Occasional Papers (OP) # 8 by Juan Castañer, Director of the Economic Analysis and Policy Division of Estudios Técnicos, Inc. (ETI), integrates a number of key factors, not frequently considered together, related to the Island’s economic performance. It builds upon work done in the firm and frequent discussions on these issues. The Division, under Castañer’s leadership, is focused on development issues and has completed a number of major projects on the subject with the participation of staff members from other ETI divisions. This OP will be followed by another one dealing with specific development strategies.

Puerto Rico’s Disturbing Economic Prospects

By Juan A. Castañer-Martínez

Introduction

A study prepared by Estudios Técnicos, Inc. for the Department of Economic Development and Commerce in 2016, indicated the following: “The current economic landscape has limited the government’s ability to develop counter measures to halt the dramatic generational, social and economic changes that the Island has experienced.” It also points out to the serious economic challenges with strong downside risks faced by Puerto Rico, placing them in a global context. The report provides a comprehensive overview of the past, present and future trends of Puerto Rico’s economy, with an emphasis on the long-term implications for sustainable growth and development.

The purpose of this brief note is not to repeat the same analysis but, using it as a point of departure, expand on certain issues or aspects that can contribute to a more complete understanding of current conditions and have broader implications for the economy. This piece begins with a short description of growth trends in the economy and employment, and concludes with some insights about possible paths to growth.

Continued on page 2
The Economy: The Known Story

In the last decade, the economic model on which Puerto Rico based its growth strategy became inoperative due to its inability to resolve the fundamental weaknesses left unattended in previous decades as well as changes in the global context. This has resulted in the well-known (but not well understood) facts of more than ten years of economic contraction, a steady decrease in the quality of life, massive outmigration and a collapse of the institutional framework. One of the key conclusions from this overview, and from a benchmarking exercise, is that “Even with economic reforms in place, the path to recovery is expected to take more than 15 years.” That, in essence, is the expected outcome.

Real growth - Economic stagnation

Real GNP growth in Puerto Rico has experienced long-term stagnation from fiscal 1970 onwards, with the average annual growth in real GNP per decade since 1950 becoming progressively smaller for almost the entirety of the 1950-2016 period. Between the onset of the actual contraction in 2006 and 2016, the economy has contracted by 16.3%. Fiscal year 2016 contracted at a lower pace than originally forecasted by the Planning Board. 11% vs. 18% Fiscal year real GNP for 2014 and 2015 contracted at 18% and 0.7% respectively.

**FIGURE 1:**
REAL GNP GROWTH: 1950-2016 FISCAL YEARS

Moreover, the growth gap between the local economy and that of the mainland has widened considerably since 2000. The performance of the U.S. economy does have an impact on our economy, but the impact has weakened (See Figure 2). During the second half of the 80s, PR’s real GNP growth averaged 3.6%, while in the case of the US it was 3.8%. Since 2000 until fiscal 2016, it declined an average of 0.3%, while the US economy expanded at an average annual rate of 2%.

**FIGURE 2:**
AVERAGE ANNUAL GROWTH OF REAL GNP

The one area in which the impact of the economic contraction is being felt most strongly, is fixed investment, in particular in construction. Between fiscal year 2006, the year before the start of the contraction, and 2016, total investment decreased, from some $6.0 billion to $2.8 billion, a reduction of $3.2 billion, representing 53.1% of the investment in 2006.

The biggest decline has been in public investment, which fell by $1,764 million as a result of the reduction of $1,181 million in investment by public corporations, a reflection of the deterioration in their finances and indebtedness.

Private investment declined by $1,440 million, as investment in private housing fell by $1,277 million, representing 89.0% of the total reduction.

**FIGURE 3:**
CONSTRUCTION INVESTMENT: 2006-2016

The challenge facing the Island’s economy is extremely serious. It will take many years to return to the levels at the beginning of the contraction, with the peak year for investment in construction when it totaled close to $700 Billions.

**FIGURE 4:**
SHARES OF KEY COMPONENTS IN THE GNP

Employment and unemployment: the labor market

Growth in total employment (Household survey) since the 1980’s first slowed down, from 26% in 1981-1990, to 15% during 2001-2006, to decrease then by an annual 2.5% during 2007-2016.

**FIGURE 5:**
AVERAGE GROWTH OF TOTAL EMPLOYMENT

While personal expenditures increased, sustained to a great extent by the huge inflow of federal transfers, public sector employment and a large and growing informal economy, the share of investment, in particular construction investment, declined, from 12.0% of GNP in fiscal 2005 to 4.0% in fiscal 2016 (See Figure 4).
As a result of the contraction since 2007, there has been an accumulated net loss of 164,317 jobs (Nonfarm salaried), of which 52% were in the private sector, with 48.3% coming from the government sector (Central Government public corporations and municipalities). Manufacturing employment accounted for 44.5% of the losses.

The situation in the labor market deteriorated rapidly after 2006, with a steep decline in the employment rate, a high unemployment rate, and a rapidly deteriorating labor force participation rate (LFPR), from an already very low level. Let’s examine the employment rate, an excellent indicator of employment in an economy since, for one, it does not ignore the labor force dropouts (See Figure 8).

The labor force, which increased an average of 11% during 2000-2006, declined by 2.5% in the 2006-2016 period. As a benchmark it is pertinent to mention that in fiscal years 1991-1993 the labor force increased at an average annual rate of 2.5%. But, as the research by Bram and Wheeler shows (2016), the causes for the decline in the LFPR in Puerto Rico are various, “…namely the aging of the population, accelerated by a falling birth rate and outmigration of a young cohort.” Since the labor force actually increased at the beginning of the decade, and a falling birth rate is a longer-term effect, it seems more likely that the decline in the overall LFPR reflects more outmigration and aging of the population.

In this sense, it is important to consider the prime-age LFPR rate, that includes those in the 25-54 years group a cohort that represents 46.0% of the civilian non-institutional population and 75.0% of the labor force.

Their LFPR is higher than the general rate, 66.0% in April vs. the general rate of 40.5%. Figure 10 presents the magnitudes and changes in the LFPR of the prime-age group. It also declined but not as steeply as that of the general LFPR, and it is higher compared to that in the 1980 - 1989 period when it averaged 60.3%. Secondy, it also shows that the trends in Puerto Rico, although not of the same magnitude, have been quite similar to those in the overall U.S. economy for the same periods. Thus, the downward trend observed in the general LFPR has been pushed more by the decline in the rates of the 16-24 and 55+ age groups.

Their employment rate is high, although it followed the downward trend of that for the labor force. From a high of 58.7% in 2000, it rose to 63.3% by 2006, falling to 58.9% in April 2017 (See Figure 11).

The decline in the general labor force participation rate brings out another issue, namely, what is happening to those not in the labor force. The data available from the Household Survey provides a breakdown, by employment category, of the civilian non-institutional population of those out of the labor market. In Figure 12 we present a comparison between calendar 2007 and March 2017.

The first thing that strikes one is the significant increase in the share of those retired, from 16.3% in 2006 to 24.0% in 2017, followed by a slight increase of those classified as disabled. Both categories represented 37.0% of the total out of the labor force in 2017, from 29.0% in 2007. On the other hand, the proportion of those leaving the labor market, the marginally attached, - a term describing those who want a job, are available to work, have looked for work in the
previously, but recently stopped looking - declined. The number of discouraged workers decreased, from 45,000 in 2007 to 22,000 in March 2017, and so did its proportion in the total of those out of the labor force, from 2.8% in 2007 to 1.4% in March 2017. The number of those who did not want to work rose by 5,000.

The share of the categories of nonparticipants that absorbed a large proportion of those leaving the labor force, housework or at school, and could enter or reenter the labor market and push up the unemployment rate again declined, from 58.0% in 2007 to 49.5%.

That increase in the number of retired in all likelihood represents to a great extent the rise in retired government employees following the contraction in public employment, and was a contributing factor in the decline of the general LFPR. Thus, the decline in the labor force, from 14 million in 2007 to 11 in March 2017, reflects not only the impact of emigration but also, and it seems in a greater proportion, the increase in the number of those classified as retired, which was 121,000 persons.

One component of the labor market frequently mentioned is that of part-time employment, concentrated in the services sectors. While the share of those working 20 hours has remained practically unchanged, 5.8% in March 2017, there has been an upward trend in the proportion of those working 1 to 14 hours per week, from 2.8% in 2007 to 7.1% in March 2017.

### FIGURE 13: DISTRIBUTION ON EMPLOYED PERSONS AT WORK

<table>
<thead>
<tr>
<th>Number of Weekly Hours Worked</th>
<th>March 2017</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 14 hours</td>
<td>2.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>15 to 34 hours</td>
<td>22.0%</td>
<td>22.0%</td>
</tr>
<tr>
<td>35 to 39 hours</td>
<td>10.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td>40 hours</td>
<td>8.4%</td>
<td>8.4%</td>
</tr>
<tr>
<td>41 to 48 hours</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>49 hours or more</td>
<td>2.1%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Source: Data provided by the PR Department of Labor and Human Resources (2016).

### Shift to Services

There has been a significant shift in the industrial composition of Puerto Rico’s economy, led by a reduction in the manufacturing sector and an increase in the services sector.

Whereas in 1990, manufacturing represented 18.2% of all employment, in 2016 it represented 8.3%. At the same time, the share in almost all the service sectors increased significantly.

Key factors that contributed to this change were the loss of labor-intensive manufacturing, global technological changes, and internal readjustments in the local manufacturing industries reflecting changes in the global operations of key companies.

### FIGURE 14: DISTRIBUTION OF NON FARM EMPLOYMENT

<table>
<thead>
<tr>
<th>Industry</th>
<th>1990</th>
<th>2016</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, Logging, and Construction</td>
<td>5.5%</td>
<td>2.6%</td>
<td>↓</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>18.8%</td>
<td>8.3%</td>
<td>↓</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>3.0%</td>
<td>3.3%</td>
<td>↑</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11.6%</td>
<td>14.4%</td>
<td>↑</td>
</tr>
<tr>
<td>Transportation and Utilities</td>
<td>2.0%</td>
<td>1.9%</td>
<td>↓</td>
</tr>
<tr>
<td>Information</td>
<td>1.9%</td>
<td>2.0%</td>
<td>↑</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>2.8%</td>
<td>3.2%</td>
<td>↑</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>9.8%</td>
<td>1.5%</td>
<td>↓</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>6.9%</td>
<td>12.8%</td>
<td>↑</td>
</tr>
<tr>
<td>Educational Services</td>
<td>2.0%</td>
<td>4.1%</td>
<td>↑</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>4.1%</td>
<td>9.5%</td>
<td>↑</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>4.2%</td>
<td>9.1%</td>
<td>↑</td>
</tr>
<tr>
<td>Other Services</td>
<td>1.7%</td>
<td>2.0%</td>
<td>↑</td>
</tr>
<tr>
<td>Government</td>
<td>34.9%</td>
<td>25.5%</td>
<td>↓</td>
</tr>
</tbody>
</table>


###Banking system

Following the trend in the previous quarters, commercial lending decreased 2.7% y/y in Q1-2017, although at a slower pace from the decline of 5.8% in 2016. Between 2007 and this quarter, the commercial banking sector has seen its total loans portfolio shrink by $28.0 billion, or 45.0% of the value in 2007.

The portfolio of construction loans has seen a dramatic reduction in volume outstanding, from $6.1 billion in 2007 to $225.7 million in Q1-2017, according to the Office of the Commissioner of Financial Institutions.

Residential mortgages have declined over time, as housing construction has fallen from $16.6 billion in 2007 to $13.4 by the first quarter.

Total loans to individuals, mostly auto loans and credit cards, declined by $81.0 million, a 1.5% y/y decrease compared to 2015.

Loans to private businesses, a good indicator of economic health, have also moved down since 2007, from $13.4 billion to $4.3 billion in Q1-2017.
Population - Still Declining

...the expansionary phase of the economy, and declines as economic conditions weakened. Average population increases began to slow from 1981 onwards, coinciding with the structural reduction in average GNP growth for the same period.

Accelerated aging of the population

Until 2000 the population in Puerto Rico had remained relatively young, with a high percentage in the 25 to 34-age cohort, and a noticeable decline in older cohorts. By 2010, the population showed signs of a profound and accelerated aging process, the population younger than 34 years old had declined by approximately 243,000 individuals, while the population 45 years and over increased by almost the same amount (233,000 individuals).

Demographic downsizing

Long-term population has been consistent with GNP growth during the first three post WW II decades, with high population growth during

FIGURE 16: AVERAGE ANNUAL GROWTH IN POPULATION

FIGURE 17: MEDIAN AGE OF POPULATION IN PUERTO RICO

FIGURE 18: NATURAL INCREASE AND NET MIGRATION

Income and Poverty: The Rise of Income Inequality

The issue of income inequality has acquired great prominence in the past several years, becoming today one of the most widely and controversial issues. It has assumed increased presence in social and economic issues due to the social and economic impacts of the recent recession, and the comparative study by Thomas Piketty (2014) on the subject. Inequality is very important since it depresses demand due to the fact that those at the lower end of the income scale have higher propensity to consume, than the top earners.

Income inequality, or the distribution of wealth, broadly speaking, can take various forms. For instance, inequality in lifetime spending power could be more important than inequality in current incomes and wealth, which are the usual measures, since they change over the course of a life. That might be, but as Auerbach et al. (2016) suggest, measures of inequality based on current incomes and wealth are misleading, not giving a true picture of the problem.

There are more traditional measures of income inequality that provide a picture at the society level, for instance, the well-known Gini coefficient. The Gini coefficient is a very useful indicator for the analysis of income distribution within a country or region. It should not be mistaken for a measurement of the distribution of wealth.

Among U.S. jurisdictions inequality in Puerto Rico is the highest. In 2006, it ranked second in the top 10 jurisdictions with the highest Gini coefficient, by 2015 it is the U.S. jurisdiction with the highest Gini. With respect to other economies in the region, Puerto Rico is among those with more inequality, surpassing those in the table below. There has been an improvement in the index but marginal, from 0.574 in 1999, to 0.559 in 2015.

Not only is the Gini coefficient high, but the percentage of the population below the poverty line has also increased. In 2005, 44.9% of the population reported being below the poverty level, increasing to 45.5% by 2015. The working population receiving the federal minimum wage has seen its condition deteriorate, as a consumer dollar in 2016 was worth 13 cents less than the same dollar in 2006.

Nevertheless, poverty remains high. The percentage of the population below the poverty level has increased since the mid-2000s, from 45.0% to 46.1% in 2015 (See Figure 19).

Wages and salaries are the basic source of income for most of the working population,
complemented in some cases by transfer payments for those eligible. Reduction in the total wage bill through unemployment or inflation affects incomes, and thus poverty levels. Between fiscal years 2000 and 2016, a significant change has taken place in the evolution of wages and salaries in the economy: a dramatic decline in nominal wages and salaries compounded with a decline in real wages (See Figure 20). In the period 2000 - 2006, nominal wages and salaries increased by $5,355 million, and $2,159 million when adjusted by inflation.\(^5\) The trend reversed completely after 2006. Nominal wages and salaries decreased by $1,456 million between 2007 and 2016, as a result of the reductions in salaried employment. Adjusted by inflation, that reduction translates into a loss of $4,840 million. While inflation-adjusted salaries increased at a Compound Annual Growth Rate (CAGR) of 1.4% during 2000 - 2006, they declined by -2.3% during 2007 - 2016. The combination of these two factors had a significant impact on the spending and purchasing power of consumers, due to significantly reduced incomes. The median income (Adjusted for inflation) for families and households as a result, has declined (See Figure 21).

### TABLE 1:
GINI COEFFICIENT FOR PUERTO RICO AND SELECTED JURISDICTIONS, 1999 - 2015

<table>
<thead>
<tr>
<th></th>
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<td>Tennessee</td>
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<td>West Virginia</td>
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<td>México****</td>
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<td>Dominican Republic**</td>
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Sources: U.S. Bureau of the Census, American Community Survey Briefs, various years; Puerto Rico Community Surveys; Jorge M. Mattar and Pedro J. Rivera, eds. (2005), Globalización y desarrollo: desafíos de Puerto Rico frente al siglo XXI, CEPAL, Santiago de Chile, ch. IV, section C, p. 222; World Bank (2017), DataBank World Development Indicators, GINI Index WB Estimate (Extracted May 23, 2017).

### FIGURE 19:
PERCENTAGE OF POPULATION BELOW THE POVERTY LEVEL

2005-2015

### FIGURE 20:
CHANGES IN NOMINAL AND REAL WAGES AND SALARIES (FISCAL YEARS, $MM)

2000-06

$5,355

$2,159

$4,840

2007-16

### FIGURE 21:
REAL MEDIAN HOUSEHOLD AND FAMILY INCOME

At Constant 2006 Prices 2005 - 2014


At least since fiscal 2000, public finances including both expenditures and debt, have reached critical levels, with the resulting imposition last year of the Fiscal Oversight and Management Board (FOMB). Between fiscal year 2000 and December 2016, while net revenues to the General Fund increased at a CAGR of 18%, the debt of the central government (not including public corporations) rose at an annual rate of 8.4%, and nominal GNP grew at 3.3%. This explains why the ratio of total public debt to GNP increased from 58.4% in fiscal 2000 to 100.2% in 2016.\(^7\) Expenditures and debt increased at a much faster pace than revenues.

The end-result has been a government seeking “bankruptcy protection” through Title III of PROMESA. It has been required to incorporate stringent fiscal adjustment measures to its 2018 Budget, and to restructure its debt, including that of several of its public corporations, with a time-line for adjustments and economic recovery extending through fiscal 2026 at the very least.\(^8\)

For fiscal year 2018, as stipulated in the revised Fiscal Adjustment Plan approved by the FOMB last March, the budget request for the General Fund, which covers the central government,\(^9\) submitted by the governor on June 1st, amounts to $9,563 million (See Table 2). Although in principle it represents an increase of $575.5 million from the budget for current fiscal 2017 of $8,987 million, the comparison is somewhat misleading. The increase reflects the decision to transfer to the General Fund budget the payments of pensions plus two other spending items, which total $2,276 million, of which 90% will go to the pension system (Central government, Judiciary system and Teachers). Thus, on a comparable basis with the budget for fiscal 2017, total expenditures will have declined by $1,700 million. Operating expenditures actually will decline by $612.1 million or 9.1%, and also that for committed expenditures, mostly those through formula legislation, adjustments also required in the fiscal plan. Servicing of the debt is not included in the proposed Budget.

### TABLE 2:
SUMMARY DISTRIBUTION OF GENERAL FUND BUDGET FOR FISCAL YEAR 2018 AND 2017 ($MM)

<table>
<thead>
<tr>
<th>Concept</th>
<th>2017</th>
<th>2018</th>
<th>+/-</th>
<th>Dist. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating expenditures</td>
<td>6,716.7</td>
<td>6,104.6</td>
<td>-612.1</td>
<td></td>
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<tr>
<td>Subsidies, incentives, and donations</td>
<td>2,246.3</td>
<td>1,182.0</td>
<td>-1,064.3</td>
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<tr>
<td>Payment of Debt</td>
<td>24.0</td>
<td>---</td>
<td>-24.0</td>
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<tr>
<td>General Fund</td>
<td>8,987.0</td>
<td>7,286.6</td>
<td>-1,700.4</td>
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<tr>
<td>Payments of Pensions (Pay-as-you-go)</td>
<td>---</td>
<td>2,038.1</td>
<td>2,038.1</td>
<td>89.6%</td>
</tr>
<tr>
<td>Liquidity Reserve</td>
<td>---</td>
<td>190.0</td>
<td>190.0</td>
<td>8.3%</td>
</tr>
<tr>
<td>Capital Improvements</td>
<td>---</td>
<td>47.8</td>
<td>47.8</td>
<td>2.1%</td>
</tr>
<tr>
<td>Subtotal new items</td>
<td>---</td>
<td>2,275.9</td>
<td>2,275.9</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total General Fund</td>
<td>8,987.0</td>
<td>9,562.5</td>
<td>575.5</td>
<td></td>
</tr>
</tbody>
</table>

Committed Expenditures:
- ASES (Health Reform Administration)    | 891.9   | 791.4   | -100.5 |
- Payment of Debt                        | 24.0   | ---   | -24.0 |
- Expenditures through formula legislation: | 1,582.1 | 1,204.4 | -377.7 |
  - UPR                                  | 872.4 | 669.7 | -202.7 |
  - General Courts Administration System | 315.0 | 315.0 | 0.0 |
  - Contribution to Municipalities       | 394.7 | 219.7 | -175.0 |
  - Payments to Retirement System         | 326.2 | 326.2 | 0.0 |
| Subtotal                               | 2,824.2 | 2,322.0 | -502.2 |

Federal policies have a direct impact on PR’s economy mostly through expenditure decisions, but also through fiscal policy decisions. Changes that are enacted can impact the local economy through spending levels, as the flow of federal funds has acquired a dramatic dimension. For instance, they represent 23.0% of the consolidated budget, and 17.0% of disposable personal income. Overall, they represent about 27.3% of the Island’s GNP. Moreover, Changes in or enactment of new fiscal policies can have significant impacts on the flows of federal spending, and investment, for instance, through government spending. During the period between fiscal years 2009 and 2016, the economy of Puerto Rico had an inflow of federal funds, and from other sources, of about $147.0 billion (See Table 3). These inflows (Receipts) in all likelihood exceeded that of external direct (Non-financial) investment to the Island. The total represented 27.3% of the GNP (Gross National Product) for that period.

As can be seen in the table, the sources were various but can be grouped into several categories: those that came through the American Reconstruction and Recovery Act (ARRA), the local Stimulus Fund, using bond proceeds from the Puerto Rico Sales Tax Financing Corporation (COFINA), from the reduction in tax rates for individuals and corporations through the Tax reform of 2011, and from Federal funds to individuals, the Commonwealth, and municipalities. The majority, as reflected in the above table, (92.3%) were Federal funds, amounting to $138.7 billion, of which 78.0% were received by individuals (Mostly corresponding to Social Security and Medicare payments, for which individuals paid while working, followed by food stamps, and scholarships). Given the high propensity to consume in Puerto Rico, it is safe to assume that most of that money went to personal consumption, representing on average 88.0% of the Island’s GNP. This huge amount of funds has sustained domestic consumption even in the midst of a prolonged and deep contraction in the economy.

With respect to the proposed federal budget for fiscal 2018 (See section 8.2), the implications could be serious, not only for that year but afterwards. The pace of growth of spending by the Federal government in transfer payments has declined. During the period 2000-2006, total federal spending increased at a compound annual rate of growth of 6.2%, while transfers’ payments increased at a higher rate (See Figure 22). In the following period (2006-2015), which includes the Great Recession (2007-2009), growth of expenditures slowed to 41%, with that of transfer payments below the growth of total spending.

### TABLE 3:
**INFLOWS OF FUNDS RECEIVED BY THE ECONOMY OF PUERTO RICO DURING 2009-2016**

<table>
<thead>
<tr>
<th>Funds</th>
<th>Amount (S$Mn)</th>
<th>Dist. %</th>
<th>As a % of GNP During Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRA Funds – Total</td>
<td>$7,156.8</td>
<td>4.9%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Received by ELA and Municipalities</td>
<td>$4,160.1</td>
<td>2.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Destined to Individuals</td>
<td>$1,430.0</td>
<td>1.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Channelled through Federal Agencies</td>
<td>$1,405.8</td>
<td>1.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Private Organizations and Non-Profit Institutions</td>
<td>$160.9</td>
<td>0.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Local Stimulus Fund (2009 • 2010)</td>
<td>$500.0</td>
<td>0.3%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Reduction of individual and corporate taxes (Tax Reform 2011)</td>
<td>$705.0</td>
<td>0.5%</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$8,362.8</strong></td>
<td>5.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td><strong>Federals Funds (Receipts)</strong>*</td>
<td><strong>$138,720.3</strong></td>
<td>94.3%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Individuals**</td>
<td>$114,863.2</td>
<td>78.1%</td>
<td>21.3%</td>
</tr>
<tr>
<td>Central government, agencies, public corporations and municipalities**</td>
<td>$19,346.6</td>
<td>13.2%</td>
<td>3.6%</td>
</tr>
<tr>
<td>For infrastructure (PIRPA and PRASA)</td>
<td>$1,760.5</td>
<td>1.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Municipalities (Communal Development)</td>
<td>$909.5</td>
<td>0.6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Subsidies to industries (Public corporations) and WIA</td>
<td>$1,620.4</td>
<td>1.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$147,083.0</strong></td>
<td>100.0%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

Sources: P.R. Planning Board (2017), Statistical Appendix 2016, table 21-22; Working Group for the Fiscal and Economic Recovery of Puerto Rico, Puerto Rico’s Fiscal and Economic Crisis (Marzo 1, 2016), p. 2. * Does not include receipts from ARRA, which are included above, and from state governments, and civil service pensions. ** Includes U.P.R.

### Access to the U.S. Market: No Longer a Competitive Advantage

The United States has free trade agreements (FTAs) in effect with 20 countries. These FTAs are built on the foundation of the World Trade Organization Agreement. Many of its FTAs are bilateral agreements between two governments. But some, like the North American Free Trade Agreement (NAFTA) and the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA+RD), are multilateral agreements among several parties. In our region the most important are NAFTA and CAFTA, that include México and Canada (NAFTA), the Dominican Republic, and five Central American countries (CAFTA+RD). Canada and Mexico are the two largest destination countries for U.S. exports and the second- and third-largest sources of imports (after China), according to the latest Census Bureau report on international trade in goods and services. In 2016, Canada and Mexico together accounted for a little over 26% of total U.S. exports of goods and services and 23.5% of total imports.

The Mainland is P.R.’s main export market, followed by the European Union. The consequence of these free trade agreements has been to open further the U.S. market to imports of merchandise from these countries, increasing competition to P.R.’s production shipped to the U.S.

In 2001, 88.2% of P.R.’s exports were destined to the U.S. market, by fiscal 2016 this share had declined to 76.0%, as shipments of computers and electronic equipment (NAICS...
The bulk of PR's shipments to the Mainland consist of pharmaceutical products, which represent 71.0% of total exports. This has been the case since at least 2001. Thus, Puerto Rico's revealed comparative advantage is in the manufacturing of these products, that is, it resides mainly in those high-technology sectors. On the other hand, it does not have a revealed comparative advantage in those products that do not have high value added.\textsuperscript{22}

The end of tax benefits under section 936 in 1996 for U.S. companies with operations on the island (Phased-out by 2005) did contribute to an erosion in the competitiveness of manufacturing production in Puerto Rico, but the problem predates that development. The enactment of NAFTA in 1994, the granting of permanent most favored nation treatment to China by the U.S. in 1998, as well as the subsequent free-trade agreements approved by the U.S. Congress with other countries in the region, created a new economic reality for Puerto Rico, globally and in the U.S. market. These developments changed the structure of the manufacturing sector. As seen in Table 4, while certain industries lost jobs as production moved elsewhere or was suspended in Puerto Rico, the pharmaceutical and medical equipment and supplies sectors saw an increase in production and in shipments to the mainland.

Table 5 presents the value of shipments of the most important manufactured products to the U.S., classified by three and four digit NAICS sectors and whose shipments accounted for 90.0% of the total shipments to the U.S. in 2016. The corresponding U.S. imports of these products was obtained in order to see Puerto Rico's competitive position over time, what advantage it has with respect to U.S. imports of the same products as those manufactured in the island. The results are presented in Figure 23.\textsuperscript{23}

The share of Puerto Rico's shipments in the corresponding total U.S. imports of these products decreased between 2001 and 2016, and was much more pronounced in the case of medical and electronic equipment and components (NAICS 334), which are pharmaceutical products. From a share of 25.0% in 2001, it fell to 16.0% in 2016, even when its share in total shipments to the U.S. from Puerto Rico rose from 67.0% to 76.0% in the same period. The same trend manifested itself in the case of shipments from the computer and electronic equipment sector (NAICS 334), from 25.9% to 4.4%, medical equipment and supplies (NAICS 3391), and electrical equipment, appliances, and components (NAICS 335), from 2.6% to 0.8%. Of these, only two sectors registered an increase in their share in PR's total shipments to the U.S.: chemical products, from 67.0% to 76.0%, and of medical equipment and supplies, from 3.7% to 100.0% (See Table 4). The trend is more striking if we take into account that in 1976, the year of inception of section 936, Puerto Rico's share in U.S. pharmaceutical imports was much higher, 54.8%.\textsuperscript{24}

Overall, while Puerto Rico’s total shipments to the U.S. increased 1.3 times, its share of total mainland import shipments has fallen, from 35.0% in 2001 to 24.2% in 2016, even when high value added products prevailed.\textsuperscript{25} It has not succeeded in matching the growth of foreign imports in sectors where such imports have competed successfully with U.S. production, such as computers and electronic equipment (NAICS 334), electrical equipment, appliances, and components (NAICS 335), and medical equipment and supplies (NAICS 3391).

The impact of U.S. foreign trade policy on Puerto Rico is masked by the effects of other factors, such as investment flows, productivity, wages, and tax incentives. The period 2001–2016 covers the years of the phase-out of section 936 and its total elimination in 2005. The competition from Ireland could have been a factor in the decline of Puerto Rico's share in U.S. imports.\textsuperscript{26} At the time its exports of electrical equipment, and components (NAICS 335), computers and electronic equipment (NAICS 334), and chemical products (NAICS 325), mostly pharmaceuticals, and of medical equipment and supplies (NAICS 3391) increased considerably (See Table 4).

### TABLE 4: SHIPMENTS OF PUERTO RICO TO THE U.S. AND SHARES IN TOTAL

<table>
<thead>
<tr>
<th>Industrial Sectors</th>
<th>2001</th>
<th>2016</th>
<th>2001</th>
<th>2016</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Exports</strong></td>
<td>48,900.8</td>
<td>71,856.1</td>
<td>88.2%</td>
<td>76.0%</td>
<td>24,955.3</td>
</tr>
<tr>
<td><strong>Shipments to Mainland</strong></td>
<td>41,367.2</td>
<td>54,952.5</td>
<td>100.0%</td>
<td>100.0%</td>
<td>13,225.3</td>
</tr>
<tr>
<td>Chemical Products (NAICS 337)</td>
<td>27,581.9</td>
<td>41,336.0</td>
<td>66.7%</td>
<td>75.7%</td>
<td>13,754.1</td>
</tr>
<tr>
<td>Computers and electronic equipment (NAICS 334)</td>
<td>5,395.7</td>
<td>1,358.4</td>
<td>13.0%</td>
<td>2.5%</td>
<td>(4,037.3)</td>
</tr>
<tr>
<td>Medical equipment and supplies (NAICS 3391)</td>
<td>1,548.9</td>
<td>5,466.0</td>
<td>3.7%</td>
<td>10.0%</td>
<td>3,917.1</td>
</tr>
<tr>
<td>Electrical equipment, appliances, and components (NAICS 335)</td>
<td>1,067.3</td>
<td>902.9</td>
<td>2.6%</td>
<td>1.7%</td>
<td>(164.4)</td>
</tr>
<tr>
<td>Rest of products</td>
<td>5,773.4</td>
<td>5,529.2</td>
<td>14.3%</td>
<td>10.1%</td>
<td>(244.2)</td>
</tr>
</tbody>
</table>

**Sources:** P.R., Planning Board, Selected Statistics on Puerto Rico’s Export Trade, 2001 and 2016; Statistical Appendix, 2001 and 2016.

### FIGURE 23: PUERTO RICO'S SHARE OF U.S. IMPORTS AND IN SELECTED INDUSTRIES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical equipment, appliances, and components (NAICS 335)</strong></td>
<td>0.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td><strong>Medical equipment and supplies (NAICS 3391)</strong></td>
<td>2.6%</td>
<td>13.4%</td>
</tr>
<tr>
<td><strong>Computers and electronic equipment (NAICS 334)</strong></td>
<td>0.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td><strong>Chemical Products (NAICS 325)</strong></td>
<td>0.4%</td>
<td>15.9%</td>
</tr>
<tr>
<td><strong>Share in total U.S. imports</strong></td>
<td>2.4%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

**Sources:** P.R., Planning Board, Selected Statistics on Puerto Rico’s Export Trade, 2001 and 2016; Statistical Appendix, 2001 and 2016. *Including P.R.'s shipments. ** Includes P.R.'s shipments of pharmaceutical (NAICS 325), Relies Data for U.S., on a calendar year basis.

### FIGURE 24: U.S. TOTAL IMPORTS OF SELECTED INDUSTRIES


The competition from other suppliers, as the U.S. expanded its free trade agreements, seems Continued on page 10
to have played a very prominent role as well as the entrance of new players such as India that has become a formidable competitor in these sectors.\(^3\)

**Capital vs. labor intensive industries**

One key development in manufacturing production, when compared to the period prior to 1970, is the increasing trend toward capital-intensive vs. labor-intensive investment and production. The competition, on the one hand, from labor-intensive competitors with low wages in the U.S. market, plus the tax incentives enacted, and trends in worldwide investment and production contributed to this development over time. By the early/1980s, manufacturing production was already centered on capital or technology-intensive industries, such as electronics and pharmaceuticals.

Between 1997 and 2002 investment in plant and equipment increased significantly, after falling between 1992 and 1997. It is precisely after 1997 when the ratio of exports to employment in manufacturing trends up consistently, with the exception of fiscal year 2012 (See Figure 25).

While manufacturing employment declined by 46.7% between 1996 and fiscal 2016, exports of manufactured products rose significantly, by 316.0% (at nominal prices). The manufacturing exports-to-employment ratio rose way up after 1997, indicating that productivity in the manufacturing sector, mostly composed of the pharmaceutical industry surged, reflecting an intensive process of substituting capital for labor in manufacturing. This would suggest that there are other factors contributing to the use of more capital-intensive technology than incentives, related to labor costs but also changes in industry production functions worldwide.

It is clear from Figure 27 that manufacturing employment started to decline prior to NAFTA’s enactment and the elimination of Section 936 in 1996.\(^3\) In fact, the last benefits from section 936 ended in 2005, by which time exports of manufactured products, for instance, increased over those in 1994.\(^3\) On the other hand, private employment (without manufacturing) continued increasing until the contraction of 2002, with a slight recovery afterwards, and then the onset of the current contraction in fiscal 2007, even when manufacturing jobs were disappearing. In 1990, manufacturing employment accounted for 29.0% of private nonfarm employment by 1994 that share fell to 26.0%.

Between 2001 and 2016, hourly compensation costs (HCC) in manufacturing in Puerto Rico increased at a CAGR of 3.0% in nominal terms, and 0.9% adjusted by inflation, while in the U.S. they increased by 2.4% in nominal terms and 0.4% in real terms.\(^1\) That slower growth in

The mainland is a reflection of the trend that has taken place since the end of the Great Recession in 2009, with salaries rising very slowly. Some economists in the U.S. have worried that many of the jobs being added are low-wage, low-skill positions. A similar trend is present in the Eurozone, where annual wages have increased 1.5%, compared to 2.5 – 3.5% before the crisis. The ratio of PR’s HCC to that in the mainland increased from 65.0% in 2001 to 70.3% in 2008, with the first increase in the federal minimum wage, declining afterwards to an average of 68.0% until 2015 when it again increased to 70.1%.\(^3\)

In comparative terms, Puerto Rico does not have a compensation cost advantage with respect to emerging economies (See Table 5).\(^6\) But that “wage advantage” of some competing economies may reflect lower productivity levels in these economies, as compared to Puerto Rico, where manufacturing is of a high value added, capital-intensive nature, where compensation costs, although important, are not critical.\(^6\) On the other hand, Ireland, with a corporate income tax on foreign corporations similar to Puerto Rico’s, a high proportion of capital-intensive exports, significant foreign investment, mostly by U.S. corporations, has a HCC higher than in Puerto Rico.\(^7\) This would mean that labor costs by themselves, are not a determining factor in defining competitiveness for the high value added manufacturing sector.

In general, then, the shrinking of the gap in manufacturing compensation costs in Puerto Rico with those in the U.S. has narrowed, and, partly as a result, industry has become much more capital intensive than before.

A Digression: Tax subsidies to U.S. corporations and other incentives\(^2\)

Business activity in Puerto Rico has been subsidized by the U.S. government through several tax provisions for over eighty years:\(^9\)

- **U.S. Revenue Act of 1921 (Section 936)**\(^1\)
- **Tax Reform Act of 1976 (Section 936)**
- **Section 30A (Substituting in 1996 for Section 936 until 2005)**
- **Through the U.S. Controlled Foreign Sales Corporations (Section 901 which replaced Section 936)**

In addition the U.S. federal government subsidizes Puerto Rico’s debt. When Congress established a civil government for Puerto Rico in 1917, it specified that:

All bonds issued by the Government of Puerto Rico, or by its authority, shall be exempt from taxation by the Government of the United States, or by any State, Territory, or possession, or by any county, municipality, or other municipal subdivision.

Because few municipal bonds are triple tax-exempt in every state, Puerto Rican bonds were until recently unusually attractive investments. This favorable tax treatment led investors to continue to buy up Puerto Rican debt even as the island’s finances began to look unsustainable.

Then, there is the temporary authorization of the creditability against federal taxes by the U.S. IRS of Law 154 of 2010, with a permanent ruling on the matter still pending. Between fiscal 2011 through April of this year the Commonwealth government has collected $11,572 million in revenues from this excise tax, which could be considered as foregone revenues by the federal government.
The use of tax and financial incentives by local jurisdictions to attract outside investment is not new, although among U.S. jurisdictions, and in the Caribbean, Puerto Rico was a pioneer in their use. Over the past several years there has been an increasing discussion in the U.S. about how effective these incentives are in achieving goals such as increased employment, when compared to their cost. Two recent studies on the subject provide an excellent overview of the issues involved.

The report by Timothy J. Bartik (2017 – A New Panel Database on Business Incentives for Economic Development Offered by State and Local Governments in the United States), is one of the most comprehensive on the subject. One of its main conclusions is that “existing research on incentives [show] that in some cases they can affect business location decisions, but that in many cases they are excessively costly and may not have the promised effects.”

The report prepared by The PEW Charitable Trusts (2017 – How States Are Improving Tax Incentives for Job Growth) evaluates the effectiveness of the states’ incentives, and whether they have programs to measure their effectiveness. Among its findings and conclusions is that “While these tax credits, exemptions, and property tax abatements are popular tools to create jobs, attract new businesses and strengthen the local economy, they also constitute high-risk investments that can squander billions in tax dollars without always paying off.”

TABLE 5: HOURLY COMPENSATION COSTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Puerto Rico</th>
<th>United States</th>
<th>Puerto Rico</th>
<th>U.S.</th>
<th>Mexico</th>
<th>Brazil</th>
<th>Ireland</th>
<th>South Korea</th>
<th>Taiwan</th>
<th>Singapore</th>
<th>India</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$8.02</td>
<td>$26.21</td>
<td>$8.85</td>
<td>$14.76</td>
<td>$5.41</td>
<td>$3.63</td>
<td>$17.23</td>
<td>$9.00</td>
<td>$16.62</td>
<td>$18.75</td>
<td>$0.71</td>
<td>$1.79</td>
</tr>
<tr>
<td>2002</td>
<td>$8.02</td>
<td>$27.35</td>
<td>$10.30</td>
<td>$15.29</td>
<td>$5.59</td>
<td>$3.08</td>
<td>$19.60</td>
<td>$10.24</td>
<td>$18.23</td>
<td>$17.75</td>
<td>$0.73</td>
<td>$0.76</td>
</tr>
<tr>
<td>2003</td>
<td>$8.02</td>
<td>$28.56</td>
<td>$10.46</td>
<td>$15.74</td>
<td>$5.63</td>
<td>$3.22</td>
<td>$24.57</td>
<td>$11.33</td>
<td>$18.13</td>
<td>$12.75</td>
<td>$0.81</td>
<td>$0.83</td>
</tr>
<tr>
<td>2004</td>
<td>$8.02</td>
<td>$29.20</td>
<td>$10.84</td>
<td>$16.14</td>
<td>$5.26</td>
<td>$3.82</td>
<td>$28.29</td>
<td>$12.63</td>
<td>$17.37</td>
<td>$13.20</td>
<td>$0.85</td>
<td>$0.81</td>
</tr>
<tr>
<td>2005</td>
<td>$8.02</td>
<td>$30.13</td>
<td>$11.10</td>
<td>$16.55</td>
<td>$5.61</td>
<td>$3.01</td>
<td>$29.79</td>
<td>$14.63</td>
<td>$17.82</td>
<td>$13.24</td>
<td>$0.91</td>
<td>$0.83</td>
</tr>
<tr>
<td>2006</td>
<td>$8.02</td>
<td>$30.47</td>
<td>$11.48</td>
<td>$16.81</td>
<td>$5.88</td>
<td>$3.59</td>
<td>$31.58</td>
<td>$17.36</td>
<td>$18.05</td>
<td>$13.76</td>
<td>$0.96</td>
<td>$0.95</td>
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<tr>
<td>2007</td>
<td>$8.02</td>
<td>$32.07</td>
<td>$11.94</td>
<td>$17.25</td>
<td>$6.17</td>
<td>$3.70</td>
<td>$36.70</td>
<td>$19.43</td>
<td>$18.18</td>
<td>$15.10</td>
<td>$1.18</td>
<td>$1.21</td>
</tr>
<tr>
<td>2008</td>
<td>$8.02</td>
<td>$32.78</td>
<td>$12.09</td>
<td>$17.75</td>
<td>$6.48</td>
<td>$3.95</td>
<td>$41.72</td>
<td>$20.80</td>
<td>$18.69</td>
<td>$16.86</td>
<td>$1.26</td>
<td>$1.39</td>
</tr>
<tr>
<td>2009</td>
<td>$8.02</td>
<td>$33.19</td>
<td>$12.28</td>
<td>$18.24</td>
<td>$5.99</td>
<td>$3.88</td>
<td>$41.94</td>
<td>$15.03</td>
<td>$17.77</td>
<td>$17.94</td>
<td>$1.29</td>
<td>$1.54</td>
</tr>
<tr>
<td>2010</td>
<td>$8.02</td>
<td>$34.75</td>
<td>$12.29</td>
<td>$18.61</td>
<td>$6.13</td>
<td>$4.03</td>
<td>$40.66</td>
<td>$17.85</td>
<td>$18.31</td>
<td>$19.29</td>
<td>$1.46</td>
<td>$1.98</td>
</tr>
<tr>
<td>2011</td>
<td>$8.02</td>
<td>$35.61</td>
<td>$12.73</td>
<td>$18.83</td>
<td>$6.49</td>
<td>$4.16</td>
<td>$42.73</td>
<td>$19.19</td>
<td>$19.28</td>
<td>$23.07</td>
<td>$1.53</td>
<td>$2.65</td>
</tr>
<tr>
<td>2012</td>
<td>$8.02</td>
<td>$35.70</td>
<td>$12.65</td>
<td>$19.08</td>
<td>$6.36</td>
<td>$8.61</td>
<td>$40.72</td>
<td>$20.44</td>
<td>$19.49</td>
<td>$24.52</td>
<td>$1.58</td>
<td>$3.07</td>
</tr>
<tr>
<td>2013</td>
<td>$8.02</td>
<td>$35.49</td>
<td>$13.03</td>
<td>$19.29</td>
<td>$6.60</td>
<td>$8.59</td>
<td>$41.98</td>
<td>$22.09</td>
<td>$19.41</td>
<td>$25.78</td>
<td>$1.42</td>
<td>$4.12</td>
</tr>
<tr>
<td>2014</td>
<td>$8.02</td>
<td>$36.78</td>
<td>$13.78</td>
<td>$19.56</td>
<td>$6.76</td>
<td>$10.64</td>
<td>$43.88</td>
<td>$23.77</td>
<td>$20.49</td>
<td>$26.82</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2015</td>
<td>$8.02</td>
<td>$37.71</td>
<td>$13.03</td>
<td>$19.90</td>
<td>$5.90</td>
<td>$7.97</td>
<td>$36.02</td>
<td>$22.68</td>
<td>$19.51</td>
<td>$25.41</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2016</td>
<td>$8.02</td>
<td>$37.64</td>
<td>$13.42</td>
<td>$20.31</td>
<td>$5.80</td>
<td>$7.97</td>
<td>$36.02</td>
<td>$22.68</td>
<td>$19.51</td>
<td>$25.41</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Notes: Earnings statistics are typically obtained from establishment surveys or from administrative data sources. Average earnings are generally adjusted to total compensation using data from periodic labor cost surveys. Other sources include censuses of manufacturers, tabulations of employer social security contribution rates provided by the International Social Security Association, information on contractual and legislated changes in social insurance benefits, and statistical series on indirect labor costs from employer surcharges. Total compensation for each country is calculated by adjusting earnings series for items of direct pay, social insurance, and labor-related taxes and subsidies not included in earnings. Hourly compensation costs are converted to U.S. dollars using the average exchange rate for the reference year. The exchange rates used are prevailing commercial market exchange rates as published by the International Monetary Fund.

Toward 2026

Together with the economic and demographic trends previously examined, the coming years will be determined, to a great extent, by three key developments: the fiscal adjustment measures starting in fiscal 2018, related measures that could be adopted by the FOMB, and the Federal budget. Obviously, trends in the global economy will have an impact on the Island’s economic future as well demographic trends.

Fiscal Adjustment

On March 13th, the PR Fiscal Oversight & Management Board approved the Government’s fiscal plan submitted on March 1st. The FOMB recommended several amendments to the plan, and several key dates to determine if revenue targets are being met. On May 3rd the FOMB approved the Government’s petition to submit to Title III of PROMESA (Puerto Rico Oversight, Management and Economic Stability Act) thus, in effect, making official, what is essentially bankruptcy relief in federal court, a not unexpected development.

Debt restructuring is another major part of the fiscal plan, given that even after implementing all the fiscal adjustment and austerity measures, the Commonwealth will, according to the Fiscal Plan, only be able to pay an average of $800 million in debt service a year over the next ten years.

The plan lays out the Commonwealth’s strategy for dealing with the fiscal and economic crisis. The estimated accumulated budget gap over the next 10-years surpasses $670 billion, of which $351 billion is related to debt service. To deal with this, the plan proposes several revenue and expense measures that should improve the Commonwealth’s cash flow, leaving it with a near $80 billion surplus by 2026 with which it can service the debt. Measures incorporated in the 2018 Budget proposal should help the Commonwealth reduce spending by at least...
$3.0 billion between fiscal years 2018 and 2019 as well as generate $1.5 billion in revenues. The adjustments will come at a cost but, in the long run, will contribute to the overall improvement and stabilization of the economy. The recommended budget for incoming fiscal 2018 reflects the austerity measures that should be enacted. Between fiscal years 2018 and 2020 real GNP is expected to contract at an accumulated rate of 9.7%. It would not be until the end of the decade when a significant recovery could be in the horizon (See Figure 29).

Policies of the new Trump administration as envisioned in the Federal Budget

Last month the president’s proposed fiscal 2018 budget was made public. Over the next decade, the budget would cut $3.6 trillion in spending. Some of its main proposals with far-reaching consequences are:

- It calls for slashing more than $800.0 billion from Medicaid, the federal health program for the poor, while slicing $192.0 billion from nutritional assistance and $272.0 billion over all from welfare programs.
- Undoing the Affordable Care Act would “save” $250.0 billion over 10 years.
- The plan would cut by more than $72.0 billion the disability benefits.
- It would eliminate loan programs that subsidize college education for the poor and those who take jobs in government or nonprofit organizations.
- Changes to Medicaid and the Children’s Health Insurance Program would reduce the number of people with insurance.
- The budget seeks to cut the Supplemental Nutrition Assistance Program, which provides food stamps, by $190.0 billion and the Temporary Assistance for Needy Families block grants by $15.6 billion.

The Trump administration is proposing large cuts to the federal student loan program for low-income college students. The proposal eliminates federally subsidized loans, which pay students’ loan interest while they are in school, saving $39.0 billion.

The Environmental Protection Agency would be cut by 31.0% for 2018 and the State Department and related programs by 29.0%, with additional 2.0% cuts each year after.

The budget includes new limits on medical malpractice lawsuits, expected to reduce the practice of “defensive medicine,” saving Medicare $31.0 billion over 10 years.

Tax and Income Policies

The tax proposals have two key components:

- Would both cut the top individual income tax rate to 33.0% and would cut the top rate on pass-through income from 39.6% rate to 15.0% and 25.0%, respectively.
- The proposed pass-through rate cut would cost $1.5 trillion over ten years.

Renegotiating NAFTA

During his political campaign and at the beginning of his administration, president Trump was seriously considering the idea of withdrawing the U.S. from the NAFTA (North American Free Trade Agreement). The Agreement, between the U.S. Mexico and Canada, was enacted in 1994, and at the time was one of the most important free trade agreements signed by the U.S. After intense domestic lobbying against the idea, and given the positions taken by Mexico and Canada, this evolved into a commitment to renegotiate the agreement, a position accepted by the other two governments. Indeed, former president Obama tried to renegotiate it, but faced strong opposition from the Congress.

U.S. trade with its NAFTA partners is not small, representing 34.0% of its total exports of merchandise and 27.0% of its imports. China is another important trading partner, accounting for 20.0% of the U.S. imports. Changes in the Agreement or the withdrawal of the U.S from it can have consequences for Puerto Rico to varying degrees. Trade with Canada and Mexico is not very significant, as it accounts for 2.3% of direct exports to foreign countries, and 5.5% of direct imports of merchandise from foreign countries. Puerto Rico’s main trading partner in the region (Caribbean and Latin America) is the Dominican Republic (part of CAFTA), accounting for 3.2% and 2.3% of its exports and imports respectively from foreign countries.

The prospects for a successful renegotiation, though, are not good, according to some analysts. The criticisms and claims contained...
in the draft Executive Order, for instance, that NAFTA damaged American manufacturing, are based on flawed analyses. Plus, multilateral trade negotiations, by their very nature, are complex. The negotiations for the Trans Pacific Partnership, from which Trump withdrew the U.S. recently, started in 2008 and were concluded in 2015. There are serious challenges ahead for global trade and for the regional agreements as the Trump Administration implements some of its campaign positions.

**Infrastructure**

Much has been said about president Trump’s proposal of considerably increasing spending on infrastructure. His budget shows that in addition to “enormous cuts to public investment already embedded in the overall budget plan,” the budget funds only $200 billion of the $1 trillion he pledged for new infrastructure—leaving state taxpayers and infrastructure users to pick up 80.0% of the spending, and provides less than $61.0 billion in net new funding. The latter has potential implications for Puerto Rico, as it could downgrade local expectations as to increases in the availability of federal funds for infrastructure investment.

Moreover, the proposed budget scales down spending by the Highway Trust Fund, the major source of federal infrastructure spending, relying more on private developers. For this, president Trump is proposing tax credits for the equity that private investors would commit to financing infrastructure.

Some policymakers are proposing public-private partnerships (P3s). In the U.S., public-private partnerships represent a tiny fraction of infrastructure spending. On toll roads, for instance, where they have been used the most, they accounted for just 10% of all spending between 1989 and 2011, while Europe and Asia between 1985 and 2011 leveraged P3s by $5400 billion in infrastructure development. Experts agree that while some public-private partnerships may result in near-term savings, there is little hard evidence that they perform better over time. A recent report by Hunter Blair of the Economic Policy Institute (March 21, 2017), shows that “There are substantial costs and risks that must be taken into account to fairly compare the costs and benefits relative to traditional infrastructure financing and procurement.”

Not everyone in the U.S. is sold on the idea of P3s for various reasons. On May 5th, the legislature of the state of Texas rejected a bill that would allow P3s to participate in 18 highway projects costing $300 billion, as it would mean an increase in tolls. Besides Texas, New Mexico and Mississippi have tried to pass P3 measures in 2017 to no avail, and 13 states have yet to adopt legislation authorizing some form of public-private partnership deal. Besides resistance to higher tolls, there is also the issue of areas that cannot support a predictable revenue stream. Many local legislators view P3s as too risky, and concern has been expressed that if a P3 fails, the public sector would be responsible, as has happened in some states and in countries, Mexico, for example.

The U.S. and Global Outlooks

According to a recent report from the World Bank, Global Economic Prospects: A Fragile Recovery, it expects global real economic growth “will strengthen to 2.7% in 2017.” Global growth improved thanks in part to a recovery in industrial activity and global trade. Advanced economies are expected to continue to register positive growth led by the upturn in the US economy, evidenced by the April employment report, which registered the lowest unemployment rate in nearly a decade at 4.4%. Implementing tax cuts and the Administration’s infrastructure program will impact growth estimates for 2018 and subsequent years, but there is a great deal of uncertainty concerning both.

Overall, the World Bank forecasts that global economic growth will strengthen in 2017 and 2018, but this positive outlook faces some headwinds. New trade restrictions could derail the projected growth in global trade. Also, as indicated in the report, persistent policy uncertainty could dampen confidence and investment, plus concerns about mounting debt and deficits in the emerging market and developing economies will have a negative impact.

Unfortunately, at least for the short and medium terms, Puerto Rico’s economy will not benefit much from global and U.S growth prospects. The well-known fiscal and economic problems, much of them of a structural nature, will have to be resolved before we can benefit from such a stable, favorable, global outlook.

### TABLE 6: WORLD ECONOMIC GROWTH: HISTORIC AND OUTLOOK, 2014 - 2019

<table>
<thead>
<tr>
<th>Region</th>
<th>2014</th>
<th>2015</th>
<th>2016e</th>
<th>2017f</th>
<th>2018f</th>
<th>2019f</th>
</tr>
</thead>
<tbody>
<tr>
<td>World GDP</td>
<td>2.8%</td>
<td>2.7%</td>
<td>2.4%</td>
<td>2.7%</td>
<td>2.9%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Developed economies</td>
<td>1.9%</td>
<td>2.1%</td>
<td>1.7%</td>
<td>1.9%</td>
<td>1.8%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Euro Zone</td>
<td>1.2%</td>
<td>2.0%</td>
<td>1.8%</td>
<td>1.7%</td>
<td>1.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>U.S.</td>
<td>2.4%</td>
<td>2.6%</td>
<td>1.6%</td>
<td>2.1%</td>
<td>2.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Developing economies</td>
<td>4.3%</td>
<td>3.6%</td>
<td>3.5%</td>
<td>4.1%</td>
<td>4.5%</td>
<td>4.7%</td>
</tr>
<tr>
<td>China</td>
<td>7.3%</td>
<td>6.9%</td>
<td>6.7%</td>
<td>6.5%</td>
<td>6.3%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>0.9%</td>
<td>-0.8%</td>
<td>-1.4%</td>
<td>0.8%</td>
<td>2.1%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.5%</td>
<td>-3.8%</td>
<td>-3.6%</td>
<td>0.3%</td>
<td>1.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>3.7%</td>
<td>4.7%</td>
<td>4.3%</td>
<td>3.8%</td>
<td>3.6%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>7.6%</td>
<td>7.0%</td>
<td>6.6%</td>
<td>5.3%</td>
<td>5.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Jamaica</td>
<td>0.7%</td>
<td>1.0%</td>
<td>1.4%</td>
<td>2.0%</td>
<td>2.1%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Mexico</td>
<td>2.3%</td>
<td>2.6%</td>
<td>2.3%</td>
<td>1.8%</td>
<td>2.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Panama</td>
<td>6.1%</td>
<td>5.8%</td>
<td>4.9%</td>
<td>5.2%</td>
<td>5.4%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Puerto Rico*</td>
<td>-1.8%</td>
<td>-0.7%</td>
<td>-1.1%</td>
<td>-1.8%</td>
<td>-4.0%</td>
<td>-4.1%</td>
</tr>
</tbody>
</table>


Continued on page 14
There have been many recommendations for economic growth initiatives and fiscal management for Puerto Rico in the past two years, two of the most important ones are the *Krueger Report* (2015) and the report of the Congressional Task Force on Economic Growth under PROMESA (2016). The "Krueger Report" is a report on the state of Puerto Rico's finances. It detailed some of the causes of Puerto Rico's current financial situation, and also presents recommendations as to how to reduce the debt burden, but it is not a blueprint for a strategy for economic growth. Some of its more important recommendations, which center on eliminating the budget deficit and achieving manageable levels of public debt, are:

1. **First**, a comprehensive set of complementary structural reforms is needed. These must reduce the financial gap in the long term by lowering spending and strengthening confidence in public finances. These reforms must be stretched out across several years to avoid too much fiscal tightening in the short term, which could affect growth. Partial or gradual solutions are not recommended, in view of the record of unsuccessful measures previously adopted.

2. **Among the structural reforms** recommended, one related to the welfare system that “acts as a disincentive to work or remain working” (Although there is no definitive finding on the subject, a similar argument has been presented in the case of the U.S. economy).48 (Changes to current labor laws and regulations have been recently enacted).

3. **Replace widespread exemptions for corporations with a low flat rate of 10.1%**; this measure is estimated to yield $250 million starting in fiscal 2017 and growing afterwards. (A new “tax reform” is in the works, but details are not known as of the date this note is being written).

4. **The government should also consider raising property taxes**, which are currently calculated taking into account 1954 prices. (A recommendation that was recently discarded by the government).

5. **Restructure Puerto Rico’s debt**. This could be done through a program to exchange old bonds for new ones with more favorable terms for Puerto Rico, such as a later and lower debt service profile. (A restructuring will occur under Titles III and VI of PROMESA).

6. **The report also recommended** the implementation of an independent fiscal oversight board to improve fiscal outcomes (Which eventually was done under PROMESA).

7. **Another key factor highlighted** in the report is the need to significantly improve Puerto Rico’s statistics.

The report appears to mirror the traditional IMF approach and recommendations, not always suitable for a regional economy such as ours. It doesn’t, for example, recognize the impact its recommendations will have on out-migration. Puerto Rico’s problems are not merely of a fiscal nature, they also reflect structural problems, which are at the center of a long-term growth policy. And there lies the biggest challenge.

Through Section 409 of PROMESA, a Congressional Task Force on Economic Growth for Puerto Rico was created last summer. It was assigned the task of issuing a report by December of last year that would include, among other things, an evaluation of impediments in Federal laws and programs to Puerto Rico’s economic growth, and proposing changes (At the local and federal levels) to stimulate long-term economic growth. The 125-page report was released on December 20th, 2016. Some of its recommendations:

1. **Congress needs to enact an equitable and sustainable legislative solution to the financing of Puerto Rico’s Medicaid program early in 2017.**

2. The Small Business Administration should assess and reform its rate structures, limits, and contribution formulas for making small business loans in Puerto Rico.

3. **The extension of Hub Zones to Puerto Rico.**

4. **Congress should create a program for a program for Puerto Rico small businesses** that would make it easier for them to participate in federal contracts.

5. **Congress should hold a hearing to determine** if Social Security Supplemental Security benefits should be extended to disabled persons in Puerto Rico.

6. **The government of Puerto Rico should develop** a comprehensive economic development strategy that exploits the island’s many comparative advantages.

7. **Increase the amount of the excise tax** on Puerto Rico and Virgin Islands rum that is returned to the islands’ governments. (In fiscal year 2016, the General Fund of Puerto Rico received $200.0 million of these receipts, down from $378.0 million in fiscal 2007).

8. **Someone with expertise on Puerto Rico tourism** should be appointed to the U.S. Travel and Tourism Advisory Board.

9. The government of Puerto Rico should make it a priority to redevelop the former Naval Station Roosevelt Roads.


Nothing has come out of it and Congress has not acted on any of the recommendations.

Of the two, the Krueger, Teja, and Wolfe report is much more targeted, with several of its recommendations related to debt restructuring as a pre-condition for growth, together with structural reforms. The missing link here is first, a conceptualization of the growth path we will follow. According to *The Source of Growth Project*, “new research has illuminated the value of focusing on economic development growth paths – the fact that areas and regions can achieve job and income growth through a variety of routes.” We have to define the strategy more appropriate for growth, avoiding the latest fads, and monitor it. Will it be centered on reducing inequality, creating decent jobs, promoting investment and less consumption, young technology-based firms, increase productivity, or on disruptive technologies – the mobile Internet, big data, the “Internet of Things”, the automation of knowledge work and cloud technology, building on the advantages we already have?

Secondly, taking as a point of departure the recommendations made in the *Estudios Técnicos 2016* report mentioned at the beginning of the paper, we should start by considering the following measures, initiatives, and trends that will have to be developed and implemented, starting with the assumption that PROMESA and the ensuing economic reforms would bring fiscal stability as the foundations for the growth path selected:

1. **Designing institutions adequate for the new economic context**;

2. **Policy and institutional reforms**;

3. **Increase fixed investment**;

4. **Strengthening internal linkages and assets**;

5. **The economy will be smaller, as the island is already experiencing population and demographic downsizing, and this requires a very different approach in economic management**.

A future Occasional Paper will address needed strategies for reconstruction of the Puerto Rican economy and for assuring a sustained and sustainable economic development path.
Notes:


4. The employment rate is defined as a measure of the extent to which available labor resources (people available to work) are being used. It is calculated as the ratio of the employed to the working age population (people aged 16 to 64). Employment rates are sensitive to the economic cycle, but in the longer term they are significantly affected by governments' higher education and income support policies and by policies that facilitate employment of women and disadvantaged groups.

5. Employed people are those aged 16 or over who report that they have worked in gainful employment for at least one hour in the previous week or who had a job but were absent from work during the reference week. The working age population refers to people aged 16 to 64.

6. There might be another factor at play. Since the denominator used in calculating the labor force participation rate is the entire civilian, non-institutional population 16 and older, as the baby boom generation moves into retirement – the first baby boomers began turning 65 in 2011 – that puts serious downward pressure on labor force participation regardless of how the economy is doing. In 2006, the LFPR was 48.9%; in 2016 it fell to 42.0%, which was an increase from the 39.9% rate in 2015. See Department of Labor and Human Resources (2017). Empleo y Desempleo en Puerto Rico - Abril 2017 (May 19, 2017), p. 11. At: http://www.mercadolaboral.pr.gov/Publicaciones.aspx


8. Ibid

9. We use the year 2007 since in May of 2006 there was the partial shutdown of the central government, so estimates for that year are affected by that development.

10. The employment data published by the Department of Labor of those that have looked for work in the previous year but stopped looking is included in the category of Other. As this category increased in 2017 it is possible that their number also increased, which would be a further sign of a weak labor market.

11. U.S. Census Bureau, ACS 5-Year Estimates, various years.


13. The Gini index is a measurement of the income distribution of a country's residents. This number ranges between 0 and 1, with 0 representing perfect equality and 100 representing perfect inequality. It is typically expressed as a percentage. The Gini coefficient measures relative, not absolute, wealth. It provides a convenient summary measure of the degree of inequality. It should be said that the index is affected by taxes and benefits. The index usually is used that before taxes, but a more adequate measure would be that after taxes and including social benefits, progressive taxes.

14. The study cited of Auerbach (2016), for instance, find less inequality than the standard measures show in the U.S. In accounting for this difference, progressive taxes and benefits play a big role. In this regard, the CEPAL (ECLAC) study cited finds that Federal transfers to individuals are a mitigating factor in Puerto Rico's poverty and inequality. See also see chapter 3, Labor supply and public transfers, by Gary Burtless and Orlando Sotomayor, in Susan M. Collins, Barry Bosworth and Miguel A. Soto Class (Eds.) (2006). The Economy of Puerto Rico – Restoring Growth, CNE/Brookings, Washington, DC.


19. A situation that has not changed much since at least the late 1990's. See CEPAL (2005), p. 222.

20. The change is that of the last year relative to the first year in each period.

21. It is worth noting, though, that these figures do not take into account PR's unfunded pension liabilities, which by 2016 it is estimated amounted to $42.0 billion, and also do not include interest.

22. In essence, the process from a budget deficit to a sustained period of balanced budget is a fiscal adjustment. It is a reduction in the government primary budget deficit (Based on recurrent expenditures and recurrent revenues). It can be achieved through a reduction in government expenditures, an increase in tax revenues, or both simultaneously.

23. Including the UPR, the State Insurance Fund, and the Highway and Transportation Authority.

24. Government spending consists of consumption expenditures (goods and services), transfer payments (social security, unemployment insurance, veteran's benefits, and other transfer payments), and gross fixed investment.

27. Ibid. p. 10.
30. The role of increasing competition from U.S. domestic producers cannot be discounted, since in all likelihood they outsource part of their components and supplies from foreign sources.
31. It was eliminated retroactively to Dec. 31, 1995, for any business not already claiming it. For all other companies, the bill continued a phase-out process begun in 1993, provided a new cap on the credit beginning in 2002, and abolished it altogether by January 1st, 2006. In addition to section 936, the Puerto Rican corporate tax code gave significant incentives to U.S. corporations to locate subsidiaries on the island. Puerto Rican tax law allowed a subsidiary with more than 80% owned by a foreign entity to deduct 100% of the dividends paid to its parent. As such subsidiaries in Puerto Rico had no corporate income tax liability as long as their profits were distributed as dividends. Since 1948, with the enactment of the Industrial Incentives Act of 1948, most U.S. subsidiaries on the island have been completely or partially exempted from Puerto Rican taxes as well as from U.S. income tax, a situation that changed in 1996, and with the implementation of the excise tax on the sales of these subsidiaries through Law 154 in 2010. Still, U.S. eligible subsidiaries are under the U.S. CFSC 901, which provide generous tax incentives.
32. In fiscal 1994 exports of manufactured products amounted to $2,756.8 million, and in fiscal 2006 increased to $59,542.1 million.
33. In order to make it comparable, we adjusted for the differences in the base years of both CPIs by normalizing them to 2001 = 100 based on their annual changes in the period.
34. On July 24, 2008, the Federal minimum wage increased to $6.55 per hour from $5.85 per hour, and to $7.25 in July of 2009.
35. Another important aspect is that of productivity, which is not considered here, although, as mentioned, the manufacturing exports-to-employment in manufacturing gives an idea of how it increased (with the caveat that export data reflects transfer pricing, distorting the analysis). For an analysis of this issue see chapter 2, Economic Growth, by Barry Bosworth and Susan M. Collins, in Susan M. Collins, Barry Bosworth and Miguel A. Soto-Clark (2006). The Economy of Puerto Rico – Restoring Growth, CNE/CNKings, Washington, DC.
37. Already labor costs in China are rising, translating into higher costs for companies with assembly lines in China. Some companies are now taking their business elsewhere, which also means China could start losing jobs to other developing countries like Sri Lanka, where hourly factory wages are $0.50. http://www.cnbc.com/2017/02/27/chinese-wages-rise-made-in-china-isn’t-so-cheap-anymore.html
42. Data for April 2017.
45. P3s are a financing tool, not a new source of funding, but many governments see them as a way to access new sources of funding. For a further discussion on the subject see Istrate and Puentes (2011) below.
46. One of the findings of the report is that P3s do seem to reduce construction costs [In the U.S.], but they do so largely because they ignore the Davis-Bacon Act. The law requires the payment of prevailing wage rates to all workers on federal or federally assisted construction contracts.
47. A comparative study by E. Istrate and R. Puentes (December 2011), from The Brookings Institution on the U.S. and international experience with PPP Units, also found that many states lack the technical capacity and expertise to consider the deals, given their complexity. The establishment of such units in the states, according to the authors, would address those concerns.
49. A disruptive technology is one that significantly alters the way that businesses operate. A disruptive technology may force companies to alter the way that they approach their business, risk losing market share, or risk becoming irrelevant. Recent examples of disruptive technologies include smart phones and the e-commerce retailing.
50. This is less complicated than the traditional steady state vs. balanced growth approach of the Solow Model.