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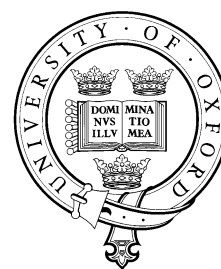Oxford Department of International Development
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QUALITY OF EMPLOYMENT AND JOB SATISFACTION: EVIDENCE FROM CHILE.

by
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(this version 11 February 2010)

Abstract

This paper investigates in detail the determinants of job satisfaction in a developing country. Two main results emerge from our analysis. Firstly, we show that as opposed to the empirical evidence from industrial countries, Chilean self-employed workers are more satisfied with their job than Chilean employees only after controlling for job protection and occupational hazard. Descriptive statistics suggests that this is a consequence of the poor job protection and poor job safety which are likely to characterize the self-employment sector in developing countries. Secondly, we show that once measures for procedural aspects of work are included in the regression, the utility premium from self-employment fully disappears. This provides strong evidence that procedural preferences for independence are not specific to workers from industrial countries and therefore they should be taken into account by development policies.

Keywords: Job satisfaction, Quality of employment, Self-employment, Procedural utility, Developing countries

1) Introduction

Employment is certainly one of the most important dimensions of life. Not only does it represent the main source of income for most people in the world, but a large part of our lifetime is spent working. Besides, employment can give a sense of fulfillment and dignity (Sen and ILO, 1975). The economic research on happiness has shown, indeed, that unemployed individuals are substantially less satisfied with their life than workers (Frey and Stutzer, 2002). Therefore, it is extremely important for policy-makers to understand individuals' employment preferences in order to improve labor market conditions.

In this respect, traditional approaches to labor market indicators have two main weaknesses (Lugo, 2007). First, they mainly focus on quantitative, outcome-oriented aspects of employment, such as wages and hours of work. By disregarding the qualitative and procedural characteristics of the working life, they fail to give an exhaustive representation of the labor market conditions. Secondly, even when labor force data are collected at an individual level, they usually do not contain extensive information on households'

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characteristics. These shortcomings are of particular relevance to developing countries, where informal employment, self-employment and poverty are predominant.

There is an emerging literature which tries to fill this gap by analyzing subjective well-being data related to employment[1]. Some interesting and consistent results emerge from these studies, in particular, a self-employment utility premium which appears to be due to workers attributing positive intrinsic value to independence compared to hierarchy. Alas, because of data constraints, the existing literature only focuses on industrialized countries while no detailed study of this kind exists from the developing world, where the issue should be of major interest given the high rate of self-employment in these countries. In fact, the findings cannot be directly extended from industrial to developing countries, as their living conditions and labor markets are fundamentally very different. This paper is the first to address the issue in details in a developing country.

We use a nationally representative dataset with extensive information on both the quantitative and qualitative aspects of employment to identify the determinants of job satisfaction in Chile. Drawing inspiration from Lugo (2007) and from the previous studies on industrial countries, we construct and test the following three indicators of quality of employment: job protection, occupational hazard and procedural utility from independence v/s hierarchy.

The results of our analysis suggest that in addition to income, Chilean workers have preferences for job protection, job safety and independence. They don't seem to value the workload indicator, namely, hours of work. Unlike the evidence from industrial countries, self-employed workers report higher job satisfaction than employees only after controlling for job protection and job safety. However, as soon as some measures for procedural aspects of work are included in the regression, the effect of self-employment on job satisfaction is no longer significant. This provides strong evidence that procedural preferences for independence are not specific to workers from industrial countries and therefore they should be taken into account by development policies.

The paper is structured as follows. In the next section we summarize the main literature on job satisfaction with a particular focus on its relationship with self-employment. The data description is made in section 3. Section 4 defines the indicators of quality of employment and provides the descriptive statistics. Section 5 focuses on the results, including the robustness checks. Section 6 concludes. All graphs and tables are found in the appendix.

2) Literature review on job satisfaction

Job satisfaction is becoming an increasingly popular subject in the economic literature. Studies have shown that job satisfaction can be relevant to understand individuals' behavior and to predict labor market mobility (Clark, 2001, Freeman, 1978).

Economists have been particularly interested in investigating the relationship of job satisfaction with other economic variables, including unionism (Borjas, 1979, Meng, 1990), income and education (Clark and Oswald, 1996), and job security (Blanchflower and

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[1] See section 2 for the literature review.

Oswald, 1999, Clark, 2001). As far as we know, no work has explored the relationship between occupational hazard and job satisfaction.

Among the determinants of job satisfaction, self-employment stands out. There is consistent evidence within and across Western and Non-Western industrialized countries that self-employed workers are more satisfied with their job than employees, even after controlling for socio-demographic and economic characteristics (Blanchflower, 2000, Blanchflower and Freeman, 1997, Blanchflower and Oswald, 1998, Blanchflower et al., 2001).

Some studies go one step further by identifying what are the factors behind the utility premium from self-employment. Hamilton (2000) investigates the difference in the earning distributions of the self-employed and of the employees from small businesses in the USA. He finds that the earning differential between the two types of workers is better explained by a positive compensating differential for self-employment rather than by investment, agency or matching-learning models. He concludes that self-employed workers receive substantial non-pecuniary benefits from their job.

Other studies use a somewhat more direct approach. Eden (1975) finds significant differences on how American employees and self-employed workers perceive their job. The latter have more enriching job requirements, more autonomy, larger hours of work and more irregular/flexible schedules. After controlling for autonomy, the positive effect of self-employment on job satisfaction disappears. This suggests that the higher job satisfaction reported by the self-employed compared to the employees can be attributed to a greater autonomy. Benz & Frey (2008a) finds similar results from British, Swiss and German data. This study also reveals a negative relationship between firm size and job satisfaction, which disappears after controlling for procedural aspects of work. The authors interpret such findings as individuals putting a positive intrinsic value to independence compared to hierarchy.

Finally, both Hundley (2001) and Benz & Frey (2008b) use a Blinder-Oaxaca decomposition procedure to identify what aspects of work contribute the most to the difference in job satisfaction between the self-employed and the employees. Once again, the results are consistent with the rest of the literature. Hundley (2001) shows that a large part of this difference is attributable to aspects related to the independence of the self-employed from routines and constraints of organizational life, such as task autonomy and task variety. He also finds that American self-employed workers see themselves as having greater job security. This is a surprising result given the riskiness commonly attributed to the self-employed business. Unlike Hundley (2001), Benz & Frey (2008b) analyzes a dataset from 23 countries, including both Western and Non-Western countries. The results suggest that a more interesting work and a greater autonomy account for a large portion of the difference in job satisfaction between the self-employed and the employees. On the opposite, work aspects such as pay, job security or opportunity for advancement account for little of the difference.

These findings are consistent with the definition of "procedural utility": *Procedural utility means that individuals not only value outcomes but also the conditions and the processes which lead to outcomes.* The literature has shown that in the employment sphere, individuals enjoy procedural utility from independence. Yet, economists are just starting to study procedural utility (Frey et al., 2004). Given the studies available so far, it might be too

soon for a generalization of the results to all individuals[2]. Although these findings consistently hold in both Western and Non-Western countries, the empirical evidence mentioned above comes mainly from industrialized countries[3]. There is no reason to believe that these findings should necessarily hold in developing countries where the labor markets and the living conditions are substantially different: a large part of the workers live in poverty and engage in informal activities, production is mainly agricultural, self-employment is predominant, some markets are missing etc.

Therefore, the study of the determinants of job satisfaction in developing countries deserves separate attention. Understanding what is valuable to the people working in such extreme conditions is essential to improve future economic and development policies. This is what this paper tries to do.

3) The data

The empirical analysis is based on the survey "Missing Dimensions of Poverty" in Chile, a nationally representative survey sponsored by the Oxford Poverty and Human Development Initiative (OPHI)[4] and by the Centre of Microdata from the Economics department at the Universidad de Chile. In addition to the standard demographic and socio-economic variables, the survey contains detailed information on qualitative employment conditions and on subjective/psychological well-being.

The data set, collected in 2008/9, is a sub-sample of 2000 households from the 2006 CASEN (Encuesta de Caracterización Socioeconómica Nacional). All questions, except for those related to subjective well-being, are addressed to a single member of the household - the respondent - who answers for all the other members. For obvious reasons, respondents only answer the questions related to subjective well-being for themselves.

The data set contains information on 7985 individuals of which 3207 are employed. Among those, 1361 are asked about their job satisfaction. Only 8 individuals out of 1361 did not answer the question. We then need to exclude those individuals for which we lack some information about their demographic or socio-economic characteristics. This leaves us with a sample of about 1100 workers. Self-employment represents nearly 25% of total employment, which is a large share compared to the approximate 10% in industrial countries. The self-employment dummy variable takes value 1 when workers state to be either self-employed or employers/boss and 0 when workers are employed by an organization, whether public or private[5].

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[2] For instance, Fuchs-Schündeln (2009) provides some evidence that procedural preferences are heterogeneous across the population.

[3] In the cross countries study from Benz & Frey (2008b) the sample includes Bangladesh and The Philippines. However, they only have a limited number of control variables (age, gender, education, income, and hours of work). Hinks (2009) investigates some determinants of job satisfaction in South Africa, however informal employment and self-employment are excluded from the analysis.

[4] OPHI is a research institute within the University of Oxford's Department of International Development, Queen Elizabeth House.

[5] Individuals working as domestic services are included among the employees. However, their exclusion from the sample does not affect the results. In contrast, unpaid relatives and armed/security forces are excluded

Self-reported job satisfaction is the dependent variable of our empirical analysis. Individuals are asked the following question: "In general, how satisfied or unsatisfied are you with your job?" Answers have to belong to one of the four categories: "Very satisfied", "Fairly satisfied", "Not very satisfied" and "Not at all satisfied". We recoded the answers so that 4 reflects the highest job satisfaction category and 1 the lowest job satisfaction category. As these are ordered data, we use as main model an ordered Logit regression. OLS and Logit regressions are run as robustness checks.

A potential shortcoming of the data set is that it only contains cross-section elements which are relevant for our research. However, unlike previous works, we have an exhaustive number of control variables. In addition to the standard controls - which include age, tenure, gender, size of the firm, hours of work, income, region, education, industry, occupation, and self-employment- we also have information on qualitative characteristics of employment: job protection, occupational hazard and direct measures of procedural utility. These indicators of quality of employment along with self-employment represent the main explanatory variables of our model.

4) Indicators of quality of employment and descriptive statistics

The purpose of this section is to explain, one by one, how these indicators have been constructed and to provide some descriptive statistics.

JOB PROTECTION
Job protection refers to the formal arrangements which characterize an economic activity with the aim of protecting workers against negative shocks related to employment (Lugo, 2007). For instance, the retirement pension system protects workers against the consequences of age, the paid sick leave protects workers against the consequences of diseases, etc. This indicator must be distinguished from job security, typically used in the existing literature on industrial countries. Job security – at least as it is defined by Blanchflower (1999) – refers to people's perceptions about the probability of losing their job. One can expect job security and job protection to be positively correlated, but the latter includes additional dimensions and it's not a subjective, reported variable.

In our data set there are six dummy variables reflecting job protection. We constructed a dummy variable equal to 1 for each of the following situations:
- if the individual signed a work contract
- if the contractual relation is permanent rather than temporary
- if the individual is entitled to paid maternity leave (hold for both men and women)
- if the individual is entitled to paid sick leave
- if the individual is entitled to paid holidays
- if the individual contributes to retirement pension

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from the analysis given their particular status. This choice does not affect the results, as only 8 observations belong to these categories in total.

A major problem of the survey is that among all the questions related to job protection, self-employed workers are only asked whether they contribute to retirement pension. As a consequence, in order to better assess the effect of job protection on job satisfaction, we run two separate regressions. In the first regression, we control for self-employment and we use the dummy variable associated with "contribution to retirement pension" as our indicator for job protection. In the second regression, we restrict our sample to employees and the average of the six dummy variables mentioned above is used as the indicator for job protection[6].

The lack of job protection, i.e. job informality, is a serious problem in Chile, as Figure 1 suggests. In fact, only 40% of the employees have full job protection (that is, the indicator equals 1), while 11% of the employees have no job protection at all (that is, the indicator equals 0). Figure 1 also reveals that job protection is very unequally distributed among Chilean employees. Medium values of the indicator (such as 0.5) are the least frequent. Most of the employees have either high job protection, or low job protection.

If we look at the different variables composing our indicator, we can see that "paid maternity leave" and "type of contract" represent a major concern (Figure 2). In fact, 37% of female employees are not entitled to a paid maternity leave and 40% of employees have temporary contracts.

We now compare job protection between the employees and the self-employed. The comparison is only based on "contribution to retirement pension" as we don't have any information about the other job protection aspects of the self-employed. However, the descriptive statistics reveal an interesting pattern: self-employed workers contribute significantly less to retirement pension than employees. In fact, only 30% of the self-employed contribute to retirement pension, compared to the 83% of the employees (Figure 3). This difference is significant at the 99% level (Table 1). We conclude that the self-employment sector is particularly affected by poor job protection.

OCCUPATIONAL HAZARD

Occupational hazard refers to poor health and safety conditions in the workplace. As far as we know, there is no economic study which relates occupational hazard to job satisfaction. Besides, data information on occupational injuries is rather limited and usually restricted to "insured employees" (Lugo, 2007).

In our data set, there are five dummy variables which reflect occupational hazard. We constructed a dummy variable equal 1 for each of the following situations:
- if the individual suffered any accidental injury, illness, disability or other mental health problem caused by work during the past 12 months
- if the individual's workplace does not have adequate toilets
- if the individual's workplace does not have clean water
- if the individual has to work under uncomfortable postures or spend long hours standing
- if the individual is exposed to cutting/grinding machines, loud noise, extreme temperatures, harmful chemicals or heavy loads. (workplace exposures)

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[6] As there are many missing values for this variable also among employees, we recoded the data in order to control for missing values which occur non-randomly.

We use as indicator for occupational hazard the average of the five dummy variables mentioned above. The distribution of occupational hazard among Chilean workers is represented in Figure 4. 30% of the workers do not have any occupational hazard according to our indicator, while only 0.45% of the workers have the highest level of occupational hazard (the indicator takes value 1). If we look at the variables composing our indicator, we can see that "workplace exposures" and "uncomfortable postures" are the most frequent. In fact, nearly 50% of Chilean workers face such types of occupational hazard, compared to nearly 15% who don't have access to adequate bathrooms or clean water, and compared to 5% who had an injury caused by work (Figure 5).

We now compare occupational hazard between self-employed workers and employees. Figure 6 shows that self-employed face a larger occupational hazard compared to employees. Although the difference is not as glaring as in the case of "contribution to retirement pension", it is significant at the 99% level (table 1). We conclude that the self-employment sector is particularly affected by a poor job safety.

PROCEDURAL UTILITY FROM INDEPENDENCE

Procedural utility from independence means that individuals attribute positive intrinsic value to independence compared hierarchy. In other words, they enjoy the freedom of doing what they like rather than being subject to decisions made by others. The economic literature has taken self-employment as an important case for independence in the working life[7]. Indeed, unlike employees, self-employed workers are not subject to a hierarchy and thus do not have to obey orders given by their superiors. This "taste for independence" seems to account for the higher job satisfaction reported by the self-employed compared to the employees in industrialized countries. We test whether this is also true in Chile. Following the lines of Benz & Frey (2008a), we introduce direct measures of procedural utility from independence in the job satisfaction regression. If it is true that the self-employment utility premium –provided that it also exists in Chile- is due to procedural utility from independence, then the effect of self-employment on job satisfaction should disappear once we control for such procedural aspects of work.

In order to derive our direct measures of procedural utility from independence, we draw inspiration from research by psychologists (Deci and Ryan, 2000), which suggests that individuals attribute positive intrinsic value to "self-determination", namely, the intrinsic benefits which are derived from the fulfillment of three psychological needs: *autonomy*, *competence* and *relatedness*[8]. According to this research, self-determination is strongly correlated with independence and it is usually restricted under hierarchy.

Our data set contains information on the three components of self-determination. In order to assess *autonomy*, individuals are asked to choose from 1 to 4 - where "1" is "Not true at all" and "4" is "Completely true"- how true is the following statement: "At work I have a lot of autonomy and I can organize myself as I want." In order to assess *competence*, individuals are asked "to what extent do you feel that you have the possibility to progress and improve at work." Answers have to belong to one of the four following categories: "Always", "Frequently", "Occasionally", or "Never". We recoded the answers so that "4" reflects the

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[7] See literature review in section 2.
[8] See also Samman (2007) for further details on this topic.

highest category and "1" the lowest category. Finally, individuals are asked 3 questions about *relatedness*, namely, about their relationship with the people they regularly interact with. Again, the answers are ranked from 1 to 4, where "4" represents the highest degree of *relatedness*. Our *relatedness* variable is constructed as average of the answers to the 3 questions just mentioned.

We now compare reported job satisfaction and self-determination between the self-employed and the employees. Some interesting results arise. Unlike in industrialized countries, there is no significant positive difference in the mean of reported job satisfaction between the self-employed and the employees (Figure 7 and Table 1). On average self-employed workers report 0.012 index points (on a scale 1-4) lower satisfaction with their job than employees – although the difference is not significant. In contrast, the raw differences for each of the three components of self-determination show significantly higher self-determination for self-employed workers (Table 1). On average, self-employed workers report 0.544 index points higher *autonomy*, 0.304 index points higher *competence* and 0.073 higher *relatedness* than employees (on a scale 1-4). These differences are significant at the 99% level and at the 95% level respectively. To summarize, descriptive statistics seem to confirm that self-employed workers enjoy higher procedural utility from work than do the employees, however, this difference is not reflected in higher job satisfaction. We think that these apparently contradicting results could be due to the negative effect of low job protection and large occupational hazard on the job satisfaction of the self-employed. We investigate this issue in our regression analysis.

5) Empirical Findings

Multivariate regressions are estimated using an ordered logit model, as job satisfaction is an ordinally scaled dependent variable. OLS and Logit regressions are used as robustness checks.

We start by running a standard regression where we don't control for quality of employment. The aim is to compare our results with the empirical evidence from industrialized countries. Findings are presented in Table 2 column (1). Income is certainly a major determinant of job satisfaction (p-value=0.000), as it is in industrial countries. Women are more satisfied with their job than men. In contrast, Chilean workers don't seem to care about hours of work. Unlike Benz & Frey (2008a), we find no negative relationship between firm size and job satisfaction. However, the most important finding is that the coefficient on the self-employment dummy variable is positive but not significant (p-value=0.136). This result is in contrast with all the previous literature[9] which finds a highly significant utility premium from self-employment even after controlling for socio-demographic characteristics and quantitative economic aspects of employment. We think that this result can be attributed to our choice of disregarding qualitative aspects of employment which may be relevant for Chilean workers.

Regression in Table 2 column (2) includes the indicator for occupational hazard. The latter has a significant negative effect on job satisfaction (p-value=0.012). Everything else

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[9] See literature review in section 2.

being equal, the higher is the occupational hazard (as defined by our indicator) faced by Chilean workers, the lower is the job satisfaction. It also stands out that after controlling for occupational hazard, the positive coefficient on the self-employment dummy variable has become significant at the 90% level (p-value=0.057). This confirms our hypothesis that the self-employment utility premium also exists in developing countries but may be offset by the poor safety conditions which characterize self-employment activities.

We now look at the job protection indicator measured by "contribution to retirement pension". Regression in Table 2 column (3) shows that the latter is a positive determinant of job satisfaction. The coefficient is positive and significant at the 99% level (p-value=0.006). Chilean workers who contribute to retirement pension are on average more satisfied with their job than those who do not, everything else being equal. As it was the case for the occupational hazard indicator, after controlling for job protection the self-employment utility premium emerges. The positive coefficient on the self-employment dummy variable becomes significant at the 95% level (p-value=0.028). This confirms our hypothesis that the self-employment utility premium may not appear in the raw differences because it is offset by the poor job protection which characterizes self-employment activities.

In the next step, we include both the occupational hazard indicator and the "contribution to retirement pension" variable (Table 3 column (1)). The coefficients are significant at the 95% level (p-value=0.014) and at the 99% level (p-value=0.004) respectively. We can conclude that even if there may be some correlation between job protection and job safety[10], both dimensions have a direct positive effect on job satisfaction and, therefore, each of them needs adequate and separate attention when analyzing labor markets. As far as self-employment is concerned, when we control for both job protection and occupational hazard, the self-employment dummy variable coefficient is almost significant at the 99% level (p-value=0.011). Job protection and occupational hazard being equal, Chilean self-employed workers are more satisfied with their job than Chilean employees. Our final step is to investigate whether the observed positive relationship between self-employment and job satisfaction is due to procedural utility from independence.

We now run a direct test for procedural utility by including the indicators of the three components of self-determination into the job satisfaction regression. Results are reported in Table 3 column (2). It stands out that the coefficient on the self-employment dummy variable is no longer significant (p-value=0.241). This means that the procedural aspects of work, namely self-determination/independence, explain the self-employment-job satisfaction effect completely. Besides, the coefficients on *autonomy*, *competence* and *relatedness* are positive and highly significant (at the 95% and the 99% level respectively). This confirms our hypothesis that Chilean self-employed workers are more satisfied with their job than Chilean employees because they derive procedural utility from independence. This finding is consistent with the previous studies on industrial countries[11].

In order to verify the effect of the "full job protection indicator" on job satisfaction, the same analysis is done using only the sub-sample of employees. Results are reported in Table 3 column (3). The coefficient of the job protection indicator is positive and very significant (p-

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[10] Two-Groups Mean-Comparison Test shows indeed that, on average, individuals who do not contribute to retirement pension also face higher occupational hazard. The test is significant at 99% level.

[11] Refer to the literature review in section 2.

value=0.000), which is consistent with our hypothesis that job protection increase job satisfaction. In contrast, the coefficient on occupational hazard becomes less significant (p-value=0.068) when we restrict our analysis to employees only. This may occur because job safety is more highly correlated with job protection than with "contribution to retirement pension" or it may indicate that occupational hazard is a higher source of concern for the self-employed than for the employees. We then include the direct measures of procedural utility in the regression. Consistently with our previous results, the coefficients on *autonomy*, *competence* and *relatedness* are positive and significant at the 99% level (Table 3 column(4)).

Finally, we run OLS and Logit regressions as robustness checks. In the latter case, we recoded the data so that the dependent variable takes value 1 if the individual states to be either "Very satisfied" or "Fairly satisfied", and value 0 if he or she states to be "Not very satisfied" or "Not at all satisfied". The Logit model sacrifices some information in exchange of more flexibility: in fact, we do not need to assume either cardinality or single crossing property. Table 4 and table 5 show that our results are very robust across different specifications of the model.

6) Conclusions

This paper is consistent with previous evidence from industrial countries that qualitative and procedural characteristics of employment can be as much valuable to the workers as quantitative, instrumental indicators. It is shown that, in addition to income, Chilean workers have preferences for job protection, job safety and independence. However, contrary to the evidence from the industrialized countries, Chilean self-employed workers are more satisfied with their job than Chilean employees only after controlling for job protection and occupational hazard. Descriptive statistics suggests that this is a consequence of the poor job protection and poor job safety which are likely to characterize the self-employment sector in developing countries.

Important recommendations emerge from this study for both policy makers and future research. Firstly, there is an urgent need to collect data on the dimensions of employment which have appeared to be relevant for the individuals. This is especially true for developing countries where informal employment and self-employment are predominant. This will not only increase our understanding of labor markets conditions but will also facilitate comparisons among countries. In fact, our results rely strongly on the information about job protection and job safety, which is usually missing in households' data sets. Finally, development policies aimed at increasing job protection and job safety for self-employed individuals should be strongly encouraged and the qualitative dimensions of employment should be taken into account when planning and evaluating policies against poverty.

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Data appendix

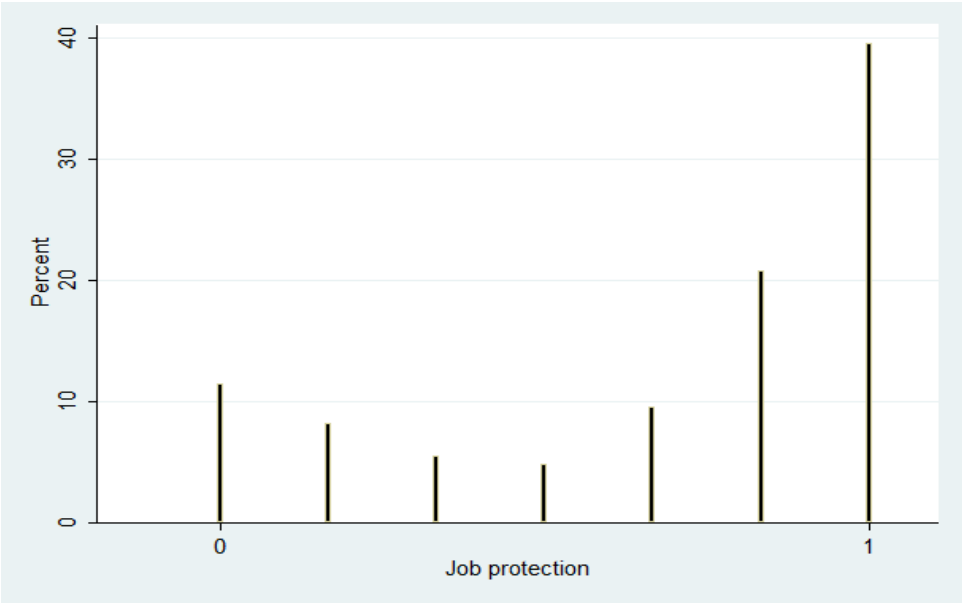Figure 1: Job protection distribution among Chilean employees.
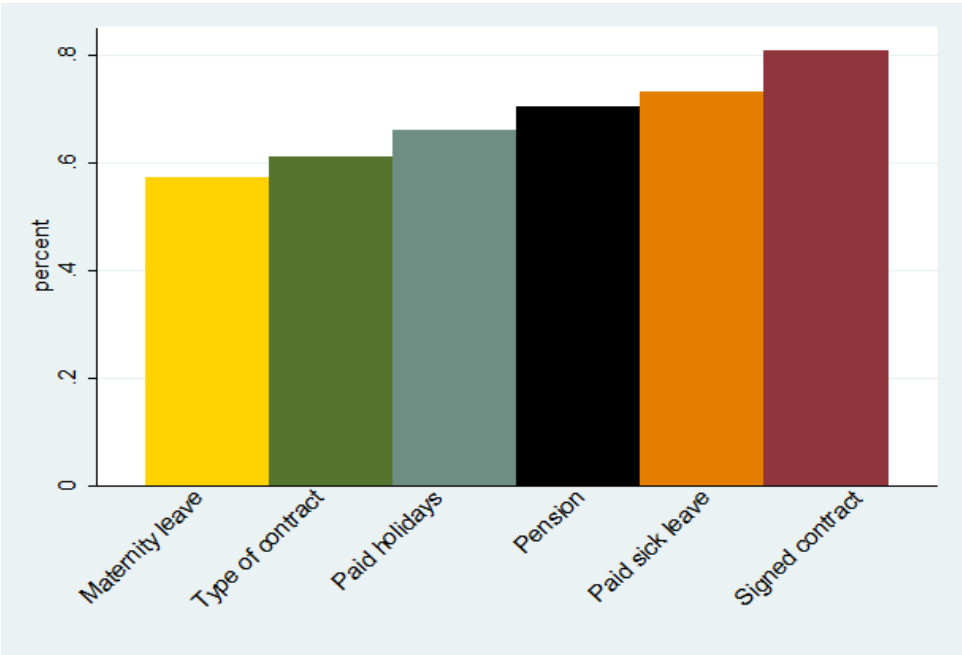

Figure 2: Dimensions of Job Protection

Figure 3: Mean difference in "contribution to retirement pension" between employees and the self-employed
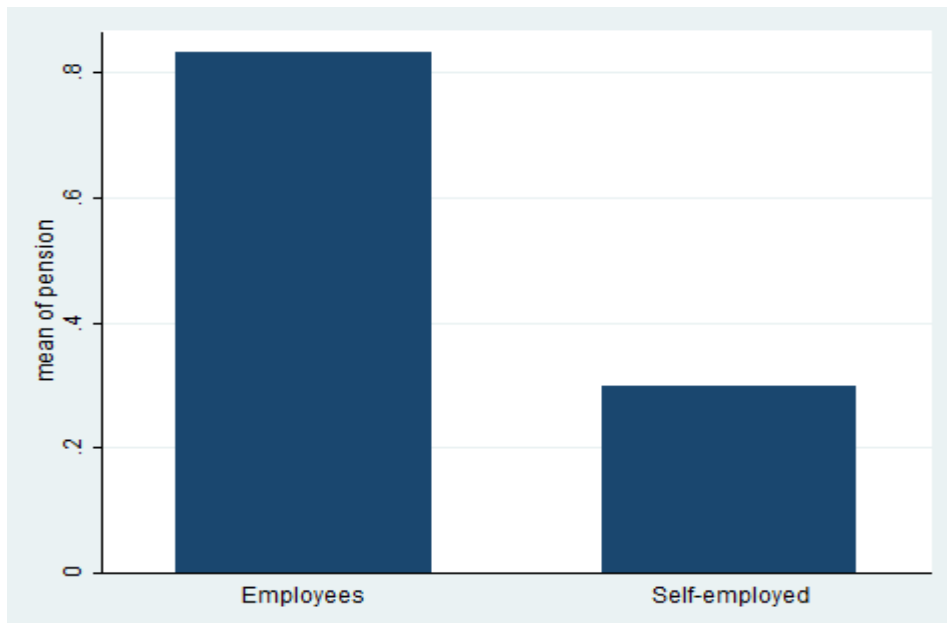
Figure 4: Occupational hazard distribution among Chilean workers.
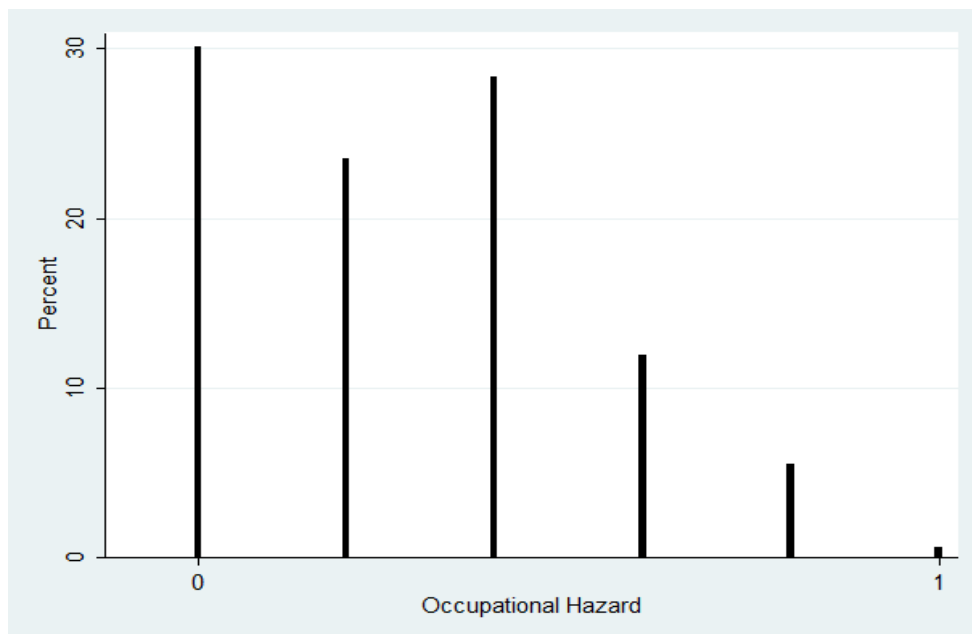
Figure 5: Dimensions of Occupational Hazard
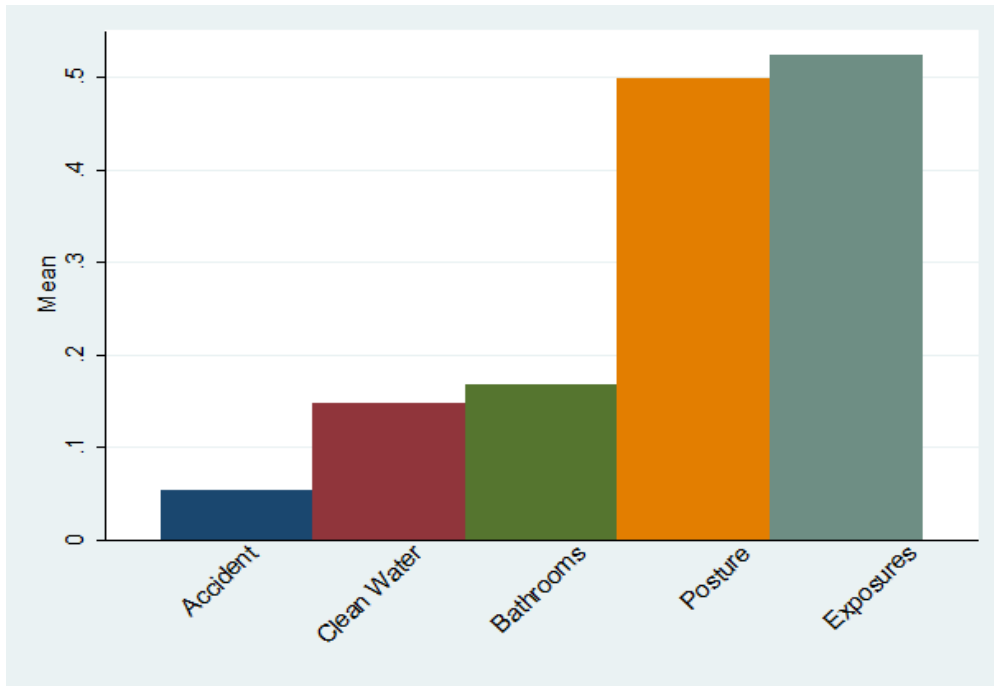
Figure 6: Mean difference in occupational hazard between employees and the self-employed
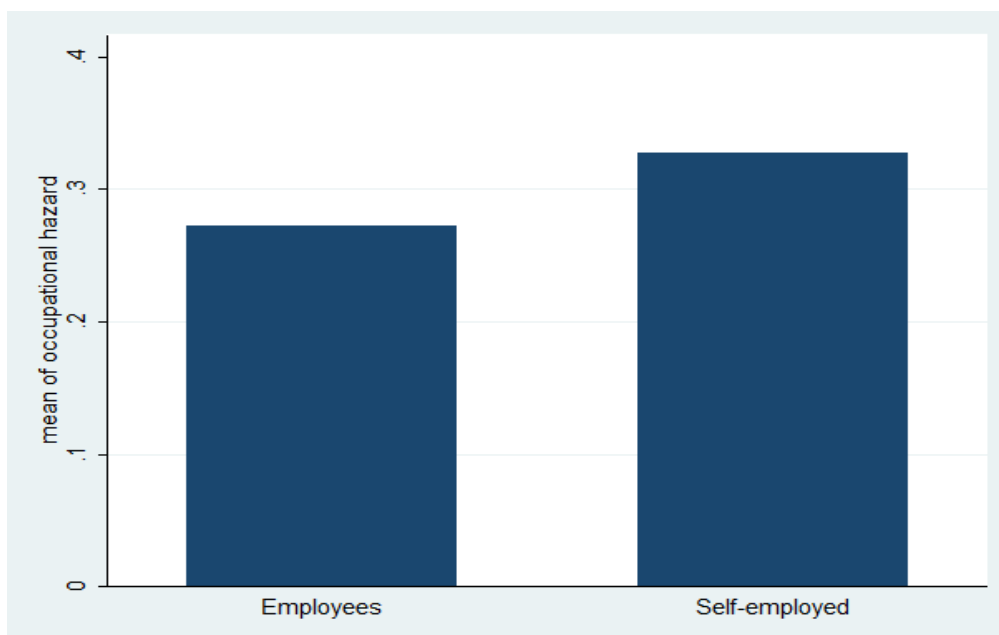
Figure 7: Mean difference in job satisfaction between employees and the self-employed
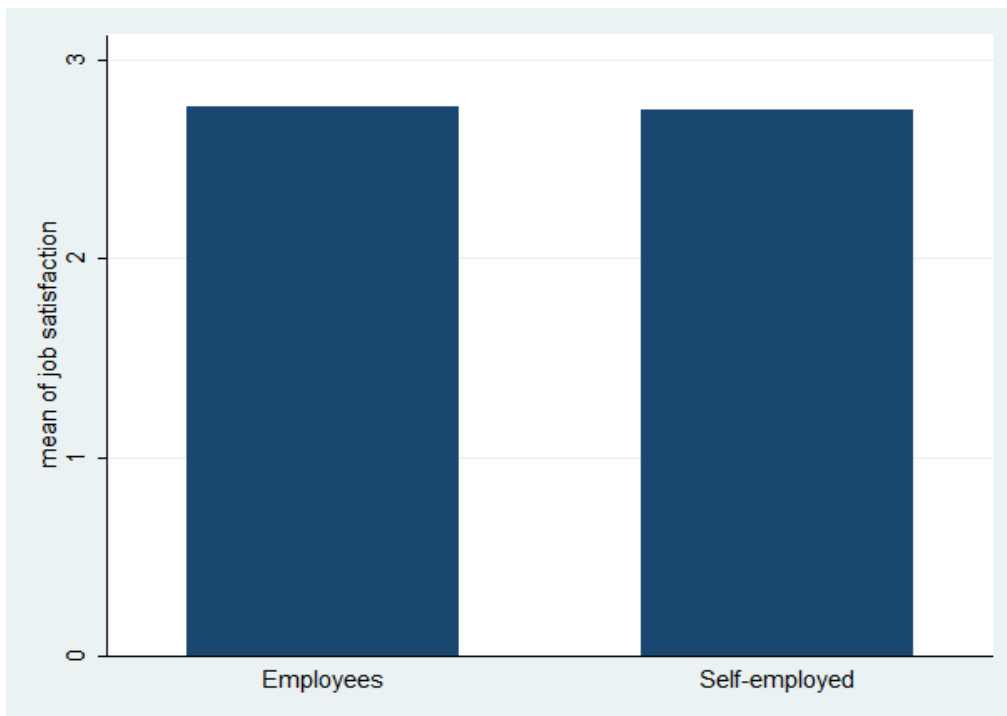
Table 1: Raw mean differences between the employees and the self-employed

	MEAN JOB PROTECTION	MEAN OCCUPATIONAL HAZARD	MEAN JOB SATISFACTION	MEAN AUTONOMY	MEAN COMPETENCE	MEAN RELATEDNESS
Self-employed	0.297***	0.327***	2.750	3.297***	3.104***	3.344**
	(0.017)	(0.013)	(0.048)	(0.048)	(0.062)	(0.029)
Employees	0,831	0.261	2.762	2.753	2.800	3.271
	(0,007)	(0.007)	(0.029)	(0.035)	(0.041)	(0.020)

Note: *0.05<p<0.1, **0.01<p<0.05, ***p<0.01
Standard errors are in parentheses.

Table 2: Ordered Logit regression results

	(1)	(2)	(3)
Dep. Variable: Job satisfaction	Ordered Logit	Ordered Logit	Ordered Logit
Self-employment	0.382	0.492*	0.615**
	(0.256)	(0.259)	(0.280)
Occupational hazard	-	-0.950**	-
		(0.379)	
Contribution to pension	-	-	0.695***
			(0.252)
Size of the firm			
6-9 persons	0.620*	0.637*	0.464
	(0.341)	(0.345)	(0.350)
10-49	0.127	0.177	-0.0474
	(0.269)	(0.271)	(0.285)
50-199	0.198	0.262	0.0260
	(0.284)	(0.285)	(0.304)
>200	0.443	0.498*	0.264
	(0.293)	(0.289)	(0.318)
Log income	0.917***	0.910***	0.810***
	(0.146)	(0.150)	(0.156)
Hours of work	0.00540	0.00646	0.00697
	(0.005)	(0.005)	(0.005)
Gender (male)	-0.460**	-0.404*	-0.378*
	(0.210)	(0.215)	(0.212)
Age	0.0133	-0.00234	-0.00443
	(0.041)	(0.039)	(0.041)
$(Age)^2$	3.91e-05	0.000174	0.000253
	(0.0004)	(0.0004)	(0.0004)
Tenure	-0.0327	-0.0304	-0.0334
	(0.022)	(0.022)	(0.023)
$(Tenure)^2$	0.000843	0.000825	0.000787
	(0.0005)	(0.0005)	(0.0006)
Region (urban)	-0.375*	-0.339	-0.345
	(0.225)	(0.227)	(0.229)
Education dummies	5 categories	5 categories	5 categories
Industry dummies	7 categories	7 categories	7 categories
Occupation dummies	9 categories	9 categories	9 categories
Observations	1111	1101	1095

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Direct test for procedural utility

Dep. Variable: Job satisfaction	Sample of all workers		Sample of employees	
	(1) Ordered Logit	(2) Ordered Logit	(3) Ordered Logit	(4) Ordered Logit
Self-employment	0.717**	0.342	-	-
	(0.282)	(0.292)		
Contribution pension	0.717***	0.568**	-	-
	(0.250)	(0.250)		
Job protection	-	-	1.647***	1.271***
			(0.401)	(0.395)
Occupational hazard	-0.951**	-0.420	-0.912*	-0.3997
	(0.387)	(0.411)	(0.524)	(0.527)
Autonomy	-	0.202**	-	0.332***
		(0.0931)		(0.119)
Competence	-	0.283***	-	0.295***
		(0.0762)		(0.092)
Relatedness	-	0.587***	-	0.589***
		(0.149)		(0.174)
Log income	0.826***	0.726***	0.885***	0.851***
	(0.156)	(0.161)	(0.193)	(0.191)
Hours of work	0.00773	0.00933	0.0113	0.0067
	(0.00553)	(0.00657)	(0.00957)	(0.009)
Gender (male)	-0.334	-0.227	-0.380	-0.271
	(0.215)	(0.234)	(0.274)	(0.308)
Age	-0.0116	0.000910	0.0599	0.070
	(0.0409)	(0.0458)	(0.0495)	(0.056)
$(Age)^2$	0.000303	0.000140	-0.000524	-0.0006
	(0.000431)	(0.000496)	(0.000529)	(0.0006)
Tenure	-0.0331	-0.0410	-0.0764*	-0.090**
	(0.0227)	(0.0252)	(0.0426)	(0.0400)
$(Tenure)^2$	0.000816	0.00121*	0.00176	0.002*
	(0.000560)	(0.000643)	(0.00125)	(0.001)
Region (urban)	-0.318	-0.346	-0.411	-0.367
	(0.228)	(0.265)	(0.272)	(0.292)
Firms' size dummies	5 categories	5 categories	5 categories	5 categories
Education dummies	5 categories	5 categories	5 categories	5 categories
Industry dummies	7 categories	7 categories	7 categories	7 categories
Occupation dummies	9 categories	9 categories	9 categories	9 categories
Observations	1086	985	747	705

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: OLS regression results

Dep.variable: Job satsfaction	(1) OLS	(2) OLS	(3) OLS
Self-employment	0.160	0.296***	0.133
	(0.104)	(0.112)	(0.109)
Contribution pension	-	0.309***	0.240**
		(0.099)	(0.097)
Occupational hazard	-	-0.443***	-0.217
		(0.161)	(0.160)
Autonomy	-	-	0.0692**
			(0.035)
Competence	-	-	0.119***
			(0.030)
Relatedness	-	-	0.233***
			(0.055)
Log Income	0.369***	0.329***	0.272***
	(0.055)	(0.057)	(0.056)
Hours of work	0.00260	0.00350	0.00363
	(0.002)	(0.002)	(0.002)
Gender (male)	-0.185**	-0.128	-0.0835
	(0.089)	(0.089)	(0.091)
Age	0.00418	-0.00878	-0.00288
	(0.017)	(0.018)	(0.018)
$(Age)^2$	2.80e-05	0.000163	8.28e-05
	(0.0002)	(0.0002)	(0.0002)
Tenure	-0.0135	-0.0133	-0.0151
	(0.009)	(0.009)	(0.009)
$(Tenure)^2$	0.000378*	0.000358	0.000474**
	(0.0002)	(0.0002)	(0.0002)
Region (urban)	-0.137	-0.117	-0.131
	(0.095)	(0.092)	(0.098)
Firms' size dummies	5 categories	5 categories	5 categories
Education dummies	5 categories	5 categories	5 categories
Industry dummies	7 categories	7 categories	7 categories
Occupation dummies	9 categories	9 categories	9 categories
Observations	1111	1086	985
R-squared	0.203	0.229	0.295

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Logit regression results

Dep. Variable: Job staisfaction	(1) Logit	(2) Logit	(3) Logit
Self-employment	0.329	0.710**	0.525
	(0.269)	(0.315)	(0.341)
Contribution pension	-	0.801***	0.699**
		(0.289)	(0.296)
Occupational hazard	-	-1.104**	-0.601
		(0.459)	(0.500)
Autonomy	-	-	0.213**
			(0.108)
Competence	-	-	0.278***
			(0.0847)
Relatedness	-	-	0.323*
			(0.168)
Size of the firm			
6-9 persons	0.612	0.412	0.338
	(0.394)	(0.408)	(0.424)
10-49	0.109	-0.0239	0.0892
	(0.302)	(0.320)	(0.352)
50-199	0.177	0.0401	0.133
	(0.319)	(0.346)	(0.334)
>200	0.631*	0.526	0.470
	(0.332)	(0.337)	(0.362)
Log income	1.078***	1.008***	0.895***
	(0.200)	(0.204)	(0.214)
Hours of work	0.005	0.007	0.008
	(0.007)	(0.008)	(0.009)
Gender	-0.436	-0.286	-0.127
	(0.269)	(0.276)	(0.308)
Age	-0.009	-0.055	-0.029
	(0.055)	(0.054)	(0.059)
$(Age)^2$	0.0002	0.0007	0.0004
	(0.0006)	(0.0006)	(0.0006)
Tenure	-0.041	-0.042	-0.044
	(0.028)	(0.029)	(0.031)
$(Tenure)^2$	0.00148**	0.00147**	0.00178**
	(0.0007)	(0.0007)	(0.0008)
Region (urban)	-0.242	-0.188	-0.190
	(0.286)	(0.289)	(0.322)
Education dummies	5 categories	5 categories	5 categories
Industry dummies	7 categories	7 categories	7 categories
Occupation dummies	9 categories	9 categories	9 categories
Observations	1111	1086	985

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1