Change in Preferred Levels of Income Inequality: Poland, 1988 – 2003

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ABSTRACT

Rising trends in economic inequality are well-established across many affluent nations. However, researchers have accrued considerably less knowledge regarding the economic attitudes and preferences of individuals living within the context of increasing inequality, especially in developing or transition countries. Using data from four consecutive waves of POLPAN, a panel study of Polish citizens, from 1988 to 2003, we examine change over time in respondent's preferred levels of income inequality. Results of panel regression analysis show that Poles tend to prefer higher levels of income inequality over time. Implications of individuals' evolving benchmarks for preferred levels of inequality are discussed.

Keywords: stratification, inequality, meritocracy, welfare state support, panel analysis, transition, Poland

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Introduction

During the past half century researchers have documented a substantial rise in income inequality across a number of diverse nations (Morris and Western 1999; Gornick and Jantti 2013). This pattern, now commonly referred to as the 'Great U-Turn' in economic inequality (Nielson and Alderson 1997), has had a substantial impact on stratification systems. Especially within the past decade, social scientists have produced a significant amount of groundbreaking research documenting the causal mechanisms (McCall and Percheski 2010; Western and Rosenfield 2011; Piketty and Saez 2003) and social outcomes (Jencks and Kenworthy forthcoming; Esping-Anderson 2007) involved in this escalation of economic inequality. However, much less is known about attitudes toward income inequality (McCall 2013; Trump 2013; McCall and Kenworthy 2009). In particular, we are far from understanding the causes of individuals' preferences and attitudes about inequality, what levels of inequality are considered fair or just, and how these notions changes over time and place. As a transition economy, Poland provides an ideal setting in which researchers can investigate the changes and implications brought on by rising economic inequality.

While broader research on inequality preferences, redistributive justice, and meritocratic beliefs has a long history (Jasso and Rossi 1977; Rawls 1971), a number of methodological problems have prevented a more comprehensive understanding of attitudes toward inequality in particular. First, operationalizations of attitudes and policy preferences are weakly developed (McCall and Kenworthy 2009). Oftentimes, the kinds of questions available in nationally representative surveys are not sufficient to fully understand the complexity of redistributive attitudes and notions of ideal levels of inequality (McCall 2013). Second, researchers have seldom been able to conduct panel analysis to monitor respondents over time and to therefore accurately assess the causal ordering of structural change and individuals' preferences. Even the foremost studies of attitudes toward inequality rely on repeated cross-sectional data such as the GSS and ISSP (Osberg and Smeeding 2006; Tòth and Keller 2013; McCall 2013). Finally, there is not sufficient research utilizing the powerful natural experiment provided by transition economies throughout Eastern Europe and Asia. Researchers gain a unique opportunity for hypothesis testing as a result of the rapid and systemic change that has taken place in these countries (McCall 2013).

In the current study, we seek to address these gaps and methodological challenges in the literature. Using the Polish Panel Study (POLPAN), we follow a set or respondents (N = 1241) over a period of fifteen years during a crucial timeframe in Poland (1988-2003). This period captures the height of Poland's rapid transition away from a planned economy. In the wake of this systemic change, economic inequality rose sharply. In this way, we are able to track nuanced changes in individuals preferred levels of inequality in society[1]. Specifically, we examine variations in the ideal or just amount of earnings between the owner of factory and an unskilled worker. The logged ratio of these income amounts is what we refer to as the preferred or fair level of inequality, or what the ratio between the highest and lowest earners ought to be. Our goal is to determine how exactly the marked rise in economic inequality in Poland is affecting individuals' attitudes about societal disparities and what is considered just. It is possible that Poles are responding to rising inequality with dissatisfaction and they demand change. On the other hand, the changing economic scene may be disliked but still tolerated because economic opportunity is perceived to be more available. A final possibility is that notions of preferred inequality are gradually rising in accordance with actual changes in the earnings distribution.

LITERATURE REVIEW

What We Know About Attitudes toward Inequality

Dramatic rises in income inequality have created much scholarly interest in how populations are adjusting to increasingly unequal settings. For example, in the U.S. the ratio of CEO pay to that of a common laborer increased from 30:1 in the early 1970's to 100:1 in the 2000's (McCall 2013). How then do individuals respond to this substantial change in the earnings distribution? How do attitudes toward inequality change as inequality itself changes? Perhaps the most perplexing finding about individuals' preferences about inequality is that studies notoriously refute one of the most straight-forward explanations. Tests of the median voter-hypothesis, or the idea that greater market inequality will tend to produce greater demand for redistributive

[1] We are using the term 'preferred inequality' with regard to the differences between respondents' answers to questions about earnings in specific occupations that would be 'just and fair', or that would lead to achieving 'some justice'. Preferred inequality, just inequality, or fair inequality will be used interchangeably.

generosity, have at best revealed mixed evidence (Kenworthy and McCall 2008; Brzezinski, Jancewicz, and Letki 2013). In fact, researchers seeking to explain how individuals are adapting to high levels of inequality have come up empty-handed after analyzing levels of happiness, support for progressive taxes, etc. (McCall 2013). Similarly, McCall and Kenworthy (2009) and McCall (2013) demonstrate the complexity involved in understanding beliefs and preferences concerning inequality, opportunity, and redistribution. A major challenge is to comprehend the mechanisms through which individuals are affected by changes in the structure of inequality. The best evidence in the U.S. context suggests that individuals do care about rising income inequality to the extent that inequality can itself be a restriction to opportunity (McCall 2013). Still, a clear understanding of how exactly individuals' inequality preferences are shaped by shifts in the earnings distribution remains unresolved.

This more nuanced conception of attitudes and changing preferences toward inequality therefore lends itself to a growing literature in the realm of social psychology. Experimental studies in this regard indicate that knowledge of greater actual inequality causes respondents to report higher estimates of what they deem as 'acceptable' levels of inequality (Trump 2013). One theory in this regard is the 'justification principle' in which individuals tend to view the rewards they receive and the system in which they are situated as more or less just. Indeed, "Even individuals who do not benefit from inequality are more likely to acquiesce in and even prefer unequal distributions, if they perceive that the differential rewards are earned" (Trump 2013: 7). There is some evidence of this relationship specifically within the Polish context. Domański and Sawiński (2012) show that preferred or acceptable levels of inequality are in fact conditioned by levels of actual inequality. However, the question remains as to whether 'actual' inequality is accurately perceived by individuals responding to large-scale surveys. In this regard, McCall and Chin (2013) find that the availability of accurate information about rising inequality has only a modest effect on one's inequality norms. Again, the complexity involved in such research is clear – attitudes toward inequality do not always behave as we might think and the actual structure of the earnings distribution appears to influence these attitudes in both overt and subtle ways.

Cross-National Evidence

Scholars have also continued to add to our knowledge of inequality attitudes from a comparative and cross-national perspective. The most consistent findings point to the following pattern: 1) across nations there is general agreement on the legitimate pay of low-status occupations, 2) there is agreement that high-status occupations merit higher pay than the minimum, but 3) there is substantial cross-national variation and disagreement over how much more higher-earners should be paid (Kelly and Evans 1993; Hadler 2005). There is also general consensus that higher ratios of inequality are viewed more favorably by men (Kluegel and Smith 1986), individuals with more education (Robinson and Bell 1978) and those with higher incomes (Kelly and Evans 1993; Ritzman and Tomascovic-Devey 1992)[2]. More recently, Tòth and Keller (2013) analyze beliefs about inequality by creating a 'redistributive preference index' from attitudinal measures concerning state involvement in providing jobs, the extent of social expenditures, and the degree to which wealth is distributed in society. After analysis of 17 affluent European countries the authors conclude that support for redistribution varies considerably across nations and that this support corresponds most notably with the extent and depth of relative poverty. In other words, the higher the income inequality between the bottom of the earnings distribution and the median earner, the stronger the desire for redistribution.

Using ISSP data for 30 nations, Hadler (2005) observes that attitudes toward inequality are less critical in societies in which functionalist views of inequality are more common. Results also indicate that the macro-level variable of 'communist history' contributes to a more critical view of income inequality. To this later point, whether operationalized as communist history, post-socialist, transition economies, etc., this broad categorization of nations transitioning from planned to market economies has proven especially useful in studies of rising inequality and changing economic preferences. For example, Redmond, Schnepf, and Suhrcke (2002) find that a decade after adjustment to market economies, Central and Eastern European countries continue to express more egalitarian attitudes compared to Western nations. Moreover, there appears to be widespread agreement across nations that meritocratic mechanisms (i.e. education, job performance) should determine income, but respondents in post-socialist countries are more likely to express

[2] Although these demographic patterns are not the main focus of our study, we will nevertheless note the direction and magnitude of these predictors to provide additional evidence.

that the actual distribution of income does not follow this formula. That said, research has also documented substantial variation in attitudes and preferences within post-socialist transition economies (Hadler 2005; Bandelji and Mahutga 2010). Through a detailed analysis of inequality attitudes in Poland we intend to add to this ongoing discussion with a country-specific approach, but to also frame the results and implications within a broader comparative context.

The Polish Context

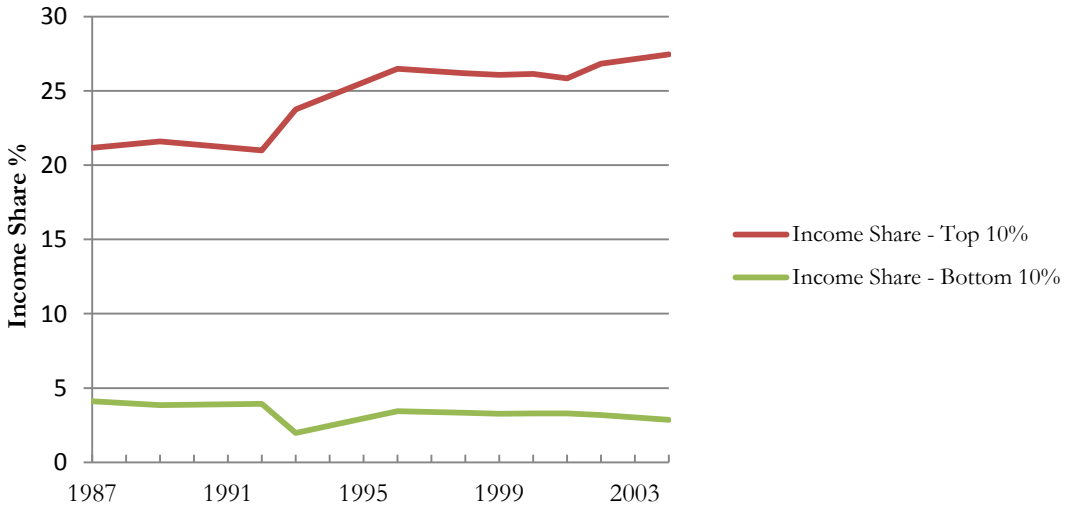
The timeframe analyzed in the current study includes the 15 years between 1988 and 2003, a time of rapid, systemic change in Poland. The collapse of the communist regime was first marked with partially free elections on June 4th, 1989. The same year, Minister of Finance, Leszek Balcerowicz launched the implementation of the economic "shock therapy", which in the short term meant hyperinflation, a surge in unemployment and general economic instability (for a full description of initial conditions, strategy and implementation, and outcomes, see Balcerowicz 1994). Inflation peaked in 1990 with the Consumer Price Index close to 700[3] while the registered unemployment rate grew rapidly, reaching 16.5% in 1994[4], compared to full-employment in the centrally planned economy pre-1989. By 1998 when the third wave of POLPAN was fielded, Poland was on a relatively stable track of economic growth and nearing North Atlantic (NATO) integration. In 1997 Poland adopted a new Constitution, which confirmed and cemented the principles of market economy and political pluralism. After four years of economic growth of around 5-7% per annum accompanied by declining inflation, unemployment dropped to below 10%, unseen since 1991, and GDP per capita exceeded the 1988 level by 50%[5]. The Polish economy continued to grow, although at a slower pace, throughout the recession in the early 2000s, having received a boost from the European Union's pre-

[3] Annual Consumer Price Index. Central Statistical Office of the Republic of Poland. Retrieved December 31, 2013 (http://www.stat.gov.pl/gus/5840_1634_PLK_HTML.htm).
[4] Registered unemployment in Poland. Central Statistical Office of the Republic of Poland. Retrieved December 31, 2013 (http://www.stat.gov.pl/gus/5840_677_PLK_HTML.htm).
[5] GDP based on PPP per capita GDP Current international dollars. Retrieved December 31, 2013 (http://www.econstats.com/weo/CPOL.htm).

accession support exceeding EUR 7 billion in 1990-2003[6]. Given this tumultuous era, ongoing studies of the changing Polish economy and related social implications have proven valuable.

In both studies of redistributive preferences (Tòth and Keller 2013) and rising economic inequality (Bandelj and Mahutga 2010), Poland often appears in the 'middle of the pack'. Among post-socialist countries, economic inequality in Poland has grown considerably faster than in some countries (Czech Republic and Slovenia), yet others (Romania and Lithuania) have experienced much more dramatic increases in inequality than Poland. Tòth and Keller (2013) also find Poland around the middle of the distribution once they generate their redistributive preference index. But what exactly does the changing economic scene look like in Poland? In terms of overall economic inequality, the Gini Index increased from just above 25 in 1987 to nearly 36 in 2004 (Brzeziński, Jancewicz, and Letki 2013). Below, Figure 1 traces the percentage of income held by the top 10% and bottom 10% of earners. World Bank Indicators for Poland[7] reveal a steady upward trend for the highest earners while the wages for the lower decile remain stagnant[8].

Figure 1. Rising Inequality in Poland 1987-2004. Source: World Bank.



[6] UKIE. 2003. Mapa pomocy Unii Europejskiej udzielonej Polsce w ramach programu Phare 1990 -2003, ISPA 2000 - 2003 oraz SAPARD. Urząd Komitetu Integracji Europejskiej. Retrieved December 31, 2013 (http://archiwum-ukie.polskawue.gov.pl/HLP/files.nsf/0/73C64711C4628031C1256EDA0034E6E4/$file/publikacja_mapa_pomocy_UE.pdf).

[7] World Development Indicators: Income share held by highest 10% (SI.DST.10TH.10), and Income share held by lowest 10% (SI.DST.FRST.10). Retrieved December 31, 2013 (http://data.worldbank.org/country/poland).

[8] For an economic analysis of wage inequality in Poland see Rutkowski 1996; Keane and Prasad 2002; Newell and Socha 2005, 2007.

In addition, Polish General Social Survey (PGSS) data indicate that Poles are not only aware of increasing income inequalities, but they also feel that the current level of inequality is too high. In fact, the percentage of respondents who believe that income inequalities in Poland are too large has been rising from 80% in the early 1990's to 91% in 2010 (Brzeziński, Jancewicz, and Letki 2013). These descriptive trends precipitate a number of questions regarding the current literature. On one hand, it appears that Polish citizens are *en route* to confirming the median-voter hypothesis – inequality is on the rise and dissatisfaction with this trend seems to be growing (Kenworthy and McCall 2008). On the other hand, it is possible that rising inequality may be disliked yet simultaneously tolerated as long as economic opportunities are perceived to be accessible (McCall 2013). It is also possible that attitudes toward inequality may be in the process of shifting in accordance with actual changes in the earnings distribution (Trump 2013) – perhaps the rise in dissatisfaction with the current levels of inequality will gradually be tempered with time as individuals become accustomed to higher and higher levels of inequality.

HYPOTHESES

Change in levels of perceived and preferred inequality

What level of earnings inequality is considered just or fair, and how this level changes in time? Specifically, how did fair inequality between earnings in lowest-and highest-paying occupations change in course of the transition from centrally-planned to market economy? Social psychology has developed many ways of explaining changes in what people perceive as fair, but there seems to be consensus that with changes in real inequality, opinions about fair inequality follow in the same direction (Trump 2013).

Equity and status attribution theory explain why the built-in preference of cognitive consistency leads individuals to accept what they observe as normal and appropriate (Della Fave 1980). Similarly, system justification theory and status quo bias focus on the motivational and cognitive aspect of the tendency to prefer the known to the unknown (Zajonc 1968), and to believe that the "environment is a just and orderly place where people usually get what they deserve" (Lerner and Miller 1987: 1030, see also Aalberg 2003). In

this way ideas about "what ought to be" follow "what is believed to be", which in turn are an imperfect reflection of "what objectively exists" (Krauze and Słomczyński 1986).

In the Polish context, the transition from socialist economy with its egalitarian principles and centrally-planned earnings distribution to market economy essentially brought an increase in income inequality from early on in the transition. As shown in Figure 1 actual inequality in Poland has been increasing throughout the 15-year period covered by our study. In an analysis similar to ours, using survey data from different studies carried out in Poland in 1988 and 2010, Henryk Domański found that preferred inequality is lower than perceived inequality, yet both have increased over time (Domański 2013: 56-85). We expect similar findings in our analysis. One reason that reports of perceived inequality have risen faster is that the changes in actual inequality were paralleled by the rapid development of free media (private-owned press, radio, and TV) which intensified coverage of both extreme poverty and excessive wealth. This is why we additionally expect the gap between preferred and perceived inequality to grow with time.

Hypothesis 1.1: Perceived and preferred income inequality have increased over time.

Hypothesis 1.2: Additionally, the level of perceived inequality has been growing faster than that of preferred inequality.

Meritocracy and Welfare State Support

Having established general trends in aggregate levels of fair earnings inequality, we turn to individual-level factors that explain the variation in tolerance towards inequality between individuals: meritocratic attitudes and preferences for the welfare state. Meritocracy is a system where individual merit, originally intelligence and effort (Young 1958), now understood more broadly including e.g. education, experience and abilities, is the basis for the distribution of rewards such as income, power and prestige, and thus provides legitimation of social inequality. Research carried out in many Western countries shows that the idea that income should depend on individual merit receives widespread support (Kluegel and Smith 1986; Marshall et al. 1999; Osberg and Smeeding 2006), and occupations that require higher levels of skills are placed higher in the hierarchy of fair incomes (Kelley and Evans 1993; Svallfors 1993; Gijsberts 2002). In Poland and the rest of the "Eastern Block", the shift from socialist to market economy meant a change in mechanisms of

distribution of surplus, from ideologically-driven preference of industry and production and no clear link between pay and qualifications (Wesołowski and Mach 1986: 177), to a world where earnings are to a large extent determined by productivity, and hence much more closely related to individual merit (Locklear 1998)[9]. In such a system, where income comes to be viewed as an earned reward, individuals who hold meritocratic attitudes should be willing to accept higher income inequality than those who believe in ascription. We expect that meritocratic attitudes are positively associated with fair earnings inequality. However, because in newly post-communist countries meritocracy is less widespread than in traditional market economies (Kunovich and Słomczyński 2007), we expect the positive association between preferred inequality and meritocratic attitudes to emerge only after the new economic system is well established, that is towards the end of our time series.

> Hypothesis 2.1: Individuals with stronger meritocratic attitudes tend to tolerate higher levels of earnings inequality, but this association becomes significant only at the end of the period under study.

A different type of attitudes closely related to ideas of fair inequality are attitudes toward state's role in mitigating unjust inequalities and protecting individuals against negative effects of market competition. Individuals who support welfare state policies are expected to favor lower levels of inequality, but this can only be true in situations with working markets, market competition and the related risk, and at least potentially responsive authorities. We expect the negative association between welfare state support and preferred earnings inequality to emerge after the collapse of communism, which leads us to the following hypothesis:

> Hypothesis 2.2: Strong welfare state support leads to lower levels of accepted earnings inequality, and this association becomes significant after the collapse of the communist system.

[9] Although some researchers have argued that the allocation of individuals to positions occurred based on meritocratic principles in capitalism and state socialism alike (Wesołowski 1981), and the differential success of this allocation, or to the meritocratic ideal, was a result of external policies under state socialism that limited post-allocation adjustments (Krauze 1998), for the simplicity of the argument we will talk simply about the higher level of meritocracy in market economy than in state socialism. This seems justified especially given the public perception of state socialism as less meritocratic than market economy, as shown in an analysis by Marshall et al. (1999) of data from the International Social Justice Project collected in 1991 and 1992 in 13 countries covering established democracies and newly post-communist nations, including Poland.

Individual Changes over Time

In addition to questions about general societal trends addressed in earlier hypotheses, we are interested in how changes in individual status and attitudes are reflected in levels of preferred inequality. We expect that changes in distributions of preferred earnings inequality are not a consequence of compositional shifts of the sample and population, but that they occur within individuals due to their stable and changing characteristics. First, we expect our panel model to confirm results obtained in single year models – that is, we expect higher preferred inequality among men than women, as well as among the richer and more educated. Second, we expect to observe an effect of meritocratic attitudes (positive) and welfare state support (negative) as they change within individuals over time. Finally, we expect that not only preferred inequality increases with time, as stated in Hypothesis 1, but that the rate of change depends on the initial level at the beginning of our time series, in 1988.

The resulting hypotheses are as follows:

> Hypothesis 3.1: Accounting for individual heterogeneity, more meritocratic attitudes are positively associated with levels of preferred earnings inequality.
>
> Hypothesis 3.2: Accounting for individual heterogeneity, more welfare state support is negatively associated with levels of preferred earnings inequality.
>
> Hypothesis 3.3: The rate of increase in preferred levels of earnings inequality depends on the starting level of preferred inequality.
>
> Hypothesis 3.4: Men prefer higher levels of inequality than women, and additionally the level of preferred inequality increases with education and income, both across individuals and over time.

DATA AND MEASUREMENTS

POLPAN 1988-2003

Data come from the Polish Panel Survey (POLPAN), conducted among a probability sample of the adult population of Poland in 1988 and every five year since[10]. POLPAN in unique in two ways. First, its panel design allows researchers to investigate individual changes in attitudes and preferences about inequality in the context of changing inequality in the wider society. Secondly, the timing of POLPAN overlaps with

[10] Data and documentation from POLPAN 1988-2003 are available on-line at Zacat-Gesis (zacat.gesis.org) and the Polish Social Data Archive (www.ads.org.pl).

major events in Poland's recent history, which makes the data ideally suited to analysis of social consequences of political and economic transformation. Additionally, the scope of POLPAN is both extensive in its breadth but also uniquely focused on analyzing patterns and opinions about social change. In the current study we utilize these methodological advantages to examine change over time in respondents' preferred levels of income inequality.

In our analysis we use the first four waves of POLPAN, from 1988, 1993, 1998, and 2003, that is from the year prior to the collapse of communism in 1989, until just before Poland's accession to the European Union in May 2004. Of the 5,817 respondents born between 1922 and 1966 who were interviewed in 1988, a randomly selected 2,500 were approached again in 1993. The sample of the third wave in 1998 consisted of 1,752 panel respondents and a renewal sample of 383 21-30 year olds (Słomczyński and Marquart-Pyatt 2007). Our sample used in this analysis comprises 1241 respondents who participated in all four waves: 1989, 1993, 1998 and 2003[11]. In this sample 48.6% respondents are women, the average age in 1988 was 40.6, and accordingly 5 years more every next wave.

Dependent variable: Preferred earnings inequality

In the first four waves of POLPAN respondents were asked to estimate current earnings for selected occupations, followed by a question about how much people in these occupations should earn[12]. Sets of occupations differed from wave to wave (see Appendix 1 for details on question wording and occupation sets). To measure the accepted earnings gap, or just earnings inequality, we chose two occupations from

[11] We restrict the sample to those interviewed on all four occasions, because of our main interest in changes in attitudes among the cohorts that can remember pre-transition Poland from own adult experience instead of knowing it only from second-hand accounts. However, as a robustness check, we have conducted analyses using the whole sample of 6425 respondents interviewed in any of the first four POLPAN waves. The results are substantially the same, and are available upon request.

[12] In 1988 and 1993 these questions was asked in one version of the questionnaire administered to one subsample; in 1998 and 2003 they were included in all versions of the questionnaire. As a result the number of valid responses to the fair earnings items is 350-365 in 1988, 471-586 in 1993, and 885-1176 and 1169-1208 in 1998 and 2003, respectively. Estimates from modeling samples restricted to respondents who were asked the questions of interest in 1988 were substantively the same as the non-restricted models we present in this paper. Non-response was clearly higher in items about fair earnings of highest status jobs, such as owner of factory or director of large enterprise.

opposite sides of the earnings spectrum: the unskilled worker in a factory, and the owner of a large factory[13], and constructed a ratio of just earnings assigned to both occupations by each respondent[14]. In all waves, unskilled workers were on average assigned lowest fair earnings, and would be at the bottom of the resulting earnings hierarchy (see by occupation and by year means in Appendix 2). At the top of the earnings ladder, and far above anyone else, respondents put the factory owner, except for 1988 when this occupation was not mentioned.

Dividing the fair earnings estimate for the higher status occupation (owner of large factory) by the estimate for the lower status occupation (unskilled worker) yields a Fair Earnings Ratio, which shows how many times more factory owners should be paid than unskilled worker in a fair society. The ratio has a strong positive skew, and in subsequent models it is used in logged form.

Meritocracy

We measure meritocratic attitudes using responses to four standard items in the question about "things important for achieving success in life" asked in all POLPAN waves in the same form[15]. These items are: ambition, hard work, good education, and inherited ability and talent, and to each respondents answered using a five-point Likert scale ranging from "absolutely necessary" to "not at all important"[16]. The measurement model for the resulting factor is presented in Table 1.

The structure of the resulting additive scale of meritocratic attitudes remains roughly stable across the time period of interest, and despite some fluctuation in factor loadings with education and natural ability

[13] Because "the owner of large factory" was alien to the centrally planned, state-owned socialist economy, and was therefore not included in the 1988 wave of POLPAN, for that year we took "the director of a factory". As a robustness check, we conducted all analyses using "director of factory" for 1988 and "director of state-owned enterprise" for later waves, and substantive results remained the same.

[14] In two of the four survey waves (1993 and 2003), highest earnings estimates were top-coded as "100,000 or more" in 1993 and "1,000,000 or more" in 2003. The number of cases concerned is 123 and 2 respectively. In order to avoid underestimating the variation in fair earnings, we multiplied the top-coded observations by a factor of 1.3, a little more conservatively then the 1.4 factor used by Card and DiNardo 2002.

[15] The same questions are asked in other surveys, including the International Social Survey Programme or the General Social Surveys.

[16] Similar sets of items have been used to construct meritocracy scales e.g. by Locklear (1998), and Kunovich and Słomczyński (2007).

gaining importance at the cost of ambition and hard work, the factor continues to explain about 40% of common variance of the four indicators.

Table 1. Measurement of Meritocratic Attitudes

	1988	1993	1998	2003
Factor loadings				
Ambition	0.635	0.566	0.621	0.591
Hard work	0.509	0.520	0.487	0.407
Good education	0.734	0.721	0.701	0.729
Natural ability	0.719	0.731	0.717	0.737
% of variance	42.978	41.151	40.738	39.722
Eigenvalue	1.719	1.646	1.630	1.589
Cronbach's alpha	0.539	0.501	0.479	0.446

Source: POLPAN, waves 1-4

Welfare State Support

We operationalize welfare state support as a scale consisting of responses to items about responsibilities of the state towards citizens. The question asked respondents about their level of agreement or disagreement (on a 5-point Likert scale) with a number of statements, of which we chose the following three: (E) The state should assist children from poor families in facilitating their access to higher education; (G) The state is responsible for reducing differences in people's incomes; (H) The state should provide jobs for everyone who wants to work. We constructed a standardized scale, where positive values indicate above average support for the welfare state, and negative values indicate below average support. Table 2 shows the measurement model for the welfare state support scale.

Table 2. Measurement of Welfare State Support

	1988	1993	1998	2003
Factor loadings				
State should help kids from poor families	0.750	0.694	0.621	0.648
State should decrease inequality	0.699	0.761	0.768	0.737
State should provide jobs	0.742	0.775	0.799	0.779
% of variance	53.368	55.329	53.756	52.348
Eigenvalue	1.601	1.660	1.613	1.570
Cronbach's alpha	0.550	0.587	0.562	0.525

Source: POLPAN, waves 1-4

Income and Other Independent Variables

Household income per capita, as the measure of economic well-being, was constructed by using household income given in Polish Zloty (PLZ or PLN[17]) divided by the number of members of the household, logged and standardized, to achieve a common metric across waves. This measure takes the value of zero for mean-income individuals within each wave, while positive values are assigned to above-mean income individuals, and negative values indicate those below the mean. In 1998 and 2003 household income variables included cases with 0 income (24 in 1998 and 2 in 2003); those were treated as missing values. Gender is coded with a binary variable with 1 for male (49% of our sample are women). Age is measured in years, and education in years of schooling[18]. Descriptive statistics of independent variables can be found in Appendix 3.

Models

To test the first set of hypotheses, 1.1 and 1.2, we analyze means and medians of perceived and preferred earnings for the owner of a large factory and unskilled worker, and respective earnings rations. To test the remaining hypotheses, we use two types of models. Hypotheses 2.1 and 2.2 refer to patterns present at each point in time and how these patters change from wave to wave. We test these hypotheses by examining and comparing regression coefficients from separate wave OLS regression equations to see how the magnitude and perhaps direction of relationships between the dependent variable, fair earnings ratio, and independent variables, have changed in time.

Hypotheses 3.1-3.4 have to do with changes in ideas about fair earnings inequality that have occurred within individuals over the 15 years covered by our data, while accounting for individual heterogeneity. Here we utilize multi-level mixed-effects linear regression models. In these models, all variables apart from gender, that is age, education, income, meritocratic attitudes and support for the welfare state, are time-dependent. All

[17] In 1995 the Polish currency, the Zloty, underwent denomination which replaced 100,000 of "old złoty" (ISO 4217 code: PLZ) with 1 "new złoty" (PLN). Because of large numbers, that is thousands or millions of old złotys, values in the POLPAN dataset are given in thousands. Here we give real amounts.

[18] Original questionnaires asked respondents about their level of education with categorical responses, which were then assigned numeric values.

models have been estimated using the maximum likelihood estimation and xtmixed function in STATA 12. The random intercept model takes the following form:

$$ln(fair\ ratio)_{ij} = \beta_0 + \beta_1 occasion_i + \beta_2 sex_j + \beta_3 age_{ij} + \beta_4 yearsedu_{ij} + \beta_5 hhincomepc_{ij} + \beta_6 meritocracy_{ij} + \beta_7 statepat_{ij} + u_j + \varepsilon_{ij}$$

Where $ln(fair\ ratio)_{ij}$ is the log transformed fair earnings ratio for the j^{th} individual in the i^{th} measurement occasion, β_0 is the grand intercept, β_1 is the coefficient for the measurement occasion (occasion 0 is the year 1988), β_2 is the coefficient for sex of the j^{th} individual, and β_3, β_4, β_5, β_6 and β_7, are coefficients for age, years of education, household income per capita, meritocracy and welfare state support of j^{th} individual in the i^{th} measurement occasion respectively. Then u_j is the random intercept for the j^{th} individual, and ε_{ij} is the random error term corresponding to the deviation of the j^{th} individuals ln(fairratio) from u_j. The second model includes a random intercept and slope, and is represented by the following equation:

$$ln(fair\ ratio)_{ij} = \beta_0 + \beta_1 occasion_i + \beta_2 sex_j + \beta_3 age_{ij} + \beta_4 yearsedu_{ij} + \beta_5 hhincomepc_{ij} + \beta_6 meritocracy_{ij} + \beta_7 statepat_{ij} + u_{0j} + u_{1j} occasion_{ij} + \varepsilon_{ij}$$

Here u_{1j} is the slope random effect on occasion, so this model frees the slope to allow for differential effect of time across individuals.

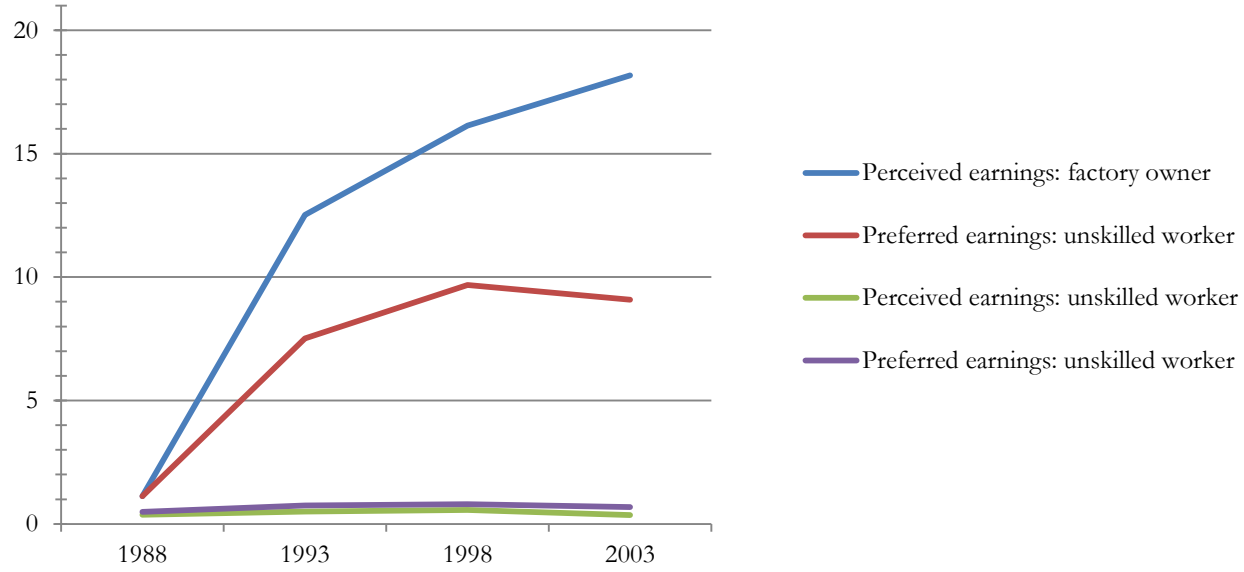
RESULTS

Descriptive results: Change in levels of perceived and preferred inequality

In order to look at changes in perceived and preferred inequality, we computed means and medians of two ratios constructed for each individual. The first divides perceived earnings of a factory owner by perceived earnings of an unskilled worker, while the second does the same with preferred earnings. Before we focus on these ratios, we would like to present changes in the underlying measures. Figure 2 shows medians of perceived and preferred earnings of the two occupations of interest: the owner of large factory and unskilled worker, expressed as a share of the average monthly wage in Poland in the same year[19]. Real values in the Polish currency can be found in Appendix 4.

[19] Central Statistical Office. Average monthly gross wage and salary in national economy (1950-2012). Retrieved December 31, 2013 (http://www.stat.gov.pl/gus/5840_1630_ENG_HTML.htm).

Figure 2. Medians of perceived and preferred monthly earnings of factory owner and unskilled worker as share of mean monthly salaries in the given year. Source: POLPAN 1988-2003.

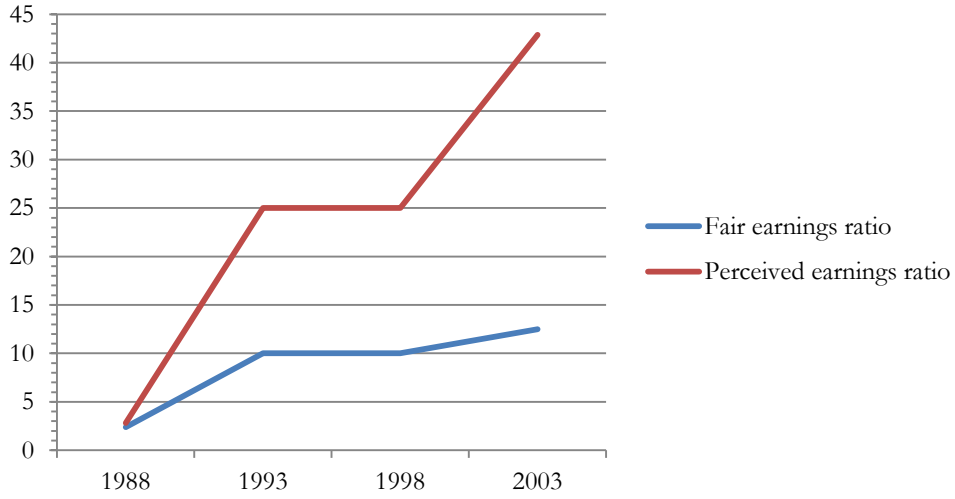


The graph shows that median perceived earnings of a hypothetical factory owner increased 16 fold in the 15 years, from 1.13 of average salary in 1988 to over 16 times the average salary in 2003. The increase in preferred earnings for the same occupation was lower by half: from the same 1.13 monthly salaries in 1988 to about 8 monthly salaries in 2003. The simultaneous change in perceived earnings of unskilled worker was non-linear: it increased from 0.38 of the monthly salary in 1988 to 0.5 in 1993 and 0.56 in 1998, and then dropped back to 0.36 in 2003. Preferred earnings increased by some 40%, from 0.49 to 0.68 of the average monthly salary.

Median ratios of perceived and preferred earnings shown in Figure 3 confirm what could already be inferred from the previous graph: both perceived and preferred earnings inequality increased between 1988 and 2003, and the income gap perceived by individuals has been growing considerably faster than what people would consider just and fair. In 1988, on average, factory owners were perceived to earn 2.8 times more than unskilled workers, while the preferred difference would be slightly smaller, that is 2.4. In 1993 both ratios increased, the preferred ratio to 10, and the perceived to 25, and both remained unchanged in 1998. At the end of our time-series, in 2003, factory owners were believed to earn almost 43 times more than unskilled

workers, with the median preferred or fair ratio equal to 12.5. Although compared to the surge in the perceived earnings gap the change in fair earnings ratio may look moderate or even insignificant, it needs to be kept in mind what the numbers represent. The increase in the fair earnings ratio from 2.4 to 12.5 means that in the 15 years 1988-2003 the socially accepted or preferred gap between lowest and highest earnings increased five-fold, which indicates a major shift in normative beliefs about distributive justice.

Figure 3. Medians of perceived and preferred monthly earnings ratios. Source: POLPAN 1988-2003.



In general, these findings support Hypotheses 1.1 and 1.2. However, the unequal rate of change in both perceived and preferred inequality, and in particular the stagnation between 1993 and 1998, require more in-depth analysis.

By-wave regression results: Meritocracy and Welfare State Support

The composition and magnitude of determinants of preferred earnings inequality have changed over time, and these changes reveal some interesting patterns. According to single-wave models presented in Table 3, in 1988 preferred inequality was significantly associated (positively) only with socio-demographic measures of age, education, and income, but not gender, nor any attitudinal variables. In 1993 support for the welfare state becomes a significant, negative, predictor of preferred inequality, and remains significant despite losing some magnitude in the following waves. Meritocratic attitudes remain insignificant until the last measurement

in 2003, when their association emerges as positive, although not particularly strong. These observations support Hypotheses 2.1 and 2.2.

Additionally, by-wave models confirm prior findings about preferred inequality increasing with education and income, as well as the higher tolerance of inequality among men, although only after the transition started.

Table 3. By-wave OLS regression models of logged fair earnings ratio on meritocratic attitudes and welfare state support, and sociodemographic characteristics.

ln (fair ernings ratio)	1988		1993		1998		2003	
	B	beta	B	beta	B	beta	B	beta
Constant	0.285*		1.862***		1.791***		1.794***	
Age	0.005*	0.134	-0.009*	-0.099	-0.001	-0.012	0.001	0.008
Gender (1M)	0.059	0.067	0.316***	0.165	0.146*	0.075	0.258***	0.127
Education (years)	0.035***	0.274	0.068***	0.236	0.051***	0.167	0.054***	0.159
Income	0.085**	0.185	0.067	0.068	0.037	0.037	0.108**	0.105
Meritocracy	0.032	0.074	0.065	0.064	-0.033	-0.033	0.077*	0.076
Welfare State Support	-0.008	-0.018	-0.135**	-0.137	-0.131**	-0.130	-0.104**	-0.099
R2	0.175		0.165		0.071		0.098	
Adj. R2	0.158		0.153		0.063		0.093	

* < 0.05, ** < 0.01, *** < 0.001

Source: POLPAN, waves 1-4

Panel Regression Results

The final step of our analysis is modelling our data taking into account their panel structure. Although we know that the use of multi-level modelling is justified given the nature of the data in which observations are in fact nested within individuals, which violates basic assumptions of OLS regression, we start by estimating the empty model to obtain the decomposition of variance and benchmark fit statistics. Variance components of Model 0 in Table 4 lead to the intra-class correlation coefficient equal to 0.97, which means that 9.7% of the total variation in the dependent variable, logged preferred earnings ratio, can be attributed to level-two units, in our case individuals.

Model 1 adds the time variable (the occasion of measurement), and socio-demographic characteristics, of which age, education, and income are time-varying, and gender is time-invariant. All these predictors, with the exception of age, are highly statistically significant with coefficients pointing in expected directions. First, estimates show that preferred earnings inequality increased over time, and the increase by

0.418 units of logged preferred ratio from occasion 0 in 1988 to occasion 1 in 1993 is equivalent to the increase in (unlogged) preferred earnings ratio by 2.618, holding all other factors constant. As in earlier by-wave models, the multi-level models also show that on average men prefer higher levels of inequality, and after unlogging the difference in preferred earnings ratio is 1.722. Finally, preferred inequality also increases with education and income.

Table 4. Multi-level mixed-effects linear regression models of logged fair earnings ratio on meritocratic attitudes and welfare state support, and sociodemographic characteristics.

	Model 0 (Empty)		**Model 1 (Level 1 & 2 Vars)**		**Model 2 (+ Attitudes)**		**Model 3 (Random slope)**	
ln (fair earnings ratio)	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Fixed Effects								
Intercept	2.269	0.0217	0.623***	0.127	0.761***	0.132	0.760***	0.130
Occasion			0.418***	0.020	0.406***	0.021	0.412***	0.020
Age			-0.001	0.009	-0.001	0.002	-0.001	0.002
Gender (1M)			0.236***	0.040	0.211***	0.041	0.208***	0.041
Education (years)			0.068***	0.007	0.059***	0.007	0.058***	0.007
Income			0.090***	0.022	0.072**	0.023	0.070**	0.023
Meritocracy					0.040*	0.020	0.039*	0.019
Welfare State Support					-0.096***	.021	-0.093***	0.021
Random Effects								
Level 2 (ind) Var	0.113	0.270	0.090	0.023	0.087	0.024	0.013	0.006
Level 1 Var	1.050	0.036	0.815	0.030	0.808	0.031	0.763	0.029
Cov (occ, cons)							0.013	0.004
Fit								
Deviance	8516.447		7299.766		6815.961		6798.347	
AIC	8522.447		7315.766		6835.961		6822.346	
BIC	8540.32		7362.896		6894.225		6892.264	

* < 0.05, ** < 0.01, *** < 0.001

Source: POLPAN, waves 1-4.

Model 2 adds attitudinal variables, meritocratic attitudes and welfare state support. Both are statistically significant, and in expected directions. Furthermore, the addition of these attitudinal measures only slightly reduces the magnitude of socio-demographic predictors without replacing their explanatory power. An increase by one standard deviation on the meritocracy scale leads to an increase in preferred earnings ratio by 1.096, while a similar increase on the welfare state scale decreases the preferred ratio by 0.802. These findings support Hypotheses 3.1 and 3.2.

Both previous models, Model 1 and Model 2, were random intercept models, so they allowed different intercepts between individuals. The last model, Model 3, is a respecification of Model 2 with a freed slope, and hence accommodates differences in the rate of change between individuals, in addition to their starting points. A log-likelihood test confirmed that the model with individual-specific regressions better fits the data than the one with only individual-specific shifts. Compared to Model 2, in Model 3 all coefficients remain roughly unchanged, and the positive covariance of occasion and individual mean indicates higher rates of growth among those who preferred higher inequality in occasion 0, which supports Hypothesis 3.3. Estimates in all models confirm association patterns between preferred levels of earnings inequality and gender, education, and income, which were the subject of Hypothesis 3.4.

CONCLUSION

Using a unique and well-suited dataset, the current study makes a number of important contributions to the analysis of inequality attitudes and toward stratification research more broadly. First, the use of panel data from POLPAN enables us to trace individuals' evolving preferences for what inequality in a society ought to look like. A major impediment in previous studies has been the lack of high-quality panel data and the challenges associated with causal analysis in cross-sectional reports of redistributive attitudes. We are able to provide compelling evidence that structural change in actual earnings distributions lead to changing attitudes about inequality. Second, the operationalization of attitudes toward inequality in many large-scale surveys often fails to address the complexity in measuring in such issues (McCall 2013). While we utilize many of these traditional measures to create various controls for welfare state support and meritocratic beliefs, we also construct a measure for our dependent variable that monitors individuals' changing ideas about preferred or fair income inequality. This measure is more direct as the questionnaire prompts individuals to think about specific occupations, but it also taps into a more subtle way of measuring economic preferences that is not easily confounded with matters of redistribution and support for the welfare state. Finally, the timing of POLPAN coincides with the rapid, systemic change in Poland's recent history. The structure of this data is

therefore ideally suited for analysis of the social consequences (especially attitudes) of political and economic transformation.

Analysis of four consecutive waves of POLPAN (in both cross-sectional and panel format) reveal that preferred levels of income inequality have increased over time in accordance with increases in actual and perceived earnings inequality. This finding provides support to various social-psychological theories (justification, status quo bias, and status attribution theories) which emphasize a default preference for maintaining consistency (Trump 2013) and acclimating to contextual changes. It is in this way that ideas about "what ought to be" tend to follow "what is believed to be" and "what objectively exists" (Krauze and Słomczyński 1986). In addition to this principle finding, we also replicate many previously established demographic and attitudinal findings. Higher preferred levels of inequality are reported by men, those with more education, and those with higher incomes (Kelly and Evans 1993). Also, our attitudinal scales for meritocratic beliefs and welfare state support replicate previous studies and confirm our own hypotheses. Those who place greater emphasis on meritocracy permit higher ratios of inequality, while those who show stronger support for the welfare state prefer lower ratios. However, an interesting addition to this set of results is that these attitudinal effects only become significant later in our time series. In other words, it took time and systemic change for meritocratic beliefs to take hold. Once established though, it is possible to envision a continuous feedback loop in which these attitudes (initially spurred on by structural change) influence further change and are then, in turn, reinforced.

A number of questions however remain to be answered in future research. Our analysis with panel data is an improvement in many ways, but it also comes with its own set of challenges. For example, additional analyses of generational effects and tests using lagged effects for each measurement occasion may provide a more nuanced discussion of both changes over time and across birth cohorts. Furthermore, we argue that levels of preferred inequality rise along with increases in actual or perceived inequality. But, the evidence is less clear as to whether this is a 1:1 change (or what circumstances lead to varying ratios of change). Last, future predictions represent a formidable challenge. Assuming economic inequality continues to rise in Poland, will citizens gradually increase their preferred levels of inequality as well? And how will

preferred income ratios keep pace with the perceived or actual earnings distributions? Our hope is that future waves of POLPAN will provide insight to these questions and promote a better understanding of how exactly individuals' inequality attitudes change over time. In the current study we have used the best available data to track these types of changes and to provide a foundation for future studies in this regard.

APPENDICES

Appendix 1. Question wording and response categories to fair earnings item in POLPAN 1988-2003.

1988 Questionnaire item: 92	1993 Questionnaire item: H08z	1998 Questionnaire item: H07	2003 Questionnaire item: H07
91. I will read some occupational titles. Please tell me, how much - in your opinion -people actually earn in these occupations? 92. How much - in your opinion - should people earn in these occupations to achieve some justice?	H07z. I will read some occupational titles. Please tell me, how much - in your opinion -people actually earn in these occupations. H08z. How much - in your opinion - should people earn in these occupations to achieve some justice?	H06. I will read some occupational titles. Please tell me, how much - in your opinion -people actually earn in these occupations. H07. How much - in your opinion - should people earn in these occupations to achieve some justice?	H06. I will read some occupational titles. Please tell me, how much - in your opinion -people actually earn in these occupations. H07. How much - in your opinion - should people earn in these occupations to achieve some justice?
(A) Bricklayer			
(B) Medical doctor (internist)	(A) Medical doctor (internist) in state hospital	(A) Medical doctor (internist) in state hospital	(A) Medical doctor (internist) in state hospital
(C) Bank clerk			
(D) Owner of a small shop	(B) Owner of a small shop	(B) Owner of a small shop	(B) Owner of a small shop
(E) Director of factory	(C) Manager of a large enterprise	(C) Manager of a large enterprise	(C) Manager of a large enterprise
(F) Skilled worker in a factory	(D) Skilled worker in a state factory		
(G) Farm worker			
(H) Secretary	(E) Secretary in a state firm		
	(F) Secretary in a private firm		
(I) Public transport bus driver	(G) Public transport bus driver		
(J) Unskilled worker in a factory	(H) Unskilled worker in a state factory	(D) Unskilled worker in a state factory	(D) Unskilled worker in a state factory
(K) Cabinet minister	(I) Cabinet minister	(E) Cabinet minister	(E) Cabinet minister
	(J) Owner of a large factory	(F) Owner of a large factory	(F) Owner of a large factory
	(K) Shop assistant in a warehouse		

Source: POLPAN, waves 1-4.

Appendix 2. Mean preferred (fair) earnings in Polish Zloty (PLZ / PLN) by occupation and survey year (wave).

Occupations	1988	1993	1998	2003
Doctor	48,070	8,295,260	2,765.16	4,059.87
Bank clerk	29,990			
Owner of store/small shop	62,350	8,298,530	2,510.06	3,002.87
Director/manager of state-owned factory/enterprise	71,300	17,743,360	8,246.46	11,750.96
Skilled worker	40,870	5,560,640		
Farm worker	45,020			
Secretary state firm	25,260	3,876,360		
Secretary private firm		4,537,250		
Bus driver	41,160	5,605,550		
Unskilled worker	27,610	3,568,260	1,371.56	1,715.65
Cabinet minister	90,310	17,850,170	9,451.73	13,005.73
Owner of factory		54,345,010	18,428.25	37,471.77
Shop assistant		4,347,230		

Source: POLPAN, waves 1-4.

Appendix 3. Descriptive statistics for independent variables.

Year	Variable	N	Minimum	Maximum	Mean	Std. Deviation
	Gender (1M)	1241	0	1	0.49	0.50
1988	Age	1241	22	66	40.63	11.35
1993	Age	1241	27	71	45.63	11.35
1998	Age	1241	32	76	50.63	11.35
2003	Age	1241	37	81	55.63	11.35
1988	Education (years)	1241	5	17	10.46	3.42
1993	Education (years)	1241	5	17	10.99	3.36
1998	Education (years)	1241	5	17	11.20	3.38
2003	Education (years)	1238	7	17	10.76	3.01
1988	Meritocracy	395	-3.35	2.17	0.00	1.00
1993	Meritocracy	602	-3.96	2.26	0.02	0.99
1998	Meritocracy	1193	-4.05	2.19	0.01	1.00
2003	Meritocracy	1205	-5.60	2.29	0.00	1.00
1988	Welfare State Support	367	-4.36	0.99	0.00	1.00
1993	Welfare State Support	603	-4.02	1.16	0.00	1.00
1998	Welfare State Support	1171	-4.29	1.19	0.00	1.00
2003	Welfare State Support	1193	-4.27	1.04	0.00	1.00
1988	HH income per capita (PLZ)	1179	14,290	750,000	142,800	76,520
1993	HH income per capita (PLZ)	1123	100,000	19,666,670	1,622,630	1,504,600
1998	HH income per capita (PLN)	1091	20.80	20,000	595.55	766.52
2003	HH income per capita (PLN)	1199	33.33	13,000	808.82	737.64
1988	Z-score (ln (HH income pc))	1179	-4.20	3.46	0.00	1.00
1993	Z-score (ln (HH income pc))	1123	-3.59	3.89	0.00	1.00
1998	Z-score (ln (HH income pc))	1091	-4.41	5.40	0.00	1.00
2003	Z-score (ln (HH income pc))	1199	-4.21	4.33	0.00	1.00

Source: POLPAN, waves 1-4.

Appendix 4. Descriptives of Fair Earnings for Factory Owner and Unskilled Worker, and Fair Earnings Ratio by year.

Year	Fair earnings:	N	Minimum	Maximum	Mean	Median	SD
	Factory owner (PLZ)	350	10,000	250,000	71,300	60,000	34,000
1988	Unskilled worker (PLZ)	365	12,000	70,000	27,610	26,000	8,080
	Ratio	338	0.29	10.00	2.73	2.4	1.35
	Factory owner (PLZ)	471	2,500,000	130,000,000	54,345,010	30,000,000	47,462,340
1993	Unskilled worker (PLZ)	586	1,000,000	12,000,000	3,568,260	3,000,000	1,240,110
	Ratio	467	0.50	72.22	16.28	10	15.72
	Factory owner (PLN)	885	1,000	99,000	18,428.25	12,000	16,234.03
1998	Unskilled worker (PLN)	1176	200	20,000	1,371.56	1,000	1,385.28
	Ratio	885	0.34	100.00	16.20	10	15.84
	Factory owner (PLN)	1169	1,000	1,300,000	37,471.77	20,000	76,850.58
2003	Unskilled worker (PLN)	1208	600	20,000	1,715.65	1,500	817.47
	Ratio	1167	0.83	1300.00	24.15	12.5	58.77

Source: POLPAN, waves 1-4.

REFERENCES

Aalberg, Toril. 2003. *Achieving Justice: Comparative Public Opinion on Income Distribution*. Leiden, Boston: Brill.

Balcerowicz, Leszek. 1994. "Transition to the Market Economy: Poland, 1989-93 in Comparative Perspective". *Economic Policy* 9(19): 71-97.

Bandelj, Nina and Matthew C. Mahutga. 2010. "How Socio-Economic Change Shapes Income Inequality in Post-Socialist Europe." *Social Forces* 88(5):2133–61.

Brzeziński Michał, Barbara Jancewicz, and Natalia Letki. 2013. "Growing Inequalities and Their Impacts in Poland" *GINI Growing Inequalities' Impacts,* Country Report: Poland. Retrieved December 31, 2013 (http://www.uva-aias.net/uploaded_files/publications/Poland.pdf).

Card, David and John E. DiNardo. 2002. "Skill-Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles". *Journal of Labor Economics* 20(4): 733-783.

Della Fave, L. Richard. 1980. "The meek shall not inherit the earth: Self-evaluations and the legitimacy of stratification". *American Sociological Review* 45: 955-971.

Domański, Henryk. 2013. *Sprawiedliwe Nierówności Zarobków w Odczuciu Społecznym*. Warszawa: Wydawnictwo Naukowe Scholar.

Domański, Henryk and Zbigniew Sawiński. 2012. "Sprawiedliwe Nierówności Zarobków." *Studia Socjologiczne* 206: 7-28.

Domański, Henryk and Kazimierz M. Słomczyński. 2008. Social Structure in Poland: POLPAN 1993. GESIS Data Archive, Cologne. ZA4671 Data file Version 1.0.0, doi:10.4232/1.4671.

Esping-Andersen, Gøsta. 2007. "Sociological Explanations of Changing Income Distributions." *American Behavioral Scientist* 50(5): 639–58.

Gijsberts, Mérove. 2002. "The Legitimation of Income Inequality in State-socialist and Market Societies". *Acta Sociologica* 45: 269 –285.

Gornick, Janet C. and Markus Jantti. 2013. "Introduction" Pp. 1-50 in *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries.* Edited by Janet C. Gornick and Markus Jantti.

Hadler, Markus. 2005. "Why Do People Accept Different Income Ratios?: A Multi-Level Comparison of Thirty Countries." *Acta Sociologica Acta Sociologica* 48(2):131–54.

Jasso, Guillermina and Peter H. Rossi. 1977. "Distributive Justice and Earned Income." *American Sociological Review* 42(4):639–51.

Jencks, Christopher and Lane Kenworthy. Forthcoming. *Should We Worry About Inequality?*

Keane, Michael P. and Eswar S. Prasad. 2002. "Inequality, Transfers, and Growth: New Evidence from the Economic Transition in Poland". *The Review of Economic and Statistics* 84(2): 324-341.

Kelley, Jonathan and M.D.R. Evans. "The Legitimation of Inequality: Occupational Earnings in Nine Nations." *American Journal of Sociology* 99(1): 75-125.

Kenworthy, Lane and Leslie McCall. 2008. "Inequality, Public Opinion and Redistribution." *Socio-Economic Review* 6(1):35–68.

Kluegel, James R. and Eliot R. Smith. 1986. *Beliefs About Inequality: Americans' Views of What Is and What Ought to Be*. New York: Aldine de Gruyter.

Krauze, Tadeusz K. and Kazimierz M. Słomczyński. 1986. "Social Mobility: Actual, Perceived, and Equitable." *International Journal of Sociology* 16(1-2): 174-189.

Krauze, Tadeusz. 1998. "Meritocracy and the Transition to the Market Economy." Pp. 70-81 in *Power and social structure: Essays in honor of Włodzimierz Wesołowski*, edited by Aleksandra Jasińska-Kania, Melvin L. Kohn, and Kazimierz M. Słomczyńsk. Warszawa: Wydawnictwo Uniwersytetu Warszawskiego.

Kunovich, Sheri and Kazimierz M. Słomczyńsk. 2007. "Systems of Distribution and a Sense of Equity: A Multilevel Analysis of Meritocratic Attitudes in Post Industrial Societies". *European Sociological Review* 23(5): 649-663.

Lerner, Melvin J. and Dale T. Miller. 1978. "Just World Research and the Attribution Process: Looking Back and Ahead." *Psychological Bulletin* 85(5): 1030–1051.

Locklear, Sheri. 1998. "Meritocratic Image of Success and Its Determinants: A Comparison of Poland and Hungary, 1987-88 and 1992". *International Journal of Sociology* 28(2): 65-90.

Marshall, Gordon, Adam Swift, David Routh, and Carole Burgoyne. 1999. "What Is and What Ought to Be. Popular Beliefs about Distributive Justice in Thirteen Countries." *European Sociological Review* 15: 349-67.

McCall, Leslie. 2013. *The Undeserving Rich: American Beliefs about Inequality, Opportunity, and Redistribution*. Cambridge, New York: Cambridge University Press.

McCall, Leslie, and Fiona Chin. 2013. "Does Knowledge of Inequality Affect Beliefs about Inequality?" Northwestern University, Unpublished Manuscript.

McCall, Leslie and Lane Kenworthy. 2009. "Americans' Social Policy Preferences in the Era of Rising Inequality." *Perspectives on Politics* 7(3):459–84.

McCall, Leslie and Christine Percheski. 2010. "Income Inequality: New Trends and Research Directions." *Annual Review of Sociology* 36(1): 329-347.

Morris, Martina. 1999. "Inequality in Earnings at the Close of the Twentieth Century." *Annual Review of Sociology* 25: 623–657.

Nielsen, Francois and Arthur S. Alderson. 1997. "The Kuznets Curve and the Great U-Turn: Income Inequality in U.S. Counties, 1970 to 1990." *American sociological review*. 62(1): 12-33.

Newell, Andrew and Mieczysław W. Socha. 2005. "The distribution of wages in Poland, 1992–2002". IZA Discussion Paper 1485, Bonn: Institute for the Study of Labour. Retrieved December 31, 2013 (http://ftp.iza.org/dp1485.pdf).

Newell, Andrew and Mieczysław W. Socha. 2007. "The Polish wage inequality explosion". *Economics of Transition* 15: 733–758.

Osberg, Lars and Timothy Smeeding. 2006. "'Fair' Inequality? Attitudes toward Pay Differentials: The United States in Comparative Perspective." *American Sociological Review* 71(3): 450–73.

Piketty, Thomas and Emmanuel Saez.. 2003. "Income Inequality in the United States, 1913-1998." *The Quarterly Journal of Economics* 118(1): 1–39.

Rawls, John. 1971. *A Theory of Justice*. Cambridge, MA: Belknap Press of Harvard University Press.

Redmond, Gerry, Sylke Viola Schnepf, Marc Suhrcke, and International Child Development Centre. 2002. *Attitudes to Inequality after 10 Years of Transition*. Florence, Italy: UNICEF Innocenti Research Centre.

Ritzman, Rosemary L., and Donald Tomaskovic-Devey. 1992. "Life Chances and Support for Equality and Equity As Normative and Counternormative Distribution Rules". *Social Forces* 70: 745-63.

Robinson, Robert and Wendell Bell. 1978. "Equality, Success, and Social Justice in England and the United States". *American Sociological Review* 43: 125-43.

Rutkowski, Jan. 1996. "High skills pay off: the changing wage structure during economic transition in Poland". *Economics of Transition* 4: 89–112.

Słomczyński, Kazimierz M. and Sandra T. Marquart-Pyatt. 2007. "Introduction: Change and Continuity of Social Life." Pp. 9-21 in *Continuity and Change in Social Life: Structural and Psychological Adjustment in Poland*, edited by Kazimierz M. Słomczyński and S. T. Marquart-Pyatt. Warsaw: IFiS Publishers.

Słomczyński, Kazimierz M., Krzysztof Zagórski, Krystyna Janicka, Anna Firkowska-Mankiewicz, Bogdan Mach, Elizabeth Osborn, Maciej Kryszczuk, Michał Bojanowski, and Marta Czubińska. 2008. Social Structure in Poland: POLPAN 2003. GESIS Data Archive, Cologne. ZA4673 Data file Version 1.0.0, doi:10.4232/1.4673.

Słomczyński, Kazimierz M., Ireneusz Białecki, Krystyna Janicka, Bogdan Mach, Wojciech Zaborowski, Krzysztof Zagórski, Elizabeth Osborn, Katarzyna Wilk, and Anna Firkowska-Mankiewicz. 2008. Social Structure in Poland: POLPAN 1998. GESIS Data Archive, Cologne. ZA4672 Data file Version 1.0.0, doi:10.4232/1.4672.

Słomczyński, Kazimierz M., Ireneusz Białecki, Henryk Domański, Krystyna Janicka, Bogdan W. Mach, Zbigniew Sawiński, Joanna Sikorska, and Wojciech Zaborowski. 2008. Social Structure in Poland: POLPAN 1988. GESIS Data Archive, Cologne. ZA4670 Data file Version 1.0.0, doi:10.4232/1.4670.

Socha, Mieczysław W., and Jacob Weisberg. 2002. "Labor market transition in Poland: Changes in the public and private sectors". *International Journal of Manpower* 23(6): 553 – 577.

Svallfors, Stefan. 1993. "Dimensions of Inequality: A Comparison of Attitudes in Sweden and Britain". *European Sociological Review* 9: 267 –287.

Tòth, István György and Tamás Keller. 2013. "Income Distribution, Inequality Preferences, and Redistributive Preferences in European Countries". Pp. 173-206 in *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*. Edited by Janet C. Gornick and Markus Jantti.

Trump, Kris-Stella. 2013. "The Status Quo and Perceptions of Fairness - How Income Inequality Influences Public Opinion." Harvard University, Department of Government Working Paper Series.

UKIE. 2003. "Mapa pomocy Unii Europejskiej udzielonej Polsce w ramach programu Phare 1990 -2003, ISPA 2000 - 2003 oraz SAPARD". Urząd Komitetu Integracji Europejskiej. Retrieved December 31, 2013 (http://archiwum-ukie.polskawue.gov.pl/HLP/files.nsf/0/73C64711C4628031C1256EDA0034E6E4/$file/publikacja_mapa_pomocy_UE.pdf).

Ustawa z dnia 3 marca 2000 r. o wynagradzaniu osób kierujących niektórymi podmiotami prawnymi [Law of March 3, 2000, on the renumeration of individuals managing some legal entities]. Dziennik Ustaw [Journal of Laws of the Republic of Poland] 2000 nr 26(306). Retreived December 31, 2013 (http://isap.sejm.gov.pl/DetailsServlet?id=WDU20000260306).

Ustawa z dnia 23 grudnia 1988 r. o działalności gospodarczej [Law of December 23, 1988, on entrepreneirual activity]. Dziennik Ustaw [Journal of Laws of the Republic of Poland] 1988 nr 41 poz. 324. Retreived December 31, 2013 (http://isap.sejm.gov.pl/DetailsServlet?id=WDU19880410324).

Wesołowski, Włodzimierz. 1981. "Stratification and Meritocratic Justice". *Research in Social Stratification and Mobility* 1: 249-65.

Wesołowski, Włodzimierz and Bogdan Mach. 1986. "Unfulfilled systemic functions of social mobility, II: The Polish Case". *International Sociology* 1: 173-187.

Western, Bruce and Jake Rosenfeld. 2011. "Unions, Norms, and the Rise in U.S. Wage Inequality." *American Sociological Review* 76(4): 513–37.

World Development Indicators: Income share held by highest 10% (SI.DST.10TH.10), and Income share held by lowest 10% (SI.DST.FRST.10). Retreived December 31, 2013 (http://data.worldbank.org/country/poland).

Young, Michael. 1958. *The Rise of Meritocracy, 1870–2033*. London: Thames and Hudson.

Zajonc, Robert B. 1968. "Attitudinal Effects of Mere Exposure". *Journal of Personality and Social Psychology* 9(2.2): 1-27.