A leaner government?

A proposed constitutional amendment to limit government spending renews the debate about the role of the Brazilian government in the economy, past and present.
NEWS BRIEFS

5 Formal jobs down … trade surplus widens … inflation accelerates … Temer’s new ally in the House … half of Brazilians okay with Temer for now … Lula to be tried for obstruction of justice … Senate voted to put Rousseff on trial … former Electronuclear CEO sentenced for corruption … Moro supports end to office-holder immunities … US welcomes Brazilian beef … Meirelles says state spending cap is not negotiable.

GOVERNANCE

28 The new Responsibility Law for State-owned Enterprises
Joisa Dutra, Director of the Getulio Vargas Foundation Center for Regulation and Infrastructure, explains the “abundant evidence that SOEs have serious governance issues” and why the new law is “long overdue” given the dominance of state-owned enterprises in the Brazilian economy. She describes the problems identified by the Court of Auditors and why it is “critical that the government make a diligent effort to monitor compliance” with the new law.

INTERVIEW

30 Without social security reform, could the PEC be “disastrous”?
Aloisio Araujo, Professor and researcher, the Getulio Vargas Foundation Graduate School of Economics (EPGE) and the Applied Mathematics Institute (IMPA), explains to Solange Monteiro, and The Brazilian Economy readers, why without reforms to social security and shrinking the role of the government in the economy, the proposed constitutional amendment to limit mandated spending could generate as many problems as it solves.
AS THIS ISSUE’S COVER story explains, the proposed constitutional amendment to limit public spending starting in 2017—still to be approved by Congress—has reignited the debate on the government’s role in the Brazilian economy. Although economists are a long way from reaching any consensus on the subject, it seems clear that the current ascending trajectory of public debt, which is expected to reach 74% of GDP this year, is not sustainable and has to be stopped. According to simulations by IBRE researchers, a constitutional spending ceiling could accomplish that and stabilize the debt-to-GDP ratio, although at high levels. Whether that happens will depend crucially on the success of various reform programs.

But would a constitutional spending ceiling alone be enough to address all the ills that have accumulated in the Brazilian economy? In addition to the proposed spending cap, social security reform—a thorny issue given the innumerable interests and entitlements affected—is also important, according to Aloisio Araujo, professor at the FGV Graduate School of Economics, who explains why in the interview in this edition.

In addition to the massive government intervention in the economy, which reduces productivity and private investment, there are also serious governance deficiencies in state-owned enterprises and state governments. In the former, the continuing investigations of an intricate corruption scheme have put the state oil company Petrobras at its center, with serious connections to a large number of politicians and businessmen. The bankruptcy of several Brazilian states that breached the Fiscal Responsibility Law is another factor in the current political and fiscal crises. State spending, particularly on wages, has shot up beyond tax revenues, reducing public investment and disrupting public services. With so many states bankrupt, the federal government has been forced to extend loans and debt relief to many state and city governments. The federal government now wants to introduce stricter rules to control state spending.
**POLITICS**

**New Lower House speaker a Temer ally**
In Congress Brazil’s lower house elected an ally of interim President Michel Temer as its new speaker, a victory for a government racing to get approval of unpopular economic reforms. In a hotly contested election Rodrigo Maia of the right-leaning Democrats party (DEM) won the second ballot by a wide margin. Maia, an economist who worked briefly in banking before turning to politics, signaled he would support Temer’s efforts to pull the economy out of what could be its worst recession in a century. The new speaker will be crucial to the government’s efforts to cap public spending and open up the economy. (July 14)

**Half of Brazilians okay Temer as president until 2018**
Half of Brazilians would like to see Michel Temer stay as interim president Michel Temer until the 2018 election; 32% desire the return of suspended President Dilma Rousseff, according to a Datafolha poll conducted July 14–15. Just 3% of respondents favored holding early elections. However, the interim president’s approval rating is only 31%. The poll also showed rising confidence in the economy: The Datafolha Index of Confidence registered 98 points, the highest since 2014 and 11 points higher than the February poll. (July 20)

**Lula to be tried for obstruction of justice**
Brazil’s former president Luiz Inacio Lula da Silva and the former CEO of investment bank Grupo BTG Pactual SA will be tried for obstruction of justice, federal court documents show. Lula has been investigated in relation to the sprawling Petrobras corruption investigation. (July 29)

**Senate voted to put Rousseff on trial**
Senate voted overwhelmingly (59-21) to put suspended Brazilian President Dilma Rousseff on trial for breaking budget laws, which would open the way for her removal from office. Allegedly, Rousseff doctored government accounts to allow more public spending in the run-up to her 2014 re-election. A guilty verdict would confirm Michel Temer as president through 2018, the remainder of her term. Presiding over the Rousseff trial in the Senate will be Supreme Court Chief Justice Ricardo Lewandowski, whose office said proceedings could start on August 26 and last about a week. (August 4)

**Former Eletronuclear CEO sentenced for corruption**
Rio de Janeiro-based Federal Judge Marcelo da Costa Bretas has sentenced Othon Luiz Pinheiro da Silva, former chief executive of Brazil’s nuclear power company Eletronuclear and considered the father of Brazil’s nuclear program, to serve 43 years in prison. Silva was convicted of corruption, money laundering, organized crime, and obstruction of justice for having colluded with executives of large Brazilian engineering firms Andrade Gutierrez and Engevix to set up an over-billing and kickback operation when Brazil’s third nuclear power plant, Angra 3, was built. (August 10)

**Moro supports end of office-holder immunities**
Federal Judge Sergio Moro, who has overseen the Petrobras investigation, argued before the House of Representatives for the end of special legal protection for lawmakers, judges, and other government officials. Under Brazilian law, in most circumstances, these groups are immune from prosecution and can only be brought before the Supreme Court. Moro spoke at a hearing of a House special committee set up to discuss the measures to combat corruption proposed by prosecutors. A proposal for a constitutional amendment to remove the special protections is before the House Committee on Constitution and Justice. (August 4)
ECONOMY

Formal jobs down in June
Brazil’s economy shed a net 91,032 payroll jobs in June, according to the Labor Ministry. The Brazil’s economy is expected to shrink more than 3% in 2016, with over 11 million workers now officially unemployed. (July 27)

Trade surplus widens
Brazil’s trade surplus grew in July to US$4.58 billion as imports fell more than exports. July’s result was stronger than the US$3.97 billion surplus recorded in June, raising the year-to-date surplus to US$28.23 billion. In July, Brazil’s exports were worth US$16.3 billion and imports fell to US$11.75 billion. (August 1)

Industrial output rises
Industrial production in Brazil rose 1.1% in June, and a four-month increase of 3.5% through June, government statistics agency IBGE said. However, the recovery is not yet enough to compensate for the losses posted in 2015. (August 2)

Inflation accelerates in July
Consumer prices, as measured by the IPCA index, rose 8.66% in the 12 months through July, statistics agency IBGE reported. Prices rose 0.52% month-on-month in July. A steep increase in food and transportation inflation offset slower inflation of clothing, housing, and healthcare costs. (August 10)

ECONOMIC POLICY

Central Bank rate unchanged at 14.25%
As expected, Brazil’s monetary policy committee kept the central bank’s interest rates on hold for the eighth straight time on Wednesday, in the first decision of a new board. The nine-member committee voted unanimously to hold the benchmark interest rate at 14.25%, a nearly 10-year high (July 20)

Meirelles: State spending cap not negotiable
Finance Minister Henrique Meirelles fights for capping spending by states.
Finance Minister Henrique Meirelles said that a measure to cap future spending by states is not negotiable, though the administration has bowed to governors’ demands to loosen some austerity measures in exchange for support of a bill that reduces the states’ multibillion-dollar debt to the federal government. Speaking to bankers in Rio de Janeiro, Meirelles also said the government may not need to raise taxes to improve its fiscal accounts this year and next because tax revenues tend to rise with a recovery in activity and confidence; the decision on raising taxes will be made in late August. The debt relief to the states alone will cost federal coffers R$50 billion over the next three years. States would receive a six-month grace period on debt to the federal government, followed by a year and a half of reduced payments. In exchange, the states have agreed to limit spending growth to the previous year’s inflation rate. (August 3)

TRADE

U.S. welcomes Brazilian beef
The U.S. and Brazilian governments have exchanged food safety equivalence that will open up their markets to fresh beef exports, which is expected to boost Brazil’s exports to the United States by US$900 million. The U.S. Department of Agriculture (USDA) has determined that Brazil’s food safety system for meat adheres to U.S. standards. Brazilian Agriculture Minister Blairo Maggi said that exports could begin in 90 days, and that the USDA seal of approval will now open other markets to Brazilian beef. (August 1)
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A leaner government?

A proposed constitutional amendment to limit government spending renews the debate about the role of the Brazilian government in the economy, past and present.

Solange Monteiro

AMID POLITICAL, ECONOMIC, and social uncertainty, Finance Minister Henrique Meirelles announced a group of programs to halt the worrying deterioration of public finances and reverse the negative expectations in the market. The program should be set in motion once the Senate votes on the impeachment of ousted President Dilma Rousseff.

The first policy action would resume concessions and privatizations, with which the government hopes to add about R$30 billion to its cash flow next year. The second, and most controversial, is a constitutional amendment project (PEC) that would put a ceiling for 20 years on current federal government spending (excluding interest payments) and limit its growth to the previous year’s inflation. The government hopes to approve the amendment late this year, to go into effect in 2017.
Samuel Pessôa, research associate, Brazilian Institute of Economics (IBRE), argues that a ceiling on current spending would be a way to deal with the social spending mandated in the 1988 Constitution, which is not consistent with the current need for fiscal tightening. As former Finance Minister Delfim Netto put it, “social spending does not fit the budget,” especially since the demands of various interest groups have increased over the years. “The evidence is that we have too many distortions: free universities to children of wealthy families, National Development Bank–subsidized loans for businesses, and income tax exemption for patients regardless of their income, among many examples,” Pessôa says. He believes that unless the social spending bomb is defused, the result will be higher inflation. If the demand for social spending keeps growing faster than tax revenues, the conflict will eventually be resolved by printing money to pay for the spending, which would create inflation.

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For 25 years government spending has grown more than GDP: the annual expansion of primary public spending (which excludes interest and compulsory transfers), adjusted for inflation, was about 6% but real GDP growth was under 3.5%. In the 1990s, this imbalance was offset with higher taxes and debt. In 2000-2010, the performance of tax revenues was unique—they grew by nearly 7% a year. According to Pessôa, this was the result of a long process of formalization, which broadened the tax base, and of the commodities boom, which raised incomes. In 2011, the situation changed: tax revenues grew at the same pace as GDP, and four years of slow growth in tax revenue brought the primary budget from a 2.15% GDP surplus in 2010 to a 1.5% deficit.

Marcos Mendes, head of the Ministry of Finance advisory office, estimates that tax exemptions and special tax regimes accounted for revenue losses of about 5 percentage points of GDP (from 17.2% of GDP in 2006 to an estimated 12.4% for 2017). “Economic players find ways to defend themselves from a tax system that has become dysfunctional,” he says. “The tax system, which was designed to extract a large volume of resources to balance the budget, is very distorted and, for example, encourages companies to stay small, which depresses productivity.” Mendes believes the Brazilian government today is a burden on the private economy either because it absorbs savings that could be channeled to private investment or because the government is
“Economic players find ways to defend themselves from a tax system that has become dysfunctional. The tax system, which was designed to extract a large volume of resources to balance the budget, is very distorted; for example, it encourages companies to stay small, which depresses productivity.”

Marcos Mendes

less productive than the rest of the economy. Unless a sound tax reform raises productivity and economic growth resumes, he says, Brazil will be doomed to very low potential growth.

“In Brazil, where we have a very unequal society and institutions vulnerable to pressure groups, the combination of a primary budget balance target with a nominal spending growth ceiling would help to discipline demands of various interest groups, which unchecked ends up increasing public spending for everybody,” Mendes concludes.

Necessary cuts

Marcos Lisboa, president of the Institute of Education and Research (Insper), says a reality check is needed. “If Brazil continues on this public spending path,” he says, “debt will not stop growing, and the space to cut spending is very limited. Unless there is reform of social security and public employee pensions, and a review of the cost of public employees, it will not be possible to reduce public spending.”

To cap current spending and ensure the solvency of the Brazilian government in the long run, the most important of the postponed reforms has to do with social security. Currently, social security benefits account for about 40% of primary public spending and have been growing above inflation, so that resources to cover them have to be taken from somewhere else. In April, IBRE organized a seminar where participants discussed the urgency of social
security reform and argued for changes, such as ending the generous pension rules for women and rural workers and ceasing to index pension benefits to the minimum wage (this rule is scheduled for review in 2019). “Because we have taken such a long time to undertake a comprehensive social security reform, we have to deal with a much greater liability,” said Fernando Abrucio, professor, FGV São Paulo School of Business Administration (EAESP).

The Ministry’s Mendes says the government’s plan is to transition gradually to the new pension system. “There are issues of entitlements and equity. ... So we are working with various options, and the reform is expected to have a significant fiscal effect by 2020,” he says. At the IBRE fiscal reform seminar in July, Finance Minister Meirelles reiterated the need for transition rules that are not restricted to newcomers but also do not punish those nearing retirement.

The question is how the Meirelles team plans to narrow public spending by 2020. According to the estimates of IBRE researcher Vilma da Conceição Pinto, the government is not under immediate pressure; additional fiscal effort would not be necessary until 2019. “If the PEC’s new ceiling on current spending comes into effect in 2017, it will start from a relatively high spending point,” she says. If in 2016 current spending is R$1.26 trillion and inflation is 7%, the constitutional ceiling on current spending would be about 20.7% of GDP next year, compared to the 20.1% that is projected, which being below the proposed limit would allow R$37 billion as a margin of safety to meet the ceiling. For 2018, the ceiling and projected current spending would be the same. After this respite, however, the gap between the constitutional ceiling and projected current spending widens to a difference of 3 percentage points of GDP by 2022. Pinto points out that many factors can bring about a decline in expenses without the ceiling, but not enough to stabilize the public debt trajectory.

Rationalizing spending is also being considered. Mendes says that the economic team is reviewing social policies, including disability benefits, disability pensions, and unemployment benefits. “What we found is that, on the one hand, in recent years all of these programs have sought to cover as many people as possible whether or not they comply with the eligibility criteria; on the other hand, we have

“If Brazil continues on this public spending path, debt will not stop growing, and the space to cut spending is over. Unless there is reform of social security and public employee pensions, and a review of the cost of public employees, it will not be possible to reduce public spending.”

Marcos Lisboa
Social security benefits account for about 40% of primary public spending and have been growing above inflation, so that resources to cover them have to be taken from somewhere else.

been careless about reviewing the records of beneficiaries to identify who no longer should be receiving benefits.” Mendes estimates that continuous cash benefits in 2017 will cost about R$53 billion; this category of expense has risen very fast in recent years, not only because of such carelessness but also because of the activism of the Supreme Court, noting “We are talking to the Supreme Court and checking beneficiaries’ records to stop the growth of continuous cash benefits.” However, Mendes recommends caution about proceeding too fast: “You cannot carry out a tax reform or cut taxes at a time when the economy is weak. The economy has reached a very high level of disorganization, and only with long-term strategy and gradual reforms can we reach higher potential growth.”

Pinto’s budget projections indicate that the president elected in 2018 should be particularly concerned about balancing the budget and mediate between the various interest groups to adjust primary spending to the PEC ceiling. “It will be a very difficult balancing act in the short term,” says Leonardo de Andrade Costa, professor at FGV Rio Law School. He believes that the constitutional ceiling alone cannot change the fiscal situation because the federal debt limit established under the Fiscal Responsibility Law has not been applied so far. Also, to meet the spending ceiling it will be necessary to address not only the inter-generational and redistributive spending conflict, but also the conflict between the federal government and the states.

Government's primary balance collapsed in recent years (% of GDP)

Source: STN.
Possible pact?

If the current government reforms and introducing a constitutional spending ceiling are not successful, the new government taking office in 2019 will have to carry out reforms under the pressure of sanctions from the new spending ceiling—including no new hires, no raises for public employees, and no increases in subsidies and grants—and these mandated cuts in public spending carry a risk for economic activity. “This proposal reduces the policy space. It is a bad idea. It will not last long,” said Reinaldo Gonçalves, professor of the Economics Institute of the Federal University of Rio de Janeiro (UFRJ). Gonçalves believes the government economic team is establishing policies based on an ill-founded view of the government’s role in the Brazilian economy, caused by the misguided polices of the Lula and Rousseff administrations. “There are many examples of bad policies … But any attempt to oversimplify the government’s economic functions is fallacious,” he says.

Fernando Nogueira da Costa, professor of the Economics Institute of the University of Campinas (Unicamp), is also critical of a constitutional spending ceiling. “The initiative to create laws that tie government’s hands is not new … today it is often said that the government does not fit the budget, and I counter that Brazil’s high interest rates do not fit the budget,” he says pointing out that interest payments are the heaviest burden on the budget. “I have always advocated that a good macroeconomic policy coordinates fiscal and monetary policies, foreign exchange and capital controls. As long as the Central Bank focuses on a single mandate, control of inflation, our economy will not grow much,” he says.

Luiz Carlos Bresser-Pereira, emeritus professor of the FGV São Paulo School of Economics, also questions the need for a constitutional ceiling to reach a consensus on social spending. “What we need is an understanding of the Brazilian tax revenue level, which should be maintained, and
“A good macroeconomic policy coordinates fiscal and monetary policies, foreign exchange, and capital controls. As long as the Central Bank focuses on a single mandate, control of inflation, our economy will not grow much.”

Fernando Nogueira da Costa

spending as determined in a serious budget law that would indicate how much of fiscal revenues would be spent on social spending and how much on interest payments. Today there is no political control over the decisions of the central bank,” he says. Unicamp’s Nogueira believes the fiscal discipline, a spending ceiling would require, may have high social costs as well as reduce the space for necessary countercyclical policies during economic slumps such as that of 2008–09.

Another point of concern is mandated spending in education and health. Mendes argues that the change in the calculation of mandated education and health will make spending more efficient: “Linking these expenses to total revenues creates a terrible management problem, because when revenue is increasing, the public manager must spend money even when there are no programs to receive it.” Mendes explains that as a result of a tax revenue bonanza between 2004 and 2008 governments built schools and hospitals, and staffing increased, generating unsustainable higher fixed spending when tax revenue went down. De-linking mandated spending from the economic cycle will give more stability and predictability to education and health spending.

Productivity versus spending

EAESP’s Abrucio agrees that mandated constitutional spending does not assure resources for education and health. “The best would be to set up medium-term goals for two or three years, as Australia and New Zealand do, to assess and determine the optimal pattern of public spending,” he says. “I do not know whether this would necessarily reduce spending; it could improve efficiency. But Brazil still needs a lot of investment in education and health,” he says. Aloisio Araujo, professor at the FGV Graduate School of Economics, agrees: “With the need for a large fiscal adjustment, we must remember that investments in education should be preserved, because education is important for long-term economic growth.”

Abrucio believes the linear cut proposed with the constitutional spending ceiling leaves no room for differences in the weight of each sector in terms of the development and productivity of the Brazilian economy. Sharing out tax revenues would become a power play between interest groups fighting to preserve their share of spending. “This does not mean we do not have
to take steps to improve public expenditure efficiency. But a linear cut could prevent the implementation of progressive reforms,” he says. Abrucio argues that there is plenty of scope to reform public administration to increase productivity, for example, introducing more flexibility in setting public employee salaries to create opportunities to motivate employees and remunerate productivity. “We must be careful not to sell an illusion: improving public service delivery is not done through layoffs, but through reform. We have to improve the quality of public service.”

Abrucio argues that, before cutting public spending, the government should cut BNDES-subsidized loans, payroll tax exemptions, and subsidies. Subsidies doubled between 2013 and 2016, surpassing R$100 billion. “This caused the mess we are in,” he says. Mendes said that dismantling subsidies is a priority, but he cautions against cutting subsidies abruptly: “Tax exemption and subsidy policies have to be reviewed carefully. We are now in a very serious recession. If we raise taxes on companies suddenly, it is highly probable that there will be considerable damage to economic activity,” he says, pointing out that “when the economy strengthens and tax revenues recover, it will be time to end tax exemptions and carry out tax reform.”

“Everything discussed so far has been about plans of an interim government to reverse expectations. Despite the positive initial reaction, the markets are not content with announcements, they want to see progress,”

The fiscal discipline a spending ceiling would require may have high social costs as well as reduce the space for necessary countercyclical policies during economic slumps such as that of 2008–09.

points out Leonardo Costa, FGV Law School. As the constitutional spending ceiling proposal is debated, Costa sees little risk that it would be overturned by the Supreme Court. But he and others see the amendment as having a possible problem in the lack of individual accountability for violating the spending ceiling. Another problem would be exceptions from the ceiling if public employee salaries are adjusted because of judicial decisions in lawsuits before the amendment enters into force. For several years, public employees have accounted for the largest number of Supreme Court suits against the government. President Michel Temer has already acknowledged the power of some segments, increasing salaries for 14 categories of federal employees including the judiciary that will raise the federal payroll by R$56 billion by 2019. If the social security reform does not produce the expected savings, pressure to maintain spending could end up at the Supreme Court challenging the constitutional spending ceiling.
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Renewable energy makes progress

In the Northeast the wind now accounts for almost half of the power that is generated. Three years ago, it accounted for no more than 4.5%.

Chico Santos

ON JULY 20, the National Power System Operator (ONS) reported that at end-June 2016 in the Northeast region electric power generation reached 8.6 gigawatts (GW) and the total load demand was 10 GW (the difference being supplied by the Southeast). Of power generated in the Northeast, 4 GW—46.9%—came from 310 wind farms that have the capacity ultimately to generate about 8 GW.

Three years ago, total demand was 8.9 GW and local generation was 6.1 GW, of which wind power contributed just 0.3 GW, representing 4.4% of the power generated in the region. Although one reason current wind power is contributing so much is that lower water reservoirs have depressed hydropower generation below historical averages, the ONS believes the astonishing growth of wind power in the region will continue, because multiple demands on the water from the São Francisco River make expansion of renewable power sources crucial; the energy source that will grow fastest in the Northeast in the near future is likely to be wind. For Brazil as a whole, however, hydropower is likely to dominate for some time, accounting for 67% of total electric power by 2030, according to the Energy Research Company (EPE).

The importance of winds to electric power in the Northeast has drawn attention to how much renewable sources could contribute to meeting Brazil’s energy demand. According to the
“Our main problem today is the low demand for electricity. Wind power is very competitively priced, and wind farms can be deployed rapidly, making it possible to meet energy demand very quickly if necessary.”

José Quina Diogo

National Electric Energy Agency (Aneel), in June wind and biomass had an installed capacity of 23 GW, equivalent to more than 150% of the capacity of Itaipu (14 GW), the second largest hydroelectric plant in the world; or more than double the nominal capacity of Belo Monte (11 GW), the second largest hydroelectric plant in Brazil.

Solar power is relatively new to Brazil, in mid-2016 contributing only 0.03 GW installed capacity, but another 1.9 GW solar capacity is planned or already being constructed. EPE estimates that by 2030 solar power will account for 3% of the electricity generated centrally in Brazil.

Meanwhile wind power is expected to surge. Based on projects contracted, some of which are already under construction, Elbia Melo, president of the Brazilian Wind Energy Association (ABEEólica), projects that by 2019, 18.5 GW of wind power capacity can contribute 10% of Brazil’s electric supply.

This geometric expansion was unleashed in 2009 when Aneel held the first wind power auction, contracting for 1.8 GW in capacity, but not all the news today is good. Since the second half of 2014, the economic crisis has been reducing electric power consumption, which was down 2.1% in 2015. That is a concern not only for new wind and solar projects but also for the young equipment industry, which was born of a program designed by the National Development Bank (BNDES), which provided abundant low-cost funding.

Economist Joisa Dutra, director of the Getulio Vargas Foundation Center for Regulation and Infrastructure (CERI) and former director of Aneel, points out that “national regulation has favored these renewable energy alternatives.” She recognizes the incentive represented by BNDES-subsidized loans but is concerned that the subsidies may be masking the cost of renewable energy. “BNDES resources are finite,” Dutra says, pointing out the need to find market sources of funding.

Dutra also emphasizes that because of the intermittent nature of wind and solar, a permanent power base is necessary so as not to compromise power grid reliability and supply security. Dutra argues for the importance of natural gas to provide a permanent power base, either domestically produced or imported as liquefied natural gas (LNG).

Noting that today in Brazil some natural gas power plants generate energy more cheaply than hydropower plants, Dutra sees a need for expansion of renewable energy while also keeping in mind the need for secure
energy supplies and the competitiveness of the economy—two major objectives of the national energy policy. The nascent wind and solar equipment and components industry, she argues, must become internationally competitive and not rely solely on domestic demand.

**Search for storage**

Dutra also calls for more investment in energy storage technology, which is being studied around the world to find solutions to the intermittency of wind and solar power. In response to this concern, André Pepitone, director of Aneel, points out that since 2015, to ensure that the power grid is reliable even as the share of wind and solar power in the national energy supply grows, the regulatory agency has introduced technical requirements related to voltage control, power factor, and frequency. As for energy storage, Pepitone says Aneel is planning to launch a call for research and development on technical and commercial technologies for such systems. It is already working with the British Embassy on the project “Energy Storage in Brazil: Technology, Regulation, and Public Policies,” in partnership with the University of Birmingham (UK), EA Technology (USA), and the Institute of the Brazilian Association of Electricity Distributors.

In June wind and biomass had an installed capacity of 23 GW, equivalent to more than 150% of the capacity of Itaipu (14 GW), the second largest hydroelectric plant in the world.

In March the project partners held an international workshop to discuss storage technologies currently available in England and the United States, associated regulation, and related R & D projects underway by companies in Brazil and abroad. “One of the most promising solutions to minimize intermittence is storing energy by means of high-performance batteries,” Pepitone says.

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**Wind power and biomass already account for 15.7% of the total Brazil electric power supply**

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<thead>
<tr>
<th>Source</th>
<th>Installed capacity (GW)</th>
<th>Share of total supply (%)</th>
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<tbody>
<tr>
<td>Hidropower plant</td>
<td>88.8</td>
<td>61.1</td>
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<td>Biomass</td>
<td>13.4</td>
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<td>Gas-fired thermal plant</td>
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<td>Oil-fired thermal plant</td>
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<td>Wind</td>
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<td>PCH</td>
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<td>Coal-fired thermal plant</td>
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<td>Nuclear</td>
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<td><strong>Total</strong></td>
<td><strong>145.4</strong></td>
<td><strong>100</strong></td>
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Sources: ABEEólica and Aneel. It does not include solar power.
One company that have been investing in energy storage is the American AES Corporation and its subsidiary, AES Tiete in Brazil. According to Rodrigo D’Elia, who heads up the Brazilian subsidiary, “Eight years ago AES began studying energy storage as a product,” the product is in its fourth generation, and AES has already installed 0.394 GW of storage units around the world.

D’Elia says that recently the group won a tender to install a 0.100 GW storage unit in California, USA, which is designed to meet demand at peak times at lower costs than a reserve thermoelectric plant. In Brazil, the group has submitted a proposal to install a battery system in Santarém, Pará state, to store 0.210 GW of power, which would cost less than expanding the 0.187 GW thermal plant installed by Brazilian electric utilities company, Eletrobrás. D’Elia points out that Chile already has saved US$37 million in 2015 by integrating storage technologies in the power grid.

Such storage, D’Elia notes, could delay the need to invest in power transmission lines. As an example, D’Elia points out that the region receiving power from Tucuruí plant in Pará needs a second transmission line to increase capacity. Instead of building a new line that will be idle most of the time, at night a storage system could accumulate the energy received through the old line when demand is low and distribute it at peak times during the day.

D’Elia challenges the perception that energy storage technology is expensive. The AES, he says, has been entering into contracts of up to 20 years without the need for subsidies; meanwhile in recent years lithium batteries have become 80% cheaper, largely due to improvements in electronics industry, such as mobile phones.

D’Elia considers it quite feasible to manufacture large-scale storage batteries in Brazil, noting that many overseas manufacturers for AES, like

**Brazil’s wind power generation is projected to reach 18.5% in 2019**

Source: ABEEólica.
Panasonic and LG, already have operations in Brazil. “It’s a matter of creating the market and properly encouraging these manufacturers,” he says. He estimates that Brazil has potential to produce 0.6 GW in storage within 10 years.

Carlo Zorzoli, president of Italian company Enel in Brazil, makes another point: “In the short term, we see the possibility of using batteries more for isolated power systems than for interconnected ones,” he says. In interconnected power systems like Brazil’s, he recognizes that use of energy storage will be a matter of cost. Zorzoli believes electric vehicles will be primarily responsible for the spread of high-performance battery technology. “The transport sector is more relevant [for energy storage technologies]; but that does not mean we are not interested [in the electricity sector],” he says, noting that Enel has been researching high-performance batteries in the US and Italy to integrate wind and thermal power operations.

**Renewables and economic activity**

What is questionable at this point is the future of wind and solar power considering that the recent fall in electricity demand has reduced the market for new projects and the depreciation of the exchange rate has raised costs, especially for solar power, where the auction price of a megawatt-hour (MWh) rose from R$215.12 in October 2014 to R$297.75 in November 2015. Some investors are asking for extension of contractual deadlines of solar power projects. Zorzoli says Enel’s five-year plan will be maintained. Enel currently operates the largest solar plant in Brazil, a 0.011 GW plant in Pernambuco state, and has four other solar projects. In mid-year it started to build two solar plants of 0.292 GW and 0.254 GW in Piauí and Bahia states, the largest solar plants under construction in Latin America. Of course, as the country grows less, it will need less energy, and fewer investors will be interested in solar power projects. “But our five-year plan will not be impacted,” Zorzoli says.

Melo of ABEEólica see no signs of a wind power crisis. “So far we cannot say the sector’s expansion has stopped,” she says. She expects that by 2020 wind power will account for 12% of the Brazilian energy supply, even if the government does not auction any new wind power projects this year. She also does not expect a significant decline in BNDES financing of the sector, although its new management, led by CEO Maria Silvia Bastos Marques, has been reducing financing for new energy projects and recommending that investors seek private financing. Melo points out that the BNDES CEO is on record as stating that the renewable energy sector is a bank priority. She believes that despite management changes,
the BNDES statements are reaffirming, because there is no viable alternative to BNDES financing.

Another aspect in favor of expansion of wind power, Melo says, is that since 2013 joint wind farms and transmission line projects are mandatory, which according to Aneel’s Pepitone has substantially reduced the risk of concluding a wind farm without a transmission line.

As for solar power, Rafael Kelman of the PSR consultancy, believes that despite the drop in energy demand and concerns about energy prices and the continuity of power generation, it is important to continue the auctions for new solar power projects to signal the priority of renewable energy and keep the solar supplies and equipment industry operating. But he also recognizes that putting the brakes on contracting new energy projects is not unreasonable. “I think a compromise solution for the sector will be to wait for the resumption of growth to contract more [solar power projects],” he said.

The share of wind power in the total power supply in the Northeast region has increased significantly

Power production and power load demand in GW

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<td>Hydro power</td>
<td>3.7</td>
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<td>Thermal</td>
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<td>Wind</td>
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<td>Power from other regions</td>
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<td>Power load demand</td>
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Source: ONS.

BNDES and industry

Unquestionable proof of the importance of wind power in Brazil in recent years is BNDES lending: Of R$107.3 billion in financing for 322 electricity projects between 2003 and 2015, R$24.8 billion went to 76 wind power projects—23.1% of total approved projects, second only to the hydroelectric sector (R$66.3 billion, 61.8% of total financing).

The BNDES loans accounted for 60.5% of total planned wind power investments of R$41 billion in the period. Lígia Chagas, head of the BNDES Department of Alternative Energy, said there will be no change in funding rules for the auctions already made, both wind and solar, but admitted that the bank’s participation in financing, which reached 70%, will drop somewhat as it executes its policy of encouraging investors to seek new sources of financing.

Chagas also highlighted the policy of encouraging development of the industry supplying the wind sector, recognizing that this is decisive to protect the sector from exchange rate depreciation (the solar energy supplies and equipment industry is less developed and more dependent on imports). After finding, in 2011, that several accredited companies were not in fact meeting BNDES requirements, a new accreditation methodology was developed in partnership with ABEEólica and banks on-lending BNDES resources to consolidate the industry.
over three years. The result, she said, was the installation of 47 wind power equipment plants.

There are now operating in Brazil seven manufacturers of aerogenerators—the most sophisticated part of the wind power generator set—including WEG, a national manufacturer that has been internationalizing its operations in recent decades. According to João Paulo Gualberto da Silva, WEG wind power director, the company, which started in the wind power sector in 2012, has already delivered 80 aerogenerators, and expects to deliver about 100 this year. WEG’s aerogenerator was developed with technology from US Northern Power Systems adapted to Brazilian conditions.

Although currently there is much uncertainty in the market, da Silva says this year WEG expects to have positive returns on investment and expectations for 2017 are even better. The uncertainty is due to the economic downturn, which was reflected in the wind power project auctions. But despite anxiety at the moment, da Silva is confident in the future of the wind power sector. He points out that wind farms in the Northeast are reaching up to 58% capacity, compared with 38% in Germany, one of the world leaders in wind power. He points out that despite competing with international giants such as Denmark’s Vestas Denmark and the US’s GE, WEG has managed to gain about 10% of the Brazilian market.

Encouraging the development of domestic manufacturers has also created several companies that manufacture steel wind towers. In 2014 in Jacobina city, Bahia state, the Andrade Gutierrez group (51%) and GE (49%) established Northeast Wind Towers (TEN). According to Anderson Pinho, TEN managing director, the location was chosen because Bahia state is expected to lead the wind farm market in coming years. The company’s 210 workers produce eight towers a month; until December 2015 the company operated two shifts, but the crisis led to a reduction in production to one shift and 35% fewer workers. “We think 2017 will be a year of low production, but we are planning for 2018 and 2019,” he said.

Another company already consolidated in the wind tower segment is Engebasa, located in Cubatão, São Paulo state, near the port of Santos. The steel fabricator was founded 46 years ago by Portuguese entrepreneur José Quina Diogo, who still heads it; the tower factory was established in 2008, he says, without any external financing. In 2011 the facilities were expanded to add 40% more production capacity. Engebasa has produced more than 1,100 towers that are operating in more than 30 wind farms in the Northeast and South.

Despite the current difficulties, Diogo has a positive outlook on the sector: “Our main problem today is the low demand for electricity. Wind power is very competitively priced, and wind farms can be deployed rapidly, making it possible to meet energy demand very quickly if necessary.”

Chile already reports that in 2015 it saved US$37 million by integrating storage technologies in the power grid.

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PV power finds a place in the sun

Photovoltaic power is emerging as a Brazilian energy option.

Solange Monteiro

WITH RESIDENTIAL ELECTRICITY rates skyrocketing 51% on average in 2015 and more attractive rules for distribution of small amounts of solar generation (up to 5 MW), photovoltaic (PV) panels are spreading across Brazilian roofs. In the first half of 2016, the National Electric Energy Agency (Aneel) recorded 2,250 new small private power generation connections to the distribution network, bringing the cumulative total from 2012 to 2015 to 3,981, with total installed capacity of 28 MW. This year São Paulo, Rio Grande do Sul, and Rio de Janeiro states are leading the solar generation trend, but they fall far short of the leader, Minas Gerais state, which has 974 connections. “Minas Gerais was already leading in solar heating, [solar power] is part of its urban planning, and it has taken the lead in incentive policies,” says Paulo César Fernandes da Cunha, consultant to FGV Energy.

So far the solar power breakthrough has mostly depended on imported equipment, but government policy today is to build the local production chain, attracting investment in the manufacture of such items as PV modules, power inverters, and power monitors. What is needed now is to achieve scale, which can be done with the help of solar power plants. So far, Brazil’s four auctions have contracted for R$13 billion in investment, promising 3 GW of capacity, most of which will start operating in 2017. One auction planned for this year was canceled, but another is scheduled for
October. “Our biggest problems are that we have no idea of the volume of energy up for auction and whether the government will continue to incorporate solar power in the total energy supply,” says Rodrigo Sauaia, executive president of the Brazilian Association of Photovoltaic Solar Energy (Absolar).

According to Absolar, it will take annual procurement of about 2 GW of PV generation to ensure competitive local production of supplies and equipment. BNDES projects a gradual increase of local content in solar power projects, by 2020 reaching domestic production of PV cells—the most expensive and highest-value-added item. “It is an ambitious expectation. For competitive production, a company would have to be confident that there will be demand for about 500 MW. Taking into account a market without a monopoly and that not every project gets BNDES support, we calculate that at least 2 additional GW a year would be necessary,” Sauaia comments. In July, BNDES president Maria Silvia Bastos said that the bank would review financing conditions for electricity infrastructure projects but did not specifically address renewable energy.

**Cost issue**

The importance of focusing on the domestic competitiveness of solar power is underscored by the international expansion of PV generation as costs decline. “Over the past decade, the cost of solar power technology has dropped over 70%, and this trend has not slowed down. It is estimated that solar power will become 5% more competitive every year until 2030,” says Sauaia. A 2016 Bloomberg Outlook report estimates that by 2040 cheaper equipment, development, and operation of PV power plants will reduce solar energy prices by 43%. Moreover, according to Bloomberg, PVs are expected to represent 43% of the

“Minas Gerais was already leading in solar heating, [solar power] is part of its urban planning, and it has taken the lead in incentive policies.”

*Paulo César Fernandes da Cunha*
Flextronics partnered with Canadian Solar, which will invest R$80 million in the Flextronics plant in São Paulo state to produce solar panels with annual capacity of 350 MW. Canadian Solar already has production facilities in Canada, China, and Vietnam, accounting for 12 GW of manufactured solar panels in the past 14 years. In Brazil, the Flextronics plant is to manufacture solar panels for the Canadian Solar plants (400MW) in Minas Gerais state.

Falcão points out there is a limited domestic supply of panels for solar power projects. “The only alternative possible in the short term is to import solar equipment financed externally, which is a currency risk. And in this situation, the products manufactured in Asia become more attractive in terms of cost,” he says.

The Brazilian Association of Independent Power Producers (Apine) argues for reducing import taxes to reduce costs. An Apine survey just as investors in solar power plants were starting their projects. “This prompted companies that won contracts to produce solar power in the first federal auction in 2014 to request extension of their contracts. As prices paid for contracted solar energy are adjusted for inflation, an extension would bring companies more revenues,” says Nelson Falcão, who is responsible for developing the Latin American energy business at Flextronics. In June, additional global power generated from 2016 to 2040, equivalent to US$3 trillion in investments, and to supply 15% of world energy needs.

In Brazil, where solar generation accounts for only 0.02% of the total supply of electricity, the drop in solar energy prices was offset by the exchange rate depreciation, which happened

“Our biggest problems are that we have no idea of the volume of energy up for auction and whether the government will continue to incorporate solar power in the total energy supply.”

Rodrigo Sauaia

Leaders in solar energy

found that import taxes account for 12% of solar panel module costs and 14% of power inverter costs; and the Tax on Manufactured Products accounts for 15% of the cost of imported power inverters. Apine argues that lower taxes on imports would allow for a significant reduction in solar power costs, making it more competitive, which would accelerate its expansion and thus attract more investments to Brazil.

The solar equipment industry wants also to ensure a positive environment to sustain the expansion of distributed power generation to the point of consumption. Generating power on-site, rather than centrally, eliminates the cost, complexity, interdependencies, and inefficiencies associated with transmission and distribution. Solar power is an important source of distributed power, which is not true of wind power, according to FGV Energy’s Cunha. Bloomberg projects that more than a third of the additional energy by 2040 will be distributed power, mostly solar. “In California, investments in energy efficiency and distributed power generation have not only already saved US$190 million but also eliminated the need for new transmission projects, with the help of investments people have made in solar power generation,” says Absolar’s Sauaia.

**Consumer-generator**

In Brazil, the major incentive for investing in micro-generation was the review of compensation for small power generators, which expanded the participation of consumers who also generate power and sell their surplus to the power grid. Tiago Correia, director of Aneel, says that changes that came into force in March this year introduced more flexibility for compensating small power generators. For example, a company with several branches can invest in solar energy in one location and sell surplus power to other branches. Other changes include reduction of the time electricity distributors have to connect new generators to the power grid from 82 to 34 days, and an increased time limit of 60 months for the use of energy credits transferred to the network.

“The regulatory framework is now well developed: we need to add financing initiatives and government support,” says Sauaia. To support distributed power generation, Absolar recommends that all states adhere to the agreement that grants a VAT exemption for transactions related to solar and wind equipment. Regarding financing, Sauaia highlights the credit line launched in May by Banco do Nordeste, a Brazilian regional development bank, for small businesses interested in investing in distributed power generation. Loans from the line are payable in 12 years with a one-year grace period and can finance up to 100% of the investment at an annual rate of 6.5% to 11%.
The new Responsibility Law for State owned Enterprise

Joisa Dutra
Director of the Getulio Vargas Foundation Center for Regulation and Infrastructure (Ceri)

THE NEW RESPONSIBILITY Law of State-Owned Enterprises was approved by President Michel Temer on July 1st. Long overdue, the law closes a serious gap considering how extensively state-owned enterprises (SOEs) participate in the Brazilian economy.

In Brazil, SOEs dominate the infrastructure sector. According to Ceri data, about 30% of consumers are served by power distribution companies that are controlled by the government. Even though the oil and natural gas sector was opened to private participation 20 years ago, SOE Petrobras still accounts for over 82% of domestic production of natural gas. In the sanitation sector, of 28 regional service providers, 26 are state-owned. The same is true in the transportation sector, where only a few airports have private owners. That is also the case for highways.

Unfortunately, there is abundant evidence that Brazilian SOEs have serious governance issues. In the economic literature, inadequate governance in companies in general reflects the difficulty of aligning the incentives of owners and of company managers, exacerbating the difficulty owners have in controlling the company’s goals.

Unfortunately, there is abundant evidence that Brazilian state-owned enterprises have serious governance issues. In Brazil, Petrobras is the most notorious case of poor SOE governance. It is true that the Revenue Watch Institute in 2013 rated Petrobras as the third best oil and gas SOE worldwide, but that misleading good rating demonstrates that assessment of the governance of a company is often limited to formal aspects, and there is little ability to effectively assess whether the objectives of owners and managers are aligned.

In 2014, when the corruption investigations in Petrobras became public, it also became clear that the company has serious management problems, among them politically motivated nominations of managers, limited engagement of private shareholders, deficient internal control systems, and failure to adhere to best corporate governance practices, both national and international.

Such scandals, emblematic as they are of the crisis of governance in Brazilian SOEs, attest to the distance between the activities of these companies and the public interest.

The economic literature recognizes that the objectives of SOEs go well beyond simply maximizing profits. In Brazil’s legal framework there has been some difficulty, even confusion, in understanding the objectives of these companies. Evidence of this is how their social and their market functions conflict when SOE shares trade on stock markets.

The Responsibility Law of State-Owned Enterprises addresses the social function that should guide the actions of state enterprises and its foundation—the collective interest or national security imperatives. The collective
interest may, for instance, involve expansion of economically sustainable access to public services (universalization) or industrial policy (development or use of Brazilian technology).

**The law**

The responsibility law deals with two major topics: (1) governance of SOEs and mixed capital companies (companies capitalized by both government and the private sector), and (2) bidding procedures and contracts awarded by public enterprises and joint stock companies.

With regard to governance, the law establishes the criteria for appointment and the powers of the controlling shareholder, management, the Board of Directors, and the Audit Committee.

Before the Petrobras issue, governance had already been of concern, as evidenced by the report of the Court of Auditors on Furnas, a subsidiary of Eletrobras (a Brazilian electric utility), which is a mixed capital company engaged in the generation and transmission of electricity. The Court was concerned with how SOEs operate and the lack of internal control mechanisms: it identified 81 Furnas subsidiaries that together represent total investments of about R$48 billion, of which R$7.9 billion are a direct responsibility of Furnas.

The Court found (1) no policy or standards to guide subsidiaries on issues of planning, control, and management, or even profitability criteria; (2) no criteria for selecting companies to partner with subsidiaries; (3) no criteria for selecting Furnas officials to sit on the boards of these subsidiaries; and (4) the presence of construction companies as partners in subsidiaries.

These problems lie at the root of a number of questionable practices that the Court identified, such as renegotiations that ultimately produced a general deterioration in the profitability of investments. The Court reported that of 79 subsidiaries analyzed, 21 were reviewing their business plans, and of these 17 had lower returns than were planned.

**Brazil has an undeniable need to invest more in infrastructure, and reaching this goal depends on improvements in the law and regulation.**

As a result of its analysis of the Furnas case, the Court recommended establishing criteria for selecting representatives of the SOE to monitor subsidiaries and sit on the Board of Directors and the Audit Committee, and setting up monitoring and control systems. The responsibility law largely responds to the Court’s concerns.

The major question that arises now is the extent to which the law will have a disciplining effect on the functioning of SOEs, which have a significant role in the economy.

SOEs have 24 months to carry out the measures necessary to comply with the law. The government’s intentions to adhere to the dictates of the law thus recognize this period as a period of adjustment. One way to monitor how well SOEs are adjusting to the new law, for example, would be to monitor the extent to which nominations for the Board of Directors, the CEO, and other senior management staff meet the law’s criteria.

Brazil has an undeniable need to invest more in infrastructure, and reaching this goal depends on improvements in the law and regulation. The willingness of the federal government to promote reforms by enacting laws to deal with issues such as the Investment Partnership Program and the organization of SOEs is welcome. But the actual results will come only if the best practices established by these laws are complied with. It is therefore critical that the government make a diligent effort to monitor compliance.
Without social security reform, the constitutional spending ceiling could be disastrous

Aloisio Araujo
Professor and researcher, the Getulio Vargas Foundation Graduate School of Economics (EPGE) and the Applied Mathematics Institute (IMPA)

Solang Monteiro
WHEN IT COMES TO CONTAINING public debt and placing the country on a sustainable growth path, Professor Aloisio Araujo, the only Brazilian economist elected to the U.S. National Academy of Science, has a clear idea of the role the government should play in the economy. He agrees with President Michel Temer’s strategy of making privatization a priority and setting a ceiling for public expenditure—as long as it is accompanied by social security reform—but argues for retaining constitutional mandates on spending for health and education. He believes that making education spending more efficient should not be done through budget cuts: “We have to rebalance government finances and ensure funding for health, education, science and technology, through two fronts: social security reform and reducing the role of government as operator of state-owned companies, which are vulnerable to political manipulation.”

Nobel Prize winners Erik Maskin and Robert Lucas participated in the meeting of the Association for Public Economic Theory (PET) at FGV in July. What were their views on the current state of the Brazilian economy?
Since the discussions focused on economics, most of the presentations did not address Brazil’s problems directly. But some things clearly applied: Lucas, for example, stressed the importance of education. This is relevant for Brazil today: in
the crisis we are living with, a large fiscal adjustment is necessary, but we must remember that investments in education should be preserved. The Chicago School, in which Lucas participates, was the first to recognize the importance of education in human capital theory, which explained the Industrial Revolution as the product of family concerns to raise more educated children.

Meetings like that in July help because they not only discuss our problems, but bring in scholars who are at the research frontier to meet our students and researchers. I have devoted much of my career to training doctoral students ... because I believe that a great country like Brazil should not focus only on the daily public policy debate. It is also necessary to prepare people to dialogue with those at the research frontier and think more deeply about our problems. In several countries, especially the United States, there is more sophistication in the public policy debate, and that is what we should replicate here.

How can the economic policy debate in Brazil be improved?
I think it will take a little bit of everything. Brazil started late and that has been costly. When I arrived at EPGE in 1983 after teaching in the United States, I dealt with two issues that today are considered banal. The first is that education is important for economic growth, and the other is the connection of inflation to fiscal policy, so that curbing inflation requires containing public spending. These issues, which are obvious, took too long for society to understand, and that has had its price. The recent fiscal relapse shows the lack of maturity of Brazilian society.... With more sophisticated models we can continue debating to refine [economic policy]. We still have much more to do because, first, the knowledge frontier keeps expanding. Second, as we approach the frontier, we have to deal with the specifics of Brazil’s problems.... I hope the government understands the importance of sustained funding for research.

You mentioned the need for a debate on fiscal adjustment. Do you approve of the constitutional amendment to limit public spending that President Michel Temer has proposed?
I would like this constitutional amendment if it were accompanied by social security reform, phased in rapidly. Without reform, we will have to cut essential spending, which could be disastrous. The govern-
We have to spend more on education and health because they are essential. I also consider spending on science and technology to be essential because without them there is no future.

The proposed constitutional amendment to cap public spending is a heroic measure, in the midst of a profound crisis, in a country without an investment grade rating, but it will only make sense if there is social security reform. For example, we need to equalize the retirement age of rural and urban workers immediately, of men and women immediately; this will allow savings to ensure that there are resources for the sectors I have mentioned.

It has been found that spending on education is not efficient or sustainable, and that public spending on higher education benefits the wealthy. Do you agree that we need to review education policies? Spending on higher education is a big problem; we have improved it and reduced the gap between what is spent on higher and on basic education ... but we still need to cut excesses and ensure that educational institutions and students meet minimum qualifications. Anyway, we are heading in the right direction.

As for the efficiency of spending, it is certainly something we can improve through program evaluation and cost-benefit analysis—which is not done much in the Brazilian public sector in general. Early childhood education is essential because that is the point in a child’s life when the expenditure is most productive. The quality of the National Program for Access to Technical Education and Employment (Pronatec), for example, is doubtful. I prefer the idea of a program in
partnership with the private sector, which knows what the market needs, rather than just opening a technical course financed by the government.

But it is not only in Brazil that there is waste in spending on education, and we should not cut spending on education only because we spend badly. That would be the worst of all worlds. I do not know if it is true that having fewer resources will make spending more efficient; we may end up cutting what is easier and not where there is more waste. … I have a deep distrust of public sector efficiency and its ability to evaluate teachers because there is an immediate reaction from people that interferes with the efficient allocation of resources. You have to be careful with this kind of criticism, because it can lead to very bad economic policies.

**Do you support retaining the mandatory spending on education and health as required by the Constitution?**

I think that the spending mandate was a good decision. At first I was afraid, but then we saw that the Human Development Index has improved as education opportunities expanded. There are much better systems [for allocating resources to education and health], but without the spending mandate the balance of political forces could be very bad [and unfavorable to the poor]. I understand that it is harder to carry out fiscal adjustment when spending is mandatory. But suppose the economist wants to solve the fiscal adjustment problem and because elections are coming the politician chooses not to reform social security because that is politically less costly. Rather than seeking for culprits, we should focus more on what we spend and we should not have spent, as on the growth of government and the creation of state-owned enterprises.

**The proposed constitutional amendment to cap public spending is a heroic measure, in the midst of a profound crisis, in a country without an investment grade rating, but it will only make sense if there is social security reform.**

**You have always supported privatization and concessions to increase efficiency and economic growth. Today this issue is back on the policy agenda, but more to generate cash flow to contain the federal budget deficit. Could that pose risks to privatization and concessions?**

Privatizations serve not only to ensure efficiency and economic growth, especially in a difficult fiscal situation, but also to contain corruption. It is difficult for society to supervise a bloated government...
Spending on higher education is a big problem; we have improved it and reduced the gap between what is spent on higher and on basic education ... but we still need to cut excesses.

and understand whether public funds are being well applied. But it is important to design privatization well. Often the result is an auction that is not competitive and a price for services that is not appropriate, so that renegotiation becomes necessary, as in the case of airport concessions.... Mexico privatized phone services by selling its phone service monopoly, which was bad; it resulted in very expensive phone services. We did not do the same, though the auctions of our telecommunications, for example, were far from competitive. In that case, technological advances have reduced the cost of phone services, but in other sectors, such as ports, we need to think about how auctions are designed. Privatization is a big task because there have been so many recent changes. When the economy was relatively better, the government could demand a lot of investment in return. Today, however, government needs more cash flow because of the fiscal situation, and ... it needs to sell concessions to the highest bidder.

Does this imply less commitment to future investment?
We need to get some private sector commitment to investment, but not so much as was required in the past. We have to be realistic. Of course it is good to have low fares and large investments, and even subsidize private investors, if necessary. Currently, however, the fiscal situation is very difficult.

But I think we can have a balance. I have advocated for privatization of sanitation companies, which could serve as a counterpart for renegotiation of state debts. In this case, for example, you have to demand from private investors the expansion of sanitation for all people. Sanitation is something that affects everyone and, in relative terms, Brazil is much farther behind in sanitation than in other sectors. We already have a successful example where the federal government promoted privatization of state banks in exchange for restructuring state debt in the 1990s. For sanitation it would be the same. ...

So we have to rebalance government finances and ensure funding for health, education, science and technology, through two fronts: social security reform and reducing the role of government as operator of state-owned companies, which are vulnerable to political manipulation.