AS THE WORLD TURNS OUT: ECONOMIC GROWTH AND VOTER TURNOUT FROM A GLOBAL PERSPECTIVE

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A Thesis

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ABSTRACT

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Low voter turnout has been a characteristic of several recent national-level elections and referenda throughout the world. Scholarly literature has also documented declining turnout as a continuing trend in wealthy, advanced industrial democracies such as the United States and the United Kingdom. Yet, scholarly research using individual-level data has shown that wealthy, better educated people are more likely to vote than those with low income and/or low educational attainment. This study attempts to answer the question: Does economic growth lead to decreased voter turnout?

This work uses aggregate-level data for 86 countries to explain voter turnout in lower house elections and employs a hot-deck imputation technique to fill in missing observations. Regression analysis of data from the World Bank, the International Institute for Democracy and Electoral Assistance, and the Polity IV project reveals little evidence to support the claim that economic growth affects voter turnout. Only one multiple regression model of countries in the Latin American and Caribbean region gives evidence supporting the principal hypothesis of this study that economic growth produces a decline in voter turnout. The literature review and null findings of this research establish that quantitative, scholarly research on voter turnout is more concerned with explaining voter turnout in industrial democracies than in developing countries. In the current context of globalization, future research must be grounded in a more encompassing theory if voter turnout is to be treated as a universal characteristic of all democratic elections. This work is dedicated to Dr. Charlie A. Jones for helping me see the forest.

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CHAPTER I. INTRODUCTION

Journalistic evidence has shown that recent national level elections and referenda have been plagued by low rates of voter turnout, particularly in industrialized democracies.¹ Turnout has shown marked decline in the United States and the United Kingdom, for instance. The economies of these countries have also expanded over time and have allowed people to prosper in comparison to developing countries. What is troubling about these observations is that the scholarly literature has firmly established that wealthy people are most likely to vote.² How can the individual-level research on voter turnout suggest one thing while aggregate-level observations from reality show something different?

The purpose of this study is to apply what is known about machine politics in the United States to the turnout "story" in countries around the world. American political machine theory suggests that turnout rates decrease when people come to rely on the economic system as opposed to the political system to satisfy needs, wants, and desires. A change in what people rely on to provide for themselves essentially determines the

¹ Etta Prince Gibson, "A Duty- Not A Pleasure," *The Jerusalem Post*, January 31, 2003; Ruben Brosbe, "Anglo Voters Sound Off On Election Apathy," *The Jerusalem Post*, March 30, 2006; Amy Teibel, "As Economy Grows and Poverty Spreads, Many Miss the Old Egalitarian Ethos," *The Associated Press*, May 10, 2005, BC cycle; Unknown Author, "Low Voter Turnout in Poland Elections," *Deutsche Presse-Agentur*, September 25, 2005; Andrzej Stylinski, "Poles Endorse Constitution of Free Market and Democracy," *The Toronto Star*, May 26, 1997; Unknown Author, "Low Spanish Turnout Warning for Countries Facing EU Constitution Vote: Press," *Agence France Presse*, February 21, 2005; Yoshio Okubo, "Political Pulse: Low Voter Turnout Threatens Democracy," *The Daily Yomiuri*, June 12, 2004; Martin Walker, "Walker's World: When Will Blair Go?" *UPI*, May 4, 2006; Simon O'Rourke, "A Case of Democracy Inaction," *Waikato Times*, October 15, 2004; Henry Milner, "Of Winter Elections and Low Voter Turnout," *Timmins Daily Press*, December 31, 2005.

² John A. Ferejohn and Morris P. Fiorina, "The Paradox of Not Voting: A Theoretic Decision Analysis," *The American Political Science Review* 62 (1974): 525-536; Sidney Verba, Kay Lehman Scholzman, and Henry E. Brady, *Voice and Equality: Civic Voluntarism in American Politics*. (Cambridge, Mass: Harvard University Press, 1995); Lester Milbrath and M. L. Goel, *Political Participation: How and Why People Get Involved in Politics*. (Chicago, IL: Rand McNally, 1977); M. Margaret Conway, *Political Participation in the United States*. (Washington D.C.: Congressional Quarterly Press, 1991).

activities in which people will engage and decreases participation in other arenas. Applied to the global arena, this would suggest that turnout could decrease, rather than increase when countries experience economic growth. Testing this theory is the goal of this study.

Another aim of this project is to explain turnout from a global perspective. Many studies, even though they examine turnout over time, have focused on explaining declining turnout in the United States alone—ignoring the fact that turnout has declined in other parts of the world. Most international studies only pay attention to voter turnout in industrialized democracies. Another deficiency is that the studies that do include developing countries in their samples are still very selective in the countries that are sampled. The reasons for being selective are somewhat unclear.

This study takes the view of Blais and Dobrzynska who say that "[i]n our judgment...previous studies have not provided rigorous justification for their inclusion or exclusion of countries."³ "Clearly, if we wish to arrive at a comprehensive understanding of the sources of cross-national variations in turnout, we should look at as many cases as possible (see King, Keohane, and Verba 1994) and exploit the richness of data provided by the process of democratization."⁴ It is with Blais and Dobrzynska's insight in mind that this study made use of aggregate turnout rates for as many countries as possible to assess the factors influencing voter turnout. The number of countries examined in this study is 86.

³ André Blais and Agnieszka Dobrzynska, "Turnout in Electoral Democracies," *European Journal of Political Research 33* (1998): 239.

⁴ Blais and Dobrzynska, "Turnout in Electoral Democracies." *European Journal of Political Research 33* (1998): 240; Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research*. (Princeton, NJ: Princeton University Press, 1994).

Issues Addressed

Not only does this study attempt to resolve the conflict between what research suggests and what actual observations show, but many studies offer evidence to suggest that items other than economic conditions affect turnout. Spending on social welfare programs like health care and education and the level of political competition, for instance, have been offered as possible factors influencing voter turnout cross-nationally.⁵ As such, a number of additional questions are addressed in this study:

1) How do levels of economic development affect voter turnout?

2) What effect does spending on social welfare programs like health care and education have on voter turnout?

3) Is there a relationship between how industrially developed a country is and the rate of voter turnout?

4) Is voter turnout affected by how long a country's regime has lasted?

5) Does political system competitiveness positively or negatively affect voter turnout?

In addition to these political-economic questions there may be reason to believe that voter turnout will differ across countries at different levels of development or in different regions of the world. Less developed countries have often been the victims of colonization. Histories of colonization may have stifled economic development,⁶ not just

⁵ Jae-On Kim, John R. Petrocik, and Stephen N. Enokson, "Voter Turnout Among the American States," *The American Political Science Review 69* (1975): 107-123; Robert H. Blank, "Socio-economic Determinism of Voting Turnout: A Challenge," *The Journal of Politics 36* (1974): 731-752. James D. King, "Political Culture, Registration Laws and Voter Turnout among American States," *Publius 24* (1994): 115-127; G. Bingham Powell, Jr., "American Voter Turnout in Comparative Perspective," *The American Political Science Review 80* (1986): 17-43.

⁶ Theodore H. Cohn, *Global Political Economy: Theory and Practice*. 3rd ed. (New York: Pearson Education Inc., 2005). p. 14.

for countries, but for entire regions like Sub-Saharan Africa and Latin America. As such, other related issues taken into account in this study are:

7) Does the effect of economic growth on voter turnout vary at differing levels of economic development?

8) Does the effect of economic growth on voter turnout vary at differing levels of spending on social welfare programs like health care and education?

Hypotheses for each of these items are formulated in accordance with the theory of machine politics and are tested using operational measures and corresponding data that come from various data sources including the International Institute for Democracy and Electoral Assistance (IDEA), the World Bank, and the Polity IV Project.

Multiple regression analysis is used to conduct hypothesis testing. In addition to the main model, several alternative models are introduced and tested. These involve partitioning the data and grouping countries based on several characteristics. By grouping countries by world region, level of development, and membership in the Organization for Economic Cooperation and Development (OECD), this study provides evidence to suggest that many of the explanatory factors vary according to country-type with respect to the groups. In general, a mix of evidence results from this series of tests. Some evidence runs counter to the predictions made, while other evidence is supportive of the predictions made. Given some limitations to this study, however, such inconsistencies are to be expected.

Study Limitations

Initially this study was designed to examine turnout in approximately 180 countries from 1960 to 2002. Preliminary analyses were conducted, but produced a large number of dropped cases due to missing observations. The number of cases dropped was too severe to permit explaining voter turnout cross-nationally over time. In order to proceed with the project, a single year (2000) was picked to form a cross-sectional subset from the original time-series, cross sectional dataset. One limitation of this study is thus that it is not able to examine turnout over time. It simply provides a snapshot of how selected variables affect turnout.

Another limitation of this project is that it does not control for things like social movements that may affect turnout within countries. Studies incorporating time-series cross-section (TSCS) data are able control for these items through fixed-effects modeling in which dummy variables are created for each country. Again, however, this was not possible due to the number of missing cases that would have resulted.

Several other limitations come from using machine politics as a model for explaining turnout globally, which are explained at greater length in the next chapter. The first main limitation is that machine politics is described in the context of the United States, which means that events pertaining to voter turnout may not unfold in the same way internationally. The second main limitation is that machine politics have only been experienced at the local level. The concern of this study is turnout in national-level elections. This is essentially a units of analysis problem. The theory of machine politics may not readily explain national-level phenomena and resulting global trends. Finally, due to a lack of observations for many of the cases, data had to be imputed from other years in which data were collected for each country to boost the number of countries represented in the model. This is may be considered a weakness of this study, and is discussed at greater length in the third chapter of this work. However, this does not detract from the significance of the findings presented in this study since imputing data has been shown to be a useful and methodologically satisfactory procedure in handling cases with missing data.⁷

Significance of the Study

Democratic voting has been described by Fiorina as the fundamental political act.⁸ It goes without saying that there are serious implications if turnout is declining in established democracies. The main implication is that the leaders elected and the interests they represent are determined by a shrinking number of people, as Lijphart has so poignantly observed.⁹ System legitimacy is necessarily suspect if few people vote. Understanding the driving forces behind what appears to be a global turnout decline is of obvious importance.

As previously stated, most research on turnout does not attempt to study voter turnout from a global perspective. Scholarly understanding of this subject is severely limited to industrial democracies, and cannot necessarily be taken as a body of

⁷ Gary King, James Honaker, Anne Joseph, and Kenneth Scheve, "Analyzing Incomplete Political Science Data: An Alternative Algorithm for Multiple Imputation," *The American Political Science Review 95* (2001): 49-69; Roderick J. A. Little and Nathaniel Schenker, "Missing Data." In Gerhard Arminger, Clifford C. Clogg, and Michael E. Sobel (eds.), *Handbook of Statistical Modeling for the Social and Behavioral Sciences* (New York, NY, Plenum Press, 1995). pp. 59-69.

⁸ Morris Fiorina, "The Voting Decision: Instrumental and Expressive Aspects," *The Journal of Politics 38* (1976): 390.

⁹ Arend Lijphart, "Unequal Participation: Democracy's Unresolved Dilemma," *The American Political Science Review 91* (1997): 1-14.

knowledge about voter turnout as a universal concept. Voting is a feature common to all democracies. By identifying common factors affecting turnout from the literature, gathering data on as many countries as possible, and employing a quantitative approach, this study aims to further knowledge about the fundamental act of voting from a global perspective. In light of the fact that turnout has declined noticeably in a number of democracies—despite economic advances—now seems an opportune time to examine whether a set of common threads explain the phenomenon.

Study Organization

The study is divided into five chapters. This first chapter has discussed the general issues to be addressed, the limitations, and the significance of the study. Chapter Two presents the theoretical model for understanding how the hypotheses for testing were constructed. Chapter Two also reviews the array of literature that deals with the economic factors influencing voter participation as well as studies that consider the effects of other variables on voter turnout. The third chapter presents the methods employed for the study including the hypotheses, concepts, operational measures, data sources, and data treatment. The fourth chapter presents the results of analyzing the data for all of the models and additional information on the alternative models employing partitioned data. The final chapter draws conclusions from the results and makes recommendations for future study.

CHAPTER II. REVIEW OF RELEVANT LITERATURE

Introduction

Several states in the international system have displayed low voter turnout in recent national-level elections and referenda.¹⁰ Some states have simultaneously had large and/or growing economies while experiencing low turnout in national level elections including the United States, Japan, Canada, Israel, and the United Kingdom. National-level elections in the United States and most industrial democracies have

experienced declining turnout over time,¹¹ while markets have continued to expand and

the economy has continued to grow. Having a vibrant economy is certainly desirable for any

population, while "[t]he voting act is the fundamental political act in a democracy."¹²

Another point of tension is that high socioeconomic status, as indicated by the level of

income and educational attainment, has been shown to be positively correlated with voter

turnout,¹³ and is a feature of industrial democracies when compared to developing

¹⁰ Etta Prince Gibson, "A Duty- Not A Pleasure," *The Jerusalem Post*, January 31, 2003; Ruben Brosbe, "Anglo Voters Sound Off On Election Apathy," *The Jerusalem Post*, March 30, 2006; Amy Teibel, "As Economy Grows and Poverty Spreads, Many Miss the Old Egalitarian Ethos," *The Associated Press*, May 10, 2005, BC cycle; Unknown Author, "Low Voter Turnout in Poland Elections," *Deutsche Presse-Agentur*, September 25, 2005; Andrzej Stylinski, "Poles Endorse Constitution of Free Market and Democracy," *The Toronto Star*, May 26, 1997; Unknown Author, "Low Spanish Turnout Warning for Countries Facing EU Constitution Vote: Press," *Agence France Presse*, February 21, 2005; Yoshio Okubo, "Political Pulse: Low Voter Turnout Threatens Democracy," *The Daily Yomiuri*, June 12, 2004; Martin Walker, "Walker's World: When Will Blair Go?" *UPI*, May 4, 2006; Simon O'Rourke, "A Case of Democracy Inaction," *Waikato Times*, October 15, 2004; Henry Milner, "Of Winter Elections and Low Voter Turnout." *Timmins Daily Press*, December 31, 2005.

¹¹Ruy A. Teixeira, *Why Americans Don't Vote: Turnout Decline in the United States 1960-1984.* (Westport, CT: Greenwood Press Inc., 1987); Warren E. Miller, "The Puzzle Transformed: Explaining Declining Turnout," *Political Behavior 14* (1992): 1-43; Mark Gray and Miki Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," *Comparative Political Studies 33* (2000): 1091-1122; Arend Lijphart, "Unequal Participation: Democracy's Unresolved Dilemma," *The American Political Science Review 91* (1997): 1-14.

¹² Morris Fiorina, "The Voting Decision: Instrumental and Expressive Aspects," *The Journal of Politics 38* (1976): 390.

¹³ Arend Lijphart, "Unequal Participation: Democracy's Unresolved Dilemma," *The American Political Science Review 91* (1997): 1-14; John A Ferejohn and Morris P. Fiorina, "The Paradox of Not Voting: A

countries. The coupling of economic vitality with low voter turnout poses an intriguing question: does economic growth lead to low voter turnout? If this is so, then why are educational attainment and income levels positively correlated with turnout for individuals?

This work is an international study that aims to investigate the nature of the relationship between economic growth and voter turnout in the global political-economic system through a quantitative approach. The overall prediction of this study is that as economic conditions improve voter turnout will decline. Conversely, adverse economic conditions will stimulate turnout.

Several different categories of studies exist on this topic. This literature review will assess early studies that established a link between personal income and individuallevel turnout. Also reviewed will be studies that primarily focus on institutional factors using aggregate-level data, and studies that examine both individual and aggregate level data. Distinctions will be made between studies that focus on explaining voter turnout in the United States versus those that explain turnout from an international perspective. The final categories that distinguish studies from each other are those that support three general propositions that differ in explaining voter turnout, which are the mobilization thesis, the withdrawal thesis, and the no effect thesis. Taken together, these studies offer an array of vantage points and approaches to explaining voter turnout. The chapter concludes with a detailed look at theory developed to explain the rise and fall of machine politics in the United States and how it can be applied to trends in voter turnout.

Theoretic Decision Analysis," *The American Political Science Review* 62 (1974): 525-536; Michael S. Lewis-Beck and Brad Lockerbie, "Economics, Votes, Protests: Western European Cases," *Comparative Political Studies* 22 (1989): 156-157; Ronald Inglehart, *Culture Shift in Advanced Industrial Society*. (Princeton, NJ: Princeton University Press, 1990). p. 343.

Voter Rationality and the Puzzle of Economic Growth

Early studies on the turnout decision were grounded in rational choice theory that reduced the voting act to a series of subjective calculations in which individuals weighed the economic and/or psychological costs of voting against expected benefits. The utilitarian approach of these studies comes with an obvious prediction set. Individuals vote when the perceived benefits of undertaking the act outweigh the perceived costs.¹⁴

Ferejohn and Fiorina show how determinations of what is rational and irrational are ambiguous. They make a crucial distinction between individuals who adopt minimax strategies and those who adopt maximin strategies with regard to voting or abstaining. Ferejohn and Fiorina illustrate that those who use a minimax strategy wish to minimize the possibility of someone being elected to office that they would rather not have. Thus they are more likely to vote. On the other hand, maximin thinkers are less likely to vote because they feel that the probability of their individual vote affecting the outcome of an election is minimal.¹⁵ Ferejohn and Fiorina relate these ways of thinking to the socioeconomic status of individual voters by saying:

Maximin decision makers never vote. Aren't the poor and the culturally deprived more likely to be maximin decision makers than the rich and educated? Only utility maximizers ever vote for their second choice. Isn't it rather more likely that both such sophisticated behavior and use of the most demanding rationality criterion would be concentrated among the well educated?¹⁶

¹⁴ Anthony Downs, An Economic Theory of Democracy. (New York, NY: Harper & Row, 1957); Gordon Tullock, Toward a Mathematics of Politics. (Ann Arbor, Michigan: University of Michigan Press, 1967); William H. Riker and Peter C. Odreshook, "A Theory of the Calculus of Voting," The American Political Science Review 62 (1968): 25-42; John A Ferejohn and Morris P. Fiorina, "The Paradox of Not Voting: A Theoretic Decision Analysis," The American Political Science Review 62 (1974): 525-536; Morris P. Fiorina, "The Voting Decision: Instrumental and Expressive Aspects," The Journal of Politics 38 (1976): 390-413.

¹⁵ Ferejohn and Fiorina, "The Paradox of Not Voting: A Theoretic Decision Analysis." (1974): 535.

¹⁶ Ibid. p. 535.

Ferejohn and Fiorina's observation is not without merit. Poor and working class people with less education are likely to be more concerned with satisfying immediate and basic needs like having food and shelter than wealthier and/or better educated people who are more likely to have those needs met along with having greater access to superior resources to meet those needs. Furthermore, wealthy people and/or people with more education are more likely to be in a position that allows or even encourages voting than poor and working class people who have more stringent work requirements that may prevent them from voting.

Numerous turnout studies using individual level data suggest that wealthier and better educated individuals are more likely to vote, corroborating rational choice theory's prediction.¹⁷ Conway and Hill and Verba, Schlozman, and Brady examined data from survey question responses from differing sources and have found significantly higher rates of turnout among people with higher incomes and higher levels of educational attainment.

Yet, industrialized democracies have experienced declining turnout as their economies have grown and prospered. Journalistic and academic accounts have shown that turnout is declining in industrialized countries.¹⁸ For instance, Gray and Caul's

¹⁷ Sidney Verba, Kay Lehman Scholzman, and Henry E. Brady, *Voice and Equality: Civic Voluntarism in American Politics*. (Cambridge, Mass: Harvard University Press, 1995); Lester Milbrath and M. L. Goel, *Political Participation: How and Why People Get Involved in Politics*. (Chicago, IL: Rand McNally, 1977); M. Margaret Conway, *Political Participation in the United States*. (Washington D.C.: Congressional Quarterly Press, 1991); David Hill, *American Voter Turnout: An Institutional Perspective*. (Boulder, CO: Westview Press, 2006).

¹⁸ Etta Prince Gibson, "A Duty- Not A Pleasure," *The Jerusalem Post*, January 31, 2003; Ruben Brosbe, "Anglo Voters Sound Off On Election Apathy," *The Jerusalem Post*, March 30, 2006; Amy Teibel, "As Economy Grows and Poverty Spreads, Many Miss the Old Egalitarian Ethos," *The Associated Press*, May 10, 2005, BC cycle; Unknown Author, "Low Voter Turnout in Poland Elections," *Deutsche Presse-Agentur*, September 25, 2005; Andrzej Stylinski, "Poles Endorse Constitution of Free Market and Democracy," *The Toronto Star*, May 26, 1997; Unknown Author, "Low Spanish Turnout Warning for Countries Facing EU Constitution Vote: Press," *Agence France Presse*, February 21, 2005; Yoshio Okubo, "Political Pulse: Low Voter Turnout Threatens Democracy," *The Daily Yomiuri*, June 12, 2004; Martin

analysis of turnout in advanced industrial democracies from 1950 to 1997 shows overall declining turnout in these countries.¹⁹ Although they are not primarily interested in the economic correlates of turnout decline, it is striking that their data indeed shows no relationship between changes in macroeconomic conditions and changes in turnout rates.

Initial studies by Arcelus and Meltzer and Fiorina used time-series aggregate and survey data, respectively, to look at the effect of economic conditions on turnout. Both studies examined congressional elections in the United States and turned up minimal and statistically non-significant findings at best.²⁰ Using a dichotomous dependent variable of "vote, not vote," Fiorina explains that most of the coefficients were not statistically significant and none of those that achieved significance had consistent signs over time.²¹ As we will see in the next section, null results did not prevent further theorizing about or investigation into this subject.

Differing Propositions

As attention to early studies grew, three contending views emerged pertaining to the effect of poor economic conditions on voter turnout. Rosenstone was one of the first to deal effectively with these competing theories, which he called "mobilization,"

Walker, "Walker's World: When Will Blair Go?" *UPI*, May 4, 2006; Simon O'Rourke, "A Case of Democracy Inaction," *Waikato Times*, October 15, 2004; Henry Milner, "Of Winter Elections and Low Voter Turnout." *Timmins Daily Press*, December 31, 2005.Gray and Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," (2000): 1092-1096.

¹⁹ The countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and the United States.

²⁰ Francisco Arcelus and Allan H. Meltzer, "The Effect of Aggregate Economic Variables on Congressional Elections," *The American Political Science Review 69* (1975): 1232-1239; Morris P. Fiorina, "Economic Retrospective Voting in American National Elections: A Micro-Analysis," *American Journal of Political Science 22* (1978): 426-443.

²¹ Fiorina, "Economic Retrospective Voting in American National Elections: A Micro-Analysis," (1978): 426-443.

"withdrawal," and a no effect thesis.²² The mobilization thesis states that economic adversity will spur voter turnout because voters will hold government responsible for poor economic conditions and will seek to hold them accountable by ejecting them from office. The mobilization thesis is consistent with the relationship predicted in this study, but the principal hypothesis predicts that economic growth will lead to decreased voter turnout.

The withdrawal thesis predicts that turnout will decline in periods of poor economic conditions (or individuals' personal perceptions thereof) because voters will be more worried about their personal financial situations and will thus conserve the resources that it takes to vote. In the words of Rosenstone "Thus, when a person experiences economic adversity his scarce resources are spent on holding body and soul together—surviving—not on remote concerns like politics."²³ The final view contends that economic adversity has no effect on voter turnout for various reasons. It could be that people are not looking for a political solution for economic problems they view as personal. Alternatively, poverty and/or unemployment may not produce enough strain to mobilize people to vote.²⁴

Support for each theory can be found in the scholarly literature. While much of the existing evidence favors the withdrawal thesis,²⁵ a hefty portion of the literature

²² Steven J. Rosenstone, "Economic Adversity and Voter Turnout," *American Journal of Political Science* 26 (1982): 25-46.

²³ Ibid. p. 26.

²⁴ Ibid.

²⁵ Steven J. Rosenstone, "Economic Adversity and Voter Turnout," *American Journal of Political Science* 26 (1982): 25-46; Gregory A. Caldeira, Samuel C. Patterson, and Gregory A. Markko, "The Mobilization of Voters in Congressional Elections," *The Journal of Politics* 47 (1985): 490-509; Raymond E. Wolfinger and Steven J. Rosenstone, *Who Votes*? (New Haven, CT: Yale University Press, 1980).

rejects any relationship between economic conditions and voter participation,²⁶ and yet other articles, particularly those by Southwell and Arceneaux, present support for the mobilization thesis.²⁷ These are all studies on turnout in the United States, however. Lewis-Beck and Lockerbie deviate from these studies by looking at Western European turnout as opposed to turn out in the United States. By examining Euro-barometer survey data they show that turnout in Britain, France, Germany, and Italy increases when people perceive that their personal financial situation will improve over the next year. However, they also show that citizens of these countries would not be any less likely to vote if they have experienced adverse economic conditions in the past.²⁸ Lewis-Beck and Lockerbie state that Western European citizens "manifest, then, a propensity to 'reward' government by voting, but exhibit no propensity to 'punish' by nonvoting."²⁹

This study differs from all of the studies that use survey data because it explores the theses using aggregate data. Each thesis can naturally be extended to the aggregate level. For instance, at the aggregate level, the mobilization thesis would predict that countries with poor economic conditions or low growth will exhibit higher rates of voter

²⁶ Francisco Arcelus and Allan H. Meltzer, "The Effect of Aggregate Economic Variables on Congressional Elections," *The American Political Science Review* 69 (1975): 1232-1239; Morris P. Fiorina, "Economic Retrospective Voting in American National Elections: A Micro-Analysis," *American Journal of Political Science* 22 (1978): 426-443; M. Margaret Conway, "Political Participation in Midterm Congressional Elections: Attitudinal and Social Characteristics During the 1970's," *American Politics Quarterly* 9 (1981): 221-244; Donald R. Kinder and D. Roderick Kiewiet, "Economic Discontent and Political Behavior: The Role of Personal Grievances and Collective Economic Judgments in Congressional Voting," *American Journal of Political Science* 23 (1979): 495-527.

²⁷ Priscilla L. Southwell, "The Mobilization Hypothesis and Voter Turnout in Congressional Elections, 1974-1982," *The Western Political Quarterly 41* (1988): 273-287; Kevin Arceneaux, "The Conditional Impact of Blame Attribution on the Relationship between Economic Adversity and Turnout," *Political Research Quarterly 56* (2003): 67-75; Priscilla L Southwell, "Economic Salience and Differential Abstention in Presidential Elections," *American Politics Quarterly 24* (1996): 221-236; James W. Endersby, Stephen E. Galatas, and Chapman B. Rackaway, "Closeness Counts in Canada: Voter Participation in the 1993 and 1997 Federal Elections," *The Journal of Politics 64* (2002): 610-631.

²⁸ Michael S. Lewis-Beck and Brad Lockerbie, "Economics, Votes, Protests: Western European Cases," *Comparative Political Studies* 22 (1989): 155-177.

²⁹ Ibid. 165.

turnout. That is, aggregate turnout data should reflect lower rates when the state of the macro-economy is improving and higher rates when it is doing poorly.

Studies using aggregate data have tended to focus on a different non-economic set of predictors. Factors like institutions and political culture have been shown to be significant predictors of turnout. The next section assesses studies that focus on institutional and political-cultural factors.

Studies with Other Emphases

Some work ignores the effect of economic conditions altogether in favor of political, contextual, and institutional explanations. For instance, several examinations use time-series data to explain declining voter participation in the United States. They reveal that intergenerational changes in political attitudes, declining efficacy, increased education, social phenomena like the Civil Rights Movement, geographic mobility, decreased social connectedness, class struggles, and events such as the Vietnam War and Watergate are all possible causes of turnout decline.³⁰ Institutional factors such as electoral district competition, voter registration requirements, compulsory voting, and weak relationships between social groups and political parties come into play not only

³⁰ Howard L. Reiter, "Why Is Turnout Down?" Public Opinion Quarterly 43 (1979): 297-311; Robert D. Putnam, Bowling Alone: The Collapse and Revival of American Community. (New York: Simon & Schuster, 2000); Warren E. Miller, "The Puzzle Transformed: Explaining Declining Turnout," Political Behavior 14 (1992): 1-43; Ruy A. Teixeira, Why Americans Don't Vote: Turnout Decline in the United States 1960-1984. (Westport, CT: Greenwood Press Inc., 1987); Steven J. Rosenstone and John Mark Hansen, Mobilization, Participation, and Democracy in America. In Series New Topics in Politics. (New York: Macmillan Publishing Company, 1993); Bill Winders, "The Roller Coaster of Class Conflict: Class Segments, Mass Mobilization, and Voter Turnout in the U.S., 1840-1996," Social Forces 77 (1999): 833-862.

within the American political system,³¹ but when the United States is compared to other states as well.³²

A number of comparative studies also focus on institutional and cultural factors to explain turnout.³³ Noteworthy studies by both Powell and Jackman have set the stage for how recent research has been conducted in this realm.³⁴ Both present solid evidence suggesting that institutional factors such as compulsory voting, the party system, registration laws, and the competitiveness of electoral districts influence turnout rates. In Powell's study, attitudes concerning interest in politics and efficacy are also advanced to explain much of the variation in voter turnout between states. In particular, cultural characteristics can encourage voter participation, but in cases like the United States system characteristics like registration laws and unequally competitive electoral districts create disincentives and inhibit turnout.³⁵

To elaborate, Powell finds that "voluntary registration, unevenly competitive electoral districts and very weak linkages (perceptual and organizational) between parties and social groups" suppress turnout and dampen the effect of political cultural characteristics such as efficacy, trust in government, and interest in politics that would

³¹ Jae-On Kim, John R. Petrocik, and Stephen N. Enokson, "Voter Turnout Among the American States." *The American Political Science Review* 69 (1975): 107-123; Robert H. Blank, "Socio-economic

Determinism of Voting Turnout: A Challenge." *The Journal of Politics 36* (1974): 731-752. James D. King, "Political Culture, Registration Laws and Voter Turnout among American States," *Publius 24* (1994): 115-127.

³² G. Bingham Powell, Jr., "American Voter Turnout in Comparative Perspective," *The American Political Science Review* 80 (1986): 17-43.

³³ Robert W. Jackman and Ross A. Miller, "Voter Turnout in the Industrial Democracies During the 1980's," *Comparative Political Studies* 27 (1995): 467-492; Lewis-Beck and Lockerbie, "Economics, Votes, Protests: Western European Cases," (1989): 155-177; Gray and Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," (2000): 1091-1122; Robert W. Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," *The American Political Science Review* 81 (1987): 405-424.

³⁴ Powell Jr., "American Voter Turnout in Comparative Perspective," (1986): 17-43; Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," (1987): 405-424.

³⁵ Powell Jr., "American Voter Turnout in Comparative Perspective," (1986): 17-43; Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," (1987): 405-424.

normally promote turnout.³⁶ Jackman and Jackman and Miller also provide evidence opposed to the argument that political cultural values play a significant role in turnout rates in countries.³⁷ Almond and Verba by comparison look at survey data on whether respondents felt that people should vote (not actual turnout rates) in the United States., the United Kingdom, Germany, Italy, and Mexico.³⁸ In contrast to Powell, Jackman, and Jackman and Miller, Almond and Verba argue that if individuals do not possess norms of participation and do not perceive that they have the ability to participate, institutional changes that increase the ease and ability to participate will do nothing to enhance turnout.³⁹ Several other studies, however, corroborate the theory that institutions are more important than culture in explaining turnout.⁴⁰

Even though Gray and Caul provide results to buttress the argument for the effect of institutions on turnout, they find that groups that traditionally have played the role of organizing and mobilizing people to vote in industrial democracies (namely labor parties and labor unions) have been waning. The effect has been incremental decreases in turnout and a reduction in the power of institutional factors to explain turnout.⁴¹

³⁶ Powell Jr., "American Voter Turnout in Comparative Perspective," (1986): 19, 26.

³⁷ Powell Jr., "American Voter Turnout in Comparative Perspective," (1986): 17-43; Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," (1987): 405-424; Jackman and Miller, "Voter Turnout in the Industrial Democracies During the 1980's," (1997): 467-492;

³⁸ Gabriel A. Almond and Sidney Verba, *The Civic Culture: Political Attitudes and Democracy in Five Nations*. (Newbury Park, CA: Sage Publications, 1989).

³⁹ Almond and Verba, *The Civic Culture*. (1989). p. 135.

⁴⁰ Robert W. Jackman and Ross A. Miller, "Voter Turnout in the Industrial Democracies During the 1980's," *Comparative Political Studies* 27 (1997): 467-492; Henry Milner, "Electoral Systems, Integrated Institutions and Turnout in Local and National Election: Canada in Comparative Analysis," *Canadian Journal of Political Science* 30 (1997): 89-106; Steven J. Rosenstone and John Mark Hansen, *Mobilization, Participation, and Democracy in America.* In Series *New Topics in Politics.* (New York: Macmillan Publishing Company, 1993); André Blais and Agnieszka Dobrzynska, "Turnout in Electoral Democracies." *European Journal of Political Research* 33: (1998) 239-261.

⁴¹ Gray and Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," (2000): 1091-1122. Lewis-Beck and Lockerbie feel much more negatively about the ability of institutions to explain differences in turnout within countries in "Economics, Votes, Protests: Western European Cases," (1989): 156.

The debate between institutions and culture is likely to continue but there are problems with the studies mentioned. The first issue is the representativeness of the samples. Gray and Caul, Powell, Jackman, and Jackman and Miller only examine turnout in industrial democracies, while Almond and Verba only examine the United States, Great Britain, Italy, Germany, and Mexico.⁴² In addition, none of the studies mentioned, other than Gray and Caul's, account for the effect of economic conditions. It could be that the effects of both institutional and cultural factors are modified when economic factors are taken into account. In short, the case for culture and/or institutions may be overstated since economic conditions are not controlled. So what are the effects of economic conditions on turnout?

The Effect of the Economic Conditions

A different group of comparative studies places more emphasis on economic explanations of turnout. While studies vary with regard to economic measures used, Radcliff's test of aggregate data finds a positive relationship between adverse economic conditions and voter turnout in industrialized countries while Pacek and Radcliff's studies show a negative relationship in developing countries.⁴³ More simply, for developing countries, the mobilization thesis is supported, but in industrialized countries the withdrawal thesis is supported. Gray and Caul, however, analyzed pooled, aggregate data from 18 industrial democracies in elections from 1950 to 1997, and found no

⁴² Powell Jr., "American Voter Turnout in Comparative Perspective," (1986): 17-43; Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," (1987): 405-424; Jackman and Miller, "Voter Turnout in the Industrial Democracies During the 1980's," (1997): 467-492.

⁴³ Alexander C. Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe," *American Journal of Political Science 38* (1994): 723-744; Benjamin Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," *The American Political Science Review 86* (1992): 444-454.

significant relationship between changes in macroeconomic conditions and changes in turnout rates.⁴⁴

Other research that tests individual-level (survey) data cross-nationally in industrialized countries comes to different conclusions. Lewis-Beck and Lockerbie's study of economic conditions on voter turnout using survey data confirms a special hybrid of the mobilization thesis called "cognitive" mobilization in which voters anticipate the economy's performance in the next year and turn out accordingly. Again, they find that when individuals in Western Europe think that their personal financial/economic conditions will improve over the next year, they are more likely to participate by voting.⁴⁵ Inglehart also finds a positive relationship between economic development measured by gross national product per capita and political participation as measured by survey responses to a question asking the frequency with which people engage in discussions of politics.⁴⁶ Both Lewis-Beck and Lockerbie's and Inglehart's research lend support for the cognitive mobilization thesis and their studies are heavily cited in other turnout literature as well. The flaw of the Lewis-Beck and Lockerbie and Inglehart studies is that neither one uses an actual measure of voter turnout. Inglehart's is less appropriate in predicting turnout as his dependent measure refers to political discussion. In addition, these studies only look at industrialized countries, limiting their utility in explaining voter turnout globally.

It is obvious by now that researchers have spent less time explaining voter turnout in peripheral and semi-peripheral states and more on industrialized countries. Those that

⁴⁴ Gray and Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," (2000): 1091-1122.

⁴⁵ Lewis-Beck and Lockerbie, "Economics Votes Protests: Western European Cases," (1989): 155-177.

⁴⁶ Ronald Inglehart, *Culture Shift in Advanced Industrial Society*. (Princeton, NJ: Princeton University Press, 1990). p. 343.

rely on individual-level data such as Almond and Verba, Lewis Beck and Lockerbie, and Inglehart do not deal directly with voter turnout even though their research is mentioned frequently in other studies. There are exceptions, however.

A handful of social scientists have either sought to be less selective in which country's elections they have included in their dataset or have decided to examine turnout in more or less developing countries.⁴⁷ Two crucial distinctions are brought to light in Radcliff's 1992 study, the first being differences between industrialized and developing countries mentioned earlier. Better economic conditions in developing countries boost turnout. The second important contribution is that countries with marginal welfare systems (as defined by lower spending on social welfare programs) have decreased turnout during times of economic adversity. In countries with greater contributions to social welfare systems, economic adversity has little to no effect on turnout.⁴⁸ Hobolt and Klemmensen have extended Radcliff's findings to show a direct relationship between governments' commitment to greater welfare spending and turnout rates.⁴⁹ Hobolt and Klemmensen find that greater welfare spending offsets the suppressive effect of adverse economic conditions by alleviating income inequalities and increasing education levels to produce

⁴⁷Sara Binzer Hobolt and Robert Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006); André Blais and Agnieszka Dobrzynska, "Turnout in Electoral Democracies." *European Journal of Political Research 33* (1998): 239-261; Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe," (1994): 723-744; Radcliff,

[&]quot;The Welfare State, Turnout, and the Economy: A Comparative Analysis," (1992): 444-454.

⁴⁸ Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," (1992): 444-454.

⁴⁹ Sara Binzer Hobolt and Robert Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006).

higher turnout.⁵⁰ The problem with Pacek's, Radcliff's, and Hobolt and Klemmensen's studies is that they too have analyzed turnout from a limited number of countries.

Specifically, Pacek looked at a total of four national level elections in Poland (one presidential and one legislative), Bulgaria, and Czechoslovakia, all of which took place in the years immediately after the collapse of the Soviet Union (1990-1992).⁵¹ Radcliff examined legislative elections from 1960 to 1987 in twenty-nine countries except those that had strong presidential, non-parliamentary systems.⁵² Finally, Hobolt and Klemmensen analyzed 58 democratic elections in 34 countries from several world regions, even though not all 58 were represented in the final analysis due to missing observations.⁵³ These features suggest that the samples in these studies may not be very representative of voter turnout on a global scale. Blais and Dobrzynska's study, by comparison, is the most expansive as they analyzed 324 elections in 91 different countries between 1972 and 1995 and found that "Turnout is likely to be highest in a small industrialized, densely populated country, where the national lower house election is decisive, voting is compulsory and the voting age is 21, having a PR (proportional representation) system with relatively few parties and a close electoral outcome."54 These results suggest that economic and institutional factors all play a role in affecting turnout.

Given the problems of the studies presented thus far, this thesis advances the mobilization thesis in an attempt to understand voter turnout globally. The theoretical

 ⁵⁰ Ibid. p. 21.
⁵¹ Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe," (1994): pp. 727, 732.
⁵¹ Pacek, "La contract and the Economy: A Comparative Analysis," (1992): pp. 445, 452.

⁵³ Hobolt and Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006). p. 12.

⁵⁴ Blais and Dobrzynska, "Turnout in Electoral Democracies." (1998): 240, 251.

foundation for this is elaborated in the next section. First we must understand what can be made of the literature. The majority of research focuses on industrialized democracies, while the amount of attention paid to economically underdeveloped democracies is disproportionately smaller. Only Blais and Dobrzynska's study is comprehensive enough to provide a sense of what predicts turnout globally. Certainly more research is needed to fill this void.

Perhaps most importantly, there is a well-established link between individual resources and turnout. Wealthy, well-educated people are more likely to vote than low-income, less educated people. This link has been repeatedly established in studies using individual level data. Extending this link to the aggregate level, we should find that industrialized countries have higher turnout rates than developing countries. Yet, this is decidedly not the case. This puzzle has not been effectively dealt with by researchers. The next section aims to present an alternative conceptualization of the mobilization hypothesis by drawing on the machine politics of yesteryear as a global explanation for the paradoxical trends just mentioned and overall turnout.

Political Machines: A Conceptual Microcosm for Shifts in System Dependence

The mobilization thesis states that under adverse economic conditions, citizens will hold government accountable and turn out to punish incumbents. If the mobilization thesis is correct, then citizens are less likely to turn out under favorable economic conditions. As a logical extension of the mobilization thesis, people become less involved with and less dependent on their political systems as economic systems develop and expand over time because people rely more on the economic system to fulfill needs like working for personal achievement and working to make sure basic needs are met. The inverse of the mobilization thesis means that voter participation will decrease in industrialized democracies. What phenomena can explain this outcome?

One powerful trend in the global system today is an increased interconnection between individuals, organizations, and states in the international system, otherwise known as globalization. Increased interconnection is being channeled largely through advancements in communications and transportation. These advancements intensify the use of economic structures and activities like international financial markets and their regimes, global supply/commodity chains, international trade in goods and services, and outsourcing.⁵⁵ Given this broad interpretation, it is plausible that globalization is a phenomenon that fundamentally changes how people provide for themselves and undermines citizen reliance on government the world over. International political economists have made claims that are consistent with the ones made here pertaining to the effect of globalization. The arguments of Ohmae and van Creveld have special bearing on the rationale of this study. They have pointed out that market forces through rapid technological change and pervasive international financial regimes have assumed the power of many decision-making roles that have been traditionally occupied by states, thereby undermining the political authority of sovereign states.⁵⁶ In effect, the international economy, via globalization, is eroding the role of the state domestically and internationally. An international trend of this magnitude coupled with declining turnout

⁵⁵ Steve Smith and John Baylis, "Introduction," *The Globalization of World Politics: An Introduction to International Relations*. 3rd ed. (New York, NY: Oxford University Press, 2005). pp. 8-10.

⁵⁶ Kenichi Ohmae, "The End of the Nation State." In Frank J. Lechner and John Boli (eds.) *The Globalization Reader*, 2nd ed. (Malden, MA: Blackwell Publishing, 2004). pp. 214-218; Martin Van Creveld, "The Fate of the State." In Mark Kesselman (ed.) *The Politics of Globalization: A Reader*. (New York: Houghton Mifflin Company, 2007). pp. 216-228.

summons researchers to explore whether or not fostering growth and participation in the global economic system inhibits the vitality of the domestic political system. The case of the United States' machine politics illustrates increased economic participation coinciding with decreased voter participation.

Political machines in the United States from the late 1800's to the mid 1900's and subsequent political reforms during a period of rapid industrialization serve as the microcosm of what could be occurring globally. Robert K. Merton's analysis of political machines in "Latent Functions of the Machine: A Sociologist's View" demonstrates how diverse social subgroups including ordinary individuals, immigrants, disenfranchised citizens, lower class poor people, and even leading members of business communities in largely urban environments depended on political machines for several reasons.⁵⁷

Foodbaskets and jobs, legal and extra-legal advice, setting rights to minor scrapes with the law, helping the bright poor boy to a political scholarship in a local college, looking after the bereaved—the whole range of crises when a feller needs a friend, and, above all, a friend who knows the score and can do something about it,--all these find the ever-helpful precinct captain available in the pinch.⁵⁸

Machine bosses served business interests by playing the role of ombudsman to smooth over the rival interests between them and the public. What is more, the machine was a channel through which socially underprivileged people could gain access to higher status occupations and better pay.⁵⁹ Political machines, in other words, were a source of upward social mobility for citizens who had been adversely affected by social and economic stratification in the American socioeconomic system. In exchange for goods,

⁵⁷ Robert K. Merton, "Latent Functions of the Machine: A Sociologists View," *Social Theory and Social Structure*. Revised Edition. (Glencoe, IL: The Free Press, 1957). pp. 71-82.

⁵⁸ Ibid, p. 74.

⁵⁹ Ibid, pp. 75-77.

services, and opportunities, citizens gave political support to bosses and precinct captains in the form of voting.

However, reformers in the late 19th century felt that these practices were corrupt and began a movement that sought to minimize *quid pro quo* corruption at all levels of American government. Ross and Levine cite several changes that the reform movement successfully implemented. One major change occurred at the local level in which the structure of local elections was transformed from wards or districts to at large elections. Second, the Pendleton Act of 1883 and civil service reform mandated hiring people based on merit, which drastically reduced the number of higher status government occupations that went to underprivileged, less educated people. The final and most pertinent change came in the form of voter registration requirements that ultimately impeded voter turnout in local elections. Voter turnout reduction appears even more profound when elections in reformed cities are compared to others like Chicago and New York where machines were still prominent and turnout remained high.⁶⁰

Furthermore, the severe restraints placed on the distribution of goods, services, and opportunities through reforms forced people to find other ways to satisfy their needs. Citizens who once relied on political machines had to rely more exclusively on the economic system. This resulted in a shift from dependence on the political system to dependence on the economic system.

James E. Rauch provides evidence that corroborates a shift in system dependence. His study shows that municipal reform during the Progressive Era facilitated greater investment in infrastructure so as to promote long-term economic growth. Rauch shows

⁶⁰ Bernard H. Ross and Myron A. Levine, "Reform Politics," *Urban Politics: Power in Metropolitan America*. 6th ed. (Itasca, IL: F. E. Peacock, 2001). pp. 159-193.

that manufacturing growth employment rates from 1899 through 1929 in 144 American cities were responsible for much of the decline in machine politics.⁶¹ Rauch's evidence certainly suggests greater dependence on the economic system at the local level during the reform period. At the same time, political machines and the associated benefits given to average citizens were being extracted from local political landscapes along with their promotion of political participation and voting activities.

Machine politics is a simple, well-studied illustration of what may be occurring internationally. That is, it shows how voter turnout decline can result when a transition occurs from population participation in the political system to participation in the economic system to meet basic needs like food and jobs. A reasonable expectation to be drawn from this understanding is that economic growth leads to decreased voter turnout in national elections.

Even though the topic of machine politics seems an appropriate metaphor for exploring and describing how shifts in system dependency may occur, there are several problems with applying it globally. First, machine politics has been shown strictly in the historical context of the United States and its uniqueness may not be easily transferred to understanding global trends and shifts in system dependence. Second, machine politics is a local level, sub-state phenomenon.

Since this is an international study, the units of analysis are national-level lower house elections, not ward, district, or at-large city elections. A difference in the units of analysis could potentially misrepresent or not fully capture international trends. Furthermore, the effect of economic growth on voter turnout may not be the same for all

⁶¹ James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cites During the Progressive Era," *The American Economic Review*, 85 (1995): 968-979.

countries due to differing levels of development just like there may have been differences in turnout rates for non-industrialized rural and industrialized urban communities. For instance, the effect of economic growth may be positively related to turn out in more developed economies, but the effect in less developed economies may not be as large or there may be a negative relationship between economic growth and voter turnout as Radcliff found.⁶² The same variation may occur with respect to different social welfare systems.⁶³ The next chapter presents the techniques used to control for these variations.⁶⁴

The final problem with applying machine politics theory to contemporary global turnout is that the catalysts for shifts in system dependence are different. The reform movement during the Progressive Era produced change at the local level in the United States, while globalization is triggering economic system dependence at the global level. These two stimuli are qualitatively and functionally different. The reform movement was a deliberate effort on the part of reformers to prevent the political system from giving people access to and distributing goods, services, and opportunities for development. Globalization is the result of a far more complex set of factors initiated by a set of interdependent actors representing an array of different interests.

Globalization is not as overt as the Progressive era reform movement. Globalization is more integrated into how people, organizations, and states operate everyday and less distinct than any single intentional attempt to prevent certain behaviors. In fact, globalization induces economic system dependence by promoting, reinforcing, and spreading behaviors congruent with the principles of profit maximization

⁶² Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," (1992): pp. 445, 452.

⁶³ Ibid.

⁶⁴ Refer to section called "Interaction Terms" in the second chapter entitled "Methods Employed for Exploration."

and business efficiency. These limitations notwithstanding, the theory is compelling and warrants investigation. Indeed, it is this alternative conceptualization on which this study proceeds.

Conclusion

In this chapter we have seen that there is an abundance of literature that attempts to explain voter turnout. Three competing theories known as the mobilization thesis, the withdrawal thesis, and the no-relationship thesis all find some support in the literature. Some studies emphasize the use of rational choice theory, while research looking at the effect of institutions is at odds with research stressing the effect of national political culture on turnout. Furthermore, the overwhelming majority of studies that look at turnout only attempt to explain it in industrialized democracies. The handful of studies that incorporate developing countries into their analyses still have a limited number of countries represented in their sample with Blais and Dobrzynska and Hobolt and Klemmensen's studies being the most inclusive.⁶⁵

We have also seen that nothing has really been done to explain how turnout can be decreasing in industrialized democracies when wealthy, better educated people tend to exhibit higher rates of voter turnout at the individual level. Machine politics in the United States—despite its shortcomings—is a potentially valuable tool for explaining this puzzle because it shows that voter turnout can decrease when people trade political means to acquire things like food, jobs and education opportunities with economic means. In order to explore this topic further, the next chapter specifies the hypotheses,

⁶⁵ Blais and Dobrzynska, "Turnout in Electoral Democracies." (1998): 239-261; Hobolt and Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006).

data sources, operational measures, data treatment and data manipulation techniques employed in this study.
CHAPTER III. METHODS EMPLOYED FOR EXPLORATION

Numerous studies clearly demonstrate that turnout is higher among wealthy individuals or individuals in industrialized democracies.⁶⁶ Yet, paradoxically, turnout has declined in advanced, industrialized democracies.⁶⁷ The theory of machine politics presented in Chapter 2 may provide a solution to this puzzle. The erosion of machine politics through the reform movement illustrates that people became less dependent on local government to fulfill their needs. Simultaneously, economic growth through private investment and employment in private industry increased at the same time.⁶⁸

A phenomenon in the international system that parallels the theory of machine politics and the subsequent reform movement is globalization, which the present study theorizes to be the culprit for declining turnout in industrial democracies. To elaborate, globalization is increasing the interconnection between people in the global economy through technological advancements in communications and transportation to distribute wealth, goods, and services. The result is that industrial democracies play a central role in globalization. They are also the beneficiaries of and sources for many of the advancements that increase interconnection. As a result, people participate less in their

⁶⁶ Arend Lijphart, "Unequal Participation: Democracy's Unresolved Dilemma," *The American Political Science Review 91* (1997): 1-14; John A Ferejohn and Morris P. Fiorina, "The Paradox of Not Voting: A Theoretic Decision Analysis," *The American Political Science Review 62* (1974): 525-536; Michael S. Lewis-Beck and Brad Lockerbie, "Economics, Votes, Protests: Western European Cases," *Comparative Political Studies 22* (1989): 156-157; Ronald Inglehart, *Culture Shift in Advanced Industrial Society.* (Princeton, NJ: Princeton University Press, 1990). p. 343.

 ⁶⁷ Mark Gray and Miki Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," *Comparative Political Studies 33* (2000): 1091-1122.
⁶⁸ Robert K. Merton, "Latent Functions of the Machine: A Sociologists View," *Social Theory and Social*

Structure. Revised Edition. (Glencoe, IL: The Free Press, 1957). pp. 71-82; Bernard H. Ross and Myron A. Levine, "Reform Politics," *Urban Politics: Power in Metropolitan America*. 6th ed. (Itasca, IL: F. E. Peacock, 2001). pp. 159-193; James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cites During the Progressive Era," *The American Economic Review*, 85 (1995): 968-979.

domestic political systems and more in their economic systems because the economy is the source of providing goods and services to satisfy needs and wants. Voting being a fundamental political act in a democracy is bound to decrease in the wake of globalization. Thinking about the paradox above in light of the theory of machine politics leads to the general hypothesis under investigation which is: Lower voter turnout will be exhibited in countries with higher rates of economic growth.

This chapter presents this and other hypotheses for testing, introduces the data sources, specifies the operationalization of concepts and terms, and discusses the treatment of the data and variables assembled to guide the investigation.

Hypotheses

H₁: Countries with higher rates of economic growth will exhibit lower rates of voter turnout.

The rationale for this prediction comes from many different sources. First, aside from overall declining turnout in American state and national level elections which have been examined by many scholars,⁶⁹ journalists have documented declining turnout in several national level elections/referenda in different countries including Israel, Poland,

⁶⁹ Howard L. Reiter, "Why Is Turnout Down?" Public Opinion Quarterly 43 (1979): 297-311; Robert D. Putnam, Bowling Alone: The Collapse and Revival of American Community. (New York: Simon & Schuster, 2000); Warren E. Miller, "The Puzzle Transformed: Explaining Declining Turnout," Political Behavior 14 (1992): 1-43; Ruy A. Teixeira, Why Americans Don't Vote: Turnout Decline in the United States 1960-1984. (Westport, CT: Greenwood Press Inc., 1987); Steven J. Rosenstone and John Mark Hansen, Mobilization, Participation, and Democracy in America. In Series New Topics in Politics. (New York: Macmillan Publishing Company, 1993); Jae-On Kim, John R. Petrocik, and Stephen N. Enokson, "Voter Turnout Among the American States." The American Political Science Review 69 (1975): 107-123; Robert H. Blank, "Socio-economic Determinism of Voting Turnout: A Challenge." The Journal of Politics 36 (1974): 731-752.

Austria, Japan, New Zealand, the United Kingdom, Spain, and Canada.⁷⁰ Most of these countries have expanded their economies over time and have attracted investment in some form or another while at the same time exhibiting low turnout in recent elections.

Theoretically, globalization leads to a decrease in the authority and role of the state in the international system. Domestically, the state loses sovereignty as well. Simultaneously, the economy is increasing the part that it plays in the lives of people through market forces, leaving the role of the state minimized in its wake. Ohmae and Van Creveld have argued the same point.⁷¹ The theory of machine politics takes this one step further by showing that political participation—in this case participation through voting—decreases as the role of the political system diminishes. Predicting lower voter turnout in countries that have experienced economic growth is a logical expectation based on the theory of machine politics and the claims made by Ohmae and van Creveld.

H₂: More economically developed countries will exhibit lower rates of voter turnout.

Rauch's study in conjunction with Ross and Levine's observations showing increased investment and manufacturing growth rates during the Progressive Era and

⁷⁰ Etta Prince Gibson, "A Duty- Not A Pleasure," *The Jerusalem Post*, January 31, 2003; Ruben Brosbe, "Anglo Voters Sound Off On Election Apathy," *The Jerusalem Post*, March 30, 2006; Amy Teibel, "As Economy Grows and Poverty Spreads, Many Miss the Old Egalitarian Ethos," *The Associated Press*, May 10, 2005, BC cycle; Unknown Author, "Low Voter Turnout in Poland Elections," *Deutsche Presse-Agentur*, September 25, 2005; Andrzej Stylinski, "Poles Endorse Constitution of Free Market and Democracy," *The Toronto Star*, May 26, 1997; Unknown Author, "Low Spanish Turnout Warning for Countries Facing EU Constitution Vote: Press," *Agence France Presse*, February 21, 2005; Yoshio Okubo, "Political Pulse: Low Voter Turnout Threatens Democracy," *The Daily Yomiuri*, June 12, 2004; Martin Walker, "Walker's World: When Will Blair Go?" *UPI*, May 4, 2006; Simon O'Rourke, "A Case of Democracy Inaction," *Waikato Times*, October 15, 2004; Henry Milner, "Of Winter Elections and Low Voter Turnout." *Timmins Daily Press*, December 31, 2005.

⁷¹ Kenichi Ohmae, "The End of the Nation State." In Frank J. Lechner and John Boli (eds.) *The Globalization Reader*, 2nd ed. (Malden, MA: Blackwell Publishing, 2004). pp. 214-218; Martin van Creveld, "The Fate of the State." In Mark Kesselman (ed.) *The Politics of Globalization: A Reader*. (New York: Houghton Mifflin Company, 2007). pp. 216-228.

concurrent decline in turnout are the substance from which this expectation comes.⁷² In other words, economic development within cities during the reform movement also coincided with declining turnout. From this we can expect higher employment levels in private industry as opposed to those with smaller, less developed economic systems. Similar to what happened in cities, as countries continue to attract more business and investment, we can expect productivity and development to increase and voter turnout to decrease.

H₃: Countries with more public health expenditures will have higher rates of voter turnout.

Merton's analysis of political machines details many of the things provided by the political system on which people had come to rely.⁷³ Political support through voting was one of the ways in which people could return the favor to bosses and precinct captains for the goods and services they distributed to citizens. We may expect a similar relationship to take place at the national level with respect to social welfare services. More developed public health care systems indicate that citizens are able to rely more on their political systems than citizens in other countries, which allows citizens to defray some of the personal costs that voter participation incurs such as having to miss work. Because of this, turnout is expected to be higher in countries with greater public health expenditures.

⁷² James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cites During the Progressive Era," *The American Economic Review*, 85 (1995): 968-979; Bernard H. Ross and Myron A. Levine, "Reform Politics," *Urban Politics: Power in Metropolitan America*. 6th ed. (Itasca, IL: F. E. Peacock, 2001). pp. 159-193.

⁷³ Robert K. Merton, "Latent Functions of the Machine: A Sociologists View," *Social Theory and Social Structure*. Revised Edition. (Glencoe, IL: The Free Press, 1957). p. 74.

Some, however, may argue that this hypothesis is paradoxical. The first hypothesis predicts economic growth will lead to decreased voter turnout, but it is countries with economic growth that are more likely to have more developed social welfare systems because they have more money and resources to contribute to those programs. The interaction terms used in this study, which are discussed below, address this issue by controlling for these differences.

H₄: Countries with greater total public spending on education will have higher rates of voter turnout.

Theoretically, greater public spending on education allows people more access to funds and/or resources that will provide more opportunities for personal growth and development. Merton illustrates how political machines provided opportunities, including schooling, to local citizens for personal development in exchange for votes.⁷⁴ Even though there is not a direct *quid pro quo* exchange occurring between politicians and citizens at the national level, increases in public spending on education should stimulate turnout as there is evidence to suggest that increased levels of education increases the likelihood of political participation.⁷⁵ Simply put, having access to funds and resources promotes educational attainment and thus turnout. Again, some may argue that this prediction is inconsistent with the second hypothesis. The interaction terms

⁷⁴ Merton, "Latent Functions of the Machine: A Sociologists View," pp. 71-82.

⁷⁵ Reiter, "Why Is Turnout Down?" *Public Opinion Quarterly 43* (1979): 297-311; Michael S. Lewis-Beck and Brad Lockerbie, "Economics, Votes, Protests: Western European Cases," *Comparative Political Studies 22* (1989):155-177; Patricia L. Southwell, "The Mobilization Hypothesis and Voter Turnout in Congressional Elections, 1974-1982," *The Western Political Quarterly 41* (1988): 273-287; Kevin Arceneaux, "The Conditional Impact of Blame Attribution on the Relationship between Economic Adversity and Voter Turnout," *Political Research Quarterly 56* (2003): 67-75; James W. Endersby, Stephen E. Galatas, and Chapman B. Rackaway, "Closeness Counts in Canada: Voter Participation in the 1993 and 1997 Federal Elections," *The Journal of Politics 64* (2002): 610-631; Miller, "The Puzzle Transformed: Explaining Declining Turnout," (1992): 1-43; Gregory A. Caldeira, Samuel C. Patterson, and Gregory A. Marko, "The Mobilization of Voters in Congressional Elections," *The Journal of Politics 47* (1985): 490-509.

created in this study control for differences between economic growth and social welfare system contribution.

H₅: Countries with greater industrial development will have lower rates of voter turnout.

Rauch shows that municipal reform during the Progressive Era in the United States ended up facilitating greater investment in infrastructure so as to promote economic development. What is more, manufacturing employment rates grew during the reform period⁷⁶ while overall political participation was declining.⁷⁷ Based on Rauch's study and the theory of machine politics we can expect a similar pattern to emerge with respect to industry at an international level. That is, greater industrial development signals that more people are spending more time participating economically by working to provide things like food and other necessities. This decreases the amount of time that can be spent on political participation including voting.

H₆: Countries with older regimes will have lower rates of turnout.

Countries with regimes that have existed longer are likely to be considered more stable. More stable regimes are more conducive to long term economic growth and investment. Theoretically, the economies of those countries should develop accordingly and be more developed because of the economic investment that political stability attracts. Countries with regimes that have not existed as long will not have developed due to a perceived lack of stability from a business investment standpoint. In turn, populations under long lasting regimes rely more on the economy as it develops. This

⁷⁶ Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cites During the Progressive Era," (1995): 968-979.

⁷⁷ Ross and Levine, "Reform Politics," pp. 159-193.

detracts from the time citizens spend on political participation, producing lower turnout rates than countries with newer regimes.

H₇: Countries with more competitive political systems will have lower rates of voter turnout.

This hypothesis seems counterintuitive because competitiveness should incite people to turn out in order to ensure that the representative who best represents their interests wins the election. However, political machines operated in a way that restricted political competition to some degree because those who were in power were able to secure votes by offering goods and services to local citizens. The reform movement ended these arrangements in an attempt to install a less corrupt, merit-based system in which people would vote for candidates through party competition in at-large elections. This resulted in decreased turnout.⁷⁸ Projecting this rationale to turnout internationally we can expect states with greater political competition to also have lower turnout rates, since greater competition reduces candidates' ability to secure votes when running for election and/or re-election.

A two-country comparison provides preliminary support for the previous two hypotheses. The United States is a prime example of a country with high political competitiveness, regime longevity, and low voter turnout. In 2000, the United States had the highest Polity political competition rating. The Polity competition rating created by Marshall and Jaggers that combines measures of how regulated political participation and how competitive political participation is to produce a score from 1 (least competitive) to 10 (most competitive). The United States also had a high regime durability value, which is another Polity rating and is essentially the number of years since the last major regime

78 Ibid.

change. Despite high ratings on political competition and regime durability, voter turnout for the national lower house election in the United States in 2000 was only 44.6% of the voting age population. By contrast, voter turnout in Nigeria's 1999 lower house election was 93.1% of the voting age population, but it had only been a few years since the last regime change and the country boasts a low to moderate political competition rating.⁷⁹

Up to this point all of the hypotheses have been stated. Theoretical justifications also have been given for each of the predicted relationships. The next section presents the data sources and the data treatment techniques used to prepare the dataset.

Data

As each hypothesis indicates, the dependent variable subject to testing is voter turnout. International IDEA is the source for all turnout data used in this study. It is an intergovernmental organization that collaborates with governments, policymakers, and agencies in the international community to foster democracy within and among countries. Data comes from International IDEA's website, which provides time-series voter turnout data for 186 states in the global system that have held elections. Turnout data offered on International IDEA's website dates from 1945 up to 2005 for national level presidential (executive branch) and parliamentary (legislative branch) elections.

⁷⁹ International Institute for Democracy and Electoral Assistance, *International IDEA*. http://www.idea.int/ vt/index.cfm (Date accessed 12/01/06); Monty G. Marshall and Keith Jaggers, *Polity IV Project: Political Regimes Characteristics and Transitions, Dataset Users' Manual*. [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002).

Many studies have examined turnout in both executive and legislative elections,⁸⁰ while some studies have primarily examined turnout in presidential elections.⁸¹ However, this study, like Pacek and Radcliff's,⁸² only makes turnout in lower house elections the subject of analysis as these elections tend to be more frequent, which translates to a greater number of observations available for analysis. More importantly, the exclusive use of voter turnout in lower house elections ensures that this study will focus on the most common type of national-level elections across numerous states in the global system.

The second data source is the World Bank Group's World Development

Indicators website (WDI online). The data gathered from WDI online are time-series

aggregate figures recorded from as far back as 1960 up to 2005.⁸³ Data for annual

percent economic growth, economy size per capita, public health expenditure, public

spending on education, and industrial development come from WDI online. Where

economic growth, economic development, and industrial development are concerned,

WDI online reveals that data for developing countries comes from central banks and

⁸⁰ Examples include: G. Bingham Powell, Jr., "American Voter Turnout in Comparative Perspective," *The American Political Science Review 80* (1986): 17-43; Robert W. Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," *The American Political Science Review 81* (1987): 405-424; Benjamin Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis." *The American Political Science Review 86* (1992): 444-454; Alexander C. Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe." *American Journal of Political Science 38* (1994): 723-744; Mark Gray and Miki Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950-1997: The Effects of Declining Group Mobilization," *Comparative Political Studies 33* (2000): 1091-1122. Stephen J. Rosenstone, "Economic Adversity and Voter Turnout." *American Journal of Political Science 26* (1982): 25-46.

⁸¹ David Moon, "The Determinants of Turnout in Presidential Elections: An Integrative Model Accounting for Information," *Political Behavior 14* (1992): 123-140; Bill Winders, "The Roller Coaster of Class Conflict: Class Segments, Mass Mobilization, and Voter Turnout in the U.S., 1840-1996," *Social Forces* 77 (1999): 833-862. Both of these studies focus on voter turnout in the United States.

⁸² Alexander C. Pacek and Benjamin Radcliff, "Economic Voting and the Welfare State: A Cross-National Analysis," *The Journal of Politics* 57 (1995): 44-61; Alexander C. Pacek and Benjamin Radcliff, "The Political Economy of Elections in the Developing World," *American Journal of Political Science* 39 (1995): 745-759

^{(1995): 745-759} ⁸³ World Bank Group, *World Development Indicators*. http://0-devdata.worldbank.org.maurice.bgsu.edu/ dataonline/old-default.htm (Date accessed 11/06/06).

statistical organizations. Data files from the Organization for Economic Cooperation and Development (OECD) are the source of information on developed countries.⁸⁴

Figures for public spending on education at WDI online come from the UNESCO Institute for Statistics, which compiles international education data by cooperating with national commissions and national statistical services.⁸⁵ The World Health Organization's World Health Report, the OECD, World Bank poverty assessments, World Bank reviews of public expenditures, the International Monetary Fund's Government Finance Statistics Database, and other studies are the data sources for public health expenditures.⁸⁶

The third and final data source is the Polity IV Project time-series dataset.⁸⁷ The data from the Polity IV Project are time-series data reflecting measurements for over thirty political system characteristics of 161 countries from 1800 to 2002.⁸⁸ Several earlier phases of the Polity Project were undertaken and continuous refinement of data collection, coding, and measurement techniques have led to the Polity IV Project time-series edition used in this study. Data for regime durability and political system

⁸⁴ World Bank Group, *World Development Indicators: Economy*. http://0-devdata.worldbank.org.maurice. bgsu.edu/wdi2006/contents/Table4_1.htm#source (Date accessed 02/27/07).

⁸⁵ World Bank Group, *World Development Indicators: People*. http://0-devdata.worldbank.org.maurice. bgsu.edu/wdi2006/contents/Table2_10.htm#source (Date accessed 02/27/07).

⁸⁶ World Bank Group, *World Development Indicators: People*. http://0-devdata.worldbank.org.maurice. bgsu.edu/wdi2006/contents/Table2_14.htm#source (Date accessed 02/27/07).

⁸⁷ Monty G. Marshall and Keith Jaggers, *Polity IV Project: Political Regimes Characteristics and Transitions*. Time-Series edition. [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002).

⁸⁸ Monty G. Marshall and Keith Jaggers, *Polity IV Project: Political Regimes Characteristics and Transitions, Dataset Users' Manual.* [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002).

competitiveness comes from this source, which provides data starting from 1800 for all independent states that had achieved a population of at least 500,000 by 2002.⁸⁹

Beyond obtaining data from the sources described, several techniques were employed to construct the actual dataset and to prepare the data for hypothesis testing. The next section reports the issues encountered with the data and the data modification procedures used to deal with those issues.

Data Treatment

The dataset was compiled from the International Institute for Democracy and Electoral Assistance (IDEA), the World Bank's World Development Indicators, and the Polity IV Project.⁹⁰ Data from each of the files was organized to correspond to the appropriate country and year identified by the IDEA voter turnout data. However, the complete dataset had missing data problems that were too severe to permit the necessary testing for time-series, cross-section (TSCS) data. Instead, the complete data set was used to select lower house elections that took place in the year 2000 or the year closest to 2000 in order to create a new subset. The year 2000 was chosen because it is most recent and happens to be a "good data year," with minimal missing observations.

The subset used for analysis contains 179 country/years in which there were lower house elections. Running frequencies and case summaries for each of the variables,

⁸⁹ Ibid.

⁹⁰ International Institute for Democracy and Electoral Assistance, *International IDEA*. http://www.idea.int/ vt/index.cfm (Date accessed 12/01/06); World Bank Group, *WDI Online*. http://0-devdata.worldbank.org. maurice.bgsu.edu/dataonline/SMNotes.asp?orienc&SelCS=DZA&Flag=S (Date accessed 11/06/06); Monty G. Marshall and Keith Jaggers, *Polity IV Project: Political Regimes Characteristics and Transitions, Dataset Users' Manual*. [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002). Initially, this project was designed to make full use of the time-series cross-section (TSCS) data from these sources. However, missing data/observations became a problem to the point that the results became unreliable and inconclusive as variables were added.

however, revealed that there were still a number of missing observations. To boost the sample size, data was imputed from other years for public health expenditures and public spending on education.⁹¹ Appendix A contains the imputed values, corresponding years, and univariate statistics from the original TSCS dataset from which the data come as they pertain to each country.

The data imputation procedure followed for this project is known as the hot deck method or hot deck imputation. This is also the method used at the United States Bureau of Census to fill in missing data on households and families.⁹² Hot deck imputation is defined as a class of procedures "in which imputations for non-respondents are drawn from the respondents' values" and is typically used for missing survey sample data.⁹³ Since the original dataset was TSCS data and the subset for analysis was cross-sectional, data from the closest consecutive year in the original dataset was imputed into the corresponding empty cell.⁹⁴ Two other criteria determined if a value was imputed, if a cell was left blank, and/or which value would be imputed in the case of an equal time

⁹¹ There are several ways to deal with missing data, the simplest way being to just replace the missing observations with a valid mean or median. The method that was used in this project is a crude, non-mathematical way of handling this problem, but it is a practical solution given that the nature of most national level data is incremental. This suggests that imputed aggregate figures are not likely to deviate far from the observation that would have been recorded if measurements had been taken. Moreover, even though it is not an attractive option, a measure for disparities in wealth distribution (the Gini coefficient) that came from the World Development Indicators had to be removed from the analysis simply due to missing observations.

⁹² Roderick J. A. Little and Nathaniel Schenker, "Missing Data." In Gerhard Arminger, Clifford C. Clogg, and Michael E. Sobel (eds.), *Handbook of Statistical Modeling for the Social and Behavioral Sciences* (New York, NY, Plenum Press, 1995). p. 60.

⁹³ Ibid. p. 60.

⁹⁴ Cases where a value was imputed from a year after the election year clearly violates the principle of causality where the independent variable always precedes the dependent variable in time. To any readers offended by this violation, the easement I offer is that in those particular election years imputing a value from the closest consecutive year has a greater likelihood of being an accurate estimate of what occurred in the actual year under observation than a value that occurred at a greater time interval in the past, and can be considered a better predictive observation.

interval existing between the year for which the data was to be imputed and the potential value in the later year versus potential value in the earlier year.

The first criterion was that no data would be imputed if it had been recorded five or more years earlier or five or more years later than the year in which the lower house election took place. The first criterion was created to minimize as much bias as possible and to give as accurate a portrayal of reality as possible, which is also an advantage of the hot deck method. In the event of an equal time interval—when the missing value in the election year was the same amount of years away from the existing observation in the past as well as the existing observation in the future—the second criterion took effect. This criterion is that the measure from the past would be imputed in order to adhere to the principle that the independent variable will always precede the dependent variable in time.⁹⁵

Operationalization of Concepts

Dependent Variable

The dependent variable in this study is voter turnout. There are two ways in which this variable can be measured according to the International Institute for Democracy and Electoral Assistance (International IDEA) website from where data for this variable was acquired.⁹⁶ The version used in this study divides the number of voters participating in an election by the total number of eligible voters—which is based on the legal institutional requirements in any given country in which an election is taking

⁹⁵ See Appendix A for a listing of the countries and elections years in which data was imputed along with corresponding univariate statistics.

⁹⁶ International Institute for Democracy and Electoral Assistance, *International IDEA*. http://www.idea.int/ vt/index.cfm (Date accessed 12/01/06).

place.⁹⁷ This yields a percentage. This calculation method serves as the principal operational measure for the dependent variable in this study as well in most studies that look at the effect of the economy on voter turnout.⁹⁸

Independent Variables

There are several variables used in this study to predict turnout. The first, economic growth, is interpreted as an increase in the size of any single state's economy. One of the most commonly used measures of economic size is gross domestic product (GDP), which is the total economic activity within a country (all the goods and services produced and consumed within the country) regardless of whether the income from the goods and services produced by firms are remitted to parent firms located in other countries.⁹⁹ GDP per capita simply adjusts GDP to account for population size and is used to gauge the level of development.

The primary operational measure of **economic growth** is annual percent GDP growth. This variable is used to measure whether the economy in which lower house elections are taking place is in a state of growth or contraction and is expressed as a percentage.¹⁰⁰ WDI Online specifically defines annual percent of GDP growth as:

⁹⁷ Eligibility requirements are usually comprised of the legal voting age and citizenship status within a country.

⁹⁸ The second version of the voter turnout variable takes the number of people who voted in a given election divided by the number of total registered voters at the time of the election. The result is the percent of all registered voters who actually voted. Naturally, the first way to calculate voter turnout will yield a lower voter turnout rate due to the denominator being larger. That is, we can reasonably expect the number of almost any voting age population to be larger than the number of individuals of the voting age population who end up registering to vote in practically any election year and in any country. This method for calculating voter turnout is not incorporated in the analysis presented in this study.

⁹⁹ Richard Stutely (ed.), *The Economist: Guide to Economic Indicators: Making Sense of Economics*. 5th ed. (Princeton, NJ: Bloomberg Press, 2003). p. 28; Norman Frumkin, *Guide to Economic Indicators*. 3rd ed. (Armonk, NY: M. E. Sharpe Inc., 2000). p. 144.

¹⁰⁰ While data for the first two measures correspond to the years in which lower house election, voter turnout data were gathered, data for other independent variables (to be introduced later) do not all

[A]nnual percentage growth rate of GDP at market prices [is] based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.¹⁰¹

Simply put, an observation with a positive percentage indicates an increase in the size (the amount of economic activity) of the economy (growth) and a negative value indicates a decrease in the size of the economy (contraction). The predicted sign on the coefficient for economic growth is negative since the hypothesis predicts a negative relationship with voter turnout.

The operational measure of economy size per capita is GDP per capita,

purchasing power parity (PPP) in constant 2000 international dollars. This measure is

used to gauge the overall level of economic development of the country in which lower

house elections are taking place. Data for this variable comes from the World

Development Indicators (WDI) website¹⁰² developed by the World Bank Group, which

defines GDP per capita, PPP in constant 2000 international dollars as:

...based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2000 international dollars.¹⁰³

correspond to the respective lower house elections years. This will be discussed at greater length in the "Data and Data Treatment" portion of this chapter.

 ¹⁰¹ World Bank Group, WDI Online. http://0- devdata.worldbank.org.maurice.bgsu.edu/dataonline/
SMNotes. asp?orien=c&SelCS=DZA&Flag=S (Date accessed 06/05/2006).
¹⁰² Ibid

¹⁰³World Bank Group, *WDI Online*. http://0-devdata.worldbank.org.maurice.bgsu.edu/dataonline/SMNotes. asp?orien=c&SelCS=DZA&Flag=S (Date accessed 11/06/06).

As in the first measure, the predicted sign on the coefficient for GDP per capita PPP coefficient, in constant 2000 international dollars, is negative.

The next predictor of turnout is **public health expenditure**. It is hypothesized that countries with greater public heath expenditures will have higher rates of voter turnout. Building on Rosenstone's seminal study which found that voter turnout in the United States decreased when people felt they were worse off financially,¹⁰⁴ several other, more recent investigations have found significant relationships between countries' levels of spending on social security/welfare programs and voter turnout.¹⁰⁵ The measure used from WDI online is public health expenditure as a percent of GDP. Public health expenditure "consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds."¹⁰⁶ The sign on the coefficient for public health expenditure is expected to be positive.

The fourth predictor is **public spending on education**. It is hypothesized that countries with greater public spending on education will have higher rates of voter turnout. The actual measure used is public spending on education as a percent of GDP, which WDI online defines as "consist[ing] of current and capital public expenditure on

¹⁰⁴ Stephen J. Rosenstone, "Economic Adversity and Voter Turnout." *American Journal of Political Science 26* (1982): 25-46.

¹⁰⁵ Benjamin Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis." *The American Political Science Review 86* (1992): 444-454; Alexander C. Pacek and Benjamin Radcliff, "Economic Voting and the Welfare State: A Cross-National Analysis," *The Journal of Politics 57* (1995): 44-61; Sara Binzer Hobolt and Robert Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006).

¹⁰⁶ World Bank Group, *WDI Online*. http://0-devdata.worldbank.org.maurice.bgsu.edu/dataonline/ SMNotes. asp?orien=c&SelCS=DZA&Flag=S (Date accessed 11/06/06).

education plus subsidies to private education at the primary, secondary, and tertiary levels."¹⁰⁷ The sign on this coefficient is also predicted to be positive.

The next predictor, **industrial development**, is not typically considered in the literature as a potential predictor of voter turnout. The reason for its absence is not clear. It could be that industrialization is considered subsumed by other concepts like economic growth or per capita income. On the other hand, this might not always be true. For instance, Saudi Arabia, though a monarchy, is wealthy largely because of profits accumulated by the oil produced there, but its overall economy is not industrialized. As of 2005, Saudi Arabia's merchandise imports totaled roughly \$48.6 billion primarily in industrial goods. In the same year its merchandise exports equaled \$144.6 billion from petroleum products while the unemployment rate was 13%.¹⁰⁸ In order to account for similar cases, industrial development is operationalized using industry value added as a percent of GDP from the WDI website, which says:

Industry corresponds to ISIC divisions 10-45 and includes manufacturing (ISIC divisions 15-37). It comprises value added in mining, manufacturing (also reported as a separate subgroup), construction, electricity, water, and gas. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.¹⁰⁹

Again, industrialization/industrial development may be a process that would be subsumed by the construct of economic growth. If so, one would expect industry value added as a percent of GDP to be positively correlated with the operational measure for

¹⁰⁷ Ibid. (Date accessed 11/06/06).

¹⁰⁸ U.S. Department of Energy: Energy Information Administration, "Saudi Arabia Country Analysis Brief." http://www.eia.doe.gov/emeu/cabs/saudi.html (Date accessed 02/26/07).

¹⁰⁹ World Bank Group, *WDI Online*. http://0-devdata.worldbank.org.maurice.bgsu.edu/dataonline/ SMNotes. asp?orienc&SelCS=DZA&Flag=S (Date accessed 11/06/06).

economic growth, which could introduce multicollinearity problems in the analysis. However, there is little evidence to suggest that multicollinearity is a problem between industry value added as a percent of GDP and annual percent of GDP growth or GDP per capita, PPP in constant 2000 international dollars.¹¹⁰ Thus both are included in the models that follow. The hypothesis for industrial development predicts that it will decrease voter turnout, therefore the sign on industry value added as a percent of GDP should be negative.

The sixth predictor of voter turnout is **regime duration**. This concept is thought to predict voter turnout since regime duration signals how stable the political system of a country is. The measure from the Polity IV Project is regime durability. Marshall and Jaggers define the regime durability variable as:

The number of years since the most recent regime change (defined by a threepoint change in the POLITY score [a composite score that indicates the level of institutional democracy or institutional autocracy of a state] or the end of transition period defined by the lack stable political institutions (denoted by a standard authority score). In calculating the DURABLE [regime durability] value, the first year during which a new (post-change) polity is established is coded as the baseline "year zero" (value = 0) and each subsequent adds one to the value of the DURABLE variable consecutively until a new regime change or transition period occurs.¹¹¹

A negative coefficient is predicted for regime duration.

The final predictor is the competitiveness of the political system. Much of the

research carried out over the past quarter-century has paid special attention to the

¹¹⁰ When conducting the analysis for all models in this study, multicollinearity diagnostics did not produce variance inflation factors (VIFs) greater than 10 for any of the independent variables.

¹¹¹ Marshall and Jaggers, *Polity IV Project: Political Regimes Characteristics and Transitions, Dataset Users' Manual.* [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002). p. 16.

characteristics of political institutions as key expository factors of turnout.¹¹² Since this study is primarily concerned with explaining differences in turnout levels crossnationally, this study includes a political system competitiveness variable, but it is less sophisticated than in other research.¹¹³ The operational measure used is political competition, which comes from the Polity IV Project dataset.¹¹⁴ The political competition variable is a concept variable that merges scores of regulation and competitiveness of political participation variables. The regulation of participation variable "measures the degree of organization and institutionalization of participation," and the competitiveness of participation variable "measures the degree to which political participation is free from government control."¹¹⁵ Since higher levels of political competitiveness are expected to decrease turnout, then the coefficient on political competitiveness is expected to be negative.

So far, seven operational measures for hypothesis testing for this project have been presented. However, new variables were created from these measures in order to

¹¹² G. Bingham Powell, Jr., "American Voter Turnout in Comparative Perspective," The American Political Science Review 80 (1986): 17-43; Robert W. Jackman, "Political Institutions and Voter Turnout in the Industrial Democracies," The American Political Science Review 81 (1987): 405-424; Robert W. Jackman and Ross A. Miller, "Voter Turnout in the Industrial Democracies During the 1980's," Comparative Political Studies 27 (1997): 467-492; Henry Milner, "Electoral Systems, Integrated Institutions and Turnout in Local and National Election: Canada in Comparative Analysis," Canadian Journal of Political Science 30 (1997): 89-106; Steven J. Rosenstone and John Mark Hansen, Mobilization, Participation, and Democracy in America. In Series New Topics in Politics. (New York: Macmillan Publishing Company, 1993); André Blais and Agnieszka Dobrzynska, "Turnout in Electoral Democracies." European Journal of Political Research 33: (1998) 239-261. An excellent literature review on the effect of institutions can be found in: Arend Liphart "Unequal participation: Democracy's Unresolved Dilemma," The American Political Science Review 91 (1997): 1-14.

¹¹³ A block of institutional measures are usually nested with economic variables in other international (cross-national) studies that predict turnout. Institutional measures have normally included levels of competition within national districts, party systems, voter registration laws, compulsory voting, and cameralism.

¹¹⁴ Marshall and Jaggers, Polity IV Project: Political Regimes Characteristics and Transitions, Dataset Users' Manual. [Integrated Network for Societal Conflict Research (INSCR) Program and Center for International Development and Conflict Management (CIDCM)], (University of Maryland, College Park, September 25, 2002). ¹¹⁵ Ibid. p. 68.

deal with the some of the shortcomings of the machine politics theory. The next section details the variable modification techniques and the procedures implemented to create new variables.

Addressing Theoretical Limitations

The previous chapter pointed out that one of the deficiencies of applying the theory of machine politics to a study of international voter turnout is that there may be variations in the effect of economic growth on voter turnout depending on levels of economic development and social welfare systems. This inadequacy exists because the theory does not differentiate between cities that were already industrializing and those that were not. The machine politics literature also does not make a distinction between cities that had an official commitment to social welfare policy and those that did not. This is not unexpected since social welfare policy tends to be the province of state and national governments.¹¹⁶

However, Radcliff's examination of cross-national turnout provides strong evidence that such variations do occur. Radcliff's investigation into the effect of economic conditions on voter turnout reports a positive relationship between income and voter turnout ($p \le .05$) in industrialized countries and a negative relationship between income and voter turnout in developing countries ($p \le .05$).¹¹⁷

Radcliff also demonstrates an interaction effect taking place in voter turnout between proportion of real per capita income and levels of welfare development (defined

¹¹⁶ The theory of machine politics really could not take this into account considering welfare policies were not implemented until well after the political reforms of the Progressive Era.

¹¹⁷ Benjamin Radcliff, "The Welfare State, Turnout, and Economy: A Comparative Analysis," *The American Political Science Review* 86 (1992): 444-454.

by the amount of money spent on welfare programs) where the interaction term is proportion change in real per capita national income multiplied by the level of social security spending.¹¹⁸ Pacek and Radcliff have also shown a similar effect for how well the economy is doing on votes for an incumbent, which is that it varies depending on a country's status as a welfare state (associated with levels of welfare spending).¹¹⁹ The theoretical shortcomings of the machine politics literature as well as Radcliff's research suggesting interaction effects provide the impetus for this project to account for interaction effects as well. Before discussing how this study takes into account levels of development, three matters must be addressed concerning the differences between Radcliff's study and this one.

Study Differences. The first difference is that Radcliff (along with most studies on voter turnout) employs time-series—cross-sectional (TSCS) data allowing the data to be subject to more rigorous and sophisticated statistical techniques than the data I examine which is cross-sectional.¹²⁰ What this also means is that Radcliff was able to analyze more elections per country over time. This study analyzes only one election per country, but includes more countries to gain a more expansive view of voter turnout in

¹¹⁸ Ibid.

¹¹⁹ Alexander C. Pacek and Benjamin Radcliff, "Economic Voting and the Welfare State: A Cross-National Analysis," *The Journal of Politics* 57 (1995): 44-61.

¹²⁰ To elaborate on study differences, Radcliff's is able to include dummy variables in both the observed and structural parts of the regression equation. The dummy variable on the observed side lets the model control for a sudden increase in the total voting age population (an expansion of the electorate). Also there is an autoregressive measure for previous election turnout to control for any non-economic trend that could have an impact on turnout. On the structural side, Radcliff includes a dummy variable for each country (29countries) in the dataset (fixed effects modeling) to account for any bias in "…international variation in the general level of turnout (p. 445)" between each state. These are techniques/measures that are not compatible with cross-sectional data and therefore cannot be exercised in my examination.

the international system. Even though the initial dataset for this project was comprised of TSCS data, there were too many missing observations to support multivariate testing.

Second, Radcliff's study covers lower house elections in twenty-countries from 1960 to 1987, which ranges from ten to eighteen years before the publishing of reported low voter turnout in some arguably large and growing economies. Gray and Caul's recent 2000 study, part of which confirms declining turnout in industrial democracies, suggests that economic growth may be having a different effect on voter turnout than could have been explained by Radcliff's 1992 dataset.¹²¹

The third issue pertains to a difference in the operational measure used for the principal independent variable in this versus other studies. In this study, the operational measure used is the election year annual percent of GDP growth. By contrast, the overwhelming majority of turnout studies, including Radcliff's, utilize "the election year proportion change in real per capita national income."¹²² There are a few differences between these two measures. First, annual percent of GDP growth (defined above) is measuring an overall change in the macro-economy in a given election year. While a definition of this measure is not provided in Radcliff's article, proportion change in real per capita national income difference between total income generated by all citizens of a country, whether or not that income was generated within the borders of the country, divided by the total number of citizens of that country.

Both annual percent change in GDP and proportion change in real per capita income are aggregate statistics, but proportion change in real per capita national income

¹²¹ Gray and Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," (2000): 1091-1122; Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis." (1992): 445.

¹²² Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis." (1992): 444-454.

reflects the average income made for each element in the population. Annual percent change in GDP, on the other hand, is expressed as a percent and represents a change in the size of the economy as a whole, which is the reason why it was chosen to be used in this study. The dataset for this study includes a similar measure to proportion change in real per capita national income—GDP per capita, PPP in constant 2000 international dollars—but is used to indicate the level of development of an economy, not growth. Annual percent of GDP growth is a more appropriate measure for this study than proportion change in real per capita income because this study is concerned with changes in the macroeconomy as a whole. In other words, changes in the overall economic system are predicted to affect voter turnout, not necessarily differences in the income of each element in the population. Now that we have a basic understanding about the differences between the measures used to gauge changes in the economy, let us focus on the issue at hand—levels of development.

Interaction Terms. In order to control for varying levels of development, I first created a categorical variable with GDP per capita, purchasing power parity (PPP) in constant 2000 international dollars by normalizing the distribution of GDP per capita, PPP in constant 2000 international dollars using the log10 function.¹²³ Then, quartile figures of the normalized distribution were used to establish the range of scores that were coded as 0, 1, 2, and 3 ascending from 0 equaling the lowest range of possible values through 3 equaling the highest range of possible values.¹²⁴ The reason for using this

¹²³ The distribution was severely skewed right.

¹²⁴ To be more specific, the first category was created by taking the least possible value in the distribution through the highest possible value of the first (lower) quartile. This range was set equal to zero to establish the first category. The process was repeated over the second and third quartiles. The figure that marked the

measure is simply that more developed economies are likely to exhibit greater values of GDP per capita controlling for inflation.

A total of three dummy variables were then created based on this categorical variable using the lowest quartile as the reference group. The recoding of the categorical variable involved the same procedure for all three dummy variables. In the first dummy variable, cases with a value of 3 (the upper quartile group) were set equal to 1, and the values of 2, 1 and 0 were all set equal to zero. To create the second dummy variable, cases with a value of 2 were set equal to 1, and values of 3, 1, and 0 were set equal to zero. For the third dummy variable, cases with the value of 1 were set equal to 1, while 3, 2, and 0 were set equal to zero. Then the interaction terms were created by multiplying the annual percent GDP growth by each of the dummy variables.

To control for a possible interaction between levels of public welfare spending and the state of the economy (period of growth or contraction), cross-product terms were also created. First, both public health expenditure and public spending on education measures were recoded into categorical variables. The raw quartile figures of each of the measures were used to determine the range of values that were coded from 0, 1, 2, and 3 in ascending order. Zero equaled the lowest range of possible values and 3 equaled the highest range of possible values (see fn. #124).

Then, three dummy variables were created for both of the recoded categorical variables of public health expenditure and public spending on education. The creation of each set of dummy variables followed exactly the same procedure as the one used to create the first three dummy variables, where cases in the lowest quartile for both

first value in the fourth (upper) quartile was the lowest value of the fourth category and the highest occurring value in the distribution marked the limit of the range of values occurring in the fourth category. The last quartile range was set equal to 3 to create the category with the highest values.

categorical variables served as the reference group. Once the dummy variables were created, annual percent GDP growth was multiplied by each of the dummy variables to create a total of six interaction terms (three for each categorical variable). A statistically significant result for either of these interaction terms indicates that the effect of economic growth on voter turnout varies at different levels of public health expenditure and/or different levels of public spending on education.

A total of ten independent variables have been described in this study for predicting voter turnout. Next, a statistical model sums up the predicted set of relationships.

Regression Equation

The regression equation for this study provides a simple representation of how voter turnout is to be explained and is stated as:

$$\begin{split} & \text{TURNOUT} = \text{a} - \text{b}_1(\text{GROWTH}) - \text{b}_2(\text{GDPCAP}) + \text{b}_3(\text{HEALTH}) + \text{b}_4(\text{EDUC}) - \\ & \text{b}_5(\text{INDUSTRY}) - \text{b}_6(\text{DURATION}) - \text{b}_7(\text{POLCOMP}) + \text{b}_8(\text{GROWTH})(\text{GDPCAP}) + \\ & \text{b}_9(\text{GROWTH})(\text{HEALTH}) + \text{b}_{10}(\text{GROWTH})(\text{EDUC}) + \text{e} \end{split}$$

where:

TURNOUT = the number of voters participating in an election divided by the total number of eligible voters

GROWTH = annual percent growth in gross domestic product (GDP)

GDPCAP = GDP per capita, PPP in constant 2000 international dollars

HEALTH = public health expenditure as a percent of GDP

EDUC = public spending on education as a percent of GDP

INDUSTRY = industry value added as a percent of GDP

DURATION = number of years since last regime change

POLCOMP = level of competitiveness in political system

- (GROWTH)(GDPCAP) = the product of annual percent growth in GDP * recoded GDP dummy variables¹²⁵
- (GROWTH)(HEALTH) = the product of annual percent of growth in GDP * recoded public health expenditure as a percent of GDP dummy variables¹²⁶

(GROWTH)(EDUC) = the product of annual percent of growth in GDP * recoded

public spending on education as a percent of GDP dummy variables¹²⁷

As indicated in both the above hypotheses and the equation, negative relationships

with voter turnout are expected for economic growth, economic development, industrial

development, regime duration, and political system competitiveness. Positive

relationships with voter turnout are expected for public health expenditure and public

spending on education.

¹²⁵ [log10(GDP per capita, PPP in constant 2000 international dollars)] recoded as a different variable by quartiles where 0 = all values in the 1st quartile, 1 = all values in the 2nd quartile, 2 = all values in the 3rd quartile, and 3 = all values in the 4th quartile. Dummy variables created for those coded as 1, 2, and 3. Cases in the lowest quartile are the reference group. Cross-products are the annual percent GDP growth multiplied by each of the dummy variables.

¹²⁶ recoded as a different variable by quartiles where 0 = all values in the 1st quartile, 1 = all values in the 2nd quartile, 2 = all values in the 3rd quartile, and 3 = all values in the 4th quartile. Dummy variables created for those coded as 1, 2, and 3. Cases in the lowest quartile are the reference group. Cross-products are the annual percent GDP growth multiplied by each of the dummy variables.

¹²⁷ recoded as a different variable by quartiles where 0 = all values in the 1st quartile, 1 = all values in the 2nd quartile, 2 = all values in the 3rd quartile, and 3 = all values in the 4th quartile. Dummy variables created for those coded as 1, 2, and 3. Cases in the lowest quartile are the reference group. Cross-products are the annual percent GDP growth multiplied by each of the dummy variables.

Conclusion

This chapter has presented the methodology used to guide the inquiry into the effect of economic growth on voter turnout. Also, it has further elaborated how the theory of machine politics can explain declining voter turnout in the international system. More importantly, it sheds light on how turnout can be declining in industrial democracies even though wealthy people are more likely to vote.

Hypotheses dealing with each of the concepts, operational definitions and operational measures, data sources, methods and techniques for data treatment, and a study comparison have all been described and discussed with the intention of painting an accurate picture of how this study has been prepared and assembled. With all of this intact, the emphasis will now shift toward presenting the results of hypothesis testing.

CHAPTER IV. RESULTS

This study examines the paradox that wealthy people turn out to vote at higher rates while several prominent industrial democracies have exhibited declining rates of turnout. The theory of machine politics and the policies of the reform movement, despite the shortcomings discussed in the Chapter 2, provide a possible solution to the paradox. Machine politics and the reform movement together illustrate that when people seek opportunities for development and for satisfying needs, wants, and desires through economic activity, they rely less on the political system. Theoretically, this suggests that people, particularly the poor and disadvantaged, may spend less time participating in the political system as a country's economy develops, thereby reducing voter turnout.

From an international perspective, globalization acts as a catalyst that increases individual country reliance on the international economy by altering how the distribution of goods and services takes place, through technological advancements in communications and transportation. The theory of machine politics applied to the international system yields the prediction that the effect of increased reliance on the international economy will reduce participation in political systems on a cross-national scale and therefore reduce voter turnout as countries globalize. Ohmae and Van Creveld have argued similarly that the state's role in the lives of citizens domestically and internationally is waning because of greater influence of international financial markets

 ¹²⁸ Alexander C. Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe,"
American Journal of Political Science 38 (1994): 723-744; Benjamin Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," *The American Political Science Review 86* (1992): 444-454.

and their regimes during a period of globalization.¹²⁹ If machine politics and the observations of Ohmae and Van Creveld are correct interpretations of international trends, then we should expect to see lower turnout in countries that exhibit economic growth. This chapter aims to investigate the plausibility of the theory of machine politics by testing hypotheses that stem from the theory. Statistical analyses of cross-sectional, aggregate data are undertaken in order to test the seven hypotheses presented in Chapter 3.

The dataset is a compilation of data from the International Institute for Democracy and Electoral Assistance (IDEA) website, the World Bank Group's World Development Indicators (WDI) Online website, and the Polity IV Project time-series edition. The three data sources provide the measures for operationalizing and testing each hypothesis. Data for 179 states in the international system for the year 2000 is used to conduct hypothesis testing. In order to maximize the number of cases included in the multiple regression model, the hot deck imputation method was utilized to insert figures from the original time-series, cross section dataset into the appropriate cells with missing observations. Furthermore, interaction terms were created to adjust for certain limitations of the theory of machine politics.¹³⁰

As discussed in the previous chapter, the multiple regression model from which the analysis proceeds is:

¹²⁹ Kenichi Ohmae, "The End of the Nation State." In Frank J. Lechner and John Boli (eds.) *The Globalization Reader*, 2nd ed. (Malden, MA: Blackwell Publishing, 2004). pp. 214-218; Martin van Creveld, "The Fate of the State." In Mark Kesselman (ed.) *The Politics of Globalization: A Reader*. (New York: Houghton Mifflin Company, 2007). pp. 216-228.

¹³⁰ Other data manipulation techniques were used to facilitate analysis. See "Data Treatment" and "Addressing Theoretical Limitations" in previous chapter.

$$\begin{split} & \text{TURNOUT} = \text{a} - \text{b}_1(\text{GROWTH}) - \text{b}_2(\text{GDPCAP}) + \text{b}_3(\text{HEALTH}) + \text{b}_4(\text{EDUC}) - \\ & \text{b}_5(\text{INDUSTRY}) - \text{b}_6(\text{DURATION}) - \text{b}_7(\text{POLCOMP}) + \text{b}_8(\text{GROWTH})(\text{GDPCAP}) + \\ & \text{b}_9(\text{GROWTH})(\text{HEALTH}) + \text{b}_{10}(\text{GROWTH})(\text{EDUC}) + \text{e} \end{split}$$

As indicated in the equation, turnout is expected to be influenced positively by a country's public health expenditure as a percent of gross domestic product (HEALTH) and total public spending on education as a percent of GDP (EDUC). Turnout is expected to be influenced negatively by annual percent of GDP growth (GROWTH), GDP per capita purchasing power parity in constant 2000 international dollars (GDPCAP), industry value added as a percent of GDP (INDUSTRY), the number of years a country's regime has been in existence without significant change (DURATION), and the Polity IV project's political competitiveness rating (POLCOMP). Also included are interaction terms in which the effect of annual percent of GDP growth on voter turnout will vary at differing levels of the normalized GDP per capita purchasing power parity in constant 2000 international dollars (GROWTH)*(GDPCAP); at differing levels of public health expenditure as a percent of GDP (GROWTH)*(HEALTH); and at differing levels of total public spending on education as a percent of GDP (GROWTH)*(EDUC).

The rest of this chapter presents the results of bivariate and multivariate tests of the hypothesized relationships. The next section presents the results produced from testing the hypotheses in Chapter 3 along with several alternative regression models which were constructed by grouping countries based on country membership in the Organization for Economic Cooperation and Development (OECD), GDP per capita purchasing power parity (PPP) in constant 2000 international dollars, and by world region.

Bivariate Trends

Figure 1 illustrates the relationship between GDP per capita and voter turnout in the United States for House elections from 1978 to 1998. We would expect to see turnout increase with GDP per capita (assuming the latter leads to higher incomes), since individuals with higher levels of income are more likely to vote according to numerous turnout studies using individual level data.¹³¹ As we can see, turnout was consistently around 40 percent of the voting age population keeping a rather steady rate over time. By contrast, GDP per capita rose over the period. Turnout does not appear to be responding to GDP per capita at all. Turnout rates appear to slightly increase in 1982 and 1994 (the increases were only by about 3 percent), while no drastic changes in GDP per capita appear to have taken place. The 3 percent increase in turnout may be related to the slight decline in GDP per capita during 1982. However, there is little reason to believe this since GDP per capita did not exhibit a similar decrease in 1994. On average, turnout appears to be decreasing in House elections, but only slightly.

Other factors hypothesized in the previous chapter may also be influencing this relationship such as regime duration which was expected to be negatively associated with voter turnout. The United States did not experience a regime change during the time period displayed in the figure. That is, there were no significant changes in electoral competition or electoral regulation such as America's 2-party system. This may also help explain the overall declining trend for voter turnout. These are only preliminary bivariate

 ¹³¹ Sidney Verba, Kay Lehman Scholzman, and Henry E. Brady, *Voice and Equality: Civic Voluntarism in American Politics*. (Cambridge, Mass: Harvard University Press, 1995); Lester Milbrath and M. L. Goel, *Political Participation: How and Why People Get Involved in Politics*. (Chicago, IL: Rand McNally, 1977);
M. Margaret Conway, *Political Participation in the United States*. (Washington D.C.: Congressional Quarterly Press, 1991); David Hill, *American Voter Turnout: An Institutional Perspective*. (Boulder, CO: Westview Press, 2006); Ronald Inglehart, *Culture Shift in Advanced Industrial Society*. (Princeton, NJ: Princeton University Press, 1990). p. 343.

illustrations, but the next section of the analysis shows the relationship when controlling for other factors.

Figure 2 more clearly illustrates the pattern expected in this study. It displays turnout rates in lower house elections from 1979 to 2001 and GDP per capita in the corresponding years for the United Kingdom. From 1979 to 1992 the turnout rate stayed within the range of 70 percent to 80 percent. There is a slight decrease in turnout going from 1979 election to the 1983 election. Between the same years, GDP per capita slightly increases. The expected relationship of decreased turnout with rising GDP per capita is more pronounced in 1997 and 2001. These years show decreased turnout from 1992 when GDP per capita had sharply increased in the same years.

Comparing the turnout rates and GDP per capita of the United States to those of the United Kingdom does not reveal much similarity between the turnout rates of each country, even though GDP per capita in both countries exhibit upward trends. Turnout rates are declining, but the trend is far more pronounced in the United Kingdom. As advanced industrial democracies, this was expected since Gray and Caul have established this trend for industrial democracies overall by examining 18 industrial democracies in elections from 1950 to 1997.¹³²

The United States and the United Kingdom are not the only countries to exhibit these patterns. For instance, Figure 3 displays GDP per capita and turnout in Portuguese lower house elections from 1975 to 1999. A pattern similar to the United Kingdom's emerges in this chart. There is a noticeable trend of declining turnout over time in Portugal. Other interesting points on this chart are those corresponding to 1995 and

¹³² Mark Gray and Miki Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," *Comparative Political Studies 33* (2000): 1091-1122.

1999. GDP per capita increased by more than two thousand dollars between 1995 and 1999, while voter turnout decreased by approximately ten percent over the same years.

New Zealand has patterns similar to Portugal. Figure 4 presents GDP per capita and turnout rates for New Zealand lower house elections from 1975 to 2002. The figure demonstrates declining rates of turnout and increasing GDP per capita with patterns comparable to Portugal's, both occurring over the same years. Other countries show similar patterns over the period (e.g. South Korea, Japan, Austria, Luxembourg, and Canada), but space limitations prevent the presentation of more figures.

Initial Regression Results

While the bivariate figures are suggestive of a negative relationship between GDP per capita and voter turnout, other important factors need to be taken into account such as spending on social welfare programs and political institutional characteristics. Table 1 displays the results from a multiple regression analysis in which a number of factors are regressed on voter turnout. The sample size for the multiple regression model using percent of voting age population as the dependent variable is 86.¹³³ The adjusted R-squared is low, but the model is still statistically non-significant nonetheless. Since there are only 86 cases being analyzed, statistical significance is difficult to achieve. The table shows that regime duration approaches statistical significance (p < .10); more observations could produce a statistically significant result. Aside from this finding,

¹³³ Even though data was imputed to boost the number of cases analyzed, over half of the cases were lost because the majority of cases had observations missing. In other words, there were not enough observations for variables used in this examination that were common to the majority of countries represented in the sample as far as the percentage of the voting age population variable was concerned. The percent of those registered to vote had more observations than percent of the voting age population which increased the number of cases when testing for it. Ninety-three cases from the original 179 were dropped from the analysis due to missing observations.

there were no significant predictors of voter turnout, however. Succinctly stated, we may conclude from these initial results that there is not enough evidence to support the hypotheses stated in chapter three.

Tests for Interaction

One of the deficiencies of the theory of machine politics is that it does not take into account the possibility that the effect of economic growth on voter turnout could vary based on differing levels of economic development and spending on health and education. Radcliff's research has indicated that these types of interactions do occur.¹³⁴ Radcliff's study of twenty-nine countries that held legislative elections from 1960 to 1987 found that improved economic conditions in developing countries suppressed voter turnout, while they increased voter turnout in industrialized countries. In terms of social welfare, countries with greater spending dampen the effect of adverse economic conditions on turnout to the point that there is no significant effect, and countries with less spending on social welfare exhibit decreased turnout as economic conditions deteriorate.

In order to address the theoretical limitations of machine politics and the compelling gradations made by Radcliff, three sets of dummy variables were created using normalized GDP per capita in constant 2000 international dollars, public health expenditure as a percent of GDP, and total public spending on education as a percent of GDP. These variables were divided into four categories using quartiles with countries in the lowest quartile as the reference group. There is one dummy variable (each) for

¹³⁴ Benjamin Radcliff, "The Welfare State, Turnout, and Economy: A Comparative Analysis," *The American Political Science Review* 86 (1992): 444-454.

countries in the second, third, and fourth quartiles. Then, annual percent of GDP growth was multiplied by each of the dummy variables to create three cross product terms for each of the variables to test for interaction.

Furthermore, a different set of regressors is employed for Tables 2, 3, and 4. This was done to reduce the chance of linear dependencies among the independent variables. Specifically, simultaneously testing for interaction between economic growth and economic development, economic growth and public health expenditure, and economic growth and public spending on education would result in large variance inflation factors (VIFs) if they were all included in a single model.

In Table 2, the original annual percent of GDP growth and GDP per capita variables were removed from the model. The reason for doing this was simply that they are already represented in the dummy variables and the cross-product terms, and leaving them in would have resulted in near linear dependencies among the independent variables. Again, separate regressions were also run when testing for interaction between growth and public health expenditure and growth and public spending on education for the same reasons.

Testing for interaction between economic growth and levels of development did not yield statistically significant coefficients for any of the variables (Table 2). Interestingly, the negative coefficient for regime duration maintains its sign and approaches statistical significance when the dummy variables are added in Model 2, and when the interaction terms are added in Model 3. However, more cases would be needed to make a safe assessment of whether or not regime duration has an effect on turnout. Just the same, there is not clear support for any of the hypotheses advanced in the previous chapter. There is also a lack of evidence to suggest that the effect of growth on voter turnout varies at differing levels of economic development.

The effect of economic growth on voter turnout was expected to vary at differing levels of public health expenditure. That is, the effect on voter turnout for those countries that experience an increase or decrease in the annual percent of GDP was expected to vary depending on how much they spent on public health programs. Table 3 shows the results of testing for an interaction between economic growth and levels of public health expenditure on voter turnout. Regime duration is significant at the .10 level in Model 1, but the coefficient's significance diminishes once the dummy variables and interaction terms are added in Models 2 and 3. Since none of the coefficients are statistically significant, there is no evidence to support the hypotheses made in chapter three, and there is no evidence to support the claim that the effect of economic growth on voter turnout varies at different levels of public health expenditure as a percent of GDP.

Public spending on education is considered in this study to be another form of social welfare spending. Similar to what was expected for public health expenditure, it could be that the effect of an increase or decrease in the annual percent of GDP on voter turnout varies at differing levels of total public spending on education as a percent of GDP. Table 4 displays the results of testing for an interaction between economic growth and levels of public spending on education. As in Table 2, the predicted negative coefficient for regime duration is significant at the .10 level in all three models as the dummy variables and interaction terms are added to Models 2 and 3. However, none of the coefficients in Table 4 are statistically significant at the traditional .05 level.
Furthermore, the adjusted R-squared deflates to .000 in Model 3, suggesting that there is no explained variance in voter turnout when controlling for possible interactions.

The results in the four tables presented so far have been rather fruitless in terms of showing support for any of the hypotheses presented earlier. Regime duration is the only predictor of voter turnout in any of the models to approach statistical significance and the sign on the coefficient is in the expected direction. The longer a political regime lasts, the less people will participate in the political system through voting. More observations for more cases could make this predictor achieve significance at the standard .05 level.

Alternative Models

Of course it could be that the model applies differently to industrialized countries versus industrializing countries, and it could also be that the model applies differently altogether based on countries' levels economic development. There is evidence in the literature to suggest that these two assertions are plausible.¹³⁵ Common sense also suggests that the model could work differently for countries within particular geographic regions. Certainly regions may naturally have more or even different natural resources to exploit than other regions which could change the dynamics of the model used in this study.

To find out, the data are divided in three different ways. The first is by looking at differences between countries who are members of the Organization for Economic Cooperation and Development (OECD) and those that are not. The OECD is comprised primarily of industrialized countries that cooperate in seeking to liberalize international

¹³⁵ Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," (1992): 444-454; Alexander C. Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe," *American Journal of Political Science 38* (1994): 723-744.

trade and finance by coordinating their domestic policies to reduce trade barriers and solving problems common to each others' political-economic systems.¹³⁶ By analyzing the data compiled for this study for OECD members and non-members, differences are expected to emerge between the two groups of countries in terms of how each of the independent variables affect voter turnout rates.

Furthermore, while there are thirty member countries of the OECD as of 2005, only twenty-four countries are coded as such in the dataset. This was done due to differences in gross national income (GNI) per capita. Countries coded as members are high income members because they have a GNI per capita of at least \$10,726.¹³⁷ Making this distinction is essential because countries with higher gross national incomes per capita are probably more developed and the measures used in this study to predict turnout rates may have different effects than those countries that have a lower GNI per capita, regardless of membership status.¹³⁸

Table 5 presents the results of testing for differences between the two groups high income OECD members and non-members/low income OECD members. The model works reasonably well for high income OECD members. With the exceptions of annual percent of GDP growth and the normalized GDP per capita variables, all of the

¹³⁶ Theodore H. Cohn, *Global Political Economy: Theory and Practice*. 3rd ed. (New York: Pearson Education Inc., 2005). p. 36.

¹³⁷ World Bank Group, *WDI Online*. http://0-devdata.worldbank.org.maurice.bgsu.edu/dataonline/ SMNotes. asp?orienc&SelCS=DZA&Flag=S (Date accessed 3/8/07).

¹³⁸ Countries coded as members are as follows: the United States, Canada, the United Kingdom, Ireland, the Netherlands, Belgium, France, Switzerland, Spain, Portugal, Germany, Iceland, Austria, Italy, Greece, Finland, Sweden, Norway, Denmark, Luxembourg, South Korea, Japan, Australia, and New Zealand. All other countries in the dataset are coded as non-members of the OECD. Low income OECD members are Turkey, the Czech Republic, the Slovak Republic, Hungary, Mexico, and Poland.

signs on each of the coefficients are in the predicted directions.¹³⁹ Industry value added as a percent of GDP and total public spending on education as a percent of GDP are both statistically significant beyond the .05 level and regime duration along with the F-test statistic (6.111) are statistically significant beyond the .01 level, each giving support to my hypotheses. The F-test statistic and the adjusted R-squared (.679) indicate a satisfactory goodness-of-fit. The adjusted R-squared can be interpreted as the independent variables explaining 67.9 percent of the variance in turnout among high income OECD member countries.

The coefficient for industry value added as a percent of GDP is interpreted as for each 1 percent increase in GDP from industry value added, the model predicts that there will be a 2.23 percent reduction in the turnout rate of the voting age population for OECD member countries, holding everything else constant. The model also predicts that for every 1 percent increase of GDP that goes toward public spending on education, OECD members can expect a 5.95 percent increase in turnout, holding everything else constant. This is consistent with the voluminous literature on voter turnout using individual level data indicating that turnout rates are higher among those who are better educated.¹⁴⁰ Finally, for each year that an OECD member country's regime continues, there will be a corresponding .296 percent decrease in turnout, holding everything else constant. These results lend support for the hypotheses that state: 1) Countries with greater total public

¹³⁹ While twenty-four countries were coded as members, the sample size of the model is only 18 because some cases were dropped due to missing data. This makes statistical significance much more difficult to achieve.

 ¹⁴⁰ Sidney Verba, Kay Lehman Scholzman, and Henry E. Brady, *Voice and Equality: Civic Voluntarism in American Politics*. (Cambridge, Mass: Harvard University Press, 1995); Lester Milbrath and M. L. Goel, *Political Participation: How and Why People Get Involved in Politics*. (Chicago, IL: Rand McNally, 1977); M. Margaret Conway, *Political Participation in the United States*. (Washington D.C.: Congressional Quarterly Press, 1991); David Hill, *American Voter Turnout: An Institutional Perspective*. (Boulder, CO: Westview Press, 2006); Ronald Inglehart, *Culture Shift in Advanced Industrial Society*. (Princeton, NJ: Princeton University Press, 1990). p. 343.

spending on education will have higher rates of voter turnout; 2) Countries with greater industrial development will have lower rates of voter turnout; and 3) Countries with older regimes will have lower rates of turnout.

Similar results do not appear for OECD non-members/low income members (Table 5, column 2). The sample size of OECD non-members is 68 as opposed to the sample size of 18 for OECD members. It appears that even with a larger sample size, the model is not suitable for predicting turnout in countries that are OECD non-members. By comparing the two sets of regression results it appears that not only does OECD membership play a role in predicting turnout for groups of countries, but so does their level of income since some OECD members are placed in with the non-members on the basis of gross national income per capita.

Even though this study has produced relatively little evidence to support the hypotheses, it is noteworthy that the hypotheses and data do a better job at predicting turnout for wealthy OECD member countries than for any of the other countries. The hypotheses were formulated based on the theory of machine politics corroborated by Rauch and Ohmae and Van Creveld who argue that globalization is changing the dynamics of the global political economy to the point that international financial regimes are assuming the authority once held by government.¹⁴¹ This study predicts that voter turnout will decline globally along the lines of economic growth; increased economic

¹⁴¹ Robert K. Merton, "Latent Functions of the Machine: A Sociologists View," *Social Theory and Social Structure*. Revised Edition. (Glencoe, IL: The Free Press, 1957). pp. 71-82; James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from U.S. Cites During the Progressive Era," *The American Economic Review*, 85 (1995): 968-979; Kenichi Ohmae, "The End of the Nation State." In Frank J. Lechner and John Boli (eds.) *The Globalization Reader*, 2nd ed. (Malden, MA: Blackwell Publishing, 2004). pp. 214-218; Martin Van Creveld, "The Fate of the State." In Mark Kesselman (ed.) *The Politics of Globalization: A Reader*. (New York: Houghton Mifflin Company, 2007). pp. 216-228.

development; greater industry presence in the economy; longer political regime duration; and greater political competition.

Perhaps the theoretical material used to formulate the hypotheses is simply geared toward an industrialized democracy perception of how each of the independent variables should affect voter turnout. This certainly explains why more evidence is being generated for wealthy OECD members as opposed to non-members/low income members so far.

These noticeable differences between high income OECD member countries and lower income countries do warrant further investigation. As a next step, the data was partitioned to test for differences between countries in the lowest quartile of normalized GDP per capita versus those in the highest three quartiles. This limited the sample size of countries in the lowest quartile to 20, while the sample size of the highest three quartiles was 66. Again, the goal is to compare the relationships between the independent variables and the dependent variables between two separate groups of countries on the basis of economic development.

Table 6 reports the results of testing for differences in the predictors of voter turnout between the two groups of countries. None of the hypotheses are supported in the first model. We can see that the coefficient for total spending on education as a percent of GDP is significant at the .05 level and is in the direction opposite to the one expected. The coefficient demonstrates that for every one percent increase of GDP that goes for public spending on education, there will be a 9.29 percent decrease in turnout for countries in the lowest quartile of GDP per capita, holding everything else constant. In

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general, the least economically developed countries actually experience a decline in turnout as more money is spent on education as a percent of gross domestic product.

Model 2 in Table 6, which tests only countries in the upper three quartiles of logged GDP per capita, does not have the same deficiencies as Model 1 in terms of sample size other than the fact that most of the coefficients are not statistically significant. The coefficient that is statistically significant is regime duration (p < .05) and the sign is the same as the one hypothesized. From this result we are able to say that for every year that the regime of a country in the upper three quartiles continues without significant change, countries will experience a .157 percent decrease in turnout. On the other hand, this effect is small enough that it would be likely be drowned out by contextual factors such as social movements that could spur people to turn out. Such movements are not accounted for in the model, however.

It is clear that the independent variables used do not offer much insight into what affects turnout when the data are separated based on levels of development using the normalized GDP per capita. Overall, there is not much evidence to support the hypotheses formulated in this study. This is peculiar considering that partitioning the data based on wealthy OECD members versus low income members/non-members was fairly productive in terms of yielding support for the hypotheses. Perhaps wealth and OECD membership in combination make the variables used in this study more useful for predicting turnout in those countries than in any of the others. The next alternative model may provide some clues as to why the measures used in this study do not predict turnout in OECD non-members/low income members because the data are partitioned by region. The final set of models divides the data by geographic region as established by the World Development Indicators website. This is a reasonable approach since the politicaleconomic environments of Asia differ from the Middle East or Latin America on the whole. One important characteristic of how countries are grouped by region is that countries with high income economies are not included in any of the regional groups. Countries with high income economies (those with a gross national income of \$10,726 or more) are given their own group for the obvious reason that they are qualitatively different from the rest of the countries in their region which are significantly poorer and are the majority in most regions.¹⁴² As such, similar stimuli may produce different effects for each country-type.

The results of the final alternative models of voter turnout are presented in Table 7. The Table displays the multiple regression models with countries grouped by geographic region. The groups which are examined and presented in the table are High Income countries, Sub-Saharan African countries, Latin American and the Caribbean countries, and European and Central Asian countries.¹⁴³

For High Income countries, the signs on industry value added as a percent of GDP, total public spending on education as a percent of GDP, and regime duration are all in the direction predicted and are statistically significant. Industry value added as a percent of GDP is significant at the .01 level and indicates that for every 1 percent

¹⁴² High income countries in the dataset include: Andorra, Antigua and Barbuda, Aruba, Australia, Austria, the Bahamas, Bahrain, Belgium, Bermuda, Canada, Cayman Islands, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, South Korea, Kuwait, Lichtenstein, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Portugal, San Marino, Singapore, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

¹⁴³ This study also ran separate regression models for the world regions of the Middle East and North Africa, East Asia and the Pacific, and South Asia. However, small sample sizes, multicollinearity, and missing observations resulted in several of the variables being dropped from the models and inconclusive results.

increase in GDP from industry value added is accompanied by a 2.06 percent decrease is expected in the turnout rate of the voting age population of High Income countries, holding everything else constant. As predicted, public spending on education as a percent of GDP is positively correlated with turnout and is significant at the .05 level. For every 1 percent increase of GDP that goes for public spending on education, there will be a 6.62 percent increase in voter turnout for High Income countries, holding everything else constant. Regime duration is negatively correlated with turnout and is significant at the .001 level. It may be said, based on the results of the table, that every year in which a regime continues without significant change is accompanied by a .287 percent decrease in voter turnout in the voting age population of High Income countries, holding everything else constant.

These results are fairly promising for future studies considering that there are only 18 countries represented in the analysis. The fact that these results are for high income countries also has some implications. High income countries as defined by gross national income per capita suggests that maybe it is not the combination of being wealthy and OECD members that makes the variables in this study useful for predicting turnout. Instead it is probably the measure used to gauge level of income that makes a more refined distinction to predict voter turnout than the normalized GDP per capita measure of development used in this study. Also, this suggests that it may simply be easier to predict voter turnout in wealthy, industrialized countries than in poorer, industrializing countries. The disproportionate number of studies shown in the literature review to examine voter turnout only in industrial democracies suggests that the results are probably influencing scholarly thinking about voter turnout. It may also explain why individual-level studies—indicating the importance of income and education in predicting turnout—have mostly been conducted in advanced industrialized countries like the United States and the United Kingdom. Because of this, it would probably be beneficial to start with a "clean slate" when theorizing about voter turnout in developing countries.

The Sub-Saharan Africa regression model was relatively less successful in predicting turnout. Public health expenditure as a percent of GDP is the only variable with a statistically significant coefficient (p < .05). The sign is the same as predicted. For every 1 percent increase in GDP that goes toward public health, a 21.56 percent increase is expected in the turnout rate of the voting age population of countries in Sub-Saharan Africa, holding everything else constant. This is a very large effect, which suggests that turnout for people in Sub-Saharan Africa is influenced quite heavily by how much is spent on health programs. As argued in the previous chapter, increases in public health expenditure allow the population to displace some of the costs that would be incurred by having to leave work in order to go vote. The effect is so large in Sub-Saharan Africa because it is extremely under-developed and citizens must rely on government not only for whatever health benefits they can receive, but probably for other services as well.

Furthermore, when one considers that the average life expectancy in Sub-Saharan Africa in 2000 was only 46 while it was 78 for High Income countries in 2000,¹⁴⁴ more people in Sub-Saharan Africa would probably turn out to vote if more money could be spent on improving and maintaining the health of the population so they could live long

¹⁴⁴ World Bank Group, *World Development Indicators*. http://0-devdata.worldbank.org.maurice.bgsu.edu/ dataonline/old-default.htm (Date accessed 03/22/06).

enough or at least be healthy enough to show up to vote. Given this, it is not surprising that public health expenditure as a percent of GDP ended up being a statistically significant predictor for countries in Sub-Saharan Africa and not being a statistically significant predictor in High Income countries.

The model also had some success in predicting the turnout rates of the Latin American and Caribbean region. Annual percent of GDP growth, total public spending on education as a percent of GDP, and the Polity IV political competitiveness rating are all significant predictors of the turnout rate in the region. Specifically, every 1 percent increase in the annual growth of GDP for countries in the Latin American and Caribbean region is accompanied by a 3.4 percent decrease in the turnout rate of those voting age populations, holding everything else constant. Also, every 1 percent increase in GDP that goes toward education produces a 6.67 percent increase in the turnout rate of the voting age population, holding everything else constant. The coefficients for annual percent of GDP growth and total public spending on education as a percent of GDP support the hypotheses of this study.

The Polity IV political competitiveness rating coefficient predicts that a 1 unit increase on the Polity IV project's political competitiveness scale will be accompanied by a 14.6 percent increase in turnout for the Latin American and Caribbean regions, holding everything else constant. This is evidence against the hypothesis that countries within the region with more competitive political systems will have lower rates of voter turnout. Perhaps this result contradicts the hypothesis because countries within Latin America particularly have been sources of much political activity, which suggests that there is a value for countries within the region to be active politically regardless of whether or not it is encouraged or discouraged in terms of formal regulation.¹⁴⁵ Furthermore, Latin America has been anything but alien to social and political upheaval during the twentieth century with several military coups and political reforms occurring for several countries during the time period.¹⁴⁶ These sorts of events would more than likely encourage participation and political competitiveness once proper democratic institutions and procedures are in place to ensure social and political stability.

The final region to be presented in which percent of the voting age population was regressed on all seven of the independent variables is Europe and Central Asia. The coefficient for total public spending on education as a percent of GDP was the only one to achieve significance. For countries in Europe and Central Asia, every 1 percent increase in GDP that goes toward public spending on education is accompanied by a 10.8 percent decrease in turnout, holding everything else constant. This is contrary to the hypothesis stated earlier which predicted a positive relationship between public spending on education and voter turnout. Industry value added as a percent of GDP, on the other hand, was significant at the .10 level and yielded a coefficient of -1.14. More observations would likely produce a statistically significant result considering there are only 23 cases representing the region.

The negative relationship between total public spending on education as a percent of GDP and the turnout rate of the voting age population that is exhibited within countries in the lowest quartile of the normalized GDP per capita in the European and Central Asian region is unusual. Considering studies that find increased education is

¹⁴⁵ John A. Booth, "Political Participation in Latin America: Levels, Structure, Context, Concentration, and Rationality," *Latin American Research Review, 14* (1979): 29-60.

¹⁴⁶ William Ratliff, "Development and Civil Society in Latin America and Asia," *Annals of the American Academy of Political and Social Science*, 565 (1999): 91-122.

conducive to voter turnout, it is only logical to expect increased public spending on education to promote increased education among a population. In turn this should promote greater turnout. It is beyond the scope of this study to figure out why this relationship occurs for these groups of countries, but perhaps it is because even though money is spent on education programs, the money spent does not actually contribute to increased education at all. Instead, the money may be used to maintain what already exists in those countries like school buildings, books, and whatever else is used to facilitate the education of people who already use the education system.

Conclusion

In this chapter we have observed that the predictive power of the original models presented are slight. The introduction of alternative models, however, shows that there is some predictive power when the data are partitioned, particularly along the lines of gross national income per capita. In addition, we have also seen that certain variables are better at predicting turnout than others as they pertain to differing levels of GDP per capita, OECD membership status, and region of the world. Speculations have been offered as to why different results appear when the data are partitioned, but they are in no way conclusive.¹⁴⁷ As such, there are some interesting implications for the theory of machine politics. In addition, there are some valuable lessons to be taken from this study with regard to conducting future research on voter turnout. The next chapter summarizes the research project and gives recommendations for future studies.

¹⁴⁷ For each of the model presented in this chapter, separate models were run using the percent of those registered to vote as the dependent variable. The results were consistent with those found in Tables1-7, however, the p-values were slightly elevated and, in some cases, the coefficients lost their statistical significance at the traditional level.



Figure 1. GDP per capita and Turnout in U.S. House Election Years Excluding Presidential Election Years (1978-1998)



Figure 2. GDP per capita and Turnout Rate in United Kingdom Lower House Elections (1979-2001)



Figure 3. GDP per capita and Turnout Rates in Portuguese Lower House Elections (1975-1999)



Figure 4. GDP per capita and the Voter Turnout Rate in New Zealand Lower House Elections (1975-2002)

Regressor	Coeffi	cient
-	В	B_s
	(SE)	
Intercept	38.18	
-	(20.96)	
Annual Percent of GDP Growth	.184	.029
	(.74)	
Normalized GDP per capita PPP	7.462	.203
In Constant 2000 International Dollars	(7.9)	
Public Health Expenditure as a	1.226	.133
Percent of GDP	(1.64)	
Total Public Spending on Education	-1.793	167
as a Percent of GDP	(1.38)	
Industry Value Added as a	196	086
Percent of GDP	(.31)	
Regime Duration	123 [†]	236
	(.07)	
Polity IV Political Competitiveness	1.161	.141
Rating	(1.08)	
RSS	2946	
SSE	25447	
TSS	28392	
F ₂	1.290	
R^2_{2}	.104	
R^2_{adj}	.023	
N	86	

Table 1. Multiple Regression Model of Voter Turnout

[†]p < .10

Regressor	Mod	Model 1		el 2 Model		lel 3
č	Coefficient		Coefficient		Coeff	icient
	В	B_s	В	B_s	В	B_s
	(SE)		(SE)		(SE)	
Intercept	55.27		60.09		56.29	
-	(10.51)		(.125)		(12.62)	
Industry Value Added as	026	011	13	058	12	054
Percent of GDP	(.25)		(.30)		(.306)	
Public Health Expenditure	2.00	.217	.99	.107	.679	.074
as Percent of GDP	(1.34)		(1.70)		(1.77)	
Total Public Spending on	-1.75	163	-1.56	145	-1.37	127
Education as Percent	(1.38)		(1.41)		(1.41)	
of GDP						
Regime Duration	091	174	13 [†]	241	13 [†]	246
	(.06)		(.07)		(.07)	
Polity IV Political	1.49	.181	1.23	.149	1.75	.212
Competitiveness Rating	(1.02)		(1.11)		(1.13)	
Dummy for			10.22	.249	11.69	.285
Countries in 4th quartile			(10.4)		(12.11)	
of Normalized GDP per capita						
Dummy for			2.56	.065	5.93	.151
Countries in 3rd quartile			(7.34)		(8.34)	
of Normalized GDP per capita						
Dummy for			3.04	.065	-5.29	113
Countries in 2nd quartile			(6.69)		(8.17)	
of Normalized GDP per capita						
(Annual Percent of GDP Growth)*(Dummy for					67	068
Countries in 4th quartile					(1.70)	
of Normalized GDP per capita)						
(Annual Percent of GDP Growth)*(Dummy for					-1.11	145
Countries in 4th quartile					(1.21)	
of Normalized GDP per capita)						
(Annual Percent of GDP Growth)*(Dummy for					2.40'	.260
Countries in 2nd quartile					(1.43)	
of Normalized GDP per capita)						
DCC	0.000		2104		1076	
RSS	2654		3104		4376	
SSE	25/38		25288		2401/	
155	28392		28392		28392	
F	1.650		1 181		1 226	
R^2	093		109		154	
R^2	037		017		028	
aaj			.017		.020	
11	80		80		80	

 Table 2. Multiple Regression Models on Voter Turnout Testing for Interaction between

 Economic Growth and Levels of Economic Development

[†]p < .10

Regressor	Mod	el 1	Mod	Model 2		Model 3	
	Coeffi	cient	Coeffi	cient	Coeffi	cient	
	B (SE)	B _s	B (SE)	B _s	B (SE)	B _s	
Intercept	30.56		43.08		33.69		
Annual Persont of CDP	(18.23)	017	(22.77)	043	(24.18)	207	
Growth	(73)	.017	(78)	.043	(1.03)	.207	
Normalized CDD per capita DDD	(.75)	287	(.78)	153	(1.39)	1/1	
In Constant 2000 International Dollars	(6.47)	.207	(8.10)	.155	(9.19)	.141	
In Constant 2000 International Donais	(0.47)	114	(0.10)	053	(0.10)	056	
Percent of GDP	(20)	114	(32)	055	(22)	050	
Total Dublic Sponding on	(.29)	120	(.52)	204	(.55)	172	
Education of Demonst	-1.40	150	-2.19	204	-1.63	1/3	
of GDP	(1.28)		(1.47)		(1.30)		
Regime Duration	- 125†	- 240	- 116	- 222	- 121	- 231	
Regime Duration	(07)	240	(07)	222	(075)	251	
Polity IV Political	1.28	156	1 11	135	1.51	184	
Competitiveness Rating	(1.07)	.150	(1 11)	.155	(1.51)	.104	
Dummy for Countries in 4th Quartile	(1.07)		10.41	260	15 31	383	
of Public Health Expenditure as a			(8.43)	.200	(11.03)	.505	
Percent of GDP			(05)		(11.05)		
Dummy for Countries in 3rd Quartile			8 4 1	188	16.95^{\dagger}	379	
of Public Health Expenditure as a			(7.37)	.100	(9.54)	.517	
Percent of GDP			(1.57)		().54)		
Dummy for Countries in 2nd Quartile			5 2 5	120	16 55	378	
of Public Health Expenditure as a			(5.96)	.120	(11.46)	.570	
Percent of GDP			(3.90)		(11.40)		
(Annual Percent of GDP					-1 19	- 111	
Growth)*(Dummy for Countries in 4th Quartile					(2.40)		
of Public Health Expenditure as a					(2.10)		
Percent of GDP)							
(Annual Percent of GDP					-2 71	- 248	
Growth)*(Dummy for Countries in 3rd Ouartile					(1.99)	.210	
of Public Health Expenditure as a					(1.)))		
Percent of GDP)							
(Annual Percent of GDP					-2 46	- 329	
Growth)*(Dummy for Countries in 2nd Quartile					(2.40)	.52)	
of Public Health Expenditure as a					(2.00)		
Percent of GDP)							
RSS	2765		3369		4127		
SSE	25627		25022		24264		
TSS	28392		28392		28392		
_							
F_{-2}	1.420		1.137		1.035		
R^2_{2}	.097		.119		.145		
R^2_{adj}	.029		.014		.005		
n	86		86		86		

 Table 3. Multiple Regression Models on Voter Turnout Testing for Interaction between

 Economic Growth and Levels of Public Health Expenditure

Regressor	Model 1		Model 2		Model 3	
-	Coefficient		Coefficient		ient Coeffi	
	В	B_s	В	B_s	В	B_s
	(SE)		(SE)		(SE)	
Intercept	34.80		29.31		40.78	
	(20.89)		(21.17)		(23.10)	
Annual Percent of GDP	.116	.018	.116	.018	-1.48	.233
Growth	(.74)		(.75)		(1.46)	
Normalized GDP per capita PPP	7.17	.195	9.98	.272	8.43	.229
In Constant 2000 International Dollars	(7.96)	111	(8.15)	000	(.083)	075
Industry Value Added as	252	111	204	090	17	075
Percent of GDP	(.31)	045	(.32)	140	(.33)	1(2
Public Health Expenditure	.411	.045	1.31	.142	1.49	.162
as Percent of GDP	(1.55) 127 [†]	242	(1.04) 121 [†]	250	(1.70) 127 [†]	242
Regime Duration	127	243	131°	230	127	242
Polity IV Political	(.07)	163	(.07)	124	(.07)	110
Competitiveness Rating	(1.08)	.105	(1 1)	.127	(1 11)	.110
Dummy for Countries in the 4th	(1.00)		-10.47	- 234	-13 33	- 298
Quartile of Total Public Spending on			(7.13)	.234	(13.62)	.270
Education as a Percent of GDP			(7.15)		(15.02)	
Dummy for Countries in the 3rd			-9.74	237	-19.08	465
Quartile of Total Public Spending on			(6.41)		(9.57)	
Education as a Percent of GDP						
Dummy for Countries in the 2nd			-8.27	199	-16.17	388
Quartile of Total Public Spending on			(6.26)		(9.86)	
Education as a Percent of GDP						
(Annual Percent of GDP					.659	.065
Growth)*(Dummy for Countries in the 4th					(2.86)	
Quartile of Total Public Spending on						
Education as a Percent of GDP)						
(Annual Percent of GDP					2.61	.286
Growth)*(Dummy for Countries in the 3rd					(1.97)	
Quartile of Total Public Spending on						
Education as a Percent of GDP)					1.07	0.5.6
(Annual Percent of GDP					1.97	.256
Growth)*(Dummy for Countries in the 2nd					(1.88)	
Quartile of Total Public Spending on						
Education as a Percent of GDP)	2402		2220		1006	
KSS	2402		25062		4000	
	23990		23003		24303	
155	20392		20392		20392	
F	1.217		1.122		1.000	
R^2	.085		.117		.141	
R^2_{adi}	.015		.013		.000	
n	86		86		86	

 Table 4. Multiple Regression Models on Voter Turnout Testing for Interaction between

 Economic Growth and Levels of Public Spending on Education

[†]p < .10

Regressor	Mode	el 1	Model 2		
5	OECD M	lembers	Non-me	mbers	
	Coeffi	cient	Coefficient		
	В	Bs	В	$\mathbf{B}_{\mathbf{s}}$	
	(SE)	-	(SE)	-	
Intercept	88.51		47.39		
	(212.69)		(26.43)		
Annual Percent of	1.82	.215	049	008	
GDP Growth	(2.14)		(.86)		
Normalized GDP per capita PPP	34.03	.230	4.54	.095	
in Constant 2000 Inter-	(37.52)		(9.83)		
Industry Value Added	2 22*	765	055	025	
as a Percent of GDP	(75)	705	(36)	025	
Public Health Expenditure	(.73) 2.71	241	1.05	003	
as a Percent of GDP	(2,72)	.271	(1.03)	.075	
Total Public Spending on	(2.72) 5 95*	507	-2.37	- 214	
Education as a Percent of GDP	(2, 22)	.507	(1.60)	217	
Regime Duration	- 296**	-1 078	- 052	- 038	
Regime Duration	(06)	1.070	(18)	.050	
Polity IV Political	-13 73	- 231	1 12	132	
Competitiveness Rating	(20.20)	01	(1.18)		
RSS	2705		1852		
SSE	632		22894		
TSS	3337		24746		
F	6.111**		.693		
R^2	.811		.075		
R^2_{adj}	.678		033		
<u>n</u>	18		68		

Table 5. Multiple Regression Models Testing for Differences between Member Countries of the OECD and Non-member Countries on Voter Turnout

**p < .01 *p < .05

NOTE: Model 2 includes low-income OECD members as well as nonmembers, since the effects of the factors used in the model are likely to be different based on levels of income.

Regressor	Mode	11	Model 2			
	Lowest quartil	le countries	Countries in Highest Thr			
	Coeffic	eient	Quartiles			
			Coeffi	cient		
	В	$\mathbf{B}_{\mathbf{s}}$	В	$\mathbf{B}_{\mathbf{s}}$		
	(SE)		(SE)			
Intercept	70.95		5.01			
-	(147.15)		(34.93)			
Annual Percent of	-2.15	265	.098	.017		
GDP Growth	(2.67)		(.77)			
Normalized GDP per capita PPP in	-12.40	091	19.54	.397		
Constant 2000 Inter-	(47.87)		(11.88)			
national Dollars						
Industry Value Added as	1.62	.568	45	179		
a Percent of GDP	(1.03)		(.34)			
Public Health Expenditure as	14.87^{\dagger}	.682	924	106		
a Percent of GDP	(7.80)		(1.73)			
Total Public Spending on	-9.29*	824	-1.13	099		
Education as a Percent of GDP	(4.01)		(1.63)			
Regime Duration	.242	.037	157*	355		
	(2.34)		(.07)			
Polity IV Political	.376	.033	1.21	.155		
Competitiveness Rating	(2.86)		(1.21)			
RSS	3565		2873			
SSE	6277		15552			
TSS	9842		18424			
F	.974		1.531			
R^2	.362		.156			
R^2_{adj}	010		.054			
N	20		66			

 Table 6. Multiple Regression Models on Voter Turnout Testing for Differences between the Least Developed Countries and More Developed Countries

[†]p < .01 *p < .05

Regressor	High In	come	Sub-Sa	aharan	Latin A	merica	Europe	e and
	Count	ries	Africa		and Caribbean		an Central As	
	Coeffic	eients	Coeffi	Coefficients		cients	Coeffic	cients
	В	B_s	В	B_s	В	B_s	В	B_s
	(SE)		(SE)		(SE)		(SE)	
Intercept	88.07		34.72		-30.55		76.10	
_	(197.3)		(84.9)		(90.2)		(53.2)	
Annual Percent of	1.46	.184	-4.37	506	-3.40*	790	.886	.172
GDP Growth	(2.01)		(2.73)		(1.02)		(1.12)	
Normalized GDP per capita PPP	41.49	.305	22.53	.434	-18.75	175	21.27	.426
in Constant 2000 Inter-	(29.60)		(36.2)		(35.5)		(19.2)	
national Dollars								
Industry Value Added as a	-2.06**	728	-2.04	838	.543	.214	- 1.14 [†]	421
Percent of GDP	(.64)		(1.41)		(.80)		(.64)	
Public Health Expenditure as a	2.74	.263	21.56*	1.079	.649	.060	2.40	.257
Percent of GDP	(2.53)		(9.45)		(4.28)		(3.0)	
Total Public Spending on	6.62*	.577	-10.36	804	6.67*	.646	-10.8**	774
Education as a Percent of GDP	(2.11)		(7.80)		(2.22)		(3.46)	
Regime Duration	287***	-1.144	.99	.434	.036	.046	406	120
	(.06)		(1.05)		(.23)		(.827)	
Polity IV Political	-17.87	323	96	087	14.6*	1.022	-2.20	307
Competitiveness Rating	(17.78)		(3.15)		(4.69)		(1.92)	
RSS	2344		3559		2774		3120	
SSE	545		4422		402		3713	
TSS	2890		7981		3176		6833	
F	6 144**		1 035		3 940		1 801	
R^2	811		446		873		457	
R^2	679		015		652		203	
n	18		17		12		23	

Table 7. Multiple Regression Models on Voter Turnout by World Region

 $^{\dagger}p < .10 ***p < .001 **p < .01 *p < .05$

CHAPTER V. CONCLUSIONS

There were several purposes for conducting this study. The principal goal was to address the paradox that exists between the scholarly literature that suggests wealthy, better educated people are more likely to vote and aggregate-level observations that demonstrate declining voter turnout in wealthy, industrialized democracies. The second goal was to further knowledge about voter turnout as a universal concept among all democracies, not just the industrialized democracies with which most scholarly literature seems to be preoccupied. In attempting to do this, voter turnout rates in 86 countries were examined—one lower house election per country in the year 2000. The final goal was to use the theory of machine politics as developed by Merton¹⁴⁸ to explain why and how voter turnout declines as economic systems grow. Relying on the lines of reasoning of Ohmae and Van Creveld,¹⁴⁹ this study argued that the current context of globalization, facilitated by rapid technological changes in transportation and communications, is producing increased reliance on the global economy and international financial regimes.

The result of these changes is the increased magnitude in how international financial regimes affect political systems to the point that the sovereignty of national governments is diminishing both domestically and internationally. Furthermore, the overall behavior of people is profoundly affected by international financial regimes in how they provide for themselves, as argued in Chapter Two. That is, the behavior of

¹⁴⁸ Robert K. Merton, "Latent Functions of the Machine: A Sociologists View," *Social Theory and Social Structure*. Revised Edition. (Glencoe, IL: The Free Press, 1957). pp. 71-82.

¹⁴⁹ Kenichi Ohmae, "The End of the Nation State." In Frank J. Lechner and John Boli (eds.) *The Globalization Reader*, 2nd ed. (Malden, MA: Blackwell Publishing, 2004). pp. 214-218; Martin Van Creveld, "The Fate of the State." In Mark Kesselman (ed.) *The Politics of Globalization: A Reader*. (New York: Houghton Mifflin Company, 2007). pp. 216-228.

people shifts from engaging in the political system to facilitate their needs being met to interacting more with the economy to satisfy their needs at all levels. If the influence of international financial regimes is so pervasive to the point that states lose sovereignty, then this should be exhibited by declining turnout as national economies grow.

The vast majority of the results reported in the previous chapter, however, do not support the hypotheses formulated in Chapter 3 based on the above theoretical argument. Moreover, the multiple regression models in this study performed rather poorly overall when it comes to explaining turnout. A brief summary of the findings elucidates what the models were and were not able to explain, and to which countries the explanatory abilities of the models better apply.

Findings Summary

The results of multiple regression analysis for the basic model (not including interaction terms) and for models testing for interactions between economic growth and levels of development; between economic growth and public health expenditure; and between economic growth and public spending on education did not produce any statistically significant findings at the .05 level or less. The only measure to produce a coefficient remotely significant (p < .10) was the Polity IV Project's regime duration measure, which calculates the number of years since the last significant change in a country's political regime. As predicted, the finding suggested that a negative relationship could be occurring between the age of a regime and voter turnout. However, it was only able to achieve significance at the .10 level which is why the results for regime duration suggest only a possible negative effect on voter turnout.

Only analyses performed on partitioned data produced statistically significant results. The principal independent variable in this study, economic growth as measured by annual percent of gross domestic product (GDP) growth, only showed up statistically significant once in the three alternative models. It was significant in the Latin America and Caribbean model. If the theoretical argument that economic growth leads people to become more involved in the economic system, leaving less time for political participation and involvement, then it only appears to apply to Latin American and Caribbean countries. There is probably a better explanation for this finding to have occurred only for this region than the one offered by the theoretical argument made in this study.

As noted in the previous chapter, the Latin American region has experienced substantial political and social upheaval throughout the past century. Part of the social and political unrest is played out through political participation on the part of the Latin American population. There is little doubt that most of the socio-political conflicts have occurred in Latin America over economic issues such as wealth disparities between wealthy elites and poor people. It was precisely these sorts of issues that gave rise to the stronghold of dependency theorists in Latin America who argue that wealthy, industrialized countries maintain underdevelopment and retard growth in Latin American countries.¹⁵⁰ Perhaps economic growth in Latin America actually serves to pacify people within the region by assuaging their political-economic discontent, thus dissuading them from voting.

¹⁵⁰ Theodore H. Cohn, *Global Political Economy: Theory and Practice*. 3rd ed. (New York: Pearson Education Inc., 2005). p. 121.

More important than this finding, which is unique only to Latin American and Caribbean countries, is that the regression model explains turnout in industrialized countries better than any other group of countries repeatedly throughout the analysis. There are two reasons that might explain this. First, the aggregate-level data employed in this study is designed to find system-level and institutional factors that explain turnout. It could be that the systems represented by each of the independent variables—economic systems, social welfare systems, industries, and political systems—are likely to be more highly developed than those in poorer countries regardless of geographic, regional location.

The citizenry in advanced industrial democracies could be more attuned to changes in these systems since their functions have become more integrated in the daily lives of people, and therefore the citizenry is more responsive to changes in those systems. To put it another way, the independent variables in this study's modeling are naturally better at explaining turnout in advanced industrial democracies by virtue of how those countries have developed compared to developing countries with younger economic, political, social welfare systems, and industries. In effect, citizens in developing countries may be less responsive to changes in the independent variables because they are not as familiar with them, so voters are less likely to base their turnout decision on changes in the independent variables.

This also leads to explaining another feature of the results of this study. As noted above, regime duration tended to be the only variable in the first four tables to consistently explain, in part, voter turnout. More interestingly, it was only a statistically significant factor for explaining voter turnout for high income OECD member countries, high income countries, and countries in the upper three quartiles of normalized GDP per capita. The maturity and development of political regimes as indicated by how long they have gone without significant change could be more fundamental to explaining voter turnout than any of the other independent variables in this study. Regime duration could also be more fundamental to explaining turnout than variables used in other studies.

To elaborate, the deep-seated nature of regime duration is predicated on the rationale that it takes time for voters to become acquainted with features of their political and economic systems before being comfortable enough to make a decision about whether or not they will vote based on changes in those features. For example, citizens who are not used to having more opportunities to advance their education may not see the need to pursue more education. In fact, they may not even have access to information that makes them aware of the value of education or access to information concerning opportunities/resources for educational advancement. Those citizens would be less likely to turn out to vote based on something for which they do not see a need or based on something of which they are not even aware. Once those opportunities and/or resources are known and become integrated into those citizens' ways of life, they will be more likely to make a decision about whether or not to turn out to vote based on changes in those resources and/or opportunities.

The second reason why the variables used in this study are able to predict voter turnout in industrial democracies more successfully than in other groups of countries could simply come from the lack of studies that would indicate what affects turnout in other countries. Chapter Two made the point clear that most of the studies concerned with voter turnout only looked at industrialized democracies,¹⁵¹ while only a handful of studies included voter turnout rates from countries other than advanced industrial democracies in their samples.¹⁵² Because of this extremely sharp disparity in the literature between what explains voter turnout in wealthy, industrialized democracies and

¹⁵² Alexander C. Pacek, "Macroeconomic Conditions and Electoral Politics in East Central Europe," *American Journal of Political Science 38* (1994): 723-744; Benjamin Radcliff, "The Welfare State, Turnout, and the Economy: A Comparative Analysis," *The American Political Science Review 86* (1992): 444-454; Sara Binzer Hobolt and Robert Klemmensen, "Welfare to Vote: The Effect of Government Spending on Turnout" (Paper prepared for presentation at the Midwest Political Science Association (MPSA) Annual Conference, Chicago, IL, April 20-23, 2006); André Blais and Agnieszka Dobrzynska, "Turnout in Electoral Democracies." *European Journal of Political Research 33* (1998): 239-261.

¹⁵¹ Robert W. Jackman and Ross A. Miller, "Voter Turnout in the Industrial Democracies During the 1980's," Comparative Political Studies 27 (1997): 467-492; Henry Milner, "Electoral Systems, Integrated Institutions and Turnout in Local and National Election: Canada in Comparative Analysis," Canadian Journal of Political Science 30 (1997): 89-106; Steven J. Rosenstone and John Mark Hansen, Mobilization, Participation, and Democracy in America. In Series New Topics in Politics. (New York: Macmillan Publishing Company, 1993); Gabriel A. Almond and Sidney Verba, The Civic Culture: Political Attitudes and Democracy in Five Nations, (Newbury Park, CA: Sage Publications, 1989); G. Bingham Powell, Jr., "American Voter Turnout in Comparative Perspective," The American Political Science Review 80 (1986): 17-43; Howard L. Reiter, "Why Is Turnout Down?" Public Opinion Quarterly 43 (1979): 297-311; Robert D. Putnam, Bowling Alone: The Collapse and Revival of American Community, (New York: Simon & Schuster, 2000); Warren E. Miller, "The Puzzle Transformed: Explaining Declining Turnout," Political Behavior 14 (1992): 1-43; Ruy A. Teixeira, Why Americans Don't Vote: Turnout Decline in the United States 1960-1984. (Westport, CT: Greenwood Press Inc., 1987); Priscilla L. Southwell, "The Mobilization Hypothesis and Voter Turnout in Congressional Elections, 1974-1982," The Western Political Quarterly 41 (1988): 273-287; Kevin Arceneaux, "The Conditional Impact of Blame Attribution on the Relationship between Economic Adversity and Turnout," Political Research Quarterly 56 (2003): 67-75; Priscilla L Southwell, "Economic Salience and Differential Abstention in Presidential Elections," American Politics *Ouarterly* 24 (1996): 221-236: James W. Endersby, Stephen E. Galatas, and Chapman B. Rackaway. "Closeness Counts in Canada: Voter Participation in the 1993 and 1997 Federal Elections," The Journal of Politics 64 (2002): 610-631; Francisco Arcelus and Allan H. Meltzer, "The Effect of Aggregate Economic Variables on Congressional Elections," The American Political Science Review 69 (1975): 1232-1239; Morris P. Fiorina, "Economic Retrospective Voting in American National Elections: A Micro-Analysis," American Journal of Political Science 22 (1978): 426-443; M. Margaret Conway, "Political Participation in Midterm Congressional Elections: Attitudinal and Social Characteristics During the 1970's," American Politics Quarterly 9 (1981): 221-244; Donald R. Kinder and D. Roderick Kiewiet, "Economic Discontent and Political Behavior: The Role of Personal Grievances and Collective Economic Judgments in Congressional Voting," American Journal of Political Science 23 (1979): 495-527; Raymond E. Wolfinger and Steven J. Rosenstone, Who Votes? (New Haven, CT: Yale University Press, 1980); Gregory A. Caldeira, Samuel C. Patterson, and Gregory A. Markko, "The Mobilization of Voters in Congressional Elections," The Journal of Politics 47 (1985): 490-509; Sidney Verba, Kay Lehman Scholzman, and Henry E. Brady, Voice and Equality: Civic Voluntarism in American Politics. (Cambridge, Mass: Harvard University Press, 1995); Lester Milbrath and M. L. Goel, Political Participation: How and Why People Get Involved in Politics. (Chicago, IL: Rand McNally, 1977); Mark Gray and Miki Caul, "Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization," Comparative Political Studies 33 (2000): 1091-1122; David Hill, American Voter Turnout: An Institutional Perspective. (Boulder, CO: Westview Press, 2006); Michael S. Lewis-Beck and Brad Lockerbie, "Economics, Votes, Protests: Western European Cases," Comparative Political Studies 22 (1989): 155-177.

what explains voter turnout in all of the other countries, there was little information to guide the investigation into which factors could affect voter turnout in developing countries.

Mobilization, Withdrawal, and No Effect Theses

The literature review covered studies that found support for three competing theses in this area of research. The first is the mobilization thesis which holds that adverse economic conditions will trigger voters to turn out because they will hold elected leaders responsible and seek to remove them from office. Inversely, as economic conditions improve, people will be less motivated to vote because they figure elected leaders are handling the economy well and there is no need to punish them by removing them from office.¹⁵³ The statistically significant relationship between annual percent of GDP growth and voter turnout in the Latin America and Caribbean region (discussed above) was the only evidence found in this study to support the mobilization thesis and corroborate the findings of other studies that have found support for its claims.¹⁵⁴

The second thesis supported by several studies¹⁵⁵ is the withdrawal thesis. The withdrawal thesis claims that adverse economic conditions will decrease turnout.¹⁵⁶ The

¹⁵⁴ Priscilla L. Southwell, "The Mobilization Hypothesis and Voter Turnout in Congressional Elections, 1974-1982," *The Western Political Quarterly 41* (1988): 273-287; Kevin Arceneaux, "The Conditional Impact of Blame Attribution on the Relationship between Economic Adversity and Turnout," *Political Research Quarterly 56* (2003): 67-75; Priscilla L Southwell, "Economic Salience and Differential Abstention in Presidential Elections," *American Politics Quarterly 24* (1996): 221-236; James W. Endersby, Stephen E. Galatas, and Chapman B. Rackaway, "Closeness Counts in Canada: Voter Participation in the 1993 and 1997 Federal Elections," *The Journal of Politics 64* (2002): 610-631.
 ¹⁵⁵ Steven J. Rosenstone, "Economic Adversity and Voter Turnout," *American Journal of Political Science 26* (1982): 25-46; Gregory A. Caldeira, Samuel C. Patterson, and Gregory A. Markko, "The Mobilization of Voters in Congressional Elections," *The Journal of Politics 47* (1985): 490-509; Raymond E. Wolfinger and Steven J. Rosenstone, *Who Votes?* (New Haven, CT: Yale University Press, 1980).

¹⁵³ Steven J. Rosenstone, "Economic Adversity and Voter Turnout," *American Journal of Political Science* 26 (1982): 25-46.

reasoning for this claim is that poor economic conditions will cause voters to be more concerned with managing and saving the resources they have instead of using them to go out and vote.¹⁵⁷ No evidence was generated in this study to support the withdrawal thesis.

The final argument competing with the mobilization and withdrawal theses is the no effect thesis. The no effect thesis asserts that economic conditions have no influence on whether or not people will vote.¹⁵⁸ The no effect thesis makes this claim on a couple of different grounds. First, the no effect thesis says, people do not associate falling on tough times financially with a political cause or solution. In other words, people will not think of elected leaders as being a potential source of or being a potential provider of political solutions to their financial/economic problems. The second basis for the no effect thesis is that hard economic times do not produce enough of a strain to motivate people to go out and vote.¹⁵⁹

In a sense, a lack of statistically significant evidence to suggest any relationship between economic growth and voter turnout is what is required to strengthen the argument of the no effect thesis. The results of the analyses performed in this study certainly falls in the category of several other studies that have also found no evidence of a relationship between economic growth and voter turnout.¹⁶⁰

¹⁵⁶ Steven J. Rosenstone, "Economic Adversity and Voter Turnout," American Journal of Political Science 26 (1982): 25-46. ¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid.

¹⁶⁰ Francisco Arcelus and Allan H. Meltzer, "The Effect of Aggregate Economic Variables on Congressional Elections," The American Political Science Review 69 (1975): 1232-1239; Morris P. Fiorina, "Economic Retrospective Voting in American National Elections: A Micro-Analysis," American Journal of Political Science 22 (1978): 426-443; M. Margaret Conway, "Political Participation in Midterm Congressional Elections: Attitudinal and Social Characteristics During the 1970's," American Politics Quarterly 9 (1981): 221-244; Donald R. Kinder and D. Roderick Kiewiet, "Economic Discontent and

Albert Hirschman's *Exit, Voice, and Loyalty* provides insight into decisions about participating and/or withdrawing from participation in political and economic systems.¹⁶¹ To begin, Hirschman observes that when individuals in human societies experience something they find disagreeable, their behavior usually goes according to two options. First, individuals can "exit," which essentially means they can remove themselves from their involvement in or association with a particular organization or system. As a result, the organization or system loses any contribution made by the individual. This is essentially how markets are supposed to operate. For instance, if a consumer purchases a product from a company and the consumer is unsatisfied with the product for whatever reason, they stop doing business with that company and start doing business with a different company. This serves as protest against the company that sold the product and they lose profit as punishment.¹⁶²

On the other hand, individuals may choose the option of "voice" to promote change or improvements in the organization or system with which they are associated. Instead of simply removing the benefits gained from their participation, members of organizations decide to demonstrate their unhappiness by expressing it directly to decision-makers within the organization or to elected officials who are accountable to their constituents because they must procure votes in order to be re-elected.¹⁶³ Hirschman says:

...[v]oice will force the firm or the party to trade its profit-making or vote-getting objectives to some extent against the discontent-reducing objective. Such a trade-

Political Behavior: The Role of Personal Grievances and Collective Economic Judgments in Congressional Voting," American Journal of Political Science 23 (1979): 495-527.

¹⁶¹ Albert O. Hirschman, Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States. (Cambridge, MA: Harvard University Press, 1970). ¹⁶² Ibid, pp. 3-4.

¹⁶³ Ibid. 4.

off becomes even more likely when the inevitable uncertainty about prospective sales or votes is taken into account. In other words, a party which is beleaguered by protests from disgruntled members because they disliked "wishy-washy" platforms or policies will often be tempted to give in to these voices because they are very real here and now, while the benefits that are to accrue from wishy-washiness are highly conjectural.¹⁶⁴

If Hirschman's argument is sound, then there is something more to be said for the null findings in this study. Hirschman shows that economic participation and political participation both have an equal role to play in the maintenance of a healthy society and both can interact (or at least they should).¹⁶⁵ Individuals in democracies are able to have a voice to promote societal change by participating in the political system. People can also promote change in the economy by either trying to change the economic policies of their governments or by making decisions within the market that best suit their self-interest.

Considering Hirschman's argument and the rationale of the no effect thesis for which the results of this study lend support, the proper conclusion to be drawn is that while people may engage in both political and economic systems, growth or contraction of the macro-economy does not appear to stimulate or impede voter turnout for most states in the global political economy, with the exception of those in the Latin America and Caribbean region. Either people simply do not perceive voting as a way to affect their economic circumstances, or not voting is a form of economic protest against the political system.

¹⁶⁴ Ibid, p. 70.

¹⁶⁵ Ibid, pp. 17-18.

Recommendations for Future Studies

The results demonstrate clearly that factors other than those used in this study affect voter turnout in poor, non-industrial democracies. There are a couple of ways to address this. First, the application of new or different theories could provide new ways of thinking about what affects voter turnout in non-industrial democracies. Second, the collection of individual-level data through surveys or even in-depth interviews might provide better information on what explains turnout in non-industrial democracies. Perhaps this could give some indication of what system-level variables people in nonadvanced industrial democracies are likely to respond to when it comes to voter turnout.

There are three characteristics not addressed in this study that may affect turnout. In countries that do not have adequate infrastructure such as transportation systems, it would be difficult for people to make their way to the polls. A lack of development in this area could hinder people from turning out to vote. In conjunction with transportation systems, the location of polling venues would play a large part in who is able to turn out. For example, polling venues are likely to be more readily available in cities because they would possess a high population density. However, if voting locations are concentrated in cities, people from rural areas are less likely to turn out to vote because the location is too far away. If transportation systems are not in place to decrease the amount of time that it takes to vote, the likelihood of people voting is further diminished. Because of this, transportation system development and voting location distribution could be crucial indicators in determining turnout.

Besides the level of transportation system development and voting location distribution, the embeddedness of modern communication technologies among

populations would probably play a significant role in turnout as well. Countries and regions that do not have the infrastructure to support the common use of the internet or wide newspaper distribution networks limits populations' access to information. If people do not have access to information about candidates; access to information about issues that affect them; or if they do not know when elections and/or referenda are being held, then they certainly will not be able to show up to vote. Since these features seem so fundamental in facilitating voter turnout, future research on voter turnout would do well to consider all three of these factors to explain turnout in non-industrial democracies.

Future studies would also benefit from having multiple sources of the same data. This study has shown one method of data imputation, the hot deck method, to boost the sample size when the number of missing observations is severe. When performing this technique during this study, the data had to come from previous years in the same dataset. Data for missing observations could not be imputed because of one criterion that would not permit data to be entered from more than five years before or more than five years after the election year. Having multiple, reputable, and reliable sources of the same data could facilitate more observations being imputed and less cases being dropped from the analysis. For instance, the World Bank is one data source for several of the operational measures used in this study. However, another source, such as a research institute, may have been able to collect data for many of the missing cases in the World Bank's dataset by retrieving them directly from economic agencies of each government. Having a second data source could allow researchers who employ data imputation methods to increase their sample sizes. Finally, the overwhelming focus on voter turnout in industrial democracies coupled with the lack of statistically significant results for developing countries in this study beckons researchers to take a more serious look at developing countries. New and/or different theories need to be developed and applied in order to come to an understanding of voter turnout globally. This study attempted to apply the theory of machine politics in the United States to global voter turnout rates. The results were not very fruitful, but perhaps the key to explaining global voter turnout is in a more encompassing theory than the ones traditionally associated with it.
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APPENDIX A

The following tables give a complete illustration of: 1) the state and the election year in which there was missing data; 2) the values imputed to fill missing observations; 3) which variables to which those values correspond; and 4) the univariate statistics for public expenditure on health as a percent of GDP and public spending on education as a percent of GDP associated with each country. Only countries for which data had to be imputed appear in the table. See Appendix B for a complete list of countries used in the analyses.

Raw data for these variables comes from the World Development Indicators website, which has measurements dating from 1960 to 2005 though in several years there are no recorded measurements. Perhaps the most useful function of these tables is comparing the value imputed to the range of possible values for each variable by country. This comparison should give the reader a sense of the potential variation that could occur and thus an idea of the overall accuracy of the figure imputed associated with each country.

State/Elec. Yr. →	Albania/2001*		Botswana/1999		Cameroon/1997		Chad/2002	
Imputed Value \rightarrow	2.84	422139	2.1525610		.7480	2.31619	2.0	147060
Imputed Year \rightarrow	N/A	2002	N/A	2001	1998	1999	N/A	1999
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education
Range		0		4.04778	.5216	1.50643		.4503689
Mean		2.842214		4.17395	1.1501	3.177195		1.757539
Minimum		2.842214		2.152561	.748	2.31619		1.564337
Maximum		2.842214		6.195339	1.2696	3.82262		2.014706
Std. Dev.		0		2.858676	.19862	.6264495		.2318978
Median		2.842214		4.17395	3.2202	3.220234		1.693575

*Only one value exists for this variable

State/Elec. Yr. →	Chi	Chile/2001		Croatia/2000		Djibouti/1997		Dom. Rep./1998	
Imputed Value \rightarrow	3.92	223620	4.4	4.4947690		3.4679560	2.2962290		
Imputed Year \rightarrow	N/A	2000	N/A	2001	1998	1998	N/A	2000	
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education	
Range		1.681818		1.00669	1.2892	2.603575		1.152655	
Mean		3.732593		4.830266	3.36908	4.36216		2.056732	
Minimum		2.543036		4.9467	2.5241	3.467956		1.143574	
Maximum		4.224854		5.50136	3.8133	6.071531		2.296229	
Std. Dev.		.5583553		.5811841	.445240	1.480886		.5105941	
Median		3.837851		4.494769	3.48845	3.546993		2.273818	

State/Elec. Yr. →	Egypt/1995*		Ghana/2000*		Guinea/2002		Indonesia/1999		
Imputed Value \rightarrow	3.8	3.8871330		4.1103260		1.8492790		1.2440170	
Imputed Year \rightarrow	N/A	1991	N/A	1999	N/A	2000	N/A	2000	
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education	
Range		0		0		.280937		.4172359	
Mean		3.887133		4.1103260		1.912577		1.119775	
Minimum		3.887133		4.1103260		1.753375		.9432611	
Maximum		3.887133		4.1103260		2.034312		1.360497	
Std. Dev.		0		0		.134567		.1765704	
Median		3.887133		4.1103260		1.93131		1.060274	

*Only one value exists for this variable

State/Elec. Yr. →	Iran/1996		Jordan/1997		Lesotho/1998		Lithuania/2000		
Imputed Value \rightarrow	2.63140	4.5497560	4.88610	4.9530150	13.	13.038110		5.9166880	
Imputed Year \rightarrow	1998	1999	1998	1998	N/A	1999	N/A	2001	
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education	
Range	.88790	.861773	.72769	3.008598		6.825184		.6832519	
Mean	2.6249	4.685131	4.3531	6.457314		9.606927		5.640986	
Minimum	2.1866	4.076715	4.1584	4.953015		6.212926		5.233436	
Maximum	3.0745	4.938488	4.8861	7.961613		13.03811		5.916688	
Std. Dev.	.29877	.3053276	.26647	2.1274		2.445345		.3245842	
Median	2.5898	4.810464	4.2723	6.457314		9.669618		5.706909	

State/Elec. Yr. →	Macedonia/1998		Mali/1997		Pakistan/2002		Peru/2000	
Imputed Value \rightarrow	4.1	202170	1.91940	2.9796930	1.9	596940	3.361740	
Imputed Year \rightarrow	N/A	1999	1998	1998	N/A	2003	N/A	1999
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education
Range		.7538278	1.0392	.0067		.7736731		.598278
Mean		3.661466	2.2064	2.983043		2.170914		3.054321
Minimum		3.366389	1.716	2.979693		1.837816		2.763462
Maximum		4.120217	2.7552	2.986393		2.611489		3.36174
Std. Dev.		.4026861	.365232	.0047376		.3436792		.2348467
Median		3.497791	2.2404	2.983043		2.002164		2.989774

State/Elec. Yr. \rightarrow	Russia/1999 3 6710380		Rwanda/2003		Slovakia/1998		Slovenia/2000	
Imputed Value \rightarrow Imputed Year \rightarrow	N/A	1998	N/A	2000	N/A 1999		N/A 2001	
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education
Range		.8998191		.1843119		1.610507		1.37494
Mean		3.468665		2.657937		4.408797		5.63402
Minimum		2.939807		2.565781		3.946265		4.751751
Maximum		3.839626		2.750093		5.556772		6.126691
Std. Dev.		.3594322		.1303282		.587274		.7658035
Median		3.623006		2.657937		4.267937		6.023618

State/Elec. Yr. →	Sri Lanka/2000		Tanzania/2000		Tunisia/1999		Uganda/2001	
Imputed Value \rightarrow	3.0	3.0513750		2.1717180		2.90		752710
Imputed Year \rightarrow	N/A	1998	N/A	1999	1995	N/A	N/A	2000
Variable \rightarrow	Health	Education	Health	Education	Health	Education	Health	Education
Range		.142437		.683371	.100000			3.728993
Mean		3.122593		2.495886	2.839			3.046369
Minimum		3.051375		2.171718	2.8			1.467421
Maximum		3.193812		2.820055	2.9			5.196414
Std. Dev.		.1007182		.4584436	.048483			1.928979
Median		3.122593		2.495886	2.828			2.475271

State/Elec. Yr. →	United States/2000		Yemen/1997	
Imputed Value \rightarrow	5.0	083190	2.020 9	.8642010
Imputed Year \rightarrow	N/A	1999	1998	2000
Variable \rightarrow	Health	Education	Health	Education
Range		.8242798	.6871001	.2273436
Mean		5.42109	1.97115	9.750529
Minimum		5.033952	1.5624	9.636857
Maximum		5.858232	2.2495	9.8642010
Std. Dev.		.3896394	.2381076	.1607562
Median		5.40134	1.9967	9.750529

APPENDIX B

Results reported in this study come from analyzing the effects of seven independent variables on voter turnout. The independent variables are: annual percent of gross domestic product (GDP) growth, normalized GDP per capita, purchasing power parity in constant 2000 international dollars, industry value added as a percent of GDP, public health expenditure as a percent of GDP, total public spending on education as a percent of GDP, regime duration, and political competitiveness. States for which data on one or more of these variables was missing were dropped listwise from the analysis. This left 86 states for inclusion in the analysis. They are: Albania, Argentina, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Botswana, Brazil, Bulgaria, Cambodia, Cameroon, Canada, Central African Republic, Colombia, Costa Rica, Croatia, Czech Republic, Djibouti, Dominican Republic, Ecuador, Egypt, Estonia, Ethiopia, Fiji, Finland, Georgia, Germany, Ghana, Greece, Guyana, Hungary, India, Indonesia, Iran, Italy, Ivory Coast, Japan, Jordan, South Korea, Kyrgyzstan, Latvia, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritius, Mexico, Moldova, Mongolia, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Niger, Norway, Panama, Paraguay, Philippines, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Kingdom, United States, Uruguay, and Yemen.