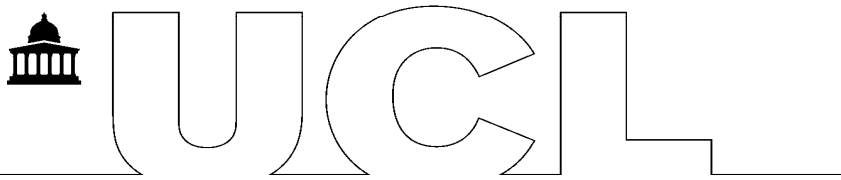

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Legitimacy of inequality and the stability of income distributions in Poland

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Legitimacy of inequality and the stability of income distributions in Poland

Zbigniew Karpiński[1]

Abstract

The objective of this paper is to apply hypotheses derived from theories of legitimacy and distributive justice to patterns of stability in income distribution in Poland. The hypotheses specify conditions under which income differences become legitimated. The question about the conditions of legitimacy of the differences is especially interesting in the Polish context, given steady increase in the amount of inequality after 1989. Data from Polish General Social Survey are then used to see if the hypotheses are consistent with empirical observation.

Introduction

Unequal distribution of rewards in a group or collectivity raises questions as to what makes the distribution stable.[2] The stability of reward distribution is problematic because distribution of rewards is often highly correlated with distributions of other valued resources — such as power and influence — so that instability in the distribution of rewards may contribute to instability in those other dimensions of stratification (Walker and Zelditch, 1993). For instance, if citizens of a country find income distribution unfair, they are likely to voice their discontent in election by voting for a party which promises to make the income distribution more fair by means of certain adjustments in the fiscal policy, for example.

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[1] The present paper is an extended and revised version of the presentation I gave in School for Slavonic and East European Studies (SSEES) at University College London in December 2009 as part of Research Seminar Series. Remarks and questions raised by participants in that seminar are hereby gratefully acknowledged. I owe special thanks to Professor Tomasz Mickiewicz who commented on earlier drafts of this paper. Much of the research reported in this paper was completed during my stay as a Honorary Research Fellow in SSEES from October to December 2009, within the Visiting Scholar Scheme established by SSEES and the Institute of Philosophy and Sociology of the Polish Academy of Sciences. I hereby thank both institutions for providing me with this opportunity. Direct all correspondence to: Institute of Philosophy and Sociology of the Polish Academy of Sciences, 72 Nowy Swiat Street, 00-330 Warsaw, Poland, zkarpinski@ifispan.waw.pl.

[2] Actually, this question could be raised with respect to any distribution of a valued good, whether it's equal or not. The stability of an equal distribution is not, by itself, obvious and natural.

Therefore, those in positions of power and influence have an interest in making distribution of rewards more or less stable.

Throughout the paper, *the stability of income distribution* is conceptualised in terms of attempts to change the distribution: if any such attempts are made, then the distribution is subject to instability. It is the lack of such attempts that make it stable. Instability of the income structure, therefore, means (a) tensions attributed by members of a collectivity to its income structure, (b) pressures to change the structure, created by those tensions, and (c) actual change due to these pressures.[3]

Stability of reward distributions figures prominently in sociological theories of legitimacy and distributive justice (Hegtvedt, 2006; Zelditch, 2001). More precisely, legitimacy theories are concerned with the question of stability of social structures of various kinds of which the reward distribution is just one example (Hegtvedt, 2006; Zelditch, 2001; 2006). In legitimacy theories, the problem is how legitimacy of a pre-given social order spreads to its new or contested elements (Zelditch and Walker, 2003) and how, given legitimacy, various elements of the social order become stable (Zelditch and Walker, 1984). As regards the theories of distributive justice, in turn, reward distributions are stable to the extent they match or satisfy a norm of fair distribution (Hegtvedt, 2006). Research has shown, however, that reactions to injustice are driven not only by those normative considerations, but by other factors, such as self-interest and perceptual bias, as well (Jasso and Rossi, 1977; Shepelak and Alwin, 1986).

The objective of this paper is to investigate the patterns of stability of income distribution in Poland after the fall of communism to see if the patterns are consistent with expectations based on theories of legitimacy and distributive justice. The stability of income distribution is operationalised here in terms of responses to a survey item concerning preferences for reduction of income inequality. Ideally, the stability should be measured using behavioural indicators, but such indicators are impossible to obtain in a survey study. Another limitation of the empirical material used in this paper is that not all of the items employed as instantiations of important theoretical concepts are available for the whole period of interest, that is, the period 1992-2008. Therefore, the analysis has to be restricted in time. Finally, the paper deals exclusively with the issues concerning the distribution of income and says nothing about the means or procedures by which the income is distributed. Put differently, the paper is

[3] This conceptualisation of stability of income distribution builds upon the notion of stability of power structure, as developed by theory of legitimacy; see Zelditch (2006) and Zelditch and Walker (1984) for details.

concerned with issues pertaining to *distributive justice* rather than *procedural justice* (Törnblom and Vermunt, 2007).

The paper is divided into four main sections. In the first one, the theoretical background is overviewed and crucial theoretical relationships are presented. The second section is concerned with operationalisation of the theoretical concepts in terms of indicators based on responses to survey items and with formulation of a set of hypotheses to be tested. The third section discusses statistical tools and empirical material used to test the hypotheses. Finally, a short summary of the research reported in this paper and some conclusions concerning further research on the topic are proposed in the closing section.

The conceptual background

The increase in the amount of income inequality in Poland in the 1990s is a well-known and well-established fact, even though the estimates of the amount of that increase differ depending on the source of data. For instance, Table 1 reports values of the Gini coefficient of concentration, compiled by (Kumor, 2009) on the basis of empirical material provided by the Central Statistical Office in Poland. Gini coefficient is commonly used to measure inequality in income, especially in cross-national research, because of its desired property of *scale invariance* (Allison, 1978; Sen, 1973). The Gini coefficient is bounded between 0 and 1, with the lower bound indicating perfect equality (when every member of a community has the same amount of a valued good, such as income) and the upper bound indicating maximum inequality (when one member of the community is in possession of the whole good, while the remaining members have nothing). Other properties of the Gini coefficient are presented elsewhere (Allison, 1978; Sen, 1973). The figures in Table 1 indicate how much inequality there was in monthly wages of Polish employees between the years 1987 and 2006. As we can see, the inequality grew constantly throughout the 1990s and continued to grow after 2000. Most of the time, the increase in inequality seems to have been steady, except for two time points — 1989-1991 and 1993-1994 — when it was more rapid. In general, the inequality in earnings increased by some 44 per cent in the period 1988-1999.

Along with this increase in the amount of income inequality, respondents' opinions regarding the inequality tended to converge on the idea that there was too much inequality in income. Specifically, Table 2 shows distributions (in percentages) of responses to an item asking the subjects if they agreed with the statement that income differences in Poland were too large. The figures are based on data from the Polish General Social Survey, an on-going

research project which is described in more detail in a later section. As one can see from the table, the percentage of those who replied 'Strongly agree' to that item went up, while the remaining percentages went down in the period under study, although the trends are not monotonic. Interestingly, the proportion of respondents indicating 'strong agreement' with the quoted statement increased by 57 per cent — from less than forty per cent to more than sixty per cent — between 1992 and 2008. Further, the cumulative percentages of the subjects replying 'Strongly agree' or 'Agree' went up by more than ten percentage points, reaching 90.9 per cent in 2008. Also, note that there was a decline in the relative frequency of 'Don't know' responses, suggesting that the problem of income differences grew in importance for the participants in the Survey. Either way, popular perceptions of income differences in Poland seem to have converged on the idea that there was too much inequality in the way income was distributed. That is, the income differences, as perceived by the Polish respondents, exceeded the level they would be willing to accept or justify as fair.

Experience of injustice and reactions to it

Departure of the actual distribution of rewards from the just one gives rise to experience of injustice which, in turn, produces a feeling of distress that calls for some action to restore justice, either cognitively or behaviourally.[4] As to *the behavioural reactions to injustice*, a person may attempt to redress the injustice he or she experiences by changing his or her *actual inputs* (contributions) or his or her *actual outcomes*. For instance, an over-rewarded person, feeling guilt because of having received more for his or her contributions than he or she deserves (or more than other persons with similar inputs), is motivated to reduce the guilt by increasing his or her productivity or compensating the under-rewarded. Similarly, an under-rewarded person, feeling anger because of having received less for his or her contributions than he or she deserves (or less than other group members with similar inputs), is motivated to relieve the anger by decreasing his or her productivity or

[4] For a general overview of sociological theory and research on distributive justice, see Cook and Hegtvedt (1983), Hegtvedt (1994; 2006), Hegtvedt and Johnson (2000) and Hegtvedt and Markovsky (1995). *Distributive justice* refers to outcomes of a process by which rewards (and punishments) are distributed among members of a group. Another important field of sociological study on justice concerns *procedural justice*, fairness in the means by which the distribution decisions are made (for a comprehensive discussion of both areas of theory and research, consult Törnblom and Vermunt, 2007). Although findings from a recent experiment confirm that procedures matter (Molm, Takahashi, and Petersen, 2003), procedural considerations are omitted in this paper and the focus is exclusively on the distributive issues. It is largely due to lack of appropriate empirical material with which to test hypotheses concerning procedural justice.

compensating the under-reward with a greater share of some other reward, if available.[5] When the individual feelings of injustice are accompanied by recognition that there are other group members who are treated unfairly, collective action to restore justice — in the form of strikes, boycotts, political rebellion, and the like — is likely to emerge (Hegtvedt, 1994; Walker and Zelditch, 1993).

Note, however, that the lack of response to justice evaluation does not necessarily mean that the subject has felt no injustice. The likelihood of the response depends, among other things, upon ascriptions of responsibility for the injustice. Persons who attribute the responsibility to another person (or persons) are more likely to seek redress than those who attribute the responsibility to chance or some other impersonal factors (Utne and Kidd, 1980). Thus, if an increase in income inequality beyond the acceptable level is seen as resulting from deliberate action of persons or groups who benefit from it, collective response by persons distressed by the increase in inequality are more likely to follow than if the increase is attributed to some impersonal forces such as operation of the market or changes in the demographic structure.

Another factor that affects reactions to injustice is self-interest. Much of the evidence concerning the effect of self-interest on the perception of justice comes from laboratory studies using exchange networks. Results of these experiments show that subjects at power-advantaged positions perceive exchange outcomes as more fair than those occupying power-disadvantaged positions (Cook, Hegdtvedt, and Yamagishi, 1988); that social actors evaluate their contributions as more important than the contributions of others; and that actors who perform well on a task tend to prefer equity as a just distribution rule, while those who perform poorly tend to prefer equality (Cook and Hegtvedt, 1983). Findings from survey studies tell a similar story. The perceived justice of income distributions is positively related to individual income (Shepelak and Alwin, 1986) and people prefer distribution rules that serve their own interests (Jasso and Rossi, 1977).

Inequality and legitimacy

But reward distributions can remain stable — in the sense that no action is taken to change them — even if they violate individual feelings of justice, provided that the distributions are collectively legitimated (Walker and Zelditch, 1993). There are a number of sociological theories of legitimacy (Zelditch, 2001, and the present discussion builds on ideas from one of them, that is, from legitimacy theory as developed by Henry A. Walker and

[5] For a discussion of research testing these conjectures, see Hegtvedt (1994: 194-5).

Morris Zelditch (Walker and Zelditch, 1993; Zelditch, 2006; Zelditch and Walker, 1984; 2000; 2003).

Following Dornbusch and Scott (1975), Zelditch and Walker distinguish between *individually accepted* and *collectively established* legitimacy. The former is referred to as *propriety* and it means an individual belief that an element of a social order — such as an institution, practice, position, or structure — is right or the way it ought to be (Walker and Zelditch 1993; Zelditch, 2006). It is argued that, ceteris paribus, propriety guides individual actions, so that impropriety should lead to actions aimed at changing the existing order or some element of it (Dornbusch and Scott, 1975). But the theory also claims that propriety is neither necessary, nor sufficient condition of legitimacy, because legitimation processes are inherently collective (Zelditch, 2006). The collectively established legitimacy is termed *validity* and the relevant hypothesis is that a structure that is improper can remain stable if it is collectively validated (Walker and Zelditch, 1993; Zelditch and Walker, 1984). Collective validation of social structures establishes a framework for meaningful and socially sanctioned behaviour. Validity of the structure imposes direct pressures on members of the group to comply with established institutions (Thomas, Walker, and Zelditch, 1986). If a social structure is valid, members of the group are expected to act so as to maintain the structure, to approve of actions that maintain the structure and to disapprove of actions that challenge it. Also, in Zelditch-Walker theory validity is predicted to create indirect pressures on individuals through its effect on propriety in the sense that collectively validated social structures strengthen group members' beliefs that the structures are proper (Zelditch, 2006; Zelditch and Walker, 1984; 2000). The theory's predictions were largely supported by empirical tests using controlled laboratory settings and surveys (Mueller and Landsman, 2004; Thomas, Walker, and Zelditch, 1986; Walker, Rogers, Thomas, and Zelditch, 1991; Walker, Rogers, and Zelditch, 1988; 2002; Walker, Thomas, and Zelditch, 1986; Zelditch and Walker 1984; 2000; 2003).

Applying these ideas to the problem of legitimacy of inequality, personal opinions that 'income differences are too large' can be taken to mean that the actual inequality departs from what it ought to be and for this reason is found improper. If propriety guides behaviour, as Zelditch-Walker theory claims it does, the belief that there is too much inequality should lead individuals to behaviour aiming at (or, at the very least, to expression of preference for) reducing the differences in income. Consequently, impropriety of the income inequality should translate into instability of the income distribution.

But individuals are guided in their behaviour not only by their own sense of appropriateness, but also by their anticipation of the behaviour of others. If the others are expected to approve of the existing inequality in income, they can also be expected to act so as to maintain the inequality, to do nothing to challenge it and to disapprove of action challenging the distribution of income. But how do the others come to approve of the income distribution in the first place? This is where validity of the distribution comes into play. The distribution (and its properties, including inequality) becomes validated when it is linked to a larger social and cultural framework. More specifically, the income differences become validated if they (are believed to) serve an important societal goal, for instance, or if they (are believed to) derive from another element of a social order that is already validated, such as when the increase in the amount of inequality is seen as a consequence of necessary economic reforms. In the former case, the rule of income distribution, together with its resulting properties, including inequality, is legitimate because it is (seen as) instrumental to future prosperity which can be assumed to constitute an important social goal. Let us now turn attention to the latter case, in which legitimacy spreads from an element that already is legitimate to a new element of a social order.

Support for pro-market reforms and the spread of legitimacy

The increase in the amount of income inequality was commonly attributed to the economic reforms initiated by the first Polish non-communist government. One's attitude towards the reforms — and the systemic change in 1989 more generally — could have coloured their attitude towards the increase in income inequality in the sense that endorsing the reforms could have resulted in acceptance of the level of the economic inequality as somewhat unpleasant but necessary 'side effect' of transition from communism to market economy. On the other hand, if a feeling of insecurity associated with rapid social changes led some subjects to oppose the reforms, this lack of support could have spread to their attitudes towards the economic inequality.

The proposition concerning the effects of the support for the reforms initiated in 1989 is not an ad hoc conjecture, but an instantiation of the spread-of-legitimacy hypothesis, as developed by Zelditch and Walker (2003). According to Zelditch and Walker theory, there are four conditions of legitimacy of a social order[6] and the spread-of-legitimacy hypothesis

[6] The four conditions in question are consensus, impartiality, objectification, and consonance. In Zelditch-Walker theory of legitimacy, legitimacy cannot be created out of nothing, which is to say that for a new element of a social order to acquire legitimacy, some other elements,

claims that if all of the four conditions are satisfied, then legitimacy spreads from those elements of the social order that are already legitimated to any elements of the order to which the accepted elements are linked (Zelditch and Walker, 2003, p. 223, 235-239). From this point of view, the legitimacy of the first non-communist Polish government spreads to the pro-market reforms it initiated and, to the extent that the increase in income inequality is seen as a consequence of these reforms — to the extent, that is, that the increase can be linked to these reforms — the actual income inequality is likely to become legitimated and, therefore, stable.

Summary

To summarise the discussion so far, the present analysis builds on concepts and relationships developed by theories of legitimacy and distributive justice. Specifically, the two theories share an interest in the stability of social structures of various kinds: theory of distributive justice is concerned with stability of distribution of rewards (and burdens), while legitimacy theory is interested in stability of structures of authority or status. Further, both theories ask what makes the various social structures more or less stable. This question is a major focus in this paper as well.

From the distributive-justice theoretical framework, the following notions are taken: (a) Departure of the actual income distribution of income from the expectations based on some normative standard results on an experience of injustice, (b) the experience of injustice calls for some reaction, behavioural or cognitive, in order to restore the sense of justice, and \item the behavioural reaction against injustice can be suppressed by attributions of responsibility for the injustice or by self-interest. From legitimacy theory as well as experimental research on legitimacy of inequality, the present analysis borrows the following notions: (c) Legitimacy is a multi-level phenomenon, (d) both propriety and validity contribute to the stability of a social order, but validity is more important of the two: the order

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such as norms, values, practices, and the like, have to be already legitimated and there must be a 'formula' linking those 'undefined' or 'contested' elements of the social order to the accepted. *Consensus* means that the elements to which the formula appeals are consensually accepted. *Impartiality* means that any benefit to which the formula appeals is in the group interest. *Objectification* means that any belief to which the formula appeals is a matter of objective fact. Finally, *consonance* means that the elements of the social order that are accepted as legitimate are consonant with the nature of the order. For a detailed discussion of these conditions and their 'corollaries', as well as experimental research testing them, see Zelditch and Walker (2003).

that is seen as improper can remain stable if it is collectively validated, and (e) legitimacy can spread from an approved element of a social order to a new, or contested, element of that order. Let us now turn to operationalisation of the key concepts.

Data, measures, and hypotheses

The source of data

The present analysis makes use of data of the Polish General Social Survey, or PGSS for short, (Cichomski, Jerzyński and Zieliński, 2009a), an on-going research program initiated in the early 1990s in order to track changes taking place in the actual structure of the Polish society, in its social consciousness as well as in Poles' attitudes towards a number of social, economic, and political issues. Initially, that is from 1992 to 1995, the Survey was carried out every year, but after this period the intervals were extended to two and, eventually, three years. So far, nine editions of the Survey have been completed each of which was based on a probability sample of men and women aged 18 or more. Sample sizes varied from edition to edition, and so did completion rates, as shown in Table 3.

In each edition of the PGSS, a standard questionnaire was used together with some additional thematic modules. Also, since the very beginning the PGSS has collaborated with the International Social Survey Programme (ISSP), fielding some of its modules. Further information as to the goals of the PGSS, subject areas it covers, its data collection and processing methodology, 'methodological experiments' it performs, sampling design it uses, and many other issues can be obtained through the Survey's website: http://pgss.iss.uw.edu.pl. Cichomski, Jerzynski, and Zielinski (2009b) provide a complete description of the Survey and its methodology.[7] Also, additional information on the characteristics of the PGSS and the sample is to be given in subsequent sections if appropriate.

Measurement of the dependent variable

The dependent variable is operationalised in terms of the questionnaire item, 'The government should reduce income differences'. More specifically, participants in the PGSS were asked if they agreed with the quoted statement and their responses were coded using a Likert scale ranging from 1 ('strongly agree') to 5 ('strongly disagree'). Agreement with the

[7] The cited report was written in Polish, but an earlier version of it is available in English which was prepared after the 2002 edition of the PGSS has been completed; see (Cichomski, Jerzyński, and Zieliński, 2003) for details.

statement may be seen as indicative of a preference for changing the way income in Poland is distributed. In turn, disagreement with the statement may be viewed as reflecting a preference for status quo in income distribution.

In Zelditch-Walker theory, the interest is in how legitimacy affects stability of a social order (Zelditch and Walker, 1984). Similarly, the present analysis investigates the effects of income inequality on the frequency of occurrence of the preference for status quo. The original 5-point Likert scale has therefore been transformed into a binary response assigning 1 to those subjects who indicated that they agreed or strongly agreed with the statement that the government should reduce the income differences, and 0 otherwise; 'Don't know' responses were classified as missing data in the present analysis.

In other words, expressing the preference for status quo in the income distribution is treated here as a 'success' in a Bernoulli process, and logistic regression for dichotomous variables (Agresti, 2002, ch. 5) is used to assess the effects of explanatory factors, listed in the following subsection, on the odds of success.

Because the present analysis uses survey data to represent key theoretical concepts, it is impossible to obtain 'true' behavioural measures of the attempts to change the income structure, the dependent variable in Zelditch-Walker theory of legitimacy. Instead, this analysis relies on subjects' opinions and beliefs, as communicated in response to relevant questionnaire items, to capture their attitudes towards changing the income distribution. But opinions and beliefs are very imperfect indicators (or predictors) of readiness to engage in action aiming at changing the income distribution in Poland, because — as decades of social psychological research and theorising on attitudes have shown — there is usually only vary weak relationship between attitude and behaviour (Kraus, 1995; Schuman, 1995).

Furthermore, the participants in the PGSS were not asked whether they themselves would be willing to join the action aiming at reducing the income inequality in Poland, but if they thought that the differences in income should be reduced by a third party, which contributes further to the imperfectness of the chosen indicator as a predictor of behaviour. After all, it is easier to tell others what to do than to do it oneself (Heckathorn, 2002).

Also, since the item explicitly indicates the government as the agent that should reduce the inequality in income distribution, it is possible that attitudes towards the government interact with the attitudes towards the inequality.

And last but not least, there seems to be some ambiguity in the statement used to measure the subjects' preference for changing the existing income distribution. On the one hand, it can be interpreted as saying that reducing the income differences should be among the

government's responsibilities. On the other hand, it can be taken to mean that the differences should be reduced because they are too large and only the government is powerful enough to do something about it. It is only in the case of the latter interpretation that we should expect a correlation between one's attitude towards (preference for) reducing the income inequality and one's actual behaviour in this regard.

Independent variables: propriety and validity

Let us now turn attention to explanatory variables. I begin with discussing operationalisation of two variables taken from legitimacy theory: propriety and validity. The former is measured with the questionnaire item, 'The income differences in Poland are too large'. To agree with this statement is to say that the amount of income inequality in Poland exceeds the level that is found acceptable and the rule of income distribution that gives rise to this amount of inequality should be rejected as improper. On the other hand, to disagree with that statement is to say that the income differences in Poland are not above the level that is believed to be fair and so the rule of income distribution which gives rise to this amount of inequality should be accepted as proper.

In order to measure validity, the following item was used: 'Income differences are necessary for Poland's future prosperity'. In this statement, the amount of income inequality is linked to a broader social framework defining socially accepted goals. To the extent that a person believes that income inequality is a condition of prosperity, they will expect others to accept the rule of distribution that gives rise to the amount of inequality and, consequently, by taking the others into account, the person will be less likely to express a preference for changing the distribution of income. By the same token, rejecting the view that income inequality is necessary for prosperity may be conducive to preference and, eventually, action to change the existing income distribution as invalid, i.e. as not being functional for realisation of important societal goals.

In the PGSS questionnaire, responses to both items were coded using a 5-point Likert scale ranging from 1 ('Strongly agree') to 5 ('Strongly disagree'). In the present analysis, however, the original scales were transformed into binary ones. As regards the indicator of propriety, the score of 1 was assigned to the subjects who agreed or strongly agreed with the statement that the income differences in Poland were too large, and the score of 0 to those who replied otherwise. For this reason, responses to the statement, 'Income differences in Poland are too large', as coded for the purpose of this analysis, should be seen as an indicator of impropriety, rather than propriety, of income inequality. In the case of the indicator of

validity, 1 is assigned to the subjects giving a 'legitimating' response and 0 to those giving a 'non-legitimating' one, where the legitimating response consists in replying either 'Agree' or 'Strongly agree' to the item, 'Income differences are necessary for Poland's future prosperity'. As in the case of the measure of the dependent variable, 'Don't know' responses were classified as missing cases.

Based on the previous discussion of the concepts of propriety and validity, the following hypotheses are proposed:

Hypothesis 1 (*the effects of impropriety*): Ceteris paribus, subjects who think that differences in income in Poland are too large *are more likely* to agree with the statement that the government should reduce the differences than subjects who do not think that the inequality in income in Poland is too large.

Hypothesis 2 (*the effects of validity*): Ceteris paribus, subjects who think that differences in income are necessary for Poland's future prosperity *are less likely* to agree with the statement that the government should reduce the differences than subjects who think that the differences are not a necessary condition of future prosperity.

Independent variables: support for the market reforms and self interest

Let us now turn attention to the problem of measurement of the support for the political and economic reforms initiated in Poland in 1989. In the PGSS questionnaire, one question seems to be relevant to this point. Namely, the participants were asked if they thought that the changes begun in Poland in 1989 were advantageous or disadvantageous to most of Poles, with responses coded using a 5-point scale ranging from 'Entirely advantageous' to 'Entirely disadvantageous'. If a person is of the opinion that the changes were in fact advantageous for most of Poles, he or she is likely to be supportive of the changes, including the political and economic reforms, and ready to accept their various consequences, including the increase in the amount of income inequality. In other words, it is assumed here that those who believe that the changes initiated in 1989 were advantageous for most people in Poland are likely to find the changes legitimate and extend this legitimacy to the characteristics of income distribution.

Also, in order to avoid the interpretation that the subjects think that the political and economic changes in Poland were advantageous for most of the Polish society, because the changes were advantageous for the respondents personally, another item is included in the present analysis — one that asks the subjects if they thought that the changes set out in Poland

in 1989 were advantageous to them and their families, with responses coded using the same scale as the previous one. Thus, it is possible to investigate the effect of the support for the political and economic changes in Poland on the preference for reducing the income differences, regardless of whether the changes were or were not advantageous to the given person. For the sake of the present analysis, both items were transformed into binary responses with 1 given to the subjects who thought that the changes were advantageous — that is, to the subjects who selected 1 ('Entirely advantageous') or 2 ('More advantageous than disadvantageous') on the original scale — and the remaining respondents were assigned 0. The 'Don't know' responses were recoded as missing cases.

As regards the support for the reforms, the proposed hypothesis is as follows:

Hypothesis 3 (*the effect of support for the democratic and economic reforms*): Ceteris paribus, subjects who think that the reforms initiated in Poland in 1989 were advantageous to most of the Polish society *are less likely* to agree with the statement that the government should reduce the differences in income as compared to subjects who think that the reforms were disadvantageous to most Poles.

Note, however, that the second item, the one asking how the 1989 reforms affected the subjects and their families, is introduced in this analysis not only as a control variable, but also for substantive reasons, as an operationalisation of the concept of self-interest. That is, the assumption here is that if a person claims that the reforms had a positive effect on the person's situation, he or she has an interest in supporting the reforms as well as its effects (real or imagined), including the increase in the amount of inequality. In other words, if a person finds the effects of the reforms advantageous for self and his or her family, that person is less likely to question the results of those reforms and more likely to support the status quo in the way income is distributed in Poland. Hence, the following hypothesis is proposed:

Hypothesis 4 (*the effects of self-interest*): Ceteris paribus, subjects who think that the reforms initiated in Poland in 1989 were advantageous to them personally *are less likely* to agree with the statement that the government should reduce the differences in income as compared to subjects who think that the reforms were disadvantageous to them and their families.

Independent variable: attribution of responsibility for injustice

The PGSS data were not collected for the purpose of testing a particular sociological theory or hypothesis, it is therefore somewhat difficult to find a direct indicator of whom the subjects attribute the responsibility to for the unjustifiable increase in the income inequality.

Fortunately, however, the Social Inequality module contains a number of questions asking the subjects their opinion on income inequality. Among them is an item that could well be used as a measure of the ascription of responsibility for the increase in inequality. The item reads, 'Inequality continues to exist because it benefits the rich and powerful'. If inequality is seen to serve the interests of those who are rich and powerful (presumably, at the cost to the other groups in the society), then it is precisely this group that should be held responsible for the unjustifiable increase in the amount of income inequality. Hence, agreement with this statement is taken to mean that the responsibility is attributed to a particular group of people, while the lack of such agreement means that this responsibility is ascribed to impersonal forces.

This interpretation, however, is not without flaws: even if a person does not agree with the quoted statement, he or she may still believe some groups are responsible for the unjust increase in inequality, even if the group in question are not composed of the rich and powerful. Also, even if a person believes that the rich and powerful do benefit from the inequality, it does not necessarily mean that this person finds it improper or unfair. Therefore, in order to improve somewhat the measurement of the concept of attribution of responsibility, the following modification is proposed. A binary response is used to operationalise this concept, with 1 assigned to those subjects who believe that the income differences are too large and that the inequality benefits the rich and powerful, because it is such subjects that can be thought of as 'blaming' the inequality on the rich and powerful. Future research should nevertheless seek to refine the measurement of the attribution of responsibility for injustice.

In regard to the effects of attribution of responsibility, the following hypothesis is formulated:

Hypothesis 5 (*the effect of the attribution of responsibility for injustice*): Ceteris paribus, subjects who attribute the unjust increase in income inequality in Poland to the rich and powerful — in the sense that they think inequality in income in Poland is too large and it benefits the rich and powerful — *are more likely* to agree with the statement that the government should reduce the inequality than subjects who do not share that view.

Control variables

Finally, there is a set of variables which, presumably, can be expected to affect the dependent variable, but are of no substantive interest here and are included in the model only as controls. The variables in question are: age, gender, household income per capita, the

degree of education, social-occupational category, economic sector, region of residence, and size of the town of residence. Age is measured in the number of years. Gender is coded 1 for male and 0 for female. As regards education, five degrees are distinguished: primary or lower; basic vocational or incomplete secondary (hereafter, lower secondary); completed secondary education, either vocational or comprehensive (hereafter, upper secondary); post-secondary, non tertiary; and higher education. The lowest level of education, primary or lower, is a reference category. Social-occupational category is based on a truncated variant of the classification of occupations devised by Robert Erikson, John H. Goldthorpe and Lucienne Portocarrero (Erikson and Goldthorpe, 1992) and it comprises six categories: service class; routine non-manual workers; small proprietors; skilled manual workers; unskilled manual workers; and farmers and farm labourers. In the logistic-regression analysis, service class is used as a reference category. As for the economic sector, eleven categories were distinguished, depending on the form of ownership. The variable size of the place of residence takes on eight values ranging from 'rural community' (reference category) to 'a city with 500,000 or more residents'. And, finally, there are eight geographic regions. No specific hypotheses for the control variables are formulated.

One additional variable is included in the analysis, namely, year. It is defined as a nominal variable, with nine categories, one for each edition of the PGSS. The variable is added to the model so as to study time effects, if any, that is to investigate if there are any significant differences, with respect to the preferences for status quo vs. changes in the distribution of income, between participants in different editions of the PGSS.

Results of the analysis

Let me begin by pointing out to some limitations of the empirical material used in this analysis. While the PGSS has been conducted since 1992 and its database now covers the period 1992-2008, this doesn't hold for all the variables in the data set or items in the main PGSS questionnaire. Specifically, several of the key items selected for the purpose of this analysis — the ones asking whether the changes initiated in 1989 were or were not advantageous for most of the Polish society — were incorporated into the questionnaire in 1997 and had not been given to the participants in the earlier editions of the Survey. For this reason, the first four rounds of the PGSS are not included in this analysis, which reduces the size of the data set from the original 16,234 cases to 9,726 cases.

Further reduction in the size of the data set results from the fact that the items 'Income differences are necessary for Poland's future prosperity' and 'Inequality continues to exist because it benefits the rich and powerful' were asked to the respondents not as a part of the basic questionnaire, but as a part of the special ISSP module Social Inequality fielded in 1992 and 1999. Because the data for 1992 were already excluded for reasons described earlier, it means that logistic-regression models with variables based on these items as explanatory factors would have to be limited to the 1999 sub-sample comprising only 1,135 cases. Hence, the analysis would focus on a single year and would not allow for investigation into time effects, if any, associated with respondents' reactions towards inequality in income. Therefore, I made a decision to run two separate analyses: one, using the 9,726 cases from the 1997-2008 editions of the PGSS, studying the effects of all the variables except for validity and attribution of responsibility for injustice, and the second analysis using the 1999 data and studying the effects of all the variable listed in the preceding section.

In order to handle missing cases, list-wise deletion was applied to the data set, contributing further to sample attrition. The numbers of cases excluded due to missingness are reported below.

The logistic-regression analysis reported in this section was performed in the R environment (R Development Core Team, 2009), using facilities provided by the package *Zelig* (Imai, King, and Lau, 2009; 2010). Specifically, this analysis employs the model *logit.survey* (Carnes, 2007) which allows for fitting logistic-regression models for dichotomous dependent variables to survey-weighted data.

Fitting model I: the effects of impropriety, self-interest, and spread of legitimacy

We now turn attention to the results of fitting the first of the two models to be reviewed in this section. I will begin by introducing a bit of notation. Let $P(Y=1)$ mean *the probability of success*, or replying in the affirmative to the question, 'Should the government reduce the income differences?' In turn, the ratio $P(Y=1)/[1 - P(Y=1)]$ is *the odds of success*, that is, the odds of replying affirmatively *rather than negatively* to that question. Finally, natural logarithm of the odds, called *the logit of* $P(Y=1)$, is the dependent variable in logistic-regression to be estimated in this analysis. More precisely, the first of these models is given by the following equation:

$$\ln\frac{P(Y=1)}{1-P(Y=1)} = \alpha + \beta_1 Impr + \beta_2 Support + \beta_3 Self + \beta_4 Year + \beta_5 \mathbf{Contr}, \quad (1)$$

where *Impr* stands for the indicator of impropriety, *Support* denotes the measure of support for the pro-market reforms initiated in Poland in 1989, and *Self* is the indicator of self-interest, as defined in the previous section. *Year* is a set of dummy variables representing consecutive editions of the PGSS, with the 1997 edition as the reference category and **Contr** represents the vector of control variables. Throughout this section, only the estimates of the effects of the substantive variables are presented in tables and discussed, however.

Table 4 provides estimates of the effects of the independent variables in model (1) on the natural logarithm of the odds of success. Because interpretation of the effects in terms of natural logarithm may seem somewhat unnatural and difficult to grasp, the estimates are exponentiated so they specify the effects of the variables on the odds of success rather than on its natural logarithm. Thus, the estimated effect of impropriety means that, ceteris paribus, subjects who think that income differences in Poland are too large are $e^{1.807}$=6.092 times more likely to indicate that the government should reduce the income differences than those who do not share the former opinion. In other words, the respondents who find the income distribution improper are more than six times as likely to express preference for reducing income inequality as those who do not find it improper. This result is consistent with Hypothesis 1. Introducing the variable *Impr* into model (1) results in enormous improvement in fit (G^2=249.32, df=1, p<0.001) which substantiates the theoretically predicted effect of impropriety on the stability of income distribution.

Similarly, the effect of the support for the pro-market reforms is estimated to be -0.464 which is to say that, other things being equal, those who believe the reforms were advantageous to most of the Polish society are $e^{-0.464}$=0.629 as likely to express the preference for reducing the income differences as those who do not accept that belief. In other words, this is to say that the support for the pro-market reforms reduces the odds of success by 37 per cent. Thus, consistent with Zelditch-Walker theory, the legitimacy is spread from one element of the social order (the institutional reforms) to another element that is seen as the former's consequence (the rule of income distribution and its properties). The support for the reforms improves the fit of the model substantively (G^2=257.94, df=1, p<0.001).

Self-interest also behaves in a theoretically predicted manner. The estimate of its effects is equal to -0.491 which means that the odds of success among those who benefited from the reforms are $e^{-0.491}$=0.612 times the odds of success among those who did not benefit from the reforms. Put other way, self-interest reduces the odds of preference for reducing the income differences by nearly 39 per cent. The improvement in fit resulting from adding this variable to the model is impressive (G^2=60.71, df=1, p<0.001).

For those who are not familiar with odds or logits, a simpler interpretation of the effects of the model's variables is available. This interpretation uses predicted proportions of successes. Specifically, difference of proportions is computed for subjects who are different in terms of a given independent variable, while other explanatory factors are kept constant. Let us denote by $P(Y=1|X=x_1)$ the probability of the occurrence of success at the level x_1 of the explanatory variable and let $P(Y=1|X=x_0)$ denote the probability of success at the level x_0 of X. In this notation, we assume that all other variables in the model are kept constant. Then, the difference $P(Y=1|X=x_1)$-$P(Y=1|X=x_0)$ tells us how much the probability of success changes when we move from x_1 to x_0 along the focal variable, while keeping the other variables at fixed levels.[8]

To give an example, let $P(Y=1|Impr=1)$ mean the probability of success — that is, of thinking that the government should reduce the income differences — among the subjects who find the income distribution in Poland improper and let $P(Y=1|Impr=0)$ be the same probability for the subjects who do not find the distribution improper. Then, the difference $P(Y=1|Impr=1)$-$P(Y=1|Impr=0)$ tells us how much the two groups of respondents differ in the probability of replying that the government should reduce the differences in income, given all the other explanatory variables are at their fixed levels. If Hypothesis 1 is correct, then the difference in question should be positive, as the preference for reduction of income inequality is predicted to occur more often in the former group than in the latter. According to the numbers in Table 5, the difference between the groups of respondents is equal to 0.147 and is statistically significant at the 0.05 level, which corroborates the hypothesis.

Similarly, $P(Y=1|Support=0)$ is the probability of saying that the government should reduce the income differences given the lack of support for the 1989 reforms and $P(Y=1|Support=1)$ is the analogous probability given the support for the reforms. Thus, $P(Y=1|Support=0)$-$P(Y=1|Support=1)$ would be the difference in proportions of success between two groups of subjects: one that does not support the economic reforms set out in 1989 and one that does, provided that the two groups are equal with respect to all other variables. In line with Hypothesis 5, this difference is expected to be positive and the figures in Table 5 are consistent with this prediction, with the expected value of the difference equal to 0.022 and statistically significant at the level of 0.05.

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[8] The difference in proportions are estimated using function *sim()* in the package *Zelig* of the R environment (Imai, King, and Lau, 2010: 44-6). The function simulates various quantities of interest — difference of proportions, in our case — from the estimated model output, given specified values of explanatory variables. The numbers in Table 5 are based on 1,000 simulations.

By the same token, let $P(Y=1|Self=0)$-$P(Y=1|Self=1)$ denote the difference in proportions of success between two groups of respondents: one viewing the changes initiated in 1989 as being rather disadvantageous than advantageous to them personally and the other thinking the opposite. On the basis of Hypothesis 4, this quantity is predicted to be positive as the former group, unlike the latter, is expected to have no vested interest in supporting the status quo in the way income is distributed in Poland. Once again, the numbers shown in Table 5 turn out to be consistent with the theoretically derived prediction.

Finally, let us have a look at the effects of the variable year. Recall that no specific hypotheses regarding this variable have been proposed and I added it to the model as a control to see if there were any 'time effects' regarding the preferences for change vs. status quo in the income distribution in Poland. According to the figures in Table 4, other things being equal, participation in a later edition of the PGSS results in a greater likelihood of replying that the government should, rather than shouldn't, reduce the income differences than participation in the 1997 edition (a reference category), although the change from 1997 to 1999 is not statistically significant. To illustrate, the participants in the 2002 edition were $e^{0.622}$=1.863 as likely to express preference for reducing the income differences as the respondents in 1997. In turn, the numbers in Table 5 tell the differences in proportions of successes between participants in consecutive editions of the Survey. That is, let $P(Y=1|Year=1999)$-$P(Y=1|Year=1997)$ mean the difference of proportions of successes between the subjects in 1999 and those in 1997 when all the other factors are kept constant. As we can see, this difference is not statistically significantly different from 0, so we have not enough evidence to reject the null hypothesis (in the statistical sense) that the PGSS respondents in 1997 differ from those in 1999 in regard to preference for reducing the income differences. In general, the results reported in Table 5 imply that there two significant changes in the period covered by the analysis: from 1999 to 2002 and from 2005 to 2008. Thus, mean preference for status quo in the income distribution declines with time. Adding the variable year to the model leads to a significant improvement in fit (G^2=113.69, df=4, p<0.001).

Fitting model II: the effects of validity and attribution of responsibility for injustice

In this section, data from the 1999 PGSS edition are taken to estimate the following model:

$$\ln\frac{P(Y=1)}{1-P(Y=1)} = \alpha + \beta_1 Valid + \beta_2 Attr + \beta_3 \mathrm{Im}\, pr + \beta_4 Support + \beta_5 Self + \beta \mathbf{Contr}, \quad (2)$$

where *Valid* means the indicator of the validity of the income distribution, and *Attr* stands for the indicator of the attribution of responsibility for the injustice; the remaining terms in equation (2) are interpreted as previously.

Model (2) is more general than model (1) in that it incorporates more substantively interpreted variables, but less general in that it can be fitted to data collected at a single point in time. Recall that the indicators of validity and attribution of responsibility for injustice are based on items taken from the ISSP module on Social Inequality that was fielded in 1992 and 1999. As explained before, the former edition was excluded from the scope of this analysis. As for the 1999 data, one should keep in mind that the sample size was 2,282, but the two items of interest — 'Income differences are necessary for Poland's future prosperity' and 'Inequality continues to exist because it benefits the rich and powerful' — were given to a randomly selected sub-sample comprising 1,135 individuals. Of these, 407 were deleted because of missingness, so the number of cases used to evaluate model (2) is equal to 728.

Table 6 shows the effects of the estimation. Specifically, the table reports estimates of the coefficients for independent variables in equation (2) rather than expected differences in proportions of success. In the preceding sub-section, interpretation of the effects of independent variables in the logistic-regression analysis was presented in detail, the attention here is limited to a 'qualitative' presentation of the results. Also, as previously, only the coefficients for the substantive variables are shown, while the ones for controls are omitted in this discussion.

As one can see from Table 6, both validity and attribution of responsibility for injustice have hypothesised and statistically significant effects on the dependent variable. More specifically, those who believe that income differences are necessary for Poland's future prosperity are less likely to express the preference for the reduction of income inequality, as predicted by Hypothesis 2, and those who attribute the unfair level of income inequality to deliberate action by the rich and powerful are more likely to express this preference, consistent with Hypothesis 4. The results regarding the remaining variables reported in Table 6 are somewhat puzzling. While their estimates are in the hypothesised direction, they are not statistically significant. That is, we do not have enough evidence to reject the null hypothesis (in the statistical sense) that the coefficients for the variables are not different from zero. Also, a look at how individual variables contribute to improvement in fit of the model (see Table 7) leads to a similar conclusion. The reduction of the value of the likelihood-ratio statistic G^2 is statistically significant at the 0.05 level in the case of validity and attribution of responsibility, but introducing impropriety, self-interest and the support for

1989 reforms does not lead to a significant improvement in fit. However, even if these results are inconsistent with the relevant hypotheses formulated above, they can still be reconciled with Zelditch-Walker legitimacy theory.

First, that impropriety has no significant effect on the preference for reduction in the amount of inequality *in the presence of validity* agrees with the notion that while both validity and impropriety are predicted to have an effect on the stability of a social structure, it is validity which is more important of the two (Walker and Zelditch, 1993; Zelditch, 2006; Zelditch and Walker, 1984). Second, when it comes to the estimate of the effect of support for the 1989 market reforms, the following explanation can be assumed. If a person believes that the reforms were advantageous for most of the Polish society, he or she is likely to think that the consequences of these reforms are accepted by the majority as well. Now, if the person thinks that the increase in inequality is accepted by most of the others, he or she is likely to view the inequality as collectively validated. In other words, it is conjectured that the operationalisation of the spread of legitimacy in terms of the support for the 1989 reforms may have been invalid (in the measurement sense), as the measure can be said to constitute another instance of the concept of validity of the income distribution.

Also, Walker and Zelditch distinguish in their theory between 'endorsement' and 'authority' as separate sources of support for a collectively validated social order. The order is said to be endorsed when it is supported by 'the masses' and it's said to be authorised when it's supported by 'the authorities'. From this point of view, the support for the reforms may be seen as an indicator of endorsement, rather than the spread of legitimacy, and the reason why the estimate of its effect is statistically insignificant is that, according to legitimacy theory, endorsement influences stability of a social structure indirectly — through its effect on validity.

This interpretation can be enhanced by another argument, also based on Zelditch-Walker legitimacy theory. One of the conditions of legitimacy of a social order is consensus (Zelditch and Floyd, 1998; Zelditch and Walker, 2003). That is, an element of the social order is legitimated if it is consensually accepted. Thus, if the reforms are seen as advantageous for the majority, consensus is likely to arise about the legitimacy of the reforms and their consequences. Either way, the conclusion here is that the support for the reforms seems to be implicated in the conditions of validity of the income distribution and an appropriate model should include a direct effect of this variable on validity rather than on the stability of the distribution. This implication is left for future work.

The effects of self-interest can be explicated along more or less these same lines. The impact of self-interest on attempts to change a communication structure of a group was studied in an experiment testing the impartiality hypothesis (Zelditch, Gilliland, and Thomas, 1984). The hypothesis claims that if a 'formula' which legitimates a social order appeals to some benefit, the order becomes legitimated only if the benefit is in the interest of all in the group or, if it's not in the interests of all, it can be made universal (Zelditch and Walker, 2003: 223). If, on the other hand, the benefit can be shown to be in the interest of some and not the others, then the formula cannot be used to validate the social order. Consequently, if a participant in the PGSS indicates that he or she believes the changes initiated in 1989 were advantageous for him or her personally, but not others in the society, this assessment can undermine the person's belief in the legitimacy of inequality in Poland.[9] One implication of this conjecture is that adding an interaction term *Support* × *Self* to the model would work in the sense that it would improve the model's fit substantially and would yield statistically significant estimates of the effects of the variables in question. The results of fitting a model including this interaction term suggest, however, that this conjecture is incorrect $\left(\hat{\beta} = -0.172, \mathrm{SE}_{\hat{\beta}} = 0.903, t = -0.191, p = 0.849\right)$. A second implication is that instead of investigating a direct effect of the variable *Self* and its interaction with the variable *Support* on the dependent variable an indirect effect should be studied by introducing to the model main effects of these variables on validity of the income distribution in Poland. This latter suggestion is left for future work, too.

Summary and conclusion

Research reported in this paper was designed to test a number of theoretically derived hypotheses in order to be able to make conclusions regarding patterns of preference for reducing income differences in Poland as a measure of *instability* of the distribution of income. In general, results of the research can be said to confirm the hypotheses, although the confirmation is not without qualification. First, validity, as conceptualised by Zelditch-Walker

[9] Note that this hypothesis contradicts that proposed within justice theory. According to justice theory, self-interest can colour justice evaluations in the sense that a distribution rule which is consistent with one interests will come to be seen as fair and rule which is inconsistent with one interest will come to be seen as unfair by the person in question. In turn, Zelditch and Walker legitimacy theory implies that self-interest can undermine the belief in the legitimacy of the distribution rule. It would be interesting to test the former implication against the latter in some future research.

legitimacy theory (Zelditch and Walker, 1984), turns out to have the theoretically predicted and statistically significant effect on the stability of income distribution — subjects who believe that income differences are functional for an important societal goal are more likely to accept the differences than subjects who do not share that belief, regardless of whether or not they personally find the differences proper. Second, attribution of responsibility for injustice also has the predicted effect on the stability — subjects who blame the unfair increase in inequality on 'the rich and powerful', who are thought to benefit from the inequality, presumably at the cost to other groups in the society, are less willing to accept the existing differences in income than those who do not attribute the unfair increase in inequality to the privileged groups in the society. Note that the former conclusion is consistent with legitimacy theory (see especially Zelditch and Walker, 1984) and the latter with distributive-justice theory (see especially Utne and Kidd, 1980). As for the hypothesis concerning the effects of impropriety, it has been partially confirmed — partially in the sense that impropriety has turned out to behave in the predicted manner only in the absence of validity. Put differently, impropriety contributes to instability, as predicted by Hypothesis 1, by elevating the odds of occurrence of preference for reducing inequality in the distribution of earned income, but that effect is statistically significant only when validity is absent. This finding can still be viewed as consistent with legitimacy theory, as it claims that validity is more important for stability than impropriety (Zelditch, 2006; Zelditch and Walker, 1984). Finally, the hypotheses on the effects of self-interest and the support for the 1989 market reforms have received only partial confirmation as well. The conjecture here is that the partial confirmation is largely due to inadequate specification of the statistical model used to test the hypotheses and it is proposed that future research should test them using more refined models. Future research should also seek to develop more complex indicators of the theoretical concepts, perhaps by proposing multiple items, rather than one, to capture empirically the concepts, and allowing thereby for performing analyses of reliability and validity (in the measurement sense) of the indicators.

In spite of all these qualifications, an important advantage of the present research is that it is an attempt to explain certain social processes, taking place in a concrete political, economic, and historical reality, in terms of general theoretical principles, that had been rigorously tested empirically, rather than idiosyncratic notions, specific to times and groups being studied. The use of such idiosyncratic notions in sociological analyses shifts focus from important similarities to superficial differences between cases being studied. Therefore, the general theoretical frameworks are especially useful in cross-national comparisons.

Consequently, further analyses of legitimacy and stability of income distributions should be carried out in such a cross-national context.

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Table 1 Inequality in the monthly wages of Polish employees, 1987-2006

Time point	Gini	Time point	Gini
September 1987	0.230	September 1997	0.303
September 1988	0.213	October 1998	0.294
September 1989	0.205	October 1999	0.306
September 1990	0.224	October 2000	0.310
September 1991	0.242	October 2001	0.314
September 1992	0.247	October 2002	0.327
September 1993	0.246	October 2003	0.332
September 1994	0.282	October 2004	0.336
September 1995	0.291	October 2005	0.339
September 1996	0.298	October 2006	0.343

Source: Kumor (2009: 13-14)

Table 2 Attitudes towards inequality: Are income differences too large?

Year	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
1992	39.78	41.00	5.53	6.92	1.04	5.74
1993	40.87	41.96	4.25	9.29	1.23	2.40
1994	39.11	44.84	5.07	7.64	1.24	2.09
1995	38.83	41.88	6.37	8.67	0.81	3.44
1997	45.10	39.83	6.91	4.78	0.84	2.53
1999	45.09	41.58	6.06	3.78	0.83	2.65
2002	62.16	29.73	3.02	3.10	0.61	1.37
2005	56.86	32.21	2.84	5.30	0.83	1.97
2008	62.47	28.50	4.25	3.04	0.51	1.2

Source: Polish General Social Surveys, 1992-2008

Table 3 Sample sizes and completion rates in the Polish General Social Surveys, 1992-2008

		Completion rates	
PGSS edition	Size of the selected sample	Frequency	Percentage
1992	2,000	1,647	82.4
1993	2,000	1,649	82.5
1994	2,000	1,609	80.5
1995	2,000	1,603	80.2
1997	3,200	2,402	75.1
1999	3,406	2,282	67.0
2002	4,008	2,473	61.7
2005	2,106	1,277	60.6
2008	2,495	1,293	51.8
Total	23,215	16,234	69.9

Source: Cichomski, Jerzyński, and Zieliński, 2009b: 10

Table 4 Estimates of the explanatory factors in model (1)

Variable	Estimate	Std. error	*t*-test	*P*(>|*t*|)
Impropriety	1.807	0.127	14.221	0.00
Support	-0.464	0.126	-3.679	0.00
Self	-0.491	0.129	-3.818	0.00
Year				
1999	0.106	0.149	0.706	0.48
2002	0.622	0.127	4.886	0.00
2005	0.615	0.150	4.106	0.00
2008	1.070	0.158	6.786	0.00
Intercept	0.617	0.514	1.199	0.23

Note: Sample size *N*=9,726. 3,898 observations were deleted due to missingness

Table 5 Differences in proportions of successes conditional on the values of the explanatory variables

			95% confidence intervals[a]	
Variable	**Mean[a]**	**Std. deviation[a]**	**Lower bound**	**Upper bound**
Impropriety	0.147	0.055	0.06	0.278
Support	0.022	0.112	0.006	0.051
Self	0.023	0.012	0.006	0.054
Year				
1999/1997	0.006	0.011	-0.013	0.03
2002/1999	0.027	0.015	0.007	0.064
2005/2002	-0.001	0.007	-0.017	0.013
2008/2005	0.016	0.010	0.002	0.039

[a] See footnote 8 for details

Table 6 Estimates of the effects of the explanatory factors in model (2)

Variable	Estimate	Std. error	*t*-test	*P*(>|*t*|)
Validity	-1.043	0.321	-3.253	0.00
Attribution	1.244	0.331	3.761	0.00
Impropriety	0.724	0.459	1.578	0.12
Support	-0.353	0.461	-0.765	0.45
Self	-0.432	0.435	-0.993	0.32

Note: Sample size *N*=1,135. 407 observations deleted due to missingness

Table 7 Analysis of deviance for model (2)

Variable	df	Deviance	Residual df	Residual Deviance
Null			727	748.94
Industry	27	79.95	700	668.99
Sector of economy	10	11.94	690	657.05
Region	7	6.09	683	650.96
Size of the town of residence	7	51.30	676	599.66
Household income	1	29.02	675	570.64
Social-occupational category	5	2.98	670	567.66
Degree of education	4	25.20	666	542.46
Gender	1	9.90	665	532.56
Age	1	10.79	664	521.77
Attribution of responsibility	1	38.41	663	483.36
Validity	1	17.75	662	465.61
Impropriety	1	2.79	661	462.83
Self-interest	1	3.73	660	459.10
Support for the reforms	1	0.99	659	458.10

Note: Terms added sequentially (first to last)