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Effects of Future Orientations on Income Attainment and Social Class: An Analysis of Polish Panel Data*

Abstract: This paper examines the role of psychological determinants for Poles' location in the post-communist social structure, above and beyond the traditional determinants of occupational achievement. Drawing on the theory of planned behavior, I expect that peoples' outlook on the future—whether in terms of perceived opportunities and threats or a more general view of the times ahead—has a lasting impact on their success, understood here as attaining higher income and/or privileged class membership. I analyze this relation over time, considering that the current status (S_t) is an additive function of future orientations (F_{t-1}) and earlier status (S_{t-2}). The Polish Panel Survey POLPAN 1988–2008 represents the backbone for my analyses. In this survey a representative sample of adult Poles was interviewed in 1988 and re-interviewed in 1993, 1998, 2003 and 2008. I analyze these panel data with lag variables, using OLS estimates and logistic regression for particular time-points. I also use cross-sectional time-series analysis to account for autocorrelation and multicollinearity stemming form the data's hierarchical structure. Results support the main hypothesis in this study: consistently, thinking confidently about the future has positive effects on earnings and on belonging to the privileged social classes. This impact is substantive and statistically significant when prior income and social class, demographic characteristics, and education are controlled for.

Keywords: future orientations, income attainment, social class, Polish Panel Survey (POLPAN)

Introduction

One of the main achievements of sociological research is to explain attitudes and attitude change through variables describing the position of individuals in the social structure. In Central and Eastern Europe, Poland included, structural experiences shape public opinion on economic, political, and social change (e.g., Rose, Mishler and Haerpfer 1998; Slomczynski and Wilk 2002; Slomczynski and Shabad 2003; Berglund, Ekman and Aarebrot 2004; Glass and Marquart-Pyatt 2007, Peoples 2007, Tomescu-Dubrow 2007, Slomczynski and Marquart Pyatt, 2007). Generally, individuals' subjective attitudes, such as the role of the state in the economic realm, the assessment of democracy, evaluations of the past socialist system, depend in significant way on the actual and potential gains and losses stemming from their position in the social structure—that is, a person's class location and their social status.

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This paper incorporates these insights of past research, but focuses on attitudes as determinants of further socio-economic outcomes. My main research hypothesis is that future orientations have a lasting effect on one's location in the social structure, above and beyond traditional determinants of occupational achievement, such as education and income. While rather straightforward at the intuitive level, few empirical studies outside psychology have examined this general hypothesis, and fewer even have done so using surveys, due to lack of adequate longitudinal data. The dynamic link between *social structure—outlooks on the future—social structure* requires attitudinal measures that capture the construct of prospective orientations prior to the structural characteristics. The Polish Panel Study, POLPAN, which observes social structure in Poland and its transformation between 1988 and 2008, provides this kind of information. It allows me to perform analyses in which individuals' location in the social structure at the initial state is measured prior to future orientations, and both are measured prior to respondents' most recent social position. The generic equation for three time points is that the current status (S_t) is an additive function of future orientations (F_{t-1}) and earlier status (S_{t-2}), as in regression with lagged variables:

$$S_t = a + B_1F_{t-1} + B_2S_{t-2} + e$$

where a is a constant, coefficients B are multipliers for respective variables and e refers to the error term. To confirm my main research hypothesis, one should expect $\beta_1 > 0$ at the statistically significant level (at least for $p < 0.05$ for one-tail test). Obviously, the basic equation can be expanded.

Theoretical Background and Hypotheses

In this paper, I focus on the definition of attitudes and the relationship attitudes-behavior, as they bear directly to the test of my general hypothesis. Following long debates on how to best define attitudes, currently it is commonly accepted that "an attitude represents an evaluative integration of cognitions and affects experienced in relation to an object" (Crano and Prislin 2006: 347). The expectancy-value model, representing the most elaborate conceptualization of attitudes (Fishbein 1963, Ajzen and Fishbein 1980; Ajzen 2001) is especially useful for this paper. It assumes that individuals are goal-oriented beings, and represents attitudes as a function of expectancy/belief, and of evaluation. The theory of planned behavior, a more fully developed formulations of the expectancy-value argument, implies that individuals relate to the future and that prospective orientations influence people's adaptation to the social environment.

In the proposed theoretical framework, prospective orientations are conceptualized in terms of optimistic versus pessimistic attitudes towards the self and the larger social context. For the analyses in this paper, I rely on two different, yet related, elements of this overarching construct. First, I consider individuals' attitudes toward upcoming social change form the point of view of the balance between expected opportunities and threats. I assume that persons who regard forthcoming social change

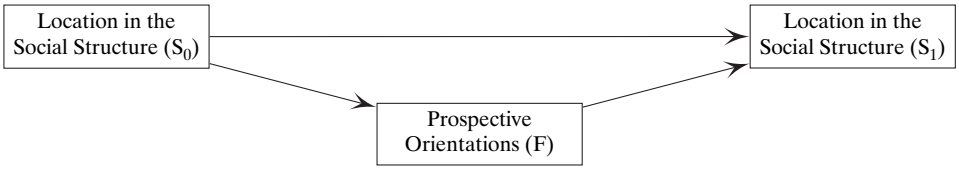
as conducive to new opportunities, and consider such opportunities as basis for realization of their plans and projects, look positively toward the future. By contrast, people who see upcoming change as a primary source of threats, threats they will not be able to cope with, hold attitudes that are consistent with a pessimistic view.

Second, I consider individuals' psychological mood together with attitudes on forthcoming changes in their country as these expected changes relate to them. It is assumed that people who evaluate their current mood positively and simultaneously regard their social environment as improving in the coming years hold optimistic future orientations. Those who see their psychological state as bad and regard the present to be better than the future have a pessimistic outlook.

Variation in how people interpret upcoming changes stems to a large degree from the resources embedded in one's social position. Education, as a proxy for knowledge and skills, should positively affect prospective orientations, other factors equal. Higher income and belonging to the privileged social classes should exert similar effects, a relation that both theory (e.g, Goldthorpe 1998) and empirical research (e.g., Rose et al. 1998) point to. At the same time, peoples' initial social location will strongly impact their current position, as empirical studies amply substantiate (e.g., Sorensen 1975, DiPrete 1993, Neumark et al. 1999, Hamplova and Kreidl 2005). Figure 1 depicts the hypothesized impact of psychological determinants in the context of the factors capturing peoples' social standing.

Figure 1

Assumed Relationships between Initial Location in the Social Structure, Prospective Orientations, and Current Location in the Social Structure



As Figure 1 indicates, the thrust of this paper is the relation between psychological determinants and structural outcomes. The general hypothesis—future orientations have a long-term effect on individuals' location in the social structure above and beyond education, income and social class—builds on the expectation that the extent to which people look forward to the times ahead influences their readiness for actively engaging in behavior conducive to upward mobility.

My main argument is grounded in the theory of planned behavior which posits that people act in accordance with their intentions and perceptions of control over the behavior; intentions, in turn, are influenced by attitudes towards the behavior, subjective norms, and perceptions of behavioral control (Ajzen 1991, 2001). This theory has received strong empirical support and has been proven successful, among others, in predicting career-related behaviors (Ng, Sorensen, and Eby 2006).

Research in psychology links subjective expectations and evaluations of the future to individuals' decision-making processes, especially with regard to goal-oriented striving and strategies for dealing with uncertainties (Zuckier 1986; Lens and Moreas in Zaleski (ed.) 1994). Thus, through their impact on behaviors such as planning, problem solving, coping, differences in the character of future orientations affect both the individual and the larger social environment (see Trommsdorff in Zaleski (ed.) 1994).

Ng et. al (2006) suggest that individual-level elements are core to job mobility processes: within the conditions macro-level factors create, individuals' personality traits and values influence which mobility options a person takes seriously. In terms of job mobility in general, "a person may be more inclined to pursue an opportunity for job mobility if he/she feels that it is consistent with norms to engage in the transition, has favorable attitudes towards that type of job mobility, and believes that he/she can successfully make the transition" (Ng et al. 2006: 14). Individuals' efficacy beliefs and their perceived control over the environment speak directly to the topic of this paper. People who look positively to the future should be more ready to pursue activities that result in change, including attaining higher income and moving up on the social-class ladder than those who have pessimistic views.

In this paper, location in the social structure is conceptualized and expressed in both continuous social-stratification position and discrete social class. Consequently, I test two specific hypotheses:

Hypothesis 1: Controlling for education, prior income and basic demographics, the more positive outlooks of the future people hold at a given time, the higher their income at later time.

Hypothesis 2: Other things equal, individuals' positive outlooks on the future affect their odds of achieving a privileged class position.

These hypotheses apply to the conceptualizations of psychological determinants in terms of (a) expected opportunities and threats, and (b) of prospective orientations. I expect to reject the null hypotheses stipulating that psychological determinants have no statistically significant effects on income attainment and on social class.

Data and Measurement

Data

The data for my analyses come from the Polish Panel Study, POLPAN 1988–2008. In this survey a representative sample of Poles was interviewed in 1988 and re-interviewed in 1993, 1998, 2003, and 2008. The 1988 random sample consists of 5,817 men and women aged 21 to 65 years. The 1993 wave is based on a random sample of 2,500 respondents from the 1988 wave. In 1998, the sample consists of 1,752 men and women ages 31 to 65 who had been interviewed in both previous waves, and a renewal sample of people aged 21 to 30 ($n = 383$). In 2003, the sample consists of those who took part in the previous waves ($n = 1,474$) as well as those from the younger cohort, age 21 to 25 in the year of the study ($n = 225$). The 2008 sample

comprises 1,457 respondents, of whom 241 are new cases while the rest ($n = 1{,}216$) were interviewed in at least one previous POLPAN wave.

The questionnaire includes extensive batteries of questions on the socio-demographic composition of the household, economic situation, intergenerational and intra-generational mobility, employment and unemployment history. Social attitudes are a further important topic. The survey includes questions on evaluations of threats and opportunities embedded in the future, and of Poland's future in five and 10 years terms. Beginning with 1998, POLPAN records respondents' self-evaluation of their psychological mood.

Measurement of Dependent Variables: Earned Income and Class Position

The income variables are based on respondents' total individual income. To avoid any problems that could follow from the dramatic metric changes the Polish national currency underwent between 1988 and 2008, the income variables are expressed in the form log ($z \times 10 + 50$) where z refers to z-scores. Since income is positively skewed I use logarithmic transformation of the variables with the mean of 50 and standard deviation of 10.[1]

Studies of the consequences of the 1989 systemic change in Central and Eastern Europe, Poland included, demonstrate that the costs and benefits of the socio-economic and political restructuring have been distributed differently across social groups, justifying the distinction between 'winners' and 'losers'. Generally, mangers, experts and the new class of employers have taken advantage of the business opportunities the post−1989 environment opened. In contrast, manual workers and farmers have been strongly hit by the downsides of privatization, such as down-closing and/or downsizing of state-run enterprises, inflation and withdrawal of state subsidies. They make up a disproportionate share of the 'losers' category (Slomczynski, Janicka, Shabad, and Tomescu-Dubrow 2007; Slomczynski 2002; Slomczynski and Marquart-Pyatt 2007). With this distinction in mind, my analyses focus on the probability of belonging to the privileged classes: managers, experts, and employers.[2]

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[1] This is a common procedure of expressing income in the standard units over time; see Atkinson and Bourguignon (2000), especially introduction and the chapter by Derek Neal and Sherwin Rosen, for various forms of income transformation. I have also experimented with other transformation forms suggested in the literature, with very similar results to those performed on the logarithms of income.

[2] To measure class structure in Poland I apply the class schemes of Slomczynski and Shabad (2000, based on Kohn and Slomczynski 1990). The basic class distinctions for *late socialism* take into account three major criteria: (1) control over labor, (2) type of work in terms of mental/physical component, and (3) ownership of the means of production. The first two criteria apply to state employees only, while ownership is restricted to framers and a small group of self-employed. Using the Social Classification of Occupations (SKZ) codes for respondents' occupations (Domanski, Sawinski and Slomczynski 2009), I distinguish between the following social classes in 1988: managers, experts, supervisors, self-employed, technicians and office workers, factory workers, manual workers other than factory, and farmers. For the *post−1989 period*, the class schema keeps the basic distinctions for late socialism but introduces certain modifications to account for the economic restructuring. Specifically, the schema differentiates employers from the self-employed, to capture the emerging capitalist class; it introduces the category of sales and service workers; and it distinguishes between skilled and unskilled manual workers to reflect a new social division among workers following economic restructuring.

Measurement of Prospective Orientations

Expectations of Future Opportunities and Threats

POLPAN contains information relevant for measuring two aspects of peoples' attitudes toward the future. The first pertains to respondents' subjective reaction to the opportunities and threats brought about by the current social changes. In the 1993 wave, the questions read:

Q01. Changes in our country bring about both new opportunities and threats. For people like you, do these changes carry:
(1) more new opportunities (→ Q01A), or
(2) more threats? (→ Q01B)
(8—I don't know, I have no opinion on this matter)

Q01A. A number of people expect that presently opening new opportunities will allow them for fast realization of their plans and projects. Do you belong to this kind of people?
(1—yes)
(2—no)
(8—I don't know, I have no opinion on this matter)

Q01B. Some people are afraid that they will not be able to cope with threats. Do you belong to this kind of people?
(1—yes)
(2—no)
(8—I don't know, I have no opinion on this matter)

In the questions Q01A and Q01B the simple future tense is used: "new opportunities will allow [people] for fast realization of their plans and projects" and "[people] will not be able to cope with threats." The Polish words *pozwolą* (in Q01A) and *nie będzie* (in 1A) indicate the forthcoming time-frame, that is the future. The context in which these questions appear in the questionnaire reinforces the prospective interpretation of their contents, since the preceding questionnaire item contrasts living conditions in Poland in the present time with conditions in the next 4–5 years. Thus, the assumption that the questions Q01, Q01A, and Q01B are related to future orientations is well grounded.[3]

The constructed variable *expected opportunities and threats* has five levels. It is assumed that answering (1) on Q01 and (1) on Q01A—that is, seeing more opportunities than threats, and considering these opportunities as basis for realization of plans and projects—places respondents on the highest level of optimistic outlooks on the future (level 5). Those who answered (1) on Q01—"more opportunities than threats"—and (2) on Q01A—new opportunities will not be conducive for people to realize their plans and projects—follow (level 4). At the opposite end of the scale are people who answered (2) on Q01—"more threats than opportunities" and (1) on Q01B, indicating an inability to cope with these threats (level 1). A little above them are individuals who answered (2) on J06 Q01 and (2) on Q01B—that is to people who perceive threats,

[3] In contrast to the 1993 wave, the wording of the corresponding set of questions in subsequent waves is drastically different, as it provides the frame of changes in Poland to the period from 1989 to the time of the survey. This limits operationalization of future orientation through expected opportunities and threats to 1993.

but are not afraid that they would not be able to cope with them (level 2). The middle score (level 3) is assigned to the rest of respondents. This category consists of those who answered questions Q01 and Q01A/B with "*I don't know*," or "*I have no opinion on this matter*." The distribution of this variable resembles normal curve, with mean value 2.3 and standard deviation 1.4.

Future Orientations

Beginning with 1998, POLPAN asks respondents to evaluate their psychological mood:

Q03. How would you evaluate your psychological state, or mood? Generally, would you say that your psychological state, mood is
(1) very good
(2) rather good
(3) rather bad, or
(4) very bad?
(98) I don't know

The study also investigates how Poles see themselves within their social environment. In both 1998 and 2003, the wording of the questions is:

Q04. Do you think that for people like you, Poland
(1)is a better country to live in now, or
(2) it will be a better country in five years?
(98) I don't know

Q05. Do you think that for people like you, Poland
(1) is a better country to live in now, or
(2) it will be a better country in ten years?
(98) I don't know

On the basis of the distribution of Q03, I assume that people answering 4 and 5 can be treated as one category of bad psychological mood; this category is in contrast to people answering 1 and 2, which could be labeled "good mood." For convenience, the former category is recoded to 1 and the latter to 2. This is my variable "mood," M.

Using question Q04 and Q05, I identified people for whom Poland is "better… to live in now" than in either 5 or 10 year future (category 1) and contrasted them with the rest (category 2)—that is people who believe that for them Poland t will be a better country in five and/or ten years. I call this variable "prospects," P.

As explained in the theoretical part of this paper, general future orientations are a function of people's current psychological state and their views of the coming years. According to this definition, being in good mood and perceiving the social environment to improve in five and ten years time captures optimistic future orientations; by contrast, being in a bad psychological mood and regarding Poland as "better… to live in now" captures pessimistic future orientations. Methodologically, the product of M and P corresponds to these situations. Hence, for both 1998 and 2003 I use this product to construct a three-level indicator of future orientations, where the highest level corresponds to optimistic orientations, the lowest to pessimistic orientations; the intermediate level comprises ambivalent orientations, that is, respondents who

evaluate their mood positively and consider Poland to be better at present, or evaluate their mood negatively and see Poland better in the future.

Statistical Approach

To deal with time explicitly, in a large part of my analyses I treat POLPAN as cross-sectional data source, and use lagged variables to capture the variables of interest at different states. OLS estimates for particular time-points, with correction for possible intra-group correlation, are the method of choice for these analyses.

Panel data, however, have two-level structure. Each time point (wave) is nested within respondents ($i = 1, 2, \ldots, n$). From the hierarchical nature of the data we may expect that the measurements for the same respondents will be more similar to each other than across respondents, involving case-dependency. Two-level analyses enable estimating regression-like models that take this phenomenon into account. Specifically, I use a random coefficient model as specified in the panel regression procedure of STATA (xtreg) in the average population form to estimate the effect of Future Orientations on Income. I also introduce an autocorrelation component—for example, the correlation of an income with its value in the previous period. Methodologically, the model fits a first-order autocorrelation function to regression residuals. This corresponds to an AR(1) process according to the time series analysis framework formulated by Box and Jenkins (1970).

When focus is on social class, I specify a mixed-effects model for binary responses to estimate the effect of future orientations on privileged social class position. The fixed effects are analogous to standard regression coefficients and are estimated directly. The random effects are not directly estimated, but are summarized according to their estimated variances and co-variances. The distribution of the random effects is assumed to be Gaussian. The conditional distribution of the response given the random effects is assumed to be Bernoulli, with success probability determined by the logistic cumulative distribution function (see Rabe-Hesketh and Everitt 2003 and STATA 10 help manual).

Results

The Effects of Expected Opportunities and Threats

I use the measure of expected opportunities and threats in 1993 to explain social position in 1998. Since I operationalize the dependent variable in both interval scale (earned income) and nominal scale (social class), I apply regression analysis in the metric and logistic form, respectively.

Table 1 corresponds to the OLS regression of income (Y_{1998}) on expected opportunities and threats (F_{1993}), controlling for the effect of prior income (Y_{1993}), tertiary education (E_{1993}), and basic demographics: gender (G, male = 1, female = 0) and age

(in years).[4] Since POLPAN contains data with repeated observations on individuals (respondents interviewed in 1993 and in 1998), observations may not be independent within groups (i.e. within individuals). The unstandradized regression coefficients in Table 1 are estimated using the vce(cluster) option in STATA, which specifies that the standard errors allow for intra-group correlation.[5]

Table 1

Linear Regression of Income in 1998 on Expected Opportunities and Threats (1993) and Other Selected Variables

Independent Variables	Income, 1998 (in *ln* form)		
	B	Robust SE	Beta
Expected Opportunities and Threats, 1993	0.008*	0.003	0.076
Income, 1993 (in ln form)	0.461*	0.078	0.459
Tertiary Education,1993 (yes = 1 else = 0)	0.049*	0.012	0.148
Gender (males = 1)	0.003	0.007	0.014
Age	−0.001*	0.0002	−0.062
Constant	2.113	0.303	—
Fit statistics	*F = 44.88 (df = 5)* *R^2 = 0.320* *Root MSE = 0.117*		

N = 1246; * p < 0.05 for two-tail test

If the impact of outlooks on opportunities and threats on income attainment is to confirm my expectation, then the B-coefficient for F_{1993} should be positive and significant. Results show this to be the case: the effect of the psychological trait (B = 0.008, p < 0.01, for F) is substantive and statistically significant, above and beyond effects of individuals' prior income (B = 0.461, p < 0.01, for Y_{1993}) education (0.049, p < 0.01, for E_{1993}) and age (B = −0.0008, p < 0.01, for A_{1998}); the effects of gender is not significant. Since the dependent variable is lagged, the values of the B-coefficients for F_{1993}, E_{1993}, G, A should be interpreted as referring to the weighed change of income, Y_{1998}—$B \times Y_{1993}$. In relative terms, expressed by Beta-coefficients, the effect of psychological factors on income increase is more than half the effect of education. Since education is usually treated as one of the main determinant of earnings, the results presented in Table 1 provide strong support for hypothesis 1. The reader should also note that the model yields a good fit, explaining 32% of the variance in the dependent variable.

To be consistent with the theoretical model in Figure 1, I have also run a regression model with income measured prior to the measurement of prospective orientations,

[4] According to the "human capital earnings function," earnings are expressed as a quadratic in potential experience measured by age; see classic formulation in Mincer (1974). However, the data do not support this assumption: the effect of age and age squared are negative, and non-significant (results available upon request). Hence, Table 1 includes only the linear impact of age.

[5] Estimating the model in Table 1 with the option vce(robust) as correction for standard error estimates yields identical coefficients and robust standard errors as the vce(cluster) option. I used the former to obtain the standardized coefficients.

that is Y_{1988}. In this case, the effect of expected opportunities and threats is slightly stronger than that presented in Table 1 (*Beta* = 0.084 compared to *Beta* = 0.076). Having both income variables (1988 and 1993) in the equation renders the impact of income 1988 not significant, but does not alter the role of the psychological factor (B = 0.009, p < 0.01).

The impact of outlooks on opportunities and threats on membership in the privileged classes—employers, managers, and experts—follows a similar pattern to their effect on income. The results, obtained via *logit, vce(cluster)* option in STATA so that the standard errors allow for intra-group correlation, are presented in Table 2. Here, the dependent variable is defined as log(p/1−p), where *p* is the probability of belonging to the privileged classes. Thus, the B-coefficients refer to the logarithmic form, for which the standard errors are computed. This coefficient for the psychological trait demonstrates that people who expect more opportunities than threats and who consider it possible to realize their plans in the future have significantly higher chances of belonging to the privileged classes five years down the line, controlling for prior social class, education, gender, and age.

Table 2

Logistic Regression of Being in Privileged Classes (1998) on Expected Opportunities and Threats (1993) and Other Selected Variables

Independent Variables	Privileged Classes, 1998 DV = log(p/p−1)		
	B	Robust SE	Exp(B)
Expected Opportunities and Threats, 1993	0.276*	0.082	1.317
Privileged Classes, 1988	1.648*	0.289	5.197
Tertiary Education,1988 (1 = yes, 0 else)	2.319*	0.250	10.162
Gender (males = 1)	0.016	0.238	1.016
Age	0.007	0.016	1.007
Constant	−3.781	0.814	—
Fit statistics	*Wald chi^2 = 216.18 (df = 5)* *Pseudo R^2 = 0.373* *Log likelihood = −270.371*		

N = 835; * p < 0.01 for two-tail test.

For interpretation purposes, it is useful to remember that the dependent variable is measured on a five-point scale, where a score of one indicates threats, and a score of five indicates opportunities. Hence, the exponent of the Beta-coefficient can be interpreted as follows: Each level increase in expectations about opportunities and threats in 1993 produces a 32% increase in one's likelihood of being an employer, a manager or an expert—as opposed to any other social position—in 1998, controlling for prior social class, education, gender, and age. Consequently, individuals scoring five on expected orientations and threats have, compared to those who scored one, 132% higher odds to be in the privileged than in non-privileged classes. This effect, net of structural variables and of peoples' basic demographics, provides strong support for hypothesis 2.

So far I can reject both null hypotheses of no impact of expected opportunities and threats on subsequent material well-being. Whether the dependent variable is expressed in terms of individuals' total income or their membership in the privileged social classes, attitudes toward the future matter above and beyond of structural variables. However, these tests pertain only to the period 1988–1998, which is usually identified with the initial stage of the post-communist transformation. The rest of the paper deals with the period 1998–2008.

Future Orientations and Structural Outcomes

Stability and Determinants of Future Orientations

Thanks to the panel structure of POLPAN, it is possible to see the extent to which people change their views on the future over a five year period, 1998 and 2003. In both these years the distribution of this psychological variable is skewed, since more than half of the respondents, 56.0% in 1998 and 60.0% in 2008, are classified as revealing optimism. Pessimists constitute from 6.8% to 9.9%; the rest, from 33.2% to 34.1%, belongs to the ambivalent category.

Table 3

Stability and Change in Future Orientations, 1998–2003

1993	Pessimistic	Ambivalent	Optimistic	Total (N = 100%)
	2003			
	Percentages			
Pessimistic	20.4	46.0	33.6	137
Ambivalent	10.4	42.00	47.6	500
Optimistic	2.5	25.93	71.6	837
Total	6.8	33.2	60.0	1474

Table 3 shows that optimistic orientations are by far more stable than ambivalent and pessimistic attitudes. The coefficient of stability for optimists is 71.6%. Pessimistic orientations change the most (22.4%). Substantial change also occurs among respondents who in 1998 have ambivalent outlooks on the future: by 2003 10% become pessimistic, whereas 48% become optimistic. The correlation between the two future orientations variables is, as one would expect, positive and significant, though moderate: $r = 0.305$ ($p < 0.001$; $N = 1474$).

Before analyzing their long-term impact on structural outcomes, it is important to understand how future orientations themselves are shaped by prior structural and psychological variables. Results in Table 4 come from two OLS regressions, where the dependent variable is optimistic future orientations in 2003: Model 1 looks at the over-time effects of income and education, gender and age; Model 2 introduces 1998 future orientations to the equation.

In both instances, higher income and tertiary education lead to more optimistic future orientations, which is in line with prior research on the relation of social

Table 4

Linear Regression of Future Orientations in 2003 on Earlier Income and Education, Gender and Age, without and with Earlier Future Orientations

Independent variables[a]	Future Orientations, 2003					
	Model 1			Model 2		
	B	Robust SE	Beta	B	Robust SE	Beta
Future Orientations, 1998	—	—	—	0.239**	0.028	0.245
Income 1998 (in ln form)	0.943**	0.256	0.114	0.704**	0.250	0.085
Tertiary Education, 1998 (1 = yes, 0 = else)	0.431**	0.078	0.168	0.339**	0.076	0.132
Gender (males = 1)	0.099	0.064	0.045	0.046	0.063	0.021
Age	−0.007*	0.003	−0.075	−0.006*	0.003	−0.062
Constant	−0.329	1.018	—	−0.141	0.987	—
Fit statistics	*F = 23.11 (df = 4)* R^2 *= 0.066* *Root MSE = 1.067*			*F = 34.60 (df = 5)* R^2 *= 0.122* *Root MSE = 1.035*		

N = 1137; ** p < 0.01, * p < 0.05 for two-tail test

structure and attitudes.[6] Yet, positive future orientations in 1998 have an unequivocal role for optimistic outlooks in 2003, other things equal. This finding suggests that in over-time analyses, when data for three and more time points are available, the effect of future orientations on material well-being should be considered directly, as well as indirectly.

In comparison with Model 1, Model 2 fits the data better, and the increase in the amount of explained variance is statistically significant.

The Effects of Future Orientations on Income Attainment

The findings in Table 5 support the main hypothesis of this study: controlling for other factors, holding more optimistic future orientations at an earlier time results in higher income at a later time. In the 2003 model the impact of the psychological variable, measured in 1998, is statistically significant. In the 2008 model, the impact of both psychological variables, measured in 2003 and 1998 is statistically significant, and is of similar strength. Since optimistic orientations in 2003 depend, statistically, on orientations in 1998, this result shows that psychological traits affect earned income over a rather long time span, partially independently of each other.

Overall, the story here mirrors closely that of Table 1, where prospective orientations are captured through the opportunities and threats that people expect from social change. The one noticeable difference pertains to the significant effect in model I showing that men earn more than women. Generally results are in agreement with the earnings function as it is considered in the human capital framework. Prospective orientations are an important addition to this function.

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[6] I find similar effects when the dependent variable is *expected opportunities and threats* (1993), and future orientations measured in 1998, respectively. Results are available upon request.

Table 5

Linear Regression of Income on Future Orientation and Other Selected Variables: 2003 and 2008

	B	Robust SE	Beta
Model I: 2003 Income (in *ln* form)			
Future Orientation, 1998	0.020**	0.005	0.120
Income 1998 (in *ln* form)	0.513**	0.101	0.474
Tertiary Education, 1998 (1 = yes, 0 else)	0.097**	0.017	0.258
Gender (males = 1)	0.025[x]	0.014	0.069
Age	−0.001	0.001	−0.057
Constant	1.852	0.385	—
Fit statistics	*F = 34.21 (df = 5)* *R^2 = 0.422* *Root MSE = 0.137*		
N = 466			
Model II: 2008 Income (in *ln* form)			
Future Orientation, 2003	0.012[x]	0.007	0.068
Future Orientation, 1998	0.017*	0.007	0.097
Income 1998 (in *ln* form)	0.538**	0.148	0.437
Tertiary Education 1993 (1 = yes, 0 = else)	0.086**	0.022	0.205
Gender (males = 1)	0.021	0.017	0.057
Age	−0.004**	0.001	−0.218
Constant	1.887	0.570	—
Fit statistics	*F = 22.42 (df = 6)* *R^2 = 0.339* *Root MSE = 0.150*		
N = 462			

** $p < 0.01$, * $p < 0.05$ for two-tail test; [x] $p < 0.05$ for one-tail test.

The Effects of Future Orientations on Social Class

Part I in Table 6 corresponds to the logistic regression of belonging to the social classes of employers, managers or experts in 2003 on future orientations in 1998, without and with control for tertiary education. Both education and prior class position are measured before 1998, in line with their hypothesized overtime effect on attitudes. In Model I the effect of future orientations, controlling for prior class location and respondents demographics, is statistically significant at $p < 0.05$ for one tail test. Increase in optimism about the future by one level produces a 23% increase in the odds of belonging to the privileged classes, as opposed to other social classes, five years later. This effect, while still positive, is washed out when tertiary education is added in Model II, mainly due to the strong correlation between tertiary education and class position ($r = 0.434$ for 1993, and $r = 0.533$ for 2003, $p < 0.001$).

The regression of privileged class position in 2008 shows that, in terms of direct effects, peoples' more recent outlooks are more relevant than earlier ones (see Part II in Table 6). While the 1998 future orientations variable does not reach statistical significance, the effect of future orientations in 2003 is positive and significant in both

Table 6

Logistic Regression of Being in Privileged Classes on Future Orientations and Other Selected Variables: 2003 and 2008

Independent variables	Dependent Variable = log(p/p−1)					
	B	Robust SE	Exp(B)	B	Robust SE	Exp(B)
	Part I: Privileged Classes, 2003					
	Model I			**Model II**		
Future Orientation, 1998	0.235[x]	0.122	1.265	0.132	0.130	1.142
Privileged Classes, 1993	2.730**	0.291	15.331	1.903**	0.342	6.709
Tertiary Education, 1993 (1 = yes; 0 = else)	—	—	—	1.834**	0.302	6.261
Gender (males = 1)	−0.332	0.263	0.718	−0.183	0.286	0.833
Age	0.021	0.020	1.022	0.014	0.019	1.014
Constant	−3.554	1.076	—	−3.577	1.019	—
Fit statistics	*Wald chi² = 99.53 (df = 4)* *Pseudo R² = 0.244* *Log likelihood = −190.697*			*Wald chi² = 115.08 (df = 5)* *Pseudo R² = 0.319* *Log likelihood = −171.648*		
N = 461						
	Part II: Privileged Classes, 2008					
	Model I			**Model II**		
Future Orientation, 2003	0.277*	0.133	1.319	0.250[x]	0.147	1.283
Future Orientation, 1998	0.117	0.113	1.124	0.053	0.126	1.055
Privileged Classes, 1998	1.779**	0.236	5.921	1.251**	0.342	3.494
Tertiary Education, 1998 (1 = yes; 0 = else)	—	—	—	1.070**	0.348	2.914
Gender (males = 1)	0.046	0.227	1.047	0.155	0.252	1.167
Age	−0.015	0.009	0.985	−0.057**	0.016	0.944
Constant	−3.071	0.706	—	−0.713	1.049	—
Fit statistics	*Wald chi² = 72.32 (df = 5)* *Pseudo R² = 0.114* *Log likelihood = −283.544*			*Wald chi² = 78.51 (df = 6)* *Pseudo R² = 0.160* *Log likelihood = −233.976*		
	N = 852			N = 703		

** $p < 0.01$; * $p < 0.05$ for two-tail test; [x] $p < 0.05$ for one-tail test.

models—with and without education.[7] For one-tail test, optimistic future orientations in 2003 significantly increase one's odds of ending up in the privileged classes in 2008, all other factors constant.

Education and prior class position are the most powerful determinants of structural outcomes, a finding consistent with the stratification literature. Model II for 2008 illustrates these relations clearly: other things equal, compared to people with less schooling, respondents with tertiary education in 1998 are three times more likely to be employer, manager or expert in 2008 than to belong to different social classes. For

[7] Again, there is an increase in the alpha level of future orientations when tertiary education is accounted for, due to the correlation of tertiary education with social class in 1998 and 2008 ($r = 0.548$ and $r = 0.234$, respectively; $p < 0.001$).

people in the privileged social classes in 1998, compared to those in different groups, the odds of social inheritance are three times greater to remain in this category than to change it for a different one. Even in this context, the fact that an increase in optimism by one level produces 27% increase in the odds of belonging to the privileged class should be considered as indicating an important effect of psychological variable in the mobility process.

Accounting for Autocorrelation and Multicollinearity: Hierarchical Modeling of Panel Data

Measures for Future Orientations are available for both 1998 and 2003. Since time-varying variables for income, social class and age also exist, it is possible to model *the process* of attainment while accounting for problems of autocorrelation and of multicollinearity. Table 7 shows the results of the linear regression of income on future orientations and respondents' demographics. The psychological variable has a substantive and statistically significant effect, net of other determinants, especially education. The impact of the latter is, as expected, positive and highly significant. The one difference compared to the OLS results pertains to gender: being male has now a significant positive effect on income attainment, other factors being controlled.

Table 7

Linear Regression of Income on Optimistic Future Orientations, controlling for Education, Gender and Age[a]

Independent Variables	Income		
	B	Robust SE	Beta[b]
Future Orientations	0.016**	0.004	0.124
Tertiary Education (yes = 1 else = 0)	0.127**	0.015	0.288
Gender (males = 1)	0.052**	0.013	0.177
Age	0.009	0.072	0.011
Constant	3.799	0.036	—
Fit statistics	*Wald chi^2 = 98.74 (df = 4)*		

[a]This model is estimated using the xtreg, pa procedure in STATA; standard errors are adjusted for clustering on panel respondents.

[b]The standardized coefficients have been obtained using the formula *stanrdaized coefficient = (unstandradized coefficient * standard dev. explanatory varaibale)/ standard dev. dependent variable* (see Hox, 2010, p. 22).

** $p < 0.01$; * $p < 0.05$ for two-tail test;
N obs. = 932; N groups = 466

The last table, Table 8, predicts the probability of belonging to the privileged classes. By and large, the pattern of relations between the independent variables and the likelihood of being an employer, a manger or an expert is the same as discussed previously. The only difference pertains to the effect of age, which now is positive and significant.

Table 8

Multi-level Logistic Regression of Being in Privileged Classes on Future Orientations, controlling for Tertiary Education, Gender and Age[a]

Independent variables	Privileged Classes, 1998 DV = log(p/p−1)		
	B	S.E.	Exp(B)
Fixed Effects			
Future Orientations	0.253[x]	0.151	1.288
Tertiary Education (1 = yes, 0 else)	4.217**	0.484	67.854
Gender (males = 1)	0.294	0.329	1.342
Age	0.036[x]	0.021	1.037
Constant	−6.716	1.254	—
Random Effects	Variance	S.E.	
Constant	4.406	1.450	
Fit Statistics			
Wald chi[2]	80.19.40 (df = 4)		
Deviance[b]	703.276 (df = 5)		
N observ.	976		
N groups	599		

[a] This model is estimated using the xtmelogit procedure in STATA; it is a basic two-level model, with fixed effects for the IVs and random effect for the intercept (see Hox, 2010, p. 11).

[b] Deviance is obtained by converting the log-likelihood according to the formula $-2 \times$ *log likelihood*.

** $p < 0.01$; * $p < 0.05$ for two-tail test; [x] $p < 0.05$ for one-tail test.

Conclusion

This paper demonstrates that psychological determinants play an important part in explaining social inequality in post-communist Poland. Optimism about the future, whether operationalized through expected opportunities and threats or through future orientations, affects earnings and class position in positive way, independently of other major determinants of achievement, education and social standing especially. The results are robust for the period 1988–1998 and 1998–2008.

Since I rely on panel survey, the regression coefficients can be interpreted as weighted change. In terms of over-time change in income, the higher the coefficients for optimistic future orientations, the higher the increase in income. In the standardized metric, the effects of psychological traits on the changes in income are not smaller than a half of the effects of education. For class location, optimistic future orientations increase the chances of moving from non-privileged to privileged location by not-negligible amount—by more than 30% for one level of increase in perceived opportunities and threats and by more than 20% for one level of increase in optimistic view of the future.

There is a fundamental difference between estimating the impact of future orientation in a given time point (in the framework of regression of the current status S_t) on future orientations (F_{t-1}) and earlier status (S_{t-2}), and as a process in time

(in the framework of panel regression on status S_t on future orientations F_t). In the former we gain knowledge about effects in specific historical periods. In the later, we consider a uniform effect through time in a given time interval. The important result of this paper is that the effects of future orientations are present in both time perspectives.

Experimental studies in psychology have long shown that attitudes influence behavior indirectly, through intentions, and also directly (Bagozzi and Yi 1989). My analyses, carried out on representative national sample, bring these insights into the field of social stratification. In line with the tradition of this field, I find that schooling and prior location in the social structure strongly impact peoples' attitudes toward their future, and their later socio-economic outcomes. This lends weight to the critique of stratification research the theory of planned behavior has raised, namely that it fails to deal appropriately with structural determinants. In Ajzen's (1991, 2001) model, social structure is conceptualized as a background variable, whose effect on behavior is mediated by attitudes and subjective norms, and then by intentions. Liska (1984) accurately points out that in the "real word," outside the laboratory setting, social structure "…allocates resources and opportunities, which directly influence behavior and which provide the medium through which attitudes, subjective norms and intentions are expressed in behavior" (p. 72). Indeed, this paper demonstrates that attitudes should play an important role in research on social stratification.

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