

Special-Interest Groups and Volatility

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Abstract

This paper explores the relationship between special-interest groups and volatility of GDP growth. In an unbalanced panel of 108 countries, we find a significant negative relationship between the number of interest groups in a country and the volatility of GDP growth.

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1. Introduction

The growth rate of GDP is lower in countries where growth varies more widely than it is in countries where growth is more stable (Ramey and Ramey, 1995; Loayza and Hnatkowska, 2004; Mobarak, 2005). Growth stability is therefore an important objective with respect to development. A number of studies have explored the determinants of volatility in growth rates. Rodrik (1999) and Mobarak (2005) emphasize the role of political institutions.¹ Easterly, Islam, and Stiglitz (2001), and Denizer, Iyigun, and Owen (2002), and Agion, Angeletos, Banerjee, and Manova (2005) highlight the importance of the financial sector. In this brief paper, we assess whether special-interest group activity plays a role in stability.

Special-interest groups have been empirically linked to numerous political and economic outcomes - the voting behavior of politicians and election results (Stratmann, 1992, 1998, 2002; Coates, 1996), product prices (Ellison and Wolfram, 2001), market capitalization and stock returns (Roberts, 1990; Jayachandran, 2006; Coates and Wilson, 2007), financial sector policy (Kroszner and Strahan, 1999; Rajan and Zingales, 2003), and investment and growth (Heckelman, 2000; Coates and Heckelman, 2003a and 2003b; Coates, Heckelman, and Wilson, 2007b). In addition, special-interest group activity has been empirically linked to profit stream and stock return volatility (Grier, Munger, and Roberts, 1994; Coates and Wilson, 2007). Our findings indicate that special-interest group activity is also a determinant of the volatility of GDP growth. Using a panel data set on 108 countries, we find that interest groups are significantly and negatively associated with several measures of growth volatility.

2. Measurement of Interest Group Activity and Volatility

In this section we briefly describe the data used in the analysis. The dataset consists of 250 observations, on an unbalanced panel of 108 countries, over three decades, 1973-1982, 1985-1994, and 1995-2004. All country-years for which the requisite data are available are included in the analysis.

We measure interest group activity with a count of the number of interest groups in a country. The counts are assembled using the 1973, 1985, and 1995 editions of the *World Guide to Trade Associations*. Counts from the *Guide* have also been used by Heckelman (2000), Coates and Heckelman (2003b), and Coates and Wilson (2007) in studies of growth determinants, and by Murrell (1984), Kennelly and Murrell (1991), Bischoff (2003), and Coates, Heckelman, and Wilson (2007a) in studies of interest group formation. The *Guide* is an international directory of “trade associations,” covering more than 170 countries, and nearly 400 categories of groups. The 1985 edition includes over 30,000 listings, stratified by country and by sector. The *Guide* is quite comprehensive with respect to association types, and includes groups in the industrial, commercial, trade, and service sectors, as well as professional organizations, consumer organizations, employer and labor groups, and organizations of service professionals.

¹ Henisz (2004) examines the role of political institutions in policy volatility.

Summary statistics for the group counts are listed in the top portion of Table 1. The mean number of groups across countries is 252.50. There is substantial dispersion in the group counts, with a standard deviation more than 2.5 times the mean. Albania, Guinea-Bissau, Mongolia, and Yemen have the fewest groups in the sample, with 1; and the U.S. has the most groups, with 5619.

Following Mobarak (2005), we examine several measures of the volatility of real per capita GDP growth. In particular, we examine the standard deviation and interquartile range of annual real per capita GDP growth (henceforth, *Standard Deviation* and *Interquartile Range*). We also examine each of these measures interacted with a dummy variable that captures a sign change in growth rates during the relevant decade (henceforth, *Sign*), and with the fraction of years in which a sign change occurred during the relevant decade (henceforth, *Freq.*). These measures are computed over the periods 1973-1982 (corresponding to the 1973 group counts), 1985-1994 (corresponding to the 1985 group counts), and 1995-2004 (corresponding to the 1995 group counts). Summary statistics for each of the volatility measures are listed in Table 1.

Simple correlations are reported in Table 2. As the first column indicates, *Interest Groups* is negatively and significantly related to all of the volatility measures examined. The correlation between *Standard Deviation* and *Interest Groups* is slightly stronger than between *Interquartile Range* and *Interest Groups*. Each of the volatility measures is highly positively correlated with the others.

3. Model and Methods

To more thoroughly assess the relationship between interest group activity and volatility, we estimate the following regression

$$Volatility_{i,t} = \alpha + \beta SIG_{i,t} + \boldsymbol{\gamma} \mathbf{X}_{i,t} + \boldsymbol{\delta} \mathbf{D} + \varepsilon_{i,t} ,$$

where *Volatility* is a measure of volatility; *SIG* is the natural logarithm of the number of special interest groups; *X* is a vector of control variables; *D* is a vector of time dummies; α and β are parameters to be estimated, and $\boldsymbol{\gamma}$ and $\boldsymbol{\delta}$ are vectors of parameters to be estimated; ε is a random error term; *i* indexes countries; and *t* indexes the three time periods. The variables included in the vector *X* are those that Mobarak (2005) identifies as significantly related to volatility. In addition, we include a measure of financial sector development, *Private Credit*. Variable descriptions and data sources are included in the appendix.

To account for heteroskedasticity, inference is based on the bias-adjusted HC3 variance-covariance matrix estimator, favored by Chesher and Jewitt (1987) and Cribari-Neto, Ferrari, and Oliveira (2005). To account for bias due to endogeneity of certain right-hand-side control variables, we estimate the model using instrumental variables. We treat the variables *Inflation*, *Trade*, *Private Credit*, and *Political Rights* as endogenous. Mobarak (2005) uses a dummy variable for Muslim countries as an instrument for *Political Rights*. However, we find that the Hansen test rejects the null of valid instruments in a number of

specifications when a Muslim dummy is used as an excluded instrument. We therefore use initial values of *Inflation*, *Trade*, *Private Credit*, and *Political Rights*, along with *Latitude*, and a dummy for OECD membership status in 1985 as excluded instruments.

4. Regression Results

The results of the regression analysis are reported in Table 3a. As the first row of the table indicates, *Interest Groups* is negatively and significantly related to volatility in all cases. The magnitude of the effect is smallest in columns (3) and (6), when the volatility measures are interacted with the fraction of years in which a sign change in growth occurred (*Freq.*). The magnitude of the coefficient on *Interest Groups* in column (1) indicates that a one percent increase in the number of interest groups reduces the standard deviation of the growth rate by 0.494. This finding represents a 13.8% drop relative to the average of *Standard Deviation*. A one percent increase in groups has a slightly weaker impact relative to the mean of the *Interquartile Range*, reducing volatility 11.5% based on the coefficient estimate of -0.547 in column (4). These findings indicate that interest group activity has a stabilizing effect on GDP growth. Moreover, the magnitude of the effect is economically meaningful.

Consistent with the findings of Mobarak (2005), the results in Table 3a also indicate that *Political Rights* is significantly related to volatility. The political rights index takes high values in countries with low levels of political rights. The positive coefficient thus indicates that democracy is associated with stability in GDP growth. *Sectoral Diversification* and *Services Share* are also significantly related to volatility. The positive coefficient on *Sectoral Diversification* indicates that less diversified economies are more volatile, as would be expected.²

The group counts from the 1973 edition of the *Guide* are not strictly comparable to the counts from the 1985 and 1995 editions, due to changes in the inclusion criterion used by the editors. The time dummies included in the model should capture systematic differences in the counts across time.³ However, as a robustness check on the findings in Table 3a, we have also analyzed a subsample of the data that includes only the 1985-1994 and 1995-2004 decades. Elimination of the 1973-1982 decade from the sample also allows us to examine the relationship between volatility and political risk, using data from The PRS Group's International Country Risk Guide, which is available starting in 1984. Findings are reported in Table 3b.

As the first row of the table indicates, *Interest Groups* is negatively and significantly related to volatility in five of the six cases examined. The magnitude of the coefficients in columns (1)-(3) are similar to those in Table 3a. The magnitude of the coefficients in

² As Mobarak (2005) notes, developed economies with large service sectors can appear undiversified based on the measure *Sectoral Diversification*. *Services Share* is included in the model to control for this possibility.

³ The estimated coefficient on the 1973 year dummy is highly significant. We note that the variable may be picking up the differences between the 1973 and the other counts. However, the variable may also be capturing the impact of macroeconomic shocks experienced during the 1973-1982 decade.

columns (4)-(6) are smaller than those in Table 3a. Nonetheless, the estimates indicate that the impact of *Interest Groups* on stability is still economically meaningful.

We explored several measures of political risk, including government stability, internal conflict, external conflict, corruption, law and order, and bureaucracy quality. Consistent with Easterly, Islam, and Stiglitz (2001), none of these variables was found to be significantly related to volatility (in unreported regressions). As Table 3b indicates however, the variable *Investment Profile*, which captures contract viability/expropriation, profits repatriation, and payment delays, is significantly related to several measures of volatility. The coefficients indicate that lower investment risk is, not surprisingly, associated with less volatility.

Table 3b also indicates that *Political Rights* is not associated with volatility in the smaller sample. A natural suspicion is that the inclusion of *Investment Profile* in the model wipes out the relationship between democracy and volatility identified in Table 3a. However, when *Investment Profile* is excluded from the specifications, the estimated coefficients on *Political Rights* remain insignificant. The coefficients of variation in *Political Rights* are virtually identical in the full sample and the subsample, and we have not been able to identify any explanation for the inconsistent findings. We do note that Easterly, Islam, and Stiglitz (2001) examine the role of institutional development in volatility, including a measure of democracy, and do not find such variables are significantly related to volatility.

5. Concluding Remarks

Easterly, Islam and Stiglitz (2001) write, “We need to ask whether this high volatility [in GDP growth] can be explained simply by the fact that the countries are exposed to more shocks (or have a less diversified economy) than others or whether it is explained by other aspects of their structure or policy regimes.” The findings presented here take a step toward answering this question, by investigating the relationship between interest groups and volatility of GDP growth. We find that interest groups are significantly and negatively related to volatility. Interest groups thus appear to be an institutional structure linked to stability.

Stigler (1971) and Olson (1982) suggest that interest groups seek to protect incumbent firms and/or workers, and block innovation. Olson (1982) also argues that groups impede efficient resource reallocation in response to shocks. In future work we will attempt to identify whether these hypotheses underlie the negative relationship between interest groups and volatility revealed here. Future work should also more thoroughly explore the extent to which links between democracy and volatility can be attributed to the role of interest groups in open and free societies. Further analysis of the impact of groups on financial sector policy may also yield useful insights into volatility.

In addition, the findings presented here should stimulate theoretical work. A number of formal theoretical models link interest groups and growth, including Parente and Prescott (1994, 1999), Krusell and Rios-Rull (1996), Herrendorf and Teixeira (2004), and Parente and Zhao (2006). However, to our knowledge, no formal theoretical work links groups

and growth volatility. The findings here suggest that such work could provide a promising opportunity for structural empirical studies. In addition, Grier, Munger, and Roberts (1994) find that interest group activity is negatively associated with variability in the profit streams of U.S. industries. Their findings suggest that models in which risk averse firms lobby for policies that reduce the variability of their profit streams may be of interest.

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Appendix

Variable Definitions and Data Sources

The dataset consists of 250 observations, on an unbalanced panel of 108 countries, over three decades, 1973-1982, 1985-1994, and 1995-2004. Volatility measures and averages of control variables cover the periods 1973-1982, 1985-1994 and 1995-2004. Initial values are for the years 1973, 1985 and 1995.

Dependent Variables

Standard Deviation: The standard deviation of annual real per capita GDP. Source: World Bank *World Development Indicators*.

Standard Deviation/Sign: Standard Deviation interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade. Source: World Bank *World Development Indicators*.

Standard Deviation/Freq.: Standard Deviation interacted with the fraction of years in which an annual growth rate sign change occurred during the relevant decade. Source: World Bank *World Development Indicators*.

Interquartile Range: The interquartile range of annual real per capita GDP. Source: World Bank *World Development Indicators*.

Interquartile Range/Sign: Interquartile Range interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade. Source: World Bank *World Development Indicators*.

Interquartile Range/Freq.: Interquartile Range interacted with the fraction of years in which an annual growth rate sign change occurred during the relevant decade. Source: World Bank *World Development Indicators*.

Independent Variable of Primary Interest

Interest Groups (initial value): Log of the number of interest groups in a country. Source: Third and fourth editions of the *World Guide to Trade Associations*.

Control Variables

Initial GDP (initial value): Log of real GDP per capita in USD. Source: World Bank *World Development Indicators*.

Inflation (average and initial value): Annual percent change in the CPI. Source: World Bank *World Development Indicators*.

Trade (average and initial value): Annual share of trade in GDP. Source: World Bank *World Development Indicators*.

Private Credit (average and initial value): Annual share of domestic credit provided by banking sector in GDP. Source: World Bank *World Development Indicators*.

Political Rights (average and initial value): An index of the degree of freedom in the electoral process, political pluralism and participation, and functioning of government, using an inverse of the original 1 - 7 scale such that higher values now represent more political rights. Source: Freedom House, "Freedom in the World 2006: The Annual Survey of Political Rights and Civil Liberties."

Investment Profile (average and initial value): An index of investment risk, with values from 0 (very high risk) to 12 (very low risk); index components are Contract Viability/Expropriation, Profits Repatriation, and Payment Delays. Source: The Political Risk Services' *International Country Risk Guide*.

Population (initial value): Log of the total population. Source: World Bank *World Development Indicators*.

1973 Year Dummy: A dummy variable indicating the 1973-1982 subsample.

1985 Year Dummy: A dummy variable indicating the 1985-1994 subsample.

Excluded Instruments (with the exception of initial values noted above)

Latitude: Latitude in degrees. Source: Global Development Network.

OECD Dummy: Dummy variable indicating OECD membership prior to 1985. Source: OECD.

TABLE 1 - Summary Statistics

	Mean	Standard Deviation	Minimum	Maximum	Observations
Total Groups	252.50	682.99	1.00	5619.00	250
Log of Groups	3.75	1.80	0.00	8.63	250
Standard Deviation					
—	3.55	2.59	0.37	19.35	250
Sign	3.12	2.75	0.00	19.35	250
Freq.	1.08	1.18	0.00	7.74	250
Interquartile Range					
—	4.74	3.83	0.52	29.80	250
Sign	4.09	3.87	0.00	24.24	250
Freq.	1.47	1.74	0.00	9.45	250

Notes: Total Groups is the number of interest groups. Log of Groups is the log of the number of interest groups. Standard Deviation is the standard deviation of annual real GDP per capita growth over the relevant decade. Interquartile Range is the interquartile range of annual real GDP per capita growth over the relevant decade. Both Standard Deviation and Interquartile Range are interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade (Sign) and with the fraction of years in which a sign change occurred during the relevant decade (Freq.)

TABLE 2 - Correlations

	Interest Groups	Standard Deviation			Interquartile Range		
		—	Sign	Freq.	—	Sign	Freq.
Standard Deviation							
—	-0.395						
with Sign	-0.326	0.871					
with Freq.	-0.316	0.796	0.895				
Interquartile Range							
—	-0.312	0.863	0.696	0.708			
with Sign	-0.273	0.756	0.879	0.855	0.830		
with Freq.	-0.263	0.687	0.781	0.928	0.779	0.914	1.00

Notes: All correlations are significant at better than the 1% level. Interest Groups is the log of the number of interest groups. Standard Deviation is the standard deviation of annual real GDP per capita growth over the relevant decade. Interquartile Range is the interquartile range of annual real GDP per capita growth over the relevant decade. Both Standard Deviation and Interquartile Range are interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade (Sign) and with the fraction of years in which a sign change occurred during the relevant decade (Freq.)

TABLE 3a - Volatility and Interest Groups (1973, 1985, 1995)

<i>Interactions</i>	Standard Deviation			Interquartile Range		
	– (1)	Sign (2)	Freq. (3)	– (4)	Sign (5)	Freq. (6)
Interest Groups	-0.489 (0.000)	-0.415 (0.006)	-0.171 (0.004)	-0.547 (0.004)	-0.489 (0.026)	-0.223 (0.020)
<i>Control Variables</i>						
Initial GDP	0.083 (0.682)	0.126 (0.589)	0.046 (0.636)	0.104 (0.711)	0.216 (0.500)	0.059 (0.698)
Inflation	-0.000 (0.698)	-0.000 (0.854)	-0.000 (0.680)	-0.001 (0.303)	-0.001 (0.526)	-0.001 (0.472)
Trade	-0.008 (0.176)	-0.017 (0.024)	-0.006 (0.034)	-0.005 (0.527)	-0.019 (0.066)	-0.007 (0.093)
Private Credit	-0.000 (0.954)	-0.004 (0.577)	-0.001 (0.773)	-0.006 (0.559)	-0.014 (0.200)	-0.004 (0.372)
Political Rights	0.274 (0.035)	0.348 (0.030)	0.170 (0.008)	0.416 (0.012)	0.522 (0.010)	0.226 (0.015)
Diversified Exporter	0.092 (0.774)	0.204 (0.586)	0.125 (0.346)	-0.643 (0.157)	-0.558 (0.283)	-0.057 (0.773)
Sectoral Diversification	19.055 (0.000)	18.462 (0.000)	8.572 (0.000)	27.276 (0.000)	25.588 (0.000)	12.122 (0.000)
Services Share	-9.923 (0.002)	-8.129 (0.014)	-3.611 (0.005)	-12.345 (0.011)	-8.865 (0.027)	-4.319 (0.018)
Population	-0.194 (0.289)	-0.285 (0.156)	-0.132 (0.076)	-0.056 (0.851)	-0.144 (0.615)	-0.091 (0.394)
Constant	3.901 (0.378)	3.989 (0.330)	1.203 (0.435)	-0.514 (0.943)	-0.761 (0.897)	-0.301 (0.898)
1973 Year Dummy	1.654 (0.000)	1.647 (0.001)	0.846 (0.000)	3.619 (0.000)	3.627 (0.000)	1.693 (0.000)
1985 Year Dummy	0.940 (0.023)	0.688 (0.121)	0.248 (0.162)	1.707 (0.012)	1.345 (0.032)	0.472 (0.065)
R ²	0.39	0.33	0.37	0.40	0.39	0.38
Hansen(df)	4.69(2)	4.95(2)	2.30(2)	2.93(2)	5.19(2)	3.15(2)
Observations	250	250	250	250	250	250

Notes: Dependent variables are the standard deviation of annual per capita GDP growth (Standard Deviation), alone as well as interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade (Sign) and interacted with the fraction of years in which a sign change occurred during the relevant decade (Freq.); and the interquartile range of growth (Interquartile Range), alone and interacted with Sign and Freq. p-values are in parentheses. Generalized R² reported. The null of the Hansen test is that the instruments are not correlated with the residuals. The 10% and 5% critical values of the Hansen test are 4.61 and 5.99, respectively. Excluded instruments include: OECD Dummy, Latitude, initial Inflation, initial Trade, initial Private Credit, initial Political Rights.

TABLE 3b - Volatility and Interest Groups (1985, 1995)

<i>Interactions</i>	Standard Deviation			Interquartile Range		
	– (1)	Sign (2)	Freq. (3)	– (4)	Sign (5)	Freq. (6)
Interest Groups	-0.494 (0.000)	-0.416 (0.015)	-0.135 (0.035)	-0.394 (0.021)	-0.342 (0.060)	-0.122 (0.140)
<i>Control Variables</i>						
Initial GDP	0.145 (0.559)	0.036 (0.902)	0.032 (0.777)	0.246 (0.411)	0.137 (0.673)	0.063 (0.669)
Inflation	0.001 (0.236)	0.001 (0.132)	0.000 (0.734)	0.001 (0.148)	0.001 (0.073)	0.000 (0.611)
Trade	-0.004 (0.541)	-0.014 (0.131)	-0.004 (0.215)	0.004 (0.712)	-0.011 (0.278)	-0.003 (0.421)
Private Credit	0.004 (0.434)	0.002 (0.714)	0.002 (0.403)	0.002 (0.835)	-0.003 (0.708)	0.001 (0.804)
Political Rights	-0.092 (0.544)	-0.055 (0.750)	-0.023 (0.746)	-0.264 (0.277)	-0.201 (0.355)	-0.095 (0.358)
Investment Profile	-0.605 (0.121)	-0.480 (0.239)	-0.309 (0.069)	-1.167 (0.107)	-0.967 (0.074)	-0.518 (0.025)
Diversified Exporter	0.326 (0.352)	0.496 (0.240)	0.147 (0.271)	-0.218 (0.624)	-0.039 (0.936)	0.023 (0.895)
Sectoral Diversification	13.463 (0.022)	11.558 (0.142)	3.911 (0.159)	16.430 (0.029)	12.441 (0.242)	4.126 (0.317)
Services Share	-7.444 (0.028)	-4.843 (0.249)	-1.483 (0.302)	-8.890 (0.039)	-3.884 (0.426)	-1.195 (0.528)
Population	-0.175 (0.285)	-0.295 (0.143)	-0.131 (0.047)	-0.058 (0.805)	-0.187 (0.446)	-0.099 (0.227)
Constant	9.229 (0.039)	10.390 (0.029)	4.748 (0.011)	10.798 (0.180)	11.543 (0.034)	5.736 (0.015)
1985 Year Dummy	-0.236 (0.689)	-0.277 (0.690)	-0.366 (0.211)	-0.678 (0.448)	-0.726 (0.373)	-0.610 (0.085)
R ²	0.30	0.22	0.23	0.26	0.23	0.20
Hansen(df)	2.79(2)	3.60(2)	3.08(2)	0.25(2)	2.69(2)	2.37(2)
Observations	185	185	185	185	185	185

Notes: Dependent variables are the standard deviation of annual per capita GDP growth (Standard Deviation), alone as well as interacted with a dummy variable indicating an annual growth rate sign change during the relevant decade (Sign) and interacted with the fraction of years in which a sign change occurred during the relevant decade (Freq.); and the interquartile range of growth (Interquartile Range), alone and interacted with Sign and Freq. p-values are in parentheses. Generalized R² reported. The null of the Hansen test is that the instruments are not correlated with the residuals. The 10% and 5% critical values of the Hansen test are 4.61 and 5.99, respectively. Excluded instruments include: OECD Dummy, Latitude, initial Trade, initial Private Credit, initial Political Rights, initial Investment Profile.