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"Fiscal Space"—or Fiscal Policy under Constraints?

Roberto Perotti

The notion of fiscal space is not particularly insightful. The key question is what constitutes an optimal fiscal policy under constraints

The debate on the constraints facing fiscal policy started in the aftermath of the financial crises of the late 1990s. Many developing countries were perceived as sacrificing their long-run growth potential so as to show some sign of fiscal discipline. The drive toward fiscal discipline, demanded by the market and international organizations and later willingly pursued by many of these countries, could be ascribed to various reasons (not all independent): fears of unsustainability, credit constraints, or precautionary savings. There was strong pressure on international organizations to help relax these constraints and to provide a framework for thinking about the issue. Thus the concept of "fiscal space," which, according to a recent survey paper by Perotti, has confused rather than helped the debate.

For Perotti, this notion of fiscal space is essentially a restatement of the intertemporal government budget constraint. We know that to increase some type of government spending today, we need to reduce other types of spending now or in the future, increase current or future revenues, or inflate away existing nominal debt. We also know that if one type of spending has a higher social marginal value than another and the same cost, resources should be moved from the second to the first. In the end it all boils down to making an assessment of fiscal policies based on their economic effects and their social welfare impact.

But wasn't this the problem all along? The relationship between fiscal policy and macroeconomic stability has always been central to the debate on the effects of fiscal policy in developing countries. The notions of fiscal space and its close cousin, macroeconomic space, suffer from loose definitions and so can be a source of confusion. Even when correctly defined, they are not particularly insightful. The key question is what constitutes an optimal fiscal policy under constraints—the main ones being the intertemporal government budget constraint, credit constraints, and political constraints.

The facts are uncontroversial: In developing countries fiscal policy is typically procyclical—the budget deficit is positively correlated with measures of economic activity such as the output gap. By contrast, in OECD countries there is a zero or negative correlation. These patterns of correlation seem to be due mostly to government spending (though a sound assessment of the cyclical properties of tax rates is not possible, since we lack good information on tax rates, except inflation, for developing countries). The positive correlation between output gap and deficit or spending is particularly pronounced during downturns. Both

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FOCUS
Climate Change and Agriculture in Africa

Climate change will have a significant impact on African agriculture. How farmers adapt will matter

African farmers and agricultural systems are at the forefront of vulnerability to climate change. Yet until recently there has been little or no comprehensive understanding of vulnerability to climate change across Africa—critical to guide concerted and focused policy and investment interventions needed to protect agriculture, which is central to many African economies.

A recent study, synthesized in *Climate Change and Agriculture in Africa*, undertook a comprehensive quantitative analysis and assessment of potential economic impacts of future climate change on agriculture—and the value of measures to adapt to climate change—for different zones, regions, countries, and farm types in Africa. Four papers address different aspects of the climate change–agriculture nexus, using a survey of nearly 10,000 farmers sampled across West Africa (Burkina Faso, Cameroon, Ghana, Niger, Senegal), southern Africa (South Africa, Zambia, Zimbabwe), East Africa (Ethiopia, Kenya), and North Africa (Arab Republic of Egypt). The analytical framework is based on the presumption that there is a relationship between the value of land (if available), or the net revenue from growing crops, and climate, while controlling for water availability (runoff), soil quality, and socioeconomic variables.

Kurukulasuriya and Mendelsohn, in a Ricardian analysis of the impact of climate change, find that net revenues fall as precipitation falls or as temperatures rise across all surveyed farms. Examining rainfed and irrigated farms separately, they also find that rainfed farms are especially climate sensitive. Irrigated farms, located in relatively cooler parts of Africa, have an immediate positive response to warming. Using a climate sensitivity response function, the authors simulate climate change scenarios, both uniform across Africa and location specific. The results suggest that not all countries are equally vulnerable to climate change—with predicted vulnerability depending on temperature and precipitation changes, whether a country is already hot and dry, and the extent to which farms are irrigated.

Maddison, Manley, and Kurukulasuriya conduct a similar analysis, except that they use farmers' own perceptions of the value of their land (as in a land sale). The results reinforce the findings of the analysis based on climate variables. Using additional variables, this second analysis finds that distance to markets is an important factor in farmers' ability to adapt to climate change. Country differences stemming from institutions and regulations also affect adaptability.

Two approaches are used to measure adaptation. In the first, based on observed household behavior, Kurukulasuriya and Mendelsohn examine whether the choice of crops is affected by climate in Africa. Not surprisingly, crop choice appears to be very climate sensitive. The crop mixes selected by farmers differ, depending on whether the region is cooler, moderately warm, or hot—and whether conditions are dry, medium wet, or wet.

The findings in this paper suggest that as temperatures warm, farmers will shift toward more heat-tolerant crops. And as precipitation increases or decreases, they will shift toward water-loving or drought-tolerant crops. Moreover, while the analysis examines choices only among current crops, farmers may well have more choices where new varieties, more suited to higher temperatures and lower or higher rainfall, are developed.

Is the observed behavior of farmers in adapting to the present climate across Africa optimal? Maddison raises doubts about whether farmers know immediately what constitutes the best response to climate change when the agricultural practices it requires are outside their range of experience. Nor can they be expected to immediately recognize that the climate has changed.

Using responses to open-ended survey questions, Maddison determines how well farmers in Africa are able to detect climate change and how they have adapted to whatever climate change they believe has occurred. While significant numbers of farmers believe that temperatures have already increased and that precipitation has declined, those with the greatest experience in farming are more likely to notice climate change.

Among adaptations made in response to climate change, planting different varieties of the same crop and changing planting dates are important everywhere. But stratifying the data by the precise perception of climate change provides greater insights. Where temperature changes are perceived, farmers plant different varieties, shift from farming to nonfarming activities, increase water conservation, and use shading and sheltering techniques. Where changes in precipitation (especially in the timing of the rains) are perceived, varying the planting date appears to be

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How Well Do Institutional Theories Explain Firms' Perceptions of Property Rights?

Meghana Ayyagari, Asli Demirgüç-Kunt, and Vojislav Maksimovic

What explains differences in property rights protection? Legal origin may be less important than believed, and firm characteristics more so

Protection of property rights is a key factor in the efficient operation of contracts and the development of financial institutions. The critical question is why some countries have managed to develop strong protection of property rights while others have not.

A substantial body of theoretical work tries to explain the historical determinants of these differences. There is also a growing body of empirical work that assesses the relative contribution of different historical determinants in the cross-country variation of property rights protection. The most influential work has emphasized the importance of legal traditions, initial endowments, ethnic fractionalization, and culture and religion.

A paper by Ayyagari, Demirgüç-Kunt, and Maksimovic takes a more micro approach, using firm-level survey data to study how well firm-level and institutional factors explain entrepreneurs' perceptions of property rights protection. The authors use survey responses from more than 7,500 firms in 80 countries to compare the different theories and to examine the relative influence of firm effects compared with country effects. The analysis is based on variance decomposition, which allows the authors to focus directly on the relative importance of the different effects in explaining property rights without any assumptions on causality or structural analysis.

The paper evaluates four potential historical determinants of property rights protection. First, the *law and finance* view predicts that historically determined differences in legal traditions help explain differences in protection of property rights today. Focusing on the differences between the two most influential legal traditions, British common law and French civil law, this theory holds that legal traditions differ in the priority they attach to protecting the rights of private investors against the state. As colonization spread around the world, British colonizers brought with them a legal tradition that stressed private property rights protection, while French colonizers spread a legal tradition less conducive to such protection.

Second, the *endowment* view emphasizes the role of geography and the disease environment in shaping the institutional environment and the underlying property rights. In this view it is not the identity of the colonizer but the colonization strategy that determined the extent of property rights protection. According to this view, countries that are closer to the equator, with a more tropical climate, were more inhospitable to European settlers and therefore fostered extractive institutions rather than institutions that protect property rights.

Third, political theories predict that governments become more interventionist as the ethnic heterogeneity of countries increases, with the groups in power implementing policies that expropriate as much as possible from other ethnic groups. Thus the *ethnic diversity* view would predict that countries with greater ethnic fractionalization are less likely to protect property rights.

Fourth, many scholars argue that religion shapes national views on protection of property rights. For example, they argue that the Catholic religion fostered authoritarian societies with powerful bonds between church and state, limiting protection of private property rights. Thus the fourth view, *culture and religion*, predicts that differences in religion and in the systems of beliefs and culture that stem from such differences can explain differences in property rights protection across countries.

Finally, implicit in several of these theories is the prediction that some classes of firms will have their property rights better protected than others. In oligarchic societies, for example, large incumbent firms would be expected to have greater protection of property rights than smaller firms. But these firm-level differences are mostly downplayed by the institutional theories that focus on country-level differences. By considering property rights protection at the firm level, the paper sheds light on the likely importance of firm characteristics such as size, private ownership, incorporation, and industry classification.

The results show that the institutional variables explain about 50 percent of the cross-country variation in property rights protection, suggesting that current research on institutions does indeed address first-order effects. A country's legal origin predicts property rights protection better than its religion, ethnic fractionalization, or natural endowments.

But this result depends critically on sample selection. Removing formerly socialist economies from the sample significantly reduces the explanatory power of legal origin. In this smaller sample ethnic fractionalization and endowments are more important in explaining the variation in property rights protection. Since formerly socialist economies have much more in common than legal tradition, these two variables are probably capturing country characteristics that are not necessarily caused by differences in legal systems.

Focusing on firm-level differences, the authors find that such variables as size, ownership structure, and organizational form are comparable in importance to institutional factors in explaining variations in property rights protection—and in some cases even more important. These results suggest that firm-level differences, which have received little attention in the literature, are also significant in explaining perceptions of property rights protection.

Meghana Ayyagari, Asli Demirgüç-Kunt, and Vojislav Maksimovic. Forthcoming. "How Well Do Institutional Theories Explain Firms' Perceptions of Property Rights?" Review of Financial Studies.

Disability, Poverty, and Schooling in Developing Countries

Deon Filmer

Children with disabilities are less likely to acquire the education they need to earn high incomes and avoid poverty

The target of universal education remains elusive: worldwide, around 100 million children of primary school age are not in school. Children with disabilities face particular hurdles in attending, and completing, school in developing countries.

While there has been policy discussion about interventions to increase access to schooling for children with disabilities, there has been little systematic empirical analysis on which to base this policy. A large part of the reason for this is the lack of appropriate and comparable data. A new study by Filmer aims to start filling some gaps in knowledge using existing Demographic and Health Surveys, Multiple Indicator Cluster Surveys, and other Integrated Household Surveys. The 14 surveys—the earliest from 1992 and the most recent from 2004—provide data on the prevalence of disability and its association with poverty and schooling in 1 transition and 12 developing economies.

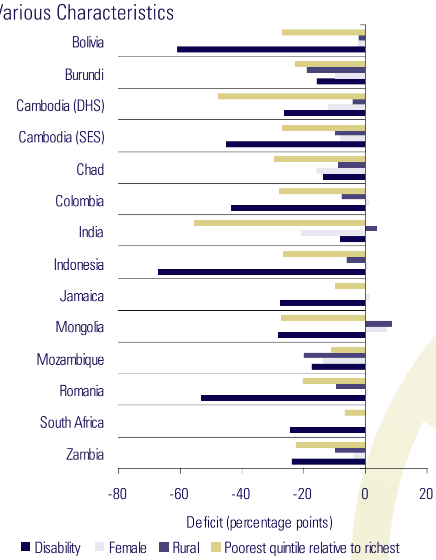
Defining disability is complicated—and controversial. Purely medical definitions are giving way to definitions that incorporate continuous measures of the activities that people can undertake, the extent of participation in society and social and civic life, and the role of adaptive technologies. The definitions of disability in the data sets used in the analysis are most closely consistent with a focus on impairment—such as having a missing limb or limited or no sight.

But there is much variation across the surveys. In the Cambodia Socio-Economic Survey, for example, the disability question includes a detailed list of potential cases: "amputation of one limb; amputation of more than one limb; unable to use one limb; unable to use more than one limb; paralyzed lower limbs only; paralyzed all four limbs." In the Jamaica survey, by contrast, there is one category, defined simply as a household member having a "physical or mental disability." The Mongolia survey describes sight and hearing problems as seeing or hearing "with difficulty," while others typically characterize such problems as "blind" and "deaf."

Despite these limitations the data are revealing. Consistent with similar surveys, the 14 surveys identify around 1–2 percent of the population as having a disability. Data for Cambodia, with two surveys and varying definitions, suggest that the percentage is not always sensitive to the exact definition: different definitions can give similar prevalence rates, and vice versa. In addition, other aspects of the surveys, such as the training of enumerators or the use to which interviewees expect the survey to be put, might affect estimated prevalence rates.

The surveys provide little evidence to suggest that youth with disabilities are generally more or less likely to live in richer or poorer households. Adults with disabilities, however, typically live in poorer households—though much of this association comes from the fact that adults with disabilities have lower educational attainment, which leads to lower economic status.

Figure 1. Deficit in Current Enrollment Associated with Various Characteristics



Note: Deficits shown are the marginal effects of dummy variables for each characteristic in multivariate probit models. Maximum age is 14, in Burundi. DHS is Demographic and Health Survey; SES is Socio-Economic Survey.

Given this finding, it is particularly worrisome that youth with disabilities are almost always substantially less likely to participate in schooling. Children with disabilities are less likely to start school and in some countries have lower transition rates, resulting in lower schooling attainment. The deficit in school participation associated with disability is typically larger than those associated with other characteristics, such as gender, rural residence, or economic status (figure 1).

This analysis suggests that disability is associated with long-run poverty: children with disabilities are less likely to acquire the human capital that will allow them to earn higher incomes. In all countries the schooling gap between children with a disability and those without one starts at grade 1. That suggests that efforts to boost the enrollment of children with disabilities are needed at the earliest grades. And the finding that the disability deficit widens from grade to grade in countries that have achieved high enrollment among children without a disability suggests that special effort may be needed to keep youth with disabilities in school—once they have started attending—in all countries.

The findings of the analysis should be treated as tentative. The goal was to exploit existing data to help orient policy, but the clearest message is that better data are needed. Establishing clear and consistent measures of disability for household surveys and national censuses would be a start. A recent review suggests that questions focusing on functionality, limited to a core set of activities, and allowing for variation in the degree of functional limitation (rather than simply the presence or absence of a limitation) should be preferred.

Implementing these questions in samples with sufficient observations to allow detailed analysis will be needed to build the quantitative evi-

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Campaign Contributions and Preferential Access to Finance

Stijn Claessens, Erik Feijen, and Luc Laeven

Preferential access to finance is an important channel for political favors for firms in emerging markets like Brazil

In many countries, especially developing ones, close links between politicians and business are associated with rent-seeking behavior and distortions in the institutional environment. The result: lower and less efficient growth and more unequal distribution of income and wealth.

Evidence of these detrimental effects exists at the very general level, as in the negative relationships between corruption and growth and general development. But empirical evidence on the specific mechanisms and channels through which business gains favors from politicians is by nature more scarce. The lack of such evidence hinders the identification of concrete policy recommendations for remedying the effects.

In a new paper Claessens, Feijen, and Laeven attempt to identify a specific channel by studying the link between campaign contributions and business favors. Studies on the relationship between campaign contributions and policy outcomes have generally been inconclusive because of an inability to distinguish between the matching of politicians' voting dispositions with firms' preferences and politicians' incentives to provide contributors with specific favors. The authors overcome this problem by looking at the relationships between firm-specific campaign contributions, firm valuation, and firm-specific preferential access to finance around the times of the 1998 and 2002 elections in Brazil.

Brazil is well suited for such a study. First, it is one of the few countries that require each candidate to register campaign contributions and justify campaign expenditures. Second, Brazil is known for strong relations between politicians and firms. Third, given Brazil's level of institutional development and distortions in real and financial markets, political connections are likely to have greater value than in the more developed countries studied to date. And fourth, much of this value could come from preferential access to finance, since Brazil has among the highest interest rates and lowest degrees of financial intermediation in the world.

Claessens, Feijen, and Laeven introduce two methodological improvements over other studies. First, they improve on the relatively rough measures of political connections often used in the non-U.S. literature. Using a novel data set of firm- and candidate-level campaign contributions, they determine whether a connection exists between a specific politician and a specific firm—and, if so, measure the intensity of the connection rather than only indicating its presence. Second, they mitigate the omitted variables problem that plagues the literature by using panel data to exploit the variation over time in political connections.

The authors find that better connected firms (that is, those that give relatively more campaign contributions) have significantly higher stock market returns around the time election results are announced and that the intensity of the connection matters. Contributions to candidates for the federal congress who win the election have an even larger positive impact on stock returns than contributions to candidates who lose the election. This empirical evidence strongly supports the notion that, in an environment with many distortions, political connections can increase firm value.

The authors next investigate whether the channel for the increase in value runs through preferential access to bank finance. They find that for firms that made contributions to (elected) federal deputies, the shares of financing obtained through bank loans increased substantially during the four years after the election. This suggests that contributing firms increased in value because they gained preferential access to finance from banks.

Claessens, Feijen, and Laeven attempt to quantify the overall cost of extending preferential bank credit to contributing firms. A welfare loss would arise if the rate of return on the investment financed by the credit is lower than that on resources invested elsewhere. They estimate this investment distortion cost by comparing the return on investment generated by contributing firms with that of noncontributing firms. This is a lower-bound measure, since there are likely to be many other costs associated with the investment distortion that the authors do not capture. They estimate the cost to be at least 0.2 percent of GDP a year—a significant amount.

Finance may not be the only channel through which firms benefit from political connections. But the results obtained by the authors support the notion that it is an important one. More generally, their findings provide new evidence on the cost of political connections in emerging markets such as Brazil. This corroborates other evidence that the rents from corruption are particularly large where there are government-imposed distortions, with negative welfare effects. And it implies that the operation of corporations in such environments, including their financing and financial structure, depends on their relationships with politicians.

Stijn Claessens, Erik Feijen, and Luc Laeven. Forthcoming. "Political Connections and Preferential Access to Finance: The Role of Campaign Contributions." Journal of Financial Economics.

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dence base for empirically grounded policies. An important complement to that analysis would be evaluations of the impact of alternative interventions to increase the enrollment of children with disabilities.

Deon Filmer. Forthcoming. "Disability, Poverty, and Schooling in Developing Countries: Results from 14 Household Surveys." World Bank Economic Review.

Micro-Decomposing the Macro Determinants of Human Development

Sylvie Lambert, Martin Ravallion, and Dominique van de Walle

Neither economic growth nor income redistribution was important in driving enrollment gains in Morocco and Vietnam. The explanations lie elsewhere

What are the proximate determinants of aggregate human development outcomes? What is the role of economic growth and of such factors as changes in income inequality or public policy reform?

There have been two approaches to examining these questions in the past. Cross-country comparisons have found that attainments in basic health and education tend to be higher in higher-income countries and, less obviously, that economic growth tends to be accompanied by improvements in social indicators. But the implications for development policy remain unclear. Is the explanation that higher average income allows a society to buy goods and services that promote health and schooling? Or is it that there is a correlation between average incomes and other country characteristics, such as better public services?

Another approach has examined the micro determinants of human development attainments. This literature too has pointed to the role of income and its distribution, but it has also emphasized a wide range of nonincome characteristics, including those of households, providers, and geographic location. But this literature has not effectively explored the implications for the aggregate relationship between human development attainments in a country and economic growth, the distribution of income, and nonincome factors.

A new paper by Lambert, Ravallion, and van de Walle aims to help bridge this gap. It develops and implements a micro-based decomposition method for consistently aggregating the empirical micro relationships and so throwing light on the macroeconomics of human development. The analytical complication over other decompositions (in the Blinder-Oaxaca tradition) is that to convincingly estimate the decomposition the authors must use a flexible, nonparametric representation of the economic gradient in human development outcomes across households.

The paper shows that changes in aggregate human development outcomes can be additively decomposed into four components: a pure growth effect associated with differences in mean income; a redistribution effect attributed to differences in the distribution of income; nonincome factors (such as parental education and distance to school); and a structural component reflecting any differences in the model parameters—the human development returns to income or nonincome characteristics.

The decomposition method is used to study changes over time as well as the intergroup disparities in school enrollments for boys and for girls in Morocco and Vietnam during the 1990s. Enrollments have risen in both countries but are appreciably higher in Vietnam. Real consumption per person rose appreciably over the period in Vietnam (5.8 percent a year) but fell in Morocco. Inequality remained stable in Morocco while it rose in Vietnam.

Taken as a whole, the results for the two countries do not suggest that aggregate economic growth or changes in the distribution of income have been important determinants of improvements in aggregate education attainments. What is probably most surprising in these findings is how little education benefit is attributed to the robust economic growth observed in Vietnam over this period.

Most of the changes over time are attributable to changes in the structure of the model linking incomes and (observed) nonincome factors to schooling attainments. This holds nationally as well as within urban and rural areas, for majority and minority ethnic groups in Vietnam, and for literate and illiterate groups in Morocco. The decomposition cannot tell us what drives these structural changes, since they are economywide factors. But it suggests that there were substantial public policy efforts to increase enrollments and that these were successful; increases in the overall economic returns to schooling may also have played a part.

The results look very different when the cross-sectional disparities in schooling between socioeconomic or geographic groups are studied. Structure becomes generally secondary to differences in mean incomes and nonincome factors and, though less often, to intergroup differences in the distribution of income.

Differences in secondary-level enrollments between Vietnam's urban and rural areas are due largely to differences in mean consumption. In Morocco, by contrast, nonincome factors are dominant in explaining the urban-rural differences in enrollments at both primary and secondary levels.

Disparity in mean consumption is also a major factor in the education inequality between Vietnam's ethnic minority and majority groups, though the effect of this economic inequality has shifted over time from primary to secondary schooling. Nonincome factors also play a big part here, increasing the gap in primary school enrollments in both 1993 and 1998 but reducing ethnic group differences in secondary enrollments in 1998.

Finally, income differences also explain a sizable share of the enrollment gap between children with and without literate fathers in Morocco, though here too nonincome factors are dominant.

Sylvie Lambert, Martin Ravallion, and Dominique van de Walle. 2007. "A Micro-Decomposition Analysis of the Macroeconomic Determinants of Human Development." Policy Research Working Paper 4358. World Bank, Washington, D.C.

Teacher Compensation and Decentralization in India

● *Lant Pritchett and Rinku Murgai*

The system of teacher compensation, combining high pay and zero accountability, is at the heart of problems in India's public education

Publicly produced elementary education in India faces enormous problems. Although enrollments have increased, a recent survey of rural areas in all districts found shockingly low levels of learning achievement, confirming the accumulating piecemeal evidence. There are many other indicators of distress: high levels of dissatisfaction with teachers among parents and students, a massive and ongoing shift into private schooling, and the unhappiness of the public sector teachers themselves. In a new paper Pritchett and Murgai argue that the system of teacher compensation in the public sector is at the heart of many of these problems.

A system of compensation for any performance-oriented organization should attract, retain, and motivate workers who, on a day-to-day basis, pursue the goals of the organization. All four elements of a system of compensation—durability of the employment relationship, structure of pay across states of the world, assignment of workers to tasks, and cash relative to benefits—should work together toward this goal.

While there are many variations across states in India, it is not unfair to describe the system of teacher compensation as combining high pay and zero accountability. The paper documents four facts about the system of teacher compensation:

• There is little or no ability to separate teachers from service—for any cause.

• The average pay in public sector teaching is very high relative to the pay in alternative employment (both private teaching and other private sector jobs).

• The degree of overpayment is higher for public sector teachers at the early stages of a career.

• The pay of public sector teachers has very little variance even potentially related to performance—much less so than the pay of either private sector teachers or other private sector salaried workers.

Each of these elements of the system of compensation reinforces the lack of accountability. There is nothing in the system to attract people well matched to teaching, to retain the best and most committed teachers, or to motivate good teachers (or, for that matter, to prevent good teachers from becoming disillusioned, cynical, and embittered and yet stay until they reach the age of 60). Moreover, the institutional context of basic schooling—all the other relationships of accountability—is also weak.

This system of compensation plays a large part in producing today's "perfect storm" in public schooling: the learning achievement of students is low, the absenteeism of teachers is high, the treatment of students by teachers is often abysmal, recourse to private instruction is rampant, parents and students are dissatisfied with government schools, and people are voting with their feet and their pocketbooks for the private sector. Perhaps worst of all, the potentially good teachers in the public system are disenchanted and overburdened and feel disrespected by parents and management. Any reform of teacher compensation needs to be *pro-teacher* because the present system is dramatically *anti-teacher.*

Most observers agree that there is no possibility of significant reform of teacher compensation in the existing system. But the devolution of education to the local governing bodies known as Panchayati Raj institutions (PRIs) provides an opportunity to sail out of this perfect storm—to completely restructure the system of compensation to be consistent with an accountable, performance-oriented public sector. Decentralization to PRIs is certainly no panacea—but it may well be the last best hope.

But simply shifting the existing system—with its lack of performance orientation, lack of external accountability, and strictures on compensation—to the PRIs is unlikely to lead to improvements. That said, decentralization to PRIs, if done well, has the potential to break the political impetus behind business as usual by combining a reallocation of functions across tiers of government (states and PRIs) with the freedom for PRIs to develop systems of compensation aligned with the realities of public employment and the particularities of the practice of teaching.

With the development of a new cadre of teachers under district control, newly hired teachers can be launched into a new system and sail out of today's perfect storm—and publicly produced schooling will be able to compete with private alternatives.

Lant Pritchett and Rinku Murgai. Forthcoming. "Teacher Compensation: Can Decentralization to Local Bodies Take India from the Perfect Storm through Troubled Waters to Clear Sailing?" India Policy Forum. *Washington, D.C.: Brookings Institution. Also available at http://lpritchett.org/research_education.htm.*

FOCUS
Climate Change and Agriculture in Africa

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an important response. There is also evidence that adaptation measures are linked to baseline climate and that adaptation occurs mainly on sites that are already marginal (hot and dry).

The propensity of farmers to adapt differs across locations, and understanding the underlying factors would require further analysis. Yet only those who perceive climate change undertake adaptation—and the perception of climate change appears to hinge on farmers' experience and the availability of affordable technologies, management practices, and extension advice related to climate change. While the policy options for promoting greater awareness of climate change may be limited, the perception of climate change is already widespread.

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public investment and social spending (particularly targeted programs) fall as a percentage of GDP during downturns.

What explains the observed procyclical behavior of fiscal policy in developing countries? Three explanations have been put forward. First, and most obvious, is credit constraint facing the government: it is precisely when external credit is likely to dry up that the government may need to increase the budget deficit. Second, there may be a "hidden deficit": sudden stops could be associated with fiscal cuts required to make room for the costs of bailing out the financial system and other contingent liabilities. Finally, several politico-economic reasons have been put forward, including the "starve the Leviathan" argument of Alberto Alesina and Guido Tabellini. Voters cannot observe fiscal policy precisely, particularly the liabilities accumulated by the government. When the economy is booming, to prevent the government from appropriating tax revenues, voters demand more public goods for themselves, imparting a procyclical bias to fiscal policy. The implication, one for which there is some empirical support, is that the procyclicality of fiscal policy should be stronger in more corrupt democracies.

Critics of the advice of international organizations in the aftermath of the financial crises argue that the fiscal policy that was implemented actually reduced countries' net worth, by cutting productive government spending and thus future growth and revenues. International organizations should instead have gone against the market, they assert, by shifting the focus from the short to the long run.

But the alternative is self-insurance, which should be seen as just a form of precautionary savings against noncatastrophic shocks. How can an institutional setup that is more conducive to such self-insurance be created? Many stabilization funds and fiscal rules (such as numerical limits on the deficit) have been created in developing countries with the dual aim of ensuring discipline in fiscal policy and avoiding a procyclical bias in the presence of credit constraints.

It is often argued that such fiscal rules are difficult or impossible to implement. Using the example of Chile, Perotti shows that this is not necessarily so and that sound fiscal rules on the cyclically adjusted deficit are feasible. The reason that we see so little self-insurance has to do with political economy: in good times it is politically impossible to put aside tax revenues while withstanding accusations of neglecting health, education, and infrastructure.

Roberto Perotti. 2007. "*Fiscal Policy in Developing Countries: A Framework and Some Questions.*" *Policy Research Working Paper* 4365. *World Bank, Washington*, D.C.

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