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IS THERE LABOR MARKET DISCRIMINATION AMONG PROFESSIONALS IN CHILE? LAWYERS, DOCTORS AND BUSINESS-PEOPLE

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Abstract

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Our results show 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 taking into account hours worked, size of the firm and region make also the gender gap vanish. In addition, we show that the level of self control is a relevant variable in explaining the distribution of earnings.

Keywords:

Labor Market Discrimination; Non-cognitive abilities; Gender.

IS THERE LABOR MARKET DISCRIMINATION AMONG PROFESSIONALS IN CHILE? LAWYERS, DOCTORS AND BUSINESS-PEOPLE[1]

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I. 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 individual's cognitive abilities[2]. Second, we do not observe individual's 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[3]. Fourth, we do not observe individual past expectations about how the labor market works[4].

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 in Chile which can face these issues, we implemented a survey on professionals from three different careers in Chile: Law, Medicine and Business, to analyze differences in their wages but reducing unobservable to a minimum. They have all passed a university entrance selection test. They are comparable in their academic formation. We have data on their university performance. We have data on their social and family background. We have applied tem a test on non-cognitive abilities. We have applied a survey to ask them real labor experience and family conditions now.

Based on this complete and new dataset we have taken a regression analysis approach to determine how much of the wage gap is left once the only difference among individuals is gender.

Research in Chile has been centered on the traditional Oaxaca decomposition (Oaxaca, 1973; Blinder, 1973). Paredes and Riveros (1993), estimate the

[2] 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.

[3] 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.

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

endowment and discrimination effects for the period 1958-1990[5]. They provide evidence on discrimination against females during the whole period examined. Montenegro (1999) and Montenegro and Paredes (1999) analyze the gender wage differential by using quantile regression and the Oaxaca decomposition. The evidence also shows stable and systematic differences in the 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, these conclusions of studies are limited. They lack several control variables, related to cognitive and non-cognitive abilities and school and family environments. In addition, preferences over non-market activities and experience of Chilean female workers could prove to be a very important unobservable factor.

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 as we do. However, this study has some limitations. One it is related to the collection of the data. The survey was carried out by postal mail and had a very low response rate, 30% approximately. Second, the survey was carried out on recently graduated college students of Economics[6] which does not allowed to detect the effects of labor experience. Third, it lacks of survey data on labor history and real experience, family characteristics and preferences. Fourth, the survey had a very small sample size.

This paper faces 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 careers correcting the estimates for post graduate schooling, labor market experience, parents schooling, married conditions and cognitive abilities. Following recent literature (Heckman, Stixrud and Urzua, 2005) we took the Rotter (1966) and Rosemberg (1965) tests for non-cognitive abilities. We have run OLS regressions and ordered probit estimation to explain economic outcomes by a set of explanatory variables.

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 taking into account hours worked, size of the firm and region make also disappear the gender gap. Especially important is found to have a better level of self control in explaining wage differences.

The structure of the paper is the following. Next section II presents the econometric models. Section III presents the data and summary of the descriptive statistics. Section IV presents the results and finally section V presents the conclusions.

[5] Contreras and Puentes (2001) extended the analyses to 1996.
[6] In Chile, high school students choose subjects, not colleges as in the US.

II. The Econometric Models

In this section we will explain briefly the well known models in which it is usually studied labor market discrimination.

We are using two different specifications: OLS estimation and an ordered probit estimation[7]. In each of these models we have a wage equation as a function of a set of different explanatory variables:

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 value 1 if female and 0 otherwise. Thus, the coefficient γ measured the perceptual difference in wages that is lower because individual i is female rather than male. In this setting, it is assumed that the market value in the same way the characteristics of the individuals.

Exp is years of real labor experience and Exp^2 is the squared. And N^{jobs} is the average number of parallel working activities each individual does in a year.

J' is a set of variables related to characteristics of the job, it contains a dummy variable for the level of responsibility in the job which take value 1 if the occupation is of high responsibility[8] and 0 otherwise, a dummy variable for a big firm that takes value 1 if the firm has more than 500 workers and a dummy variable equals to 1 if the person works in the metropolitan region.

X' is a set of variables related to other personal characteristics such as a dummy variable that takes value 1 if the person has done a postgraduate course, university performance measured with a dummy variable that takes a value 1 if the person reproved a class and age.

S' is a set of variables related to the person socioeconomic background such as mother's and father's years of schooling and grades at secondary school[9].

T' contains two measures of non cognitive abilities explained later.

[7] In a future version of this paper we will include a Oaxaca decomposition.
[8] An occupation is set to be of high responsibility if its occupation code is related to the following categories: members of the executive or legislative power and directives of public and private firms, such as managers of business and company directors.
[9] Grades is Chile go from 1 to 7, having an average of secondary school performance of 6 is distinction.

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 have a Heckman model

Model 2: Ordered Probit Model

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

I_i is an indicator variable for the wage intervals and Hrs_i is the monthly hours worked 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 what was the average income. If the interviewed refused to answer, the interviewer insisted with the same question but giving intervals of incomes. About 70% of the sample answered about their income only in the second way.

III. The Data

In this section we present a comprehensive descriptive statistics of the variables collected in the survey and used in the estimations[10].

We will look at different statistics of labor market outcomes, performance at University, social and academic background, test for non cognitive abilities and current household status. Each of these variables is meant to explain in same way differences between observed gender gaps in wages.

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

Table 1
All Sample

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

[10] The questionnaire and a complete field work resume are in the appendix.

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 on wages[11]. Women's monthly wage is 69% of men's monthly wage; these differences can also be observed in the tabulations of wage intervals. However, since women work less hours a month, women's hourly wage is only 81% of men's hourly wage, and this is 97% if we look at the logarithm. We also can note that female labor force participation is 81% and is lower than male labor force participation which is 97%. Women have less accumulated experience and have less parallel activities, although these differences are not high. 56% of men have a job of high responsibility while 43% of women have the same level of responsibility in the job. We can also observe that there are differences in the type of firm they work. 47% of men work in firms with more than 500 workers, while 60% of women do the same.

We can note that more 15% of less women do a post graduate degree, although women seems to have a better performance at University and at school (see grades). Mother's schooling is higher for women than for men. These latter may be related to the transmission of preferences. There are not differences in socioeconomic background between men and women. 8% of each group comes from a poor family and 15% of each group was raised in a uni-parental home.

As we said before, 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[12]. The lower the index the higher is the degree of self control or self esteem. We can note than in average women got a lower degree of self control but a higher degree of self esteem.

[11] Exact wages were only reported for 20% of the sample approximately, however most people who did not give the exact amount gave an interval. Therefore we have assigned the maximum of the interval to the wage. We are anyway running ordered probit using the intervals of wages. There were also people who did not want to answer this question therefore we have less data for this variable.
[12] The tests are included in the questionnaire.

Finally, we think that measures of the current home situation could be important since it 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% of women are head of the household whereas 96% of men are in the same situation.

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	

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 68% approximately in favour of men. However, we can note that monthly hours worked by women are in average higher than hours worked by men and so the gap reduces to 71% in monthly hourly wage and to 96% if we look at the logarithm. We also can note that female labor force participation is 93% and is lower than male labor force participation which is 99%, both are higher than in case of business. Women have more accumulated experience and have slightly less parallel activities, although these differences are also not high. 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% and 5% respectively. We can also observe that there are differences in the type of firm they work. In this case, women also tend to work in big firms (51%) more than men (31%).

We can note that 63% of women and men that study law do post graduate degrees. Again women have a better performance at University and at school: a lower proportion of women reprove classes and they have higher grades at secondary school. Mother's and father's schooling are higher for women than for men. This may be again related to the transmission of preferences. Only 6% of women come from a family of poor background, whereas 17% of men are in the same situation. 20% of each group was raised in a uni-parental home.

The measures of non cognitive abilities behave in the same way. In average women got a lower degree of self control but a higher degree of self esteem.

Finally, regarding the measures of current home situation present the following characteristics. We can see that there are more differences between men and women in this case. Married rate is lower for lawyers in average and even lower for women, also the number of children is slightly lower for women. Although women head of the household are also less than men, this rate is higher for lawyers reaching 37% of them.

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 76% approximately in favour of men. This is lower than in the case of business/economics and law. In addition, we can note that monthly hours worked by women are in average lower than hours worked by men and so the gap reduces to 91% in monthly hourly wage and to 99% if we look at the logarithm. We also can note that female labor force participation is 97% and is lower than male labor force participation which is 100%, both are higher than in case of business and law. The 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 genders. We can also observe that there are not great differences in the type of firm they work. In this case, 90% of women work in big firms and 86% of men. This latter statistics is higher than in the case of business and law.

In addition, we can note that 97% of women and men that study medicine follow post graduate degrees. This latter may be related to obtaining of specialities. Again women have a slightly better performance at University and at school: a lower proportion of women reprove 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 parent's schooling is higher in comparison to the other to professions.

The measures of non cognitive abilities behave in the same way than the other to cases. In average women got a lower degree of self control but a higher degree of self esteem. It is worth noting that non cognitive abilities are higher in these professionals than in business and law.

Finally, regarding the measures of current home situation present the following characteristics. We can see that medical professionals observed in this sample have less children than the other professional and women doctors have less children than men doctors. Married rate is lower for women than for men, however men have a higher married rate than the other two professions and women have higher married rate than lawyers but lower than business women. Although, again only 31% of women are head of households in contrast to 99% 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	

IV. The Results

Descriptive statistics presented before help us to shed some light in which are the determinants of wages in the labor market.

In this section we will use these measures to see whether once we take into account some of these differences we still have the gaps in wages we have in our data.

As we pointed out in section II we are using two different specifications: OLS estimation and an ordered probit estimation.

Tables 5, 6 and 7 present the results of the OLS regressions for each type of degree respectively. Regarding Business/Economics we can see that once the variables describe in the sections before are included the coefficient associated to the variable female start decreasing steadily until it turns to be not statistically significant in column 7. This latter column is the one including the vector of current family condition. This vector does not have a theoretical reason of why should be added in the wage equations however we added this variables in order to control for preferences of 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 present additional responsibilities to finance household consumption.

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

Regarding professionals in the Law degree we can note that just as before the coefficient associated to the dummy for female decreases steadily once different variables are added progressively until it turns not significant in column 7. In this case, only the number of children is a significant variable of the vector of current family conditions. However, this vector is picking up all the effect of gender.

It is also new that in this wage equation the non cognitive ability test for self control is statistically significant. That is the higher the level of self control the higher are the wages. This is interesting and very intuitive to think, since lawyers need special abilities to be good professionals. As before real experience, the level of responsibility and a post graduate course helps to have higher wages.

Regarding doctors we can note that female is never a negative issue in terms of wages. The only variables statistically significant in our regressions are the size of the firm in the sense that the bigger the number of workers in the firm the lower is the wage, and working outside the metropolitan region give doctors higher 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 results of the Ordered Probit regressions for each type of degree respectively. We think this model is more accurate because we did not have the real level of wages as a continuous variables for most of the sample.

Regarding Business/Economics we can see that it is still the case that once the control variables are included the coefficient associated to the variable female decreases to turn into to zero in column 7. Again, the vector of current family conditions is driving this result.

It is also maintained the conclusion that the other important variables are experience, the level of responsibility at the occupation, having a post graduate study and working in the metropolitan region. At the same time, performance at University and the self control non cognitive ability test are significant variables with the expected coefficients.

Regarding professionals in the Law degree we can note that contrary to the case above women lawyers do have a cost in terms of wages because of being women. In this model, there is strong significance of metropolitan region and age which are negative, and the self control test is again statistically significant. Lawyers who have a better level of self control got higher wages. It is maintained also that the number of children and being had of the household are important variables in the wage equation whereas in this case this vector is not picking up the effect of gender.

Regarding doctors the results are again very intuitive. We can observed that female turns to be a statistically not significant variable explaining wages. The size of the firm, working outside the metropolitan region and hours worked are statistically significant variables. It is also true that self 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%

V. Conclusions

This paper study differences in wages of three types of professionals in Chile: Business women and men, lawyers and doctors.

Our preferred specification is an ordered probit model. In this specification we can see that female does seem to have only a negative effect on wages for lawyers, even including current family conditions. Business women and men differences disappear once the vector of current family conditions is added. And doctors seem to have no differences in wages due to gender.

We expect that this finding could be explored in future research in look for good explanations. We could speculate at this time saying that these findings may be related to the nature of the jobs. It could be that discrimination from consumers and coworkers has more room in the work of lawyers. Business professionals are not usually in direct contact with their clients and even if this happens in the case of doctors, their productivity depends more in objective quality.

Important variables explaining differences in wages are the level of responsibility in the job, the size of the firm and regional effects, which are variables related to the demand side of the labor market not usually measured in the literature. Also the variable measuring human capital such as having postgraduate studies was found statistically significant.

And most importantly, there is an important and positive effect of the non cognitive ability test that measures self control. This means that professionals with a higher level of self control have higher wages after controlling for work and firm characteristics. This is a new finding supporting the relevance of non cognitive abilities.

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Appendix

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

The survey was implemented by telephone. To offer the respondents an image 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 the university records
April, 2006	Design of the Questionnaire Sample framework: to locate the address of the students in the 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 survey is being developed without geographic restrictions. Since it is a telephone based survey, there are no geographic boundaries. It is simply a case of locating the individuals of the sample in the city where they may be.

The selection process of the sample was developed in the following stages.

A3. Search for Names of Ex-alumni

First, a search was made for administrative information on ex-alumni in the Faculties of the Universidad de Chile and centrally. We had several meetings with Central authorities of the University who finally accepted to furnish us with a database of graduates of the University from 1970 to 1997 from the three degree programs involved. This database is confidential and contains the national identification number of the person, their name, year of graduation, degree program and, in some cases, an address.

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

Table 1: Original Framework Sample

	Economics			Law			Medicine			Total
Year	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 Ex-alumni Data

The addresses and other personal data on ex-alumni obtained from the administrative data showed a significant proportion of incomplete records with outdated information.

In order to update the original information, 6,000 individuals were chosen, who were tracked down in phone books and other sources to get their location data. After this search process, the following distribution was obtained (See Table 2). This will finally be the real sample framework from which the final sample is chosen.

Table 2: Real Sample Framework

	Economics			Law			Medicine			Total
Year	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 is chosen based on the real sample framework defined in the point above.

The objective number of surveys for carrying out is 1,500. One third of these correspond to each degree program, and in equivalent proportions between men and women.

In order to effectively obtain the surveys requested, it is necessary to have an over-sized-sample, to be able to cover the losses arising from people that cannot be found or that refuse to participate in the survey. Based on earlier studies and considering the lack of individual information available, we can consider a loss of 100%. Therefore, the selected sample should be 3,000 individuals.

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

To complete the sample, by degree program, the same number of male and female graduates by graduation year are chosen. 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.

Table 3: Final Sample

	Economics			Law			Medicine			Total
Year	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 implementing the survey, a pilot survey was carried out on the whole sample selected. The general objective of this pilot survey is to evaluate the operation of the questionnaire by means of a telephone interview. It also has 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 graduates that were not included in the selected sample were extracted, from 70 cases of each of the degree programs chosen for the study. 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. It was carried out in the morning of the first day of work of the operators

After the end of the pilot survey, the questionnaire was modified slightly to gather the observations made through the implementation.

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 was finally implemented 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 the 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 respondent's marital history and common-law wives, as well as children.

- Test 1: Rotter Internal-External Locus of Control Scale
  It 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, widely used, and has accumulated evidence of validity and reliability. It contains 10 statements of self-approval and disapproval to 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 that have worked in other similar surveys undertaken previously by the Centro de Microdatos. In fact, 10 telephone interviewers were invited, who possessed previous training in the same characteristics as the Pilot survey. In this particular occassion, they also received an Interviewer Manual. All operators who implemented the survey have higher education studies, either technical level or university.

The training activity took approximately 4 hours. All the questions of 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, in addition to the clarification of any pertinent queries.

A product of this stage was the Interviewer Manual with all the final corrections.

A9. Organization of the Work Team

The fieldwork team is finally composed of:

- A technical coordinator of the Survey, responsible for ensuring the correct implementation of the methodology and quality standards. He/she is 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 field work 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 field work, 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. Ernesto Castillo.

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 Survey is final database for analysis was available on October 25th.