Trends in the Experience of Injustice: Justice Indexes About Earnings in Six Societies, 1991–1996

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This paper examines trends in the experience of injustice in six societies—Bulgaria, Czech Republic, East and West Germany, Hungary, and Russia—between 1991 and 1996. Using data collected by the International Social Justice Project, we estimate the justice index, JI1, and its decomposition into the amount of injustice attributable to poverty and the amount of injustice attributable to inequality; and we also examine gender differences in the justice index and its decomposition. The justice index is a summary measure of individuals' justice evaluations, and therefore the paper also takes a preliminary look at the two basic quantities that underlie the justice evaluation—actual earnings and just earnings—and their determinants, investigating, for the men of East and West Germany, the actual and just returns to schooling and experience in 1991 and 1996.

INTRODUCTION

Most societies aspire to justice. But how close they come to perfect justice, in the eyes of their members, varies greatly across societies and over time.

A perennial problem has been how to measure individuals' and societies' experience of injustice. Recently two long-standing scientific efforts have begun to bear fruit, making it possible for the first time to compare countries on their degree of economic injustice and, for a subset of countries, to examine trends in perceived injustice. First, the International Social Justice Project (ISJP) surveyed probability samples of the adult populations of 13 societies in 1991 and a subset of 7 societies in 1996, collecting information on respondents' earnings, their ideas

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of the just earnings for themselves, and their evaluations of the justice or injustice of their actual earnings (Alwin *et al.*, 1993; Kluegel *et al.*, 1995; www.isjp.de). Second, two new justice indexes designed to measure the amount of injustice in a society were developed, one based on justice evaluations, which distinguish between underreward and overreward, and the other collapsing underreward and overreward into a single kind of injustice; the first of these indexes, known as JI1, can be decomposed into two quantities, the amount of injustice due to poverty and the amount of injustice due to inequality (Jasso, 1999).

In this paper, we examine the justice index JI1, and its decomposition, among the six societies for which the 1996 ISJP data are already available—Bulgaria, Czech Republic, East and West Germany, Hungary, and Russia. These results should be regarded as preliminary, as the data from the seventh society, Estonia, still have to be incorporated, and other matters, such as weights, still need to be settled. The justice index, of course, depends on the two factors underlying individuals' justice evaluations—actual earnings and just earnings—and thus we also make a first reconnaissance over these quantities and their determinants.[2]

Substantively, these data tell an interesting story: Perceived injustice about earnings increased across the 5-year period in all societies except East Germany, where it declined nontrivially. In 1991, an especially dramatic finding was that not only was there less injustice in western societies than in the postsocialist societies but also the western societies were tightly clustered together with similar levels of overall injustice, whereas the postsocialist societies displayed a range of magnitudes of the justice index five times as large. In 1996, West Germany, the only one of the original five western societies in the ISJP, still has less injustice than all the others; and the region occupied by the five postsocialist societies has increased further—more than doubling—due to both a decrease in injustice at the upper end and an increase in injustice at the lower end.

With respect to the decomposition, in both 1991 and 1996, scarcity contributes to overall injustice, in the sense that if everyone earned what they think is just for themselves, the earnings distribution would have a larger mean. In 1991, every one of the six countries had too little inequality, in the sense that if everyone earned what they think is just for themselves, the earnings distribution would have more dispersion, as measured by Atkinson's index of inequality, but in 1996 East and West Germany registered too much inequality. Finally, felt injustice appears to be substantially more sensitive to poverty and scarcity than to inequality.[3]

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[2]In empirical justice analysis, the adjective "just" always means "just in the eyes of the observer." In the work reported in this paper, the observer is reflecting on the justice of his or her own situation, and thus "just" here always means "just in the eyes of the respondent himself or herself."

[3]It is interesting to note that all seven societies represented in the 1996 round of the ISJP registered too little inequality in the 1991 round. Only one country registered too little inequality in 1991 and did not participate in 1996—Great Britain. None of the five countries that registered too much inequality in 1991 (Poland and Slovenia in the east; Japan, the Netherlands, and the United States in the west) participated in 1996.

THEORETICAL AND EMPIRICAL FRAMEWORK

Measuring Overall Injustice—JI1

The two justice indexes recently proposed (Jasso, 1999) are summary measures of overall injustice; they can be applied in a range of contexts, including the case in which the objective is to measure the total injustice in a society as seen through a single observer's eyes and including the case relevant to this paper, in which the objective is to summarize the total injustice experienced by people about their own situation.

Justice Evaluation

Both justice indexes, JI1 and JI2, are based on the justice evaluation, which measures the perceived injustice associated with given departures from perfect justice; the justice evaluation can refer to the observer's own situation (termed *reflexive*) or to another's situation (termed *nonreflexive*). In the justice evaluation, zero represents the point of perfect justice; negative numbers represent unjust underpayment; and positive numbers represent unjust overpayment. Panel A of Table I depicts the justice evaluation, labeled to represent its full generality as well as its applicability to bads as well as goods.

Justice Evaluation Function

The justice evaluation is specified as the logarithm of the ratio of the actual reward to the just reward (panel B, Table I)):

$$J = \theta \ln\left(\frac{A}{C}\right), \tag{1}$$

where J denotes the justice evaluation, A denotes the actual reward, C denotes the just reward, and θ denotes the Signature constant; the sign of θ is called the framing coefficient and the absolute value of θ is called the expressiveness coefficient. In this paper, we focus on earnings, treating it as a good; and we calculate the experienced justice evaluation, which is devoid of expressiveness. Thus, θ is fixed at unity, and we do not make use of the framing or expressiveness coefficients.[4]

The justice evaluation and the justice evaluation function can also refer to group-level properties, in addition to individuals' holdings of goods and bads.

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[4]For additional information on the justice evaluation function, its properties, and the rationale for the logarithmic-ratio specification, see Jasso and Wegener (1997) and Jasso (1999).

Table I. Justice Evaluation, Justice Evaluation Function, Justice Indexes, and Decomposition of the Justice Index JI1

A. Mathematical representation of the justice evaluation

    Underbenefit   Overbenefit

+----+----+----+----+----+----+----+----+----+----+----+----+
                                      0

    Overburden   Perfect justice   Underburden

B. The justice evaluation function[a]

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

C. The justice indexes for the case of a good

JI1	**JI2**
$E(J)$	$E(|J|)$
$E\left[\ln\left(\dfrac{A}{C}\right)\right]$	$E\left[\left|\ln\left(\dfrac{A}{C}\right)\right|\right]$

D. Decomposition of JI1[b]

$$\ln\left[\frac{E(A)}{E(C)}\right] + \ln\left[\frac{1 - I(A)}{1 - I(C)}\right]$$

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[a] J denotes the justice evaluation, A the actual reward, C the just reward, and θ the Signature Constant; the sign of θ is called the framing coefficient and the absolute value of θ is called the expressiveness coefficient. In this paper, θ is fixed at unity.
[b] $E(A)$ and $E(C)$ denote the actual mean and the just mean, respectively, and inequality is measured by Atkinson's inequality (Atkinson, 1970, 1975).

For example, the justice evaluation can arise from the comparison of the actual inequality in a society to the just inequality.

Two Justice Indexes, JI1 and JI2

The first justice index, JI1, is defined as the arithmetic mean of the justice evaluation J; the second justice index, JI2, is defined as the arithmetic mean of the absolute values of the justice evaluation (panel C, Table I):

$$JI1 = E(J)$$
$$JI2 = E(|J|). \tag{2}$$

In this paper we will use only JI1, and will not discuss JI2 further.

JI1 can assume positive, negative, or zero values; these have the interpretation that the center of gravity of the injustice assessments lies in the overreward or underreward region or at perfect justice. JI1 has the disadvantage that a value of zero can indicate either that all justice evaluations are zero (perfect justice) or that negative and positive justice evaluations (judgments of underreward and

overreward, respectively) exactly offset each other. This disadvantage is mild, however, in the reflexive context—such as in the analyses carried out in this paper—as apparently the proportion who experience overreward about their own situation seldom matches that of the underrewarded, nor is the experience of overreward as intense as that of underreward.

The justice indexes are estimated for one good (or bad) at a time and can subsequently be combined into a giant justice index, which summarizes a society's complete justice situation.

Two Decompositions of JI1

JI1 has the property that it can be decomposed in two ways, one of which we will use in this paper. This is a decomposition into two components, one due to poverty and the other due to inequality.

Decomposition of JI1 into a Mean-Component and an Inequality-Component

As described in Jasso (1999), JI1 is equivalent to an expression involving two group-level justice evaluations, the justice evaluation about the mean and the justice evaluation about the inequality (panel D, Table I):

$$\text{JI1} = \ln\left[\frac{E(A)}{E(C)}\right] + \ln\left[\frac{1 - I(A)}{1 - I(C)}\right], \tag{3}$$

where $E(A)$ and $E(C)$ denote the actual mean and the just mean, respectively; $I(A)$ and $I(C)$ denote the actual inequality and the just inequality, respectively; and inequality is measured by Atkinson's inequality (Atkinson, 1970, 1975),

$$\text{Atkinson's } I(X) = 1 - \frac{G(X)}{E(X)}. \tag{4}$$

In words:

$$\text{JI1} = \ln\left[\frac{\text{actual mean}}{\text{just mean}}\right] - \ln\left[\frac{f(\text{actual inequality})}{f(\text{just inequality})}\right], \tag{5}$$

where f denotes an increasing function. The signs of the two terms in (3) and (5) indicate that the mean is regarded as a good and the inequality as a bad, leading to a more compact expression,

$$\text{JI1} = J_M^G + J_I^B, \tag{6}$$

where J_M denotes the justice evaluation about the mean, J_I denotes the justice evaluation about the Atkinson-inequality, and the superscripts G and B denote a good and bad, respectively.

This decomposition makes it possible to answer the question whether perceived injustice is driven by deficits in the amounts of the good or by inequality in its distribution. In this paper, earnings is the thing about which justice and injustice are experienced. Accordingly, this decomposition makes it possible to assess whether evaluations of injustice reflect discontent with the levels of earnings or with the inequality in the earnings distribution, or both.

Data

Data are drawn from the 1991 and 1996 rounds of the ISJP (Alwin *et al.*, 1993; Alwin and Wegener 1995; Kluegel *et al.*, 1995; www.isjp.de). Six of the seven societies surveyed in both rounds—Bulgaria, Czech Republic, East and West Germany, Hungary, and Russia—are included; we omit Estonia, for which the data are not yet fully available.[5] The ISJP provides the best currently available cross-national information on several justice questions; it is the first project to collect data from probability samples of several countries, and with the 1996 round becomes the first project to enable calculation of trends in justice matters.[6]

At both rounds, the ISJP asked respondents three pertinent questions about their own "job income": (i) whether they thought they were underpaid, fairly paid, or overpaid; (ii) what they were actually paid; and (iii) what they considered their just job income. These three questions yield three basic justice quantities, respectively, the *reflexive expressed justice evaluation*, the *actual reward*, and the *reflexive disclosed just reward*. For each respondent, we constructed the justice evaluation J (technically, the *reflexive experienced justice evaluation*) by taking the natural logarithm of the ratio of the actual job income to the just job income, as in Eq. (1). The sample consists of 6,425 respondents.

The results reported in this paper should be considered preliminary. Much work remains to be done with the data, such as analyzing missing data patterns and evaluating sampling weights. Note also that here we constructed the justice evaluation from the data on actual and just earnings, without using the information on the expressed justice evaluation and thus without taking into account patterns of differential behaviors across ideas of just earnings and justice evaluations. Finally, we use respondents' reported ideas of the just earnings for themselves—that is,

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[5]The original 1991 ISJP data cover all of the then existent Czechoslovakia, but the 1996 data only the Czech Republic. Fortunately, the Czech Republic subset of the 1991 data can be identified and separated out. Here we use data only for societies surveyed in both years, and thus use only the Czech Republic subset from 1991.

[6]For additional information about the ISJP, see also Jasso (1998).

the disclosed just reward instead of the "true" just reward; future research must tap the "true" just reward, an important research task being to calibrate the true and disclosed just reward, so that measures of the disclosed just reward can be correctly interpreted.[7]

Of course, the justice indexes estimated in this paper cover only earnings and thus cannot shed light on the experience of injustice in other domains (such as housing) or among the unemployed. Future research will no doubt collect information that will enable estimation of a broader range of justice indexes, as well as a giant justice index that incorporates all the relevant domain-specific justice indexes.

RESULTS

Overall Injustice—JI1

Table II reports magnitudes of the justice index JI1 for the six societies as well as separately for men and women, in both 1991 and 1996. Figure 1 presents a scattergram of justice index magnitudes for 1996 plotted against those for 1991; observations are indicated by the abbreviation for the country.[8] The scattergram has the interpretation that JI1 increases as one moves rightward (for 1991) and upward (for 1996).
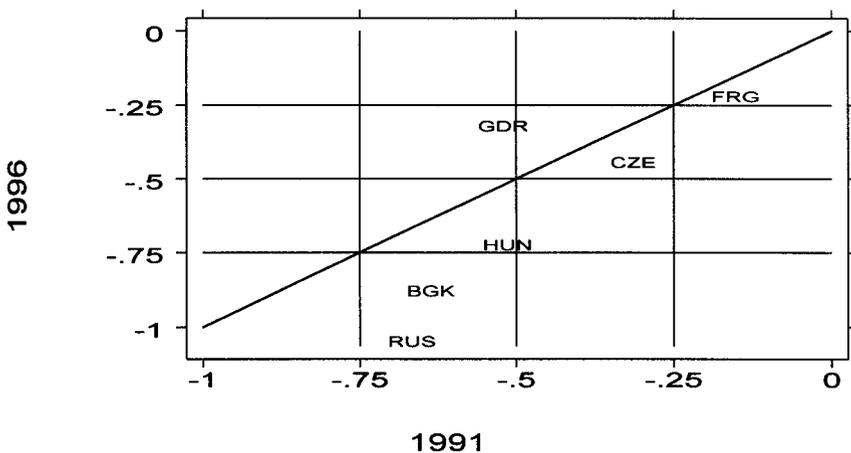

Fig. 1. Justice index in 1991 and 1996.

[7]For further discussion of these research desiderata, see Jasso and Wegener (1997).
[8]The abbreviations are as follows: Bulgaria, BGK; Czech Republic, CZE; East Germany, GDR; West Germany, FRG; Hungary, HUN; and Russia, RUS.

Table II. Country, Gender, and the Sense of Injustice:
Reflexive Justice Indexes, International Social Justice
Project, 1991 and 1996

Country	1991	1996
Bulgaria		
Men	−0.695	−0.882
Women	−0.568	−0.910
All	−0.637	−0.895
Czech Republic		
Men	−0.357	−0.467
Women	−0.267	−0.456
All	−0.314	−0.461
East Germany		
Men	−0.511	−0.320
Women	−0.530	−0.360
All	−0.520	−0.338
West Germany		
Men	−0.135	−0.209
Women	−0.183	−0.270
All	−0.152	−0.237
Hungary		
Men	−0.526	−0.753
Women	−0.502	−0.727
All	−0.514	−0.741
Russia		
Men	−0.714	−1.109
Women	−0.619	−1.021
All	−0.667	−1.065

Note. Sample sizes in 1991 and 1996 are, Bulgaria, 665 and
494; Czech Republic, 488 and 433; East Germany, 554 and
233; West Germany, 641 and 159; Hungary, 875 and 281;
and Russia, 1078 and 524; respectively.

In both 1991 and 1996, West Germany registers the smallest amount of overall injustice. The five formerly socialist societies are spread over a large region of the justice index, over a third of a point (0.35) on the justice evaluation scale in 1991 and more than double that (0.73) in 1996.

Disjuncture Between Eastern and Western Societies

The 1991 data indicated a sharp disjuncture between the western democracies and the formerly socialist societies. Although there is only one western democracy in the 1996 survey and thus the disjuncture cannot be confirmed or rejected, it is interesting that in 1996 the society with the second smallest amount of overall injustice is East Germany, the only one of the formerly socialist societies to be united with a western democracy.

Variability Among the Formerly Socialist Societies

In 1991, one of the more important results was that although all five western countries in the ISJP (West Germany, Great Britain, Japan, the Netherlands, and the United States) were tightly clustered on the justice scale, the other eight societies were spread out over a region five times as large. This result suggested that although the five western countries were at a similar level of economic, social, and political development, the formerly socialist countries were at very different stages of development. Unfortunately, we cannot make that comparison with the 1996 data, as there is only one of the original western countries, but the fact that the region occupied by the five formerly socialist countries doubled indicates that not only are the formerly socialist countries at different stages of development but also their development is proceeding at different rates (see Table II and Fig. 1).

Differences in JI1 Across Formerly Socialist Societies

In 1991, the Czech Republic had the smallest amount of injustice among the formerly socialist societies, followed by Hungary, East Germany, Bulgaria, and Russia (Table II). As shown in Fig. 1, these societies seemed to cluster into three groups (which line up vertically)—Russia and Bulgaria, East Germany and Hungary, and the Czech Republic. Five years later, the formerly socialist societies, except East Germany, retain their rank ordering, but do not form clusters; indeed, the only visible quasi-cluster consists of East and West Germany. Thus, East Germany has leapfrogged to the top, whereas among the other four, the Czech Republic retains its premier position, followed by Hungary, Bulgaria, and Russia.

Change in JI1 from 1991 to 1996

If the 1991 and 1996 magnitudes of JI1 are equal, the observation lies on the diagonal; if the 1991 magnitude exceeds the 1996 magnitude, the observation falls above the diagonal, and conversely (see Fig. 1). Thus, Fig. 1 shows that the justice climate deteriorated in five of the six societies—all except East Germany, which registered a smaller amount of overall injustice in 1996 than in 1991.

The fall in JI1 to greater injustice over the 5 years is sharp. The fall for Russia is especially large—by almost 0.4 units on the justice scale. Bulgaria and Hungary also experienced substantial drops in JI1—by 0.26 and 0.23 justice units, respectively. West Germany also experienced a drop in JI1, albeit the smallest among all societies, 0.085 justice units. Meanwhile, East Germany experienced a sizable increase of 0.18 justice units. Although East Germany still lags behind West Germany in overall injustice, it is closer to West Germany (0.1 units away on the justice scale) than to its closest neighbor on the other side, the Czech Republic (0.12 justice units away).

Gender Differences in Perceived Injustice—JI1

Table II also reports magnitudes of JI1 for gender-specific subsets in each society. Figure 2 provides two ways to visualize gender differences. Panels A and B depict, for 1991 and 1996, respectively, scattergrams in which women's magnitudes of JI1 are plotted against men's magnitudes. These permit ready comparison of men's and women's JI1 values. Panels C and D depict gender-specific versions of the scattergram presented in Fig. 1, in which 1996 values are plotted against 1991 values.

Which Sex Experiences the Greater Injustice?

As shown in Table II and Fig. 2, women experienced greater injustice than did men in East and West Germany, in both 1991 and 1996. Men experienced greater injustice than did women, in both years, in the Czech Republic, Hungary, and Russia. Bulgaria switched from a country in which men experienced greater injustice than did women in 1991 to the German pattern in 1996.

Variability Across Formerly Socialist Societies

Panels C and D of Fig. 2 indicate that the region occupied by the justice indexes increased substantially for both men and women between 1991 and 1996. However, a close look at both Fig. 2 and Table II indicates that although the region doubled among men (as it did in the pooled data—see Fig. 1), it did not
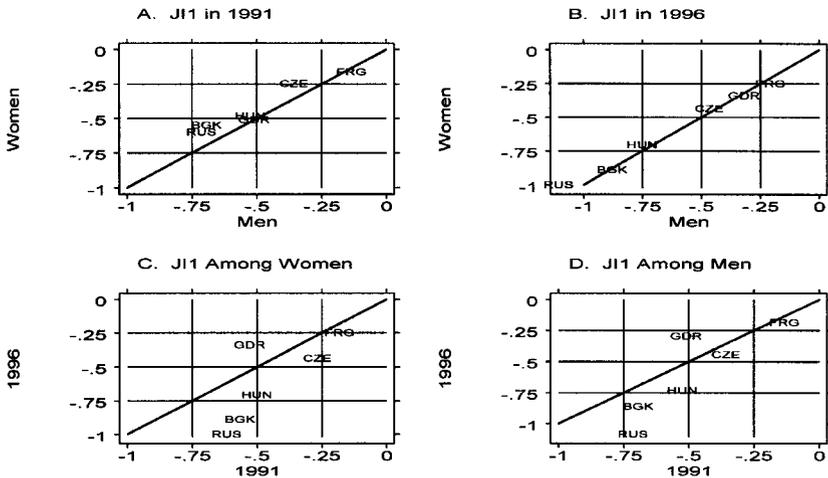

Fig. 2. Gender and the justice index, 1991–1996.

double among women. The region occupied by the JI1 values is visibly tighter in 1996 among women than among men; this appears to be due to the lesser felt injustice among women than among men in Russia.

Decomposition of JI1 into Injustice Due to the Mean and Injustice Due to Inequality

The justice index JI1 can be decomposed into a portion attributable to the mean and a portion attributable to inequality. For convenience, we rewrite expression (3) to obtain

$$JI1 = JI1_{Mean} + JI1_{Ineq.} \tag{7}$$

where $JI1_{Mean}$ denotes the justice evaluation about the reward's mean (the first term on the right hand side of expression (3)) and $JI1_{Ineq.}$ denotes the justice evaluation about the reward's inequality (the second term on the right hand side of expression (3)).

$JI1_{Mean}$ is negative when the actual mean is smaller than the just mean, so that deficits in the actual mean push JI1 in the negative direction. $JI1_{Ineq.}$ has the opposite property; it is positive when the actual inequality is smaller than the just inequality, so that excessive actual inequality pushes JI1 in the negative direction. Thus, an actual mean that is too low (relative to the just mean) and an actual inequality that is too high (relative to the just inequality) send JI1 farther into the negative, underreward region. Conversely, an actual mean that exceeds the just mean and an actual inequality that is less than the just inequality push JI1 in the direction of justice (or of overreward). And each component can temper the other's effect.

In this case, we are dealing with reflexive justice assessments, and thus the decomposition indicates the contrast between the mean and inequality of the actual earnings distribution and the mean and inequality of the earnings distribution that would obtain if everyone earned what they think they deserve. Accordingly, "too little inequality," for example, has the interpretation that if everyone earned what they think is just for themselves, the earnings distribution would have more inequality than it actually does.

Table III reports the decomposition of JI1 into the mean-component and the inequality-component, doing so both for each country and for each sex-country group.

Mean-Component of JI1

As shown, $JI1_{Mean}$ is negative in every case, indicating that in all countries and sex-country groups and in both 1991 and 1996, the actual mean is smaller than the just mean. Thus, there is felt scarcity in all the societies studied in the International Social Justice Project.

Table III. Decomposition of JI1 into Components Due to Mean Earnings and to Earnings Inequality, by Country and Gender: ISJP, 1991–1996

Country	1991		1996	
	$JI1_{Mean}$	$JI1_{Ineq.}$	$JI1_{Mean}$	$JI1_{Ineq.}$
Bulgaria				
Men	−0.776	0.0808	−0.956	0.0744
Women	−0.569	0.000743	−0.970	0.0599
All	−0.690	0.0534	−0.962	0.0666
Czech Republic				
Men	−0.406	0.0491	−0.475	0.00861
Women	−0.283	0.0166	−0.499	0.0435
All	−0.363	0.0488	−0.486	0.0245
East Germany				
Men	−0.528	0.0166	−0.320	0.000770
Women	−0.556	0.0264	−0.343	−0.0175
All	−0.540	0.0197	−0.330	−0.00832
West Germany				
Men	−0.169	0.0340	−0.179	−0.0300
Women	−0.197	0.0141	−0.239	−0.0314
All	−0.176	0.0238	−0.200	−0.0366
Hungary				
Men	−0.534	0.00810	−0.742	−0.0117
Women	−0.516	0.0140	−0.759	0.0317
All	−0.527	0.0129	−0.748	0.00707
Russia				
Men	−0.749	0.0348	−1.093	−0.0159
Women	−0.656	0.0365	−1.0300	0.00863
All	−0.714	0.0471	−1.071	0.00603

Note. Sample sizes in 1991 and 1996 are, Bulgaria, 665 and 494; Czech Republic, 488 and 433; East Germany, 554 and 233; West Germany, 641 and 159; Hungary, 875 and 281; and Russia, 1078 and 524; respectively.

The magnitude of the injustice attributable to the mean varies considerably across societies, but substantially more so in 1996. As shown in Table III, the rank ordering of societies on the mean-component is the same as that on JI1 for the "all" estimates in both years and for the complete set of estimates in 1996. Thus, West Germany retains its position as having the lowest felt scarcity, and East Germany jumps from third or fourth place to second place. Among the other formerly socialist countries, felt scarcity in 1996 is lowest in the Czech Republic, followed by Hungary, Bulgaria, and Russia, in that order. As with JI1, the most dramatic result is the widening of the region occupied by the mean-components in 1996. In 1991, the mean-components of the formerly socialist societies occupied a region of 0.35 units on the justice scale, but 5 years later the region more than doubled to 0.74 justice units. This widening is due to substantial reductions in felt scarcity in East Germany (0.21 justice units) and even larger increases in felt scarcity in Russia (0.36 justice units). Even if we eliminate East Germany from the region, the region increases from 0.35 units in 1991 to 0.58 units in 1996. Thus, although the just mean earnings is higher than the actual mean earnings in all societies, the

discrepancy is larger and variably larger in the eastern transition societies, again no doubt, reflecting differences in the stage of economic and political development.

Inequality-Component of JI1

In 1991, the inequality-component of JI1 was positive for all six societies, as well as sex-specific groups (Table III), indicating too little inequality, in the sense that if people earned what they think is just for themselves, the earnings distribution would be more unequal. Five years later, East and West Germany stand out as the only two societies with negative inequality-components—indicating too much inequality—in the "all" estimates. Looking at the sex-specific estimates, the inequality-components for women from both East and West Germany and men from West Germany, Hungary, and Russia also indicate a shift from too little inequality in 1991 to too much inequality in 1996.

The magnitudes of the inequality-component are small, in several cases trivially small. For example, the estimates of the inequality-component in 1996 for both sexes combined are close to zero in East Germany, Hungary, and Russia. The largest "all" estimate is in Bulgaria, which registers a positive inequality-component of 0.07 justice units in 1996.

Is Injustice Mean-Led or Inequality-Led?

To assess whether overall perceived injustice is mean-led or inequality-led, we compare the absolute magnitudes of the two components. As shown in Table III, the absolute magnitudes of $JI1_{Mean}$ are substantially larger than those of $JI1_{Ineq.}$. The ratio of the absolute magnitude of $JI1_{Mean}$ to the absolute magnitude of $JI1_{Ineq.}$ ranges from 7.4 in West Germany to 40.9 in Hungary in 1991 and from 5.46 in West Germany to 177 in Russia in 1996 (figures for both sexes combined).

Thus, the decomposition of JI1 suggests that overall injustice is mean-led in every country and sex-country grouping. Indeed, visual inspection of Tables II and III indicates that the rank ordering of JI1 resembles the rank ordering of $JI1_{Mean}$ but not that of $JI1_{Ineq.}$. Although in 1996 inequality is experienced as too high among German women and among men from West Germany, Hungary, and Russia, these inequality-components pale in comparison to the large mean-components. Felt injustice appears to be substantially more sensitive to poverty and scarcity than to inequality.

Changes in Actual Earnings and Just Earnings

The justice index is a summary of the justice evaluation (see Eq. (2)), and the justice evaluation is a function of actual earnings and just earnings (see Eq. (1)).

An individual experiences himself or herself as justly treated or as underrewarded or overrewarded by comparing actual earnings to just earnings, the earnings he or she regards as just for himself or herself. An increase in the justice evaluation can be due to an increase in actual earnings, or to a decrease in just earnings, or to increases or decreases in actual and just earnings that do not keep pace with each other. Thus, full understanding of differences and changes in the justice index requires examination of actual earnings and just earnings.

Overall injustice, as measured by JI1, increased in every society studied in the ISJP except East Germany. Did actual earnings decline in West Germany and the other formerly socialist countries or did just earnings increase? Similarly, did actual earnings increase in East Germany or did just earnings decline? Unfortunately, this question cannot yet be addressed rigorously, because the information needed to convert earnings amounts into intertemporally-comparable quantities such as purchasing power parities (PPPs) is not yet available for 1996 or for the full set of ISJP societies (Heston and Summers, 1996; Summers and Heston, 1991; pwt.econ.upenn.edu). Examination of intertemporally comparable earnings amounts is a high-priority task, but must await release of the new PPP factors in the Penn World Table 5.7 (PWT 5.7).

Pending release of PWT 5.7, and with some trepidation, we look at the nominal actual and just earnings amounts in 1991 and 1996 (not shown). Average nominal actual earnings increased in every society except West Germany (which registered a decline from 2745 to 2651 deutsche marks (DM) per month). Among the sex-specific groups, average nominal actual earnings increased in every group except among men from West Germany (among whom the decline was from 3215 to 3163 DM per month). Although a nominal increase may be no increase at all, a nominal decline contains an element of reality. The decline in JI1 among the men of West Germany from a JI1 of -0.135 in 1991 to -0.209 in 1996 (Table II) thus appears to be related, at least in part, to earnings loss.

Meanwhile, average nominal just earnings also increased between 1991 and 1996 in every society except West Germany (which registered a decline from 3274 to 3238 DM per month). Among the sex-specific groups, average nominal just earnings also increased in every group except among men from West Germany (among whom the decline was from 3807 to 3784 DM). Evidently, the decline in just earnings of West Germany was not sufficiently large to offset the decline in actual earnings; overall injustice increased (Table II and Figs. 1 and 2).

East Germany—the only society in which overall injustice declined—presents a fascinating case. The figures on nominal actual and just earnings are inconclusive. Both average nominal actual earnings and average nominal just earnings increased over the 5-year period. Pending examination of intertemporally comparable PPP-adjusted amounts, it would appear that both actual earnings and just earnings increased, but that actual earnings increased by larger increments than did just earnings, leading to reductions in felt injustice.

Determinants of Actual Earnings and Just Earnings

Besides inspecting differences and changes in actual earnings and just earnings, it is critically important to analyze their determinants (Jasso and Wegener, 1999). Analyzing the factors that drive *actual* earnings is, of course, a major enterprise in the study of social stratification; and analyzing the factors that drive *just* earnings is an important part of empirical justice analysis. More specifically pertinent to the present study, if actual earnings and just earnings change, it becomes of interest to learn what were the factors driving those changes. For example, if actual earnings increase, is it due to an increase in the rate of return to schooling, or is it due to an increase in the base wage? Similarly, if just earnings change, is it due to changes in perceptions of the just rates of return to schooling or to experience, or rather to changes in ideas of the just base wage?

Analysis of the determinants of actual and just earnings can be carried out both with and without intertemporally comparable earnings amounts. When carried out on intertemporally comparable earnings amounts, this analysis yields estimates that can be compared to the full set of determinants including the base wage. When carried out on nominal earnings amounts, the rates of return to schooling and experience can still be compared, but the base wage cannot be compared over time. (See Jasso and Wegener, 1999, for further details.) Meanwhile, ISJP data on schooling and experience are not yet fully available, and hence we leave to future research, systematic analysis of the determinants of actual and just earnings and how these may have changed between 1991 and 1996.

It is useful, nonetheless, to provide a flavor for such an analysis, and here we present preliminary estimates of actual and just earnings equations among the men of East and West Germany in 1991 and 1996.[9] We specify both the actual and just earnings equations as Mincer-type equations, in which the natural logarithm of earnings is regressed on schooling and, as a proxy for experience, age (Mincer, 1974).[10] Schooling is represented by the 7-level CASMIN measure developed by König *et al.* (1988), which incorporates formal and vocational training in an attempt to render comparable the schooling systems of different countries.[11] To capture nonlinearities, age is represented by two regressors (age and age-squared).[12]

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[9]Of course, full analysis in all the societies will be carried out for women as well as men. As seen earlier, our estimates of JI1 suggest the possibility of interesting gender-related phenomena.

[10]For additional details on specification, estimation, and interpretation of the Mincer-type actual and just earnings functions, see Jasso and Wegener (1999).

[11]The seven levels of the CASMIN measure are as follows: (1) less than general (primary) formal education; (2) general (primary) formal education; (3) general (primary) formal education and basic vocational training; (4) medium vocational training and medium formal education; (5) secondary formal education; (6) lower tertiary (vocational) training; and (7) higher tertiary (vocational) training (Alwin and Wegener, 1995, p. 330).

[12]We recognize the possibility of two potential sources of bias. First, as is well known, schooling may be endogenously determined. Second, schooling is measured with error. Thus, the obtained estimates may not be unbiased. The usual statistical remedy is to use instrumental-variables techniques to achieve consistent (though still biased) estimates. Although it is difficult to find substantively

The actual and just earnings equations may be written:

$$\ln(A) = \beta_0 + \beta_1 \text{ Ed.} + \beta_2 \text{ Age} + \beta_3 \text{ Age}^2 + e \tag{8}$$

and

$$\ln(C) = \gamma_0 + \gamma_1 \text{ Ed.} + \gamma_2 \text{ Age} + \gamma_3 \text{ Age}^2 + \epsilon. \tag{9}$$

The exponential of the intercept in the actual and just earnings equations may be thought of as a base salary. In the actual earnings function, it is interpreted, following the human capital literature, as the rental price of a unit of human capital. In the just earnings function, it is usually interpreted as based on need but may also be interpreted as the just rental price of a unit of human capital.[13] However, as already noted, here we are using nominal earnings amounts, and thus the intercept cannot be given its usual interpretation as it also reflects units differences over time. Of course, because the dependent variable is logged, the use of nominal earnings amounts does not affect the slope coefficients.

In the conventional setup, schooling is measured in years of schooling completed, and the associated coefficient is interpreted as the rate of return to an additional year of schooling. The CASMIN measure is not in years, and its levels, though ordered, are not equidistant. We cannot make strong claims for this measure, and in future work we plan to treat it in two ways, first, as an erroneously measured regressor (correcting via 2SLS) and, second, as a categorical variable to be represented via six binary regressors. Neither procedure is fully satisfactory. Partly to stimulate further advances in cross-national measurement of schooling and because of the appeal of estimating a unitary rate of return to schooling, we use the quantitative version of the CASMIN measure.

We estimate Eqs. (8) and (9) jointly, enabling test of the full set of homogeneity hypotheses: that the actual returns in each society are the same in both years, that the just returns in each society are the same in both years, that the actual returns in each year are the same in both societies, that the just returns in each year are the same in both societies, that the actual returns to schooling in each society and year are the same as the just returns to schooling, and that the actual returns to experience in each society and year are the same as the just returns to experience.

meaningful instrumental variables in the cross-national case, we are currently collecting additional data from the countries involved in order to carry out two-stage/least-squares (2SLS) procedures. Additionally, as is also well known, the equations may be vulnerable to selection bias due to unemployment and the dynamics of labor force participation. In future work we will also carry out selectivity corrections for being employed. The analysis reported in this paper may be regarded as a preliminary exercise.

[13]These interpretations require modification whenever explanatory variables have negative effects, for then the exponential of the intercept is no longer a minimum.

Table IV. Actual Earnings and Just Earnings Equations, German Men,
ISJP 1991–1996

Variable	Actual earnings (DV = lnAE)		Just earnings (DV = lnJE)	
	East Germany	West Germany	East Germany	West Germany
1991				
Schooling	.117	.110	.136	.101
(CASMIN score)	(6.76)	(8.70)	(6.77)	(7.42)
Age	.0411	.0665	.0466	.0719
	(2.93)	(5.42)	(2.88)	(5.45)
Age-squared	−.000513	−.000663	−.000499	−.000726
	(2.98)	(4.59)	(2.51)	(4.66)
Intercept	5.95	6.00	6.15	6.06
	(21.4)	(24.5)	(19.1)	(23.0)
R-squared	.173	.281	.182	.244
Sample size	273	394	273	394
1996				
Schooling	.0871	.0823	.0577	.0541
(CASMIN score)	(2.82)	(2.45)	(1.84)	(2.00)
Age	.0539	.0952	.0796	.103
	(2.55)	(3.27)	(3.71)	(4.42)
Age-squared	−.000613	−.000984	−.000865	−.00111
	(2.27)	(2.77)	(3.15)	(3.89)
Intercept	6.15	5.52	6.00	5.75
	(15.0)	(10.2)	(14.4)	(13.2)
R-squared	.137	.297	.212	.341
Sample size	128	88	128	88

Note. Absolute values of the t-ratio appear in parentheses under the coeffi-
cients. Actual earnings is denoted by AE, and just earnings is denoted by JE.

Table IV reports the estimates of the actual earnings (AE) and just earnings
(JE) equations for men from East and West Germany. The actual return to schooling
is greater than the just return to schooling among both German samples in 1996
(by almost three percentage points), and moderately greater in the 1991 West
German sample. Thus, only among the East German men in 1991 does the actual
rate of return to schooling display a deficit relative to the just return (by about
two percentage points). However, statistical tests (not shown) cannot reject the
hypothesis that in each society and year the actual return to schooling is the same as
the just return to schooling. Nonetheless, the shift among the men of East Germany
from a deficit relative to justice in 1991 to an excess suggests that the rate of return
to schooling is among the mechanisms leading to a reduction in overall injustice
as measured by the justice index JI1.

It is instructive to examine the way the East German deficit was converted
to an excess. It was not by attaining a higher rate of return to schooling; the rate
dropped from 0.117 in 1991 to 0.087 in 1996. Rather it was by a decrease in ideas of
the just rate of return to schooling, which was cut by more than half (from a highly

optimistic 0.136 in 1991 to 0.058 in 1996). Among the men of West Germany, too, both the actual and the just rates of return to schooling decreased over the 5 years. However, the only change in schooling return from 1991 to 1996 that is statistically discernible is in the just return among the men of East Germany.

It is important to continue to track changes in the actual and just rates of return to schooling. The actual return is a bellwether of productivity and the health of the economy. The just return provides clues useful in exploring the process by which external reality shapes ideas of justice. It is possible that prolonged experience of injustice triggers an adaptation via adjusting downward ideas of the just return.

Table IV also reports the coefficients of age and age-squared, which together provide an estimate of the actual and just rates of return to age (as a proxy for experience). To visualize these rates, we present, in Fig. 3, plots of the returns to age among the men of East and West Germany at the two time periods. The plots are labeled "Actual" and "Just," and placement of those labels coincides with the maximum of each plot. Figure 3 tells several stories. First, the actual rate of return to experience is substantially higher in West Germany than in East Germany. Second, the actual rate of return to experience increased between 1991 and 1996, though not statistically discernibly so. Third, in all four samples, the just rate of return exceeds the actual rate, so that returns to experience would be a source of felt injustice. Fourth, the discrepancy between the actual and just rates is minimal in West Germany but nontrivial (statistically significantly different in both years) in East Germany, where it increased across the 5-year period.
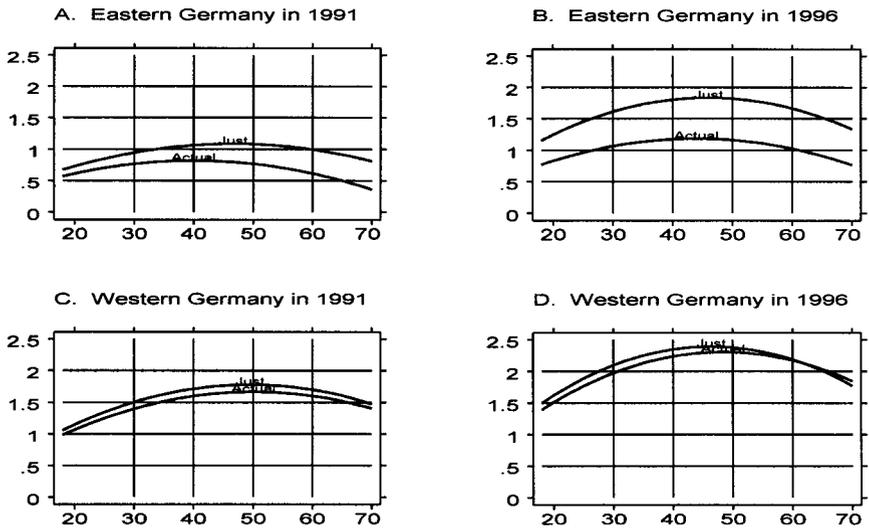

Fig. 3. Actual and just rates of return to age.

It is also of interest that earnings returns peak at an earlier age in East Germany than in West Germany, although the trend is toward convergence—the peak age increasing for East Germans (from 40 to 44 years) and decreasing for West Germans (from 50 to 48 years).

These results suggest that the rate of return to experience plays a small part in producing overall injustice among the men of West Germany but a substantially larger part among the men of East Germany. The large deficit among the latter in 1996 is evidently partially offset by the substantial excess in the return to schooling relative to the just return, as discussed earlier.

SUMMARY AND DISCUSSION

In this paper, we examined trends in the experience of injustice in six societies—Bulgaria, Czech Republic, East and West Germany, Hungary, and Russia—between 1991 and 1996. Using data collected by the ISJP, we estimated the justice index, JI1, and its decomposition into the amount of injustice attributable to poverty and the amount of injustice attributable to inequality. We also examined gender differences in the justice index and its decomposition. Because the justice index is a summary measure of individuals' justice evaluations, we also explored in a preliminary way the two basic quantities that underlie the justice evaluation—actual earnings and just earnings—and their determinants, investigating, for the men of East and West Germany, the actual and just returns to schooling and experience in 1991 and 1996.

Our analyses indicate that perceived injustice about earnings increased across the 5-year period in all societies except East Germany, where it registered a robust decline. In 1991, an especially dramatic finding was that not only was there less injustice in western societies than in the postsocialist societies but also the western societies were tightly clustered together with similar levels of overall injustice whereas the postsocialist societies displayed a range of magnitudes of the justice index five times as large. In 1996, West Germany, the only one of the original five western societies in the ISJP, still has less injustice than all the others; and the region occupied by the five postsocialist societies has increased further—more than doubled—due to both a decrease in injustice at the upper end and an increase in injustice at the lower end. Although the formerly socialist societies seemed to cluster in 1991 into three groups (the Czech Republic, East Germany and Hungary, and Bulgaria and Russia), in 1996 the only discernible cluster was that formed by East and West Germany. However, the other societies retained their rank order, with the Czech Republic registering the smallest amount of injustice and Russia the largest.

With respect to the decomposition, in both 1991 and 1996, scarcity contributed to overall injustice, in the sense that if everyone earned what they think is just for themselves, the earnings distribution would have a larger mean. In 1991, every one of the six countries had too little inequality, in the sense that if everyone earned

what they think is just for themselves, the earnings distribution would have more dispersion, as measured by Atkinson's index of inequality, but in 1996 East and West Germany registered too much inequality. Finally, felt injustice appears to be substantially more sensitive to poverty and scarcity than to inequality.

We also undertook a preliminary look at changes in actual and just earnings, and also investigated actual and just earnings functions among the men of East and West Germany. These analyses suggest that the men of West Germany experienced a decline in actual earnings and that important changes may have taken place in both the actual and just rates of return to schooling and experience.

The rates of return to schooling decreased for both actual and just earnings and in both East and West Germany. Among men of West Germany, the actual return exceeded the just return in both periods, no doubt contributing to the low levels of injustice as measured by JI1. Meanwhile, among men of East Germany, the decrease in the just return was sufficiently large that by 1996 their actual return exceeded their just return, contributing to the lessening of injustice observed in the analyses of JI1.

The rate of return to experience appears to be substantially higher in West Germany than in East Germany, and it appears to have increased between 1991 and 1996. In contrast with the schooling return, the just rate of return to experience is larger than the actual return, especially in the East German sample, so that returns to experience would be a source of felt injustice among the men of East and West Germany, but especially so in East Germany. Moreover, the discrepancy between the actual and just returns to experience increased in East Germany over the 5-year period.

As discussed in the text, much remains to be done. The ISJP data still have to be finalized; PPP factors are needed to convert nominal earnings into intertemporally comparable, purchasing-power-parity-adjusted figures; and so on. Still, the estimates reported in this paper signal the start of a new era. With the advent of trend data on individuals' ideas of just earnings and the availability of basic measures, grounded in justice theory, of individuals' justice evaluations and societies' justice indexes, the stage is set for rigorous monitoring of the experience of injustice across societies and over time. Moreover, the next step—panel studies collecting data in the same samples over time—will no doubt bring fundamental insights on the operation of the human sense of justice.

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