

THE EFFECTS OF EDUCATION ON POLITICAL OPINIONS: AN INTERNATIONAL STUDY

David L. Weakliem

ABSTRACT

Research has found that education is associated with more liberal opinions on a number of issues, but there is uncertainty about the scope and interpretation of these findings. This study investigates the effects of education using data from the 1990 World Values Survey, which includes 40 nations and covers a wide range of opinions. Multi-level models are used to allow for national variation in the effects of education, including interactions with economic development and Communist rule. Education influences most political opinions; the effects can be summarized by saying that it promotes individualist values. Education is associated with somewhat lower confidence in most institutions. The relationship between education and confidence becomes weaker with economic development, while the effects of education on a number of political views shift to the left with economic development. The results suggest that education deserves more attention in explanations of national differences and historical trends in opinion.

Research from the 1950s to the present has found that more highly educated people express more liberal views on a number of issues, including civil liberties, the rights of racial and ethnic minorities, and gender roles.¹ Stephens and Long (1970, p. 25) conclude their review of the research by stating that 'the ideological direction that opinions take appears to be influenced in a remarkably (if not perfectly) consistent manner by education. Schooling liberalizes'. The more recent reviews by Hyman and Wright (1979) and Pascarella and Terenzini (1991, pp. 276-97) echo this conclusion.

The research, however, has three limitations that make theoretical interpretation difficult. First, the great majority of results are from the United States, and comparative studies such as those of Weil (1985) and Davis and Robinson (1991) include only a small number of nations. Authors such as

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¹ Traditionally, 'liberal' meant support for laissez-faire economics, but more recently it has sometimes been used to mean support for the welfare state, particularly in the United States. Hence, in this paper the term will be used only for non-economic issues; economic opinions will be described as 'leftist' or 'conservative'.

Inglehart (1997) argue that education may have very different effects in other societies, but there is little evidence on this point. Second, certain opinions, particularly civil liberties, tolerance of minorities, and support for democratic procedures, have received the bulk of attention in research on the effects of education, while other opinions have been relatively neglected. In particular, opinions on economic questions have received less attention. Hence, evidence that education is associated with more conservative views on economic affairs (Stephens and Long 1970, pp. 11–12, Key 1963, pp. 332–3) has not been thoroughly examined or incorporated into theoretical accounts. Third, most researchers in public opinion have been primarily interested in explaining opinions on particular topics, rather than exploring the effects of education on a range of topics. Consequently, although empirical studies of opinion routinely include education as a control, few have tried to develop or test theories of the effects of education. Even broad surveys of opinion change such as Kaase and Newton (1995) generally give only passing attention to education.

This paper will seek to fill some of these gaps by considering the effects of education on a large number of political opinions and values. Data are taken from the 1989–93 World Values Survey, which includes some 40 nations (World Values Study Group 1994). Given the nature of theorizing in the area, it is not possible to have a critical test based on a few sharply opposed hypotheses. Hence, this paper will take a more inductive approach, drawing on various theories to develop an interpretation of the results.

THEORIES ON EDUCATION AND POLITICAL OPINION

ENLIGHTENMENT THESIS

Education clearly increases political interest and involvement. Educated people are more likely to have an opinion of some kind (Hyman and Wright 1979, Almond and Verba 1963). There is less agreement, however, about how education affects the *content* of opinions. One view, which Davis and Robinson (1991) call the ‘enlightenment thesis’, holds that greater knowledge and intellectual sophistication reduce commitment to traditional authority and increase tolerance of diversity. On a narrow interpretation, this will increase tolerance of minority viewpoints and support for democratic procedures. On a broad interpretation, it will have implications for almost all political views. Pascarella and Terenzini (1991, p. 277), for example, hold that education leads to greater ‘altruism, humanitarianism, and sense of civic responsibility and social consciousness’. This broader interpretation is related to Kohlberg’s (1981) stage theory of moral development, in which support for universalism and individual rights is characteristic of the higher stages.

CORE VALUES

A second approach holds that education increases commitment to the core values and institutions of society. This does not mean that educated people will simply hold a more favorable view of the status quo. Rather, educated people will take general values more seriously when forming opinions about particular issues. For example, in Western societies, nearly everyone approves of freedom of speech in the abstract, but many people favor restricting the expression of particular unpopular opinions. More educated people will be more sensitive to this contradiction, and hence more likely to conclude that the rights of even unpopular groups must be respected (Weil 1985, Selznick and Steinberg 1969). This approach suggests that education may shift opinions to the left on some issues and to the right on others. For example, Phelan *et al.* (1995) suggest that the core values of the United States involve individualism and equal opportunity, but not equality of result. The most evident implication of this approach is that the effects of education will differ widely across cultures, not sharing even a common direction. That is, whether education shifts opinions to the left or the right will differ depending on the core values of the culture. In contrast, the enlightenment thesis implies that the direction of the effects will be the same everywhere, although the magnitude may differ depending on the intensity or content of schooling.

POLITICS OF INTELLECTUALS

In addition to these two major approaches, some discussions of the politics of intellectuals are potentially relevant, since intellectual status may be regarded as a matter of degree rather than a categorical division. That is, intellectuals may simply exhibit the general effects of education in a particularly extreme or concentrated form. Three general claims are particularly relevant to this study. First, intellectuals are often said to be hostile to some aspects of capitalism. Hayek (1949) suggests that they are attracted to the ideas of planning and organizing economic activity, which is plausible in light of the evidence that education increases the sense of ability to plan and organize one's own life (Mirowsky and Ross 1998). Von Mises (1956, see also Bruce-Briggs 1979) argues that intellectuals tend to think that wealth and power should be distributed according to learning rather than success in the market.

Second, education almost necessarily imparts some degree of skepticism. Students learn that conclusions must be justified by logical reasoning and evidence, and that even respected authorities may be mistaken. This outlook may be applied to all areas of life, making educated people more critical of institutions and authority in general. For the same reasons, they may be more tolerant of deviations from moral or religious traditions (Wilson 1972 [1995], p. 117).

Third, some accounts suggest that any such critical tendencies will be stronger in more 'advanced' societies (Schumpeter 1950, pp. 150–3). Traditionally, educated people have directly served political and economic elites. Ignazio Silone's (in Crossman 1945, pp. 94–5) recollection of Italy in the early twentieth century illustrates these pressures: 'economic poverty . . . offers small scope for a career to the youths leaving school by the thousands every year. Our only important industry is State employment . . . [which requires] a docile disposition and a readiness to toe the line in politics. . . . That is why people say: anarchists at twenty, conservatives at thirty.' Growth in affluence and the division of labor produces occupational niches for educated people who are critical of the status quo. For example, Brint (1984) finds that 'social and cultural specialists' in the public and non-profit sectors are to the left of other members of the educated middle classes. Moreover, the growth of large organizations and anonymous market relations reduces the control that elites have over dissenters. Indeed, traditional elites tend to lose their separate identity and to be absorbed into the educated professional and managerial classes.

DATA AND METHODS

VARIABLES IN THE WORLD VALUES SURVEY

The nations included in the 1989–93 World Values Survey (WVS) are listed in Table 1.² Surveys were conducted by a variety of organizations, usually the local Gallup affiliate. In most nations, the WVS obtained national probability samples. In some less developed nations, samples were based on particular localities, usually over-representing urban residents and the middle classes. Departures from random sampling, however, are not of concern for the purposes of this study, since it is concerned with the effects of education rather than the distribution of individual variables. The results presented use the sampling weights provided in the WVS, but the unweighted estimates are similar. Most national samples were about 1,000, but a few were larger.

The WVS contains a simple *measure of education*: age at completion of full-time schooling, coded into ten categories: 12 or younger, 13, 14, . . . , 20, and 21 or older. This measure is admittedly crude, since the intensity or content of a year of schooling can vary widely. The implications of this limitation will be discussed below. In preliminary analyses, a distinction was made between education through age 18 and education from 18–21. The effects sometimes differed, with education 18–21 usually having more impact, but were consistently in the same direction. Hence, this analysis treats the effects of education as linear—each year of education is taken to have the same effect. It should be

² This study follows the WVS definition of 'nation'. A few of the cases listed in Table 1 are not independent political units, but for historical or cultural reasons can be regarded as distinct.

TABLE I Nations included in the 1989–93 World Values Survey

Canada	Czechoslovakia	Lithuania	China
Mexico	Denmark	Moscow	India
United States	Estonia	The Netherlands	Japan
	France	Norway	South Korea
Argentina	East Germany	Poland	Turkey
Chile	West Germany	Portugal	
	Hungary	Romania	Nigeria
Austria	Iceland	Russia	South Africa
Belarus	Ireland	Slovenia	
Belgium	Latvia	Spain	
Britain	Northern Ireland	Sweden	
Bulgaria	Italy		

emphasized, however, that this is merely a convenient approximation needed in the context of the large number of nations and questions considered. It is quite possible that different levels of schooling have different effects.

CONTROL VARIABLES

Four general *groups of opinions* were selected for analysis. The first includes political issues in a narrow sense—questions on which there is debate about appropriate government action. The WVS includes questions about economic affairs, environmental protection, rights for jobs, and gender roles. The second group involves judgments of morality; whether certain actions are never justified, always justified, or something in between. Although these issues are the subjects of political controversy, the questions in the WVS do not refer to government action, so they are treated as a separate category. The third group involves confidence in various institutions such as the church, the police, and the educational system. The fourth group involves more general values; for example, whether children have a duty to love and respect their parents regardless of the parent's actions, or whether a decreased emphasis on money would be a good thing. Such general values are of interest from the perspective of this paper because they are likely to influence many specific political views. Political interest and participation are not considered in this analysis, since they have been thoroughly studied in previous work.

Age, gender, and occupational class were included as control variables. Class was measured by the respondent's occupation if he or she was employed, and the head of the household's occupation otherwise, using five categories: business, professional, non-manual, manual, and farmer. The control for class is particularly important, since it has a strong association with education and important effects on some opinions. In particular, Stephens and Long (1970, pp. 11–2)

suggest that the apparent conservative effects of education on some economic issues actually represent class effects.

Two national-level variables are also included in the analysis: *economic development* and Communist rule. Economic development is measured by 'Purchasing Power of Currencies' (PPC) estimates of GDP. The PPC estimates attempt to measure the ability to purchase goods and services; unlike conventional estimates of GDP, they are not directly affected by international exchange rates (World Bank 1993, pp. 319–21).³ While economic development might be understood in other ways, such as the size of various economic sectors, GDP has the advantage of being widely available and measured relatively well. Moreover, the various aspects of development are highly correlated, so little would be gained by considering additional ones. Communist rule is measured by a dummy variable; both nations that currently had Communist governments and nations that were in transition from Communism were included in the Communist category.

There are many other cultural distinctions that might be of interest, but it is not possible to systematically examine their interactions with education. The WVS includes, for example, only one predominantly Islamic nation, three African nations, and three East Asian nations, making it impossible to form meaningful groups for statistical analysis. The interaction between education and culture, however, may be evaluated less formally by examining the estimated effects of education in individual nations.

The dependent variables are measured on a variety of scales, ranging from a simple choice between two alternatives to ten-point scales. To make the estimates roughly comparable, they were multiplied by $100/(n-1)$, where n is the number of categories in the original scale. This standardization means that the estimated effects of education can be interpreted as shifts of a given percentage from one extreme category to the other. An estimate of 1.0, for example, means that the effect of a one-year increase in education is equivalent to shifting one percent of the population from complete disagreement to complete agreement. The usual form of standardization is not used because it makes the interpretation of interaction effects difficult and loses the natural units of the independent variable, years of education. All opinions are analyzed separately rather than combined into a smaller number of indexes. A positive correlation between two opinions does not necessarily mean that education has a similar effect on each, so using indexes might obscure some important differences in the effects of education.

³ The figures for GDP were obtained from the World Bank (1993), supplemented by Interstate Statistical Committee (1996) for the former Soviet Union; they are similar, but not identical, to those reported in Inglehart (1997). In the few cases for which PPC estimates were not available, they were estimated from conventional GDP.

METHODS

The models used here assume that the effect of education on opinions in each nation is the sum of two parts: a general education effect that applies everywhere and an effect specific to that nation. These models are used because it is not reasonable to imagine that the effects of education are the same everywhere: even the enlightenment thesis would agree that some differences would be expected because of national differences in the organization and content of schooling. The estimates of average effects are usually similar to those from a standard regression model, but standard errors tend to be larger, so that conclusions are more conservative. Hence, where the results suggest that the average effect of education is different from zero, we can have a high degree confidence in this conclusion.

Formally, the basic model can be written as:

$$y = (\alpha + \tau) + (\beta + \zeta)x + \varepsilon$$

where α and β are constants that apply to all nations and τ and ζ are random variables that have a different value for every nation. That is, by including nation-specific components, both the slope and the intercept (which represents factors that apply across all levels of education) are treated as random variables rather than constants as in an ordinary regression. The variance of ζ indicates how much the effects of education differ among nations. Models of this type, known as mixed, hierarchical, or multilevel models, can be estimated using PROC MIXED in SAS (SAS Institute 1999; see also Singer 1998). The models can also be extended to consider interactions of education with other variables. For example, if δ is a dummy variable for Communist rule, the interaction between Communist rule and education, δx , can be included and interpreted in the usual way.

RESULTS

EDUCATION AND POLITICAL OPINIONS

Table 2 summarizes the effects of education on political opinions. The WVS variable number and a brief description are provided; the complete question texts can be found in the codebook.⁴ The first column of figures is the average effect of education, β in the equation above. The dependent variables are coded so that a larger number indicates more leftist views. Consequently a positive effect of education means that it shifts opinions to the left, and a negative effect

⁴ The codebook (ICPSR study #6160) is available on the internet at a number of locations, including <http://www.uta.edu/pols/data/wvs/cb6160>. A question on preferred system of ownership (V126) is recoded so that employee and government ownership are combined into a single category, since both are traditionally regarded as forms of socialism.

means that it shifts views to the right.⁵ The variables are arranged according to the size of the education effects.

The most general conclusion is that education shifts opinions to the left on most questions, but to the right on a significant minority. Looking more closely, it has conservative effects on the central economic questions that have traditionally divided the left and right. It should be remembered that the models include controls for class: that is, they mean that more educated people are more conservative than less educated people at the same occupational level. These results clearly show that education generally increases rather than reduces support for capitalism.⁶ This fact suggests that the enlightenment model needs some modification. The narrower versions of this model suggest that education should have little or no effect on economic views, while the broader version suggests that it should move opinions to the left on at least some questions, particularly those involving equality and competition. Yet these are the questions for which the strongest conservative effects are found. For the core values model, the averages are of less importance than the estimates for individual nations. Nevertheless, it is surprising to find such a clear tendency, since the WVS sample includes a number of nations in which most observers have not seen *laissez-faire* capitalism as a core value.

Education is consistently associated with more liberal views on subjects other than political questions, including environmentalism, gender roles, and rights to hold jobs. The liberal effects on gender roles and equal rights are consistent with past research. The effects on environmental issues are of particular interest, since concern for the environment does not follow from the procedural issues of equal treatment and civil liberties. Hence, these results suggest that education leads to a broader change in values.

The second and third columns of figures show estimated interactions of education with GDP and Communist rule. Figures appear only if the estimate was statistically significant at the five percent level.⁷ The GDP of the nations in WVS ranges from about \$1,000 to \$21,000, with an average of \$11,000. For this analysis, GDP is measured in units of \$10,000, so that the approximate range of predicted effects can be obtained by adding and subtracting the GDP interaction from the average. For example, education is estimated to have virtually no effect on opinions about government versus private ownership in the richest nations ($-.448 + .420 = -.028$), and a strong conservative effect ($-.448 - .420 = -.868$) in the poorest nations.

⁵ Estimated effects of the control variables for nation, gender, age, and class are omitted to save space.

⁶ It is, of course, possible that some more narrowly defined group of 'intellectuals' is anti-capitalist.

⁷ In the case of *vi28* the interactions were jointly significant, but neither one was significant individually. That is, we can have reasonable confidence that the effect of education differs according to GDP, Communist rule, or both, but cannot choose among these possibilities.

TABLE 2 Effects of education on political opinions

WVS no.	Variable	Effect of education	Interactions of education with		Ratio
			GDP	Communist rule	
v250	Equality vs. incentives	-1.068***			0.761
v252	Individual vs. state responsible	-0.571***			0.833
v125	Pay differences for productivity	-0.487***			0.531
v251	Government ownership of business	-0.448***	0.420*	-0.530*	1.162
v254	Competition good or bad	-0.443***	0.300*	-0.382*	0.866
v126	Best system of ownership	-0.316***		-0.557**	0.982
v223	Both partners should earn	-0.165*	-0.315*	-0.646***	2.039
v214	Child needs both parents	0.167***		-0.286***	0.963
v217	Single motherhood acceptable	0.346***			2.050
v218	Working mother can be as good	0.404***		-0.766***	0.791
v12	Would trade income for environment	0.413***	0.279*		0.803
v219	Child suffers if mother works	0.434***		-0.717***	0.896
v13	Accept higher taxes for environment	0.457***	0.475***		0.693
v215	Woman needs child to be fulfilled	0.569***		-0.527*	0.966
v221	Housewife as fulfilling as paid job	0.681***			0.786
v131	Unfair for handicapped to have work	0.752***			0.688
v17	Environment not that important	0.767***			0.593
v130	Employers should favor natives	0.793***	0.808***		0.815
v16	Must accept environmental problems	0.797***			0.642
v129	Compulsory early retirement	0.807***			0.684
v220	Women really want home & children	0.836***		-0.879***	0.795
v128	Men should be favored for jobs	1.070***	0.340	-0.416	0.565

*** $p < 0.1$ percent; ** $p < 1$ percent; * $p < 5$ percent

Of the seven significant interactions, six have a positive sign, meaning that the liberal effects become stronger or conservative effects become weaker as GDP increases. This finding supports Schumpeter's (1950) suggestion that at least some of the 'critical' tendencies of intellectuals are stronger in more advanced societies. There is no obvious common factor, however, that distinguishes the questions that show such a tendency from those that do not.

There are a number of significant interactions with Communist rule, and they follow a clear pattern. In nations that have experienced Communist rule, the tendency for education to increase support for private ownership is stronger, while the tendency for it to reduce support for traditional gender roles is weaker. From the point of view of the core values model, these findings are surprising, since both public ownership and gender equality were official policy under Communism. In fact, it appears as if educated people were reacting *against* the core values of a discredited system.

The final column gives the ratio of nation-specific variation to average effects. Where the ratio is small, the effects of education will have the same direction in almost all nations; where it is large, they will sometimes be in one direction, sometimes in the other. Exactly how often will depend on the distribution assumed for ζ . For illustration, with a normal distribution a ratio of 1.0 means that the effects of education are in the 'wrong' direction in about 16 percent of nations, compared to about two percent with a ratio of 0.5 and about 30 percent with a ratio of 2.0. There are substantial differences in the ratio. For example, although education usually leads to greater acceptance of single motherhood, its effect varies widely among nations. In contrast, the tendency for more educated people to favor higher pay for more productive workers appears to be almost universal.

EDUCATION AND MORAL JUDGMENT

Education is associated with a more liberal attitude towards all of these behaviors, although the strength of the effect varies considerably.⁸ In three cases, the liberal effect of education is estimated to become stronger with economic development, and in one it is estimated to become weaker. It should be noted that the questions for which the liberal effect increases involve individuals making decisions for themselves, while the one case for which it declines involves people making decisions for others. The interaction effect involving acceptance of homosexuality is particularly large: in a nation with a per-capita income of about \$1,000, education would be expected to have an effect of only .160 (1.034 – .874), while with a per-capita income of \$21,000 the expected effect would be 1.908. In three cases, the liberal effect is weaker in nations that had

⁸ Tables giving complete results from this and the following sections are available from the author.

experienced Communist rule. These three variables, however, have no obvious features in common.

EDUCATION AND CONFIDENCE IN INSTITUTIONS

We also tested the effects of education on confidence in a variety of institutions. In general, education reduces confidence in institutions, supporting Schumpeter's idea about the critical tendencies of intellectuals and arguably counting against the core values hypothesis. There are, however, six estimated interactions with GDP, all in a positive direction—that is, the tendency for educated people to be more critical becomes weaker with economic development. In fact, for the legal system, the press and Parliament, the estimates imply that the direction of the effect changes: in poor nations education reduces confidence, but in rich nations it increases confidence. For the church and the educational system, the estimated effects are near zero at the level of the most affluent nations. There are also several interactions with Communist rule, all negative. Thus, one could summarize the effects by saying that education reduces confidence in institutions in poorer nations and nations that have experienced communist rule. In affluent nations, it has less effect, and in some cases leads to increased confidence. These results are consistent with Listhaug and Wiberg's (1995, p. 318) conclusion that education generally has a small but positive relationship to confidence in contemporary Western Europe. It should also be noted that the ratios of residual variation to average effects are generally much larger than those found for the effects of education on political opinions and moral judgments. That is, the effect of education on confidence in institutions varies widely among nations. This is reasonable, since the nature of the institutions varies widely as well. For example, educated people might have very little confidence in the press when it is subject to government censorship, but high confidence when it is not.

EDUCATION AND GENERAL VALUES

Educated people are less likely to agree that there should be more emphasis on authority, that children have an absolute duty to respect their parents, and that parents should always put their children's needs first. They are more likely to favor a greater emphasis on the development of the individual and less emphasis on money, and more likely to agree that good and evil depend on circumstances and that technological advances will benefit humanity. Education has little effect on support for a greater emphasis on family life, the development of technology, a reduced emphasis on work, or a 'simpler and more natural' lifestyle. The tendencies for education to reduce support for authority and increase confidence in technology appear to strengthen with economic development. In nations that

have experienced Communist rule, educated people are less likely to favor a reduced emphasis on work and more likely to favor increased development of the individual and a greater emphasis on technology. The ratios of residual deviation to average effect indicate that any remaining national differences in the effects of education are relatively small.

NATIONAL DIFFERENCES

A more detailed picture of national differences can be obtained by considering the estimated effects of education in individual nations. For the sake of simplicity, selected variables were combined into indexes for economics, gender, moral values, and confidence in institutions.⁹ Figure 1 shows national estimates in the effects of education on two of these areas, economics and moral views. As in Table 2, positive values indicate an association with leftist views; negative values, with conservative views. In the great majority of the countries, education leads to more conservative views on economics and more liberal moral judgments. Moreover, the estimates that have the 'wrong' direction are uniformly small. Education has a very strong conservative effect on economic views in South Africa, probably because whites have much more schooling than blacks. The conservative effects also tend to be strong in Russia and Eastern Europe. The effects are fairly similar in all affluent Western nations, suggesting that either the core values of these nations do not vary greatly, or that differences in core values do not explain differences in the effects of education. The clearest pattern for moral judgments is that the liberal effects are weak or absent in the former Soviet Union and some neighboring nations. This is also true for opinions about gender: in fact, the only cases in which education has a significant effect in the 'wrong' direction occur for gender issues in Lithuania, Bulgaria, and Russia. Whether this tendency reflects something about the experience of Communist rule or cultural differences cannot be determined without more data. As shown above, education generally reduces confidence in institutions in poorer countries and nations that have experienced Communist rule, but has little impact in developed Western nations. The major conclusion that emerges from examination of the estimates for individual nations is that the effects are almost always in the same direction, contrary to what is suggested by the stronger versions of the core values hypothesis.

DISCUSSION AND CONCLUSIONS

On the simplest level, this study confirms earlier findings that education is associated with more liberal opinions on most issues, but more conservative

⁹ The indexes were composed of the following variables: economics—v250, v251, v252, and v254; gender—v218, v219, v220, and v221; morals—v307, v308, v309, and v310; institutions—v272, v273, v274, and v278.

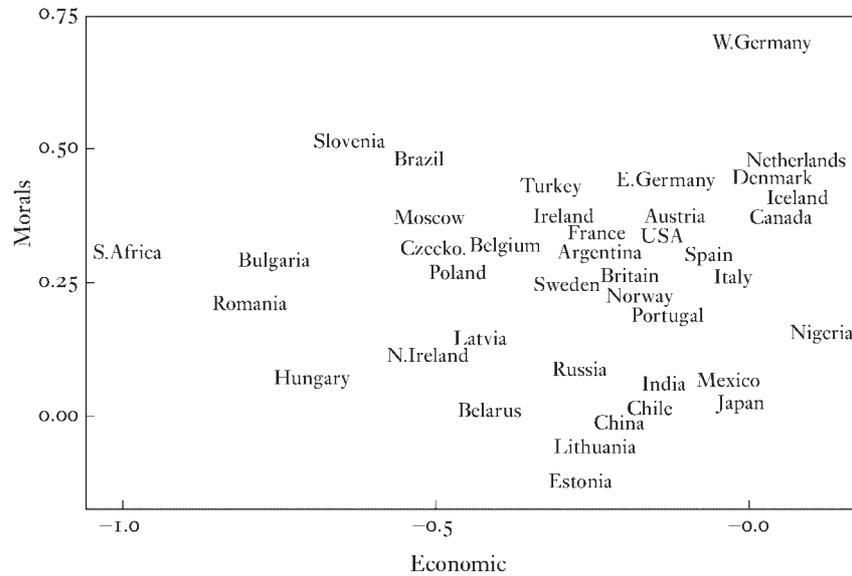


FIGURE 1 Effects of education on economic and moral views, by nation

opinions on some economic issues. The distinction between economic and non-economic issues, however, is more a matter of convention than of theory. A more meaningful interpretation might be that education increases commitment to individualism. The strongest effects are found for the questions that refer most directly to individual choice versus traditional authority. Individualism implies greater support for capitalism, but may produce more leftist opinions on some economic issues, such as rejection of job discrimination by gender or age. The effects of education on moral views and confidence in institutions can also be understood as aspects of individualism. Educated people are more likely to support individual choice, and be more suspicious of authorities that restrict it. Note that education substantially reduces confidence in the church, the police, and the armed forces, but has little or no effect on support for parliament and the press.¹⁰

The idea that education increases commitment to individualism could be regarded as a version of the enlightenment model. It is broader than the versions that focus on civil liberties and equal treatment, but less sweeping than Pascarella and Terenzini's (1991) version. With the present data, it is not possible to say *why* education leads to individualism. It is not difficult, however, to think of plausible reasons. Even where schools seek to promote respect for authority,

¹⁰ Education also has a large negative effect on confidence in the educational system, a result that cannot easily be explained in terms of individualism. It may occur because educated people have higher standards for schools and hence are more likely to see room for improvement.

education is likely to produce a sense that tradition alone is not enough to justify belief. Moreover, educated people are likely to have more confidence in their ability to make decisions, and hence to regard restrictions as unnecessary or burdensome. This interpretation does not account for all of the effects found above. For example, confidence in technology and support for environmentalism have no obvious connection to individualism. It seems unlikely, however, that the effects of education on opinions could be reduced to a single factor. Thus, rather than counting against the interpretation, the cases that do not fit simply show that it does not encompass all the effects of education.

One result that has not been anticipated in previous research is that in several cases the effects of education differ depending on the level of economic development. It is not clear why these differences occur for some questions rather than others. Where they occur, however, they are consistently in the same direction: the effects of education shift to the left with development. Either conservative effects become weaker, as with opinions about public versus private ownership, or liberal effects become stronger, as with acceptance of homosexuality. On questions that cannot be seen in terms of left and right, the main shift is that the tendency for education to reduce confidence in institutions weakens with economic development. This change might follow from the growth of rational bureaucratic organization in modern economies (Weber 1978). In traditional societies, the leading positions in major institutions are often obtained by social position or political power, while in modern societies, they are more likely to be held by people with educational credentials. Putting these results together, our findings support Brint's (1984) claim that in advanced societies education leads to 'reformist' views rather than anti-capitalist radicalism or a general alienation from prevailing institutions and values.

Research on voting patterns in several countries suggests that professionals and white-collar workers have shifted towards parties of the left over the last fifty years or so (Manza and Brooks 1999, Weakliem and Heath 1999). The present results suggest that these shifts may reflect changes in the effects of education, and that such changes are likely to have occurred widely. There are no long-term studies of the effects of education on voting choices, but impressionistic evidence suggests that the political climate of universities has moved to the left over the century, even before the student radicalism of the 1960s brought widespread attention to the change. In a study of voting in the British university constituencies, Rex (1946, p. 209) suggested that 'the Independent is in the process of superseding the Conservative as an embodiment of university political opinion'. Thus, the evidence of a broad change in the political effects of education is strong enough to merit serious consideration.

This research does not consider the possibility that the effects of education vary within nations. The core values model suggests that this might occur because of differences in the values of ethnic or religious groups. Moreover, it

is possible that the effects differ depending on the content of schooling. For example, Bowles and Gintis (1976) argue that the education typically received by working class and middle class children has very different intellectual consequences. Another issue that could not be addressed here is change in the effects of education over short periods of time. If educated people are more attuned to current debates, as is often suggested (Gamson and Modigliani 1966), it seems likely that their opinions will vary more over time. There is not much evidence on this point, but Martin (1994) finds that in the United States the effects of education on economic opinions shifted in a conservative direction between the 1960s and 1980s.

Most generally, these results suggest that education deserves more attention in explaining national and historical differences in political and social views. Traditionally, even critics of Marxism have usually treated class as central to the explanation of such differences. For example, developments such as the rise of feminism or environmentalism are often explained as reflecting the decline of working class consciousness or the rise of new classes. The present results suggest that they may instead reflect rising levels of education. It is understandable that the classical social theorists paid little attention to the effects of education on opinions, since in their time most people had little formal schooling. This neglect, however, can no longer be justified.

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BIOGRAPHICAL NOTE

David L. Weakliem is associate professor of sociology at the University of Connecticut. In related work, he is carrying out a comparative study of the effect of opinion on income inequality.

Address correspondence to David Weakliem, Dept. of Sociology, University of Connecticut, Unit 2068, Storrs, CT 06269, United States, Email: weakliem@uconn.edu