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Source: *American Journal of Political Science*, Vol. 50, No. 4, (Oct., 2006), pp. 950-961

Published by: Midwest Political Science Association

Stable URL: <http://www.jstor.org/stable/4122926>

Accessed: 10/07/2008 12:47

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# Electoral Competition, Globalization, and Subnational Education Spending in Mexico, 1999–2004

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*This article examines the determinants of primary education spending among 29 Mexican states from 1999 to 2004. There is wide variation in spending despite expectations of policy convergence due to market forces associated with globalization, and in spite of the unique potential of education spending to complement economic strategies in achieving equitable growth. This study exploits significant advantages of subnational analysis in exploring political and economic variables that have been useful in explaining spending levels cross-nationally. Consistent with these studies, this article shows that greater electoral competition leads to increased spending. In contrast to other work, however, this study finds that exposure to the global economy has distinctly mixed effects on education spending. These findings thus further highlight the positive returns to higher “quality” democracy, while underscoring the need to examine the effects of many different aspects of globalization representing a wide variety of strategies employed by governments in engaging the international economy.*

Leaders in developing countries continue to struggle to achieve consistent and equitable economic growth in the context of globalization. Improving human capital through increased spending on primary education should be uniquely attractive in addressing this, as it is one of the few steps available to policymakers that leads both to gains in economic competitiveness and to greater equity. Notwithstanding these potential benefits, and despite assertions that policies are increasingly converging as countries succumb to international market forces, governments vary widely in the resources they devote to education. This article examines some of the key political and economic incentives and constraints that determine this variation.

Recently scholars have debated the effects of globalization and democratization in developing countries on social spending more broadly. In cross-national studies of Latin America, Kaufman and Segura-Ubiergo (2001) have found that a country's integration into the global economy leads to more spending by their governments, while Brown and Hunter (1999) have shown that democracies spend more than authoritarian regimes. This aggre-

gate category of social spending, however, encompasses several sectors, and there is ample reason to believe that the forces affecting the different types of spending are quite distinct. Accordingly, these and other scholars have begun to address this problem. When disaggregating social spending into the categories of social security spending and human capital investment (health care and education spending combined), Kaufman and Segura-Ubiergo (2001) find that both democracy and globalization have negative effects on social security spending, but positive effects on human capital investment. More recently, Avelino, Brown, and Hunter (2005) challenge these results by further disaggregating social spending. They find that trade openness positively affects social security and education spending, while democracy leads to higher levels of education spending but does not affect other sectors. Still other studies, focusing on the relationship between democracy and education spending in particular among countries in Latin America (Brown and Hunter 2004) and Africa (Stasavage 2005), support these findings.

In examining the political and economic determinants of education spending, however, this study is

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I thank Wendy Hunter, Neil J. Mitchell, Mark Peceny, Kenneth M. Roberts, and three anonymous reviewers for their helpful comments, and Carlos Ornelas for his considerable help while in Mexico. I also gratefully acknowledge support for this research from the National Science Foundation Award SES-0317942 and the Social Science Research Council with funds provided by the Andrew W. Mellon Foundation.

*American Journal of Political Science*, Vol. 50, No. 4, October 2006, Pp. 950–961

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ISSN 0092-5853

innovative in its focus on expenditures at a level below the national government. Comparativists are increasingly seeing the advantages of subnational analysis (Snyder 2001). In addition to the benefit of augmenting the number of cases available for study, subnational comparisons diminish the problems of making generalizations from aggregate national data that conceal significant variation within countries. Furthermore, it is easier to control for socioeconomic, cultural, and historical variables, among others, at the subnational than at the national level, thus isolating the causal factors that lead some state governments to spend much more than others. In an effort to clarify some of the inconsistencies among cross-national comparisons, this study exploits these advantages offered by subnational analysis by examining the political and economic determinants of education spending in Mexican states.

This study recognizes that for both theoretical and empirical reasons, it is important to examine social spending in its various components. Indeed, even within education there are important divisions. Those political interests that support increases in resources for primary education are likely quite different from those that support more resources for secondary and/or higher education. Arguing that improvements in the former are likely to have the greatest impact on the most people, both in terms of economic and quality-of-life benefits, this study focuses on primary education. Specifically, it examines the state portion of spending on primary education from 1999 through 2004 in 29 of Mexico's 31 states.<sup>1</sup> The institutional uniformity at the state level in Mexico combined with significant variation in levels of exposure to the international economy, partisan control of government, and levels of electoral competition provide an ideal laboratory in which to examine some key determinants of policy choice.

In analysis of primary education spending by itself and at the subnational level, the findings here differ from some cross-national studies. In particular, while there is support for the hypothesis that gains in democratic quality, as seen in the form of increased electoral competition, lead to greater spending, this is just one of several significant factors affecting spending levels. Teacher union characteristics, economic conditions, and institutional legacies are also important. But most interestingly, this study finds that there is not a clear positive relationship between globalization and education spending, as cross-national studies have suggested. Rather, different aspects of increased integration into the global economy have far different consequences. This finding is of particu-

lar significance in recommending the need to understand the different ways that countries and states engage the global economy and the effects of these strategies.

## Case Selection

Mexico works very well as a country in which to test, at the subnational level, the strength of the findings of much of the work that has been done on social spending cross-nationally. Mexico is an increasingly decentralized federal system comprised of 31 states and the Federal District (DF) of Mexico City. Each state has a legislature of between 20 and 75 seats, two-thirds of which are elected via "first past the post" single-member districts. The remaining one-third is selected through a formula of proportional representation. Each state also has a governor who is elected for six years and who cannot be elected to consecutive terms. While similar in structure, state governments differ strikingly in the nature of the parties that control them and in their levels of electoral competition. Mexico has institutional structures at the state level that not only mimic those at the national level, but are also quite comparable across states, something that clearly cannot be said of the cross-national studies within Latin America, let alone cross-regional studies. Furthermore, while controlling for some historical and cultural variables, there is more than enough variation at the state level in the political and economic variables that are hypothesized to affect levels of spending.

The Mexican education system has undergone successive reform movements since the Revolution of the early twentieth century. Consistent with revolutionary ideologies, most of these initiatives were aimed at increasing access to education. Yet, despite some improvements, the quality of education continues to suffer. Although results of standardized achievement tests in Mexico that are directly comparable to those conducted in industrialized countries have not been made public, the indirect evidence suggests that Mexico (along with all of Latin America except for Cuba) lags far behind the developed world in terms of education quality. Colombia and Chile have announced their scores, and they rank near the bottom of the countries that participated.<sup>2</sup> In regional testing sponsored by UNESCO in 1998, Mexico ranked below both of these countries in 4<sup>th</sup>-grade mathematics achievement. Furthermore, Mexico has low secondary graduation rates even relative to countries with comparable levels of development (PREAL 2001). These indicators make

<sup>1</sup>Oaxaca and Baja California are not included due to a lack of available data. The Federal District is also omitted from analysis.

<sup>2</sup>Chile ranked 35<sup>th</sup> out of 38 countries in 1999, while Colombia ranked 40<sup>th</sup> out of 41 countries in 1996. The program was the Third International Mathematics and Science Study (TIMSS-R).

clear the significant need for reform including greater resources aimed at increasing educational quality.

In the context of Mexico's neoliberal market restructuring, there has been one overarching reform: a process of administrative and fiscal decentralization that began in 1978 was strengthened in 1992 with the "Agreement for the Modernization of Basic Education." Despite being a nominally federal system, Mexico has long been relatively centralized due largely to the fact that the hegemonic Revolutionary Institutional Party (PRI) controlled all of the state governments and was a very hierarchical and disciplined party. This centralized control eroded, however, as the PRI was subjected to increasing electoral competition in the 1980s and 1990s, and education is one of the first formal decentralization projects. While continuing to rely in part on federal transfers, state governments now have much greater autonomy in determining policy. In this context, it is important to identify the factors that differentiate Mexican states in their policy orientations and emphases.

## Theoretical Considerations

### Globalization

Mexico is also well suited for an analysis of the effects of globalization on social policy. In the context of the North American Free Trade Agreement (NAFTA) implemented in 1994, both critics and advocates of free trade have turned to Mexico to support their positions. Furthermore, the wide variation in the extent to which the Mexican states have integrated into the global economy makes it possible to test the effects of this exposure.

Cross-national studies of social spending have examined the effects of globalization in the context of two competing hypotheses (Adserá and Boix 2002; Avelino, Brown, and Hunter 2005; Garrett 2001; Kaufman and Segura-Ubiergo 2001). First, the "efficiency hypothesis" posits that higher levels of integration into the international economy will have a negative effect on levels of social spending. Spending requires resources that may be garnered through taxes on businesses or by deficit spending that raises interest rates. Both measures would harm competitiveness and dissuade potential investors, and business leaders can therefore be expected to pressure governments to decrease spending in general, including social expenditures. The "compensation" hypothesis, on the other hand, suggests that spending will accelerate in the context of increased exposure to the international economy, as governments face pressures to compensate the losers in this process through spending on social programs.

These hypotheses must be reconsidered, however, in the context of the education sector in particular, in their application to the subnational, and in realization of different facets of "globalization." First, like all public expenditures, education spending is likely to be vulnerable to the fiscal constraints anticipated by the efficiency hypothesis. However, there is unlikely to be pressure for more spending on primary education to compensate citizens facing actual losses or increased insecurity due to globalization. Rather, those at risk due to exposure to the international economy (farmers, some workers, certain entrepreneurs, to name a few) are likely to lobby for various forms of social security, job retraining programs, business loans, and subsidies—not primary education spending. Instead, counterbalancing the efficiency hypothesis in the education sector are the needs of business for an educated labor force. Not only are states likely to be pressured by existing business leaders to improve levels of human capital, but they also make themselves more attractive to outside firms seeking to invest.<sup>3</sup> Therefore, in examining the effect of globalization on education spending, the rival hypotheses are not efficiency versus compensation, but efficiency versus a human capital hypothesis.

It should be noted here that the relative merit of these two competing hypotheses is contingent upon the development strategies that governments adopt and that they roughly parallel the debate over the benefits of economic liberalization. If a country or state chooses to pursue its comparative advantage in inexpensive low-skilled labor, one would expect this to lead to the dominance of the efficiency hypothesis, and ultimately to the "race to the bottom" towards ever-lower wages and social protections that is feared by some opponents of liberalization. If, on the other hand, states see their attractiveness to investment in more skilled labor, one would expect the human capital hypothesis to better predict their policy choices, and ultimately lead to a "ratcheting up" towards higher value-added forms of production.

The logic of these expectations remains roughly similar when the level of analysis moves from countries to states. While, in the larger picture, it is the national government that makes decisions regarding trade barriers and capital controls, it is the states that have to deal practically with their implications. Within the context of a trade liberalization regime including NAFTA, states nevertheless

<sup>3</sup>Avelino, Brown, and Hunter (2005) acknowledge this possibility with regard to education spending, but they group this into the efficiency hypothesis. While recognizing that there may be efficiency gains to human capital investment, it is more straightforward here to discuss efficiency in terms of pressures to minimize the state in contrast to a human capital hypothesis that expects state expansion in this area.

are able to formulate industrial policies that make them more or less attractive as trade partners and as investment recipients. Here, just as at the national level, one can expect that states will attempt to streamline fiscally and otherwise enhance their competitiveness through human capital investment and other strategies.

Finally, "globalization" encompasses at least several different facets with regard to its effects on states. Consistent with cross-national work, this study engages two. However, the subnational level of this analysis in Mexico places some data constraints on this study. Cross-national studies use the sum of exports and imports divided by GDP as a measure of trade liberalization or exposure to global trade. These data do not exist at the state level in Mexico. Instead, this analysis employs an indicator of the extent of states' *maquila* sector of export processing. While less than ideal, this does nevertheless give some idea of the extent to which states participate in international trade. As an indicator of general economic openness, this study uses foreign direct investment (FDI).<sup>4</sup>

First, trade liberalization is expected to drive other social spending through compensatory measures. Following the logic outlined above, it could be expected to affect primary education spending positively through states' efforts to become more competitive economically. However, the efficiency hypothesis undermines this expectation. Particularly in the context of *maquila* export activity, it is likely that in the process of making states competitive, primary education is not a high priority. While somewhat dynamic, the *maquila* sector relies predominantly on low-skilled labor, and in addition to the resultant lack of demand to improve human capital, there may even be pressure *not* to invest for several reasons: producers resent the fiscal implications of higher taxes and social spending (efficiency); they would prefer a relatively docile, uneducated workforce rather than an educated group prone to organization and demands; and higher levels of education could lead to higher wages without any particular gains in labor productivity if the nature of the work demands only low skills.

Economic openness should have similarly mixed, but overall negative effects on education spending. FDI in the context of import substitution industrialization (ISI) policies prior to the 1980s was of a variety quite distinct from that which Mexico predominantly attracts today. This investment was concerned with "tariff jumping" in

order to gain access to protected local markets, and it was not searching exclusively for low-skilled labor. As such, investors were likely to be in favor of improvements to human capital, despite their costs, in order to fulfill more sophisticated labor needs. Furthermore, producers were not likely to be completely averse to the resultant increase in costs as this labor force represented, not only employees, but part of their consumer base.

FDI today, especially in the context of NAFTA, is generally of a different sort, as it seeks primarily to defray labor costs associated with low-skilled production. To a certain extent, investors make location decisions based on factors out of the control of state officials (proximity to the U.S. border being primary), but there are measures that states can take to make themselves more appealing, including offering tax incentives, and improving infrastructure and human capital (see Jepsen 2004). Given the nature of the low-skilled labor needs of many investors, however, education improvement is likely to be least important, and its investment crowded out by these other strategies.

On balance, therefore, both measurements of globalization are expected to have a negative effect on primary education spending.

*H1:* Globalization will have a negative effect on education spending.

## Electoral Competition

As analyses of social spending shifted from industrialized democracies to the developing world, scholars began to investigate the effect of democracy on spending levels (Brown and Hunter 1999, 2004; Kaufman and Segura-Ubiergo 2001; Stasavage 2005). Simply, democracies are expected to spend more than authoritarian regimes, as incumbents increase spending on popular programs in order to achieve electoral victories. Democracy thus leads to greater accountability and responsiveness. While authoritarian leaders also benefit from popular legitimacy, it is expected that elected politicians face more tangible and often immediate threats to their positions from discontent among their constituency. Furthermore, democracies offer more channels for interest articulation by societal interests that favor education spending than do authoritarian regimes.

In Mexico, the PRI, born out of the Mexican Revolution ending in 1917, dominated politics at the national level until the 1980s when it began to be challenged by two major opposition parties, the Christian center-right National Action Party (PAN) and the center-left Party of

<sup>4</sup>Cross-national studies use FDI as a measure of capital market liberalization. Since capital market regulation is controlled by the federal government, it does not vary subnationally. FDI is, however, a reasonable indicator of a states' economic openness to the international economy.

the Democratic Revolution (PRD). Since the Revolution, Mexico has had a democratic façade, but lacked much of the content that is associated with liberal democracy. While it has held elections at all levels of government, until recently these contests were anything but free and fair, as victories by the PRI were all but assured. At times this was due to a lack of opposition, and at other times it was due to various fraudulent activities. This persisted until the 1980s when opposition parties began to make inroads at subnational levels, capturing a number of state and municipal offices. Nationally, the PRD seriously contested the presidential election in 1988, and the PRI finally lost its congressional majority in 1997. The victory of the PAN's Vicente Fox as president in 2000 represented to many the end of 70 years of the PRI's "authoritarianism." The fact that the process of democratization in Mexico began subnationally has meant that states vary widely in their levels of electoral contestation, and this has led to quite different political dynamics.

Indeed, as Mexico gradually democratized during the 1980s and 1990s, the process was highly uneven across states. Some states did so rapidly, while others more slowly, thus providing an ideal context in which to study the effects of democratization while holding constant the structure of other government institutions. Even after 2000, the PRI faced little competition in the legislatures of Puebla, Chiapas, and Vera Cruz, among others. In governor's races, PRI candidates were in very little danger of losing in states such as Coahuila and Hidalgo. Nevertheless, in many states there are strong challenges to the PRI's control of the governments, and in some states, it is the PRI that is in opposition. The PAN, for example, has held more than 50% of the legislative seats in a number of states, mostly in the northern part of the country. It is especially strong in states like Nuevo Leon and Guanajuato, where in 2003 it held 64% of the seats. The PRD has been less successful at the state level, but its presence is felt almost everywhere. It is more popular in the poorer states of the south and has had consistently strong showings in the 1990s in such states as Guerrero and Morelos, where it has held over a third of the seats. At the executive level, at the beginning of 2004, only 16 of the 31 states had governors from the PRI.

This variation among states in electoral competition provides an opportunity to move significantly beyond cross-national tests of regime effects by examining the consequences for social policy of differences in the *quality* of democracy. Here, the same logic that would predict higher levels of social spending among democracies than authoritarian regimes is also useful in analyses of democratic competitiveness. Legislators who are elected, but face little danger of being unseated, or, in the case of term

limits, are members of parties that will easily prevail in future elections, face less pressure to be responsive to their constituents. Meanwhile, leaders who anticipate strong electoral challenges are likely to attempt to enact policies that will make them popular at election time. Increases in education spending affect large and potentially politically active groups including parents, teachers, and business leaders interested in state-sponsored human capital investment. It is therefore likely to be a common tool utilized by leaders facing significant electoral challenges by opposition parties.

*H2:* The level of electoral competition will have a positive effect on education spending.

## Ideology

Another potential effect on education spending is ideology. Literature on industrialized democracies (Hicks and Swank 1992) emphasized the positive effect of labor-based left-wing parties on social spending levels. In the Latin American context, there is a distinct lack of class-based left-wing parties along the lines of those found in Europe, and a prevalence of populist parties in their place. In their study, Kaufman and Segura-Ubiergo (2001) find that populism affects levels of pension funding but not education. It remains important, however, to test the robustness of this finding at the subnational level.

In the Mexican case, while the PAN and PRD could be categorized as center-right and center-left respectively, the ideology of the PRI is less clear (Coppedge 1997, 1998). After the Revolution, the PRI became the party of entrenched power, and its ideology ranged from the revolutionary left to economic nationalism and then towards economic neoliberalism, culminating with the implementation of NAFTA in 1994. Its latest incarnation cannot be considered leftist. Indeed, the PRD emerged out of the PRI's apparent abandonment of the left as it flirted with economic orthodoxy. The PAN, in contrast, is pro-business, but also contains elements of strong socially conservative Catholicism. Therefore, with regard to an ideological effect on education spending, the presence of the PRD, the lone left-wing party, is expected to lead to higher levels of spending on popular programs, including education.<sup>5</sup>

<sup>5</sup>Nevertheless, based on the argument that the PRI, despite its recent neoliberal shift, has consistently engaged in populist spending in order to bolster electoral support among key constituencies, this analysis tests the effects of a comprehensive "populist" category that includes both the PRD and the PRI. The results are not significant.

*H3: Left-wing parties should have a positive effect on education spending.*

### Teachers' Unions

Finally, as distinct from other social service sectors, unions have a large impact on the provision of education. Indeed, teachers' unions are among the most powerful labor organizations in many developing countries and are therefore well poised to combat reforms they oppose while demanding those they favor, primarily increased resources (Corrales 1999; Nelson 1999). There are three main reasons for this. First, teachers' unions have a nationwide presence and their membership is generally quite large.<sup>6</sup> Second, teachers are a relatively homogeneous group; other nationally organized unions often represent multiple companies and interests that differ in terms of specific market niches, while teachers' demands revolve around relatively uniform calls for increased resources across the sector. Finally, the tools that unions employ in collective bargaining, namely strikes or the threat of strikes, are particularly powerful relative to other public sectors in that they are highly successful in disrupting the government while causing little injury to the rest of society. While other sectors such as transportation and health care inconvenience society at large, in addition to the government, when educators strike, they disrupt citizens only to the extent that they require temporary alternative child-care, often not much of a problem for the extended family households of Latin America (Corrales 1999, 11–12).

A standard measurement of labor union strength is the extent of membership, or union density. This indicator is not very useful in the context of Mexican teachers' unions due to the fact that membership is nearly universal among teachers in the National Syndicate of Education Workers (SNTE), the primary union, which is affiliated with the PRI. There is a secondary, more leftist, faction within the union, the National Coordination of Education Workers (CNTE), which emerged in the late 1970s as a caucus within the SNTE that has attempted to make the latter a more democratic organization. While Murillo (1999) argues that the presence of two unions (or factions in this case) leads to a fragmentation that weakens the union movement as a whole, she contends that the presence of the militant CNTE has served to strengthen the teachers' union in Mexico. Certainly the CNTE is a vocal political force, frequently engaging in marches and walkouts, and with some members who spend a month or

more of their summer vacation camping out in the central *Zócalo* plaza in Mexico City in protest of the Ministry of Education. Working under this assumption, this study employs a survey of Mexican academics familiar with the union situation that indicates the strength of the CNTE as a proxy for union strength in general. Raw membership figures would clearly have been preferable, but these data do not exist. Even if they did, there would be good reason to suspect their reliability due to the incentives leaders have to demonstrate the CNTE's strength by inflating membership figures. On a scale of one to five, respondents were asked to rank the strength of the more leftist CNTE across all 31 states. This is expected to be positively correlated with education spending in that the higher the indicator, the greater the militancy of the union in general, and the more significant its power to affect pressure on the government.

*H4: Left union strength will have a positive effect on education spending.*

### Other Variables

A number of other variables are included in this model for purposes of control. Some of these are consistent with the models used in cross-national studies, while others account for characteristics unique to subnational studies, and to the Mexican case in particular. First, there are two reasons to expect that GDP (INEGI 2005b) will have an effect on the level of resources a state devotes to primary education and that this effect will be positive. First, governments of wealthier states will simply have more money to devote to the public sector, including education. Second, as a state's economy grows, so too does a middle class increasingly aware of the returns to education. As they become an ever-larger political force, they are likely to pressure the government for improvements in this sector. Also included is a measure of change in GDP in order to control for the effects of annual fluctuations in the strength of the economy.

Second, in a federal system such as Mexico's, government funding of programs is not always straightforward, as some resources come in the form of transfers from the federal government while others originate within the states themselves. The states' portion of education spending is what is of interest in this study, and the percentage of states' total education spending that is funded by the states themselves varies significantly. In 1999, for example, the percentage of the education budget supported by the state was approaching 50% in Baja California and the State of Mexico, while it was less than 5% in Quintana

<sup>6</sup>The main Mexican teachers' union, the SNTE, counts more than 1.2 million members (Arnaut 1999).

Roo and Hidalgo. We can expect that the federal government makes its decisions regarding the size of any state's transfer for education to be based in part on the state's capacity and willingness to support its own system. That is, states that spend more of their own resources may receive less from the federal government. But more pertinent to this study, we may see a reverse effect in that the amount of transfers any particular state receives from the central government will have a negative effect on the amount of resources a state chooses to contribute. A state that receives less money from the federal government, for whatever reason, may feel a need to supplement these resources. Leaving aside the question of the determinants of the dispersion of federal spending for another study, this model includes federal transfers as a control variable.

Finally, and peculiar to the Mexican case, is the presence historically of a state education system in many states parallel to the national one. These systems developed over the course of the second half of the twentieth century, and in some states they are quite large (the largest was just over 50% of all students in the state of Mexico), while in other states they do not exist at all. At least in some states, these systems emerged as an effort by local officials to wrest control over education from the central government. Since the state systems were funded by the state, their presence and size play a large role in determining the extent to which state governments are engaged in funding education. However, in 1992, the aforementioned decentralization agreement mandated that states with two systems merge them into a single system over which they would have control (states with only the federal system would simply be transferred administrative authority). The success of this fusion varies significantly by state, with some states awkwardly managing two parallel systems. Regardless, this policy has altered not only the structure of education in the states, but also the motivational logic of state spending decisions. Nevertheless, one would expect that the legacy of the presence of a state system will positively affect states' financial commitments to education, if for no other reason than fiscal inertia where a state accustomed to contributing its own resources to education continues to do so, despite decentralization. It is therefore included in the model.

## Methodology and Analysis

To test these hypotheses, this study employs a pooled cross-sectional time-series (CSTS) dataset that consists of 29 Mexican states over the six years from 1999 to 2004. Rapidly becoming the standard for similar studies

in comparative politics is the method suggested by Beck and Katz (1995, 1996): pooled cross-sectional time-series regression with panel-corrected standard errors to compensate for panel heteroskedasticity. Nevertheless, Beck and Katz note that it is not possible to use this method (or at least results are suspect) in a model where the number of time components is less than 10 ( $T < 10$ ). Instead, this study employs the generalized estimation equation (GEE) extension of generalized least-squares estimation (Liang and Zeger, 1986). This technique is more appropriate for datasets with fewer than 10 time points and relatively more panels (states). It has the added benefit of producing estimators that are unaffected by autocorrelation and heteroskedasticity.<sup>7</sup>

The models do not include a lagged dependent variable (LDV) for two reasons. The first is practical. Due to the limited number of years in this dataset, combined with some sporadic missing values for some of the states, including an LDV will seriously diminish the number of observations. Secondly, as Achen (2000) demonstrates, in cases with shorter time series, the inclusion of an LDV may lead to an underestimation of the significance of the coefficients of other key (and more theoretically interesting) explanatory variables.

## Operationalization of Variables

It should be noted that in engaging in the subnational study of developing countries, there are some inherent problems, and Mexico is no exception. The primary difficulty is in obtaining reliable data at the level of federal or local units. While aggregate national data abound in Mexico, state-level figures for a host of indicators are not as prevalent (though there have been marked improvements since the mid-1990s, and especially in the context of moves towards greater levels of transparency under the presidency of Vicente Fox). Partly a legacy of the PRI's attempt to disguise its use of funds for clientelist purposes,

<sup>7</sup>Nevertheless, GEE produces a random-effects model, while most of the cross-national studies on spending have employed fixed-effects models in order to control for omitted variable bias. There is considerable debate, however, over the merits of including controls for fixed effects. First, the inclusion of state dummies (the primary method of controlling for fixed effects) lacks theoretical basis. Second, these dummies are likely to be collinear with the variables that are important. Third, fixed-effects models cannot estimate the effects of variables that do not vary over time and tend to underestimate the effects of variables that vary only slightly (both types of variables are quite common in political analyses). Finally, there is reason to believe that the omitted variable bias is far smaller a problem in the context of such similar units of analysis as states rather than countries. For these reasons, the reported results are from the GEE random-effects estimation.

and in part as a result of the tendency of states to underreport the use of their own monies in order to garner larger transfers from the national government, state budgetary numbers are only recently becoming reliable. Other indicators, such as state-level indicators of globalization, are only spottily collected, though this has improved since the implementation of NAFTA. Despite these limitations, however, the figures that do exist, and the fact that many of them are more reliably comparable than much of the cross-national data, are sufficient to draw conclusions in this analysis.

It is primarily the availability of the spending data that limits the temporal component of this analysis. Comprehensive data regarding spending that are available through Mexican governmental sources are aggregate. Educational resources are reported by state, but there is no distinction between that which is transferred from the federal government and that portion that is from the state itself. However, there does appear to be a recent emphasis on collecting state-level data in the national-level Ministry of Education (SEP). But it is only recent. Reliable data exist only for the years 1999–2004, and these are unpublished data obtained directly from the SEP. They are presented in constant Mexican pesos using GDP deflators (IMF 2005). Most cross-national studies examine spending as a percentage of GDP and control for demographic effects by including the percentage of the population under the age of 15. However, this presents a problem of multicollinearity in that this variable is highly correlated with some of the other key independent variables in the model. Therefore, this model examines the determinants of spending standardized by student (INEGI 2003, 2004).<sup>8</sup>

Standard measures of globalization include indicators of trade and capital market openness. The former is generally measured as exports plus imports divided by GDP, while the latter is expressed in terms of levels of foreign investment, primarily FDI. Import/export figures by state in Mexico are not available, but there are measures of exports from within the *maquila* processing zones.<sup>9</sup> While not ideal in terms of replicating cross-national studies with regard to trade liberalization per se, the *maquila* sector does represent a significant portion of trade overall, as

<sup>8</sup>This has the additional benefit of helping to control for panel heteroskedasticity by standardizing the dependent variable. The data on the number of students are from 1999 to 2003. Figures for 2004 were extrapolated.

<sup>9</sup>The data available from INEGI omit states that have relatively low levels of *maquila* activity, aggregating the leftover into a category of “other states.” The following analysis treats these states as though they have no *maquila* activity (a value of zero). Nevertheless, when the models are tested treating these years and states as missing values, though substantially reducing the number of cases, the results are unchanged.

well as one of the dominant strategies Mexico has chosen to engage the global economy. Additionally, FDI is available by state, but is used here as an indicator of economic openness (INEGI 2005c; see footnote 4). Both measures are expressed per capita to control for state size.<sup>10</sup>

Legislative electoral competition is measured by the effective number of parties in the states’ legislatures (CIDAC 2005). This value is calculated as  $N_s = 1/\sum p_i^2$ , where  $N_s$  represents the effective number of parties measured by the number of seats and  $p_i$  is the proportional share of seats of the  $i$ -th party (Laakso and Taagepera 1979). In other countries, this indicator, which basically measures the extent of party system fragmentation, might not be an appropriate measure of electoral competition. In Mexico, however, until recently  $N_s$  was only slightly greater than 1.0, reflecting the electoral dominance of the PRI. Thus, any increase toward a score of 2 or 3 indicates a shift from the hegemony of the PRI towards a more competitive two- or three-party system.<sup>11</sup> Therefore, it is expected that the greater the number of parties, the higher the level of competition.<sup>12</sup> At the gubernatorial level, margin of victory is used to measure competitiveness (CIDAC 2005).<sup>13</sup> Left-wing party strength is operationalized as the percentage of the seats in the legislature held by the PRD. For governors there is a dummy variable where 1 indicates a PRD governor. For union strength the results of the aforementioned survey are included, which indicates the strength of the leftist union, and therefore the militancy (and thus the strength) of the union overall.

Turning to the control variables, GDP is lagged one year and logged in order to control for variation in the sizes of the states’ economies (INEGI 2005b). Federal transfers for education come from the SEP and are standardized per student and in constant pesos. Finally, the size of the state’s education system is a bit difficult to determine. Certainly the federal and state governments kept track of

<sup>10</sup>Population figures come from the 2000 Mexican census and are extrapolated both before and after 2000 based on population growth rates provided by INEGI. See INEGI (2000, 2005a).

<sup>11</sup>A score of 2 means that the PRI is facing competition on at least one side (left or right), while a score of 3 indicates that the PRI is facing competition on both sides.

<sup>12</sup>Alternatively, a model with a different measure of legislative competition—the percentage of seats held by the largest party in the legislature subtracted from the percentage held by the second largest party—produced similar results.

<sup>13</sup>Under the assumption that strong competition between the two parties that are more to the left ideologically (the PRD and the PRI) would have a greater effect on spending than competition more generally, a model was tested that included the win margin between these two parties in the governors race, and a dummy variable for legislatures where these two parties were the strongest of the three. The results were not significant.

the number of students and teachers in primary education by system. But since the federal/state distinction at least nominally disappeared after 1992, this is no longer the case. Figures for the last year before the systems merged would serve as a reasonable indicator of the historical legacy of state systems on spending, but they are not readily available. Alternatively, this study uses a scale from 1 to 3 assigned by Latapi and Ulloa Herrero (2000) where 3 indicates a state with a state system roughly the size of the federal one, 1 indicates no state system or almost no system, and 2 represents a system somewhere in the middle. Finally, also included is a measurement of the change in GDP to control for the effects of economic swings. Because GDP data for 2004 are unavailable, the inclusion of this variable leads to a drop in the number of observations. Therefore, results of models with and without this variable are reported.<sup>14</sup> The model, therefore, is as follows:

$$\begin{aligned} & \text{State education spending per student} \\ &= \beta_1(\text{Constant}) + \beta_2(\text{Legislative Competition}) \\ &+ \beta_3(\text{Gubernatorial Competition}) + \beta_4(\text{FDI}) \\ &+ \beta_5(\text{Maquila Exports}) + \beta_6(\text{PRD Legislature}) \\ &+ \beta_7(\text{PRD Governor}) + \beta_8(\text{Union Militancy}) \\ &+ \beta_9(\text{Logged GDP per Capita})_{t-1} \\ &+ \beta_{10}(\text{Change in GDP}) \\ &+ \beta_{11}(\text{Federal Spending per Student}) \\ &+ \beta_{12}(\text{State System Index}) + \varepsilon \end{aligned}$$

## Results and Discussion

The results demonstrate some consistency with cross-national studies, along with some marked differences. Notably, there is support for the positive effect of electoral competition on education spending. The finding holds at both the legislative and the gubernatorial levels.<sup>15</sup> As an extension of the logic predicting a positive effect of democratic regimes on spending, this finding is consistent with the work of Brown and Hunter (1999, 2004) and Stasavage (2005), among others. It nevertheless moves beyond cross-national work by providing evidence that

<sup>14</sup>One other control variable, population, was tested in order to control for the possibility that larger states would have difficulty keeping up with smaller states with regard to spending. The results were insignificant.

<sup>15</sup>The negative sign for the coefficient for gubernatorial competition represents the fact that the indicator is win margin where the closer to zero, the higher the level of competition.

**TABLE 1 Results of Generalized Estimation Equation (GEE) Extension of GLS on Education Spending in 29 Mexican States from 1999 to 2004**

	Model 1 Spending per Student	Model 2 Spending per Student
Legislative Competition (effective # of parties)	126.73** (60.74)	173.5** (78.7)
Gubernatorial Comp. (win margin)	-956.7** (447.6)	-1166.6** (569.3)
FDI per capita	-.727** (.334)	-828** (.351)
Maquila Exports per Capita	.132*** (.03)	.14*** (.029)
PRD Legislature (left-wing)	-.24.6 (252.6)	34.05 (271.7)
PRD Governor (left-wing)	237.9* (129.96)	221.45 (137.4)
Union Militancy (CNTe strength)	318.2*** (123.6)	300.3** (125.2)
Lagged Logged GDP	773.2** (330.8)	821.3** (359.3)
Change in GDP		-13.9** (5.88)
Federal Spending per Student	-.021 (.034)	-.065* (.038)
State System	753.05*** (146.8)	725.5*** (141.8)
Constant	-9147.5** (3685.6)	-9369.4** (4020.0)
Pseudo R-Squared <sup>1</sup>	.61	.64
N	153	129

\*\*\*Significant at 1%; \*\*significant at 5%; \*significant at 10% (Standard errors in parentheses).

<sup>1</sup>The square of the correlation between the predicted values and the observed values.

positive returns to democratic transition with respect to education policy do not stop at the moment of democratization. Rather, gains continue to accrue as the quality of democracy improves. While this finding adds texture to arguments about the effects of regime, the other findings in the model demonstrate that there are numerous forces that affect education spending in the context of democracy, widespread in Latin America after the so-called "third wave" of the 1980s.

First, there is a strong positive relationship between the presence of a left-wing rival to the main SNTE teachers' union and education spending. That is, consistent

with Murillo, it appears that the presence in states of the relatively militant CNTE serves to place greater pressure on the government to increase education spending. There is also, however, a clear theoretical connection between democratic competition and the effectiveness of union movements, as elected leaders are more vulnerable to the effects of strategies that unions employ. Furthermore, it is also likely the case that the SNTE's historical alliance with the PRI (and therefore, until recently, with the government) led to complacency, and a lack of real demands, and that the presence of the CNTE along with competitive democracy has led to more dynamic union-government relations.

Second, though only weakly significant, there is some evidence to suggest that ideological factors do indeed matter. There is no evidence to support the contention that left-wing (PRD) influence in state legislatures has an effect on spending levels, though this may be a reflection of the fact that, during the period of analysis, the PRD holds a plurality of the seats for only three years in one state (Zacatecas) and a majority for the entire period in only one other (Baja California Sur). The effect of the presence of a PRD governor, however, though significant at only .06, is positive.

Third, the presence and extent of a state system, before decentralization, leads to more spending. This suggests the powerful effect of institutional path dependence, especially considering that states were supposed to merge state and federal systems beginning in 1992. The effects of the other control variables, while important, are not very surprising, with one exception. GDP has a positive effect on the allocation of education resources. There is only very weak support for the contention that the level of state education spending is incumbent on the level of federal transfers. The effect of changes in GDP, however, is negative. This unexpected finding could be the result of governments spending more in the context of periods of economic downturn in order to stimulate the local economy or to offer jobs to those negatively affected by the decline, resources that are diverted from education.

Finally, the impact of globalization is ambiguous. First, the level of FDI per capita has a negative effect on primary education spending. This is consistent with the expectations of the efficiency hypothesis where investment is lured to states either by tax incentives or by high-quality infrastructure, the cost of both of which will crowd out education spending. It further suggests that the kinds of investment that Mexico is attracting in the context of neoliberal development strategies are far different than that which came looking to locate inside tariff barriers during the era of ISI. Companies that come to Mexico in search of low-skilled, low-wage labor may have little in-

terest in making concessions for government investment in human capital that would lead to greater costs associated with unnecessary higher skills, as well as potentially complicate labor-management relations.

Unexpectedly, however, maquila export activity has a strong positive effect on education spending. This finding is consistent with those in cross-national studies, but finds itself completely in opposition to the effects of investment. While, by itself, it lends support to the human capital hypothesis, it is not clear why this would be true of the maquila sector, notably reliant on cheap labor, and not the case with other investment. Perhaps it is the case, as some scholars have suggested, that manufacturing investment seeking low-skilled labor nevertheless requires a workforce with some minimum level of educational attainment and that this is reflected in *support* for primary education spending (Lall 1998; Noorbakhsh, Paloni, and Youssef 2001). Indeed, the relatively high level of education quality in Latin America relative to Africa may help to explain the corresponding disparity in investment in the two regions (UNCTAD 2000). Certainly it is taken as nearly an article of faith among scholars of FDI that the quality of human capital is a primary determinant of investment (Dunning 1988; Zhang and Markusen 1999).

The task, therefore, is to disaggregate both the indicators of maquila investment and FDI as it exists in the states to attempt to discern those types of investment that are good for education spending and those that are not. Unfortunately, immediate data constraints preclude clarification by further differentiating investment by various labor needs. But these findings point to the clear need for future research. They further highlight that trade and investment are not unambiguously good nor bad for levels of education spending. Rather global economic integration is multifaceted, and studies that attempt to understand its affects must not only disaggregate social policy into its sectors, but also seek far more nuanced measurements of the various aspects of globalization.

## Conclusion

Despite some expectations, market pressures associated with an increasingly global economy have not led to uniformity in social policies. Even in the context of a policy such as primary education spending, well poised to complement increased exposure to the international economy by contributing to equitable growth, there is significant variation among governments. In addressing this puzzle, this study has shown that, notwithstanding the important contributions of cross-national examinations to the

study of social spending, the added insight to be gained by subnational analysis should not be overlooked. Indeed, subnational studies are a potentially rich source for future research.

The focus here on a specific sector of social spending, combined with the ability to examine clearly comparable units while controlling for many sociocultural variables, has revealed that, in the context of a "democracy" containing states with varying levels of democratic quality, the type of democracy matters; more competitive democracies are more responsive to social demands. Despite this important finding, this study has further shown that there are many factors beyond democratic competition that also affect the level of education spending, including union composition, institutional legacies, and economic characteristics. It has also pointedly demonstrated that globalization's effect on human capital development is much more complicated than other studies have shown. In particular, dependence on foreign investment in general appears to discourage states from spending more on primary education, while the maquila sector in particular has a positive effect. These findings demonstrate the need for a more nuanced approach to the study of the effects of globalization on policy. They nevertheless provide some hope for the prospects of improving education in developing countries, as governments become more democratic and choose development strategies in the context of globalization that complement rather than conflict with human capital development.

## References

- Achen, Christopher H. 2000. "Why Lagged Dependent Variables Can Suppress the Explanatory Power of Other Independent Variables." Presented at the annual meeting of the American Political Science Association, Los Angeles.
- Adsera, Alicia, and Carles Boix. 2002. "Trade, Democracy and the Size of the Public Sector: The Political Underpinnings of Openness." *International Organization* 56(2):229–62.
- Arnaut, Alberto. 1999. "La Federalización Educativa y el Sindicato Nacional de Trabajadores de la Educación." In *Federalización e Innovación Educativa en México*, ed. María del Carmen Pardo. Mexico, DF: Colegio de México.
- Avelino, George, David S. Brown, and Wendy Hunter. 2005. "The Effects of Capital Mobility, Trade Openness, and Democracy on Social Spending in Latin America, 1980–1999." *American Journal of Political Science* 49(3):625–41.
- Beck, Nathaniel, and Jonathan N. Katz. 1995. "What to Do (and Not to Do) with Time-Series Cross-Section Data." *American Political Science Review* 89(3):634–47.
- Beck, Nathaniel, and Jonathan N. Katz. 1996. "Nuisance vs. Substance: Specifying and Estimating Time-Series Cross-Section Models." *Political Analysis* 6(July):1–36.
- Brown, David, and Wendy Hunter. 1999. "Democracy and Social Spending in Latin America, 1980–1992." *American Political Science Review* 93(4):779–90.
- Brown, David, and Wendy Hunter. 2004. "Democracy and Human Capital Formation: Education Spending in Latin America, 1980–1997." *Comparative Political Studies* 37(7): 842–64.
- CIDAC. 2005. *Base de Datos de Elecciones Locales 1980–2004*. <http://www.cidac.org>. Mexico, DF: Centro de Investigación para el Desarrollo, A.C.
- Coppedge, Michael. 1997. "A Classification of Latin American Political Parties." The Kellogg Institute Working Paper #224, Notre Dame: The Helen Kellogg Institute for International Studies. University of Notre Dame.
- Coppedge, Michael. 1998. "The Dynamic Diversity of Latin American Party Systems." *Party Politics* 4(4):547–68.
- Corrales, Javier. 1999. "The Politics of Education Reform: Bolstering the Supply and the Demand: Overcoming Institutional Blocks," World Bank Education and Management Series Vol. 2, No. 1. Washington, DC: World Bank.
- Dunning, John H. 1988. *Explaining International Production*. London: Unwin Hyman.
- Garrett, Geoffrey. 2001. "Globalization and Government Spending around the World." *Studies in Comparative International Development* 35(4):3–29.
- Hicks, Alexander M., and Duane H. Swank. 1992. "Politics, Institutions, and Welfare Spending in Industrialized Democracies, 1960–1982." *American Political Science Review* 86(3):658–74.
- IMF. 2005. *International Financial Statistics Browser*, <http://www.imfstatistics.org>. Washington, DC: International Monetary Fund.
- INEGI. 2000. *Indicadores Sociodemográficos de México, 1930–2000*. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- INEGI. 2003. *Estadísticas de Educación, Cuaderno No. 9*. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- INEGI. 2004. *Educación Básica, Media Superior, y Educación Superior*. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- INEGI. 2005a. *Anuario de Estadísticas por Entidad Federativa*. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- INEGI. 2005b. *Sistema de Cuentas Nacionales de México: Producto Interno Bruto por Entidad Federativa, 1998–2003*. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- INEGI. 2005c. *Banco de Información Económica*, <http://dgcnesyp.inegi.gob.mx>. Mexico, DF: Instituto Nacional de Estadística Geografía e Informática.
- Jepsen, Eric M. 2004. "The Political Economy of Subnational Investment Promotion in India and Mexico: Evidence from Six State Governments." Presented at the annual meeting of the American Political Science Association.
- Kaufman, Robert R., and Alex Segura-Ubiergo. 2001. "Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973–97." *World Politics* 53(4):553–87.

- Laakso, Markku, and Rein Taagepera. 1979. "The Effective Number of Parties: A Measure with Application to Western Europe." *Comparative Political Studies* 12(1):3–27.
- Lall, Sanjaya. 1998. "Changing Perceptions of Foreign Direct Investment in Development." In *International Trade, Foreign Direct Investment and the Economic Environment: Essays in Honour of Professor Sylvain Plasschaert*, ed. P. K. Mathew Tharakan, D. van den Bulcke, and Sylvain R. F. Plasschaert. New York: St. Martin's Press.
- Latapí Sarre, Pablo, and Manuel Ulloa Herrero. 2000. *El Financiamiento de la Educación Básica en el Marco del Federalismo*. Mexico, DF: Fondo de Cultura Económica.
- Liang, Kung-Yee, and Scott L. Zeger. 1986. "Longitudinal Data Analysis Using Generalized Linear Models." *Biometrika* 73(1):13–22.
- Murillo, Victoria M. 1999. "Recovering Political Dynamics: Teachers' Unions and the Decentralization of Education in Argentina and Mexico." *Journal of Interamerican Studies and World Affairs* 41(1):31–57.
- Nelson, Joan. 1999. *Reforming Health and Education: The World Bank, the IDB, and Complex Institutional Change*. Washington, DC: The Overseas Development Council.
- Noorbakhsh, Farhad, Alberto Paloni, and Ali Youssef. 2001. "Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence." *World Development* 29(9):1593–1610.
- PREAL (Partnership for Educational Revitalization in the Americas). 2001. *Lagging Behind: A Report Card on Education in Latin America*. Washington, DC: PREAL and Inter-American Dialogue.
- Snyder, Richard. 2001. "Scaling Down: The Subnational Comparative Method." *Studies in Comparative International Development* 36(1):93–110.
- Stasavage, David. 2005. "Democracy and Education Spending in Africa." *American Journal of Political Science* 49(2):343–58.
- UNCTAD. 2000. *World Investment Report 2000: Cross-Border Mergers and Acquisitions and Development*. Geneva: UNCTAD.
- Zhang, Kevin Honglin, and James R. Markusen. 1999. "Vertical Multinationals and Host-Country Characteristics." *Journal of Development Economics* 59(2):233–52.