurizio, R. (2009) Políticas de transferencias monetarias en Argentina: Evaluación de su
44 impacto sobre la pobreza y la desigualdad, y evaluación de sus costos, in S. Keufman
45 (ed.) *Reflexiones y propuestas para mejorar la distribución de ingresos en Argentina*,
46 (Buenos Aires: OIT), pp. 181-266.
- 47 Maurizio, R.; Perrot, B. and Villafane, S. (2007) Dinámica de la pobreza y mercado de
48 trabajo en la Argentina post-convertibilidad, (Buenos Aires: Ministerio del Trabajo).
- 49 Mitchell, O. S. and Fields, G. S. (1984) The Economics of Retirement Behavior, *Journal of*
50 *Labor Economics*, 2 (1), pp. 84-105.
- 51 Parker, S. W. (1999) Elderly Health and Salaries in the Mexican Labor Market, Working
52 Paper R-353, (Washington DC: Inter-American Development Bank).
- 53
54
55
56
57
58
59
60

- 1
2
3 Paz, J. (2003) Movilidad entre empleos protegidos y no protegidos en la Argentina, in
4 Ministerio del Trabajo and OIT (eds.), *Historias Laborales de la Seguridad Social*,
5 (Buenos Aires: Ministerio del Trabajo), pp. 97-126.
6
7 Pencavel, J. (1986) Labor Supply of Men: A Survey, in O. Ashenfelter and Layard, R. (eds.),
8 *Handbook of Labor Economics*, (Amsterdam: North-Holland), pp. 3-102.
9
10 Pozzebon, S. and Mitchell, O. S. (1989) Married women's retirement behavior, *Journal of*
11 *Population Economics*, 2, pp. 39-53.
12
13 Rofman, R. (2004), Social security and the economic crisis in Argentina, mimeo, Washington
14 DC: The World Bank.
15
16 Williamson, J. B. and McNamara, T. K. (2001), Why some workers remain in the labor force
17 beyond the typical age of retirement?, Working Paper CRR WP 2001-09, (Chestnut
18 Hill, MA: Centre for Retirement Research).
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

ENDNOTES

¹ Bertranou (2001) constructs a time series with data from the metropolitan region (*Gran Buenos Aires*) covering the period 1974 to 1999 and finds that activity rates for women aged 65 and over increased from around 5 percent at the start of the period to just above 8 percent in 1999, and for males from just under 20 percent to just over 25 percent over the same period.

² Other factors are important too. Recent research in the USA, using extended panel data, finds that work preferences are stronger than economic need among individuals who return to work after retirement (Haider and Loughran 2001; Williamson and McNamara 2001; Haider and Loughran 2003).

³ In developed countries, studies have looked at joint retirement decisions by couples (Burtless and Moffitt 1985; Pozzebbon and Mitchell 1989; Hurd 1990a);

⁴ Evidence for the USA suggests that older women are more likely to participate if they have earlier and continued work attachment (Haider and Loughran 2001).

⁵ It is important to note the high number of refused interviews. Of the target sample of 5,427 households with older people in the ETEEP survey, 1,800 households refused to be interviewed. In a further 613 households the respondent was absent or incapacitated.

⁶ A further 1.5 percent stated that their pensions were sufficient but that they needed more income.

⁷ Studies of contributory pensions pay particular attention to the age of retirement specified by the pension rules (Alós, Apella, Grushka et al. 2008). In the case of Argentina this is 60 for men and 65 for women. There are indications that the retirement age rule is being applied more strictly and that financial conditions are making early retirement less attractive, but there is considerable variation in the age of first contributory pension receipt in the sample, with around one third of respondents reporting having received a pension before age 60 and a further quarter reporting having received it after age 66. And of course the specified retirement ages above do not apply to disability, survivor, and non-contributory pensions. Of those reporting being in receipt of a pension, one half have old age or service pensions, and the other half have disability, survivor, and non-contributory pensions.

⁸ Considering males only, it is an issue whether a significant number of 60-64 year-olds expects to retire at age 65 and that as a consequence their participation propensities cannot be extrapolated to males aged 65 and over. Of the 428 males participating in the labour market in the sample, 204 are aged 60-64. However, a more detailed look at this group suggests this is not an important issue in practice. Of the 204 males aged 60-64, 73 are self-employed, and 54 among the rest report not having retired due to insufficient years of contribution. Only a further 54 are waiting to fulfil the age requirement, and 4 report their pension being processed. It is, of course, not possible to predict whether they will work after receiving their pensions. The analysis below will therefore use the full sample of males.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

⁹ Alternatively, the model was estimated with higher powers of age, squared and cubic, but they did not generate significant coefficients.

¹⁰ To check for potential endogeneity arising from household dynamics around the receipt of pension benefits, the participation probit was estimated excluding respondents who had moved in the last 4 years. The resulting coefficients were almost identical to those estimated without the sample restriction.

¹¹ See footnote 12.

¹² As a check on whether missing observations on earnings are likely to generate biases in predicted earnings, it is now possible to compare the distribution of participants with and without reported earnings along predicted earnings. It was found that, for both the full sample and the sample of males only, participants with non-reported earnings were distributed in a similar fashion to those with reported earnings. This applies particularly to the higher deciles of potential earnings that are more populated by participants. This suggests that, in terms of their potential earnings, those without reported earnings are unlikely to be significantly different from those with reported earnings.

¹³ The Social Protection Inclusion Plan includes other measures directed at children and poor households.

Figure 1. Labour market participation rates by age. Argentina 1997-2004

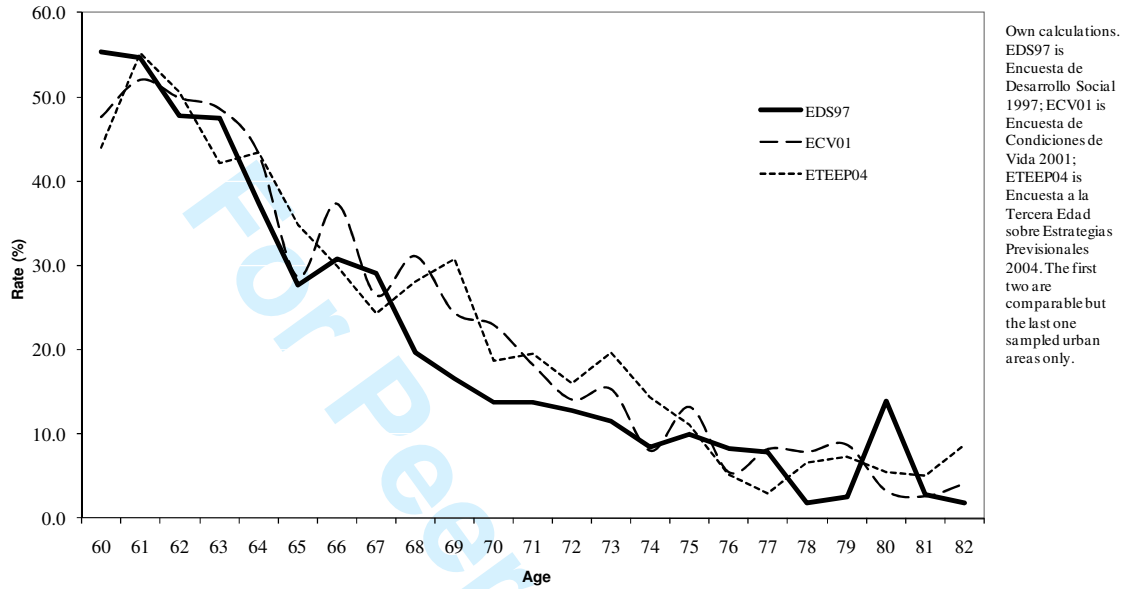
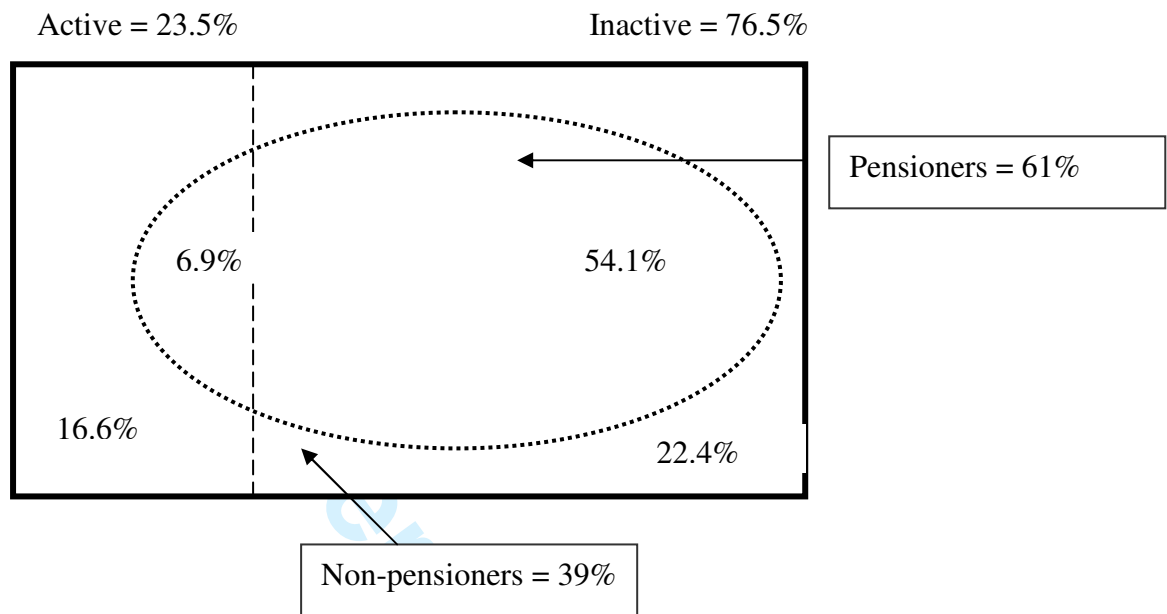


Figure 2. Population aged 60 and over by activity and pension receipt status. Argentina ETEEP Survey 2003



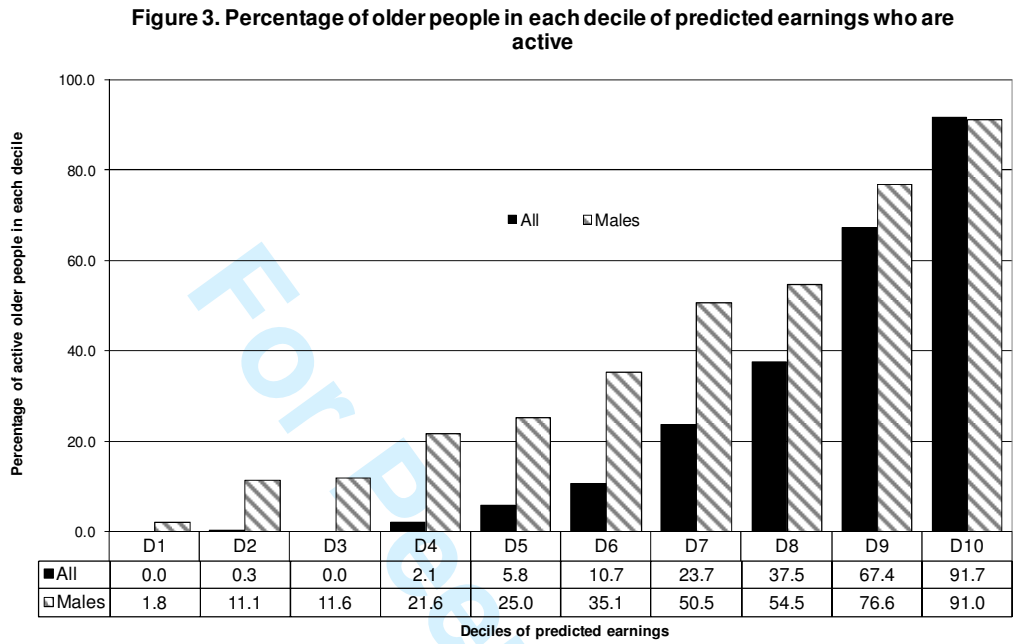


Figure 4. Distribution of active older people in deciles of predicted earnings

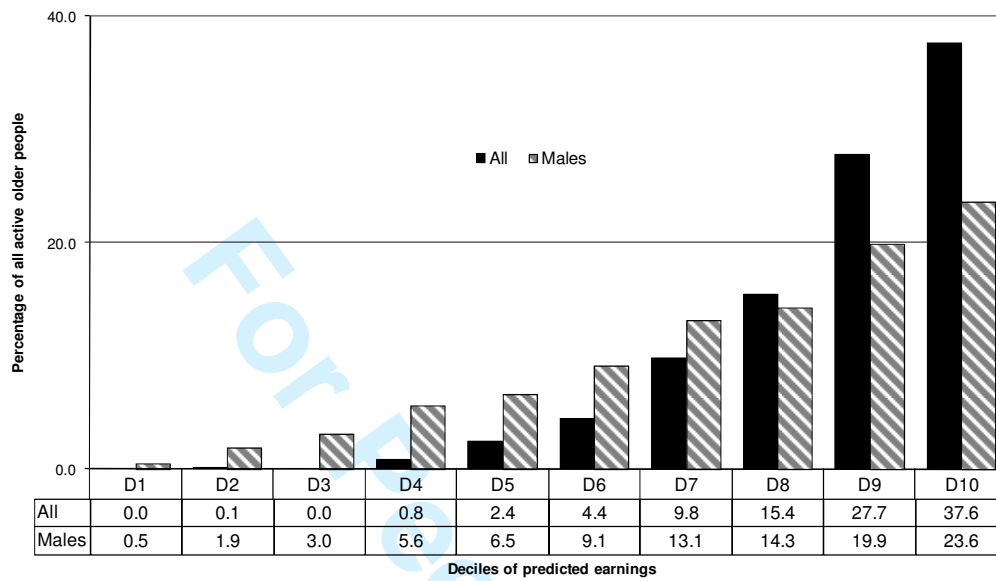


Table 2. Summary of results from the estimation of earnings models
(Dependent variable is the natural log of aggregate monthly earnings)

Variable	Full Sample			Men		
	Coeffic.	t-stat	Mean	Coeffic.	t-stat	Mean
	n=360 Adj. R2=0.4313			n=217 Adj. R2=0.3813		
Constant	8.423*	8.265		8.480*	5.662	
Age	-0.074*	-3.346	65.63	-0.062**	-2.410	65.28
Male	0.648*	3.741	0.60			
Married	-0.105	-0.640	0.55	0.224	0.992	0.70
Single	-0.498**	-2.347	0.08	-0.169	-0.561	0.07
Widow	-0.132	-0.756	0.24	-0.009	-0.034	0.13
Primary School	-0.128	-1.146	0.66	-0.358*	-2.837	0.64
Higher Education	0.853*	3.526	0.05	0.761*	2.659	0.05
Poor Health	-0.397**	-2.098	0.07	-0.221	-0.813	0.05
Good Health	0.349*	3.262	0.57	0.363*	2.809	0.63
Self-employed	-0.482*	-4.532	0.47	-0.560*	-4.287	0.52
Employer	0.340	1.322	0.03	0.587***	1.949	0.05
Contribution density	0.449**	2.389	0.47	0.374	1.440	0.55
Work density	1.448*	4.885	0.78	1.538*	4.476	0.82
Size of establishment	-0.104***	-1.757	1.48	-0.128***	-1.757	1.5
Lambda	0.705**	2.203	0.87	0.494	1.307	0.67
Occupation controls	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes

The model estimated also included primary and higher education, single, and widow variables.

* means significant at 1%; ** at 5 %; *** at 10%

APPENDIX 1. VARIABLE DEFINITIONS

Table A1.1. Variable definitions

Age	Age in years
Male	Whether male
Married	Whether married or in union
Single	Whether single
Widow	Whether widow/er
Primary	Whether attended primary education
Secondary	Whether attended secondary education
Higher education	Whether attended higher education
Poor health	Whether reported being in poor or very poor health
Good health	Whether reported being in good or very good health
Support ratio	Support ratio: adults (15-59) over children below 15 plus older people 60 and over in household
Household size	Number of persons in household
Numbers active in household	Number of active persons in household other than respondent
Number of pensioners in household	Number of pensioners (receiving any pension) in household other than respondent
Number of distress strategies	Number of financial distress strategies used in last three months from a list of three. Whether had to: borrow from family and friends; use consumer credit; or sell belongings
Self-employed	Whether self-employed in last job
Employee	Whether employee in last job
Employer	Whether employer in last job
Contribution density	Contribution density measured as reported years of contributed in all jobs over working life as a fraction of numbers of years of work reported in all jobs during working life
Work density	Work density measured as number of years worked in all self-reported by respondent as a fraction of working age calculated as 18-60 for women and 18-65 for men
Size of establishment	Size of establishment in last job
Occupation1	Agriculture, livestock, and fishing
Occupation2	Mining, Oil and Gas
Occupation3	Manufacturing: Food, drink and tobacco
Occupation4	Manufacturing: textiles and leather goods
Occupation5	Manufacturing: Chemical
Occupation6	Manufacturing: Metal
Occupation7	Manufacturing: Other
Occupation8	Electricity, gas and water
Occupation9	Construction
Occupation10	Commercial services, and repairs of vehicles and other
Occupation11	Hotels, restaurants and bars
Occupation12	Transport, telecommunications and travel
Occupation13	Financial Services
Occupation14	Public Administration and defence

Occupation15	Education, health and social services
Occupation16	Leisure, culture, sports, and community and personal services including domestic service
Region1	Buenos Aires and Metropolitan Area
Region2	Cuyo
Region3	North-East
Region4	North-West
Region5	Pampeana

For Peer Review Only