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JUST SALARIES IN UNEQUAL CONDITIONS:  
AN EXPLORATORY FACTORIAL SURVEY  
STUDY IN CHILE.

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TÍTULO	Just salaries in unequal conditions: An exploratory factorial survey study in Chile.
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RESUMEN	<p>What are the criteria for evaluating occupational earnings as just or unjust? The International Social Justice Project survey (2007) includes for the first time a factorial survey module about the justice of earnings, specifically designed for the case of Chile. The use of this type of survey allows for determining the relative weight that individuals assign to different determinants in the evaluation of a just earning. Based on the analysis of this survey – applied to a sample of 189 Santiago residents – the present paper is aimed at exploring the influence of variables such as occupational status, sex, educational level, ethnic description, and family composition in the determination of a just earning. The results of this exploratory study are discussed in the framework of the socioeconomic situation of Chile, one of the countries with the highest income inequality worldwide.</p>
PALABRAS CLAVES	<p>Factorial survey.  Social justice.  Occupational earnings.  Inequality.  Judgments</p>

## RESUMEN

¿Cuáles son los criterios para evaluar los ingresos ocupacionales como justos o injustos? La encuesta del Proyecto de Justicia Social Internacional (2007) incluye por primera vez un módulo de encuestas factoriales sobre la justicia de ingresos, específicamente diseñado para el caso de Chile. El uso de este tipo de encuesta permite determinar el peso relativo que los individuos asignan a diferentes determinantes en la evaluación de una ganancia justa. En base en el análisis de esta encuesta - aplicada a una muestra de 189 residentes de Santiago - el presente trabajo tiene como objetivo explorar la influencia de variables tales como situación ocupacional, sexo, nivel educativo, etnia y composición familiar en la determinación de una ganancia justa. Los resultados de este estudio exploratorio se discuten en el marco de la situación socioeconómica de Chile, uno de los países con mayor desigualdad de ingresos a nivel mundial.

## PALABRAS CLAVE

Encuesta factorial.  
Justicia social.  
Ingresos ocupacionales.  
Desigualdad

## I. Introduction.

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One of the central problems faced by the social sciences is “the distribution of the social product in an unequal but legitimate form” (Habermas 1973, p. 132), a problem that acquires increasing attention in Latin America as the region of the world with the highest economic inequality. Within this context, Chile is a particular case that has maintained one of the highest indexes of inequality despite the steady decrease in poverty rates over the last 20 years. Such situation has been tackled from a series of economic and sociological studies describing the economic distribution, mobility patterns and determinants of inequality in the country, research lines that usually do not allow answering the question of to what extent inequality is something legitimate in a particular society. In order to open a research program in this line, we need first to challenge the common assumption that there is a universal rejection towards economic inequality, and secondly, we have to propose a way of measuring to what extent individuals are willing to tolerate or even justify inequality. Both aspects are a relative new enterprise in social science – as far as large scale studies is concerned – and have been developed in the area known as empirical social justice research.

Empirical social justice research is an interdisciplinary field of studies mostly concerned with individual conceptions of how goods and rewards should be distributed within society. An important aspect of social justice literature is the evaluation of rewards according to occupations, a research area known as the *justice of occupational earnings*. The literature on the justice of occupational earnings encompasses relative deprivation theory (Crosby 1979; Runciman 1966), equity theory (Adams 1963), status value theory (Berger et al. 1972; Ridgeway 1991), and justice evaluation theory (G. Jasso 1980), all of which address the individual’s experience of justice/injustice as well as the measurement of it. Building on this literature, the present paper applies the methodology of the factorial survey for assessing the justice of occupational earnings in Chile. The main objective of this methodology consists of estimating the importance that individuals give to different criteria (for instance, educational level, experience, sex and/or age) at the moment of thinking of a just salary. Therefore, the article does not attempt to propose what a just salary should be for different occupations, but from a sociological study to contribute in the discussion about individuals’ salaries – mostly restricted to economics – and about the extent to which the salary gap among occupations is considered just in a country with high economic inequality as Chile.

The paper is organized in five parts. The first section introduces theoretical approaches regarding research in social justice, setting the basis for explaining measurement issues in studying justice of earnings that are solved through factorial surveys, as described in section two. The third section describes the design of the Factorial Survey of Occupational Earnings (FSOE), administrated to a small sample in Santiago de Chile in the year 2007. Section four presents descriptive and multivariate analysis in a multilevel modeling framework. Finally, section five summarizes the main results and suggests avenues for future research.

## II. Social justice research and the justice of earnings

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A basic distinction in social justice studies is the one between normative and empirical traditions (Wegener 1999, 2001). From the Nichomachean ethics onwards (Aristotle 1999), the normative debate in social justice issues is characterized by the discussion about the principles that should regulate the distribution in society, usually from the field of political philosophy. Although most scholars in this area relate justice to some form of equality, the point of dissensus mostly refers to the way in which inequality is conceived or to what type of inequality is considered just, so called “equality of what” debate (Krebs 2000): equal to contributions in the case of Aristotle, equality of resources (Dworkin 1981, 2000), basic goods (Rawls 1971), opportunity for welfare (Roemer 1982) or equality of capabilities (Sen 1992). On the other hand, the empirical study of social justice refers to the concrete implementation of some of these principles in particular societies. In other words, instead of discussing the moral foundations of distributive principles in a deductive way, the empirical perspective is centered on studying a particular social system from which attempts to unveil the rules behind the allocation of goods and rewards.

There are two main variants of the empirical studies in social justice: the economic and the attitudinal. For the first one the focus of analysis is income and its determinants, aiming at characterizing the distribution rules in a particular society and to compare them to some justice standard. In this line we find the debate about equality of outcomes vs. equality of opportunities (Alesina and Angeletos 2005; Korpi and Palme 1998) i.e. whether public policies should give priority to reduce inequality in income (outcome) or whether they should aim at “equalize the exogenous ‘circumstances’ that shape individual’s opportunities to pursue their chosen life plans” (Núñez and Tartakowsky 2007, p. 186). On the other hand, the second perspective (attitudinal) can be seen as complementary to the previous one as it also attempts to identify distributive principles and rules in society, but instead of individual income now the focus shifts towards peoples’ perceptions and beliefs about how a just distribution should look like. Studies in this line usually make use of specialized public opinion studies as the International Social Justice Project (ISJP)<sup>1</sup> and the inequality module of the International Social Survey Programme (ISSP)<sup>2</sup>. With these kind of studies it is possible to address general preferences for distributive norms, so called justice ideologies (Aalberg 2003; Gijsberts 1999; Kluegel 1989; Shepelak 1989; Wegener 1992; Wegener and Liebig 1993), as well as particular preferences for rewards allocation or justice of earnings (Wegener 1995, 1999, 2001). The reward related approach to empirical social justice, in which the present study is located, aims at uncovering the criteria that individuals take into account at the moment of performing a judgement about a particular allocation.

A basic question in the justice of earnings literature is: Is it possible to determine the value of a just reward? Guillermina Jasso & Peter Rossi (1977) and Jonathan Kelley & M. Evans (1993) refer to three general approaches regarding this question. The first one can be called *idiosyncratic*, which means that there are no common norms about distribution and therefore the public has no coherent views about justice. It follows the maxim of “justice is in the eye of the beholder” of Elaine Walster et al. (1975), and it finds empirical support in authors such as Philip Converse (Converse 1964), who points out that public opinion is disorganized and random. The second approach is an

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<sup>1</sup> [www.isjp.de](http://www.isjp.de)

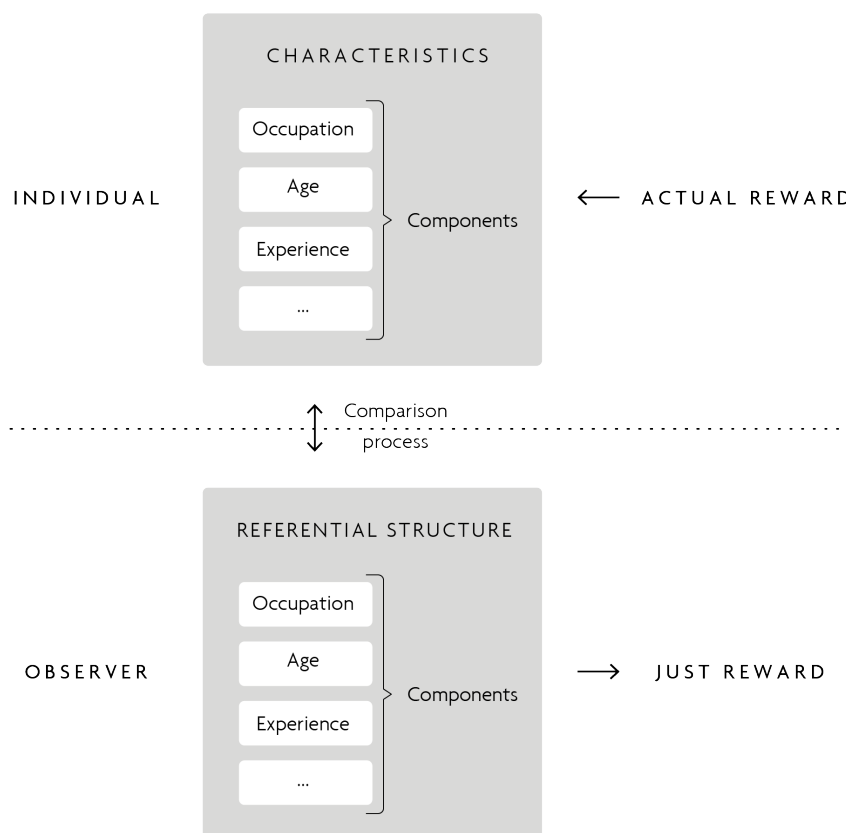
<sup>2</sup> [www.issp.org](http://www.issp.org)

*utopian* vision that assumes a consensual belief in equality as the main criteria and the ideal of justice, usually linked to a Marxian normative proposal on the communist society (Marx and Engels 1932). The third one affirms that there is no consensus in equality, but there is some common ideal of earnings distribution characterized by a *certain degree* of inequality (Castillo 2009a; Markus Schrenker 2009). It is this last area where we can find most of the empirical developments oriented to determine the *certain degree* of inequality that is considered just, under the concept of the *justice of earnings*.

Most of the theory and research about the justice of earnings deal with specifying the criteria that individuals use for evaluating something as just. An already classical perspective in this line is the *equity* conceptualization (Adams 1963; Cook 1975; Leventhal 1976; Walster et al. 1976), whereby the justice evaluation is performed according to a criteria or proportionality between efforts and rewards, and an exchange is considered just by the actors if rewards (or more generally, the output of the process) are in line with efforts (input). This evaluation of proportionality between input and output requires a comparison process with others' ratios of input/output. Alternative approaches as the *status value* theory (Berger et al. 1972; Ridgeway 1991) have criticized the equity formulation by proposing that justice evaluations are not performed against concrete others (in the so called local comparison), but they are based on comparisons against a generalized other whose characteristics are defined in a referential structure. Referential structures contain information about the status significance of the rewards, the characteristics of the subjects, and how characteristics are associated with goal objects in society, creating normative expectations about distribution. In the justice evaluation process, actual distribution of goal objects are tested against the referential structure: a coincidence with expectations is considered just, and a difference is evaluated as unjust (Berger et al. 1972). Therefore, from the status value formulation, inequality would be considered just when congruent with the expectations of the referential structure, which has been associated to the concept of legitimating beliefs (Ridgeway 1989, 2006).

Status value theory gives a central role to the referential structure in explaining justice judgments. The referential structure is characterized by (i) certain elements or components that people take into account when defining what a just reward would be for a rewarder with particular characteristics, (ii) an order among the components in terms of priority for evaluating a reward (Cook 1975; McCranie and Kimberly 1973). The process of rewards evaluation based on the referential structure can be illustrated based on the following scheme:

Figure 1: Referential structure and determination of a just reward



The figure represents an individual *X* that possesses a series of characteristics, and an observer or evaluator. From the individual we know that he performs a certain occupation associated with a salary (actual reward), but we also have information about other characteristics such as age, experience and education of this individual. With this information the task of the observer is to determine what a just reward would be for the individual *X*. According to status value theory, in performing this task people compare the actual situation of the individual with that of the referential structure, where several components are related to a certain status value. Based on the comparison between the actual situation and the referential structure, it is possible to perform a judgment in terms of a just salary for the individual *X*. For instance, if I had the information of someone who is a corporate manager, male, 35 years old, white, and who earns \$2,500, I would compare this information with that of my referential structure (how much a male corporate manager, 35 years old and white *should* earn), and based on the comparison between the information of the individual and the value that I assign to each of the components (male, white, etc.) in my referential structure, I propose what I think would be a just salary for the corporate manager.

At this point it is possible to specify the association between the status value formulation and the measurement of the justification of economic inequality. By having information about the



referential structure of representative individuals in a society (e.g. based on public opinion surveys), it would be possible to determine whether people justify economic inequality among individuals or not, to what extent occupational status is a criteria for justifying economic inequality, and also which other components besides occupation play a role in justifying inequality. In this sense, this approach does not establish *a priori* that occupation is the most relevant component in justifying reward differences, but leaves this assumption open to empirical test.

### III. The Factorial survey approach for measuring just reward components

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People's evaluations regarding just earnings certainly constitute a complex research object, a complexity that is usually constrained to the analysis of some standardized questions by conventional public opinion surveys. Surveys that include items of attitudes towards occupational earnings consider direct questions about just salaries, usually for low and high status occupations, assuming occupation as the only determinant of just earnings. Even though this approach offers several advantages in terms of simplifying the respondent task and the empirical analysis of the data, it has also been criticized for attempting to elicit normative preferences in a *social vacuum* (Finch 1987), as if beliefs and values were not affected by potential additional considerations – as the components of the referential structure. The use of factorial surveys in the study of judgments about earnings is specifically aimed at introducing additional considerations in this social vacuum (Alexander and Becker 1978; Alves 1982; Alves and Rossi 1978; Headey 1991; G. Jasso 1978; Guillermina Jasso 2006; M. Schrenker 2007; Steiner and Atzmüller 2006; Wallander 2009), aiming at opening the *black box* of conventional surveys and to find out which components play a role in people's minds while performing a normative judgment about occupational earnings (Guillermina Jasso 2006). The assumption behind this methodology is that “people share with each other latent principles that govern which attributes of such objects are relevant and how such attributes should be weighed in coming to a summative judgment” (Rossi and Nock 1982, p. 10).

In factorial surveys the respondent is not asked to answer direct questions but to perform a judgment about a series of fictitious situations or vignettes. The vignettes are descriptions of a person with a number of characteristics that represent the components in study. An example of a vignette is: “Mr. Rojas has been the manager of a big corporation for 10 years, he does not have children and his wife currently does not work. He completed high school and his monthly income is \$1,000,000 (pesos)”. The respondent task is to evaluate the fairness of the monthly earning of several vignettes, and in case that income is considered unjust (over or under rewarded), the respondent is asked to propose a just income. As in the example, several components that appear in the vignette are assumed to influence the justice judgment (such as occupation, gender and educational level, among others). Based on the analysis of the respondent's proposal of a just earning for different vignettes, it is possible to establish the differential contribution of each component to the just reward (Hermkes and Boerman 1989; Shepelak and Alwin 1986). In this sense, factorial surveys not only allow one to answer the question as to whether inequality in earnings is justified among occupations of different status, but also to shed light on the specific income that each occupation deserves, i.e. the just earning differences among occupations. Besides, it allows assigning a specific value for each component of the referential structure in economic terms, i.e. in monetary value.

Despite the fact that the factorial survey methodology was already proposed more than three decades ago, its use is still very restricted. The reasons are that the principles at the base of the survey, the design of the questionnaires and the analysis techniques entail a certain degree of complexity when compared with regular public opinion surveys. Still, with the factorial survey it is possible to answer some questions regarding the justification of economic inequality that are only partially covered by other questionnaires, which was the motivation for designing a factorial survey for the study of the justice of occupational earnings in Chile. From the author's knowledge, this is the first time that such methodology has been implemented in a country that does not belong to the industrialized world, and therefore the study is considered as exploratory. Even though given the exploratory character there are not specific hypothesis, the research line to which this study is linked argues that there is an influence of the context distributive rules on individual's normative standards, so called existential argument (Shepelak and Alwin 1986). Along with this line, individuals in context of high inequality (as Chile) would tend to tolerate or justify larger income differences, as it has already been evidenced in comparative research (Castillo et al. 2008; Gijsberts 1999; Hadler 2005; Osberg and Smeeding 2006).

#### IV. Factorial survey design and implementation

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The Factorial Survey of Occupational Earnings (FSOE) questionnaire was applied together with the ISJP<sup>3</sup> survey in Chile in 2007<sup>4</sup>. The objective of this survey was to provide complementary information to the ISJP regarding the study of judgments about occupational earnings (Alves 1982; G. Jasso and Rossi 1977). The design of the FSOE was performed with the assistance of the German research team of the ISJP at Humboldt University in 2007, using the factorial survey of the German ISJP 2006 as a model<sup>5</sup>. Three aspects must be considered in the description of this survey: the definition of the vignette components, the design of the questionnaire, and finally the data collection.

##### 1. Components' definition.

The total possible number of components to be included in the survey is limited, taking into account the amount of information that people are able to handle in evaluating a vignette (Guillermina Jasso 2006; Steiner and Atzmüller 2006). It is recommended not to exceed eight or

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<sup>3</sup> The *International Social Justice Project* is a collaborative research based on public opinion surveys with a special focus on distributive issues and cross country comparisons. It includes specific research topics such as the preference for different justice ideologies, justice evaluations of one's own income and also others' incomes, perception of social inequality, and attributions of poverty and wealth. The project started in 1991 with 12 countries agreeing to fill in a common questionnaire in national representative samples (Alwin and Wegener 1995). The last version of ISJP was implemented the year 2006, replicated by the old-members Germany, Hungary and the Czech Republic, and including two newcomers: Israel and Chile.

<sup>4</sup> Even though the official year of the ISJP survey is 2006, the data was collected in Chile in the year 2007

<sup>5</sup> Germany applied a factorial survey together with the ISJP questionnaire in 2006, but the topic in study was the justice of pensions.

nine components. The FSOE is based on eight components, and each of them contains a number of categories or levels as represented in the following table:

Table 1: Components and levels of the factorial survey

	Component	Levels	Nr. of Levels
1	Occupation	Unskilled worker, sales clerk, technician, teacher, lawyer, own private business, middle manager, high level manager	8
2	Actual earning	From \$100,000 pesos to \$1,500,000 pesos, in 10 categories.	10
3	Educational level	Elementary incomplete, elementary complete, high school ("educacion media"), technical and university education.	5
4	Years in occupation	From five to forty (5, 10, 20, 30, 40).	5
5	Last name	Mapuche, Spanish, Vasco-Castellano, European	4
6	Sex	Male, female	2
7	Marital status	Single, married with partner in labor market, married with partner not in labor market	3
8	Number of Children	From zero to five children	6

*Occupation* is the central component in study. Eight occupations were selected based on categories of other surveys such as the ISSP and the UNDP survey in Chile (UNDP 1998, 2004), attempting to reflect different positions in the status continuum. *Actual earning* is a value in Chilean pesos corresponding to the salary of the individual presented in the vignette. The rest of the components attempt to reflect different justice principles according the classification of Morton Deutsch (1975): equity, equality and need. The components of *education* and the number of *years in occupation* relate to the consideration of equity according to merit as a criteria for just earnings. *Sex* and *last name* are categories associated with actual differential earnings based on discrimination in the labor market, which enables consideration of the justice criteria of equality (by the compensation of actual inequality in just income). *Last name* requires further explanation since it is particular to the case of Chile. Empirical studies have shown that in Chile the type of last name, associated to different social status, produce discrimination in the salaries obtained in the labor market (Núñez and Gutiérrez 2004a). In the FSOE, last names were categorized in four groups according to status: Vasco-Castellano, European, Spanish and Mapuche. High status last names are the Europeans and especially the Vasco-Castellano, associated with the traditional aristocracy in Chile. Spanish last names are difficult to classify in terms of status since they represent the majority of the population, but they tend to be associated with the middle class. Indigenous groups are generally characterized by a low status, and the last names selected are mostly from the Mapuche ethnic group (which is about 5 percent of the total population of the country). Finally, the components of *marital status* (in terms of having a dependent partner) and *number of children* echo the number of people dependent on a salary as a possible influence in a just salary, which is related to assessing the influence of need as justice criteria.

## 2. Questionnaire design

Given the number of dimensions and levels, the total number of possible fictitious situations or vignettes results from the multiplication of the number of levels in each component, in this case:

$$\begin{array}{lcl} \text{Total} & & 4(\text{last name}) \times 2(\text{sex}) \times 5(\text{educational level}) \times 3(\text{marital status}) \times \\ \text{number of} & = & 6(\text{number of children}) \times 5(\text{years on occupation}) \times 8(\text{occupation}) = 288,000 \\ \text{vignettes} & & \times 10(\text{actual income}) \end{array}$$

Given the large number of possible vignettes, it is not possible to consider all of them in a single questionnaire. To solve this problem, in a first step a representative sample of the vignette population is taken as part of the final questionnaire, which in this case adds up to 250 vignettes<sup>6</sup>. In a second step, the vignettes are randomly distributed into 10 different questionnaires, called *decks*, with 25 vignettes each. The respondents finally receive only one of the decks, which are randomly assigned.

## 3. Data gathering

The factorial survey was administrated together with the ISJP in Chile in a restricted sample corresponding to the capital, Santiago. This restriction is due to the consideration of this study as exploratory, especially given the lack of experience with factorial survey research in the country. As in other studies where the factorial survey is secondary to the other questionnaire, the respondent is asked to take part voluntarily in the study (taking into account that in this case individuals have already been interviewed for about an hour with the ISJP questionnaire). If accepted, the questionnaire was left with the respondent and then collected in person later on by the interviewer. The time to fill out the questionnaire was estimated to be 15 to 20 minutes. Of the total samples corresponding to Santiago (266), 72% agreed to answer the survey, reaching a final sample of 189 (100 male, 89 female) subjects for the factorial survey. Even though such small number of respondents certainly has consequences in terms of representativity, the objective at this stage is more to introduce this approach for the study of just rewards than to make accurate predictions about the Chilean population. Besides, a small sample is not uncommon in these kinds of studies given the complexity of the methodology for a public opinion study<sup>7</sup>.

With the number of respondents it is possible to calculate the total (maximum) amount of vignettes evaluated:

$$\begin{array}{lcl} \text{Vignette} & = & 189(\text{respondents sample}) \times 25(\text{vignettes per} \\ \text{sample} & & \text{deck}) = 4,725 \end{array}$$

Both the respondents and vignettes sample constitute the two aspects or levels considered for the analysis.

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<sup>6</sup> The final sample was obtained after checking the representativity of the dimensions in several vignette samples

<sup>7</sup> Actually, the classical and widely cited factorial study of Jasso (1978) was performed with 200 subjects.

## V. Data analysis

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### 1. Exploring the components of the just reward

The basic units of analysis in the factorial survey are *components* and *levels*. *Components* are the aspects that are supposed to have an influence on the just reward, and *levels* are the categories that constitute each component (for instance, the component *sex* has two levels: male and female). The aim of factorial survey analysis is to establish an explanatory model of the just reward in which the components are the determinants or independent variables. As expressed by Jasso, by the analysis of factorial survey the objective is “to ascertain the equation inside-the-head for each person” (Guillermina Jasso 2006, p. 338). This equation has been expressed in the following way (Rossi and Nock 1982):

$$(1) \quad J_i = b_0 + b_1X_{i1} + \dots + b_kX_{ik} + e_i$$

Equation (1) is a general expression of the explanatory model of the just reward, in which  $J$  is the value of a just reward for an individual  $i$ , predicted by a series of variables (components)  $X$  with a residual  $e$ . In order to get a clear picture of the idea behind this model, I start the analysis in a descriptive way, assessing the influence of one component at a time on the just reward. This part of the analysis is an illustration of what will later be tested in the explanatory multivariate models.

Starting with the central component in study, the following graph represents the unadjusted mean just earning (in Chilean pesos) for each of the eight types or levels of *occupation* presented in the vignettes:

Figure 2: Mean just earnings according to occupation

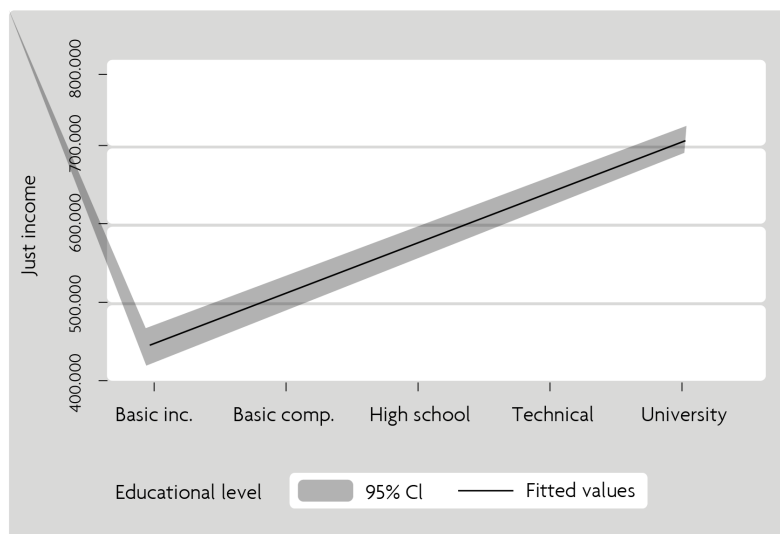


Source: FSOE 2006

In comparative terms, we see that on average it is considered just that high status occupations (such as high level managers or lawyers) obtain superior earnings when compared to low status occupations (such as unskilled workers and sales clerks). This is consistent with other public opinion studies in other countries regarding the justice of earnings (Aalberg 2003; Evans and Kelley 2006; Gijsberts 1999; Kelley and Evans 1993), as well as with sociological research in the areas of status and prestige of occupations (Ganzeboom et al. 1991; Ganzeboom and Treiman 1996). Actually, when comparing this result to conventional status measures they appear to be highly correlated: with ISEI (Socio-Economic Index of Occupational Status) the correlation coefficient reaches 0.73 ( $p < 0.01$ ) and with SIOPS (Standard International Occupational Prestige Scale) 0.74 ( $p < 0.01$ ). Such findings support the general assumption that a certain level of earnings inequality among occupations is considered just in the Chilean society, or in other words, that equality in earnings for different occupations is not the mostly supported justice criteria (Castillo 2009b). Furthermore, the greatest difference in just incomes occurs between the occupations of unskilled worker and the high level manager. This endorses the assumption that these two occupations represent extremes of the status continuum in terms of just earnings (at least among the presented occupations).

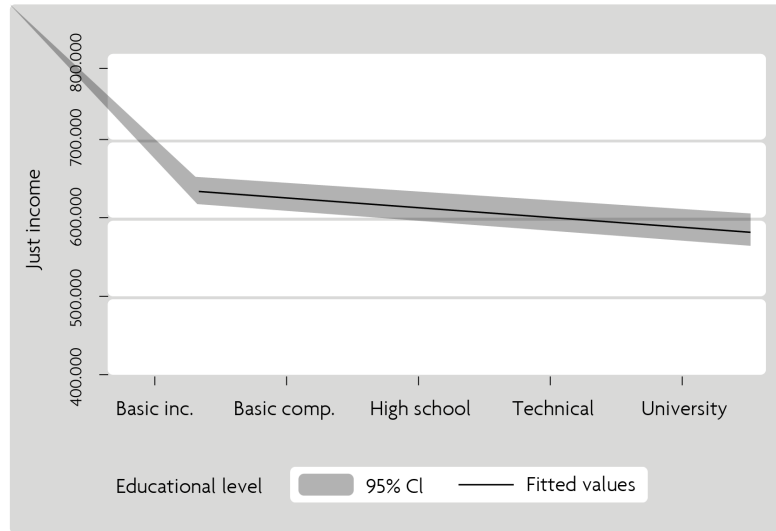
The close relationship between occupational status and just earnings has sometimes been interpreted as related to the existential determination of justice judgments: people's normative preferences reflect the reality, and what is becomes what ought to be (Hadler 2005; Homans 1976; Shepelak and Alwin 1986). Nevertheless, it might well be that occupation is not the main referent for just earnings, and that people take into account other distributive criteria in terms of equity, equality and/or need (Deutsch 1975). Figure 3 and figure 4 illustrate the average influence of education and working years on the just earning, representing the equity principle:

Figure 3: Mean just earnings by education



Source: FSOE 2006

Figure 4: Mean just earnings by working years



Source: FSOE 2006

As in the case of occupation, educational level was also expected to influence the just salary and we actually see a positive association between both variables. Hence people do consider additional components besides occupation when performing judgments about earnings. As far as work experience is concerned we do not observe big variations.

Table 2 summarizes the results of the just earnings for each of the vignette components related to the principle of need and equality:

Table 2: Just earnings for vignette components related to principles of equality and need

Distributive principle	Vignette component	Levels	Just earnings* (in Chilean pesos)
Need	Marital status	Single	-517
		Married, working partner	9,636
		Married, partner without job	-9,119
	Number of children	None	-29,945
		One	3,773
		Two	34,363
		Three	5,626
		Four	-22,997
		Five	9,180
Equality	Last name	Mapuche	-17,969
		Spanish	-14,086
		Vasco-Castellano	14,313
		European	17,742
	Sex	Female (in reference to male)	24,167

\* As deviation from group means

Just earnings are expressed in the table as deviations of each component mean<sup>8</sup>. For instance, regarding marital status it is considered just that single persons earn -516 pesos below the average just salary. In the dimensions of marital status and number of children, people without potentially dependent family members (single /no children) are evaluated as deserving a lower salary. Nevertheless, this criterion does not apply consistently throughout the respective dimensions: cases with dependent partners receive lower earnings than those with working partners, and the just earning does not increase proportionally to the number of children. Regarding the components associated to equality, we find support to previous empirical evidence in Chile regarding discrimination based on last name, whereby for indigenous Mapuche people the just

<sup>8</sup> The significance of the differences within each component is analyzed in the next section in multivariate models.



earnings are the lowest, and the highest are for European and aristocratic Vasco-Castellano last names. On the other hand, this result contrasts with the revindicative character of the just salary for women, since it is higher than for a man and therefore shows a tendency to equalize current earning differences.

Summing up the descriptive results of this first part of the analysis, we have seen that occupation is indeed regarded as a relevant dimension for evaluating a just earning, giving preliminary support to one of the central assumptions of this study. At the same time, there is evidence that besides occupation other components appear to have an influence on just earnings, revealing the complex and multifaceted character of justice judgments. Nevertheless, the influence of other components does not appear to reflect a straightforward influence of alternative distributive criteria for distribution as equality or need. Still, from this descriptive analysis we do not know what component exerts the greatest influence in the just reward, for which we need to consider the influence of all components at once in a multivariate framework.

## 2. Multivariate analysis

In this section I present a series of multivariate models aimed at determining the relative weight of each component of the just earning. The independent variables correspond to the levels of each vignette component. Since most of them are categorical, they are coded as dummies and interpreted with regard to the reference category. Regression coefficients are unstandardized, i.e. represent the contribution of the component's levels to the just reward in Chilean pesos. Models were checked for heteroskedasticity with the White test ( $c^2=142.15$ ,  $df=160$ ;  $p=0.84$ ). The coefficients are estimated with maximum likelihood multi level models (Bryk and Raudenbush 1992; Kreft and de Leeuw 1998; Skrondal and Rabe-Hesketh 2005), as recently suggested by several authors for the analysis of this kind of surveys (Guillermina Jasso 2006; M. Schrenker 2007; Steiner and Atzmüller 2006). In multilevel frameworks, model's parameters are estimated according to the clustered nature of the data, since each respondent represents a cluster in which the vignette judgments are nested, whereas the vignettes are clustered in different questionnaires (decks). In this sense, such procedure deals with the possible (and in this case expectable) autocorrelated errors. Furthermore, these models relax the assumption of an equivalent intercept for all respondents, setting it as a random parameter. Therefore, besides the respondent-specific vignette model presented above in equation (1), there is a random intercept model between respondents that, following Peter Steiner & Christiane Atzmüller (2006) and Markus Schrenker (2007), can be expressed as:

$$(2) \quad J_{div} = \gamma_{00} + \beta_1 \text{Name}_{div} + \beta_2 \text{Sex}_{div} + \beta_3 \text{Couple}_{div} + \beta_4 \text{Children}_{div} + \beta_5 \text{Yearsworking}_{div} + \beta_6 \text{Education}_{div} + \beta_7 \text{Occupation}_{div} + \beta_8 \text{Actualreward}_{div} + \zeta_d + \zeta_{di} + \epsilon_{div}$$

$J_{div}$  just earning of the  $v$  vignette by the  $i$  respondent in the  $d$  deck

$\gamma_{00}$  general intercept

$\beta_1, \beta_8$  regression coefficients

$\zeta$  error component at higher levels

$\epsilon$  residual

The model considers a random intercept, a series of slopes that corresponds to the vignette components, and error terms at the different levels. Based on this equation, a series of multilevel regression models are estimated and presented in Table 3. The vignette's components are incorporated sequentially in models 1 to 3, with the objective of comparing the relative importance of some components. The *actual reward* component is incorporated in all models for reasons to be detailed later.

The analysis of the explanatory models is organized into three points: (i) components' differential weights, (ii) individual differences and context variables, and (iii) the influence of the actual reward on the just reward.

### 3. Component's differential weight

Model 1 of Table 3 illustrates the influence of those components that have been associated with the distributive principles of equality (last name and sex) and need (dependent partner and/or children). The coefficients reveal that people with an aristocratic last name should obtain greater earnings compared to those with a Mapuche last name, in the line of previous empirical evidence (Núñez and Gutiérrez 2004a, 2004b). On the other hand, the sex variable indicates that women should earn more than men, a finding that acquires a redistributive character when compared to Chilean reality. Attending the components associated with the principle of need, having a dependent partner does not influence the just salary significantly, but having children generates a redistributive effect, raising the salary by \$9,085 for each additional child. This first model indicates only partial evidence regarding the influence of components related with the distributive principles of equality and need in the determination of the just salary.

Table 3: Multilevel regression models of the just reward on vignettes' levels

	Components	Levels	(1)	(2)	(3)
1)	Last name (Ref= Mapuche)	Spanish	-1,179.83 (0.08)	-6,424.22 (0.47)	-14,511.15 (1.07)
		Aristocrat	34,633.24* (2.45)	18,237.42 (1.31)	5,828.16 (0.43)
		European	16,012.93 (1.14)	-3,138.60 (0.23)	957.58 (0.07)
2)	Sex (Ref= male)	Female	29,476.04** (2.86)	-6,736.52 (0.66)	-17,334.72 (1.73)
3)	Couple (Ref= no couple)	Couple no job	1,140.27 (0.09)	13,958.25 (1.19)	-5,577.51 (0.48)
		Couple work	24,810.72 (1.91)	30,379.22* (2.41)	-9,321.37 (0.74)
4)	Children	N° Children	9,085.43** (3.00)	13,631.35** (4.58)	15,102.15** (5.11)
5)	Working years	N° Years (log)		5,638.72 (0.88)	13,030.49* (2.07)
6)	Educ. level (Ref= basic inc.)	Basic complete		32,206.97 (1.47)	23,153.19 (1.09)
		High school		69,427.23** (3.67)	40,270.67* (2.12)
		Technical		144,286.33** (7.76)	88,468.21** (4.72)
		University		256,442.52** (13.79)	197,229.60** (9.64)
7)	Occupation (Ref= unskilled)	Sales			73,888.11** (4.56)
		Technician			115,933.84** (5.61)
		Teacher			56,146.37 (1.78)
		Small bus. owner			184,697.31** (11.59)
		Middle manager			153,695.94** (8.42)
		Lawyer			241,714.13** (5.03)
		Upper manager			291,259.19** (13.98)
8)	Actual income	Income	0.33** (25.28)	0.34** (26.33)	0.33** (26.43)
		Constant	383,355.04** (20.68)	244,749.64** (7.97)	169,158.28** (5.46)
		N (respondents)	178	178	178
		N (vignettes)	4,421	4,421	4,421
		R <sup>2</sup> (level 1)	0.14	0.20	0.25
		Log Likelihood	-62,556	-62,339	-62,264

Unstandardized coefficients, maximum likelihood estimation, absolute z statistics in parentheses, \*  $p < 0.05$ , \*\*  $p < 0.01$ . Intraclass correlation (rho) null model=0.05. R<sup>2</sup> based on a comparison of the error variance of the null model with the error variance of the calculated model (Bryk and Raudenbush 1992). Deck's effects controlled as an additional level (not displayed).

When incorporating *education* and *working years* in model 2, most of the previously mentioned effects are no longer significant, a result that remains stable in model 3 with the inclusion of occupations. Therefore, there is a predominant determination of the just reward by those components related to personal achievement and equity according to individual contributions.

Model 3 confirms what was anticipated in the descriptive section, i.e. the just salary increases with occupational status (with the only exception of the teacher<sup>9</sup>), whereas the greater just earning difference is between the highest and lowest status occupation (manager and the unskilled worker). We also appreciate an important increase in the explained variance when incorporating occupation, but we still need to test its relative contribution to the just reward as presented in Table 4<sup>10</sup>:

**Table 4: Contribution of vignette components to explained variance of the just reward and model fit**

Component	R <sup>2</sup>	Log Likelihood	Deviance	df
(Null)	0.000	-62,872.22		
Name	0.004	-62,864.38	15.68**	3
Sex	0.004	-62,863.21	18.03**	1
Couple	0.000	-62,871.90	0.63	2
Children	0.000	-62,871.87	0.71	1
Work	0.002	-62,868.42	7.60**	1
Education	0.060	-62,728.51	287.41**	4
Occupation	0.100	-62,660.19	424.07**	7

\*\*  $p < 0.01$ .

In the table it is possible to observe the results of tests based on comparing the null model with models that include each of the components, the so-called *deviance test* (Hans 2006). Even though several components appear to have a significant effect on the just reward, occupation comparatively explains most of the variance ( $R^2=0.10$ ) and also presents the highest deviance value as compared to the log likelihood of the null model. From this first point of the analysis we can conclude that, even though several components significantly contribute to the evaluation of a just reward, the occupation is the one that to a larger extent explains variation in just earnings. This finding can be considered as supporting the consideration of occupational status as a central element for the justification of economic inequality. But besides this methodological aspect, the influence of occupation in just earnings constitutes a finding along the line of the *existential determination* of justice beliefs (Berger et al. 1972; Shepelak and Alwin 1986), i.e. that just earning differences reflect actual differences in the stratification structure.

<sup>9</sup> This can be explained since, by definition, all teachers have a university education in the vignettes, and their salaries have to be adjusted by education in the model. So in analytical terms an unskilled worker with a university title would earn the same as a teacher. Still it is a comparatively low salary for the university educated, which actually reflects the reality of this occupation in the Chilean labor market (Mizala and Romaguera 2005).

<sup>10</sup> This table does not consider the component “actual reward”, since it was present as part of the null model. The reason for doing this is clarified ahead in point iii.

#### 4. Individual differences and context variables

The inclusion of respondent variables in the analysis of factorial surveys requires some technical specifications, since the FSOE dataset is characterized by a hierarchical structure of the data, in which the vignettes are clustered or nested in respondents. In multilevel terms, the respondents are considered *level 2 units* whereas vignettes correspond to *level 1 units*. Taking this into account, Table 5 illustrates the effect of respondent status predictors on the just earning:

Table 5: Multilevel regression model of the just reward on respondent's status predictors

	Just reward
Income (hh equivalent)	0.12 (1.59)
Educational level (Ref= basic incomp.)	
Primary complete	-28,869.36 (-0.88)
Secondary complete	-52,297.60 (-1.79)
Technical superior	41,800.43 (0.96)
University	-35,020.88 (-0.79)
Subjective standing	-5,587.08 (-1.52)
Constant	219,742.40 (4.57)
N level 2	162
N level 1	4,021
Log likelihood	-56,728
R <sup>2</sup> level 2	0.00

Unstandardized coefficients, maximum likelihood estimation, absolute z statistics in parentheses, \*  $p < 0.05$ , \*\*  $p < 0.01$  Intraclass correlation ( $\rho$ ) null model=0.05. R<sup>2</sup> based on a comparison of the error variance of the null model with the error variance of the calculated model (Bryk and Raudenbush 1992). Deck's effects controlled as an additional level (not displayed).

The model of Table 5 already contains the vignette components as in model 3 of Table 3, but they are not displayed here again since their significance remains stable. As observed, none of the predictors expresses a significant influence on the just income, which means that differences in the just reward are not explained by status characteristics. In other words, people of different status support similar differences in occupational earnings, evidence along with consensus regarding earnings inequality. Again, these results should be observed with caution given the small sample in

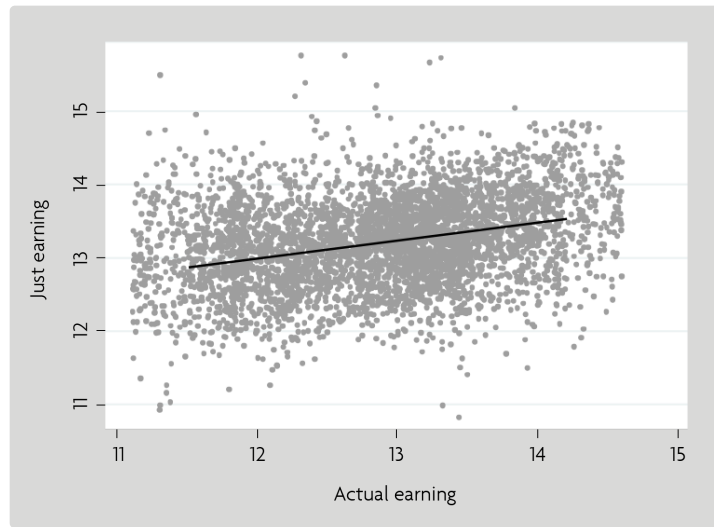
this exploratory context, particularly when considering that other factorial studies do report status differences in justice judgments (Markus Schrenker 2009).

*Context characteristics and just earnings differences.* Starting with the lower status occupation, an external standard in this regard is the minimum salary in Chile, which at the time of the interview corresponded to \$159,000 pesos (about US \$300). On the other hand, the *just minimum salary* (Bay and Pedersen 2006) would be defined by the salary considered just for the lowest status category of each component of the vignettes (such as unskilled worker, single, no children, and incomplete basic education). Since the lowest status category of each component is used as a reference for the estimation of regression coefficients in model 3 of Table 3, the coefficient of the constant (intercept) in model 3 is equivalent to the just minimum salary, which reaches \$169,158 pesos. In descriptive terms, this means that the current minimum salary and the just minimum salary differ by about 6%, which could be interpreted as a relative conformity with the situation or the external standard or context rules. Looking now at the *highest just salary*, this is obtained from adding the regression coefficients from model 3 that correspond to the high status levels (such as a manager with a university education), which rises to \$ 779,747 pesos. Unfortunately, there are no clear standards for contrasting this figure with real salaries in Chile, mainly due to the great dispersion of salaries under this category. Nevertheless, the difference between higher and lower just salaries in proportional terms (4.6) appears smaller than the current salary differences in Chile between high and low status occupations (7.3) based on a report of the International Labor Organization (ILO 2008). According to this preliminary descriptive analysis of the contextual dimension, it would be considered just to reduce current earnings differences, but diminishing from the top instead of leveling up from the bottom.

## 5. The role of actual earnings in determining the just earning

Up to this point we have not made reference to the vignette component *actual reward*, since this requires additional remarks and its analysis has significant consequences for the empirical study of just earnings differences. The actual earning is a vignette component which is randomly assigned to each fictitious case. Given its arbitrary assignation, from common sense it would not be expected that such a component has an influence on the just earning. Nevertheless, the actual reward is the component with the greatest explanatory power in the multilevel models of the just reward (accounting for 12% of the explained variance), the reason why it was considered as a baseline for interpreting the coefficients estimated for the other components in Table 3. Such a finding has also been reported in previous vignette studies (M. Schrenker 2007), associated to the interpretation that people consider first and foremost the salary that someone actually earns as a standard for justice judgments. In other words, there is a tendency to lean responses towards the actual salary, which is the source of the positive association among both terms, as represented in Figure 5:

Figure 5: Influence of the actual earning on the just earning



Source: FSOE 2006

Each point on this scatter plot represents the proposed just earning with regard to the actual earning. The line depicts the positive relationship between both, which refers us to the influence of *what is* on *what ought to be*. Such a relationship is based on two main sources: on the one hand a third of the respondents (34%) consider that the actual reward presented in the vignette is just (i.e. actual reward=just reward), and on the other hand when taking these cases out of the analysis, the rest of the respondents still let guide their judgments from the actual reward in a positive way ( $z=7.88$ ,  $p<0.01$ ). Positive means in this case that respondents tend to consider as just a higher income for those with high earnings, and a lower income for those with low earnings, irrespective of their other attributes. The term *anchoring* has been used in the literature to refer to this cognitive phenomenon by which justice judgments are dependent on or anchored in the rewards perceived by the respondent (Markovsky 1988; Tversky and Kahneman 1974). If we translate this cognitive interpretation in legitimacy terms, the perceived earnings are accepted as they are by a significant part of the respondents, whereas for others there is a significant tendency to what has been called the *Mathew effect* (Merton 1988): giving more to those who have more, and less to those who have less. In other words, individuals in the vignettes are assumed to “get what they deserve” (Lerner 1980), probably assuming that they count with the credentials or merit to account for their respective salary. Such a finding delivers support to the hypothesis regarding the influence of existential standards in determining justice judgments (Shepelak and Alwin 1986), which corresponds to the keystone for arguing legitimacy of inequality in contexts with high inequality. At the same time, it highlights the need to incorporate perception of actual salaries as a baseline for justice evaluations in the study of legitimacy applied to economic distribution (Hegtvedt 2006; Markovsky 1988; Wegener 1987).

## V. Summary and conclusions

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The starting point of this paper was to relax the assumption of the universal negative evaluation of economic inequality by empirically assessing how individuals evaluate inequality in society. In line with status value theory, it was assumed that justice judgments are performed against certain standards shared in a particular society, and that these standards compose a referential structure for performing justice judgments. This structure consists of individual characteristics (as educational level, sex and occupation) which are assigned different status value, a value that is possible to measure in monetary terms with the methodology called factorial surveys. A survey of this kind was designed for the Chilean case with the objective of exploring the individual characteristics (or components) that individuals take into account at the moment of performing a justice judgment, and furthermore to state which components have a larger weight in the justification of economic inequality.

The results of the study can be summarized in three main aspects. First, occupation and education are the characteristics that possess the larger weight in determining differences in earnings. Such finding resembles the actual structure of incentives in society based on a traditional equity principle (according to personal merits) and from that point of view it does not look surprising at a first sight. Nevertheless, taking into account that these judgments are performed in a context of high inequality as the Chilean one, it could have been expected that such distribution collides with normative standards of equality and leads to pressure for the emergence of alternative distributive principles (as equality and need), which according to the data is not the case. Secondly, the minimum salary considered just for the lowest status level is equivalent to the actual minimum salary of the country. Such resemblance of reality in the referential structure again calls the attention for a society with high inequality, and suggests that a supposed normative longing for equality is not necessarily expressed in shrinking the distribution continuum from the bottom. The third finding refers to the influence of actual rewards on just rewards, whereby the salary mentioned in the fictitious situation (vignette) has a positive association with the salary proposed as just. This influence of *what is* on *what ought to be* certainly has consequences in terms of legitimacy, since reality is taken as source of normative standards.

The exploratory character of this study does not allow to establish conclusions at a country level, but only to signalize aspects to be replicated later in a representative study which would give the opportunity to overcome a series of limitations. Of particular interest would be to further address the issue of individual differences about justice judgments, for instance: Do justice criteria differ across status groups? Another aspect to emphasize in the future is the inclusion of additional elements that could have a weight in justice judgments, in particular those related to social origin as parents educational level or type of school attended (public/private). The inclusion of such exogenous circumstances opens the door for contributing from the empirical side to the normative debate about equality of opportunity vs. equality of outcomes, as well as for discussing the extent to which individuals consider additional contextual elements in justice evaluations. A further element to take into account in future studies is the application of the factorial methodology to areas different from salaries, such as the justice criteria for a just pension or health insurance. And finally, the participation of additional countries in the framework of a comparative project of this kind would certainly enhance the possibilities of analysis and to count with additional standards to assess variations in the legitimacy of distribution across societies. In this line, a project including several Latin American countries in a comparative factorial survey would represent an important



methodological innovation in addressing distributive issues, something particularly relevant in the region of the world with the largest economic inequality.

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