DISTRIBUTIVE JUSTICE AND CEO COMPENSATION

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ABSTRACT

This paper develops a framework for studying individuals' ideas about what constitutes just compensation for chief executive officers (CEOs) and reports estimates of just CEO pay and the principles guiding ideas of justice among students pursuing a Master's of Business Administration (MBA) degree in Sweden and the United States. The framework, based on justice theory and making use of Rossi's factorial survey method, enables assessment of three main sets of quantities: (1) the just CEO compensation, in the eyes of each observer; (2) the principles of microjustice – observers' ideas about "who should get what" based on characteristics of CEOs and their firms; and (3) principles of macrojustice – ideas about the just level and dispersion in compensation across all CEOs. Our estimates of respondent-specific just CEO pay and principles of microjustice and macrojustice yield the following main results: First, within three country-and-gender-specific subsamples, there is broad agreement on the median just CEO compensation but substantial inter-individual variation in the principles of microjustice and the other principles of macrojustice. Second, there is remarkable similarity in the distributions of the principles of microjustice and macrojustice across the three samples. Other important results include a pervasive gender attentiveness among MBA students and tolerance for large variability in CEO pay.

Keywords: Justice theory; fairness; CEO compensation; factorial survey method; MBA students; gender; inequality; Gini coefficient.

1. INTRODUCTION

Justice concerns play important parts in individual and social processes. Substantial gaps between what people think is just and what they see around them generate judgments of injustice, setting in motion a train of negative consequences for individual, society, economy, polity. Moreover, discrepancies between ideas of justice across subgroups threaten social solidarity and cohesion; and discrepancies across countries erode the common foundation for cooperation and trust.

Empirical assessment of ideas of fairness is thus a central task for sociology. In the area of executive compensation, empirical assessment of ideas of fairness is both central and timely. Bok (1993) warns of the dangers that high executive compensation can pose both to corporations and to society in general, including a weakening of loyalty and an increase in dysfunctional conflicts.

In this paper we ask three main questions: First, what are individuals' ideas about fairness in CEO compensation – including not only ideas of the just amounts of pay but also ideas about the just returns to personal and firm characteristics (microjustice) and about the just level and dispersion in CEO pay (macrojustice)? Second, do individuals in a group or society agree or have a common view about what constitutes just CEO pay, just returns, and just level and dispersion? Third, are these ideas of justice similar across societies?[1]

To address these questions, we develop a framework which is based on justice theory and make use of Rossi's factorial survey method. The framework incorporates the relations between observers' ideas of justice, observer-specific principles of microjustice, and observer-specific principles of macrojustice, enabling estimation of these observer-specific quantities and assessment of the mix of agreements and disagreements across respondents. The framework is general and can be used with a variety of justice formulations and measurement procedures.

In the initial fielding of the framework, we target one pivotal segment of the population –

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[1] The words "justice" and "fairness" and their cognates are used interchangeably.

students pursuing a Masters of Business Administration (MBA) degree. The MBA students of today are the future CEOs, board members, entrepreneurs, and investors. Thus, their ideas about what is fair compensation, their views of the relevant factors in setting CEO compensation, and their tolerance or intolerance of inequality provide an important glimpse into the societal conversation on matters of compensation and inequality in the years to come. They will form the backbone of the system of corporate governance.

Institutional regimes may influence ideas of justice. Some countries may be more sensitive to matters of inequality and fairness than others and hence ideas of just CEO pay may differ across them. Two important test cases are a Scandinavian country, Sweden, and the United States not only because both countries have witnessed a public conversation concerning executive compensation (Bok 1993; Master 2002; Söderström et al. 2003) but also and more fundamentally because they represent two different socio-economico-political systems whose citizens may display distinctive ideas of justice and different tolerance for inequality (Kelley and Evans 1993; Söderström et al. 2003; Svallfors 1997; Wegener 1991; Wegener and Liebig 1995).

Accordingly, we focus on MBA students in the two countries, Sweden and the United States. A key question to be addressed in this research is whether MBA students in Sweden and the United States differ in their ideas of the just CEO pay and in the principles of justice guiding those ideas or whether instead they are indistinguishable and hence part of a supra-national global culture. An important question involves the extent to which business functionaries have become globalized and homogenized, no longer reflecting the values of their origin countries and cultures but rather a single global business-oriented value system. It is thus important to study ideas of justice about CEO compensation among MBA students in several countries. Here we take a first step by studying MBA students in Sweden and the United States.

The paper is organized as follows: In Section II we describe the framework and its theoretical and empirical background. The method used in the present study is developed in Section III. Section IV reports the results. A short discussion concludes the paper.

II. JUSTICE JUDGMENTS OF CEO COMPENSATION:
THEORETICAL AND EMPIRICAL BACKGROUND

The framework developed in this paper is based on several ideas: First is Rawls'(1971) idea that fairness is critical for the health of a society. Second, in the distributive-retributive sphere, two distinct kinds of principles operate to produce ideas of the just reward; these are principles of microjustice – ideas about "who should get what" – and principles of macrojustice – ideas about what the overall distribution should look like (Arts et al. 1991; Berger et al. 1972; Brickman et al. 1981; Jasso 1983). Third, an important domain for justice concerns is that of earnings, the pertinent aspects including relative differences in remuneration across occupations as well as the overall dispersion in the distribution of salaries (Arts et al. 1991; Kelley and Evans 1993; Wegener, Lippl, and Christoph 2000). Fourth, ideas of the justice of earnings incorporate not only occupation but also worker characteristics, such as age, gender, and schooling, and contextual characteristics, such as industry and geographic region (Alves and Rossi 1978; Jasso and Rossi 1977; Jasso and Webster 1999). Fifth, executive compensation constitutes an important special case of the justice of earnings which warrants sustained scrutiny (Bok 1993). Sixth, ideas about just earnings are "in the eyes of the beholder" (Walster, Berscheid, and Walster 1976:4) and thus shaped by the observer's own characteristics, social location, and societal characteristics (Kelley and Evans 1993; Svallfors 1997; Verwiebe and Wegener 2000; Wegener and Liebig 1995).[2]

II.A. Justice

Justice theory identifies four main elements in justice processes. First, individuals and societies form ideas of justice; in the distributive-retributive domain these are ideas about what constitutes the just reward for specified rewardees, who can be self or other. Second, these ideas

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[2] Succinct summary of the larger justice framework in which these elements are embedded, as well as further developments, may be found in Jasso and Wegener (1997) and Jasso (1999). For example, the justice evaluation function enables measurement of the overall amount of injustice experienced in a society, including a justice index which can be decomposed into a portion of injustice attributable to poverty and a portion of injustice attributable to inequality.

of justice may be used to help shape actual situations; for example, ideas of the just reward may play a part in salary decisions. Third, individuals judge the justice or injustice of actual situations, generating the <u>justice evaluation</u>; for example, they may judge that one person is overpaid and another underpaid and/or that the pay structure in a firm has unjustly too much inequality. Fourth, the justice evaluations become important determinants of further behaviors, such as participating in a strike or making a contribution to a public interest group.

This paper is chiefly concerned with ideas of the just reward for chief executive officers, the just reward being the first of the four elements identified above. One of the methods used to estimate the true just reward is an indirect method that utilizes the justice evaluation function, as will be discussed in section III.B below. Accordingly, we provide a brief background not only on the just reward but also on the justice evaluation and their associated functions.

<u>Just Reward Function and the Principles of Microjustice</u>. The just reward is the observer's idea of the just reward for a particular rewardee. It can be expressed as a function of characteristics of the rewardee and the rewardee's situation; for example, the just earnings can be expressed as a function of the worker's characteristics and other characteristics of the work situation. This representation of the just reward function is owed to Berger, Zelditch, Anderson, and Cohen (1972), as shown in Jasso (1983), and thus we call it the BZAC function.[3] Of course, observers may disagree as to which worker/situational characteristics are relevant for just earnings or about the worth of such characteristics. Accordingly, we write a general just reward function:

$$C = C(\boldsymbol{X}; \varepsilon), \tag{1}$$

where C denotes the just reward, $\boldsymbol{X}$ denotes a vector of rewardee and situational characteristics, and ε denotes a stochastic error. To illustrate, in the earnings realm, C represents just earnings, and the $\boldsymbol{X}$ vector contains both worker characteristics and situational characteristics, such as geographic region and industrial sector; some of the characteristics in the $\boldsymbol{X}$ vector may be salient

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[3] Berger et al. (1972) proposed the idea of a referential structure and described it so precisely that its mathematization to the just reward function is immediate (Jasso 1983).

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to some observers and ignored by others.

The parameters of the BZAC just reward function (e.g., intercept and slope coefficients) represent just rates of return – for example, just rate of return to schooling and just rate of return to experience, as well as a just gender multiplier, and so on. Following Brickman et al. (1981), these quantities, which may be said to guide determination of the just reward in the observer's head, are collectively called the principles of microjustice.[4]

Just Reward Distribution and the Principles of Macrojustice. When an observer forms ideas about the just reward for a set of rewardees, these ideas are also guided by distributional considerations, and these considerations are visible in the distribution formed by the set of just rewards. Following Brickman et al. (1981), parameters of the observer-specific just reward distribution – such as its mean and inequality – are called the principles of macrojustice.

Justice Evaluation Function. The justice evaluation is the observer's assessment that a rewardee (self or other) is fairly or unfairly rewarded and, if unfairly rewarded, whether underrewarded or overrewarded, and to what degree. The justice evaluation, denoted J, arises from the comparison between an actual reward and a just reward. It is usually specified as the logarithm of the ratio of the actual reward, denoted A, to the just reward, denoted, as before, C (Jasso 1978, 1999, 2006b):

$$J = \theta \ln\left(\frac{A}{C}\right), \tag{2}$$

where θ denotes the signature constant. The sign of θ is called the framing coefficient, because it embodies the observer's framing of the reward as a good or as a bad (negative for a bad,

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[4] Justice theory accommodates a wide variety of origins for the just reward. For example, it may be an envisioned or a past reward, a function of the observer's or the rewardee's actual reward, a function of another just reward, a parameter of an actual reward distribution, or a parameter of just reward distribution. Put differently, it may be generated in terms of reference amounts, reference individuals, reference groups, or reference principles. To the extent that, implicitly or implicitly, principles of microjustice guide determination of the just reward, the BZAC function (the mathematization of the referential structure) enables their estimation.

positive for a good); and the absolute value of **θ** is called the expressiveness coefficient, because it transforms the observer's experience of justice into the expression thereof.[5]

Note that the justice evaluation serves to link the twin pillars of the justice literature: ideas of justice and reactions to injustice. Ideas of justice, as seen in equation (2), are one of the two arguments of the justice evaluation function; and reactions to injustice are the consequences of the justice evaluation. Thus, the justice evaluation connects the two foundational themes in the study of justice.

Two-Equation Model. The method we use for estimating the true observer-specific/rewardee-specific just rewards is based on a design in which each observer judges the justice or injustice of the actual reward associated with each rewardee in a set of rewardees (Jasso and Rossi 1977; Jasso 1990). Thus, the underlying model is a two-equation model consisting of the justice evaluation function and the just reward function (here written for a single observer):

$$j_r = \theta \ln a_r - \theta \ln c_r$$

$$\ln c_r = \pi_0 + \sum_{k=1}^{K} \pi_k x_{kr} + \varepsilon_r,$$

(3)

where the justice evaluation, actual reward, just reward, and reward-relevant characteristics are denoted by lower-case letters, r indexes the rewardee, π denotes the parameters of the just reward function, and ε is a classical error distributed independently with zero mean and constant

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[5] The logarithmic-ratio specification imparts several good properties to the justice evaluation function, including loss aversion (loss is felt more keenly than gain) and deficiency aversion (deficiency is felt more keenly than comparable excess). Moreover, in the case of cardinal things, the log-ratio specification has been shown to be the only specification that satisfies both scale-invariance and additivity, two conditions thought desirable on substantive grounds in a justice evaluation function (Jasso 1990). Further discussion of the justice evaluation function and its properties is found, inter alia, in Liebig (2001), Verwiebe and Wegener (2000), Wagner and Berger (1985), and Whitmeyer (2004). The justice evaluation function has been used in studies of both justice for self (called reflexive justice) and justice for others (called nonreflexive justice); examples include, respectively, Jasso (1999) and Liebig (2001). Note, however, that notwithstanding the good properties of the logarithmic-ratio specification of the justice evaluation function, it is useful to periodically revisit its foundations and assess alternative functional-form candidates, as in the exercise reported in Jasso (2006a:403-407).

variance (within the respondent-specific equation).[6]

As will be described in section III.B, estimation of the observer-specific justice evaluation equation (the first equation in expression (3)), in which the just rewards are unobserved, yields an estimate of the signature constant θ, which is then used to calculate the true observer-specific/rewardee-specific just reward c_r. These estimated just rewards become the dependent variable in the observer-specific just reward equation (the second equation in expression (3)), which in turn yields estimates of the observer-specific principles of microjustice. Concomitantly, calculation of the mean and inequality measures in the observer-specific just reward distribution yields estimates of the observer-specific principles of macrojustice.

II.B. Justice of CEO Compensation

Typically, people make justice judgments about a wide variety of rewardees, including self and others, the latter both known and unknown to them. It is a commonplace – and much expressed in private conversations, letters to the editor of newspapers and periodicals, radio talk shows, and, now, web logs – that this or that athlete is overpaid and this or that actor is underpaid, etc.[7]

CEOs are among the rewardees the justice of whose rewards is much evaluated.[8] Several themes are discernible in public discussion of CEO compensation. First, the levels of CEO compensation are perceived as high; for example, the median CEO compensation in 2001 was $7.1 million (Söderström et al. 2003), and the distribution is highly positively skewed.[9] Second,

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[6] In the behavioral model in (3), the justice evaluation function appears in its theoretical form, i.e., without an error term. Below it will be transformed into an empirically estimable form, including an error term.

[7] See, for example, the sports commentator Jeff Merron's comments about the New York Yankee baseball player Derek Jeter being overpaid (Merron 2003).

[8] Perusal of the internet quickly provides a wealth of examples. See, inter alia, websites of the Conference Board (www.conference-board.org), the AFL-CIO (www.aflcio.org), compensation consultant firms (e.g., www.execpay.com), and periodicals (e.g., www.forbes.com).

[9] For example, the largest amounts of CEO compensation reach into the hundreds of millions of dollars (www.forbes.com).

compensation differentials – say, between a nurse and a CEO – appear to many to be disproportionate. Third, CEO compensation increased dramatically in the last two decades of the twentieth century – for example, in the United States averaging 9% per year in the period 1980–1998 and outpacing not only compensation increases for rank and file workers but also the pay growth of 3.7% per year among the wealthiest Americans (Hall and Liebman 1998).[10] Fourth, CEOs appear to have lost the trust of the general population; the prevailing image is that of a CEO negotiating large compensation packages while fraudulently and criminally misrepresenting corporate performance for personal gain (Meyer 2003). Fifth, the system of corporate governance, in particular the set of checks and balances, has become a focus of criticism.

Of course, not all justice evaluations conclude with a verdict of overreward. For example, Crystal's (2002) analysis of executive compensation in companies with 2001 revenue of $8 billion or more concluded that three of the CEOs are underpaid – including Warren Buffet of Berkshire Hathaway, who founded the company and whose business acumen is matched by his Midwesterner's sense of ethics and fair play.

The scholarly literature on the justice of CEO compensation is anchored by two pioneering data collection efforts – the International Social Survey Programme (ISSP) and the International Justice Research Project (ISJP) – which have obtained information concerning what respondents regard as the just pay for "chairman of a large national corporation" and "chairman of a large company," respectively.

However, these data do not lend themselves to estimating just pay for a broader range of CEOs – including, for example, CEOs of small firms or of multinational corporations. Moreover, they do not permit nuanced judgments that take into account personal characteristics of the CEO such as age or gender or other firm characteristics such as industry sector – that is, they do not permit estimation of just reward functions and the principles of microjustice.

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[10] In Europe, including Sweden, CEO compensation has risen more or less as steeply as in the United States.

Thus, we use the factorial-survey justice design developed by Jasso and Rossi (1977) in order to obtain data of greater specificity. With the recent increases in desktop computational power, factorial survey designs are increasingly being used to study questions of justice; recent examples include Wegener and Schrenker (2006) and Liebig, Meyermann, and Schulze (2006).

Accordingly, we specify a just compensation function that parallels the actual compensation functions discussed in the literature. This just compensation function includes characteristics of CEOs and of their firms which figure in both the actual compensation literature and in justice discussions, such characteristics as the age, gender, schooling, and experience of the CEO and the size and location of the firm (Baker and Hall 2004; Boxman et al. 1991; Conyon and Murphy 2000; Meyersson 1994; Murphy 1999; O'Reilly and O'Neill 2003; Rosen 1992). In the first application of the framework developed in this paper, we focus on CEOs newly hired as a CEO.[11]

II.C. MBA Students and the Justice of CEO Compensation

MBA students occupy a crossroads in the justice and CEO landscape. Like their fellows from high school and in common with the broader population, they judge the justice of CEO compensation. But unlike the broader population, they may have aspirations to become a CEO or take on other positions within the corporate world. And they have taken a significant step in the direction of casting their lot with business. Discerning their ideas of justice about CEO compensation provides a glimpse into the mindset of future entrepreneurs, CEOs, and board members.

III. METHOD: FACTORIAL SURVEY ANALYSIS
AND JUSTICE JUDGMENTS OF CEO COMPENSATION

Our objective is to learn what MBA students regard as just compensation for CEOs and to estimate the justice principles guiding their judgments. To reach our objective, we use Rossi's

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[11] Because the target CEOs in our study are newly hired as a CEO, we do not explicitly examine performance pay sensitivity, as is typical in the research literature (e.g., Murphy 1999).

factorial survey method (Rossi 1951, 1979; Rossi et al. 1974; Rossi and Anderson 1982), which has proved especially useful in studies of distributive justice, making it possible to obtain justice judgments about large sets of richly described fictitious rewardees. There are two main ways to measure ideas of just pay, a direct method in which respondents are directly asked what they think is the just reward for particular rewardees and an indirect method (currently in two versions) which proceeds by asking respondents to rate the justice or injustice of hypothetical rewards randomly attached to rewardees and then solving for the implicit just rewards. The direct method yields the disclosed just reward, and the indirect methods yield estimates of the true just reward. The two indirect methods differ in the number of hypothetical just rewards attached to each fictitious rewardee, one or several. The true just reward is by definition uncontaminated by socialization, rhetorical, political-correctness, or other disclosure mechanisms, and a research goal is to assess the performance of the direct and indirect methods across varying combinations of substantive contexts, design features, and respondent characteristics (Jasso 1990; Jasso and Törnblom 2000; Jasso and Webster 1999; Jasso and Wegener 1997).

In the one-reward-per-rewardee version of the indirect method, followed in the first fielding of the CEO framework, we present to respondents a set of 40 hypothetical CEOs, described in terms of own and firm characteristics, including a hypothetical compensation amount, and we ask the respondents to rate the justice or relative injustice of the hypothetical earnings. The obtained justice evaluations are used to estimate for each respondent the amount he or she thinks just for each of the hypothetical CEOs (the method involves a two-step procedure, described below). The estimated just compensation amounts are then used to estimate for each respondent the principles of microjustice and macrojustice guiding his/her judgments. The principles of microjustice are estimated via respondent-specific regressions of just compensation on CEO/firm characteristics; homogeneity tests are used to assess the extent of interrespondent agreement. The principles of macrojustice are estimated via inequality measures calculated on respondent-specific distributions of just CEO compensation. To further assess

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interrespondent variability on the principles of microjustice and macrojustice, graphs of the respondent-specific quantities are presented.

The following sections describe procedures for data collection and data analysis.

III.A. Data Collection in the Factorial Survey Analysis of CEO Compensation

The design of the data collection has three main ingredients: a sample of respondents, a population of hypothetical CEOs (the "vignettes") from which random samples are drawn and randomly assigned to respondents, and a rating task.

III.A.1. The Vignette Samples

Vignette Characteristics. The first step in constructing the vignettes is to select those characteristics of a CEO and a firm that are potentially relevant to ideas of justice concerning CEO compensation. We were guided by the literature on CEO compensation, including both scholarly studies and press accounts of perspectives on CEO compensation, a topic which has gained prominence as a result of the corporate scandals of the past several years.

As discussed above, in this initial factorial survey analysis of CEO compensation we focus on the initial compensation of newly-hired CEOs. Although the CEO may have been a CEO at another company, the focal compensation is the starting compensation at the new firm. Thus, this first study zeroes in on ideas of the just return to personal characteristics and ideas about the just connection between CEO compensation and firm characteristics, leaving for future planned research a study targeted at CEO and firm performance.

Accordingly, we included two sets of characteristics, CEO characteristics and firm characteristics. The CEO characteristics are the CEO's age, gender, schooling, and experience as a CEO, plus a hypothetical amount of total direct compensation proposed for the CEO's first year as CEO of this firm. Total direct compensation, as used here, consists of base salary, bonus, restricted stock and long-term incentives -- everything except stock option grants.[12] The firm

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[12] As described in the instructions to respondents, the compensation amount includes salary, signing bonus (if any), value of restricted stock, savings and thrift plans, and other benefits, but excludes stock options. Our respondents – MBA students – would be familiar with these components of executive compensation. Note that ideas of what constitutes "total direct

characteristics are the firm's location, industry, and capitalization.

Levels/values of vignette characteristics. The vignette characteristics become regressors in the respondent-specific regression equations. Thus, the need to conserve degrees of freedom dictates that, while the number of values of quantitative characteristic can be large, the number of categories of a qualitative characteristic should be kept small. Accordingly, the age, schooling, experience, compensation, and capitalization variables are richly represented in the vignettes, but firm headquarters and industry are restricted to three and four levels, respectively.

Table 1 presents the vignette characteristics, together with their levels and values.

– Table 1 about here –

As shown, age varies from 20 years to 70 years, schooling from completion of sixth grade to a doctoral degree, CEO compensation from fifty thousand to sixty million dollars. Of course, the real world is sufficiently diverse that most of the values in the vignettes have real-world counterparts. For example, in 2004, excluding those CEOs who at their request received total compensation of one dollar, CEO compensation in the top 500 U.S. companies ranged from $ 82,000 to $ 230,554,000 (www.forbes.com).

Firm headquarters is specified as being in one of three locations -- the United States, Europe, and Asia. The vignettes describe the CEO's firm as being in one of four major industries – manufacturing, finance and insurance, information, and wholesale trade.

Population of vignettes and drawing vignette samples. To obtain the random samples of vignettes to present to respondents, we followed these procedures: First, we fully crossed all

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compensation" differ. For example, a recent New York Times article on executive compensation (McGeehan 2002) defines total direct compensation as the sum of salary, bonus, restricted stock and long-term incentives, and other compensation (such as benefits and perks); this is roughly the same as our usage of the term. In contrast, a recent Wall Street Journal (2003) report on executive pay distinguishes between "total direct compensation, potential" and "total direct compensation, realized", the latter including realized option gains and the former unrealized option gains as well, but neither including benefits such as those covered in the "other compensation" category of the New York Times calculation. For a newly-hired CEO there would be no realized option gains, and thus the Wall Street Journal's notion of "total direct compensation, realized" would map fairly closely to the New York Times' concept of "total direct compensation," except for the value of benefits and perks.

characteristics except sex. The number of possible vignettes (Cartesian product) is:

$11 \times 15 \times 16 \times 3 \times 4 \times 27 \times 27 = 23,094,720$. Second, we eliminated logically impossible combinations, following the specifications given in the note to Table 1; for example, age and experience as a CEO could not yield a CEO who became a CEO before age 16. Third, we drew two random samples, each of size 20 (called Decks 1 and 2). Fourth, each of the two random samples was used to generate two mirror-image samples with respect to sex, one describing men, the other women (e.g., Deck 1 gives rise to two decks, the all-female Deck 1a and the all-male Deck 1b). Finally, two superdecks of size 40 were constructed by taking the male version of one sample and the female version of the other sample, and vice-versa (e.g., Deck 1a and Deck 2b form one superdeck).

Thus, each respondent received a pack with 40 vignettes. Though the 20 male and 20 female CEOs in each respondent's pack are not mirror images of each other, across all respondents the male and female CEOs are indeed mirror images of each other.

III.A.2. The Rating Task

The respondent was asked to rate the justice or injustice of the hypothetical salary randomly attached to each CEO. The rating task used a number-matching technique, one of several magnitude estimation procedures developed by S. S. Stevens (1975). Each respondent is given maximal freedom to map the subjective justice continuum onto numbers. The number zero is used to represent perfect justice, negative numbers to represent unjust underpayment, and positive numbers to represent unjust overpayment.

The usual protocol for factorial survey studies was followed. The instructions were read aloud, examples provided, questions answered. The instructions, besides describing the justice evaluation rating task, highlight the randomness of the attached hypothetical actual earnings and, to activate the full real-number line, make explicit mention of fractions and decimals. Table 2 presents a facsimile of the instructions given to the respondents, and Table 3 presents an example of a vignette.

– Tables 2 and 3 about here –

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The rating provided by the respondent for each rewardee is the justice evaluation described above (equation (2)) and produced by a comparison of the actual reward included in the description of the vignette with the respondent's own idea of the just reward for the particular rewardee.

III.A.3. The Respondent Samples

We selected two samples of MBA students, one from a Swedish institution, the other from a U.S. institution. The two institutions have similar curriculums, and the courses have similar content. Both institutions have a diverse student body drawing both from different domestic ethnicities and different origin countries. The proportion women is low to moderate in the two institutions, approximately 14% in the Swedish institution and 26% in the U.S. institution. In both institutions, we conducted the survey in the largest core course.

III.B. Estimating the Just CEO Compensation

In the initial fielding of the framework, reported here, we used the one-reward-per-rewardee version of the indirect method to estimate the amount of compensation that each respondent regards as just for each fictitious CEO.

The first step is to estimate the justice evaluation equation in the two-equation model (expression (3)), written, as before, for a single respondent:

$$ j_r = \theta \ln a_r - \theta \ln c_r. \tag{4} $$

To begin, we transform the theoretical justice evaluation equation in (4), which has no error and in which the true just reward is unobserved, into an estimable empirical form. To do that we re-write it as a simple regression equation with a stochastic term u_r,

$$ j_r = \alpha + \theta \ln a_r + u_r, \tag{5} $$

where u_r obeys the classical assumptions. Because the respondent's ideas of the just reward for each fictitious rewardee are unobserved, they are absorbed into the regression intercept α, which can be shown, by properties of linear regression, to amalgamate all the unobserved true just rewards:

$$\alpha = -\theta \, E(\ln c_r). \tag{6}$$

This means that great care must be exercised in the estimation of (5) to guard against omitted-variables bias, which would arise if there is a correlation between the actual rewards and the unobserved just rewards. The steps taken to guard against such error are, first, ensure that the correlation of the actual reward and the reward-relevant characteristics (the CEO and firm characteristics) is zero in the vignette population, and, second, make clear to the respondents that the actual reward is random, stating this explicitly.[13],[14]

Accordingly, estimation, for each respondent separately, of the empirical justice evaluation function in (5) yields an estimate of the signature constant θ, from which the framing and expressiveness coefficients are immediately obtained.

Because in the factorial survey the descriptions of the rewardees are designed by the investigator and the actual reward is uncorrelated with the reward-relevant characteristics, the regressor $\ln(a_r)$ is <u>fixed</u> in the statistical sense and uncorrelated with the error, and, hence, the estimate of the signature constant θ has the desirable properties of unbiasedness and consistency, in the statistical sense.

To estimate the true just reward, we re-arrange the terms in the justice evaluation equation in expression (4), obtaining the formula for estimating the true just reward:

$$\hat{c}_r = a_r \times \exp(-j_r/\hat{\theta}), \tag{7}$$

where $\exp(\cdot)$ denotes the exponential function. Accordingly, when the justice evaluation equation is combined with the factorial survey design developed by Jasso and Rossi (1977), the

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[13] The exact wording of the relevant sentence in the instruction (Appendix Table 2) is: "Each CEO has been randomly assigned a hypothetical total compensation for the first year."

[14] A second indirect design, called the multiple-rewards-per-rewardee design, was developed by Evans (1989) for estimating the just reward for self and by Jasso and Webster (1999) for estimating the just reward for fictitious others. The for-others version of the multiple-rewards-per-rewardee indirect method was designed specifically to avert the danger of correlation between the actual rewards and the just rewards posed by the one-reward-per-rewardee design (Jasso and Webster 1999:371-372). Note that the multiple-rewards-per-rewardee design leads to distinctive procedures and a formula for calculating the estimated true just rewards that is different from the formula derived here.

factorial survey justice design provides the actual reward, the justice evaluation is obtained from the respondent, and the signature constant is estimated via statistical estimation of the equation (as shown above), leaving only one unknown – the just reward – which is easily solved for. The just rewards obtained by this method, being nonlinear transformations of an unbiased and consistent estimate -- of the signature constant -- lose unbiasedness but, by Slutsky's theorem, remain consistent. Thus, estimates obtained by the one-reward-per-rewardee version of the indirect method have the desirable properties that they are free of disclosure bias and that they are consistent but the undesirable property that they are biased. To mitigate bias and achieve the benefits of consistency, sample size is important. Though more research is needed to gauge optimal sample sizes, an initial rule is that vignettes number at least forty.[15]

III.C. Estimating the Principles of Microjustice and Macrojustice: Just Reward Functions and Just Reward Distributions

To estimate the respondent-specific just reward functions, we regress, separately for each respondent, the natural logarithm of just CEO compensation (estimated via formula (7)) on the CEO and firm characteristics. The obtained estimates, or transformations thereof, constitute estimates of the respondent-specific principles of microjustice.

To illustrate, the coefficient of schooling provides an estimate of the just return to investment in an additional year of schooling. Age and experience are each represented by a quadratic form (i.e., by two regressors, such as age and age-squared), so that the just return to age or to experience is estimated by the two coefficients jointly. The exponential of the coefficient of the binary sex variable, measures the gender multiplier; women are coded "1" and thus the

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[15] An important task is to establish a calibration between direct and indirect methods, taking into account respondent age, sex, and other characteristics as well as design features and characteristics of the interview situation. For example, if the number of vignette characteristics protects against disclosure bias, then the discrepancy between direct and indirect methods will differ by number of vignette characteristics. A priori, the three methods and others still to be formulated may each prove optimal in certain contexts. Jasso and Törnblom (2000) have initiated an international effort to coordinate studies designed to systematically assess the theory and empirical methodology of just rewards, including, besides the direct and indirect methods, a variety of features such as fixed-pie versus non-fixed-pie designs, perceptions of actual rewards, paired reward domains, and matched samples.

multiplier is applied to the earnings of females, so that subtracting one yields the tax (if negative) or bonus (if positive) on women's earnings, relative to the earnings of comparable men, in percentage points. The gender multiplier has a natural interpretation as the ratio of female to male earnings; a gender multiplier of .8 would indicate the view that the just earnings for a woman is 80% of the just earnings of a comparable man.

To test homogeneity of the respondent-specific just reward equations, we set up a framework in which we estimate three models and perform three tests contrasting them.[16] Model I specifies a pooled equation in which all respondents have the same intercepts and the same slopes. Model II retains common slopes but allows each respondent to have a unique intercept. Model III is the set of respondent-specific equations in which each respondent has both a unique intercept and unique slopes. Test 1 contrasts Model I with Model II. Test 2 contrasts Model II with Model III. Test 3 contrasts Model I with Model III.

The observer-specific just rewards form the just reward distribution. To estimate the principles of macrojustice, we calculate, for each respondent-specific distribution, the mean, median, and a set of measures of inequality. These include Plato's ratio (the ratio of the largest just reward to the smallest just reward), the Gini index, the measure proposed by Atkinson (1970, 1975) and defined as one minus the ratio of the geometric men to the arithmetic mean, Theil's index, the mean logarithmic deviation (or MLD – also known as Theil's second measure), the relative minimum (the smallest just reward divided by the mean just reward), and the relative maximum (the largest just reward divided by the mean just reward).

IV. RESULTS

IV.A. <u>Preliminaries</u>

Of the 47 respondents in the Swedish study, 45 provided numerical nonconstant ratings, and of these, 43 provided information on gender (27 males and 16 females). Twenty-six of the

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[16] The three models are labeled as in Johnston and DiNardo (1997:129-130).

27 men and 13 of the 16 women rated all 40 vignettes; only 6 vignettes were left unrated, and the fewest number rated was 38. Estimation of the justice evaluation equations indicated that one male and one female each regarded earnings as a bad.[17] These two respondents were dropped, leaving a usable Swedish sample of 26 males and 15 females.

In the U.S. sample, all 36 respondents provided numerical nonconstant ratings as well as gender information (30 males and 6 females). However, there are too few female respondents to constitute a female sample. Moreover, one of the men rated fewer than 30 vignettes and was eliminated, leaving a usable U.S. male sample of size 29. Twenty-four of the 29 men rated all 40 vignettes; one each rated 31, 34, and 35 vignettes, and 2 rated 39 vignettes.

Accordingly, the data to be analyzed include three subsamples and enable a contrast between male MBA students in Sweden and in the United States and a second contrast between male and female MBA students in Sweden.

IV.B. Estimates of Just CEO Compensation

Using the procedure described in section III.B, we estimated for each respondent the amount of compensation he/she thought just for each of the CEOs. The obtained data can be arrayed in a just reward matrix. To illustrate, Table 4 reports a portion of the just earnings matrix, showing the just earnings amounts for a quarter of the vignettes, namely ten each from two mirror-image decks. Our focus in this paper is on the rows of the matrix – namely, the respondent-specific just reward distributions to which we return in section IV.D below. Note, however, that the column-specific distributions provide information on rewardee-specific just reward distributions; an analysis in the spirit of the Meadian looking-glass self would examine cross-rewardee differences in such things as mean and variability.

– Table 4 about here --

IV.C. Principles of Microjustice

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[17] Factorial survey justice studies since the earliest days have found evidence of "contrarian" individuals, e.g., persons who regard earnings as a bad or time in prison as a good – exemplifying the old adage that one person's meat is another's poison. Of course, it is useful to explore each case to assess whether there is noise rather than contrariness.

We begin by estimating the respondent-specific just reward equations. In each equation, the forty logged just earnings amounts are regressed on the CEO and firm characteristics. The parameter estimates make it possible to estimate the just rates of return to each of the included factors. For example, the coefficient for CEO years of schooling is interpreted as the just rate of return to an additional year of schooling. Similarly, the exponential of the gender coefficient is interpreted as the just gender multiplier (the ratio of female to male earnings).

An immediately important question is whether the just earnings equations are similar across respondents. To address that question, we carry out the homogeneity tests described in section III.C, separately within each of the three samples. Tables 5.a, 5.b, and 5.c report the results. As shown, all three tests reject homogeneity at very high levels of statistical significance (beyond the .0001 level) in all three samples. We conclude that in forming their ideas of just compensation respondents differ in the weights they attach to CEO and firm characteristics.

– Tables 5.a, 5.b, and 5.c about here –

As a brief illustration, consider the results for the Swedish male sample (Table 5.a). The value of R-squared in the Model I equation, which constrains all respondents to have the same intercept and the same slopes, is a meager .113. Model II, which allows respondents to have unique intercepts, attains a value of R-squared of .346, or triple that in Model I. Model III, which permits respondents to have their own intercepts and slopes, reaches an R-squared of .591, which almost doubles that in Model II and is over 5 times that in Model I. The statistical tests reject all homogeneity hypotheses.

The homogeneity tests yield the first important result: MBA students, even within country and within gender, do not agree with each other on the just bases for CEO compensation.

To assess the extent of agreements and disagreements, we examine the respondent-specific equation estimates. For each respondent, we have estimates of twelve coefficients, one intercept, and one value of R-squared. The thirteen parameter estimates satisfy the conditions for unbiasedness. We summarize the results in two ways. First, we present in panel A of Tables 6.a, 6.b, and 6.c summary characteristics of all the coefficients plus R-squared. Second, we present

graphs of the sample-specific quantile functions associated with several of the measures: (i) R-squared, (ii) coefficients attached to regressors which singly portray a variable's operation (CEO gender, CEO schooling, and firm capitalization), and (iii) the peaks for variables with a quadratic representation (CEO age and experience). The quantile function plots the value of a variable on its cumulative relative frequency, so that it is visually evident what proportion of respondents have values smaller than the plotted values. These plots permit immediate assessment of interrespondent disagreements. If all respondents, say, have the same value for a particular coefficient – that is, if the distribution of that coefficient is equal (degenerate, in the statistical sense) – the plot of the quantile function will be a horizontal line parallel to the x-axis; the greater the disagreements, the steeper the plot.[18] The plots also permit immediate assessment of the similarity or dissimilarity of the distributions across the three samples.

– Tables 6.a, 6.b, and 6.c about here --

Before discussing the estimates of the respondent-specific just CEO compensation equations, we inspect their values of R-squared (panel A of Tables 6.a, 6.b, and 6.c and Figure 1). As shown, the values of R-squared range from .142, among the Swedish men, to .726, also among the Swedish men. The means and medians in all three samples hover between .44 and .49. These are substantial magnitudes, indicating that, although the respondents may disagree with each other on the importance associated with particular CEO and firm characteristics, they have coherent and orderly views concerning the effects of CEO and firm characteristics on just CEO compensation. As well, the values of R-squared indicate that the particular set of CEO and firm characteristics included in the vignettes are indeed relevant to the just pay for CEOs, in the

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[18] Some of the distributions have lower and upper values that are far outlying (see Tables 6.a, 6.b, and 6.c). In such cases, the plots omit the outlying values, so that activity over most of the range will be most clearly seen. Whenever that occurs, we note it; as well, comparison of the endpoints of the ranges in the plots with the corresponding minimum and maximum values in Tables 6.a, 6.b, and 6.c indicates which figures have omitted values. If there is a large gap between an omitted value and the next highest (lowest) value, we use linear interpolation to assign a value; all such instances are explicitly noted.

respondents' eyes.[19]

<center>– Figure 1 about here –</center>

Figure 1 tells an additional story. Notice how close together the three sample-specific distributions lie. Although there is considerable variability within sample, the three samples are very similar. This is only the first of many results pointing to the absence of substantial country and gender effects. These results suggest a common Weltanschauung among MBA students in both the Swedish and the U.S. institutions.[20]

The effect of CEO gender on just compensation is represented by the gender multiplier (Tables 6.a, 6.b, and 6.c, panel B, and Figure 2.a, panel A). This is the exponential of the coefficient of the gender regressor (Tables 6.a, 6.b, and 6.c, panel A), and, as discussed above, has a convenient interpretation as the ratio of the female to male earnings. As shown, the medians are in the range .84-.94, indicating that the median respondent regards as just an amount for women that is 84% to 94% that of otherwise identical male CEOs. As the figures and graphs show, the three distributions are very similar to each other, parting company only at the extremes, especially the upper extreme.[21] While being cautious about telling a story based on extreme values, it is nonetheless interesting that the idiosyncratic propensity to assign women extremely higher salaries than otherwise identical men is found only among U.S. men and Swedish women.

<center>– Figure 2.a about here –</center>

The respondent-specific estimates for the just rate of return to schooling (Tables 6.a, 6.b,

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[19] Inclusion of additional CEO and firm characteristics in future fieldings may raise the values of *R*-squared even higher. For example, a variant of the present design might focus on CEOs who have been at the helm of the firm for several years and incorporate measures of firm growth during the CEO's tenure.

[20] Such a common Weltanschauung should not be too surprising, given that MBA students the world over have a similar curriculum. Moreover, asked about their major sources of business information, MBA students at both institutions mentioned the same three periodicals: The Wall Street Journal, The Financial Times, and The Economist. Further, both institutions draw students from all over the world.

[21] In the graph, the upper extreme values are interpolated for the Swedish women and the U.S. men.

<center>21</center>

and 6.c, panels A and B, Figure 2.a, panel B) indicate not only the large individual differences already expected but also somewhat less similarity across the three samples, especially in the bottom half of the distributions. The median just rate of return to schooling is substantially higher among the Swedish men (9.5%) than among the Swedish women and U.S. men (5.5% and 5.3%, respectively). Swedish women also have the bottom third of the distribution with lower just returns than U.S. men. These results echo currents in the compensation literature, including the glory stories of entrepreneurial college dropouts, the view of schooling as a credentialing device, and the notion that schooling may be consumption as well as investment.[22]

The operation of CEO age is represented by two regressors, age and age-squared. The resulting parabolas are concave downwards among a majority in all three samples (81%, 73%, and 86%, respectively, among Swedish men, Swedish women, and U.S. men). For these subsets, we show the quantile function of the sample-specific distributions of the age at which just compensation peaks (Figure 2.a, panel C).[23] Thus, these respondents judge as just a starting compensation for newly-hired CEOs that notices age and that peaks at a median age of approximately 50.

The operation of experience as a CEO is also given a quadratic representation. The resulting parabolas are again concave downwards in a majority of each sample but the majorities are smaller than for CEO age in two of the three samples (65%, 73%, and 59%, respectively, among Swedish men, Swedish women, and U.S. men). For these subsets, we show the quantile function of the sample-specific distributions of the years of experience at which just compensation peaks (Figure 2.a, panel D).[24] Thus, these respondents judge as just a starting

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[22] The quintessential example of entrepreneurial college dropouts is Bill Gates, founder of Microsoft. Another well-known example is Michael Dell, founder of Dell Computer (Dell 2003).

[23] The plots omit a total of three values – one at the top in the Swedish male sample, and one each at top and bottom in the U.S. male sample.

[24] The plots omit a total of three values – one each at the bottom and top in the Swedish male sample, and one at the top in the Swedish female sample.

compensation for newly-hired CEOs that notices previous experience as a CEO but that peaks at a median experience of 6-9 years.

The hypothetical CEO scenarios include three firm characteristics – location, industry sector, and capitalization. Firm location is represented by a categorical variable with three categories (United States, Europe, and Asia), which gives rise to six possible orderings. We coded each respondent according to the ordering in the coefficients (taking into account the omitted category, the United States). The two orderings in which the United States is thought to provide larger just compensation characterize a plurality of respondents in all three samples, although the two orderings in which Asia has the larger coefficient is a strong contender among the U.S. male sample. Among the two Swedish samples, the two orderings with Asia at the top characterize the fewest number of respondents. These results suggest that in forming ideas of just compensation for CEOs, our respondents take into account the location of the firm headquarters but they disagree concerning which locations make high earnings more appropriate.

Firm industry is represented by four categories, giving rise to 24 possible orderings. As with location, we coded each respondent according to which of the 24 orderings characterizes their coefficients. There is wide variability across respondents. All but one of the 24 possible orderings were used by at least one respondent. In each sample, the largest number of respondents associated with a single ordering are 4, 5, and 3 among Swedish men, Swedish women, and U.S. men, respectively.

The estimates for the effect of firm capitalization on just CEO compensation (Tables 6.a, 6.b, and 6.c, panel A, and Figure 2.b) show the now familiar pattern associated with the effects of quantitative characteristics – great variability across individuals, great similarity across samples.[25] The medians lie in the range .14-.26. Thus, on average, our respondents regard as just a CEO compensation that increases by approximately .20% for a 1% increase in firm

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[25] As suggested by inspection of the graphs and tabulated figures, there is one omitted value at the bottom of the range (among the U.S. men) and several at the top (one among Swedish men, three among Swedish women, and four among U.S. men).

capitalization. In the vocabulary of economics, the estimated elasticity of CEO just compensation with respect to firm capitalization is in the range of .14 to .26 – a range consistent with Rosen's (1992) estimated range of .20 to .30. Interestingly, the estimates in the two men's samples are even more similar to Rosen's estimates – a mean and median of the estimated elasticities of .23-.24 and .18-.26, respectively.

– Figure 2.b about here –

IV.D. Principles of Macrojustice

Tables 6.a, 6.b, and 6.c report in panel C summary characteristics for the median and for the seven inequality measures calculated on the respondent-specific just reward distributions. Graphs of the sample-specific quantile functions associated with the median and with six of the inequality measures (all except Plato's ratio) are presented in Figures 3, 4.a, and 4.b.

– Figures 3, 4.a, and 4.b about here –

The plots for the medians of the respondent-specific just reward distributions (Figure 3) indicate interrespondent similarity over most of the region. That is, within each sample, respondents agree with each other about what should be the overall level or location of the just reward distribution, as indicated by the median. Moreover, the three plots are very similar, indicating similarity across the three samples.   This pattern differs from the pattern observed in the principles of microjustice of within-sample variability combined with cross-sample similarity; here we observe similarity both within and across samples.

The graphs of the inequality measures (Tables 4.a and 4.b), however, display the same pattern as the principles of microjustice – great variability across respondents, great similarity across samples. Substantively, our respondents regard as just very high levels of inequality in CEO compensation. The minimum Plato's ratios are estimated at 35, 61, and 178. The smallest median is 1342 (among Swedish men), the largest is 15,512 (among U.S. men). These figures represent a considerable departure from Plato's idea that the wealthiest person should have no more than five times the poorest.

The other inequality measures tell a similar story. Most of the minimums are quite high –

for example, the smallest values of the Gini index among Swedish men and women are .46 and .50, respectively, values higher than in the broader U.S. income distribution. The means and medians are in the range of .76-.78. At the upper extremes of the distributions, the magnitudes approach unity, the theoretical upper limit of the Gini index.

Only in the MLD and the just relative minimum distributions is there some dissimilarity across the three samples, and this appears confined to the top half of the distribution. In both cases, Swedish women appear tolerant of greater inequality (higher MLD, lower relative minimum).

In sum, the levels of inequality in CEO compensation that our respondents regard as just are quite high. This suggests the possibility that given their views on inequality in CEO compensation, they become insensitive to inequality in general and come to see as just rather high levels of income inequality in the larger population.

V. SUMMARY AND DISCUSSION

In this paper we developed a framework for studying individuals' ideas about what constitutes just compensation for chief executive officers (CEOs), and we reported the results of the first application of the framework, assessing MBA students' ideas about just CEO pay, focusing on three samples: Swedish men, Swedish women, and U.S. men.

The framework, based on justice theory and making use of Rossi's factorial survey method, enables assessment of three main sets of quantities: (1) the just CEO compensation, in the eyes of each observer; (2) the principles of microjustice – ideas about "who should get what" based on characteristics of CEOs and their firms; and (3) principles of macrojustice – ideas about the just median and the just variability in compensation across all CEOs.

Our main results are: First, we obtained estimates of each respondent's ideas of the just pay for each of 40 fictitious CEOs, of each respondent's just reward equation and the principles of microjustice, and of each respondent's just reward distribution and the principles of macrojustice. These results make it possible to make characterizations of respondents and CEOs,

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for example, that one respondent regards as just a return to schooling of 10 percent and another a return to schooling of 20 percent, that one respondent regards as just a Gini of .5 and another a Gini of .982, and so on. Second, within each of the three samples, there is substantial inter-individual variation in the principles of microjustice; that is, in forming ideas of just CEO pay, people differ in the weights they place on CEO and firm characteristics. Third, there is remarkable similarity in the distributions of the principles of microjustice across the three samples. Fourth, within each sample, there is broad agreement on the median just CEO compensation but substantial inter-individual variation in the inequality subset of the principles of macrojustice; that is, people differ in their tolerance for inequality. Fifth, there is remarkable similarity in the distributions of the principles of macrojustice across the three samples.

The estimates of the principles of justice provide an array of useful and suggestive results. For example, the distributions of observer-specific elasticity of just CEO compensation with respect to firm capitalization have medians in the range of .14-.26 – remarkably similar to the range of .20-.35 found by Rosen (1992). Further, the median respondents regard as just an amount of pay for women CEOs that is 84% to 94% that of otherwise identical male CEOs. With respect to variability in just CEO compensation, estimates of the principles of macrojustice indicate that the MBA students regard as just rather high levels of inequality in CEO compensation (e.g., median Gini index values of .76-.78), possibly dulling the senses to economic inequality in the larger population, where a Gini of .50 would be considered too high by most observers.

The findings of substantial inter-respondent differences on the principles of justice and of remarkable similarity in the distributions of principles of justice across the three samples jointly provide evidence for the existence of a global business culture, but one which, consistent with ideals of risk, innovation, and individualism, accommodates wide individual differences. Of course, the similarity we found between MBA students in Sweden and the United States may not extend to the general populations of the two countries. It is important to monitor views of CEO pay both inside and outside the business world, for a global business culture at odds with the

general population would be a source of political tension both within and between national cultures.

The estimates of the just values of the Gini in CEO compensation illustrate two of our results. First, these values are, as noted, larger than actual values of the Gini in income distributions. Second, the similarity of the just Gini distributions across Sweden and the United States signals the emergence of a global business culture in which practitioners share a common Weltanschauung but one that may differ from the views and ideologies of their non-business co-nationals.

The findings on the effects of CEO gender on ideas of just pay suggest substantial gender attentiveness on the part of MBA students. The factorial survey method makes it possible to retrieve ideas of fairness that respondents might otherwise be reluctant to express.

Whether gender attentiveness among MBA students persists, increases, or diminishes is a question for future research. Recent studies carried out in college samples in the United States (e.g., Jasso and Webster 1999) indicate that gender attentiveness is shifting. While U.S. college students increasingly assign equal just pay to otherwise identical male and female workers, they are not completely blind to gender, for the mechanisms by which they generate ideas of just earnings remain gender-attentive (for example, noticing gender in assigning just base pay or just returns to schooling). It will be important to monitor such shifts among MBA students. The factorial survey design is uniquely suited for this purpose.

There are several important directions for future research. We highlight two methodological and two substantive areas that merit further inquiry. Methodologically, an important task is to systematically contrast direct and indirect methods for measuring just pay, in order to understand the precise nature of the differences between them, to calibrate results across studies, and to help in research design. A second task is to examine sensitivity of indirect methods to alternate specifications of the justice evaluation function, assessing, for example, families of functions that share major properties with the logarithmic-ratio function.

Substantively, it will be useful to obtain measures of perceived actual pay, in order to

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contrast ideas of just pay with the respondents' own perceptions of actual compensation. Finally, an important question for future research is to document ideas of just CEO pay among the general population as well as among other special target samples, such as workers, union members, regulators, legislators, business school faculty, faculty and students in other disciplines, and CEOs themselves, doing so not only in Sweden and the United States but also in additional countries around the world and repeating such studies periodically. Whether the world as a whole is becoming more similar in its views, whether, alternatively, pockets of the world's population are becoming internally more similar but polarized vis-a-vis each other – these are vital questions for social, economic, and political development and for the well-being of the world's people.

REFERENCES

Alves, Wayne M., and Peter H. Rossi. 1978. "Who Should Get What? Fairness Judgments in the Distribution of Earnings." American Journal of Sociology 84: 541-564.

Arts, Wil, Piet Hermkens, and Peter van Wijck. 1991. "Income and the Idea of Justice: Principles, Judgments, and Their Framing." Journal of Economic Psychology 12:121-140.

Atkinson, Anthony B. 1970. "On the Measurement of Inequality." Journal of Economic Theory 2:244-263.

_____. 1975. The Economics of Inequality. London: Oxford.

Baker, George P., and Brian J. Hall. 2004. "CEO Incentives and Firm Size." Journal of Labor Economics 22:767-798

Berger, Joseph, Morris Zelditch, Bo Anderson, and Bernard P. Cohen. 1972. "Structural Aspects of Distributive Justice: A Status-Value Formulation." Pp. 119-246 in Joseph Berger, Morris Zelditch, and Bo Anderson (eds.), Sociological Theories in Progress, Volume 2. Boston: Houghton Mifflin.

Bok, Derek. 1993. The Cost of Talent: How Executives and Professionals Are Paid and How It Affects America. New York: Free Press.

Boxman, Ed A. W., Paul M. De Graaf, and Hendrik D. Flap. 1991. "The Impact of Social and Human Capital on the Income Attainment of Dutch Managers." Social Networks 13:51-73.

Brickman, Philip, R. Folger, E. Goode, and Y. Schul. 1981. "Micro and Macro Justice." Pp. 173-202 in M. J. Lerner and S. C. Lerner (eds.), The Justice Motive in Social Behavior. New York: Plenum.

Conyon, Martin, and Kevin Murphy. 2000. "The Prince and the Pauper? CEO Pay in the United States and the United Kingdom." The Economic Journal 110:640-671.

Crystal, Graef. 2002. "No Accounting for CEO Pay Gap." www.bloomberg.com .

Dell, Michael S. (with Patricia R. Olsen). 2003. "More Fun Than School." The New York

Times, Business Section, 9 March 2003.

Evans, M. D. R. 1989. "Distributive Justice: Some New Measures." Presented at the meeting of the International Sociological Association's Research Committee 28 on Social Stratification and Mobility, Stanford, California, August 1989.

Hall, Brian J., and Jeffrey B. Liebman. 1998. "Are CEOs Really Paid Like Bureaucrats?" Quarterly Journal of Economics 113:653-691.

Jasso, Guillermina. 1978. "On the Justice of Earnings: A New Specification of the Justice Evaluation Function." American Journal of Sociology 83:1398-1419.

_____. 1983. "Fairness of Individual Rewards and Fairness of the Reward Distribution: Specifying the Inconsistency between the Micro and Macro Principles of Justice." Social Psychology Quarterly 46:185-199.

_____. 1990. "Methods for the Theoretical and Empirical Analysis of Comparison Processes." Sociological Methodology 20:369-419.

_____. 1999. "How Much Injustice Is There in the World? Two New Justice Indexes." American Sociological Review 64:133-168.

_____. 2006a. "Factorial Survey Methods for Studying Beliefs and Judgments." Sociological Methods and Research 34:334-423.

_____. 2006b. "Homans and the Study of Justice." Pp. 203-227 in A. Javier Treviño (ed.), George C. Homans: History, Theory, and Method. Boulder, Colorado: Paradigm Press.

_____, and Peter H. Rossi. 1977. "Distributive Justice and Earned Income." American Sociological Review 42:639-651.

_____, and Kjell Y. Törnblom. 2000. "Studies in Empirical Justice Analysis. Document circulated to colleagues worldwide.

_____, and Murray Webster, Jr. 1999. "Assessing the Gender Gap in Just Earnings and Its Underlying Mechanisms." Social Psychology Quarterly 62:367-380.

_____, and Bernd Wegener. 1997. "Methods for Empirical Justice Analysis: Part I. Framework, Models, and Quantities." Social Justice Research 10:393-430.

Johnston, Jack, and John DiNardo. 1997. <u>Econometric Methods</u>. Fourth edition. New York, NY: McGraw-Hill.

Kelley, Jonathan, and M. D. R. Evans. 1993. "The Legitimation of Inequality: Occupational Earnings in Nine Countries." <u>American Journal of Sociology</u> 99:75-125.

Liebig, Stefan. 2001. "Lessons from Philosophy? Interdisciplinary Justice Research and Two Classes of Justice Judgments." <u>Social Justice Research</u> 14:265-287.

_____, Alexia Meyermann, and Andrea Schulze. 2006. "Temporal Stability of Justice Evaluations of Income." Paper presented at the biennial meeting of the International Society for Justice Research, Humboldt University, Berlin, Germany, August 2006.

Master, Melissa. 2002. "How Much Should A CEO Make?" <u>Across the Board</u> (November/December). Website of The Conference Board (www.conference-board.org).

McGeehan, Patrick. 2003. "Executive Pay: A Special Report." <u>The New York Times</u>, 6 April 2003.

Merron, Jeff. 2003. "The List: Most Overrated Athletes." ESPN website (www.espn.com).

Meyer, Pearl. 2003. "From Halos to Horns: Demonizing the American CEO." Paper available at www.execpay.com .

Meyersson, Eva M. 1994. <u>Kompensations Kontrakt I Börsnoterade Företag</u>. Stockholm, Sweden: Almqvist & Wiksell International.

Murphy, Kevin J. 1999. "Executive Compensation." <u>Handbook of Labor Economics</u> 3B:2485-2562.

O'Reilly III, Charles A., and Olivia A. O'Neill. 2003. "Women's Careers: The Impact of Sex and Gender Identity on Career Attainment." Unpublished paper.

Rawls, John. 1971. <u>A Theory of Justice</u>. Cambridge, Massachusetts: Harvard University Press.

Rosen, Sherwin. 1992. "Contracts and the Market for Executives." Pp. 181-211 in Lars Wein and Hans Wijkander (eds.), <u>Contract Economics</u>. Cambridge, MA, and Oxford, UK: Blackwell.

Rossi, Peter H. 1951. <u>The Application of Latent Structure Analysis to the Study of Social Stratification</u>. Unpublished Ph.D. dissertation, Columbia University.

_____. 1979. "Vignette Analysis: Uncovering the Normative Structure of Complex Judgments." Pp. 176-186 in <u>Qualitative and Quantitative Social Research: Papers in Honor of Paul F. Lazarsfeld</u>, edited by Robert K. Merton, James S. Coleman, and Peter H. Rossi. New York: Free Press.

_____, and Andy B. Anderson. 1982. "The Factorial Survey Approach: an Introduction." Pp. 15-67 in <u>Measuring Social Judgments: the Factorial Survey Approach</u>, edited by Peter H. Rossi and Steven L. Nock. Beverly Hills: Sage.

_____, William A. Sampson, Christine E. Bose, Guillermina Jasso, and Jeffrey Passel. 1974. "Measuring Household Social Standing." <u>Social Science Research 3</u>:169-190.

Söderström, Hans Tson, Erik Berglöf, Bengt Holmström, Peter Högfeldt, and Eva M. Meyersson Milgrom. 2003. <u>Corporate Governance and Structural Change: European Challenges</u>. Stockholm, Sweden: SNS Förlag.

Stevens, S. S. 1975. <u>Psychophysics: an Introduction to Its Perceptual, Neural, and Social Prospects</u>. Edited by Geraldine Stevens. New York: Wiley.

Svallfors, Stefan. 1997. "Worlds of Welfare and Attitudes to Redistribution: A Comparison of Eight Western Nations." <u>European Sociological Review</u> 13:283-304.

Verwiebe, Roland, and Bernd Wegener. 2000. "Social Inequality and the Perceived Income Justice Gap." <u>Social Justice Research</u> 13:123-149.

Wagner, David, and Joseph Berger. 1985. "Do Sociological Theories Grow?" <u>American Journal of Sociology</u> 90:697-728.

Wall Street Journal. 2003. "Special Report: Executive Pay." April 14, 2003.

Walster, Elaine, Ellen Berscheid, and G. William Walster. 1976. "New Directions in Equity Research." Pp. 1-42 in Leonard Berkowitz and Elaine Walster (eds.), <u>Equity Theory: Toward a General Theory of Social Interaction</u>. New York: Academic.

Wegener, Bernd. 1991. "Relative Deprivation and Social Mobility: Structural Constraints on

      Distributive Justice Judgements." <u>European Sociological Review</u> 7:3-18.

_____, and Stefan Liebig. 1995. "Dominant Ideologies and the Variation of Distributive

      Justice Norms: A Comparison of East and West Germany and the United States." Pp.

      239-259 in James Kluegel, David Mason, and Bernd Wegener (eds.), <u>Social Justice and</u>

      <u>Political Change: Public Opinion in Capitalist and Post-Communist States</u>. New York:

      Aldine de Gruyter.

_____, Bodo Lippl, and Bernhard Christoph. 2000. "Justice Ideologies, Perceptions of Reward

      Justice, and Transformation: East and West Germany in Comparison." Pp. 122-160 in

      David S. Mason and James R. Kluegel (eds.), <u>Marketing Democracy: Changing Opinion</u>

      <u>About Inequality and Politics in East Central Europe</u>. Lanham, MD: Rowman &

      Littlefield..

_____, and Markus Schrenker. 2006. "Self-interest and Justice Ideologies in the Evaluation of

      the Justice of Pensions: A Factorial Population Survey of Germany." Paper presented at

      the biennial meeting of the International Society for Justice Research, Humboldt

      University, Berlin, Germany, August 2006.

Whitmeyer, Joseph M. 2004. "Past and Future Applications of Jasso's Justice Theory."

      <u>Sociological Theory</u> 13:432-444.

Table 1. Characteristics of the Fictitious CEOs

1. Age

Eleven levels, in increments of five years, from 20 to 70 years.

2. Sex

(1)   Male
(2)   Female

3. Years of Schooling Completed

Fifteen levels, in increments of one year, from completion of sixth grade to a doctoral degree.

4. Years as CEO

Sixteen levels, in increments of one year, from 0 to 15 years.

5. Firm Headquarters

(1)   United States
(2)   Europe
(3)   Asia

6. Industry of This Firm

(1)   Manufacturing
(2)   Finance and insurance
(3)   Information
(4)   Wholesale trade

7. Size of Firm – Capitalization

Twenty-seven levels, from $50 million to $600 billion.
[50m, 75m, 100m, 125m, 150m, 175m, 200m, 250m, 500m, 600m, 700m, 800m, 900m,
1b, 5b, 10b, 15b, 20b, 25b, 50b, 75b, 100b, 200b, 300b, 400b, 500b, 600b]

8. CEO Total Compensation (salary, signing bonus, value of restricted stock, savings and thrift plans, and other benefits, but excluding options)

Twenty-seven levels, from $50 thousand to $600 million.
[50t, 75t, 100t, 125t, 150t, 175t, 200t, 250t, 500t, 600t, 700t, 800t, 900t,
1m, 5m, 10m, 15m, 20m, 25m, 50m, 75m, 100m, 200m, 300m, 400m, 500m, 600m]

Note: The population of fictitious CEOs (called "vignettes") consists of all the logically possible combinations of characteristics. Logically impossible combinations are deleted. These are defined as meeting one of the following conditions: (i) age minus schooling LT 5; (ii) age minus years as CEO LT 16; and (iii) capitalization/compensation LT 10. Random samples are drawn from the adjusted population for presentation to respondents.

Table 2. Instructions in CEO Justice Study

Facsimile:---

SURVEY OF JUDGMENTS ON THE JUSTICE OF CEO SALARIES

To the Respondent:

Chief executive officers (CEOs) and their firms differ in a lot of ways. We have made up descriptions of different kinds of CEOs and firms. The firms' market value is expressed in U.S. dollars (note that a billion corresponds to what in Europe is called a milliard). All the CEOs are newly hired at the firms. Some have been a CEO before at other firms. Each CEO has been randomly assigned a hypothetical total compensation for the first year. This total compensation amount includes salary, signing bonus (if any), value of restricted stock, savings and thrift plans, and other benefits, but excludes stock options. The total compensation amount is expressed in U.S. dollars. We would like to know what you think about whether each CEO is fairly or unfairly paid, and, if you think that a CEO is unfairly paid, whether you think the CEO is paid too much or too little.

We would like you to use numbers to represent your judgments. Let zero represent the point of perfect justice. Let negative numbers represent degrees of underreward, and positive numbers represent degrees of overreward. The greater the degree of underpayment, the larger the absolute value of the negative number you choose (for example, if two CEOs receive ratings of -68 and -23, the CEO receiving the -68 is viewed as more underpaid than the CEO receiving the -23). Similarly, the greater the degree of overpayment, the larger the positive number (for example, a CEO receiving a rating of +200 is viewed as more overpaid than a CEO receiving a rating of +75). In other words, mild degrees of underreward and of overreward are represented by numbers relatively close to zero; larger degrees of underreward and of overreward are represented by numbers farther away from zero.

The justice evaluation scale may be visualized as follows:

    ----+----+----+----+----+----+----+----+----+----+----+----+----+----
                                        0
    Underreward   Overreward
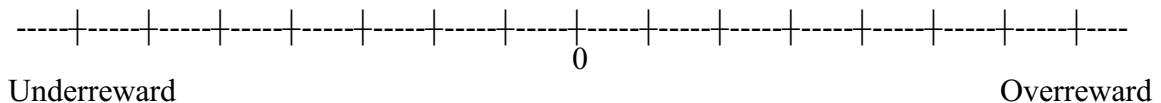
When you read each description of a CEO, please write the number that best matches your judgment about the fairness or unfairness of that CEO's compensation. There is no limit to the range of numbers that you may use. For example, some respondents like to map their personal scale to the numbers from -100 to +100; others prefer to use smaller regions, and still others, larger regions. Of course, you may choose any real number (for example, decimals and fractions as well as whole numbers) to represent a judgment.

You may change any of your ratings.

Your responses are completely confidential.

Thank you very much for your participation.

Respondent ID _____

Table 3. Example of Vignette in CEO Justice Study

Facsimile:---

The CEO is 30 years old,
a man who completed 10 years of school.
He was a CEO elsewhere for 2 years.
The firm, headquartered in the United States,
is in the information sector.
The firm has a market value of $ 300 billion.
The proposed total compensation for the CEO
for the first year is $ 20 million.

YOUR RATING _____

Table 4. Estimated CEO Just Earnings Matrix: Just Earnings (in Thousands of 2001$) for CEOs, as Judged by MBA Students, Sweden 2001

Resp ID	1	2	3	4	5	6	7	8	9	10
						CEO ID, Deck 1a				
1	1000	151523	18142	151523	175	11010	1783	19756	2469	390
2	701	295	2349	63	222	1179	839	8516	1064	1863
5	134	2785	449	1246	175	999	160	629	223	175
7	104	2177	13	106	175	200	376	376	962	372
9	537	1378	551	2567	401	5513	1211	11841	2241	3921
11	2643	69	1872	483	175	731	800	103202	100	463
15	1000	193	25	141	350	951	800	1599	283	350
17	455	27385	120941	1170	36	22643	8512	199209	484	95846
19	323	155	273	478	175	619	800	7652	956	541
21	1000	3312	2277	549	175	13249	15992	8785	331	1056
23	104	123	273	1182	175	776	638	12037	22639	275
25	1000	90335	256	115	154	1606	985	1213	230	216
27	9344	4365	2676	4365	1635	17461	18273	18273	8730	6250
29	1000	234	2476	11018	3819	432	171	37736	22036	1767
32	1000	75	16724	75	175	299	1196	44569	5571	1306
34	1000	2697	9	2697	579	2189	5876	43154	149	389
37	414	292	734	1703	504	1167	1620	9456	203	354
39	10579	1359	574	1359	175	2116	800	34851	11192	175
40	6	279	144	89	56	200	254	1419	3117	56
42			3003	144	297	1665	471	1359	289	505
43	7	994	171	135	39	200	295	295	100	175

Resp ID	1	2	3	4	5	6	7	8	9	10
						CEO ID, Deck 1b				
3	202	30275	2263	248	35	992	800	5922	100	390
4	44	3174	140	398	175	2677	6374	143339	1339	830
10	1589	905	35389	529433	40516	418334	2.82e+10	12899	1.43e+27	557
12	312	1646	237	16905	1128	2054	250	8217	100	1797
14	149	335	215	129	16	77	18	309	100	175
16	261	191	48	50	146	200	511	800	100	274
18	290	24313	7254	93	8	20710	431	1485	470	3859
20	558	925	13949	925	98	11881	1434	1434	1849	1008
22	62147	18239	7683	18239	1027	3820	800	8470	36478	1853
24	.102	50	25000	50	175	200	800	800	100	175
26	42969	1	163877	1	1	1311	800	225332	184634	7520
28	3	1382	395	174	76	303	152	800	100	76
30	270	356	3508	2539	337	200	800	1539	2639	648
31	1000	1712	730	50	5993	6849	800	800	17	1024
33	4	777	310	259	175	48278	800	193111	1554	175
35	782	134	622	317	210	370	432	2740	2171	175
36	1000	33665	37	353	336	134660	800	538639		175
38	400	230	257	575	175	5743	800	77879	2116	322
44	62	803	97	803	175	9749	800	206264	1606	2810
45	2	50	2178	1944	95	200	70	236	100	593

Notes: Each respondent rated two twenty-vignette decks, either Deck 1a and Deck 2b or Deck 1b and Deck 2a. The ten CEOs shown are from Decks 1a and 1b (see text). CEOs with the same ID number are identical across these decks except for sex; the CEOs in Deck 1a are women and those in Deck 1b are men.

Table 5.a. Summary of Estimated CEO Just Earnings Functions and Hypothesis Tests: Male MBA Students, Sweden 2001, 26 Respondents and 1039 Ratings

Model/Test	R^2	F-ratio (df)
Model I: Common intercept and common slopes (13 parameters)		
$\ln c_{ir} = \beta_0 + \Sigma \beta_k X_{kr} + \varepsilon_{ir}$	0.113	10.85 (12, 1026)
Model II: Differential intercepts and common slopes (38 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma \beta_k X_{kr} + \varepsilon_{ir}$	0.346	14.32 (37, 1001)
Model III: Differential intercepts and differential slopes (338 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma \beta_{ki} X_{kr} + \varepsilon_{ir}$	0.591	3.00 (337, 701)
Test of differential intercepts, conditional on common slopes: Model I vs. Model II		
$\beta_{01} = ... = \beta_{026}$		14.30 (25, 1001)
Test of differential slopes, conditional on differential intercepts: Model II vs. Model III		
$\beta_{k1} = ... = \beta_{k26}$		1.40 (300, 701)
Test of differential just earnings functions: Model I vs. Model III		
$B_1 = ... = B_{26}$		2.52 (325, 701)

Table 5.b. Summary of Estimated CEO Just Earnings Functions and Hypothesis Tests: Female MBA Students, Sweden 2001, 15 Respondents and 595 Ratings

Model/Test	R^2	F-ratio (*df*)
Model I: Common intercept and common slopes (13 parameters)		
$\ln c_{ir} = \beta_0 + \Sigma\,\beta_k X_{kr} + \varepsilon_{ir}$	0.0381	1.92 (12, 582)
Model II: Differential intercepts and common slopes (27 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma\,\beta_k X_{kr} + \varepsilon_{ir}$	0.365	12.57 (26, 568)
Model III: Differential intercepts and differential slopes (195 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma\,\beta_{ki} X_{kr} + \varepsilon_{ir}$	0.643	3.71 (194, 400)
Test of differential intercepts, conditional on common slopes: Model I vs. Model II		
$\beta_{01} = ... = \beta_{015}$		20.9 (14, 568)
Test of differential slopes, conditional on differential intercepts: Model II vs. Model III		
$\beta_{k1} = ... = \beta_{k15}$		1.85 (168, 400)
Test of differential just earnings functions: Model I vs. Model III		
$\mathbf{B_1} = ... = \mathbf{B_{15}}$		3.72 (82, 400)

Table 5.c. Summary of Estimated CEO Just Earnings Functions and Hypothesis Tests: Male MBA Students, U.S. 2002, 29 Respondents and 1138 Ratings

Model/Test	R^2	F-ratio (df)
Model I: Common intercept and common slopes (13 parameters)		
$\ln c_{ir} = \beta_0 + \Sigma \beta_k X_{kr} + \varepsilon_{ir}$	0.0625	6.25 (12, 1125)
Model II: Differential intercepts and common slopes (41 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma \beta_k X_{kr} + \varepsilon_{ir}$	0.232	8.29 (40, 1097)
Model III: Differential intercepts and differential slopes (377 parameters)		
$\ln c_{ir} = \beta_{0i} + \Sigma \beta_{ki} X_{kr} + \varepsilon_{ir}$	0.546	2.43 (376, 761)
Test of differential intercepts, conditional on common slopes: Model I vs. Model II		
$\beta_{01} = ... = \beta_{029}$		8.65 (28, 1097)
Test of differential slopes, conditional on differential intercepts: Model II vs. Model III		
$\beta_{k1} = ... = \beta_{k29}$		1.56 (336, 761)
Test of differential just earnings functions: Model I vs. Model III		
$B_1 = ... = B_{29}$		2.22 (364, 761)

Table 6.a. Summary Characteristics of Respondents' Model III Equations and Selected Principles of Microjustice and Macrojustice: Male MBA Students, Sweden 2001

	Mean	S.D.	Minimum	Median	Maximum
A. Respondents' Model III Equations					
Gender (1 = female)	-0.128	0.806	-2.12	-0.0642	1.13
Age	0.157	0.177	-0.249	0.167	0.603
Age-squared	-0.0015	0.0018	-0.0064	-0.002	0.00199
Years of schooling	0.0777	0.0745	-0.0886	0.0947	0.2
Years as CEO	0.145	0.234	-0.201	0.173	0.633
Years as CEO - squared	-0.0063	0.0166	-0.0426	-0.007	0.031
Firm in Europe	-0.151	0.74	-1.35	-0.134	1.83
Firm in Asia	-0.37	0.839	-2.19	-0.22	0.758
Firm in finance/insurance	0.119	0.69	-0.938	0.019	2.03
Firm in information	-0.0065	1.005	-2.27	0.013	2.74
Firm in wholesale trade	-0.182	0.804	-1.48	-0.228	1.24
Firm capitalization (logged mil.)	0.229	0.203	-0.0891	0.263	0.726
Constant	-0.856	4.45	-14.3	-0.749	5.46
R^2, just reward equation	0.491	0.139	0.142	0.466	0.726
B. Principles of Microjustice					
Just rate of return to schooling	0.0777	0.0745	-0.0886	0.0947	0.2
Just male base wage (2001K$)	27	60.6	near 0	0.478	234
Just gender multiplier	1.15	0.82	0.121	0.938	3.08
C. Principles of Macrojustice					
Just median CEO pay (2001K$)	1270.299	1891.8	133.150	959.503	10128.220
Just Plato's ratio	→∞	→∞	61.1	1342	→∞
Just Gini's ratio	0.735	0.175	0.459	0.757	→1
Just Theil's ratio	1.42	1.02	0.33	1.13	3.68
Just Atkinson's ratio	0.68	0.229	0.319	0.727	→1
Just MLD	1.86	1.92	0.384	1.3	8.59
Just relative minimum	0.0213	0.0268	near 0	0.0061	0.0899
Just relative maximum	15.5	11.2	3.92	9.88	39.9

Table 6.b. Summary Characteristics of Respondents' Model III Equations and Selected Principles of Microjustice and Macrojustice: Female MBA Students, Sweden 2001

	Mean	S.D.	Minimum	Median	Maximum
A. Respondents' Model III Equations					
Gender (1 = female)	0.0256	1.55	-2.01	-0.119	4.8
Age	0.028	0.602	-1.94	0.19	0.7
Age-squared	0	0.00561	-0.00649	0	0.0179
Years of schooling	0.0354	0.118	-0.204	0.0549	0.223
Years as CEO	0.426	0.689	-0.328	0.271	2.45
Years as CEO - squared	-0.0224	0.0478	-0.173	-0.013	0.0301
Firm in Europe	-0.416	0.602	-1.66	-0.539	0.634
Firm in Asia	-0.428	1.18	-1.77	-0.519	3.09
Firm in finance/insurance	0.869	0.917	-0.877	0.998	3.12
Firm in information	0.64	1.16	-1.55	0.682	3.77
Firm in wholesale trade	0.665	1.7	-0.898	0	5.39
Firm capitalization (logged mil.)	0.382	0.738	-0.524	0.138	2.52
Constant	0.175	11.8	-19.3	1.12	25.9
R^2, just reward equation	0.481	0.14	0.238	0.476	0.664
B. Principles of Microjustice					
Just rate of return to schooling	0.0354	0.118	-0.204	0.0549	0.223
Just male base wage (2001K$)	$\rightarrow \infty$	$\rightarrow \infty$	near 0	3.05	$\rightarrow \infty$
Just gender multiplier	9.01	31.3	0.134	0.888	121
C. Principles of Macrojustice					
Just median CEO pay (2001K$)	22871.16	83600.2	139.351	715.026	324928.6
Just Plato's ratio	$\rightarrow \infty$	$\rightarrow \infty$	178.7	5547	$\rightarrow \infty$
Just Gini's ratio	0.776	0.171	0.501	0.783	$\rightarrow 1$
Just Theil's ratio	1.61	1.06	0.405	1.31	3.69
Just Atkinson's ratio	0.753	0.209	0.391	0.744	$\rightarrow 1$
Just MLD	4.95	10.6	0.496	1.36	42.5
Just relative minimum	0.00716	0.0093	near 0	0.002	0.0274
Just relative maximum	16.5	11.3	4.9	13	40

Table 6.c. Summary Characteristics of Respondents' Model III Equations and Selected Principles of Microjustice and Macrojustice: Male MBA Students, U.S. 2002

	Mean	S.D.	Minimum	Median	Maximum
A. Respondents' Model III Equations					
Gender (1 = female)	-0.0249	1.39	-4.35	-0.18	3.56
Age	0.209	0.266	-0.111	0.149	0.966
Age-squared	-0.0021	0.00271	-0.00909	-0.001	0.00152
Years of schooling	0.0528	0.0878	-0.0875	0.0528	0.216
Years as CEO	0.0355	0.518	-1.34	0.0835	1.1
Years as CEO - squared	-0.0015	0.0338	-0.0646	-0.006	0.0929
Firm in Europe	-0.0547	0.661	-1.44	-0.0668	1.32
Firm in Asia	0.0179	1.15	-3.56	-0.047	3.43
Firm in finance/insurance	-0.146	1.34	-4.46	-0.0132	2.06
Firm in information	0.235	0.777	-1.34	0.174	1.77
Firm in wholesale trade	0.251	1.02	-2.85	0.0534	2.12
Firm capitalization (logged mil.)	0.239	0.28	-0.159	0.182	0.968
Constant	-1.34	6.57	-23.7	0.414	7.38
R^2, just reward equation	0.44	0.135	0.181	0.436	0.662
B. Principles of Microjustice					
Just rate of return to schooling	0.0528	0.0878	-0.0875	0.0528	0.216
Just male base wage (2002K$)	70.5	298	near 0	1.51	1610.5
Just gender multiplier	2.69	6.56	0.0129	0.835	35.2
C. Principles of Macrojustice					
Just median CEO pay (2002K$)	1738.230	2921.5	.0000549	858.862	15609.85
Just Plato's ratio	→ ∞	→ ∞	34.7	15912	→ ∞
Just Gini's ratio	0.783	0.173	0.324	0.764	→1
Just Theil's ratio	1.68	1.03	0.177	1.23	3.69
Just Atkinson's ratio	0.761	0.22	0.171	0.778	→1
Just MLD	3.22	4.74	0.188	1.51	22.6
Just relative minimum	0.0156	0.0245	near 0	0.001	0.0984
Just relative maximum	17.6	11.4	3.42	14.2	40

[SM = Swedish men, SF = Swedish women, UM = U.S. men]
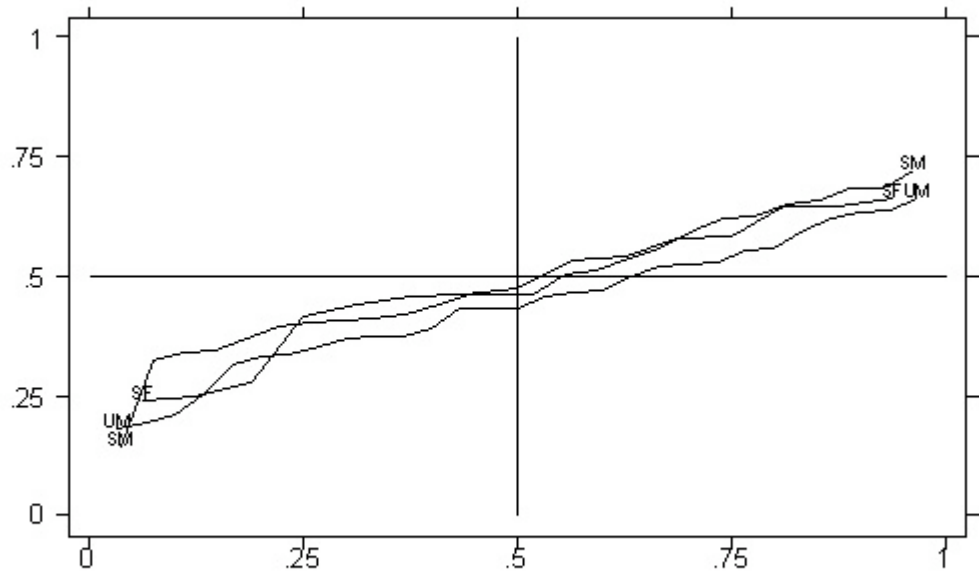
Figure 1. R-Squared in Respondent-Specific Just Earnings Equations

A. CEO Gender

B. CEO Schooling

C. CEO Age at Peak Just Earnings

D. CEO Experience at Peak Just Earnings

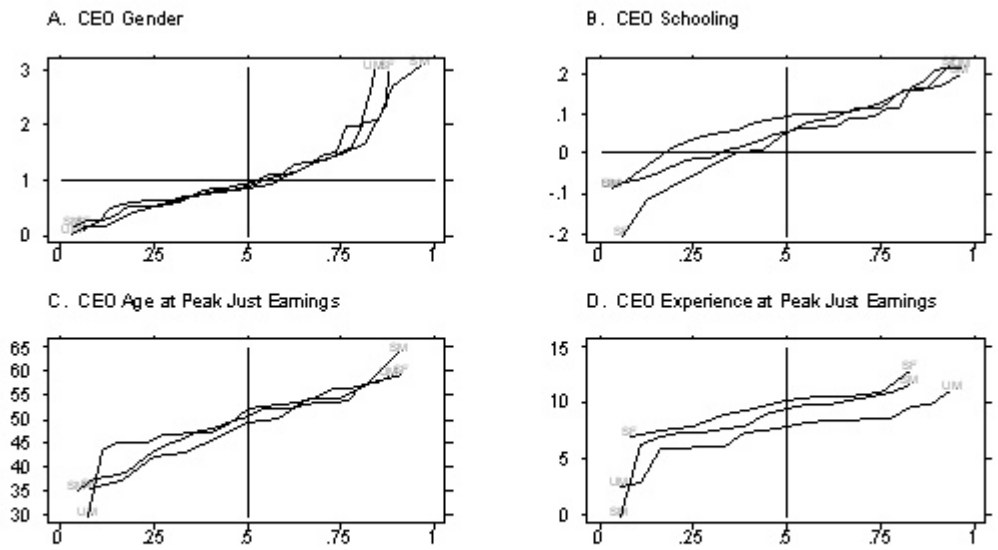# Figure 2.a. Respondent-Specific Principles of Microjustice

Log Firm Capitalization
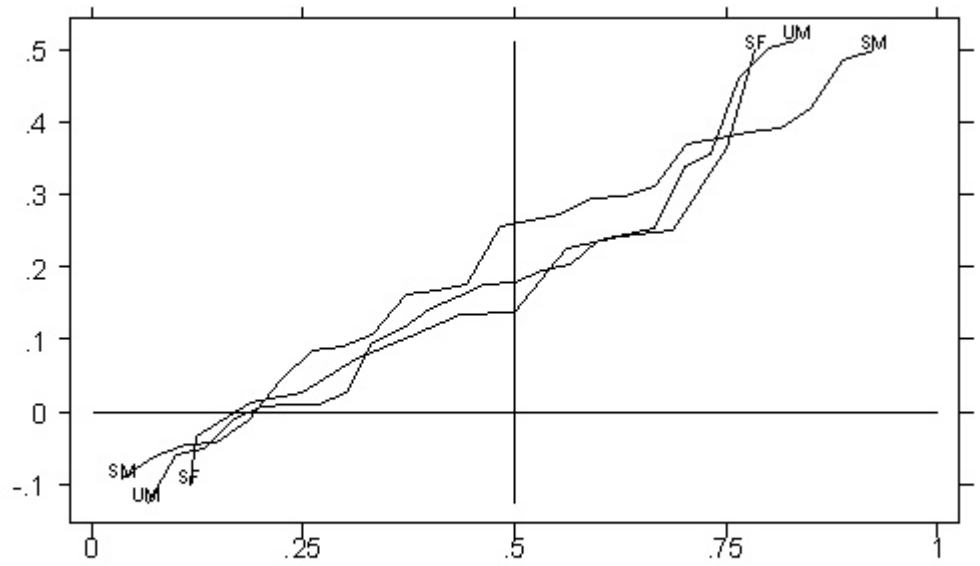
Figure 2.b. Respondent-Specific Principles of Microjustice
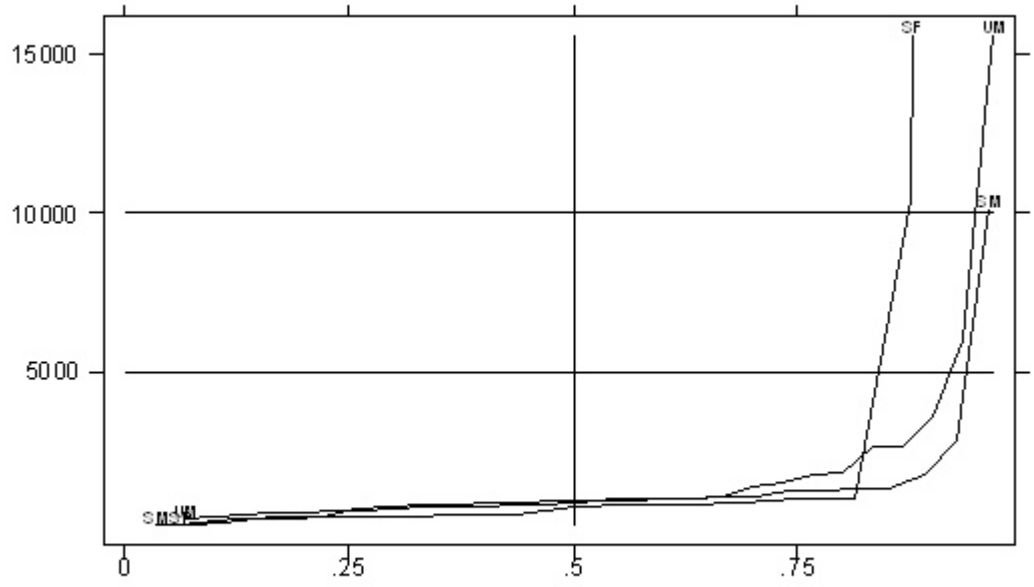
Figure 3. Principles of Macrojustice: Just Median CEO Pay

A. Just Gini Index

B. Just Atkinson Index

C. Just Theil Index

D. Just Mean Logarithmic Deviation

Figure 4.a. Principles of Macrojustice: Just Inequality in CEO Pay

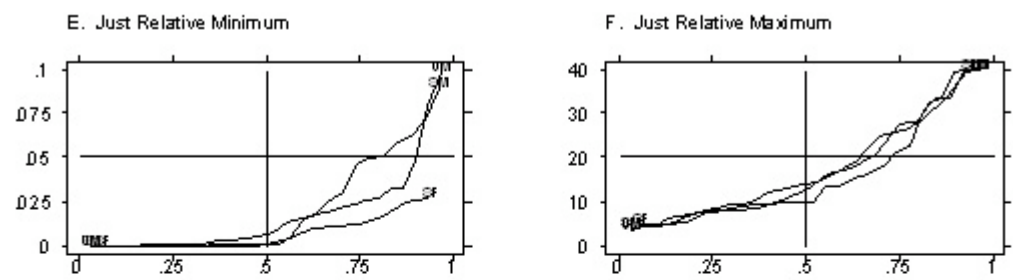E. Just Relative Minimum

F. Just Relative Maximum

Figure 4.b. Principles of Macrojustice: Just Inequality in CEO Pay