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## Is informality a good measure of job quality? Evidence from job satisfaction data

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# **IS INFORMALITY A GOOD MEASURE OF JOB QUALITY? EVIDENCE FROM JOB SATISFACTION DATA**

BY

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## Abstract<sup>1</sup>

The formality status of a job is the most widely used indicator of job quality in developing countries. However, a number of studies argue that, at least for some workers, the informality status may be driven by choice rather than exclusion. This paper uses job satisfaction data from three low-income countries (Honduras, Guatemala and El Salvador) to assess whether informal jobs are less valued than formal jobs. The paper finds substantial differences in job satisfaction within different types of informal jobs. More importantly, the results suggest that across different definitions, informality does not yield the same ranking of job quality as self-reported measures of job satisfaction. This correspondence varies across countries, and it seems to be lower for less-skilled workers.

**Keywords:** Job Satisfaction, Informality, Quality of Employment, Honduras, El Salvador, Guatemala.

**JEL Codes:** J21, J28, O17.

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<sup>1</sup> The authors would like to thank Karla Rodríguez for her valuable research assistance. All errors remain our own responsibility. This paper represents the opinions of the authors and not those of the Inter-American Development Bank or its Board of Directors. Corresponding author: carmenpag@iadb.org

## 1. Introduction

A widely held hypothesis in the development literature is that informal jobs are marginal, low-productivity activities in a dual labor market. According to this view, informal workers are barred by institutional or market barriers from accessing formal jobs with superior pay and higher benefits. Support for this view has been provided by studies that show wages and benefits to be lower in the informal sector (Heckman and Hotz, 1986; Pradhan and Van Soest, 1995; Gong and Van Soest, 2001; Pratap and Quintin, 2006).

In contrast, some studies state that, at least for some workers, the informality status may be driven by choice rather than exclusion (Perry et al., 2007). It has been argued that workers may prefer the autonomy and independence afforded by self-employment (Maloney, 2004). Workers may also find a greater degree of flexibility, particularly regarding work schedules and hours of work in informal jobs, which may suit people with competing time demands, such as parents of young children or students. Workers may also value the possibility of evading taxes and social security contributions from which they derive little value (Maloney, 2004). This may be particularly relevant if governments provide free-of-charge social services targeted to informal workers (Levy, 2008).

Recent work has attempted to disentangle which view provides a better fit for the data. While studies find that on average wages tend to be higher in the formal sector, workers may differ in a number of unobserved ways in regards to their ability, effort or preferences, affecting their earnings potential. Controlling for such differences using semi-parametric approaches (Pratap and Quintin, 2006) or panel data (Pagés and Stampini, 2007) reduces or even reverses such wage differentials.<sup>2</sup> Moreover, Yamada (1996) and Earle and Sakov (2000) find positive selection into self-employment, suggesting that those workers have a comparative advantage in being micro-entrepreneurs.

Studies have also resorted to studying workers' mobility patterns; if workers prefer formal employment, they should voluntarily move from informal to formal sector jobs while involuntary mobility should go in the opposite direction. Studies of mobility find high rates of mobility across formal and informal salaried jobs and low mobility between formal salaried jobs

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<sup>2</sup> Similarly, Magnac (1991) for Colombia, Yamada (1996) for Peru, Maloney (1999) for Mexico, and Earle and Sakov (2000) for five transition economies find little evidence that formal salaried workers have higher earnings than self-employed workers.

and self-employment (Maloney, 1999; IDB, 2004; Bosch and Maloney, 2007; Pagés and Stampini, 2007). They also find that mobility is higher from informal salaried to formal salaried jobs, consistent with a higher preference for formal salaried jobs.

Mobility studies, however, do not fully solve the problem because to date, existing data do not permit observing whether mobility is voluntary or involuntary. This makes it difficult to identify whether mobility patterns reflect workers' preferences for a specific type of job, barriers to entry into some occupations, or employers' preferences for certain types of workers.

This paper uses job satisfaction data from three low-income countries (Honduras, Guatemala and El Salvador) to assess whether informal jobs are less valued than formal jobs. Following a growing literature on subjective well-being, we assess whether there are barriers to entry to formal employment by comparing levels of job satisfaction across formal and informal jobs. If formal workers enjoy rents and enjoy higher utility at work, then they should report higher levels of job satisfaction than informal workers. In similar approaches, subjective well-being measures have been used to understand the determinants of job quality (Clark, 2004; Sousa-Poza and Sousa-Poza, 2000) or whether unemployment is involuntary (Oswald, 1997; Clark and Oswald, 1994; DiTella, MacCulloch and Oswald, 2003). Comparisons of job satisfaction have also been used to assess whether the self-employed enjoy rents relative to salaried workers (Blanchflower, Oswald and Stutzer, 2001; Kawaguchi, 2008). To date, however, studies of this type have been almost entirely conducted in the context of developed countries.<sup>3</sup>

The question of whether formal jobs are higher quality than informal ones is relevant for at least two reasons: First, the formality status of a job is the most widely used indicator of job quality in developing countries. It is also used as a measure of labor slack, as unemployment figures may be misleading when, unemployment insurance is not available, and unemployed individuals need to find any job quickly to support themselves and their families. It is therefore important to assess whether a commonly used measure of informality correlates with workers' own preferences for jobs.

Second, there is growing interest in understanding the role of informality in the process of economic development. In particular, there is interest in assessing whether informal activities

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<sup>3</sup> To our knowledge, the only studies examining data of job satisfaction in the context of developing countries are Pratap and Quintin (2006) for Argentina and Perry et al. (2007) for the Dominican Republic and Colombia.

are the last resort of those who cannot enter the formal sector or, instead, by compensating lower productivity rates with tax evasion they detract workers from formal, more efficient firms, leading to an inefficient allocation of labor and lower total factor productivity (see, for example, Hsieh and Klenow, 2007). The second scenario is more likely when workers have similar valuation for informal and formal jobs.

While it is widely recognized that the informal sector is highly heterogeneous, in practice most studies bunch many different types of employment into the broad concept of the informal sector. Moreover, the definition of informality varies across studies making comparisons very difficult. One strand of literature uses a *job category-based* definition of the informal sector following the 1993 International Conference of Labor Statisticians (ICLS). According to this view, the informal sector comprises non-professional self-employed activities, unpaid workers, employees of microenterprises (defined as firms with fewer than five or 10 workers) and owners of microenterprises.<sup>4</sup> Other social scientists define informal workers as those who are not enrolled in social security and do not enjoy the protections of labor laws. We refer to this as the *benefit-based* definition. In 2003, the ICLS proposed a new definition which merged the job category and the benefits-based view. Under this new definition, informal workers would be those under the job category-based definition plus employees holding informal jobs, that is, all those forms of employment relationships which in law or in practice are not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits. We denote this as the *merged definition* of informality.

Rather than adhering to any particular definition, in this study we distinguish among four categories of employment: self-employed, employed in microenterprises; employed in firms of more than five workers (large firms) with social security (benefits) and employed in large firms without benefits.<sup>5</sup> We then group those four categories according to the three definitions of formality and examine how well formality status correlates with job quality as defined by workers' own assessments of their job satisfaction.

Our approach yields a number of insights. First, we find heterogeneous valuation across types of jobs. This implies that, when jobs are bunched into informality according to the different

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<sup>4</sup> The 1993 ILO report of the Fifteenth International Conference of Labor Statisticians allows flexibility in the inclusion or exclusion of professional self-employed, domestic help and unpaid workers as part of the informal sector.

<sup>5</sup> We cannot separately track workers employed in unpaid jobs, owners of enterprises, domestic help and workers employed in small firms with benefits due to insufficient number of observations.

definitions, there is substantial heterogeneity of job valuation within informal jobs. Within jobs typically classified as informal jobs, self-employment activities are the most preferred, while being employed in a small firm tends to be less preferred. Second, we find that some formal jobs compare well with some informal jobs, but these comparisons change across countries. Lastly, we find heterogeneity of valuations across skill level. While the results are only tentative due to the small number of observations, we find suggestive evidence that less-skilled workers have a higher relative valuation for self-employment and a lower relative valuation for jobs with benefits.

The paper is organized as follows: Section 2 describes the empirical approach; Section 3 describes the data used in this paper; Section 4 presents the main results as well as some robustness analysis and extensions for Honduras; Section 5 presents results by level of skill for Honduras; Section 6 presents results for El Salvador and Guatemala; and Section 7 concludes.

## 2. Empirical Approach

We examine the determinants of self-reported job satisfaction ( $JS_i$ ) as a function of: (1) a vector  $X_i$  of observable worker characteristics; (2) a vector  $Z_{1i}$  of variables defining our main job categories (self-employed, employed in a microenterprise, employed in larger enterprise with benefits and employed in a larger enterprise without benefits); (3) a vector  $Z_{2i}$  of additional objective job characteristics such as hours of work, industry, and earnings; and (4) a vector  $Z_{3i}$  of subjective, self-reported perceptions about the job, such as assessments on job prospects, satisfaction with work schedule, or job-related stress. Lastly,  $\varepsilon_i$  denotes an error term. Therefore:

$$JS_i = U(X_i, Z_{1i}, Z_{2i}, Z_{3i}, \varepsilon_i) = \alpha + X_i B_o + Z_{1i} B_1 + Z_{2i} B_2 + Z_{3i} B_3 + \varepsilon_i \quad (1)$$

where  $B_o$ ,  $B_1$ ,  $B_2$  and  $B_3$  are vectors of coefficients, and  $P(JS_i = 1) = \Phi(U(X_i, Z_{1i}, Z_{2i}, Z_{3i}, \varepsilon_i))$  where  $\Phi(\cdot)$  denotes a standard normal distribution.

A methodological issue that needs to be addressed when dealing with perception-based variables is that answers to subjective questions may be influenced by some innate, non-observable traits, such as individuals' degree of optimism or pessimism. This implies that the error term might be correlated with  $Z_{3i}$ , because optimistic individuals might be both more satisfied with their jobs and at the same time have a more benign assessment of different job attributes relative to a more pessimistic individual. Another potential problem is that such



unobservable traits may be correlated with the choice of jobs (for example, more optimistic people may be more likely to become self-employed and at the same time more likely to be happier at work). A possible solution has been proposed by van Praag and Ferrer-i-Carbonell (2004). It involves using information on individuals' valuation on other aspects of their life or environment (for example, satisfaction with health services, satisfaction with transport or education) and regress each of them against a set of observed individual characteristics. A principal component analysis is then performed using the errors of those regressions as the input. The first principal component of those errors might be thought to represent optimism or pessimism ( $K_i$ ). We add this variable to some specifications of the model to assess the robustness of our results based on (1).<sup>6</sup>

We further investigate whether other possible problems in the estimation affect our results. The first is to estimate the model correcting for selection bias due to the exclusion of non-employed individuals. Selection-bias may be particularly serious for female workers given the still relatively low—by industrial country standards—participation rates of women in Latin America.

Another issue is that, even after controlling for selection into employment one could question the results on the grounds that unobservable variables (beyond optimism) drive both the selection of job categories and job satisfaction. In that case, worker categories do not cause job satisfaction but rather become a proxy for unobservables correlated with job categories and job satisfaction.

While this problem can only be properly dealt with using panel data, our data contain information on whether salaried workers would rather be working as self-employed and vice-versa, which can be employed to assess the importance of unobservables. Nearly 80 percent of salaried workers in Honduras report that they would prefer to be self-employed, while only 32 percent of the self-employed workers in our sample would rather work for a wage.

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<sup>6</sup> The variables used to construct the optimism in Honduras are: “Do you think that academic success depends on each person’s abilities and effort?” (yes/no); “How much are you satisfied with the Public Health services quality in your Country?” (1-10); “How much are you satisfied with the Public Education System in your Country?” (1-10); “How much are you satisfied with the Public Transportation System in your Country?” (1-10); “Generally speaking, could you say that you can trust in most people or that you need to be careful in trusting others?” (1-10). Variables used to construct the variable are similar in El Salvador and Guatemala.

We exploit this information to assess the validity of our cross-sectional estimates in the following manner. Let us consider only two types of jobs, salaried and self-employed jobs and assume that job satisfaction of individual  $i$  in job  $j$  is given by equation (2):

$$JS_{ij} = U(X_i, Z_{1i}, Z_{2i}, Z_{3i}, \varepsilon_{ij}) = \alpha_i + X_i B_o + \beta_1 D_{ij} + Z_{2ij} B_2 + Z_{3ij} B_3 + \varepsilon_{ij} \quad (2)$$

where  $\alpha_i$  is an individual fixed effect,  $X$  is a vector of observable individual and  $D$  is a dummy variable that takes a value equal to 1 if the individual is employed in a salaried job. Similarly,  $Z_2$  and  $Z_3$  respectively denote two vectors of objective and subjective job characteristics. Finally let  $\varepsilon_{ij}$  denote an error term that depends on both the individual and the job that she performs. Let us also define  $JS_{ik}$  as the job satisfaction attained in the alternative job (salaried, if the individual is observed as a self-employed worker, and self-employed if the individual is a salaried worker). Then, individual  $i$ , reports preferring a job over the alternative if  $JS_{ij} > JS_{ik}$  and therefore:

$$\beta_1 D_{ij} + Z_{2ij} B_2 + Z_{3ij} B_3 + \varepsilon_{ij} > \beta_1 \hat{D}_{ik} + \hat{Z}_{2ik} B_2 + \hat{Z}_{3ik} B_3 + \varepsilon_{ik}$$

Assuming that individuals compare across wage and self employment opportunities with the same job amenities then:  $Z_{2ij} = \hat{Z}_{2ik}$ ,  $Z_{3ij} = \hat{Z}_{3ik}$  and  $\beta_1 (D_{ij} - \hat{D}_{ik}) > -\nu$  with  $\nu = \varepsilon_{ij} - \varepsilon_{ik}$ . If  $\nu$  is distributed as a standard normal distribution then:

$$\text{Prob}(JS_{ij} > JS_{ik}) = \Phi(\beta_1 (D_{ij} - \hat{D}_{ik})) \quad (3)$$

which allows us to estimate the effect of job category ( $D$ ) on job satisfaction free from any biases created by time-invariant, individual-specific, unobservable variables correlated with  $D$ , under the hypothesis that there are only two job categories and comparisons are made based on assuming the same amenities across jobs. The comparison of estimating this model versus model (2) allows us to gauge the effect of non-observables on our estimates.

Finally, another useful check can be obtained by estimating the following model

$$Y_{ij} = X_i B_o + Z_{1ij} B_1 + Z_{2ij} B_2 + Z_{3ij} B_3 + \varepsilon_{ij} \quad (4)$$

for the sample of salaried workers, where  $Y_{ij}$  is equal to 1 if the worker would prefer to be self-employed and zero if she prefers to be salaried, with  $B_1$  and  $Z_1$  defined as in model (1). Since the dependent variable compares preferences across occupations by same individual, it is less liable

to omitted variable bias than model (1). Comparing results obtained with (4) relative to those obtained with (1) provides another indication of the severity of the omitted variable bias.

### **3. Data**

The analysis in this paper uses recently available information from a special round of quality of life (QoL) surveys for El Salvador, Guatemala, and Honduras. In the three countries the surveys were collected by their National Statistical Offices in 2007. The QoL surveys are nationally representative and gathered data from one randomly chosen respondent aged 18 or older from each household selected to answer the special module. In Honduras, the data contain information on 8,282 individuals, in El Salvador 1,082 individuals, and in Guatemala 1,400 individuals. Given the larger number of observations, we mainly focus on the Honduras data; however, we also present some additional information from El Salvador and Guatemala.

The sample to estimate the models consists of all QoL respondents between 18 and 64 years old who were employed at the time of the survey. For each country, these surveys asked people about their individual characteristics, living conditions, income, education attainment and health status. Furthermore, they provide detailed data on objective and subjective work attributes. Among the objective, the surveys contain information on earnings, hours worked, sector, and occupations. It also contains information on job satisfaction and subjective assessments about work schedule, future prospects, job security, job content, stress and remuneration. The QoL surveys additionally contain information on whether salaried workers would rather be in self-employment and vice versa, which is useful in assessing workers' preferences. Lastly, it covers individual's perceptions on the conditions and policies relative to a number of areas such as education, health and security.

In terms of work category, we define four possible groups: self-employed, employed in a microenterprise (fewer than 10 employees), employed in a firm with more than 10 employees and contributing to social security, and employed in a large firm (ten or more employees) without contributing to social security. We could not track the categories domestic help or unpaid work due to an insufficient number of observations. Similarly, we could not distinguish between self-employed workers and workers in small firms with and without social security benefits because in the three countries there were too few workers in self-employment or employed in small firms who were contributing to social security.

We control for individuals' health state by means of a constructed health score (EQ-5D) widely used in the health literature, following Shaw et al. (2004). The score is constructed using five questions that ask the individual to rank whether she had difficulties regarding the following dimensions: physical mobility, self-care ability, usual activities performance, pain and discomfort, and finally anxiety or depression. The weighted score goes from -1 to 1, and a higher number indicates that the individual feels healthier.

Regarding job characteristics, the three surveys register hours of work, although the questions are slightly different. In Honduras, the survey asks for hours of work during the week prior to the interview. In El Salvador, and Guatemala the question relates to average hours per week. In all cases, we convert those figures to monthly figures by assuming four weeks per month. The information on earnings also differs across surveys. In Honduras, our main country of study, the survey provides information about monthly earnings in the principal job, which we enter as the logarithm of earnings in our specifications. In Guatemala and El Salvador, respondents are asked to select among five different earnings brackets, which implies that we can only control for labor income bracket in our specifications.

The main variable of analysis, job satisfaction, is measured with the question: "Are you satisfied with the work you do?" and the possible answers are "yes" or "no". There are also other questions related to work perceptions with the same possible answers "yes" or "no". The question on job security is formulated as "Do you think you could lose your job in the next six months?" Regarding opportunities at work, the question states "At work, do you have the opportunity to progress?" In regard to remuneration, the question is "Do you think you earn what you deserve for what you do?" On stress, the question is "Do you think your job is too stressful?" On job content, the survey asks "Could you say your job is boring?" On job safety, the question is "Do you think your job is dangerous for your health?" Finally, the question related to work schedule is phrased as "Do you have a good work schedule?"

Table 1 reports summary statistics for Honduras, our main country of focus in this paper, for the sample of employed people 18-64 years old. The data have been weighted to match the distribution of the population by age, gender and education. About 54 percent of the workers in the sample are self-employed, 18 percent are salaried in small firms, 3 percent are employed in large firms and contributing to social security and another 25 percent are employed in large firms and not contributing. In addition, 64 percent of the workers in the sample are males, and the

average age is 37 years old. Nearly half of the workers are in rural areas, and education attainment levels are very low; 40 percent of the workers have not completed primary school and 46 percent have only graduated from primary school. In terms of the industrial structure, 29 percent of workers are in the primary sector, and 17 percent are in manufacturing. Job satisfaction is quite high: 84 percent of those working declare being satisfied with their jobs, 84 percent are happy with their work schedule, 57 percent report being well remunerated and 16 percent think they can lose their job in the next six months. Finally, 33 percent state their work is dangerous, and 51 percent feel their work is stressful.

Guatemala's labor market is similar to Honduras' in that a large proportion of workers are self-employed, and very few workers receive benefits, even in large firms (Table A1 in the Appendix). In contrast, in El Salvador, there is a lower proportion of self-employed workers and a higher percentage of salaried workers, both in small firms and in large firms with benefits. Education attainment is highest in El Salvador, while in Guatemala is similar to that of Honduras. Job satisfaction is also very similar to the level observed in Honduras, with nearly 82 percent of workers reporting being satisfied with their job in both countries. The percentage of workers who feel well remunerated is lower, however, at only 40 percent in Guatemala and 34 percent in El Salvador. Moreover, a higher percentage of workers indicate that they have a monotonous or dangerous job or that they may lose their jobs than in Honduras.

Table 2 confirms that there are important differences in the prevalence of different job attributes across types of jobs in Honduras. Workers employed in small enterprises earn on average less than the self-employed, who in turn earn less than workers employed in larger firms. In addition, among the latter, workers who receive benefits earn more than workers not affiliated with social security.

In terms of hours, workers in self-employment work the least hours, while workers employed in large firms without benefits work the most. Self-employed and workers in micro-enterprises tend to be concentrated in the commerce, construction and retail sectors, while workers employed in larger firms, particularly those with benefits, tend to be in high-paying services (financial, insurance and social services) and utility sectors.

Workers in small enterprises tend to report the least job amenities. They are more likely to report having a dangerous or monotonous job and less likely to report being well remunerated, being able to progress at work, or to have a good schedule. Moreover, they report less job

stability, with almost 30 percent stating that they may lose their job in six months. In contrast, workers in large firms with benefits tend to report the most amenities (less dangerous, less monotonous, more ability to progress, better schedule, and higher job security). They also report the highest levels of stress. It is quite interesting that self-employed workers are the most likely to report they are well remunerated of all types of workers. In addition, in some aspects, self-employed workers report more job amenities than workers in large firms without benefits. For example, they report higher job security, less stress and more satisfaction with their work schedule, and they are less likely to report having a dangerous job.

The former suggests that at least in Honduras, workers in larger firms, with benefits, tend to have the best jobs, at least when measured by earnings and a range of job amenities, while workers in small enterprises have the worst. The self-employed and those employed at large firms without benefits lie somewhere in between. Job satisfaction provides a similar ranking. The highest percentage of workers satisfied with their jobs is attained by workers in large firms with benefits, while the lowest occurs among workers employed at microenterprises. Quite notably, self-employed workers report levels of job satisfaction above those of workers in large firms without benefits. The next section re-examines these relationships in the context of the empirical models described in Section 2.

#### **4. Results**

Table 3 reports the results of estimating model (1) for Honduras under different specifications that consider objective and subjective job attributes. The first column reports results across job categories without controlling for other variables. Relative to the omitted variable (self-employment) salaried workers in small firms are 13 percent less likely to report they are satisfied with their jobs, while salaried workers employed in large firms and affiliated with social security are significantly more likely to be satisfied. It is worth mentioning that employees of large firms not affiliated with social security are as likely to be satisfied with their jobs as self-employed workers are. The former suggests that definitions of informality based on social security affiliation status are better associated with job satisfaction, and arguably job quality, than firm-size based definitions.

Adding individual characteristics does not change the results but the magnitude of the relevant coefficients is reduced (column 2). Workers with higher education attainment are more

likely to report being satisfied with their jobs. Similarly, married and healthier workers are more likely to report positive job satisfaction.

Including additional job attributes such as hours of work or industry increases the coefficient for employees in large firms with benefits (column 3) but this coefficient becomes insignificant once monthly earnings are accounted for (column 4). Thus, the positive satisfaction differential would be fully explained by the higher earnings offered by these jobs. As expected, the coefficient on earnings is positive, and its magnitude suggests that a 10 percent increase in earnings increases the probability of job satisfaction by 0.5 percentage points. It is also noteworthy that, once individual and objective work characteristics are controlled for, women are more likely to be satisfied at work than men, at least, suggesting a differential in expectations (Clark, 1997).

Columns (5) and (6) add subjective work attributes. The coefficient for salaried workers in large firms with benefits increases, and becomes statistically significant in that case, suggesting that some subjective job attributes positively associated with job satisfaction are less prevalent for employees of large firms with social security benefits. Regarding those job characteristics, workers who think they are well-remunerated or have a good work schedule are 13 and 12 percentage points more likely of being satisfied at work, respectively, than those who do not. Additionally, having good opportunities to progress in the job increases the probability of being satisfied at work by 8 percentage points. In contrast, job insecurity, or having a job considered to be monotonous reduces the probability of being satisfied at work by about 8 and 5 percentage points, respectively.

The last columns assess whether these results are driven by a possible correlation between individuals' degree of optimism or pessimism and the error term. We find this not to be the case. Controlling for the level of individual optimism, constructed as described in Section 2, does not affect our results in any way. In addition, the coefficient of optimism is not significant in this regression.

To summarize, the relationship between job category and job satisfaction is not a simple one. Workers employed in large firms who receive benefits appear to be more satisfied at work than self-employed workers or workers working in similar firms who do not receive benefits. In turn, workers employed in small firms are clearly worse off than all types of workers. Such lower

satisfaction may be derived from not having access to social security or due to some other differences in the nature of jobs not captured in these data.

Relating these results to the different definitions of informality we find that the practice of bunching different job categories into one aggregate definition of informality does not seem very useful given the important degree of heterogeneity in job valuations. Category-based definitions of informality would miss the higher valuation of self-employment relative to salaried jobs in micro-firms, and it would not properly capture that workers in larger firms without benefits seem to be equally well off than the self-employed. The benefit-based and merged definitions of informality would do a better job since, in the case of Honduras, they would capture that many workers in large firms do not have benefits and that those without benefits have a lower valuation of jobs even in larger firms. Yet, as we describe below, the correspondence of informality according to these definitions with job valuations, as reported by workers, is lower in other countries and for low-skilled workers.

#### ***4.1 Selection in Employment***

The former results do not account for a possible selection in employment, which could be particularly severe for women. To assess whether the results are robust to the presence of selection, we follow the Heckman (1976) method. In a first step, the participation equation includes all the personal characteristics included in the job satisfaction specifications presented in Table 3 plus two other variables that are assumed to affect the probability of employment, but not to influence self-reported job satisfaction. The results reported in Table 4 (column 1) include the number of children less than 10 years old in the household and its interaction with gender of parent as instruments for participation. Given the concern that number of children may be endogenous to job satisfaction—as people with very young children may be more stressed and feel less satisfied with their work—the specification presented in the second column of Table 4 uses as instruments for participation the number of children younger than 10 years old and older than four as well as its interaction with gender of parent.

In both cases, the correlation between the error terms of the participation and job satisfaction equations are positive and statistically significant, indicating that individuals more likely to be satisfied with their jobs are also more likely to participate in paid work. However, correcting for this form of selection does not alter the main results as the coefficients on job



categories remain similar to those presented in Table 3, column 6, although larger in absolute value. The former suggests a higher preference for jobs in large firms with benefits and a lower preference for being salaried in a small firm relative to self-employment. As before, the coefficient on being salaried in a large firm without benefits is not statistically significant from zero.

#### ***4.2 Further Selection Issues***

We further check whether these results are driven by unobservable variables correlated to job category and job satisfaction following the approach described in Section 2. Table 5, column 1, reports the results of estimating a Probit model including only a dummy variable that takes the value of 1 if the worker is in a salaried job. Column 2 reports the results of performing the estimation based on model (3) that is, when the dependent variable is 1 if the individual prefers to be salaried (and zero if she prefers to be self-employed). The independent variable takes the value of 1 when the worker is salaried ( $D_{ij} = 1$  and  $\hat{D}_{ik} = 0$ ) and -1 when self-employed ( $D_{ij} = 0$  and  $\hat{D}_{ik} = 1$ ). Quite reassuringly, both coefficients are very similar, which suggests that omitted variable bias does not seem to be a serious problem in the estimates obtained from our baseline model.

Interestingly, the coefficient on salaried in column (1) is negative and statistically significant, which indicates, that on average, individuals are more likely to feel satisfied with their jobs in self-employment than in salaried jobs. Column (3) reports the results of estimating model (4) in the population of salaried workers, where the dependent variable takes a value of 1 if the individual prefers self-employment to being salaried. Results show that workers in salaried jobs in large firms with benefits are less likely to prefer self-employment than workers in large firms without benefits, while at the same time the latter are less likely to prefer self-employment than workers in small firms. This confirms the ordering of jobs obtained from model (1), suggesting again that omitted variable bias is not driving the results.

## 5. Results by Level of Education

It may be argued that job opportunities and therefore attained job satisfaction in different job categories is likely to vary across workers depending among other factors on their educational attainment.<sup>7</sup> Table 6 presents results analogous to those in Table 3, column (6) separating the sample by level of education. Results should be interpreted with caution given the small number of observations. For workers with the lowest educational attainment, the probability of job satisfaction is lower when working in a small firm relative to when self-employed. In addition, being employed in a large firm without benefits does not increase the probability of job satisfaction. There are not enough workers in the lowest skill group employed in large firms with benefits to estimate the effect of benefits on their satisfaction. For primary school graduates there are no differences in the probability of job satisfaction across categories. In contrast, high school graduates attain a higher probability of job satisfaction when employed as salaried workers in larger firms with benefits. There are no statistically significant preferences across employment categories for workers with college education. This is the case even after controlling for objective and subjective differences in job quality and in the degree of individual optimism. The above patterns suggest lower valuation for social security benefits for workers with either low or very high education attainment. They also suggest that, particularly for workers with lower levels of education, being self-employed provides as good or better job opportunities than being salaried either in large or a small firm.

Quite remarkably, the former implies that no definition of informality would work particularly well for the low skilled workers in Honduras, as they would fail to capture, the relative attractiveness of self-employment relative to other options, as well as the seemingly low valuation for jobs with benefits for this group.

## 6. Other Countries

How typical are the results found for Honduras? While smaller in size, the analysis of similar surveys in Guatemala and El Salvador allow us to assess whether the results found in Honduras generalize to other countries. It is quite interesting that the ordering in the probability of job satisfaction across job categories differs across countries. The results indicate that in Guatemala,

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<sup>7</sup> This is the underlying reason why in many studies self-employed professionals are excluded from category-based definitions of informality.

workers in self-employment are more likely to be satisfied in their job than workers in any other category, with exception of workers employed in large firms with benefits, who tend to be as satisfied as the self-employed. In El Salvador, workers in large firms who are not affiliated with social security report higher job satisfaction than self-employed workers or workers in small firms, with no difference between the two latter categories. In turn, workers in large firms who receive benefits seem to attain the same level of job satisfaction as the self-employed. While these results are quite unexpected, splitting the sample between workers with low and high levels of educational attainment provides further clues. Table 7 presents specifications analogous to those presented in Table 3, column 1 for these two countries—that is, when no additional controls are included—although the results are qualitatively similar when the full set of controls is included. Even though the smaller number of observations does not allow for the same level of disaggregation as in Honduras, we also find that being employed in a large firm with benefits is associated with a higher probability of job satisfaction only for workers who have completed primary education or higher. Instead, workers with lower educational attainment tend to have a higher relative preference for self-employment and denote a lower relative preference for jobs that imply paying into social security (see Table 8). It is quite noteworthy that in both countries, and particularly for low-skilled workers, the three definitions of informality fail to correlate with job satisfaction.

## **7. Conclusions**

Formality status is the widest used indicator of job quality in developing economies. Using newly available data for three low-income countries—Honduras, Guatemala and El Salvador—this study assesses the extent to which formality, according to the most common definitions, reflects workers' stated preferences.

Our findings suggest large heterogeneity in valuations within informal jobs and across formal and informal jobs. They also indicate job satisfaction correlates quite poorly with the rankings of quality that would be derived when using formality as an indicator of good jobs and informality as an indicator of bad ones. This is particularly the case for low-skilled workers, who seem to have a higher relative valuation for self-employment and a lower relative valuation for jobs which imply paying into social security. Yet, given the very small size of the samples by

education groups, these latter results should be taken as tentative and awaiting further confirmation in larger samples.

Our results seem to be robust to a number of econometric problems that emerge in cross-sectional data. Using information on whether workers would prefer other types of jobs to the one they currently hold, we can implement a fixed-effect type of estimation that allows controlling for unobserved heterogeneity. Our results also seem to be robust to differences in optimism, which can bias results based on perception data. Overall, these tests increase our confidence that our results are not driven by omitted variable bias, and that we are instead capturing the causal relationship between job category and job satisfaction.

Given these results it is important to further test for and investigate the potential reasons behind the seemingly low valuation of social security benefits by low skilled workers. Some studies point to the low quality of benefits, particularly for the poor. For example, Levy (2008) reports that in Mexico social security health benefits are not cost-effective for the poor given the low number of hospitals and health services in poor areas that are paid for by social security. To access social security-sponsored health benefits poor workers have to travel long distances or receive attention in very poorly staffed centers. Similarly, poor workers may value receiving an old age pension less than higher-income workers, given their shorter life expectancy and a higher reliance on the help of children or relatives to support them in their old age. Less financial literacy and a lower ability to defer present consumption may also explain their lower valuation of social security.

Another result worth further exploration is what determines the differences in job valuation across types of jobs across countries. Why, for instance, is self-employment so highly valued in Guatemala, and what makes jobs in small firms less attractive in Guatemala than in El Salvador? Differences in the ability of workers to access credit may explain whether on average, self-employed workers are relatively happier than many categories of salaried workers. As described in the model developed by Jeong and Townsend (2007) in countries where credit is scarce and workers who have good ideas and entrepreneurial skill have a hard time finding credit, there will be a larger mismatch between talent and initial wealth holdings. In this situation, many workers who could have their own business will not be able to do so for lack of access to credit, having to work instead as salaried workers in other firms.

Finally, it is important to consider what these results mean for the allocation of labor and capital across activities in the economy. The fact that workers are equally happy or happier in informal jobs does not imply that the allocation of resources across activities is optimal. As emphasized in models such as those developed by Restuccia and Rogerson (2008) or Hsieh and Klenow (2007), policies that create heterogeneity in the prices of inputs or output faced by establishments distort the allocation of resources and lead to lower total aggregate factor productivity. Differences in law enforcement across firms may be an important source of such heterogeneity. However, uneven law enforcement will lead to distortion of resource allocation only when firms that pay and firms that do not pay taxes or social security contributions produce the same good or compete in the same input markets. The evidence presented here suggests that formal and informal activities may compete *for the same workers* and take market share from formal firms. Confirming the validity of this claim in alternative, larger samples and quantifying its importance for productivity are topics for future research.

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**Table 1.**  
**Descriptive Statistics, Honduras**  
**Weighted Sample of Workers 18 to 64 Years Old**

Variable	Mean	St. Dev	Min	Median	Max	Obs.
<i>Dependent Variable</i>						
Job Satisfaction	0.835	0.371	0	1	1	3643
<i>Job Category, Firm Size and Benefit Status (<math>Z_{1i}</math>)</i>						
Salaried_small	0.180	0.384	0	0	1	3643
Salaried_large_benefits	0.026	0.160	0	0	1	3643
Salaried_large_nobenefits	0.250	0.433	0	0	1	3643
Self-employed	0.538	0.499	0	0	1	3643
<i>Individual Characteristics (<math>X_i</math>)</i>						
Male	0.640	0.480	0	1	1	3643
Age (Years)	37.051	12.134	18	36	64	3643
Age squared	1519.961	964.481	324	1296	4096	3643
Urban	0.541	0.498	0	1	1	3643
Education 1	0.398	0.490	0	0	1	3622
Education 2	0.457	0.498	0	0	1	3622
Education 3	0.081	0.273	0	0	1	3622
Education 4	0.064	0.244	0	0	1	3622
Married	0.667	0.472	0	1	1	3643
Health Index	0.902	0.175	-0.109	1	1	3643
<i>Objective Job Characteristics (<math>Z_{2i}</math>)</i>						
Hours (monthly)	160.608	78.460	4	160	448	3607
Log Earnings (monthly)	7.891	1.064	2.303	8.006	12.101	2997
Ind1	0.290	0.454	0	0	1	3640
Ind2	0.171	0.377	0	0	1	3640
Ind3	0.330	0.470	0	0	1	3640
Ind4	0.208	0.406	0	0	1	3640
Ocup1	0.289	0.454	0	0	1	3643
Ocup2	0.072	0.258	0	0	1	3643
Ocup3	0.210	0.408	0	0	1	3643
Ocup4	0.242	0.428	0	0	1	3643
Ocup5	0.186	0.390	0	0	1	3643
<i>Subjective Job Characteristics (<math>Z_{3i}</math>)</i>						
Stressful	0.511	0.500	0	1	1	3561
Dangerous	0.334	0.472	0	0	1	3619
Monotonous	0.162	0.368	0	0	1	3643
Progress Opportunities	0.643	0.479	0	1	1	3509
Good Schedule	0.839	0.367	0	1	1	3643
Well Remunerated	0.565	0.496	0	1	1	3573
Insecure Job	0.161	0.367	0	0	1	3171

Note: Education 1 = 1 if no education; Education 2 = 1 if primary school completed; Education 3 = 1 if high school completed; Education 4 = 1 if college completed; Ind1 = 1 if agriculture, hunting, forestry and fishing; Ind2 = 1 if manufacturing; Ind3 = 1 if construction, retail, restaurants, transport and storage; Ind4 = 1 if electricity, gas, water, financial institutions, insurance and social services; Ocup1 = 1 if professionals, scientists, technicians and middle-level professionals; Ocup2 = 1 if clerks, service workers and sales person; Ocup3 = 1 if farmers and fishermen; Ocup4 = 1 if operators, artisans, plant operators; Ocup5 = 1 if no qualified workers.

**Table 2.**  
**Job Characteristics by Job Category**  
**Weighted Sample of Workers 18 to 64 Years Old, Honduras**

	Self-Employed	Salaried_small	Salaried large-no benefits	Salaried large- benefits
<i>Dependent Variable</i>				
Job Satisfaction	0.865	0.731	0.837	0.943
<i>Objective Job Characteristics (Z<sub>2i</sub>)</i>				
Hours (monthly)	149.77	165.10	181.32	163.07
Log Earnings (monthly)	7.632	7.469	8.432	9.023
Ind1	0.379	0.344	0.086	0.014
Ind2	0.137	0.074	0.327	0.080
Ind3	0.399	0.362	0.178	0.135
Ind4	0.085	0.219	0.409	0.771
Ocup1	0.257	0.129	0.430	0.745
Ocup2	0.066	0.102	0.053	0.111
Ocup3	0.366	0.048	0.018	0.014
Ocup4	0.223	0.268	0.287	0.051
Ocup5	0.088	0.453	0.211	0.079
<i>Subjective Job Characteristics (Z<sub>3i</sub>)</i>				
Stressful	0.503	0.483	0.534	0.646
Dangerous	0.327	0.353	0.349	0.239
Monotonous	0.167	0.188	0.146	0.075
Progress Opportunity	0.644	0.514	0.718	0.767
Good Schedule	0.852	0.818	0.823	0.872
Well Remunerated	0.583	0.506	0.570	0.557
Insecure Job	0.106	0.291	0.197	0.086

Note: Ind1= 1 if agriculture, hunting, forestry and fishing; Ind2= 1 if manufacturing; Ind3 = 1 construction, retail, restaurants, transport and storage; Ind4 = 1 if electricity, gas, water, financial institutions, insurance and social services; Ocup1 = 1 if professionals, scientists, technicians and middle-level professionals; Ocup2 = 1 if clerks, service workers and sales person, Ocup3 = 1 if farmers and fishermen; Ocup4 = 1 if operators, artisans, plant operators; Ocup5 = 1 if no qualified workers.

**Table 3.**  
**Probit-Mg Effects: All Workers, Honduras 18-64 Years Old**  
**Dependent Variable: Job Satisfaction**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Salaried_small	-0.1257*** (0.0205)	-0.1226*** (0.0218)	-0.1267*** (0.0227)	-0.0755*** (0.0238)	-0.0658*** (0.0217)	-0.0398* (0.0229)	-0.0629*** (0.0216)	-0.0384* (0.0228)
Salaried_lg_nobenefits	-0.0165 (0.0152)	-0.0411** (0.0176)	-0.0301 (0.0187)	-0.0460** (0.0218)	-0.0082 (0.0182)	-0.0073 (0.0211)	-0.0071 (0.0181)	-0.0065 (0.0209)
Salaried_lg_benefits	0.0961*** (0.0260)	0.0575 (0.0362)	0.0757** (0.0330)	0.0541 (0.0428)	0.0633** (0.0291)	0.0617* (0.0344)	0.0625** (0.0288)	0.0607* (0.0342)
Male		0.0159 (0.0126)	0.0001 (0.0137)	-0.0347** (0.0164)	-0.0193 (0.0140)	-0.0404** (0.0168)	-0.0202 (0.0139)	-0.0395** (0.0167)
Age (years)		0.0004 (0.0034)	0.0003 (0.0034)	-0.0032 (0.0039)	0.0035 (0.0034)	0.0019 (0.0039)	0.0042 (0.0034)	0.0026 (0.0039)
Age2		0 (0.0000)	0 (0.0000)	0.0001 (0.0000)	0 (0.0000)	0 (0.0000)	0 (0.0000)	0 (0.0000)
Urban		0.0123 (0.0131)	0.0224 (0.0144)	-0.0038 (0.0154)	0.0214 (0.0143)	0.0084 (0.0157)	0.019 (0.0142)	0.0064 (0.0156)
Education 2		0.0315** (0.0136)	0.0323** (0.0138)	0.0277* (0.0157)	-0.0089 (0.0141)	-0.0105 (0.0160)	-0.0065 (0.0140)	-0.0088 (0.0161)
Education 3		0.0693*** (0.0176)	0.0722*** (0.0174)	0.0557*** (0.0213)	0.0267 (0.0214)	0.0185 (0.0249)	0.0278 (0.0211)	0.0201 (0.0246)
Education 4		0.0998*** (0.0171)	0.0999*** (0.0171)	0.0627** (0.0259)	0.0463** (0.0227)	0.0284 (0.0293)	0.0464** (0.0224)	0.0286 (0.0290)
Married		0.0279** (0.0134)	0.0280** (0.0133)	0.0212 (0.0145)	0.0098 (0.0132)	0.0029 (0.0145)	0.0095 (0.0131)	0.0021 (0.0144)
Health Index		0.1392*** (0.0311)	0.1352*** (0.0311)	0.1404*** (0.0352)	0.0534* (0.0316)	0.0552 (0.0364)	0.0549* (0.0315)	0.0562 (0.0362)
Hours (monthly)			0.0002*** (0.0001)	0 (0.0001)	0.0003*** (0.0001)	0.0002** (0.0001)	0.0003*** (0.0001)	0.0002** (0.0001)
Ind2			-0.0902*** (0.0259)	0.0068 (0.0284)	-0.0707*** (0.0263)	-0.016 (0.0302)	-0.0713*** (0.0264)	-0.0148 (0.0301)
Ind3			-0.0302 (0.0204)	0.0482* (0.0271)	-0.0265 (0.0202)	0.0204 (0.0274)	-0.0278 (0.0203)	0.0207 (0.0273)
Ind4			-0.0566** (0.0245)	0.0216 (0.0274)	-0.0312 (0.0239)	0.011 (0.0278)	-0.0309 (0.0240)	0.0132 (0.0277)
Stressful					-0.0109 (0.0124)	-0.0183 (0.0142)	-0.0097 (0.0124)	-0.0159 (0.0141)
Dangerous					-0.0087 (0.0136)	-0.0084 (0.0155)	-0.0117 (0.0136)	-0.0113 (0.0155)
Monotonous					-0.0738*** (0.0190)	-0.0558*** (0.0202)	-0.0738*** (0.0189)	-0.0556*** (0.0202)
Progress Opportunity					0.0882*** (0.0150)	0.0872*** (0.0170)	0.0892*** (0.0150)	0.0868*** (0.0170)
Good Schedule					0.1231*** (0.0203)	0.1188*** (0.0219)	0.1253*** (0.0205)	0.1211*** (0.0221)
Well Remunerated					0.1179*** (0.0142)	0.1280*** (0.0160)	0.1157*** (0.0141)	0.1271*** (0.0160)
Insecure Job					-0.0840*** (0.0196)	-0.0819*** (0.0211)	-0.0834*** (0.0196)	-0.0815*** (0.0211)
Optimism							0.0063 (0.0043)	0.0075 (0.0049)
Log Earnings (monthly)				0.0554*** (0.0078)		0.0255*** (0.0080)		0.0252*** (0.0080)
Observations	3764	3743	3706	3068	3065	2550	3045	2536
Pseudo_R2	0.0176	0.0365	0.0444	0.067	0.181	0.191	0.184	0.194

Note 1: The omitted variables are Self-Employed, Education 1 and Industry 1

Note 2: Education 1 = 1 if no education; Education 2 = 1 if primary school completed; Education 3 = 1 if high school completed; Education 4 = 1 if college completed; Ind1 = 1 if agriculture, hunting, forestry and fishing; Ind2 = 1 if manufacturing; Ind3 = 1 if construction, retail, restaurants, transport and storage; Ind4 = 1 if electricity, gas, water, financial institutions, insurance and social services; Ocup1 = 1 if professionals, scientists, technicians and middle-level professionals; Ocup2 = 1 if clerks,

**Table 4.**  
**Heckman Two-Step Method**  
**Individuals 18-64 Years Old, Honduras**

	(1)	(2)
Salaried_small	-0.0551* [0.0326]	-0.0559* [0.0322]
Salaried_large_nobenefits	-0.0052 [0.0316]	-0.0056 [0.0318]
Salaried_large_benefits	0.1152* [0.0632]	0.1202* [0.0651]
Male	0.0797 [0.0999]	0.1166 [0.1025]
Age (years)	0.0257 [0.0175]	0.0316* [0.0167]
Age2	-0.0003 [0.0002]	-0.0003* [0.0002]
Married	-0.0389 [0.0385]	-0.0526 [0.0392]
Urban	0.0333 [0.0313]	0.0406 [0.0312]
Education 2	0.0193 [0.0324]	0.0271 [0.0330]
Education 3	0.062 [0.0489]	0.0725 [0.0490]
Education 4	0.0558 [0.0511]	0.0625 [0.0520]
Health Index	0.1097* [0.0594]	0.1155** [0.0580]
Hours (monthly)	0.0003** [0.0001]	0.0003** [0.0001]
Ind2	-0.0301 [0.0445]	-0.0306 [0.0447]
Ind3	0.0275 [0.0438]	0.0272 [0.0442]
Ind4	0.0104 [0.0444]	0.0103 [0.0447]
Stressful	-0.0306 [0.0223]	-0.0309 [0.0223]
Dangerous	-0.0071 [0.0235]	-0.0069 [0.0236]
Monotonous	-0.0750*** [0.0260]	-0.0756*** [0.0258]
Progress	0.1238*** [0.0230]	0.1244*** [0.0234]
Good Schedule	0.1570*** [0.0273]	0.1572*** [0.0251]
Well Remuneration	0.1842*** [0.0245]	0.1852*** [0.0231]
Insure Job	-0.1117*** [0.0266]	-0.1122*** [0.0259]
Log Earnings (monthly)	0.0406*** [0.0123]	0.0400*** [0.0125]
Observations	5872	5872
Rho	0.55	0.64
Wald test ch2	2.83	3.84
Prob>chi2	0.092	0.05
Log Likelihood	-4278	-4287

Note: Selection controls in column (1) are the number of children aged less than 10 years old and the interaction with female dummy in column (2) is the number of children between 4 and 10 years old and the interaction with female dummy.

**Table 5.**  
**Probit-Mg Effects: Honduras, 18-64 Years Old**

	Job Satisfaction	Occupational Preference	Occupational Preference
	(1)	(2)	(3)
Salaried	-0.0458*** (0.0126)		
Cross Occupation ( $D_j - D_k$ )		-0.0558*** (0.0077)	
Salaried_large_nobenefits			-0.0611*** (0.0223)
Salaried_large_benefits			-0.2253*** (0.0530)
Observations	3621	3621	1546
Pseudo_R2	0.0041	0.0124	0.0142

Note 1: No controls used in these estimations. Column (3) sample is salaried workers.

Note 2: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6.**  
**Probit-Mg Effects by Education Level: Honduras 18-64 Years Old**

	No education level completed	Primary School Completed	High School Completed	College Completed
	(1)	(2)	(3)	(4)
Salaried_small	-0.0792* (0.0475)	-0.0252 (0.0337)	-0.0134 (0.0349)	-0.0263 (0.0506)
Salaried_large_nobenefits	-0.0111 (0.0561)	0.0059 (0.0289)	0.0253 (0.0287)	-0.0361 (0.0274)
Salaried_large_benefits		0.0328 (0.0615)	0.0376** (0.0180)	-0.0167 (0.0426)
Observations	754	1247	288	236
Pseudo_R2	0.199	0.164	0.372	0.46

Note 1: Controls in this regression are gender, age, age2, zone, levels of education. Marital status, hours worked, health index, sector, and job attributes such as: stressful, dangerous, monotonous, progress opportunity, good schedule, well remunerated, insecure job, and optimism.

Note 2: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 7.**  
**Probit-Mg Effects, All Workers 18-64 years Old**

	El Salvador	Guatemala
	(1)	(2)
Salaried_small	-0.004 (0.0633)	-0.2486*** (0.0875)
Salaried_lg_nobenefits	0.0845* (0.0450)	-0.1785*** (0.0655)
Salaried_lg_benefits	0.057 (0.0565)	0.0425 (0.0693)
Observations	336	516
Pseudo_R2	0.189	0.256

Note 1: Controls in this regression are gender, age, age2, zone, levels of education. Marital status, hours worked, health index, sector, and job attributes such as: stressful, dangerous, monotonous, progress opportunity, good schedule, well remunerated, insecure job, and optimism.

Note 2: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 8.**  
**Probit-Mg Effects by Education, 18-64 Years Old, Other Countries**

	El Salvador		Guatemala	
	Low Education	High Education	Low Education	High Education
	(1)	(2)	(3)	(4)
Salaried_small	-0.1095 (0.1079)	0.0425 (0.0557)	-0.2053** (0.0981)	-0.1463 (0.0947)
Salaried_large_nobenefits	-0.0811 (0.1364)	0.0954* (0.0488)	-0.1918** (0.0772)	-0.0567 (0.0546)
Salaried_large_benefits	-0.1023 (0.1732)	0.1210*** (0.0437)	-0.0968 (0.2391)	0.1371*** (0.0463)
Observations	108	291	292	256
Pseudo_R2	0.0139	0.0273	0.0359	0.0461

Note 1: Low education = 1 if education 1 or education 2 are equal to 1; High education = 1 if education 3 or education 4 are equal to 1

Note 2: No controls added.

Note 3: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Appendix

**Table A1.**  
**Descriptive Statistics-Other Countries**  
**Weighted Sample- 18 to 64 years old**

Variable	El Salvador			Guatemala		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
<i>Dependent Variable</i>						
Job Satisfaction	0.815	0.388	382	0.812	0.391	529
<i>Job Category, Firm Size and Benefit Status (<math>Z_{1i}</math>)</i>						
Salaried_small	0.176	0.382	386	0.112	0.316	530
Salaried_large_benefits	0.255	0.436	386	0.064	0.246	530
Salaried_large_nobenefits	0.205	0.404	386	0.236	0.425	530
Self-employed	0.357	0.480	386	0.545	0.498	530
<i>Individual Characteristics (<math>X_i</math>)</i>						
Male	0.623	0.485	386	0.701	0.458	530
Age (Years)	36.559	11.838	386	35.911	12.585	530
Age squared	1476.369	938.173	386	1447.683	982.128	530
Indigenous				0.455	0.498	530
Urban	0.513	0.500	386	0.416	0.493	530
Education 1	0.289	0.454	385	0.580	0.494	530
Education 2	0.402	0.491	385	0.269	0.444	530
Education 3	0.254	0.436	385	0.124	0.330	530
Education 4	0.056	0.230	385	0.027	0.163	530
Health Index	0.913	0.128	378	0.914	0.137	530
<i>Objective Job Characteristics (<math>Z_{2i}</math>)</i>						
Hours (monthly)	161.824	63.879	386	176.698	75.380	530
Earnings (brackets from 1 to 5)	3.082	1.512	385	2.422	0.981	530
Ind1	0.318	0.466	386	0.383	0.487	530
Ind2	0.079	0.270	386	0.190	0.393	530
Ind3	0.412	0.493	386	0.204	0.404	530
Ind4	0.191	0.394	386	0.223	0.417	530
Ocup1	0.127	0.333	386	0.072	0.259	442
Ocup2	0.222	0.416	386	0.022	0.148	442
Ocup3	0.160	0.367	386	0.439	0.497	442
Ocup4	0.310	0.463	386	0.212	0.409	442
Ocup5	0.181	0.386	386	0.254	0.436	442
<i>Subjective Job Characteristics (<math>Z_{3i}</math>)</i>						
Stressful	0.369	0.483	379	0.424	0.495	528
Dangerous	0.387	0.488	385	0.436	0.496	526
Monotonous	0.368	0.483	384	0.260	0.439	527
Progress Opportunities	0.439	0.497	376	0.563	0.497	521
Good Schedule	0.789	0.409	384	0.811	0.392	528
Well Remunerated	0.340	0.474	381	0.396	0.489	522
Insecure Job	0.278	0.449	363	0.167	0.373	530

Note: Education 1 = 1 if no education; Education 2 = 1 if primary school completed; Education 3 = 1 if high school completed; Education 4 = 1 if college completed; Ind1 = 1 if agriculture, hunting, forestry and fishing; Ind2 = 1 if manufacturing; Ind3 = 1 if construction, retail, restaurants, transport and storage; Ind4 = 1 if electricity, gas, water, financial institutions, insurance and social services; Ocup1 = 1 if professionals, scientists, technicians and middle-level professionals; Ocup2 = 1 if clerks, service workers and sales person; Ocup3 = 1 if farmers and fishermen; Ocup4 = 1 if operators, artisans, plant operators; Ocup5 = 1 if no qualified workers.