Is There Labor Market Discrimination among Professionals in Chile? Lawyers, Doctors and Businesspeople

by

David Bravo*
Claudia Sanhueza**
Sergio Urzúa***

* Centro de Microdatos, Departament de Economía, Universidad de Chile
** ILADES, Universidad Alberto Hurtado
*** Department of Economics, Northwestern University

May 2008

Abstract[*]

This paper analyzes gender differences in three Chilean professional labor markets, Business, Law and Medicine, utilizing a new and rich data set collected for this purpose. The results show that differences in wages attributed to gender are only present in the legal profession. In Business/Economics, a vector of current family condition eliminates the gender effect and in Medicine, taking into account hours worked, size of firm and region also eliminates gender differences. The paper further shows that individuals' perceived locus of control (internal or external) is relevant in explaining the distribution of earnings.

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1. Introduction

Labor market discrimination is said to arise when two identically productive workers are treated differently on the grounds of the worker's race or gender, when race or gender do not in themselves have an effect on productivity (Altonji and Blank, 1999; Heckman, 1998).

However, there are never identical individuals. There are several unobservable factors that determine individual performance in the labor market. First, we do not observe individuals' cognitive abilities.[1] Second, we do not observe individuals' non-cognitive abilities such as personal motivation, self-determination, and locus of internal/external control or self-confidence. Third, we do not observe pre-labor market discrimination conditions such as family background and school environment.[2] Fourth, we do not observe individual past expectations of how the labor market works.[3]

Regarding gender group differences, these can be found for market and non-market activities and for types of jobs. There are gender differences for comparative advantages due to differences in gender roles in home production, differences in parental investment in skills (Becker, 1991) and the transfer of family preferences (Fernandez, Fogli and Olivetti, 2004). And there are group gender differences in human capital investments as a result of pre-labor market discrimination. Consequently, discrimination can influence human capital investment before and after an individual enters the labor market.

Based on these facts and on the lack of studies addressing these issues in Chile, we implemented a survey on professionals from three different careers in Chile: Law, Medicine and Business, to analyze differences in wages while reducing unobservables to a minimum. All of the individuals surveyed have passed a university entrance selection test, and they are comparable in their academic formation. In addition, we have data on their university performance and their social and family background. Finally, we have applied to them both a test of non-cognitive

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[1] Neal and Johnson (1996) is a good example of how unobserved factors could be driving the results. They study the role of pre-market factors in black-white wage differences controlling with a test administered to teenagers prepared to leave high school in the US. They found that the adult black-white wage gap primarily reflects a skills gap due to observable differences in family backgrounds and school environments.

[2] O'Neil and O'Neil (2005) find that differences in productivity-related factors account for most of the between-group wage differences in the year 2000 for the US. Differences in schooling and in skills developed in the home and in school, as measured by test scores, are important in explaining Black/white wage gaps. But the gender differences in schooling and cognitive skills are quite small and explain little of the pay gap. Instead, the gender gap is largely due to choices made by women and men concerning the amount of time and energy devoted to a career, as reflected in years of work experience, use of part-time work, and other workplace and job characteristics.

abilities and a survey on their real labor experience and current family conditions. Using this extensive new dataset we have taken a regression analysis approach to determine how much of the wage gap remains once gender is the only difference among individuals.

Research in Chile has been centered on the traditional Oaxaca decomposition (Oaxaca, 1973; Blinder, 1973). Paredes and Riveros (1993), estimate the endowment and discrimination effects for the period 1958-1990,[4] providing evidence on discrimination against females during the entire period examined. Montenegro (1999) and Montenegro and Paredes (1999) analyze gender wage differential by using quantile regression and the Oaxaca decomposition. The evidence also shows stable and systematic differences in returns to education and to experience by gender along the conditional wage distribution. In addition, it is also shown that discrimination is higher for women with more education and experience. However, the conclusions of these studies are limited, as they lack several control variables related to cognitive and non-cognitive abilities as well as school and family environments. In addition, preferences for non-market activities and experience of Chilean female workers could prove to be very important unobservable factors.

More recently, Núñez and Gutiérrez (2004) study social class discrimination in Chile under the traditional Blinder-Oaxaca decomposition. They use a dataset that allows them to reduce the role of unobservable factors by limiting the population under study and having better measures of productivity than we do. This study, however, has several limitations. The first is related to data collection: the survey was carried out by postal mail and had a very low response rate of approximately 30 percent. Second, the survey was carried out on recently graduated secondary students of Economics,[5] which does not permit the measurement of the effects of labor experience. Third, the study lacks survey data on labor history and real experience, family characteristics and preferences. Fourth, the survey had a very small sample size.

This paper overcomes these limitations by surveying 1,500 Alumni of the Universidad de Chile from the following degree programs: 500 from Medicine, 500 from Law and 500 from Business/Economics. Half of each group are women and half are men. We subsequently analyze wage differences between women and men for each career, correcting the estimates for post-

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[3] See Altonji and Blank (1999) for a survey of race and gender discrimination and explanations of the underlying theories.

[4] Contreras and Puentes (2001) extended the analysis to 1996.

[5] In Chile, secondary-level students choose areas of concentration.

graduate schooling, labor market experience, parents' schooling, marital status and cognitive abilities. Following recent literature (Heckman, Stixrud and Urzúa, 2005), we additionally applied the Rotter (1966) and Rosemberg (1965) tests for non-cognitive abilities. Finally, we ran OLS regressions and ordered probit estimation to explain economic outcomes.

The results indicate that that differences in wages attributed to gender are only present in the Law profession. In the Business/Economics profession a vector of current family condition makes the gender effect disappear, and in Medicine gender differences disappear when hours worked, size of firm and region are taken into account. In addition, differences in perceived locus of control (internal or external, listed as "self control" in the tables of this paper) are particularly important in explaining wage differences.

The structure of the paper is the following. Section 2 presents the econometric models, and Section 3 presents the data and summarizes the descriptive statistics. Section 4 presents the results, and Section 5 concludes.

2. The Econometric Models

In this section we will briefly explain the well-known models in which labor market discrimination is usually studied. We are using two different specifications: OLS estimation and an ordered probit estimation.[6] In each of these models we have a wage equation as a function of a set of different explanatory variables:

2.1 Model 1: OLS

$$\log w_i = \gamma F_i + \lambda_1 Exp + \lambda_2 Exp^2 + \lambda_3 N_i^{jobs} + J_i^{'}\Phi + X_i^{'}\delta + S_i^{'}\Gamma + T_i^{'}\Delta + H_i^{'}\Pi + \varepsilon_i$$

where F is a dummy variable that takes a value of1 if female and 0 otherwise. Thus, the coefficient γ measures the perceptual difference in wages that are lower because individual i is female rather than male. In this setting, market value and individual characteristics are assumed.

Exp is years of real labor experience, Exp^2 is the square of Exp, and N^{jobs} is the average number of parallel working activities in which each individual engages in a year.

J' is a set of variables related to characteristics of the job. These include a dummy variable for the level of responsibility in the job that takes a value of 1 if the occupation is of

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[6] In a future version of this paper we will include a Oaxaca decomposition.

high responsibility[7] and 0 otherwise, a dummy variable for a large firm that takes a value of 1 if the firm has more than 500 workers, and a dummy variable equal to 1 if the person works in the metropolitan region of Santiago.

X' is a set of variables related to other personal characteristics. These include a dummy variable that takes value a 1 if the person has taken a postgraduate course and another dummy variable measuring university performance that takes a value of 1 if the person has failed a class. Also included is a variable for age.

S' is a set of variables related to the person's socioeconomic background such as mother's and father's years of schooling and secondary school grades.[8]

T' contains two measures of non-cognitive abilities that will be discussed below.

Finally, H' contains three measures of current family situation such as a dummy for married, number of children and a dummy for head of the household. An alternative specification would have been to use a Heckman model

2.2 Model 2: Ordered Probit Model

$$I_i = j \quad if \quad \alpha_{j+1} \le \phi Hrs_i + \gamma F_i + \lambda_1 Exp + \lambda_2 Exp^2 + \lambda_3 N_i^{jobs} + J'_i \Phi + X'_i \delta + S'_i \Gamma + T'_i \Delta + H'_i \Pi + \varepsilon_i < \alpha_j$$
$$where \quad j = 1,\ldots,8$$

I_i is an indicator variable for the wage intervals and Hrs_i is the number of hours worked monthly by individual i.

We use this ordered probit estimation because of the way the income question was asked in the survey. First, the questionnaire asked for individual's the average income. If the interviewee refused to answer, the interviewer repeated the question but provided intervals of income as an option for response. About 70 percent of the sample answered the income question only in the second way.

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[7] An occupation is said to be of high responsibility if its occupation code is related to the following categories: members of the executive or legislative branch and directors of public and private firms, such as business managers and company directors.

[8] Grades in Chile go from 1 (low) to 7 (high); having an average secondary school performance of 6 is therefore distinguished.

3. The Data

In this section we present comprehensive descriptive statistics of the variables collected in the survey and used in the estimations.[9] We examine statistics on labor market outcomes, University performance and social and academic background. We also test for non-cognitive abilities and current household status. Each of these variables is meant to explain in some way gender differences between observed gender gaps in wages.

We have collected approximately the same quantity of interviews for each type of degree (see Table 1), or 500 observations for each type.

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Table 1
All Sample

Type of Degree	Obs	%
Business	505	33.18
Law	506	33.25
Medicine	511	33.57
Total	1522	100

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Table 2 shows the list of variables included in the regression for the degree of Business and Economics by gender.

Regarding labor outcomes we can see that there are gender differences in wages.[10] Women's monthly wage is 69 percent of men's monthly wage; these differences can also be observed in the tabulations of wage intervals. It should be noted, however, that women work fewer hours a month, and women's hourly wage is 81 percent of men's hourly wage, or 97 percent if we look at the logarithm. We also can note that female labor force participation is 81 percent as compared to male labor force participation of 97 percent. Women have less accumulated experience and fewer parallel activities, although these differences are not great. In addition, 56 percent of men have a job of high responsibility, while only 43 percent of women do. We can also observe that there are gender differences in type of firm. While 47 percent of men work in firms with more than 500 workers, 60 percent of women do.

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[9] The questionnaire and a complete field work resume are in the Appendix.

[10] Exact wages were only reported for only about 20 of the sample. Most respondents who did not give the exact amount, however, provided an interval. Therefore we have assigned the maximum of the interval to the wage, and we run an ordered probit using the intervals of wages. There were also people who did not want to answer this question, which means that we have fewer data for this variable than others.

We can note that women are more than 15 percent less likely than men to have a post-graduate degree, although women seem to have a better performance at University and at lower levels of schooling (see grades). Mother's schooling is higher for women than for men, which may be related to the transmission of preferences. There are no differences in socioeconomic background between men and women: 8 percent of each group comes from a poor family, and 15 percent of each group was raised in a single-parent home.

As noted above, we also collected measures of non-cognitive abilities by taking the Rotter (1966) and Rosenberg (1965) tests for internal and external locus of control and self-esteem, respectively.[11] The lower the index, the higher the degree of internal control or self-esteem. On average, women registered lower degrees of internal control but a higher degree of self-esteem.

Finally, we think that measures of current home situation could be important since they may reflect preferences for home production activities. We can see that, although the number of children and the percentage of married men and women are the same, only 28 percent of women are head of the household, whereas 96 percent of men are.

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[11] The tests are included in the questionnaire.

Table 2
Summary Statistics: Business/Economics

	Male			Female		
	Obs	Mean	SD	Obs	Mean	SD
Labor Market Outcomes						
Hourly Wage	211	12120.4	4760.4	182	9842.93	5695.5
Log(hourly wage)	211	9.33	0.40	182	9.07	0.53
Monthly Wage	211	2314882	905585	182	1602061	756934
Labor Market Participation	252	0.97	0.16	253	0.85	0.36
Monthly Hours worked	245	192.56	31.71	214	184.17	265.63
Real experience	252	17.50	5.31	253	16.96	4.54
Real experience squared	252	334.38	207.88	253	308.15	166.66
Mean of number jobs by year	252	1.05	0.34	253	1.00	0.32
Level of responsibility	245	0.56	0.50	214	0.43	0.50
Big Firm (>500w)	252	0.47	0.50	253	0.60	0.49
Metropolitan Region	252	0.92	0.27	253	0.93	0.25
Age	252	42.50	6.40	253	41.04	5.20
Performance at University						
Reprove any class==1	252	0.89	0.31	253	0.83	0.38
Post graduate schooling==1	252	0.47	0.50	253	0.32	0.47
Family Background						
Mother's years of schooling	248	12.95	3.20	249	13.34	3.25
Father's years of schooling	245	14.62	3.26	247	14.58	3.55
Grades in secondary school	245	60.21	4.06	252	63.64	2.74
Poor background==1	250	0.07	0.26	253	0.08	0.26
Uniparental home==1	252	0.16	0.37	253	0.15	0.35
Non Cognitive Abilities						
Self control test	247	1.34	0.41	248	1.42	0.43
Self esteem test	245	1.55	0.38	249	1.49	0.40
Family Status						
Number of children	247	2.26	1.59	246	2.28	1.39
Married==1	252	0.85	0.35	253	0.82	0.38
Head of the household==1	252	0.96	0.19	253	0.28	0.45
Wage Intervals (1USD=537CHP)		%			%	
Less than 372 USD						
Between 372 and 745 USD	1	0.47		2	1.1	
Between 745 and 1120 USD				7	3.85	
Between 1120 and 1490 USD	1	0.47		9	4.95	
Between 1490 and 1862	5	2.37		20	10.99	
Between 1862 and 2793 USD	19	9		39	21.43	
Between 2793 and 3725 USD	42	19.91		38	20.88	
Between 3725 and 4656 USD	42	19.91		32	17.58	
Between 4656 and 5587 USD	36	17.06		18	9.89	
More thab 5587 USD	65	30.81		17	9.34	
Total	211	100		182	100	

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Table 3 shows the summary of the descriptive statistics for the degree of Law by gender. In this case the gap in monthly wages is approximately 68 percent, in favor of men. However, we can note that monthly hours worked by women are on average higher than hours worked by men so the gap declines to 71 percent in monthly hourly wage and to 96 percent if we look at the logarithm. We also can note that female labor force participation is 93 percent, lower than male labor force participation of 99 percent, though both are higher than in case of business. Women have more accumulated experience and have slightly fewer parallel activities, although these differences are also not great. We can also observe that the proportion of lawyers in job positions with more responsibility is less than in the case of business/economics, reaching only 4 percent and 5 percent, respectively. We can also observe that there are gender differences in type of firm. As in the case of business/economics, women tend to work in large firms (51 percent) more than men (31 percent).

We can note that 63 percent of both women and men who study law obtain post-graduate degrees. Again women have better performance at University and at lower levels of schooling: a lower proportion of women fail classes, and they have higher secondary school grades. Mother's and father's schooling are higher for women than for men, which may be again related to the transmission of preferences. Only 6 percent of women come from a family of poor background, whereas 17 percent of men are in the same situation; 20 percent of both women and men were raised in a single-parent home.Measures of non-cognitive abilities behave largely as in business/economics. On average, women registered a lower degree of internal control but a higher degree of self-esteem.

Finally, we can see that there are more differences between men and women in law than in business/economics. The percentage of married individuals is lower for lawyers overall and for women in particular; the number of children is slightly lower for women. Although women remain less likely than men to be head of the household, this this rate is higher for lawyers than businesspeople, reaching 37 percent.

Table 3
Summary Statistics: Law

	Male			Female		
	Obs	Mean	SD	Obs	Mean	SD
Labor Market Outcomes						
Hourly Wage	182	11148.6	6598.35	183	7967.87	3765.2
Log(hourly wage)	182	9.17	0.57	183	8.84	0.63
Monthly Wage	182	2066832	1247710	183	1400567	645716
Labor Market Participation	249	0.99	0.09	257	0.93	0.25
Monthly Hours worked	247	230.61	419.98	240	265.85	600.07
Real experience	249	19.39	5.21	257	20.58	6.72
Real experience squared	249	402.99	228.13	257	468.37	310.19
Mean of number jobs by year	249	1.36	0.59	257	1.35	0.60
Level of responsibility	247	0.04	0.21	240	0.05	0.22
Big Firm (>500w)	249	0.31	0.46	257	0.51	0.50
Metropolitan Region	249	0.71	0.45	257	0.81	0.39
Age	246	44.39	7.14	256	44.79	7.16
Performance at University						
Reprove any class==1	249	0.26	0.44	257	0.16	0.37
Post graduate schooling==1	249	0.63	0.48	257	0.63	0.48
Family Background						
Mother's years of schooling	226	12.53	3.52	238	13.54	3.00
Father's years of schooling	231	13.83	3.92	236	15.11	3.12
Grades in secondary school	245	60.02	4.71	256	63.04	3.85
Poor background==1	247	0.17	0.38	254	0.06	0.24
Uniparental home==1	249	0.20	0.40	257	0.21	0.41
Non Cognitive Abilities						
Self control test	230	1.47	0.45	241	1.51	0.47
Self esteem test	240	1.52	0.38	251	1.47	0.36
Family Status						
Number of children	239	2.44	1.44	251	2.09	1.39
Married==1	249	0.84	0.37	257	0.67	0.47
Head of the household==1	249	0.99	0.11	257	0.37	0.48
Wage Intervals (1USD=537CHP)		%			%	
Less than 372 USD	2	1.1				
Between 372 and 745 USD	2	1.1		6	3.28	
Between 745 and 1120 USD	2	1.1		8	4.37	
Between 1120 and 1490 USD	7	3.85		15	8.2	
Between 1490 and 1862	11	6.04		20	10.93	
Between 1862 and 2793 USD	29	15.93		48	26.23	
Between 2793 and 3725 USD	34	18.68		37	20.22	
Between 3725 and 4656 USD	31	17.03		36	19.67	
Between 4656 and 5587 USD	19	10.44		10	5.46	
More thab 5587 USD	45	24.73		3	1.64	
Total	182	100		183	100	

Table 4 shows the summary of the descriptive statistics for the degree of medicine by gender. In this case the gap in monthly wages is approximately 76 percent, in favor of men; this is lower than in the cases of business/economics and law. In addition, we can note that monthly hours worked by women are on average lower than hours worked by men; thus the gap is reduced to 91 percent in monthly hourly wage and to 99 percent if we look at the logarithm. We also can note that female labor force participation is 97 percent, lower than male labor force participation of 100 but both higher than in business and law. Accumulated experience in terms of years of experience and number of parallel activities of women and men are the same. We can also observe that the proportion of doctors in job positions with more responsibility is nearly null for both gender. Likewise, there are no great differences in type of firm they work, as 90 percent of women work in large firms and 86 percent of men. This latter statistics is higher than in the case of business and law.

In addition, we can note that 97 percent of women and men who study medicine pursue post-graduate degrees, which may be related to training in specialties. Again, women have a slightly better performance in University and at secondary school: a lower proportion of women fail classes, and they have higher grades at secondary school. Mother's and father's schooling are more similar among groups in this case, and the level of parents' schooling is higher in comparison to that of other professions.

The measures of non-cognitive abilities behave in the same way as in other cases. On average, women recorded a lower degree of internal control but a higher degree of self-esteem. Moreover, it is worth noting that non-cognitive abilities are higher in this profession than in business and law.

Finally, in regard to measures of current home situation, medical professionals observed in this sample have fewer children than other professionals considered, and female doctors have fewer children than male doctors. The rate of married individuals is lower for women than for men. Nonetheless, men have a higher married rate in medicine than the other two professions, and women have a higher married rate than lawyers but lower than business women. Again, only 31 percent of women are head of households in contrast to 99 percent of men.

Table 4
Summary Statistics: Medicine

	Male			Female		
	Obs	Mean	SD	Obs	Mean	SD
Labor Market Outcomes						
Hourly Wage	232	8046.97	5852.7	224	7303.7	4719.2
Log(hourly wage)	232	8.80	0.61	224	8.73	0.58
Monthly Wage	232	1171624	770749	224	889950	560867
Labor Market Participation	255	1.00	0.06	256	0.97	0.16
Monthly Hours worked	254	152.33	54.64	249	144.61	250.10
Real experience	255	13.24	2.63	256	13.34	2.47
Real experience squared	255	182.07	94.40	256	184.05	65.73
Mean of number jobs by year	255	1.24	0.46	256	1.22	0.44
Level of responsibility	254	0.01	0.11	249	0.00	0.06
Big Firm (>500w)	255	0.86	0.34	256	0.90	0.30
Metropolitan Region	255	0.59	0.49	256	0.77	0.42
Age	254	38.55	3.33	256	38.75	2.73
Performance at University						
Reprove any class==1	255	0.16	0.37	256	0.20	0.40
Post graduate schooling==1	255	0.97	0.17	256	0.97	0.17
Family Background						
Mother's years of schooling	242	13.35	3.72	252	13.93	3.26
Father's years of schooling	241	14.42	3.94	252	15.04	3.84
Grades in secondary school	254	64.41	2.93	254	65.98	2.03
Poor background==1	253	0.21	0.41	256	0.12	0.32
Uniparental home==1	255	0.13	0.33	256	0.13	0.34
Non Cognitive Abilities						
Self control test	240	1.29	0.44	241	1.32	0.41
Self esteem test	244	1.33	0.36	253	1.29	0.32
Family Status						
Number of children	248	2.02	1.24	255	1.92	1.34
Married==1	255	0.87	0.33	256	0.74	0.44
Head of the household==1	255	0.99	0.09	256	0.31	0.46
Wage Intervals (1USD=537CHP)		%			%	
Less than 372 USD	3	1.29		3	1.34	
Between 372 and 745 USD	20	8.62		19	8.48	
Between 745 and 1120 USD	17	7.33		35	15.63	
Between 1120 and 1490 USD	19	8.19		32	14.29	
Between 1490 and 1862	30	12.93		46	20.54	
Between 1862 and 2793 USD	70	30.17		55	24.55	
Between 2793 and 3725 USD	39	16.81		18	8.04	
Between 3725 and 4656 USD	13	5.6		8	3.57	
Between 4656 and 5587 USD	7	3.02		3	1.34	
More thab 5587 USD	14	6.03		5	2.23	
Total	232	100		224	100	

4. The Results

The descriptive statistics presented above help to identify the determinants of wages in the labor market. In this section we will use these measures to discern whether the wage gaps in our data persist once we take into these differences into account. As noted in Section 2, we are using two different specifications: OLS estimation and an ordered probit estimation.

Tables 5, 6 and 7 present the respective results of the OLS regressions for each type of degree. In regard to Business/Economics, once the variables described in the preceding sections are included the coefficient associated with being female starts decreasing steadily until, in column 7, it is no longer statistically significant. This column includes the vector of current family condition; although there is no theoretical reason for including this vector, these variables were added to control for preferences in looking for certain types of jobs. Number of children and head of the household are positive and statistically significant. In fact, we know that being head of the household presents additional responsibilities to finance household consumption.

Other important determinants of businesspeople's wages are experience, the level of responsibility at the occupation, having a post-graduate degree and working in the metropolitan region. All four of these variables add a premium to a professional's wage in the Business/Economics career.

In regard to professionals with the Law degree, as in the case of Business/Economics, the coefficient associated with being female decreases steadily once different variables are progressively added, again ceasing to be significant in column 7. In this case only the number of children is a significant variable of the vector of current family conditions. This vector, however, is picking up all the effect of gender.

Also new in this wage equation is that the non-cognitive ability test for locus of control turns out to be statistically significant. In other words, the higher the level of perceived internal control, the higher are wages. This is both an interesting and intuitive result, as lawyers need a specialized set of personal qualities in order to succeed in their profession. As in the previous case, work experience, level of responsibility and post-graduate study are associated with higher wages.

In regard to doctors, being female does not have a negative effect on wages. The only variables statistically significant in our regressions are the size of the firm, in the sense that the larger the number of workers in the firm the lower the wage, and working outside the

metropolitan region, which increases doctors' wages. This latter may be due to scarcity of these professionals in the rest of the country as well as special government premiums to doctors working outside the metropolitan region.

Table 5
OLS Regressions: Business/Economics, Dependent Variable=Log(Hourly Wage)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.252**	-0.254**	-0.247**	-0.247**	-0.224**	-0.218**	-0.090
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.180)
Real experience		0.087**	0.078**	0.085**	0.082**	0.079**	0.060*
		(0.003)	(0.007)	(0.003)	(0.005)	(0.007)	(0.038)
Real experience squared		-0.002**	-0.002*	-0.002*	-0.002*	-0.002*	-0.001
		(0.007)	(0.012)	(0.028)	(0.033)	(0.041)	(0.125)
Mean of number jobs by year		-0.014	0.002	-0.042	-0.002	0.012	0.041
		(0.917)	(0.986)	(0.748)	(0.986)	(0.927)	(0.751)
Level of responsibility			0.141**	0.148**	0.131**	0.129**	0.108*
			(0.002)	(0.001)	(0.005)	(0.005)	(0.018)
Big Firm (>500w)			0.003	-0.010	-0.010	-0.010	-0.024
			(0.947)	(0.822)	(0.827)	(0.825)	(0.585)
Metropolitan Region			0.203*	0.198*	0.191*	0.198*	0.196*
			(0.014)	(0.015)	(0.020)	(0.017)	(0.016)
Post graduate schooling==1				0.108*	0.113*	0.108*	0.114*
				(0.019)	(0.015)	(0.020)	(0.012)
Reprove any class==1				-0.114	-0.108	-0.103	-0.102
				(0.077)	(0.095)	(0.111)	(0.105)
Age				-0.012	-0.012	-0.013	-0.014
				(0.095)	(0.107)	(0.088)	(0.054)
Mother's years of schooling					0.005	0.006	0.006
					(0.542)	(0.476)	(0.490)
Father's years of schooling					0.010	0.011	0.009
					(0.190)	(0.173)	(0.248)
Grades in secondary school					-0.006	-0.006	-0.003
					(0.382)	(0.350)	(0.633)
Poor background==1					-0.089	-0.075	-0.118
					(0.324)	(0.410)	(0.188)
Uniparental home==1					-0.025	-0.022	-0.015
					(0.697)	(0.730)	(0.809)
Self control test						-0.061	-0.036
						(0.266)	(0.499)
Self esteem test						0.021	0.011
						(0.732)	(0.854)
Married==1							0.085
							(0.213)
Number of children							0.051**
							(0.003)
Head of the household==1							0.196**
							(0.004)
Constant	9.344**	8.499**	8.322**	8.761**	8.923**	9.013**	8.703**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	360	360	360	360	360	360	360
R-squared	0.077	0.114	0.151	0.178	0.196	0.199	0.244

p values in parentheses
* significant at 5%; ** significant at 1%

Table 6
OLS Regressions: Law, Dependent Variable=Log(Hourly Wage)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.349**	-0.330**	-0.310**	-0.352**	-0.339**	-0.330**	-0.234
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.056)
Real experience		0.019	0.017	0.038	0.030	0.027	0.001
		(0.504)	(0.572)	(0.207)	(0.328)	(0.371)	(0.970)
Real experience squared		-0.001	-0.001	-0.001	-0.001	-0.001	-0.000
		(0.226)	(0.258)	(0.307)	(0.368)	(0.334)	(0.828)
Mean of number jobs by year		0.049	0.049	0.048	0.072	0.073	0.090
		(0.593)	(0.590)	(0.596)	(0.427)	(0.417)	(0.316)
Level of responsibility			0.148	0.113	0.092	0.090	0.072
			(0.435)	(0.547)	(0.622)	(0.627)	(0.699)
Big Firm (>500w)			-0.044	-0.051	-0.067	-0.055	-0.050
			(0.554)	(0.489)	(0.363)	(0.448)	(0.494)
Metropolitan Region			-0.086	-0.108	-0.138	-0.127	-0.116
			(0.291)	(0.180)	(0.092)	(0.119)	(0.156)
Post graduate schooling==1				0.132	0.111	0.099	0.126
				(0.084)	(0.146)	(0.189)	(0.098)
Reprove any class==1				-0.047	-0.029	-0.045	-0.048
				(0.611)	(0.756)	(0.624)	(0.598)
Age				-0.021*	-0.016	-0.013	-0.013
				(0.024)	(0.097)	(0.194)	(0.199)
Mother's years of schooling					0.015	0.014	0.013
					(0.279)	(0.283)	(0.338)
Father's years of schooling					0.015	0.016	0.015
					(0.241)	(0.208)	(0.257)
Grades in secondary school					-0.004	-0.003	-0.003
					(0.723)	(0.730)	(0.733)
Poor background==1					0.154	0.175	0.144
					(0.214)	(0.158)	(0.242)
Uniparental home==1					-0.178	-0.161	-0.147
					(0.052)	(0.076)	(0.104)
Self control test						-0.199**	-0.194**
						(0.008)	(0.010)
Self esteem test						0.050	0.062
						(0.609)	(0.525)
Married==1							0.058
							(0.584)
Number of children							0.069*
							(0.027)
Head of the household==1							0.103
							(0.396)
Constant	9.173**	9.038**	9.140**	9.580**	9.330**	9.431**	9.393**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	297	297	297	297	297	297	297
R-squared	0.076	0.091	0.098	0.131	0.160	0.182	0.202

p values in parentheses
* significant at 5%; ** significant at 1%

Table 7
OLS Regressions: Medicine, Dependent Variable=Log(Hourly Wage)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.041	-0.047	-0.002	0.003	-0.015	-0.011	0.109
	(0.462)	(0.403)	(0.974)	(0.962)	(0.811)	(0.863)	(0.221)
Real experience		-0.089	-0.089	-0.081	-0.081	-0.085	-0.087
		(0.490)	(0.481)	(0.527)	(0.534)	(0.515)	(0.503)
Real experience squared		0.004	0.004	0.003	0.003	0.003	0.003
		(0.452)	(0.437)	(0.488)	(0.529)	(0.506)	(0.518)
Mean of number jobs by year		-0.020	-0.024	-0.015	-0.008	0.000	-0.009
		(0.783)	(0.727)	(0.829)	(0.907)	(0.998)	(0.896)
Level of responsibility			0.147	0.136	0.109	0.084	0.096
			(0.606)	(0.635)	(0.707)	(0.772)	(0.741)
Big Firm (>500w)			-0.320**	-0.317**	-0.334**	-0.350**	-0.378**
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Metropolitan Region			-0.167**	-0.170**	-0.179**	-0.178**	-0.162**
			(0.007)	(0.006)	(0.004)	(0.004)	(0.010)
Post graduate schooling==1				-0.187	-0.169	-0.200	-0.218
				(0.329)	(0.381)	(0.305)	(0.260)
Reprove any class==1				-0.069	-0.061	-0.070	-0.047
				(0.361)	(0.424)	(0.364)	(0.548)
Age				0.001	0.008	0.007	0.005
				(0.969)	(0.649)	(0.704)	(0.776)
Mother's years of schooling					0.005	0.005	0.003
					(0.647)	(0.641)	(0.767)
Father's years of schooling					0.008	0.009	0.010
					(0.399)	(0.345)	(0.288)
Grades in secondary school					0.005	0.005	0.005
					(0.663)	(0.680)	(0.683)
Poor background==1					-0.035	-0.031	-0.045
					(0.655)	(0.690)	(0.561)
Uniparental home==1					-0.069	-0.075	-0.079
					(0.423)	(0.385)	(0.358)
Self control test						-0.083	-0.073
						(0.212)	(0.272)
Self esteem test						-0.041	-0.036
						(0.634)	(0.677)
Married==1							0.062
							(0.453)
Number of children							0.045
							(0.084)
Head of the household==1							0.162
							(0.075)
Constant	8.792**	9.342**	9.708**	9.812**	9.107**	9.376**	9.219**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	409	409	409	409	409	409	409
R-squared	0.001	0.003	0.065	0.069	0.077	0.081	0.097

p values in parentheses
* significant at 5%; ** significant at 1%

Tables 8, 9 and 10 present the respective results of the Ordered Probit regressions for each type of degree. We think this model is more accurate because we did not have the real level of wages as a continuous variable for most of the sample.

Regarding Business/Economics, we again see that once the control variables are included the coefficient associated with being female decreases, falling to zero in column 7. Again, the vector of current family conditions is driving this result. The results further confirm that the conclusion that the other important variables are experience, level of responsibility on the job, having a postgraduate degree and working in the metropolitan region. Likewise, performance at University and the locus of control non-cognitive ability test are significant variables with the expected coefficients.

In regard to professionals with the Law degree, we can note that, contrary to the case above, women lawyers are paid less than their male counterparts. In this model, metropolitan region and age are both significant and negative, and the locus of control test is again statistically significant, as lawyers who have higher levels of perceived internal control received higher wages. In addition, the number of children and being head of the household are important variables in the wage equation, although in this case the vector is not capturing the the effect of gender.

The results are again very intuitive in regard to doctors, as being female is not a statistically significant variable in explaining wages. On the other hand, firm size, employment outside the metropolitan region and hours worked are statistically significant variables. Locus of control and family conditions are also statistically significant variables.

Table 8
Ordered Probit Regressions: Business/Economics, Dependent Variable=Wage Intervals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.657**	-0.697**	-0.718**	-0.738**	-0.678**	-0.657**	-0.341
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.053)
Monthly Hours Worked	0.012**	0.012**	0.011**	0.011**	0.011**	0.012**	0.012**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Real experience		0.241**	0.230**	0.255**	0.251**	0.241**	0.210**
		(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.005)
Real experience squared		-0.005**	-0.005**	-0.005**	-0.005**	-0.005*	-0.004*
		(0.003)	(0.004)	(0.007)	(0.008)	(0.012)	(0.029)
Mean of number jobs by year		-0.185	-0.182	-0.314	-0.188	-0.102	-0.033
		(0.574)	(0.580)	(0.345)	(0.576)	(0.765)	(0.923)
Level of responsibility			0.469**	0.492**	0.445**	0.440**	0.402**
			(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Big Firm (>500w)			0.185	0.153	0.156	0.158	0.137
			(0.107)	(0.186)	(0.180)	(0.176)	(0.241)
Metropolitan Region			0.441*	0.442*	0.419*	0.464*	0.467*
			(0.032)	(0.032)	(0.045)	(0.027)	(0.027)
Post graduate schooling==1				0.286*	0.308**	0.289*	0.312**
				(0.014)	(0.009)	(0.015)	(0.009)
Reprove any class==1				-0.380*	-0.370*	-0.349*	-0.356*
				(0.021)	(0.025)	(0.035)	(0.032)
Age				-0.025	-0.025	-0.030	-0.033
				(0.185)	(0.187)	(0.124)	(0.083)
Mother's years of schooling					0.004	0.009	0.007
					(0.849)	(0.690)	(0.735)
Father's years of schooling					0.035	0.037	0.035
					(0.084)	(0.062)	(0.083)
Grades in secondary school					-0.019	-0.022	-0.015
					(0.274)	(0.224)	(0.394)
Poor background==1					-0.332	-0.257	-0.387
					(0.137)	(0.255)	(0.092)
Uniparental home==1					-0.087	-0.075	-0.063
					(0.583)	(0.636)	(0.693)
Self control test						-0.324*	-0.275*
						(0.019)	(0.048)
Self esteem test						0.045	0.028
						(0.765)	(0.858)
Married==1							0.137
							(0.435)
Number of children							0.108*
							(0.018)
Head of the household==1							0.526**
							(0.002)
Observations	360	360	360	360	360	360	360

p values in parentheses
* significant at 5%; ** significant at 1%

Table 9
Ordered Probit Regressions: Law, Dependent Variable=Wage Intervals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.741**	-0.740**	-0.717**	-0.855**	-0.912**	-0.906**	-0.568**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.008)
Monthly Hours Worked	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.154)	(0.153)	(0.151)	(0.177)	(0.120)	(0.068)	(0.088)
Real experience		0.045	0.041	0.097	0.088	0.082	0.015
		(0.355)	(0.408)	(0.056)	(0.092)	(0.119)	(0.785)
Real experience squared		-0.001	-0.001	-0.001	-0.001	-0.001	0.000
		(0.218)	(0.255)	(0.367)	(0.388)	(0.377)	(0.776)
Mean of number jobs by year		-0.097	-0.099	-0.093	-0.042	-0.034	-0.010
		(0.530)	(0.521)	(0.548)	(0.790)	(0.828)	(0.948)
Level of responsibility			0.529	0.448	0.427	0.423	0.435
			(0.107)	(0.174)	(0.197)	(0.201)	(0.193)
Big Firm (>500w)			0.032	0.028	0.003	0.021	0.026
			(0.796)	(0.823)	(0.979)	(0.869)	(0.841)
Metropolitan Region			-0.220	-0.288*	-0.348*	-0.338*	-0.355*
			(0.112)	(0.039)	(0.015)	(0.018)	(0.014)
Post graduate schooling==1				0.164	0.123	0.108	0.166
				(0.211)	(0.353)	(0.415)	(0.216)
Reprove any class==1				-0.136	-0.073	-0.103	-0.109
				(0.387)	(0.646)	(0.519)	(0.500)
Age				-0.063**	-0.050**	-0.044**	-0.047**
				(0.000)	(0.003)	(0.009)	(0.006)
Mother's years of schooling					0.040	0.039	0.033
					(0.088)	(0.094)	(0.166)
Father's years of schooling					0.028	0.030	0.030
					(0.206)	(0.182)	(0.186)
Grades in secondary school					0.010	0.011	0.009
					(0.549)	(0.527)	(0.587)
Poor background==1					0.222	0.251	0.163
					(0.304)	(0.250)	(0.456)
Uniparental home==1					-0.300	-0.281	-0.283
					(0.060)	(0.079)	(0.079)
Self control test						-0.318*	-0.351**
						(0.015)	(0.008)
Self esteem test						0.145	0.184
						(0.395)	(0.285)
Married==1							-0.002
							(0.991)
Number of children							0.170**
							(0.002)
Head of the household==1							0.463*
							(0.028)
Observations	297	297	297	297	297	297	297

p values in parentheses
* significant at 5%; ** significant at 1%

Table 10
Ordered Probit Regressions: Medicine, Dependent Variable=Wage Intervals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female==1	-0.168	-0.181	-0.102	-0.095	-0.111	-0.096	0.214
	(0.109)	(0.085)	(0.342)	(0.379)	(0.337)	(0.407)	(0.201)
Monthly Hours Worked	0.013**	0.013**	0.013**	0.013**	0.013**	0.013**	0.013**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Real experience		-0.081	-0.093	-0.071	-0.080	-0.077	-0.076
		(0.730)	(0.692)	(0.765)	(0.741)	(0.753)	(0.754)
Real experience squared		0.004	0.005	0.004	0.004	0.004	0.003
		(0.636)	(0.593)	(0.697)	(0.703)	(0.707)	(0.740)
Mean of number jobs by year		-0.102	-0.113	-0.099	-0.086	-0.062	-0.087
		(0.431)	(0.392)	(0.456)	(0.517)	(0.644)	(0.520)
Level of responsibility			0.160	0.142	0.122	0.056	0.094
			(0.763)	(0.789)	(0.821)	(0.917)	(0.862)
Big Firm (>500w)			-0.560**	-0.556**	-0.579**	-0.635**	-0.722**
			(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Metropolitan Region			-0.361**	-0.363**	-0.383**	-0.382**	-0.349**
			(0.002)	(0.002)	(0.001)	(0.001)	(0.003)
Post graduate schooling==1				-0.299	-0.281	-0.373	-0.407
				(0.401)	(0.433)	(0.303)	(0.261)
Reprove any class==1				-0.088	-0.072	-0.094	-0.045
				(0.535)	(0.613)	(0.513)	(0.758)
Age				0.010	0.020	0.016	0.014
				(0.738)	(0.530)	(0.608)	(0.668)
Mother's years of schooling					0.012	0.013	0.009
					(0.517)	(0.504)	(0.658)
Father's years of schooling					0.011	0.014	0.018
					(0.531)	(0.407)	(0.308)
Grades in secondary school					0.001	-0.001	-0.002
					(0.977)	(0.942)	(0.926)
Poor background==1					-0.063	-0.051	-0.082
					(0.663)	(0.725)	(0.573)
Uniparental home==1					-0.116	-0.141	-0.152
					(0.471)	(0.383)	(0.347)
Self control test						-0.312*	-0.301*
						(0.012)	(0.016)
Self esteem test						-0.057	-0.053
						(0.724)	(0.744)
Married==1							0.076
							(0.624)
Number of children							0.101*
							(0.038)
Head of the household==1							0.445**
							(0.009)
Observations	409	409	409	409	409	409	409

p values in parentheses
* significant at 5%; ** significant at 1%

5. Conclusions

This paper studies gender-based wage differences among three types of professionals in Chile: businesspeople, lawyers and doctors. Our preferred specification is an ordered probit model. In this specification we can see that being female appears to have a negative effect only on lawyers' wages, even when current family conditions are taken into account. In contrast, gender-based differences among businesspeople's wages disappear once the vector of current family conditions is added. Similarly, doctors display no gender difference in wages. Other important variables explaining differences in wages are the level of responsibility in the job, having postgraduate studies, the size of the firm, and a regional effect. Most importantly, there is an important and positive effect of the non-cognitive ability test that measures locus of control.

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Appendix

This survey was applied to alumni of the Universidad de Chile who studied Medicine, Law and Business/Economics and who graduated at least eight years ago. The sample is made up of 50 percent men and 50 percent women.

The survey was implemented by telephone. To provide respondents an impression of the survey, a website has been designed to present the Survey, which provides a description of the survey, its objectives and questionnaires. The survey takes approximately 20 minutes and contains six modules: General Information, Education, Employment History, Family Background, Individual History and Test of Non-Cognitive Abilities.

A1. Calendar of Activities

The following table shows the Calendar of Activities developed for the implementation of the Survey:

Date	Activity
December, 2005- January, 2006	Design of the Questionnaire Sample framework: to locate the address of the students in the university records
20th January	Progress Report and Work Plan
10th February	Videoconference
March, 2006	Design of the Questionnaire Sample framework: to locate the address of the students in university records
April, 2006	Design of the Questionnaire Sample framework: to locate the address of the students in university records
May, 2006	Pilot Survey Final questionnaire Questionnaire Manual for Interviewers Interviewer Training Survey Starts Data Entry and Validation of the Survey Starts
30th May	First draft
June, 2006	Survey Continues Data Entry and Validation of the Survey Continues
20th June	Workshop
July, 2006	Survey Continues Data Entry and Validation of the Survey Continues
6th September	Second draft Data Entry and Validation of the Survey Continues
20th October	Final Workshop
29th November	Final version

A2. Sample Design

The telephone-based survey was formulated and undertaken without geographic restrictions; individuals surveyed are simply located in their place of residence. the individuals of the sample in the city where they may be. The selection process of the sample was developed in the stages discussed below.

A3. Search for Names of Alumni

First, a search was made for administrative information on alumni in the Faculties of the Universidad de Chile and its centrally maintained records. We had several meetings with University officials who agreed to provide a database of graduates from the three degree programs involved from 1970 to 1997 from the three degree programs involved. This confidential database contains each individual's name, national identification number, year of graduation, degree program and, in some cases, an address.

Table 1 shows the distribution of the original framework sample, obtained from the Universidad de Chile's administrative records.

Table 1: Original Framework Sample

Year	Economics			Law			Medicine			Total
	Female	Male	Sub total	Female	Male	Sub total	Female	Male	Sub total	
1970	27	90	117	56	153	209	36	181	217	543
1971	14	74	88	41	139	180	42	164	206	474
1972	20	98	118	50	132	182	48	158	206	506
1973	28	98	126	56	119	175	41	158	199	500
1974	61	186	247	44	113	157	50	178	228	632
1975	37	123	160	36	135	171	80	209	289	620
1976	41	168	209	52	107	159	90	165	255	623
1977	20	112	132	30	68	98	115	240	355	585
1978	28	83	111	27	91	118	138	231	369	598
1979	35	152	187	27	106	133	206	376	582	902
1980	26	99	125	58	165	223	98	156	254	602
1981	52	132	184	64	111	175	165	233	398	757
1982	72	189	261	42	118	160	125	204	329	750
1983	69	191	260	53	112	165	142	273	415	840
1984	21	98	119	72	120	192	123	226	349	660
1985	41	182	223	43	137	180	115	235	350	753
1986	36	125	161	46	107	153	74	152	226	540
1987	34	103	137	28	85	113	80	212	292	542
1988	59	98	157	30	87	117	89	159	248	522
1989	46	97	143	32	84	116	103	167	270	529
1990	89	140	229	28	93	121	111	161	272	622
1991	80	136	216	23	78	101	98	155	253	570
1992	85	109	194	39	115	154	86	131	217	565
1993	49	53	102	52	133	185	88	147	235	522
1994	51	94	145	45	115	160	97	168	265	570
1995	46	67	113	62	106	168	72	133	205	486
1996	32	74	106	87	125	212	91	132	223	541
1997	46	84	130	76	140	216	87	132	219	565
Total	1245	3255	4500	1299	3194	4493	2690	5236	7926	16919

A4. Updating Alumni Data

The addresses and other personal data on alumni obtained from the administrative data showed a significant proportion of incomplete records with outdated information. In order to update the original information, we selected 6,000 individuals and located them through telephone directories and other sources. This search process led to the distribution shown in Table 2, the real sample framework from which the final sample is chosen.

Table 2: Real Sample Framework

Year	Economics			Law			Medicine			Total
	Female	Male	Sub total	Female	Male	Sub total	Female	Male	Sub total	
1982				42	118	160				160
1983	69	191	260	53	112	165				425
1984	21	98	119	72	120	192				311
1985	41	182	223	43	137	180				403
1986	36	125	161	46	107	153				314
1987	34	103	137	28	85	113				250
1988	59	98	157	30	87	117				274
1989	46	97	143	32	84	116				259
1990	89	140	229	28	93	121	111	161	272	622
1991	80	136	216	23	78	101	98	155	253	570
1992	85	109	194	39	115	154	86	131	217	565
1993	49	53	102	52	133	185	88	147	235	522
1994	51	94	145	45	115	160	97	168	265	570
1995	46	67	113	62	106	168	72	133	205	486
1996	32	74	106	87	125	212	91	132	223	541
1997	46	84	130	76	140	216	87	132	219	565
Total	784	1651	2435	758	1755	2513	730	1159	1889	6837

A5. Selection of the Sample

The definitive sample was chosen based on the real sample framework defined above. The objective was to carry out 1,500 surveys, divided equally among the three degree programs and in equivalent proportions between men and women. In order to conduct the desired number of surveys it was necessary to have an oversized sample in order to cover losses arising from individuals who cannot be found or refuse to participate. Based on earlier studies and considering the lack of individual information available, we anticipated a loss of 50 percent and therefore selected a sample of 3,000 individuals.

The selected sample is obtained by randomly choosing 1,000 individuals who graduated from each of the three degree programs (Law, Medicine and Economics). The same number of men and women are chosen within each degree program.

To complete the sample, the same number of male and female graduates by graduation year are chosen from each degree program. Therefore, the final sample, displayed in Table 3, may be characterized as probabilistic, stratified by degree programs and gender, with a non-proportional distribution among strata.

Year	Economics			Law			Medicine			Total
	Female	Male	Sub total	Female	Male	Sub total	Female	Male	Sub total	
1987				28	37	65				65
1988				30	38	68				68
1989	46	60	106	32	36	68				174
1990	89	86	175	28	40	68				243
1991	80	83	163	23	34	57				220
1992	85	67	152	39	50	89	86	81	167	408
1993	49	33	82	52	57	109	88	91	179	370
1994	51	57	108	45	50	95	97	104	201	404
1995	46	42	88	62	46	108	72	82	154	350
1996	32	45	77	87	54	141	91	81	172	390
1997	46	51	97	76	60	136	87	82	169	402
Total	524	524	1048	502	502	1004	521	521	1042	3094

A6. Pilot Survey

Before the survey was conducted, a pilot survey was carried out on the whole sample selected. The general objective of this pilot survey was to evaluate the operation of the questionnaire by means of a telephone interview. It also had the following specific objectives:

1. Review problems of content (difficulty of comprehension on the part of the respondents, lack of response categories, etc.).
2. Evaluate the implementation periods.
3. Difficulty in contacting and locating respondents.

To carry out the Pre-Test, a sample of 70 graduates not included in the selected sample was drawn from each of the degree programs. These 70 cases were in turn divided evenly among men and women.

Table 4. Sample Pre-Test

Degree program	Men	Women	Total
Law	35	35	70
Medicine	35	35	70
Economics	35	36	71
Total	105	106	211

The Field Coordinator and the Survey Programmer were responsible for the training of the telephone operators that carried out the pilot survey. The training consisted of a presentation of the study, which was followed by a review of the questionnaire, on the morning of the

operators' first day of work. After the end of the pilot survey, the questionnaire was subsequently modified slightly to incorporate observations arising from the implementation of the pilot survey.

A7. *Questionnaire and Interviewer Manual*

The Survey is designed for telephone as well as paper based implementation, in case an interviewer should have to implement it so. The Questionnaire that will finally be implemented is presented in the Appendix to this chapter of the Report and is comprised of 5 modules of questions and two non-cognitive ability tests that are to be found at the end there. The form covers areas such as: household structure and identification, income, job, education, health, housing, family background and perceptions. The modules are as follows:

- Module A: General Information of the Respondent
  Objective: Obtain information on sex, marital status, age and position within the household.

- Module B: Education
  Objective: Obtain Information on prior education of the respondent and also on activities subsequent to university. Questions are posed on the quality of the secondary education received.

- Module C: Employment History
  Objective: Obtain complete information on the respondents' employment activities from their date of graduation. They are also questioned on their parallel activities and job characteristics. For those who are currently inactive, questions are posed to obtain information on the reserve salary. This allows us to discover the real employment experience of men and women.

- Module D: Family Background
  Objective: Obtain information about parents' education and the emotional and socioeconomic stability of the household during childhood. There are also questions on the size of household, gender composition and education level of siblings.

- Module E: Personal History
  Objective: Obtain information on respondents' marital history and common-law partners, as well as children.

- Test 1: Rotter Internal-External Locus of Control Scale

  This is a four-item abbreviated version of a 23-item forced choice questionnaire adapted from the 60-item Rotter scale developed by Rotter (1966). The scale is designed to measure the extent to which individuals believe they have control over their lives, i.e., self-motivation and self-determination (internal control) as opposed to the extent that the environment (i.e., chance, fate, luck) controls their lives (external control). The scale is scored in the internal direction: the higher the score, the more internal the individual. Individuals are first shown two sets of statements and asked which of the two statements is closer to their own opinion. They are then asked whether that statement is much closer or slightly closer to their opinion. These responses are used to generate four-point scales for each of the paired items, which are then averaged to create one Rotter Scale score for each individual.

- Test 2 Rosenberg Self-Esteem Scale

  It is a 10-item scale, designed for adolescents and adults; measures an individual's degree of approval or disapproval toward himself (Rosenberg, 1965). The scale is short and widely used, and it has accumulated evidence of validity and reliability. It contains 10 statements of self-approval and disapproval with which respondents are asked to strongly agree, agree, disagree, or strongly disagree.

A8. *Preparation of the Survey*

Fieldwork preparation requires carrying out all the regular tasks, in other words, registration, training, supervision, as well as preparing and providing the necessary material and inputs for survey implementation.

The selection method for the interviewers was by invitation. These invitations were made to interviewers who had worked in similar surveys previously undertaken by the Centro de Microdatos; 10 telephone interviewers were invited who possessed previous training in the same dimensions as the pilot survey. On this particular occasion they also received an Interviewer Manual. All operators who implemented the survey have higher education, either at the technical or university level.

The training activity took approximately four hours. All the items on the questionnaire were reviewed, and the concepts required to implement it were defined, as well as the aspects that had to be emphasized in the survey. Pertinent queries were clarified as well. This stage led to production of an Interviewer Manual with all the final corrections.

A9.   Organization of the Work Team

The final fieldwork team was composed of the following individuals:

- A technical coordinator responsible for ensuring the correct implementation of the methodology and quality standards. He/she was responsible for verifying the correct implementation in the field, fulfillment of the sample sizes, and the subsequent verification of the control tabulations for the final approval of the database.

- A logistics and control coordinator, responsible for the correct execution and control of the administrative and financial processes. Responsible for monitoring the state of progress and ensuring observance of the work calendar.

- A fieldwork coordinator, responsible for distributing the sample among the telephone operators and supervising the work carried out by them.

- An I.T. coordinator, responsible for designing, implementing and administering the information systems for monitoring fieldwork, data entry of surveys, data validation and structuring the final magnetic file.

- A sample designer, responsible for creating the sample design and subsequent calculation of the expansion factors.

The Centro de Microdatos was responsible for preparing all the necessary inputs for the implementation of the survey, training classrooms, telephones, offices, office supplies, manuals and forms, transport and personnel. Finally, the database became available for analysis on October 25.