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The moral consequences of economic growth: An empirical investigation☆

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ABSTRACT

In *The Moral Consequences of Economic Growth*, Benjamin Friedman argues that growth reduces the strength of interpersonal income comparisons, and thereby tends to increases the desire for pro-social legislation, a position he supports by drawing on the historical records of the US and several Western European countries. We test this hypothesis using a variable from the World Values Survey that measures an individual's taste for government responsibility, which we interpret as a measure of the demand for egalitarian social policy. Our results provide support for a modified version of Friedman's hypothesis. In particular, we find that the taste for government responsibility is positively related to the recent change in the growth rate and negatively related to the change in income inequality. We conclude by discussing the implications of these findings for attempts to further the egalitarian social goals.

1. Introduction

In *The Moral Consequences of Economic Growth*, Benjamin Friedman (2005) weaves together economic, political, intellectual and social histories into a compelling narrative that illustrates the link between economic and social progress. According to Friedman, "Economic growth . . . more often than not fosters greater opportunity, tolerance of diversity, social mobility, commitment to fairness and dedication to democracy." (p. 4) Friedman's remarkable book is a challenge both to the common belief that societies face a fundamental trade-off between doing well and doing good and to the consequentialist moral yardsticks of welfare economics, according to which the social good is associated with the unintended impact of self-interested behavior. In Friedman's account, growth produces broad social gains specifically because it alters the psychological balance between envy and altruism, leaving individuals more generous and more solicitous of the wellbeing of others.[1]

Turning first to US history, Friedman finds that periods of economic progress are characterized by the passage of significant legislation aimed at reducing social, economic and political inequality. Thus, the era of rapid industrialization following the Civil War gave rise to the Civil Rights Act of 1875, the boom years of the early twentieth century saw the passage of the Seventeenth and Nineteenth Amendments, and the two decades of prosperity following World War II concluded with a raft of Great Society legislation.[2] In contrast, periods of economic decline are characterized by social retrenchment, such as the reversal of minority voting rights that followed the Panic of 1893 and the reduction in popular support for affirmative action, welfare programs, and liberal immigration policies following the economic turbulence of the 1970s. Friedman observes much the same pattern in the social and economic evolution of Western European states. In England, the economic growth of the early decades of the twentieth century coincides with the "new Liberalism" with its overt concern for the poor and the passage of legislation intended to reduce political and economic

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[1] See, for example, Friedman's discussion (p. 79–80) comparing the impact of low unemployment on labor market discrimination with that of economic growth on tolerance and attitudes toward social justice. This notion of morality goes beyond consequentialism and is closely linked to Kant's more demanding criterion that morality cannot be divorced from good intentions.

[2] The Seventeenth and Nineteenth Amendments established the direct election of senators and granted women the franchise. Great Society legislation includes the *Economic Opportunity Act* of 1964, *the Civil Rights Acts* of 1964 and 1968, the *Voting Rights Act* of 1965, and the *Social Security Act* of 1965, which established the Medicare and Medicaid programs.

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inequalities, while in Germany the economic devastation of the interwar years ushered the Nazi Party into power.

Rather than positing a political mechanism at the heart of the relationship between economic and social progress, Friedman identifies a more fundamental link, rooted in the impact of economic progress on individual preferences. Friedman argues that in evaluating their material wellbeing, individuals evaluate their current income level relative to that of their neighbors as well as to their own past income.[3] Moreover, according to Friedman (p. 92) these modes of comparison are substitutes: "By continually giving most people the sense of living better than they or their families have in the not very distant past, sustained economic growth reduces the intensity of their desire to live better than one another."

As might be expected of a work of this depth and scope, Friedman's book has been the subject of significant attention. For example, Stiglitz (2005) cautions that Friedman's analysis should not be understood as a blanket endorsement of any growth promoting policy, while on the political right Wilkinson (2006, p. 201) has questioned what he sees as Friedman's "rather parochial American welfare-statist conception of political morality." However, neither of these reviewers considers the more fundamental question regarding Friedman's hypothesis: Does the link between economic and social progress that Friedman claims to have identified actually exist?

In this regard, Friedman's book is subject to a number of concerns common to works of economic history. One such concern regards the potential for narrative arguments to give disproportionate weight to supportive evidence. For example, the experience of the US in the Great Depression seems to fit Friedman's hypothesis at best awkwardly, and the welfare reforms instituted in the *Personal Responsibility and Work Opportunity Reconciliation Act* of 1996 follow the shocks of the 1970s with a significant lag. A second concern regards the generality of Friedman's claim. While he turns his attention to the developing world in the fourth section of the book, the bulk of Friedman evidence is drawn from the US and Western Europe. Friedman's reliance on the experience of Western industrial countries raises the question of whether the relationships he identifies might be specific to societies at a particular stage of development or, perhaps, to those that share Western cultural or political institutions. We address these concerns by providing empirical evidence regarding the moral consequences of economic growth in a broad sample of countries.

Any empirical evaluation of Friedman's hypothesis faces a significant challenge in deciding on how to measure the dependent variable. An attempt to develop an internationally comparable measure of egalitarian of social policy would face numerous and probably insurmountable measurement issues. Because of this, we focus on the relationship between economic growth and the *taste* for egalitarian social policy, which we measure using survey data regarding attitudes toward government responsibility from the World Values Survey. Thus, our analysis focuses on how growth affects the desire for an egalitarian society, which Friedman identifies as the first link in the causal chain between growth and social progress, and not on the ability to realize it. Focusing on this relationship also allows us to set aside significant issues regarding the manner in which different political systems aggregate policy preferences.

Our analysis reveals strong support for a modified version of Friedman's hypothesis. While the relationship between the rate economic growth and the taste for government responsibility is not significant, we find support for a positive and robust relationship between the taste for government responsibility and the *change* in the growth rate. Thus, the demand for egalitarian social policy appears to be high not when the growth rate is high but when it is rising. A similar result applies to income inequality: the demand for egalitarian social policy is low not when inequality is high in an absolute sense, but when it is high relative to its long run average. Moreover, our estimates suggest that both of these effects are economically large. Using our baseline model, a one-standard deviation increase of the growth rate over its five year average corresponds to a 0.20 standard deviation rise in the taste for government responsibility. Similarly, a one standard deviation increase in the Gini coefficient over its long run average corresponds to a .24 standard deviation fall in the taste for government responsibility.

In addition, our findings do not support concerns that the Friedman hypothesis, in its modified form, is specific to developed countries or to countries with Western cultural roots. In particular, the effects of changes in growth and inequality are robust to the inclusion of controls for a country's regional location and the religious composition of its population. Indeed, our results suggest that changes in the growth rate matter more for policy preferences in developing countries, while changes in inequality matter more in developed countries. As discussed further below, these findings are broadly consonant with the understanding of preference formation that underlies the Easterlin paradox and, if anything, suggest that the modified Friedman hypothesis may apply more to developing than developed countries.

The remainder of this paper is structured as follows. Section 2 considers the relationship of Friedman's hypothesis to the existing literature. Section 3 describes the data set and empirical methodology. Section 4 presents our empirical results, and the final section discusses the implications of our findings.

2. Literature review

Due to the sweeping nature of Friedman's hypothesis, it is related to a number of areas of active economic research. An extensive literature addresses the secular rise of government, a stylized fact known as Wagner' law.[4] An important distinction is that this work relates the rise of the government to the effect of income levels on the taste for redistribution, as in Hughes (1993), whereas in Friedman's account it is the rate of income growth rather than the level of income that matters. Moreover, in attempting to explain the rise of government, much of this work posits a monotonic relationship between economic development and the expansion of government, such as arises due the ratcheting effect in Higgs (1987), and thus, unlike Friedman's hypothesis, it does not provide a systematic explanation for fiscal and social retrenchments that Friedman documents in the US 1890s and 1980s.

A closely related literature, nicely assessed by Alesina et al. (2001), addresses the determinants of the size of the welfare state. This literature finds that the size of the welfare state or the extent of redistribution depends on a variety of factors including the degree of economic openness (Rodrik, 1998), the structure of political institutions (Persson and Tabellini, 2003), the racial and ethnic composition of the population (Alesina et al., 1999, 2003) and cultural beliefs regarding the role of luck in material success (Benabou and Tirole, 2006). Friedman's hypothesis departs from this literature in part because it concerns a broader set of phenomena, addressing non-economic dimensions of social inequality such as the political rights of women and minorities. A second difference is that much of this literature appeals to a political mechanism to

[3] The literature on subjective wellbeing finds support for the existence of both interpersonal and intertemporal income comparisons, which are known as status preferences and habituation. See Clark et al. (2008) for a recent review of this literature.

[4] See Peacock and Scott (2000) for a review of the literature on Wagner's law.

support the relationship in question. In this regard, Benabou and Tirole (2006) are closer to the spirit of Friedman's analysis in that they place a primary emphasis on understanding the formation of preferences regarding redistributive social policy, though unlike Friedman, Benabou and Tirole do not consider a role for economic growth in the process of preference formation.

Friedman's hypothesis is also related to empirical work on the preference for redistribution. In a recent review, Alesina and Giuliano (2009) note that intergenerational social mobility, as measured by income and educational differences between an individual and his or her father, is positively associated with a taste for redistribution. While this result is clearly in keeping with Friedman's claims, it is not clear *a priori* that *individual* success and *national* economic growth affect preferences in an identical fashion. For example, individuals who do well economically during a period of broad-based economic expansion may attribute their success less to individual ability and effort and more to the good fortune, and this attribution may influence their attitude toward government redistribution. Second, Alesina and Giuliano find that the taste for redistribution is increasing in the level of macroeconomic volatility during an individual's youth. Although it concerns the effect of macroeconomic performance on preference formation, this hypothesis differs from Friedman's in a number of key respects. Most importantly, while the volatility hypothesis holds that booms and busts affect preferences in a symmetric fashion, while Friedman argues that growth and decline have opposite effects on the taste for egalitarian social policy. In addition, unlike the volatility hypothesis, the effect that Friedman proposes is not age specific.

Friedman's hypothesis is also closely related to Easterlin's paradox regarding the relationship between income and happiness. In seminal work on determinants of subjective wellbeing, Easterlin (1974, 1995) finds that while measures of happiness are increasing in an individual's income at any given point in time, average happiness in a country does not rise with increases in average income. Easterlin (1995, p. 44) attributes this paradox to the impact of horizontal social comparisons, or more informally, "keeping up with Joneses": "[T]he material norms on which judgments of well-being are based increase in the same proportion as the actual income of society." Layard (2005) and others have refined the Easterlin paradox, arguing that average income levels may matter for happiness in countries with income levels below a certain threshold.[5] Note that while both Friedman and Easterlin draw attention to non-materialistic effects of economic growth, their arguments tend to cut in opposite directions. Friedman holds that growth produces non-material dividends in the form of greater moral sentiment, while the Easterlin paradox suggests that, at least for societies beyond a certain level of affluence, growth rates matter relatively little for human welfare. Moreover, while Friedman and Easterlin address distinct psychological phenomena – subjective wellbeing and the taste for egalitarian social policy – their theories are closely linked. In particular, Friedman suggests that growth reduces the intensity of the horizontal social comparisons that account for the Easterlin paradox, thereby increasing the taste for egalitarian social policy.

Finally, a separate literature considers the relationship between inequality, redistributive economic policy, and economic growth. Alesina and Rodrik (1994), Persson and Tabellini (1994), and Benabou (2000) consider the role of inequality and redistribution in a democratic society, while Bourguignon and Verdier (2000) and Acemoglu and Robinson (2001) address inequality, redistribution and growth in frameworks that permit endogenous democratization. A common element among these accounts is that the preferences are stable, and redistribution occurs because growth and inequality alter the distribution of political power in favor of non-elite groups. In contrast, in Friedman's account, the primary mechanism is psychological rather than political: redistribution occurs because growth alters the taste for social equality.

3. Data and empirical methodology

The World Values Survey was administered in five multi-year waves beginning in the early 1980s. Our dependent variable is a measure of the taste for government responsibility taken from the World Values Survey, waves 2–5, covering the years 1989 through 2007. Survey respondents were asked to place themselves on a ten-point scale on which one corresponds to the position that "People should take more responsibility to provide for themselves" and ten corresponds to the position "The government should take more responsibility to ensure that everyone is provided for." Answers to this question are averaged across individuals to obtain a single value for each country and wave that we call the *taste for government responsibility*. Note that in averaging preference data to obtain a measure of the national attitude toward government responsibility, we differ from much of the recent literature that addresses individual preference formation. However, since Friedman's argument concerns the impact of national economic performance on national social policy, an examination of a national, rather than individual, measure of the taste for government responsibility seems more in keeping with the spirit of his analysis.

Our growth variables are constructed from data on real per capita income (PPP) from the Penn World Tables, mark 6.3. Given the central role of interpersonal comparisons in Friedman's analysis, and evidence of a positive short-run relationship between income inequality and growth as found by Forbes (2000) and Davis and Hopkins (2011), we construct two measures of income inequality using the high-quality adjusted Gini coefficients from the World Income Inequality Database.[6] Because inequality measures are missing for many countries and years, we average observations of annual inequality over five year periods to obtain our short-run measure of income inequality. Our long-run inequality measure averages the available annual observations of the Gini coefficient available for a country for the years from 1960 to 2010.

We use a variety of measures to control for the potential influence of omitted variable bias on our estimates. First, using individual level data, Alesina and Fuchs-Schundeln (2007) find that the experience of living under a communism has a large persistent effect on preferences regarding social policies that entail redistribution. To control for the influence of a history of communism on the taste for government responsibility, we use a dummy variable for the existence of a socialist legal heritage from La Porta et al. (1999). Due to the significance of this variable, we include it as a regressor in every specification. To control for the potential impact of social diversity on the taste for government responsibility, we collect data on two dimensions of social diversity, a measure of ethnic fractionalization from Easterly (2007) and a measure of religious fractionalization from McCleary and Barro (2006). These variables measure the probability that two randomly selected individuals from a given country will belong to the same ethnic and religious groups, respectively.

[5] The factual basis of the Easterlin paradox has been challenged by Stevenson and Wolfers (2008), who argue that the average level of subjective wellbeing is positively related to the level of average income. They attribute the difference in their findings to longer time series and the use of log, rather than absolute, income levels.

[6] We define high quality observations as those that are based on a nationally representative population sample and are based on either income or expenditures. Observations that are excluded tend to be limited to men, urban areas or wage income. When there are multiple high quality adjusted Ginis for a given year, we average these to obtain a single annual observation.

Finally, we use two sets of variables to control for the potential influence of omitted cultural variables on the taste for government responsibility. First, we use data on the shares of a country's population affiliated with different religious traditions, from McCleary and Barro (2006), to control for elements of culture that are correlated with religious affiliation. Finally, we use regional location dummies from the Global Historical Network Database to control for the influence of unobserved heterogeneity related to regional history, culture and political institutions.

The resulting dataset consists of an unbalanced panel of 154 annual observations of the taste for government responsibility covering 84 countries and spanning the years 1989–2007. Because each wave of the WVS was administered over a number of years, the observations of the taste for government responsibility are unevenly spaced across time. Because of this, we identify observations by the year of the survey, rather than the wave, so that survey answers may be matched as closely as possible with the contemporaneous growth rates and inequality measures. Note also that the time dimension of the panel is highly limited, with an average of 1.83 observations per country. There are 37 countries for which we have a single observation, and 17 for which we have three or more observations. This characteristic of the panel restricts our ability to utilize panel methods such as fixed and random effects estimators to control for unobserved sources of heterogeneity across countries. While we present the results of fixed and random effects estimators as a robustness test, we do not utilizing them for most of our regressions.

Table 1A presents summary statistics for the sample. The *taste for government responsibility* varies widely in our sample, from under 3.5 to over 8.0 on a ten-point scale, with a mean value of 6.149 and a standard deviation of 0.975. Table 1B presents correlation coefficients for selected variables. There is little evidence of Friedman's hypothesis in the pairwise correlations: the correlation coefficients for the *taste for government responsibility* and the one-year, five-year and ten-year average income growth rates are all less than 0.1. The variable most strongly correlated with the *taste for government responsibility* is *socialist history*.

4. Results

Our empirical specification is

$$government\_responsibility_{it} = \alpha + Growth'_{it}\beta + Inequality'_{it}\gamma + X'_{it}\delta + \phi \times Wave_{it} + \varepsilon_{it} \quad (1)$$

In this specification, i indexes countries and t indexes years. In this specification, $Growth_{it}$ is a vector of income growth rates of different durations that may include the current growth rate, the average growth over the previous five years and the average growth over the previous ten years. Similarly, $Inequality_{it}$ is a vector of measures of social inequality. We consider a number of measures of social inequality, and vary the measures included to test the robustness of our results. X_{it-s} is a vector of control variables, and $Wave_{it}$ is a vector of dummy variables for each wave of the *WVS* that substitute for period dummy variables.[7] Due to its superior small sample properties and the limited time dimension of the panel, we rely primarily on OLS estimators. To allow for arbitrary patterns of correlation among observations for a single country, robust standard errors are clustered at the country level.

Table 2 presents results using different measures and combinations of the growth variable. Each regression also includes controls for the wave of the WVS and for a history of socialism. As reported, the wave dummy variables are jointly significant in every specification, and a history of socialism is significant in most specifications. The pattern of the coefficients on the wave dummies suggests that the taste for government responsibility was higher in the final three waves of the WVS. As seen in the first three columns of Table 2, none of the growth variables is significant at standard confidence levels, and only current growth rate has the expected sign. However, as seen in columns four and five, the current growth rate is positive and significant when we control for the recent experience of growth over a five- or ten-year period. Moreover, as reported the final row of these columns, in neither case can we reject the hypothesis that the coefficients on current and recent growth sum to zero. This suggests that the taste for government responsibility depends on the change in growth as measured by the difference between the current and recent growth rates, as is confirmed by columns six and seven.

Table 2 serves as the basis for our contention that the data support a modified Friedman hypothesis in which the change in the growth rate, rather than the change in income levels, matters for the taste for government responsibility. We also note that the coefficient estimate regarding the relationship in the final four columns of Table 2 are very similar in magnitude, ranging from 3.351 to 3.789. These estimates suggest that, holding constant the recent growth rate, the current growth rate has an economically significant effect on the taste for government responsibility. Using the estimate in column 6, an increase in the change in growth of one-standard deviation causes the taste for government responsibility to rise by $(0.051)(3.518) = 0.181$, or 0.856 of a standard deviation of the taste for government responsibility.

We turn next to considering the robustness of this finding. In doing so we continue to control for the wave of the *WVS* and having a *socialist history*, though we only report the joint significance of the former. Based on sample size and goodness of fit, we restrict our attention to the specification in column 6 in which we use the change in growth over the previous five-year period, $grow - grow5a$.[8] Results when these two variables are entered separately are broadly similar, though significance levels for individual coefficients are somewhat lower due to multicollinearity.

In Table 3 we consider the role of economic and social inequality in determining the taste for government responsibility. The first two columns report results using a short run and long run Gini coefficients. Neither measure of inequality is significant. However, as seen in column 3, when entered together, both short run and long run inequality are significant at the 1% level. In particular, controlling for the long run level of income inequality, we find that higher short-run inequality is associated with a reduction in the taste for government responsibility. Moreover, as reported in the final row of column 3, we are unable to reject the hypothesis that the coefficients on the two Gini variables sum to zero. In column four we confirm that the level of inequality relative to its long run average is negative and significant at the 1% level. This estimate implies that a one-standard deviation in the change in inequality is associated with an increase in the taste for government responsibility of $(4.07)(-.059) = -0.24$, which is very similar in magnitude to the economic significance of an increase in the change in growth reported above. Thus, as with economic growth, our findings regarding income inequality support a modified version of Friedman's hypothesis. The taste for government responsibility

[7] We do not use annual period effects due to the limited time dimension of the data. Wave 2 was administered from 1989 to 1993; wave 3 from 1994 to 1999, wave 4 from 2000 to 2004; and wave 5 from 2005 to 2007.

[8] We also consider all of these regressions using current growth relative to growth over the previous three year period. Our results from these regression are broadly similar and are available from the authors.

Table 1A
Summary statistics, selected variables.

Variable	Obs.	Mean	Std. Dev.	Min	Max
government responsibility	154	6.149	0.975	3.476	8.079
grow	154	0.033	0.050	−0.119	0.285
grow5a	145	0.026	0.035	−0.101	0.239
grow10a	138	0.023	0.024	−0.026	0.122
Gini, five-year average	124	38.8	10.0	22.5	60.9
Gini, LR average	151	39.2	9.0	22.8	59.7
history of socialism	154	0.266	0.443	0.000	1.000
ethnic fractionalization	143	0.383	0.234	0.002	0.930
religions diversity, 1970	146	0.597	0.235	0.236	0.986
trade volume	148	72.5	51.0	13.8	385.0

Table 1B
Correlation matrix, selected variables.

	govresp	grow	grow5a	grow10a	gini5a	avgini	legso	frac	herfr~70	trade
govresp	1.00									
grow	0.03	1.00								
grow5a	0.06	0.69	1.00							
grow10a	−0.05	0.58	0.76	1.00						
gini5a	−0.03	−0.13	−0.12	−0.13	1.00					
avgini	0.02	−0.16	−0.11	−0.14	0.93	1.00				
legso	0.18	0.31	0.38	0.20	−0.26	−0.37	1.00			
frac	0.04	−0.17	−0.19	−0.34	0.45	0.44	−0.12	1.00		
herfrel70	0.01	−0.18	−0.23	−0.23	0.18	0.20	−0.21	0.01	1.00	
trade	0.17	0.06	0.03	0.03	−0.11	−0.16	0.27	0.04	−0.24	1.00

Table 2
Government responsibility and economic growth.

	(1) Government responsibility	(2) Government responsibility	(3) Government responsibility	(4) Government responsibility	(5) Government responsibility	(6) Government responsibility	(7) Government responsibility
grow	2.310			3.482	3.351		
	(1.21)			(2.30)**	(1.96)*		
grow5a		−2.771		−3.589			
		(1.06)		(1.44)			
grow10a			−5.203		−5.963		
			(1.39)		(1.55)		
grow-grow5a						3.516	
						(2.54)**	
grow-grow10a							3.789
							(2.40)**
socialist history	0.677	0.617	0.432	0.590	0.402	0.588	0.369
	(2.80)***	(2.56)**	(1.82)*	(2.44)**	(1.70)*	(2.31)**	(1.45)
wave 3	0.616	0.498	0.379	0.548	0.433	0.549	0.443
	(2.33)**	(1.77)*	(1.38)	(1.97)*	(1.59)	(1.96)*	(1.61)
wave 4	0.829	0.796	0.834	0.850	0.894	0.851	0.896
	(3.15)***	(2.96)***	(3.20)***	(3.12)***	(3.38)***	(3.14)***	(3.37)***
wave 5	0.575	0.641	0.681	0.633	0.674	0.632	0.646
	(2.29)**	(2.36)**	(2.65)***	(2.36)**	(2.68)***	(2.40)**	(2.53)**
Clusters	83	77	74	77	74	77	74
Observations	154	145	138	145	138	145	138
R-squared	0.16	0.12	0.10	0.14	0.13	0.14	0.12
F-Test: grow + growXa = 0			p = 0.9685	p = 0.5078			

Robust *t* statistics in parentheses. Standard errors clustered at the country level.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

is high not when income inequality is low in an absolute sense, but when it is low relative to its long run average.

In the remaining columns of Table 3, we consider the role of other measures of social inequality. As noted above, previous work has found that ethnic fractionalization reduces the extent of redistribution or the provision of public goods. As seen in columns five and six, neither ethnic fractionalization nor religious diversity is statistically significant determinant of the taste for government responsibility. Finally, we note that our results regarding the change in economic growth are robust to the inclusion of these measures of economic and social inequality. In every specification, the coefficient on the change in economic growth is significant at the 5% level or better in each specification, and the magnitude of this coefficient is also highly stable.

In Table 4, we consider the robustness of our results.[9] As noted in Section 1, Friedman bases his hypothesis primarily on the

[9] We also tested the robustness of our results to the inclusion of controls for economic openness and to the exclusion of transition economies. The modified Friedman hypothesis was robust to both of these changes. Results are available upon request.

Table 3
Government responsibility and inequality.

	(1) Government responsibility	(2) Government responsibility	(3) Government responsibility	(4) Government responsibility	(5) Government responsibility	(6) Government responsibility
grow-grow5a	4.357	3.957	3.903	3.961	3.248	3.519
	(4.23)***	(3.27)***	(6.08)***	(6.16)***	(2.29)**	(2.85)***
socialist history	0.530	0.714	0.722	0.616	0.550	0.554
	(1.75)*	(2.35)**	(2.42)**	(2.43)**	(2.03)**	(2.00)**
gini5a	−0.000		−0.059			
	(0.01)		(2.85)***			
avgini		0.012	0.071			
		(1.14)	(3.14)***			
gini5a-avgini				−0.059		
				(2.81)***		
FRAC					0.026	
					(0.06)	
HERFREL70						0.348
						(0.71)
Waves: gini5a + avgini = 0	$p = 0.0455$	$p = 0.0127$	$p = 0.0185$	$p = 0.0235$	$p = 0.0056$	$p = 0.0253$
			$p = 0.2912$			
Clusters	63	75	63	63	70	74
Observations	117	142	117	117	134	137
R-squared	0.16	0.17	0.22	0.21	0.15	0.14

Robust *t* statistics in parentheses. Standard errors clustered at the country level.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

experience of Western European countries and their offshoots, raising the possibility that the relationship he identifies might be particular to countries at a particular level of development or with a particular set of cultural values. To consider whether the modified Friedman hypothesis depends on the level of a country's development, we divide our sample in two subsamples comprised of observations for which the natural log of income is respectively greater and less than 9.1, which corresponds to a per capita income level of $8955. This creates two subsamples with roughly equal numbers of countries and observations.

As reported in columns one and two of Table 4, our results for the modified Friedman hypothesis do in fact differ for high and low income countries. While the coefficient estimates in these two regressions have the expected signs and are similar in magnitude to those found above, two of the key coefficients are no longer significant at conventional levels. The taste for government responsibility is not significantly related to the change in growth in the rich country sample and to the change in income inequality in the poor country sample. The failure to find a significant relationship between the change in growth and the taste for government responsibility among the rich countries is somewhat surprising, since Friedman's narrative draws extensively on the historical experience of developed countries. This failure may simply reflect the paucity of observations available or the influence of relatively high measurement error common to survey-based data. However, as they stand our results are consonant with evidence on the Easterlin paradox, which suggests that as per capita income rises individuals may care more about relative income comparisons and less about economic growth.[10]

Next, we consider whether the modified Friedman hypothesis is particular to countries with Western cultural norms. We do this by including controls for a country's regional location and the religious composition of its population. Regional dummy variables are used as proxies for unobserved historical, cultural and political characteristics of a region. As reported in column three, the taste for government responsibility is strongly correlated with regional location. Relative to Western Europe, the omitted region, the taste for government responsibility is significantly lower in North America and significantly higher in Eastern and Central Europe, in the Middle East and North Africa, and in sub-Saharan Africa. The results reported in column four confirm that religious affiliation is strongly correlated with the taste for government responsibility. Relative to having an all-Protestant population, the taste for government responsibility is higher for countries with larger population shares who are Catholic, Orthodox Christian, Jewish, Muslim, Hindu and other religions.

The relationship between relative growth and the taste for government responsibility is robust to controls for religions affiliation and omitted regional variables. In contrast, while the coefficient on relative inequality has the expected sign, it is somewhat reduced in magnitude and is no longer statistically significant. This raises the possibility that the negative relationship between relative inequality and the taste for redistribution reported in Table 3 may reflect the influence of omitted cultural variables. However, it may also be that the variation in relative inequality that is orthogonal to our regional and religious variables is not sufficient to identify this coefficient precisely.

Our final two specifications exploit the panel nature of our dataset to control for unobserved heterogeneity at the country-level. We employ both fixed effects and random effects estimators, to control for the influence of time-invariant country specific omitted variables. As reported in column six, neither relative growth nor relative inequality is significant in the fixed effects specification. This is, of course, not surprising given the limited number of observations per country in the data set, which leads to high standard errors. Moreover, we note that our estimates for the coefficient on relative growth are well within the 95% confidence interval for this coefficient established by the fixed effects model, which is (−6.55, 5.83). Our previous estimates of the coefficient on relative inequality are just beyond the lower bound of this confidence interval, (−.0529, 0488). Finally, as reported in column seven, using a random effects model, our results are largely in line with our previous findings. However, a Hausman specification test rejects

[10] The importance of economic growth relative to inequality in less developed countries is also consonant with Hirschman and Rothschild's (1973) "tunnel effect," which holds that people in developing countries may tolerate rising income inequality if it is accompanied by economic growth. See Davis (2012) for a recent formalization of this effect.

Table 4
Robustness tests.

Variables	(1) ln(*y*) > 9.1 Government responsibility	(2) ln(*y*) < 9.1 Government responsibility	(3) Government responsibility	(4) Government responsibility	(5) FE Government responsibility	(6) RE Government responsibility
grow-grow5a	2.031	3.732***	3.017***	4.414*	−0.436	3.540**
	(0.280)	(5.502)	(3.371)	(1.722)	(−0.134)	(2.108)
gini5a-avgini	−0.111***	−0.0325	−0.0229	−0.0348	−0.00207	−0.0416**
	(−3.017)	(−1.356)	(−1.358)	(−1.384)	(−0.0755)	(−2.073)
socialist history	1.307***	0.210	−0.163	0.174		0.757***
	(4.115)	(0.683)	(−0.417)	(0.378)		(3.288)
reg_eap			0.299			
			(0.627)			
reg_eca			1.290**			
			(2.426)			
reg_mena			1.149***			
			(2.666)			
reg_sa			0.344			
			(0.812)			
reg_na			−1.089***			
			(−2.790)			
reg_ssa			0.919**			
			(2.056)			
reg_lac			0.318			
			(0.739)			
cath70				1.391***		
				(3.834)		
othchrist70				0.257		
				(0.154)		
orth70				2.482***		
				(3.649)		
jews70				3.016***		
				(7.019)		
muslim70				1.559***		
				(4.167)		
hindu70				1.366***		
				(4.353)		
buddis70				1.529		
				(1.082)		
easrel70				0.393		
				(0.403)		
othrel70				3.833***		
				(3.763)		
nonrel70				1.538		
				(1.593)		
Constant	5.325***	5.206***	4.869***	3.970***	5.166***	4.902***
	(9.446)	(17.26)	(9.548)	(9.396)	(23.30)	(20.25)
Observations	56	61	117	110	117	117
Countries	34	36	63	59	63	63
R-squared	0.283	0.282	0.422	0.393	0.307	–

Columns 1–4: robust *t*-statistics in parentheses. Standard errors clustered at the country level. Columns 5 and 6: *t*-statistic and *z*-statistic in parentheses, respectively.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

the maintained hypothesis that the regressors in column seven are uncorrelated with the country-specific elements of the error term.

To sum up, our findings do not support Friedman's claims that the taste for government responsibility is increasing in the rate of growth and decreasing in the level of inequality. However, we do find support for a modified version of Friedman's hypothesis in which an increase in the rate of growth is positively related to the taste for government responsibility. Similarly there is a statistically significant negative relationship the change in economic inequality and the taste for government responsibility. These relationships appear to be robust to the inclusion of controls for ethnic and religious diversity; however, the positive relationship between the change in growth and the taste for government responsibility is not significant in a subsample of relatively rich countries. In addition, the relationship between the change in growth and the taste for government responsibility is robust to the inclusion of regional dummy variables and religious affiliation, though the relationship between the change in inequality and the taste for redistribution is not.

Our results are subject to two caveats. First, as noted above, we cannot reject the hypothesis that our findings are driven by unobserved heterogeneity at the country level. However, we believe it unlike that unobserved factors are playing a large role in our results. While unobserved heterogeneity may cause *average* growth rates and inequality levels to differ across countries, we are unaware of any theoretical link between unobserved heterogeneity and the *change* in economic growth or income inequality. It seems more likely that the panel estimators lack power due to the limited observations in the time-dimension of the data. A second unresolved issue concerns the endogeneity of our regressors. Attempts to address the endogeneity of the change in growth by instrumenting for the change in growth using terms of trade shocks (not reported here) suffered from weak instrument problems. In the absence of testing using valid and reasonably strong instruments for the change in the economic growth, the empirical relationship

that we identify between the change in growth and the taste for government responsibility may not be causal.

5. Conclusion

To the best of our knowledge, this is the first paper to test Friedman's claim that economic progress leads to social progress by increasing the demand for egalitarian social policy. Using data from the *World Values Survey*, we consider the relationship between economic growth and the taste for government responsibility in a panel of 84 countries. In addition to providing econometric evidence on the validity of Friedman's hypothesis, the use of a broad sample of countries allows us to consider the degree to which Friedman's hypothesis holds within a diverse set of countries from different regions and at different levels of development.

Our findings do not support Friedman's claims that the taste for government responsibility is increasing in the rate of growth and decreasing in the level of inequality. Instead, we find support for a modified version of Friedman's hypothesis in which an increase in the rate of growth is positively related to the taste for government responsibility. This result is robust to a variety of controls and sample restrictions. An important exception is that the relationship between the change in growth and the taste for government responsibility is not significant when the sample is restricted to the richer countries. More evidence is required to determine whether this result reflects the weakness of the data we employ or a systematic relationship between a country's level of development and the determinants of individual preferences. Moreover, the interpretation of our results requires some caution, as we cannot rule out existence of bias due to unobserved heterogeneity at the country-level, and we cannot claim to have identified causal effects.

Momentarily setting these caveats aside, it is worth considering the implications of our findings in the case that they do identify causal relationships. First, from a positive point of view, our results suggest that attempts to implement counter-cyclical macroeconomic policy may face significant resistance. For example, because recessions are characterized by a decline in economic growth, they will tend to be accompanied by a decrease in the taste for government responsibility and, thus, by a decrease in public support for counter-cyclical policies involving increased government spending. In contrast, the use of tax policy to stimulate aggregate demand may be more acceptable. This discussion suggests gains to the development of an institutionalized response to crises that by-passes legislative action.

Second, our results suggest that the literature on the political economy of inequality might usefully be expanded to consider the roles of growth and inequality in the formation of policy preferences. In particular, the relationship between changes in income inequality and the taste for government responsibility might generate a feedback loop with the potential to exacerbate the effect of inequality shocks. For example, an exogenous increase in income inequality would tend reduce public support for redistributive public policies, leading to policy changes that further increase the level of income inequality. Such a pattern of self-reinforcing changes in inequality levels and redistributive policies could support multiple policy-inequality equilibria, such as Benabou (2000) and Benabou and Tirole (2006) argue exist for the US and Western Europe.

Finally, from a normative point of view, the evidence presented here indicates a certain caution regarding the claim that economic progress can be expected to lead to social progress. While Friedman suggests that a permanent increase in the rate of economic growth would lead to an enduring increase in popular support for egalitarian social policy, our results indicate that the shift in public attitudes would characterized by a temporary rise, occurring directly following the rise to the higher rate of growth. Taken at face value, the evidence presented here indicates that to generate a sustained increase in support for egalitarian social policies, an accelerating growth rate would be necessary. Thus our analysis suggests that, in and of themselves, growth promoting policies may be a relatively blunt instruments for promoting social equality.

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