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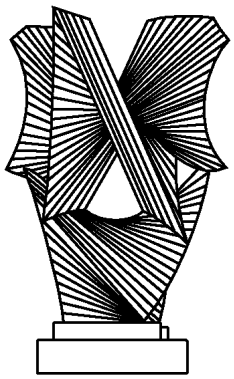

Public Schooling, Indoctrination, and Totalitarianism

John R. Lott, Jr.

THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

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Public Schooling, Indoctrination, and Totalitarianism

*John R. Lott, Jr.**

I. Introduction

The standard public goods argument for education assumes that a better educated populace is more likely to support democracy. This presupposes that either more educated people are inclined to make decisions for themselves or that education inherently instills the belief that democracy is desirable (Cohn, 1979, p. 206 and Solmon, 1982, p. 8). These arguments largely depend on the level of marketable human capital, such as literacy and reasoning ability, and ignores the question of methods: subsidies versus public provision. Yet, politicians in more totalitarian countries should wish to avoid creating a more independent and critically reasoning constituency. Hence, the public good explanation would imply a consistent negative relationship between totalitarianism and expenditures on public schooling.[1] I will provide evidence that this is not the relationship that we observe.

While many others have argued that public schooling may serve to indoctrinate (e.g., see surveys in Sowell (1995) and Lott (1987c)),[2] this paper asks what are the characteristics of

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[1] This argument implicitly makes the assumption that more educated people see democracy as a good. It is not readily apparent why this is necessarily true. Maybe relatively educated people, who are thus supposedly relatively wealthier, feel a more totalitarian government is better equipped to protect their property.

[2] For previous work on the formation of individual preferences/views see Becker (1996), Sunstein (1996), Thompson and Ruther (1983), and Lott (1990). This literature debates whether changing the cost of different types of information alters peoples' preferences or whether these views are independent of these innate preferences. For the discussion here this distinction is not

governments that have the greatest returns to indoctrination are more likely to own the media and are in fact making larger investments in public education. Are these governments also more likely to exhibit those societal characteristics which make direct parental involvement in their children's lives more costly?

Governments have gone to great lengths to instill desired values in children. Yet, it is not just Germany during the 1930's and 1940's or communist countries like the former Soviet Union that have actively tried to influence children's views.[3] A good example is Sweden, which aggressively instituted a very costly system of nursery school care. When Ingvar Carlsson (the current Prime Minister) was education minister he said: "School is the spearhead of Socialism" and "pre-school training is essential 'to eliminate the social heritage'" of undesirable parental views (Huntford, 1972, pp. 222 and 233). Swedish educational theorists even advocated tax and government employment policies "to get both parents out of the home, so that children are forced out as well" (p. 222, and see also Rosen, 1996).

After briefly discussing why countries which are more totalitarian and create larger wealth transfers experience greater returns to indoctrination, Section III updates statistical evidence comparing primary and secondary school expenditures with public ownership of television as well as public medical expenditures. The following sections then test whether educational expenditures were influenced by the fall of communism and analyze how family structure as well as the amount of time that children are removed from their family changes with the type of government. Finally, the last section provides some preliminary evidence on whether teacher

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crucial, though I will assume, as in my 1984 dissertation, that changing the relative costs of different types of information produces different views and not different underlying preferences.

[3] For example, during the 1920's and 1950's, the Soviet Union experimented with raising children in "communal children's houses, dining halls, and other institutions that would decrease the importance of the individual household" (Shipler, 1983, pp. 88-89). While fighting in Afghanistan during the 1980's, the Soviet government forcibly took tens of thousands of 3 and 4 year old Afghanis to the USSR to be raised away from the influences of their families (Amstutz, 1986). The hope was that when later returned to Afghanistan they would form the core of a loyal government administration.

salaries can be used to encourage the dissemination of pro-government information by examining how South African teachers' salaries vary by race.

II. Outlining the Theory

In past work, I have offered an explanation as to why education was publicly provided across all countries by starting with the assumption that political entrepreneurs maximize support by regulating the size and distribution of "wealth transfers" subject to the costs of creating the transfers (Peltzman, 1976 and Becker, 1976 and 1983). While larger transfers increase the opposition generated by net losers, politicians can make investments in mitigating this opposition. Force is one such option—for example, by outlawing the organization of opposition political parties or jailing opponents ("totalitarianism")—but controlling the information received by citizens ("indoctrination") can also be effective. When the cost of pro-transfer information falls and that of anti-transfer information rises, views more favorable to the government are generated. The greater the perceived "legitimacy" or "fairness" of existing transfers, the lower the opposition. Like public ownership of the news media, government provided schooling decreases the cost of wealth transfers by changing the relative cost of acquiring different information and predisposing students to support certain transfers. Educational subsidies are not as effective as public schooling in instilling these views because the increased competition for students will create incentives for educators to provide the information that customers and not authorities value (Lott, 1987b).

Building on Peltzman's (1976) work, my model showed that public educational expenditures should increase with "totalitarianism" as well as government transfers (Lott, 1990, pp. 201-8). The model assumes that totalitarianism has two effects: 1) it increases the cost of organizing opposition groups but 2) it restricts the opportunity set of individuals and hence lowers their real wealth, and this works to increase the level of opposition.[4] The effectiveness of totalitarianism in deterring effective opposition increases at a decreasing rate, while

[4] These restrictions on peoples' opportunity sets can take many forms from limiting where individuals may go or with whom they may associate. Presumably such force is used only because it alters people's opportunity set.

diminishing marginal utility of wealth results in opposition created by these restrictions increasing at an increasing rate. Higher levels of totalitarianism produce diminishing returns to controlling the citizenry through force and increases the marginal return to indoctrination. The model also predicts that as a country's income increases, the opposition arising from any given level of totalitarianism—and thus the return to indoctrination—falls. This paper uses Freedom House's Comparative Survey of Freedom Index on political freedom and civil liberties to measure totalitarianism. The components of the index, as listed in the footnote, measure many different costs of opposition from the existence of multiple political parties to fairness of vote tabulation to military control.[5]

The return to investments in indoctrination should also be related to the level of governmental wealth transfers. As wealth transfers increase and opposition rises, the marginal return to indoctrination also rises. Since all government actions create some wealth transfers, I assume that government size proxies for the level of transfers.

The tests attempt to examine how investments in indoctrination change with the type of government. Unfortunately, direct measures of educational expenditures on indoctrination are not available. As a substitute, total public educational expenditures (which consist of both investments in human capital as well as indoctrination) are regressed on totalitarianism, government size, and other variables explaining investments in human capital, such as income. The theory is then tested by studying other similar types of goods—for example, television broadcasting, which provides knowledge but also

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[5] These include: 1) are multiple political parties (or other means by which opposition to government policy may be organized) allowed, 2) is candidacy reasonably open, 3) is there fair polling or tabulation of votes, 4) have the country's most important leaders been recently elected, 5) does the opposition attain local or regional office, 6) is the government free of military and foreign control, 7) the existence of the rule of law (including the independence of the judiciary and the legitimacy of policy behavior), 8) open public discussion of issues before the country, 9) freedom from political censorship, and 10) independence of the media from the government (though public ownership is definitely not one of the components of the index (for example, Sweden's broadcast media is publicly owned but is defined as independent of direct government control since it is an independent public corporation and staffing appointments are *not* political appointments).

may be used for indoctrination. If government control of television increases with totalitarianism or wealth transfers, it is more plausible that such a relationship also holds for education.[6] Where data are available, measures of political stability are examined.

III. Schooling, Wealth Transfers, and Totalitarianism: Some Evidence

A. Government Control of Television

Few people would be surprised that totalitarian governments favor government ownership of television. Under private provision, license revocal or the threat to revoke, could be used to influence programming, it probably does not constitute a perfect substitute for direct ownership (e.g., Klein, Crawford, and Alchian, 1978). I thus predict a positive relation between ownership and totalitarianism. To

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[6] Given the long-run returns to instilling certain values in children, a question arises as to how democratically elected politicians can internalize the returns to these investments. One answer is provided by Alchian (1950), Becker (1976), and Brennan and Buchanan (1980), who argue that efficiency alone, without a consciously planned process involved, can explain why "rules of thumb" and institutions are adopted. Institutions that have the lowest costs of transferring wealth produce the most political support and are the least likely to be challenged. If an efficiency explanation exists for public schooling (for example, it lowers the cost of creating transfers), public provision can be explained with "as if" statements concerning human motivations. Long-lived, strong political parties that punish politicians who fail to support investments in indoctrination may also solve this problem. Yet two other mechanisms besides strong political parties can insure that society internalizes the effects of indoctrination. First, the constituencies which receive these long term benefits could support only politicians who vote to inculcate the desired values. Secondly, if politicians are ideologues, as assumed in Lott (1987a), the politicians value not only producing current support but also value the transfers they create. The assumption that ideologues consume "having done the right thing" can be easily extended to them intrinsically valuing education's moral indoctrination and/or the resulting future transfers. The greater the extent that politicians value these moral beliefs or future transfers, the more they will internalize the returns to these investments. Unlike investments in police, the investments in indoctrination may take a relatively long time to produce politically beneficial results, and as with any other capital should continue to affect views even after the indoctrination stop. For instance, Stalin remained popular in Russia even though he no longer controlled the instruments of repression.

test my hypothesis, I ran the following probit regression pooling data for 1985 and 1987:

The term GOVERNMENT OWNERSHIP OF TV denotes whether a country's television stations are publicly (GOVERNMENT TV = 1) or privately owned (GOVERNMENT TV = 0).[7] Which category, public or private television ownership, was judged on the basis of which type possessed the most transmitting power and, when that was not available, by the relative number of transmitters. Most countries have either complete government or complete private ownership.[8]

$$\text{GOVERNMENT OWNERSHIP OF TV}_i = c + b_1 \text{TOTALITARIANISM RATING}_i + b_2 \text{REAL PER CAPITA GDP}_i + b_3 (\text{GOVERMENT EXPENDITURES/GDP})_i + b_4 (\text{TOTALITARIANISM RATING*REAL PER CAPITA GDP})_i + b_4 \text{Year Dummy 1987} + u_i \quad (1)$$

The TOTALITARIANISM index using the Freedom House's Comparative Survey of Freedom Index on political freedom and civil liberties ranges from values of 2 to 14 (both the political freedom and civil liberty variables separately range from 1 to 7), with higher numbers representing more totalitarianism.[9] The ratio of

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[7] The countries used in this sample were: Algeria, Burkina Faso, Burundi, Ethiopia, Ghana, Guinea, Kenya, Mauritius, Morocco, Mozambique, Swaziland, Togo, Uganda, Tanzania, Zaire, Zambia, Canada, Costa Rica, Haiti, Honduras, Jamaica, Panama, Saint Kitts, United States, Columbia, Ecuador, Guyana, Venezuela, Bangladesh, India, Israel, Japan, Jordan, Republic of Korea, Malaysia, Oman, Saudi Arabia, Singapore, Sri Lanka, Syria, United Arab Emirates, Austria, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Greece, Hungary, Ireland, Luxembourg, Malta, Norway, Poland, Sweden, Switzerland, Yugoslavia, and USSR. Observations on a couple of countries had two observations.

[8] Given the available information for television, the ownership of transmitters seems virtually identical to the ownership of programming. With the advent of cable television, many countries that previously had purely public ownership of transmitters now allow large portions of their populations to have access to many different sources of programming.

[9] For a discussion that parallels my use of these variables please see Milton Friedman's discussion in Block (1991).

government expenditures to the gross national product expressed as a percentage proxies for the level of transfers. The term REAL PER CAPITA GDP is measured in 1985 dollars and was obtained from Heston and Summers World Penn Tables.[10] Finally, the interactive term multiplies the level of totalitarianism by the per capita GDP. Table 1 shows the data's means and standard deviations.

As noted earlier, I expected the probability of government television ownership to increase with either TOTALITARIANISM RATING or government transfers and decrease with higher values of (TOTALITARIANISM RATING*REAL PER CAPITA GDP). Higher levels of government transfers might measure left out variables which increase government spending generally and be described as a "taste" for public ownership. Alternatively, the higher the level of net transfers in a country, the greater the opposition produced and the higher is the marginal political product of an additional increment of indoctrination. Real per capita GDP is also included in the regression, though unlike our later estimates for education its effect on government ownership of television is ambiguous. It can be negative because with higher incomes people want to purchase more private provision. On the other hand, it may be positive as increased levels of income imply more wealth to potentially redistribute.

Using data from 58 countries, equation (1) was estimated as shown in the first row in Table 2. The results all confirm the hypothesis. In all cases the coefficient is of the expected sign, and they are significant for TOTALITARIANISM RATING or government transfers. Taking the derivative of this regression with respect to the level of totalitarianism, I find that when real per capita GDP is less than $37,987, increases in totalitarianism raise the probability of government ownership. Since the highest real per capita GDP was $19,648 for the United Arab Emirates, an increase in the totalitarianism rating increases the probability of government ownership.[11] Rows 2 and 3 show that these results are not sensitive to the inclusion of either the per capita GDP or the interactive term.

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[10] This was available through the NBER on the internet.

[11] In fact, the mean value of real per capita income for all 121 countries for which it could be obtained in 1987, was only $5,012.

B. Totalitarianism and Expenditures on Schooling

As discussed earlier, the same relationship should hold for schooling if totalitarian governments derive important benefits such as indoctrination from public schooling. To test the relationship between totalitarianism and educational expenditures, I again use the model shown in equation (1), with minor alterations. The first modification is that real current (i.e., noncapital) public educational expenditures per capita (in dollars) replaces government ownership of television. The government transfers variable is replaced with a "net government transfers" variable, government spending net of total school expenditures. This change removes some artificial collinearity that would otherwise exist between government transfers and educational expenditures. The new specification is thus:

$$\begin{aligned}&\text{CURRENT EDUCATIONAL EXPENDITURES PER CAPITA}_i = \\ &c + b_5\,\text{TOTALITARIANISM RATING}_i + \\ &b_6\,\text{REAL PER CAPITA GDP}_i + \\ &b_7\,(\text{GOVERMENT NET OF SCHOOL EXPENDITURES/GDP})_I + \\ &b_8\,(\text{TOTALITARIANISM RATING*REAL PER CAPITA GDP})_i + \\ &u_{2i} \qquad (2)\end{aligned}$$

Higher TOTALITARIANISM RATING and government transfers should increase educational expenditures, while higher (TOTALITARIANISM RATING*REAL PER CAPITA GDP) should reduce educational expenditures. However, unlike the regressions for television ownership, higher per capita GDP should increase expenditures on schooling. I also included a squared per capita GDP in some of the specifications to account for any possible nonlinearity. Cross-sectional time-series data for 407 observations from 99 countries are available for the period from 1985 to 1992.[12] of Table 3.[13] Country effects as well as separate fixed year effects for each

[12] Unfortunately, information for every country is not available for all years.

[13] The list of countries used in this regression are: Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Congo, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Malawi, Mali, Mauritius, Morocco, Mozambique, Niger, Nigeria, Rwanda, Seychelles, Sierra Leone, Somalia, Swaziland, Togo, Tunisia, Uganda, Tanzania, Zaire,

continent to allow for variation in time trends were also included. The Freedom House index shows that Africa, Asia, Europe, North America, and South America were all becoming freer over this eight year period, with the largest changes occurring in Europe (mainly due to the changes in the Communist countries) and Africa where the average country in these two continents became freer by 3.1 and 2.5 points respectively over this period.

The estimates for equation (2) are shown in the first two rows argument (discussed earlier) nor the hypothesis that democracies and totalitarian regimes are equally inclined to instill support. All coefficients are of the expected sign and are significant at least at the .01 percent level. According to the first specification, increases in totalitarianism raise current public expenditures on schooling but only as long as the real per capita GDP is less than $12,767. 785 observations, 87 percent of the 891 observations for which real per capita GDP was available, have lower values.[14] The results provide only weak evidence that the marginal return to indoctrination is lower in wealthier countries.[15]

Zambia, Zimbabwe, Belize, Canada, Costa Rica, Dominican Republic, El Salvador, Haiti, Honduras, Jamaica, Panama, Saint Kitts, Trinada and Tobago, United States, Chile, Columbia, Ecuador, Guyana, Paraguay, Suriname, Venezuela, Bangladesh, China, India, Indonesia, Iran, Israel, Japan, Jordan, Republic of Korea, Kuwait, Malaysia, Oman, Phillippines, Saudi Arabia, Singapore, Sri Lanka, Syria, United Arab Emirates, Yemen, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, Federal Republic of Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Norway, Poland, Romania, Spain, Sweden, Switzerland, Yugoslavia, Australia, Fiji, New Zealand, Solomon Islands, Tonga, Vanuatu, and USSR.

[14] This percentage is higher than in my previous study where the corresponding percentage was 63 percent (Lott, 1990).

[15] The unavoidable use of proxy variables along with their inherent measurement error raises an econometric concern: the model is underidentified since the set of maximum likelihood solutions contains more than one point. Measurement error causes no problem if the K reverse regressions all yield estimates of the same sign on every variable with the direct regression, the maximum and minimum values for a coefficient from this set of K+1 estimates are consistent estimates of the endpoints of an interval which contains the true coefficients. Besides the possibility of measurement error, these proxies are assumed to differ from the true values by some unknown scaling factor, _. As long as the sign of _ is known, the sign of the true coefficient can still be inferred, which is our real concern (Leamer (1978, p. 238-45)). Unfortunately,

Not only are the coefficients in the first specification of Table 3 statistically significant, but they also demonstrate the economically large impact that totalitarianism exerts over school expenditures. Assuming the mean income for the entire sample ($5012), a one standard deviation change in the totalitarianism ranking is associated with that real per capita current education expenditures will rise by $144.21, a quarter of one standard deviation change in educational

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the data do not produce direct and reverse regressions agreeing in sign. For TOTALITARIANISM RATING the bounds are -116.5 and 1302.59; REAL PER CAPITA GDP, -.04597 and 1.9176; NET SOCIALISM, -7.77 and 218.8; and (TOTALITARIANISM RATING*REAL PER CAPITA GDP), -.00208 and -.2577. Specifications without the country dummy variables provide direct and reverse regressions agreeing in sign. The extreme estimates from these bounded sets indicate that in 1985 increases in totalitarianism increased current public expenditures on schooling *at least* for levels of real per capita GDP up to $860 and *possibly* to $85,642. 17 percent (or 152) of the 892 countries have real per capita GDP's less than $860, and even the midpoint for these bounds—$42,391—is more than two times greater than the highest level of real per capita GDP in the sample. However, any estimates falling within those bounds are all equally likely. Thus the data are only unambiguous for values of per capita real GDP below $860—in that range increases in totalitarianism are associated with increased expenditures on schooling. No countries fall in the range where the reverse is true.

Klepper and Leamer (1984) suggest one solution to this estimation problem which is to introduce additional information on the size of the R^2 that one would observe if all the measurement error were removed. The lower is one's estimate of the model's explanatory power in the absence of measurement error, the more likely it is that the coefficient estimates can be bounded. For specification 1 in Table 3, as long as the reader believes that the model in the absence of measurement error would not explain more than 94 percent of the variation in current educational expenditures, the results are not affected by either measurement errors or proxy variable problems. Following Klepper and Leamer's lead, as long as R^{*2} (the R^2 obtained with this model assuming no measurement error) is less than R^{*2}_m (the maximm value of R^{*2} consistent with all the regressions in the same orthant) the parameter estimates will be bounded. R^{*2}_m is defined by $R^{*2}_m = R^2 + (1 - R^2) \min_{i\ j} ((1- (B_{ij}/b_j))^{-1})$. B_{ij} is the j th coefficient from the i th normalized reverse regression and b_j is the j th coefficient from the direct regression (Leamer (1992)). For specification 1 in Table 3, R^{*2}_m is .9433.

expenditures and almost 50 percent of its mean. By comparison, a one standard deviation change in the government transfers variable implies a $161 increase in educational expenditures. However, the dominant influence on educational expenditures is clearly per capita GDP, where, assuming the mean totalitarianism ranking (7.976), a one standard deviation change in personal GDP increases per capita current education expenditures by $377, an amount 2.6 times greater than a similar change produced by the totalitarianism ranking.[16]

Rows 3 and 4 in Table 3 report estimates with real per student current education expenditures. Despite missing data on the number of students in many countries, the results remain similar to those already described. Further the results imply that educational expenditures are a superior good, as the squared term is positive. The conclusions drawn from the other coefficients are basically unaffected. As a test of the public goods hypothesis, I also tried including country population. However, educational expenditures declined with population and the coefficients that we are focusing on were slightly more statistically significant than what I already report.[17]

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[16] The regressions in Table 3 were rerun replacing the totalitarianism index with the Free House Indexes for political freedom and then for civil liberties. Not surprisingly, given the high correlation between the political freedom and civil liberty indexes (the correlation coefficient was .93), all the coefficients had the same signs as before with similar t-statistics.

[17] Some may be concerned that "communist" nations are distinct from other "totalitarian" countries and that their inclusion "biases" these various results in my favor. The concern is that communist countries will obviously have both high levels of totalitarianism and socialism and that it is equally obvious that they will own the media and, as the anecdotal evidence suggests, have large expenditures on schooling. This relationship may not hold for other totalitarian countries.

Two responses can be made to this objection. The first is that this relationship, which is assumed to be obvious for communist countries, is exactly what our model predicts. The second involves testing to see if the observations for the communist countries came from the same model as the noncommunist ones. To this test, we re-estimated the regressions, when the communist countries as defined by Freedom House in that sample are excluded. We cannot reject the hypothesis that the observations from these communist countries came from the same model as the other countries. Similarly, we performed the operation for the estimates regarding television ownership. (See G. S. Maddala, Econometrics, 200 (1977) for the appropriate test where there

I also ran separate cross-section regressions without the fixed effects for the sample means for each country and for each of the eight years, with the purpose to examine whether the results were driven solely by time series changes in the data and whether these results are consistent across the years being studied. These results are reported in rows 5 and 6, and demonstrate a remarkable consistency with the earlier pooled estimates. While not shown, the results were consistent across years. With the exception of the net government transfers variable and the regression using just the 1992 data (which has the fewest number of observations), all the coefficients were statistically significant.[18]

Since the expected return to indoctrination should depend on how long the government believes it will remain in power, I reran the regressions using a crude measure of political stability based on the average yearly rate of coup d'etats a country experienced between 1985 and 1987 (Bienen and Van De Walle, 1991, pp. 109-191).[19] Using only the educational expenditure data over that same period of time and only controlling for the continent dummies because of the smaller sample, the variable measuring the average number of Coups was quite insignificant (with t-statistics less than 0.4) and the other results remained similar to those already reported (though the government transfers variable was no longer statistically significant).

What about the other theories of education? If education is publicly valuable because it instills democratic values, then, for any

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are not enough observations in the second set to estimate all the regression parameters.)

[18] For example, the coefficients for the totalitarianism variable were: 14.99 (t-statistic = 3.456) for 1985; 26.2 (t-statistic = 2.305) for 1986; 31.14 (t-statistic = 2.342) for 1987; 37.3 (t-statistic = 2.453) for 1988; 34.3 (t-statistic = 2.621) for 1989; 42.4 (t-statistic = 1.739) for 1990; 68.0 (t-statistic = 2.517) for 1991; and 68.28 (t-statistic = 0.982) for 1992. The results do exhibit a definite pattern where more totalitarian regimes spend more on indoctrination during the later years, and it is consistent with the current set of results implying a larger investment in indoctrination than was implied by my earlier results for the 1970's (Lott, 1990).

[19] Posner (1996, pp. 24-5) provides correlations showing that this measure of coups is positively correlated with other measures of stability, but that the correlation coefficients are never greater than .5. Ideally, one would prefer using a turnover rate that encompassed both the period during and after the investments being made in the indoctrination.

given level of income, democratic countries should spend relatively more on public schooling. Likewise, the hypothesis that capitalist countries try to create a more docile workforce through education (e.g., Bowles and Gintis, 1976) also predicts that relatively free market countries should spend more, not less. Yet, according to the data, it is very clear that the vast majority of democracies with free market economies that spend less. This finding is remarkably consistent across different sets of countries and different measures of educational expenditures.

C. Totalitarianism and Health Care

One possible objection to the preceding results is that totalitarianism generally increases the size of other similar government services, which do not have this indoctrination component. Thus, a similar positive relationship between totalitarianism and such other expenditures would suggest that there is nothing unique about public schooling or government ownership of television. I have chosen to also study health care. Like schooling, health care could be a means to invest specifically in the opportunities of children from poor families. But unlike for schooling, there is no obvious return indoctrination. Any factors that alter the returns to investing in human capital might similarly affect both education and those health care expenditures directed towards the young. My hypothesis is that no significant positive relationship should exist between totalitarianism and public health expenditures. To test this, I replaced the endogenous variable for school expenditures with real per capita public health expenditures for 1990 (Muarry et. al., 1994, 635-7, only cross sectional data is available). The government transfers variable was also replaced with a variable for government spending net of public health expenditures.

The coefficients in Table 4 analyzing public health care expenditures shows that increased totalitarianism actually *decreases* public health care expenditures for virtually the entire sample. But it is not distinguishable from zero, as the direct effect of totalitarianism on spending fails to be statistically significant. There is no indication that the effect might be large either: it is only 1/20th the size of the corresponding coefficient for public schooling expenditures.

Another potential objection is that the coefficients for non-health government expenditures may simply be serving as a proxy for the "taste" for government involvement (see the previous discussion in Section IIIa). However, I cannot identify such an effect: the coefficients are both small and insignificant. Comparing Tables 3 and 4, the results are consistent with the hypothesis that schooling produces an additional return to mitigating the opposition from these transfers over and above what may be accounted for by "taste." Table 4 also has some bearing on interpreting the government transfers variable. One possibility is that socialist governments are spending more on public education because they are simply more concerned with expanding economic opportunities for poor people. If this explanation was correct, similar results might be expected for health care. But, according to my findings, this is not the case. Increased government transfers are associated with a higher probability of the government owning the television and spending more on education, but does not correspond to more health care.

This supports the hypothesis that totalitarian governments are motivated by a greater desire to instill certain values rather than by a desire to expand services to previously deprived people.

Caution is required in comparing educational and health care expenditures, however. For example, unlike educational expenditures, a very large portion of health care is spent on adults and the elderly. Since a direct measure of children's health expenditures across countries was not available, in Table 5 I used UNICEF's information on the percent of one-year-old children fully immunized against tuberculosis, DPT, polio, and measles. The share of pregnant women who were fully immunized against tetanus yielded another suitable measure. These data were available yearly from 1985 to 1992.

I used these two alternative measures, for regression analysis, trying various specifications: time-series cross-sectional pooled data with individual country and year fixed effects; pooled data with individual county and continent specific year fixed effects; and the cross-sectional regressions on the sample means for each country.[20] All but one of the specifications show the opposite relationship

[20] The estimates using continent specific year fixed effects are not reported, but they produce less significant results.

between totalitarianism and children's health care compared to what earlier regressions found between totalitarianism and educational expenditures. Half of these regressions imply that when incomes are below the sample mean income of $5,849, totalitarian countries will have lower immunization rates than will freer countries. The average income for countries with a totalitarianism ranking above the mean (7.98) is only $2,778. In fact, 81 percent of the observations for where the totalitarianism ranking is above the mean have incomes less than $5,849.

IV. The Fall of Communism and Its Effect on Educational Expenditures

The recent fall of Communism in Eastern Europe and the former Soviet Union provides a natural experiment. If my theory is correct, educational spending should fall due to the decline in totalitarianism. The long-run returns to educational investments in human capital are also likely to have changed with communism's fall. To help control for the changing returns to investments in human capital, we can compare the changing public expenditures in education with public expenditures for health care.[21] A simple human capital hypothesis might predict that total public education expenditures would temporarily rise relative to public health care expenditures simply because many individuals may want to make investments that allow them to switch careers. But if the indoctrination hypothesis is correct, educational expenditures should have decreased relative to health care spending.

Comparing public schooling and health expenditures is also motivated because real income estimates were available for relatively few post-communist observations for Eastern Europe or the former Soviet Republics.[22] UNICEF (1995) provides consistent yearly data

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[21] Another possibility would have been to compare educational expenditures as a share of total government expenditures, but good data on this was extremely limited during this transitional period.

[22] The data used to measure real income was taken from Heston and Summers. Even if these estimates were available countries making the transition from communism, income is likely to be measured with a great deal of noise during this period (e.g., there is the problem that while prices have risen, people will no longer have to wait long times in queues).

on these two levels of expenditures for Albania, Bulgaria, the areas that are now the Czech Republic and Slovakia, Hungary, Poland, Romania, and the areas of the former USSR that are now Armenia, Azerbaijan, Belarus, Georgia, Latvia, Lithuania, Russia and the Ukraine for the period from 1989 to 1993.[23]

To test whether the returns to educational indoctrination expenditures dropped with the fall of communism, I regressed the ratio of total public educational expenditures to total public health care expenditures alternatively on the totalitarianism ranking or on a dummy variable that equals one when the country is communist. Country and year fixed effects were included. Table 6 shows these variables' means and standard deviations. The results are striking. While government educational expenditures as a percentage of GDP fell by 4 percent from the last year under communism to the last year in the sample, government health care expenditures as a percentage of GDP rose by over 70 percent.[24]

The regression results in Table 7 indicate that when communism fell, public educational expenditures declined relative to public health care expenditures. For the first specification, a one standard deviation change in the totalitarianism index explains about 27 percent of a one standard deviation change in the ratio of public education to public health care expenditures. According to the second specification, moving from being a communist to a noncommunist country implies that the ratio will decline by 27 percentage points. Both specifications include country dummy variables. The results suggest that our measure of totalitarianism was

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[23] The Estonia data was available for only one year, 1993, and thus could not be used determine the changes over time. For seven countries (Belarus, Bulgaria, Czech Republic, Latvia, Lithuania, Slovakia, and Ukraine) later observations were available for 1994 and for four countries (Georgia, Hungary, Latvia, and Romania) earlier observations for 1980 and 1985. While our reliance on 1989 as a starting date for most of our sample may mean we miss some changes because of the anticipated collapse of communism, at least for Hungary, Latvia, and Romania their ratio of public educational and health care expenditures exhibited relatively little change from 1985 to 1989.

[24] Discussions with UNICEF indicate that this represents a real increase in health expenditures and not a mistake in them failing to account for switches in accounting practices. UNICEF spent a great deal of time putting these numbers together for these two categories, and comparisons with other government expenditures during this period of time are very limited.

as accurate as whether a country was labeled "communist" in determining government expenditures.

V. Totalitarianism and Replacing the Family as the Source of Values

As suggested earlier for Sweden, governments might attempt to weaken parental influence by encouraging women to enter the work force, thus encouraging parents to be away from their children. While these policies may take many forms (e.g., taxes or government employment opportunities), I will use the indirect approach of measuring whether female labor force participation rates vary by type of government. Other suggestive evidence that would be consistent with governments raising the cost of parental involvement is the extent of illegitimate births or divorces. Given the scarcity of time, a parental influence is more difficult when there is only a single parent heading a household, and single parents are more likely to rely on outside substitutes such as the government. Families obviously also break up in nontotalitarian countries and this will also impact family-transmitted values, but the question here is whether the rate of family break up is higher in more totalitarian countries.

Obviously other factors, independent of the influences of government—such as income, culture, and religion—affect female labor force participation, illegitimate births, and divorces. Increased labor force participation and higher education are associated with fewer children (Lauman, et. al., p. 458). Employing the specifications used earlier in this paper, including fixed effects and income, hopefully accounts for at least some of these factors. Any relationships are also fraught with questions of reverse causation.[25,26] The link between government transfers and family

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[25] An alternative hypothesis is that more totalitarian and socialist countries invest in public nursey schools, and promote female labor force participation rates as a means of promoting sexual equality. Thus the breakdown of the family is not the desired end result, but a by product that is generated when governments attempt to promote equality. Yet, with respect to the case of divorce, women are making higher family specific investments, and thus making divorces easier facilitates enabling already married men to hold up married women for the investments that they have made in the family (e.g., Parkman,1992).

breakdown is extremely unreliable because such a breakdown can induce more transfers, and no emphasis will be place on it here. It is also conceivable that countries with unstable family relationships may facilitate totalitarian regimes coming to power in the first place. Some evidence from East and West Germany suggests that totalitarianism has an independent effect. Both regions had fairly similar divorce rates until the imposition communism after World War II split Germany apart; it was only after the imposition of communism that the rate in East Germany gradually became higher (Haskey, 1992).

Finally, more totalitarian governments may start public pre-primary schooling at an earlier age, and have a larger percentage of pre-primary school age children attending government run schools.[27] To test the relationship between totalitarianism and these two measures of separating children from the influence of their parents, the type of specification used in Table 3 explaining

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Communists have long viewed themselves as advocating changes that liberate women. Marx viewed it as one of the benefits of the withering away of the family (McLellan, 1973). Yet, in the Soviet Union these changes have not produced the "panacea" claimed in Marxist ideology. Smith writes (p. 127) that many Russian women feel that these "advances" have "made life more trying." In addition, it is very easy to find explicit references to using many of these very same policies to separate children from their families so that the correct views can be instilled in children (Glenn, 1995).

[26] The most direct measure of these predictions would have been the total costs imposed by governments on families that remain together, though this is not available. Another problem with divorce rates and other measures is that governments are not merely changing the costs, but also the returns, to families remaining intact. In more totalitarian countries, families may have a greater incentive to remain together because it is more difficult for them to trust others. It is possible that totalitarian governments are successful even if the regressions find that families are more stable under totalitarian governments, simply because these governments may have prevented families from being as stable as they would otherwise have been. My measure of totalitarianism are thus likely to underestimate the returns to totalitarian governments weakening families and thus makes it difficult to find a positive relationship between totalitarianism and these variables.

[27] For this last test, it is not really necessary to distinguish whether a child went to private schools or remained home with their parents, but simply whether the child was being educated at this young age by the government.

educational expenditures is again used here, along with government expenditures net of educational expenditures.

While the results reported in Table 8 are not as consistently significant as earlier ones, the general pattern remains similar to those shown in Tables 2 and 3. In all the specifications, higher totalitarianism is related to changes that are consistent with raising the cost of direct parental involvement in forming children's views. The first row examines the relationship between the type of government and female labor force participation. The cross-country female labor force participation rates for 1989, 1990, and 1991 were produced by dividing the ratio of females to males in the labor force by the ratio of females to males in the general population and expressing this as a percentage (*Human Development Report* (1993 and 1994)).[28] Illegitimacy, in row 2, is measured by the number of illegitimate births per 100 live births in 1985 (United Nations, 1988). Two measures of divorce are also available over multiple years, though both are somewhat problematic.[29] One measure, which uses divorces as a percentage of marriages during a particular year, fails to deal with the stock of pre-existing marriages. A second measure uses divorces per 1000 population.

Totalitarianism's impact on family structure in Table 8 is similar to the effects shown for schooling and government ownership of television, though the coefficient is not statistically significant for female labor force participation rates. For two thirds of the sample, increased totalitarianism increases female labor force participation, and the effect can be large. For the median income a one standard

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[28] Using only the variable for females as a percent of males in the labor force produced even more statistically and economically significant results than those reported in Table 5. The value for females as a percentage of males in the labor force for 1989 was obtained from the average for 1988 to 1990, and the value for 1991 was obtained for the average for 1990 to 1992. I also tried running the averages for females as a percentage of males in the labor force on the averages for those years for the measures of totalitarianism, socialism, and per capita income with similar results.

[29] For our purposes, what matters is whether people are married while they are raising their children, so the assumption is that these measures of divorce are positively correlated with divorces among couples with minor children. Both measures of divorce also fail to account (though in a different ways) for the age distribution of the population.

deviation change in totalitarianism can explain 24 percent of a one standard deviation change in female labor force participation. The regression results indicate that increases in totalitarianism increase illegitimacy for 77 percent of the sample and raise divorce rates for at least 73 percent of the sample (using either measure of divorce). Again, the effects are quite large. Evaluated at the median income a one standard deviation change in totalitarianism can explain 61 percent of a one standard deviation change in illegitimate births.

The results for school starting age and the percent of pre-school children attending public schools, provide only mixed support for the hypothesis.[30] While the coefficients signs are consistent with the indoctrination hypothesis, only the results for pre-school attendance of public schools are statistically significant.

VI. Totalitarianism and the Rents Educators Receive

A corollary of the view that totalitarian governments value public schooling to instill desired values is that they will also pay rents to teachers. When it is difficult to monitor teacher behavior, the threatened loss of these premiums can help ensure that teachers work to instill the desired views. The issue is to identify which teachers must be paid the highest rents in order to elicit their cooperation.

South Africa during 1981 provides an interesting test. There were four different school systems coexisting side-by-side in apartheid era South Africa divided along racial lines: whites, Asians, coloreds, and blacks.[31] Teachers were segregated along the same

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[30] The data on starting school ages and the percent of pre-school children attending public schools are obtained from the *UNESCO Statistical Yearbook* (1991, 1993, and 1994). The results are available from the author.

[31] See the *South African Statistics;* 1974, pp. 7.23-7.55. The wage data and the data on the percentage of each racial group in each occupation is taken from the *Survey of Race Relations in South Africa,* 1982. The data on the percentage of whites with standard 10 level of education for all profession other than in education was obtained from Josh Gersen, Department of Economics, University of Cape Town, South Africa. The industry classifications available were primary and secondary school education, basic metals, metal products, machinery, electrical, clothing, textiles, chemicals, food, beverages, tobacco, leather, footwear, wood and cork, furniture, paper and paper products, rubber, plastic products, nonmetallic minerals, mining, construction, wholesale trade,

racial lines as the students. My hypothesis would predict that nonwhite educators receive rents relative to white educators. It was less costly for a white teacher to support the racist government, in terms of the amount of opposition he faced. Also white educators were receiving the general benefits from having a white government. In contrast, the traditional explanation, which treats teachers as an interest group whose support is being purchased at the ballot box, would predict that it is the white—not black—educators who received the greatest transfers. After all, it is whites and not blacks who could vote.

To test this, I compiled the natural log of the average white, Asian, colored, and black monthly wages (LnWage) across thirty five different industries (Dj, where j=industry), including elementary and secondary schools as one industry. We also have a dummy variable for race (ASIAN, AFRICAN, COLORED) and interactive term for whether someone is both an educator and belongs to a particular race. Normally, a wage regression would also include information on education levels for each of the four racial groups in each industry. (See Table 9 for the means and standard deviations.) Unfortunately, such data is only available for whites and it only measures the percent of whites in each industry who have obtained at least a Standard 10 level of education (approximately 12th grade in American High Schools). I use this variable to rank the amount of education by industry, and if this specification is to be accurate, one must assume that the amount of education required for the different races is strongly correlated across industries. However, we have no information to indicate whether this is true. Finally, the percent of workers in an occupation held by each racial group provides a rough measure to control for industries that restrict entry.

The dummy variable for whites and the one for banking are excluded so that the intercept term represents white earnings in banking. I expect the following: the race dummies should be negative, the interactions between the race and educator dummies

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retail trade, motor trade, hotels banking, building societies, manufacturing, motor vehicle production, Post office, South African Transport System, Central Government, Provincial Government, Local government, and insurance companies.

should be positive, and the percent of whites with standard 10 education by industry should be positive.

The results from running equation (3) are shown in Table 10. All the coefficients are of the predicted sign. They indicate that even after the normal return to being an educator is controlled for, being a nonwhite and an educator increases earnings even more. Furthermore, each one of the race variables is significant, and the interactive terms for Africans, Asians, and coloreds are significant at least at the .10 percent level for a two-tailed t-test. While white educators have higher absolute earnings, the minority educators received the greatest rents. Accounting for the percent of an occupation occupied by each race raised the t-statistics for the race and education industry dummies, but did not qualitatively alter the results. To allow more differences in educational attainment across racial groups, the last two specifications also show the effect of interacting the PERCENT OF WHITES WITH STANDARD 10 EDUCATION BY INDUSTRY by each of the racial dummies. Again, the results were very similar.

$$\text{LnWAGE}_i = C + \sum_{J=1}^{34} b_j D_{ji} + b_{35}\,\text{ASIAN}_i + b_{36}\,\text{AFRICAN}_i + b_{37}\,\text{COLORED}_i + b_{38}\,\text{ASIAN*EDUCATOR}_i + b_{39}\,\text{AFRICAN*EDUCATOR}_i + b_{40}\,\text{COLORED*EDUCATOR}_i + b_{41}\,\text{PERCENT OF WHITES WITH STANDARD 10 EDUCATION BY INDUSTRY}_i + \sum_{R=1}^{4} b_R\,(\text{PERCENT OF AN OCCUPATION HELD BY EACH RACIAL GROUP})_{Ri} + u_i \qquad (3)$$

These results could arise because of greater similarity in skill across race in education than in other industries.[32] Greater homogeneity in education would presumably have the greatest impact on Africans who earn the lowest wages in other occupations. While I cannot completely rule this out, the ranking of the interactive coefficients for race and whether one is an educator provide some evidence against this objection. The coefficients for Asian educators are consistently larger than for African educators.

VII. Conclusion

A consistent relationship exists between the form of government and the level of investments made in public education. Totalitarian governments and governments with high transfers spend a lot on public education and are likely to own television stations. This cannot be explained simply by greater involvement in all sectors, as data on health care show. The finding is borne out from cross-sectional time-series evidence across countries. A similar relationship was also found for public educational expenditures during Eastern Europe's and the former Soviet Union's recent transition from communism.

In addition, this paper examined a broad array of phenomena that are consistent with more totalitarian and socialist governments raising the costs of parental involvement in shaping their children's values. Examples ranged from raising the female labor participation rate, the illegitimate birth rate, and divorce rates, as well as lowering the school age for the public school system. The results correspond

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[32] The qualifications for nonwhite educators are significantly lower than for whites. The percent of teachers by race which do not have a teacher's certificate or diploma and Standard 10 level of education is 3.36 percent for whites, 85 percent for Africans, 19.7 percent for Asians, and 66.14 percent for Coloreds (Gordon, et al., 1982). Unfortunately, this type of breakdown was not available across occupational groups. Another objection is that the supply of nonwhite educators (those with enough education) is small relative to the number demanded compared to whites. While this may be true over the short run, in the long run it seems that the reverse would be true since nonwhites are relatively restricted in terms of opportunities. In other words, we expect that the long run supply of nonwhite educators is more elastic that the long run supply of white educators.

closely with those found for government ownership of television and public educational expenditures.

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Appendix: Data Sources

The totalitarianism ranking from 1985 to 1993 was obtained from *Freedom at Issue,* the Jan. - Feb. issues from 1986-1990 and from *Freedom Review,* the Jan. - Feb. issues from 1991-1994. The source for the type of ownership of television stations was the *UNESCO Statistical Yearbook* (1989). Primary and secondary public educational expenditures as a percentage of GNP and as a percentage of government expenditures were available from the 1989 to 1993 editions of the *UNESCO Statistical Yearbook* from Table 4.5 and this was used to calculate government expenditures net of educational as a percentage of GNP. Observations that included more than primary and secondary schooling, did not include both, or only listed expenditures by the central government were excluded. The age that children are required to start school is obtained from the 1993 and 1994 editions of the *UNESCO Statistical Yearbook,* Table 3.2. The percent of pre-school children attending public schools is also from that same source from the 1991, 1993, and 1994 editions, Table 3.3. Data on current and total educational expenditures were also obtained from Table 4.5. The data on population, a real price index based upon terms of trade to convert educational expenditures into real 1985 dollars, and real GDP per capita in constant 1985 dollars using a chain index were obtained from the Penn World Tables at "http://nber.harvard.edu/." The national public health expenditure data for 1990 were obtained from Murray et al. (1994). The data for the ratio of public educational to public health care expenditures is obtained from UNICEF's (August 1994) table on government revenue and expenditure. The average Coup d'etats rate during 1985-1987 were available from Bienen and Van De Walle (1991, pp. 109-191).

Tuberculoses, Dpt, polio, measles, and tetanus immunization rates were obtained from the UNICEF's *The State of the World's Children* (various years). Data on the percent of illegitimate births was obtained from the *Demographic Yearbook, 1986* (United Nations, 1988). The divorce rate per 1000 population is from various issues of the Demographic Yearbook. The marriage rate per 1000 population was obtained from the same source and the measure of divorces as a percentage of marriages is simply the divorce rate divided

by the marriage rate. Female labor force participation rates (females as percent of males) and the ratio of females to males in the population were both drawn from the United Nation's *Human Development Report* for 1992, 1993, and 1994.

Readers with comments should address them to:

John R. Lott, Jr.
John M. Olin Fellow in Law and Economics
University of Chicago Law School
1111 East 60th Street
Chicago, IL 60637

(Tables Follow)

Table 1
Means and Standard Deviations for International Comparisons Over the Period from 1985 to 1992 of Government Ownership of Television, Public Educational and Health Care Expenditures, the Starting Age of School, and the Percent of Nursery School Age Students that Go to Public Schools

(All dollar values are in real 1985 US Dollars Using the Observations from the Heston and Summers World Penn 5 Tables available through the NBER on the Internet)

	Observations	Mean	Standard Deviation
Current Educational Expenditures Per Capita	666	278.98	547.34
Total Educational Expenditures Per Capita	707	295.83	587.6
Current Educational Expenditures Per Student	187	1146.04	2917.35
Total Educational Expenditures Per Student	213		3056.53
Totalitarianism Index	1166	7.976	4.1505
Average Yearly Change in Totalitarian Index for consecutive years			
Africa	304	-.253	1.0523
Asia	253	-.103	1.164
Europe	250	-.312	1.108
North America	154	-.039	1.0899
South America	84	-.131	1.190
Government Expenditures/GDP	513	42.179	25.879

Government Expenditures net of Public Educational Expenditures/GDP	499	35.615	23.353
GDP per capita	891	5011.51	4921.96
Government Ownership of Television	119	0.857	0.3359
The percent of one-year-old children fully immunized against tuberculosis	834	73.62	25.56
The percent of one-year-old children fully immunized against Dpt	914	68.55	25.1
The percent of one-year-old children fully immunized against polio	914	70.98	25.186
The percent of one-year-old children fully immunized against measles	911	65.74	23.9
The percent of pregnant women fully immunized from tetanus	568	38.46	25.57
Avg. yearly rate of coup d'etats a country experienced between 1985 and 1987	406	0.0222	0.1633
Female Labor Force Participation Rate	382	0.5374	0.2420
Illegitimate Births per 100 Live Births in 1985	29	26.45	24.568
Divorces as a Percent of Marriages Contracted	486	0.2312	0.1429
Divorces per 1000 population	491	1.6216	1.3857
Starting Age for Education in years of age	841	3.667	0.84429
Percentage of Pre-School Age Children in Public Schools	499	45.58	35.09

Table 2
Government Ownership of Television and Totalitarianism:
Establishing the Relationship
(Probit regressions with chi-squared values shown in the parentheses, year dummy variables not shown)

Dependent Variable	1. Government Ownership of Television	2. Government Ownership of Television	3. Government Ownership of Television
Totalitarianism rating	0.2887*	0.3037*	0.2038*
	(2.502)	(2.332)	(2.844)
GDP/Population	0.0000866	0.000152	. . .
	(1.099)	(0.553)	
GDP^2/Pop.	. . .	-3.24 e-09	. . .
		(0.733)	
(Totalitarianism*GDP/Pop)	-7.60 e-06	-9.05 e-06	. . .
	(1.498)	(1.573)	
Gov Exp/GDP	0.0342*	0.0331*	0.0378*
	(2.790)	(2.673)	(2.998)
Intercept	-2.2312*	-2.4371**	-1.468**
	(2.059)	(1.778)	(1.778)
Pseudo-R^2	0.2944	0.2956	0.2720
Chi squared	15.70	15.76	14.61
Number of obs.	58	58	59

* statistically significant at least at the 5 percent level
** statistically significant at least at the 10 percent level

Table 3
Public Schooling Expenditures and Totalitarianism: OLS Regresssions

(t-statistics shown in parentheses and Country Dummies and Fixed Year Effects for Each Continent are controlled for in specifications 1 and 2. Because over half of the sample for specifications 3 and 4 involve countries with only one observation, these specifications control for only Fixed Year Effects for Each Continent. Similarly, because there is only one observation per country for the regressions using the sample means by country, specifications 5 and 6 only account for continent fixed effects.)

					Using Sample Means by Country	
Dependent Variable	1. Current real public school expenditures per capita	2. Current real public school expenditures per capita	3. Current real public school expenditures per capita	4. Current real public school expenditures per capita	5. Current real public school expenditures per capita	6. Current real public school expenditures per capita
Totalitarianism rating	58.301 (3.616)	56.06 (3.562)	220.9 (2.585)	185.7 (1.941)	29.99 (2.983)	200.12 (2.330)
GDP/Population	0.1141 (3.596)	-0.097 (1.478)	0.633 (8.205)	0.452 (1.943)	0.1227 (12.63)	0.683 (8.507)
GDP^2/Pop	. . .	0.0000096 (3.837)	. . .	0.000009 (1.824)	. . .	. . .

Table 3 (continued)

(Totalitarianism rating*GDP/Pop)	-0.0047 (1.479)	-0.005 (1.394)	-0.0506 (3.996)	-0.0483 (3.735)	-0.001 (7.218)	-0.022 (5.625)
Gov Exp/GDP	6.228 (3.596)	7.06 (4.146)	2.374 (1.241)	4.115 (5.591)	.907 (0.818)	7.07 (0.796)
Intercept	-973.92 (5.044)	-644.6 (2.121)	-3982.9 (2.640)	-3234 (1.834)	-353.1 (3.401)	-2379.9 (2.671)
Adj-R^2	.9072	.8800	.6363	.6351	.7563	.6214
F-statistic	9.55	30.96	15.8	14.67	81.70	37.51
Number of obs.	407	407	110	110	105	90

Table 4
Government Health Care Expenditures and Totalitarianism in 1990

(t-statistics shown in parentheses and continent dummies also controlled for)

Dependent Variable	1. Real Government Expenditures on Health Care per capita	2. Real Government Expenditures on Health Care per capita
Totalitarianism rating	2.8968 (0.705)	2.8142 (0.655)
GDP/Population	0.1228 (17.726)	0.06338 (2.782)
GDP^2/Pop.	. . .	3.49 e-06 (2.733)
(Totalitarianism rating*GDP/Pop)	-0.0135 (6.835)	-0.0098 (4.126)
Gov Exp/GDP Net of Health Exp	0.0349 (0.045)	0.0987 (0.129)
Intercept	-21.962 (0.520)	19.80 (0.449)
adj-R^2	.7455	.7559
F-statistic	115.26	97.63
Number of obs.	157	157

Table 5 (Part 1)
Children's Immunization Rates and Totalitarianism from 1985 to 1992

(t-statistics shown in parentheses.)

	Pooled Cross-Sectional Time-Series Data with Year and Country Fixed Effects				
Dependent Variable	1. % of Children fully immunized against tuberculosis	2. % of Children fully immunized against Dpt	3. % of Children fully immunized against polio	4. % of Children fully immunized against measles	5. % of Pregnant Women fully immnz'd against tetanus
Totalitarianism rating	-1.1565 (1.211)	-.4430 (0.511)	-.4179 (0.521)	1.60914 (1.6091)	-1.5083 (0.786)
GDP/Population	-0.0041 (1.899)	-.0028 (1.523)	-.0045 (2.523)	0.00279 (1.494)	0.0109 (1.772)
(Totalitarianism rating*GDP/Pop)	0.0000376 (1.682)	0.0004343 (2.159)	0.000425 (2.231)	0.0000132 (0.064)	0.00049 (0.713)
Gov Exp/GDP Net of Health Exp	0.04858 (0.464)	0.01189 (0.129)	0.0349 (0.045)	-0.00682 (0.072)	-0.7286 (2.581)
Intercept	-21.962 (0.520)	65.633 (2.199)	95.975 (3.380)	8.5515 (0.278)	-21.962 (0.520)
adj-R^2	.7934	.8022	.8195	.7737	.6200
F-statistic	15.22	16.66	18.47	14.30	5.94
Number of obs.	349	387	386	386	216

Table 5 (Part 2)

Children's Immunization Rates and Totalitarianism from 1985 to 1992

(t-statistics shown in parentheses.)

	Using Sample Means by Country				
Dependent Variable	6. % of Children fully immunized against tuberculosis	7. % of Children fully immunized against Dpt	8. % of Children fully immunized against polio	9. % of Children fully immunized against measles	10. % of Pregnant Women fully immnz'd against tetanus
Totalitarianism rating	-1.5487 (1.682)	-3.338 (3.946)	-3.9803 (4.924)	-2.1877 (2.529)	-.9136 (0.706)
GDP/Population	-0.0018 (1.652)	-.00135 (1.615)	-.00161 (2.016)	-.00122 (1.432)	0.0032 (1.053)
(Totalitarianism rating*GDP/Pop)	0.00034 (2.461)	0.000411 (3.763)	0.000439 (4.200)	0.000374 (3.345)	0.000067 (0.214)
Gov Exp/GDP Net of Health Exp	0.1793 (1.930)	0.3523 (4.536)	0.3671 (4.946)	0.2984 (3.757)	-.0561 (0.355)
Intercept	83.94 (7.841)	82.90 (9.584)	89.85 (10.871)	71.93 (8.132)	44.71 (3.235)
adj-R^2	.0911	.4628	.5287	.3269	.1889
F-statistic	2.91	18.01	23.16	23.16	4.20
Number of obs.	77	80	80	80	56

Table 6

Means and Standard Deviations for Examining the Changes in Eastern Europe and the Former Soviet Republics

	Observations	Mean	Standard Deviation
Public Educational Expenditures as a Percentage of GDP	89	4.8697	1.246
Public Health Care Expenditures as a Percentage of GDP	90	3.61	1.3472
Ratio of Public Educational to Public Health Care Expenditures	88	1.4674	0.5187
Totalitarianism Index	68	8.691	3.347
Dummy Variable for Whether a Country was still Communist	88	0.4337	0.4986

Table 7

What happened to Educational Expenditures in Eastern European Countries When Communism Collapsed?: Controlling for Country Fixed Effects

	1. The ratio of a Country's Public Education to Public Health Care Expenditures in a particular year	2. The ratio of a Country's Public Education to Public Health Care Expenditures in a particular year
Totalitarianism Rating	0.042 (3.670)	. . .
Dummy Variable for whether a country was still Communist	. . .	0.2667 (5.081)
Intercept	1.1514 (7.606)	1.3305 (13.913)
adj-R^2	0.8253	0.8114
F-statistic	20.21	25.96
Number of obs.	62	88

Table 8

How the Return to Weakening the Family Varies with the Type of Government

(t-statistics shown in parentheses, the fixed effect dummies are not shown. Both country and year fixed effects are used for rows 3 and 4. Because only a couple of years data are available for row 1, only continent and year fixed effects are used. Row 2 uses only one year worth of data and thus uses only continent fixed effects.)

Dependent Variable	1. Female Labor Force Participation Rate Adjusted	2. Illegitimate Births per 100 Live Births	3. Divorces as a % of marriages contracted	4. Divorces per 1000 population	5. Starting Age for Public Nursery Schools	6. % of Nursery School-Age Children in Public Nursery Schools
Totalitarianism rating	0.0426 (1.431)	5.8594* (1.945)	0.0233* (4.490)	0.1074* (4.753)	-0.01513 (1.071)	4.03516* (5.678)
GDP/Population	0.0000578* (2.069)	0.0028 (1.055)	0.000044* (5.055)	0.00021* (5.502)	0.000005 (0.278)	0.000662 (1.064)
(Totalitarianism rating*GDP/Pop)	-0.00000951* (2.096)	-0.00075** (1.874)	-3.42 e-06* (3.439)	-.000016* (3.692)	0.00000134 (0.516)	-0.00016** (1.686)
Gov Exp/GDP	0.00002 (1.470)	-0.0008 (0.750)	-.000051* (5.552)	-.00017* (4.236)	-0.0106* (5.692)	0.4326* (6.571)
Intercept	0.2566 (0.755)	-2.4209 (0.093)	0.1176 (0.318)	0.6202* (3.224)	4.4901* (16.686)	-11.786* (7.525)
adj-R^2	0.1060	0.1639	0.9332	0.9706	.0825	.4073
F-statistic	3.23	2.72	1.79	1.59	4.03	36.87
Number of obs.	172	24	271	272	372	262

* statistically significant at least at the 5 percent level, ** statistically significant at least at the 10 percent level

Table 9
Means and Standard Deviations for Examining
the Monthly Wages in South Africa in 1980

	Observations	Mean	Standard Deviation
Ln(Wage)	139	6.1317	0.61318
Percentage of Whites with Standard 10 Education by Industry	139	81.12	10.813
Percent of Occupation Occupied by Africans	139	0.4712	0.1937
Percent of Occupation Occupied by Asians	139	0.0603	0.0623
Percent of Occupation Occupied by Coloreds	139	0.1634	0.1021
Percent of Occupation Occupied by Whites	139	0.3068	0.1973

Table 10
Rents to Educators in South Africa
Endogenous variable is log of monthly wage

(Specifications 2 and 4 also control for the Percent of Occupation Occupied by each Racial Group)

	INTERCEPT			
	1) 5.269 (22.052) Adj-R^2=.9066 F-statistic = 34.51 Obs. = 139	2) 5.4811 (28.121) Adj-R^2=.9405 F-statistic = 50.59 Obs. = 139	3) 5.0380 (12.777) Adj-R^2=.9051 F-statistic = 31.59 Obs. = 139	4) 5.2156 (16.479) Adj-R^2=.9415 F-statistic = 48.30 Obs. = 139
Education Industry Dummy	.0684 (0.331)	0.0963 (0.561)	.03813 (0.207)	0.0042 (0.029)
African	-1.4074 (30.973)	-1.678 (16.297)	-1.1619 (3.371)	-1.5709 (5.577)
Asian	-.7676 (16.725)	-0.8934 (12.627)	-.4155 (1.185)	-0.3361 (1.084)
Colored	-1.1295 (24.857)	-1.288 (15.429)	-1.1619 (3.371)	-1.2871 (4.206)

Table 10 (continued)

African* Educator	0.5025 (1.869)	0.4927 (2.296)	0.5302 (1.936)	0.5033 (2.339)
Asian* Educator	0.6882 (2.559)	0.6576 (3.063)	0.7296 (2.661)	0.7180 (3.335)
Colored* Educator	0.4602 (1.712)	0.4493 (2.094)	0.4659 (1.701)	0.4488 (2.087)
Percent of Whites with Standard 10 Level of Education	0.01873 (6.070)	0.0190 (7.726)	. . .	. . .
Percent of Whites with Standard 10 by Industry interacted with dummy variables for:				
Whites	. . .	. . .	0.02205 (3.688)	0.0229 (4.866)
Coloreds	. . .	. . .	0.0214 (3.385)	0.0230 (4.588)
Asians	. . .	. . .	0.0177 (2.775)	0.0164 (3.220)
Blacks	. . .	. . .	0.0190 (3.005)	0.0218 (4.350)