

**Black Swans in Puerto Rico,
Introspection of A Long View
An economic transformation**

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Abstract

“Black Swans” are events that are rare, have a significant impact and are only predictable after they have taken place. This article tells part of the story of Puerto Rico’s economic transformation during the past seven decades thru this creative lens. Though this Island in the Caribbean is just 35 by 100 miles in size, there was a time when it overcame special disadvantages associated with its small size, insularity, and vulnerability to natural disasters. Which Black Swans played a role in PR’s economy? Are they responsible for the Island’s economic successes and failures? Has PR learned any lessons to prepare for these events? The aim of this paper is to recognize events that impact our economy and though we may not be able to predict when or how they will take place, nonetheless we can imagine some of their consequences and prepare action plans. PR’s policy makers in the fifties could not foresee all the consequences of their decisions, but they had a shared vision and a will to execute. Find out what has happened to the Island since then.

Prologue

This paper is based on my interpretation of a rather original and unique framework in *The Black Swan, The Impact of the Highly Improbable* by author Nassim Nicholas Taleb. The book hit the Best Seller List of the New York Times in 2007. Its provocative title and framework made me think of telling Puerto Rico’s (PR) economic transformation since the 1940s to the present thru the lens of those “Black Swans”, positive and negative, that have impacted our past, present, and more importantly, will provide a glimpse into our economic future.¹

As an economist by training and profession, I have always wondered why not more people share the passion of understanding how our economy shapes us and how we contribute, each one of us, to make the improbable an actuality. Though I care deeply about Puerto Rico’s economy, this does not mean I have the monopoly of understanding what has been our economic history. Many historians and economists have undertaken this task perhaps more successfully than I. However, this is my reinterpretation of PR’s economic history by adding the impact of random and unpredictable events throughout our economic history and what lessons have we or should have learned from them. It is my journey into our economic past, present, and future.

I have organized this story in three economic phases: (1) Puerto Rico in the 1940s as the “Poor House of the Caribbean; (2) Puerto Rico’s economic transformation into an industrialized economy and classified as “The Showcase of Democracy in the Caribbean” in the 1960s; and its most current economic phase as an Island at a Crossroads in the 21st century. The final section summarizes my findings and introspection of what we still do not know; of lessons we have not yet learned; of a wish list for the current and future generations participating in PR’s economy.

¹ Taleb, N.N., *The Black Swan, The Impact of the highly improbable*, Random House NY, 2007. Taleb, defines a “Black Swan” as an event with three attributes: (1) it is an outlier (*or rarity*), (2) it carries an extreme impact, and (3) explanations for its occurrence take place after the event. Prologue, p. xvii.

I. Introduction

Author and philosopher Nassim N. Taleb defined a Black Swan as a feasible but highly improbable event with three principal characteristics: (1) it is a rarity; (2) has a massive impact; and (3) has retrospective explainability.² Black Swans can be positive or can be negative. Some examples of positive Black Swans include the computer, the internet, and the laser. Although each of these was forecasted by science fiction decades before their arrival, what was surprising for each was the scope and magnitude of the consequences. As Taleb writes “all three were unplanned, unpredicted, and unappreciated well after their initial use. They were consequential.”³ But there are also negative Black Swans. For instance, consider Black Friday on October 19, 1987 with the largest stock market drop in modern history. It was an outlier, had huge ripple effects, and only after the fact many analysts concluded it was bound to occur. The attack on US twin towers on September 11, 2001 was an unpredictable outlier, a seemingly random event of gigantic proportions, and only in retrospect can we say that such an event could happen in the USA. Still, prior events may have forewarned about the US as a target and potential actors behind 9-11, but nobody predicted its date nor the method. The Great Recession of 2008 is another Black Swan. Very few, Taleb being one, forecasted such global turmoil in financial markets with a massive bailout because financial entities were “too big to fail”. And, more currently the Russia-Ukraine war, which not even Ukraine anticipated Russia would escalate after the Crimean war in 2014 and the global impact it has had in many countries.

If these events cannot be accurately forecasted, and when forecasted have very small probabilities, can we know the future by studying the past? We know that big changes have taken place in the past and somehow we have not been prepared when they appear again. The purpose of learning about Black Swans is to realize we cannot exclude rare events from an explanation of past events. Hence, the world will continue to face an increasingly less predictable future and we need to be prepared, we need to think out of the box.

I admit I am an economist by choice, passion, and profession, who in the past has tried to forecast PR’s economic growth. For Taleb, “...there is no convincing evidence that economists as a community have an ability to predict, and if they have some ability, their predictions are at best just slightly better than random ones.”⁴ So now, I am humble enough to admit there may be some grain of truth in Taleb’s irreverent opinion regarding economic forecasters. Nonetheless, I am intrigued by Taleb’s framework of Black Swans and whether this can help us understand Puerto Rico’s economic transformation and potential path into an unknown future.

My goal in writing this article is to acknowledge that for 50 years, by some metrics, Puerto Rico had been a model of development, increasing not only in per capita Gross National Product (GNP) but improving its literacy and life expectancy, in comparison with other countries,

² *Ibid*, pp. 1-2, p.164.

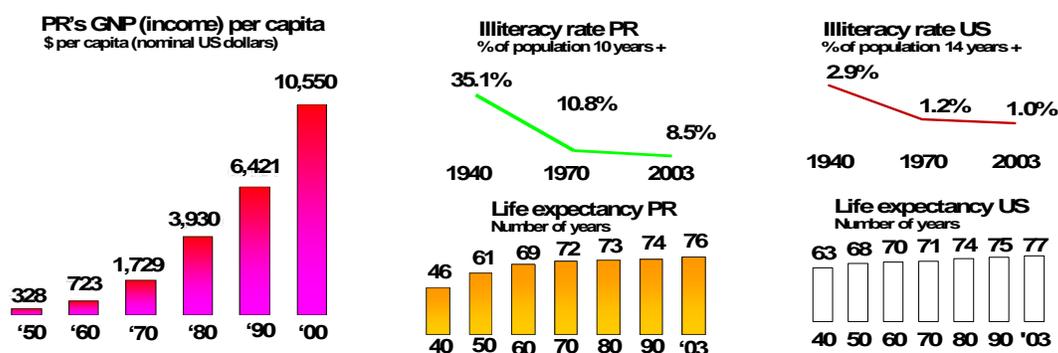
³ *Ibid*, p. 135.

⁴ *Ibid*, p. 154.

including the United States. Were all these trends planned? Were they foreseeable? Or did some positive Black Swans contribute to this transformation?⁵

More importantly, can we repeat this economic performance after 2000? Taleb reminds us that, by concentrating on things we already know, we have failed, time and time again, to take into consideration what we don't know. Huge events continue to surprise us and shape our world, our economy. Hence, I need to imagine the "impossible" for Puerto Rico and reinterpret part of our economic transformation by identifying those Black Swans when they happen because they

Figure 1
During 50 Years, PR had been
a model of development



could have great impact on us. It is the presence of this randomness that challenges us today to incorporate in our vision the uphill path to future economic recovery in Puerto Rico.

II. PR – Black Swans in The Poor House of the Caribbean (1930s to 1950s)

In 1947, the last US appointed Governor of PR, Rexford Tugwell, wrote that Puerto Rico was a “stricken land”⁶. He referred to Puerto Rico in the late 30's and early 40's as an island with a devastatingly poor population; an economy concentrated on sugar cane, coffee, and tobacco, high illiteracy, and poor health conditions, among others. Indeed, Puerto Rico was known to our neighbors as the “poor house of the Caribbean”. But first, just a brief historical background on how Puerto Rico, an island in the Caribbean, came to be governed by the United States.

A. Economic Background

The story begins in 1898 with the victory of the US over Spain in the Spanish American War. At the end of the war, the Treaty of Paris gave Puerto Rico, along with other Spanish possessions in the Caribbean, to the US. We could say this was a “Black Swan” event, not predictable, of enormous consequence, and predicted after the fact by some historians. As a result of this change

⁵ Most data in this article refers to nominal US dollars. When adjusted for inflation, we shall refer to real prices.

⁶ Tugwell, R. G., *The Stricken Land*, Doubleday NY, 1947.

in “ownership”, Puerto Rico now enjoyed free trade with the US; was integrated to the US monetary system; was exempt from federal taxes, and was granted local autonomy in terms of taxes and use of said revenues for local administration. But not all was progress.

Up to the 1950s, the rapid production of sugar cane and tobacco displaced coffee. The central factories for sugar refinery became the main manufacturing activity. Large US sugar companies came with foreign capital investments. When the Great Depression of 1929 (another Black Swan) came, Puerto Rico had limited benefit from the New Deal Programs enacted by President Franklin D. Roosevelt in 1933. “Puerto Rico’s problems were economic at their root and colonial governors left most problems unsolved and untouched.”⁷ However, in 1935 President F. D. Roosevelt did attempt to start a new development strategy based on what was defined as the 1930s Chardon Plan. But, “sugar interests did everything possible to prevent its implementation.”⁸ The Great Depression and the limited interest of colonial governors in solving PR’s economic problems had a big impact in Puerto Rico and created a climate of growing dissatisfaction with the US colonial control and absentee ownership by the huge sugar companies of the time.⁹ In retrospect, the Black Swan of the 1930s Great Depression was predicted after the fact and no one forecasted the mighty sugar companies present at the time in Puerto Rico would lose their

Figure 2
Income Distribution

Country	Labor Force	GDP	Inequality Measure
United States	1950	1950-51	19.9
Trinidad (w. oil)	1960	1960	41.2
Jamaica	1960	1960	50.8
Puerto Rico	1950	1950-51	51.3
Concentration Indices of Household Income			
Country	Year	Index	
United States	1950	35	
Trinidad & Tobago	1957	40	
Puerto Rico	1953	40	
Jamaica	1958	53	

Sources: Social and Economic Studies, Vol. 15, No. 2, pp. 103-120. Latin American Research Review, Vol. 40, No. 2, pp. 117-135.

⁷ Dietz, J. L., *Economic History of Puerto Rico, Institutional Change and Capitalist Development*, Princeton University Press, NJ, 1986, p. 146.

⁸ *Ibid*, p. 154.

⁹ *Ibid*, p. 160. This measure of inequality calculates the difference in share of each industrial sector in the labor force and between each sector share in Gross Domestic Product (GDP). The sum of these differences for all sectors is the inequality measure.

economic power. But they did. Forecasting the future with past events meant they ignored that other unforeseen consequences could take place.

Overall, during this phase, Puerto Rico depicts a grim outlook with limited resources, overpopulation with almost 2% annual growth, wealth concentration, and income inequality. From 1940 through 1950, the share of agriculture in PR's GDP fell from 45% in 1940 to 18% by 1950. Median income was \$378 in 1950 and almost 49% of the working age population (14 years and older) received no income. In 1940, only 33% of the population 5 to 24 years old was enrolled in school and reached 40% in 1950.

B. Some Black Swans

By the end of the 1940s, the officials signing WWI armistice were fully informed that WWII was the most likely outcome of the WWI treaty. There was a mass resignation of staff from the victorious side prior to the signing in an effort to stop that draconian treaty. Years prior to WWII, John Maynard Keynes wrote a book detailing how the WWI treaty would generate WWII. A key ethical question is "WHO" must KNOW for an organization to know"?". Still, the exact start date and principal actor of World War II (potentially defined as another Black Swan), was not envisioned before its occurrence as a likelihood, had a positive impact in Puerto Rico. Despite dislocations and uncertainty for investors, the Island gained strategic importance for the US in the defense of the Panama Canal and the Caribbean. Had that impact been forecasted? Had it been planned by PR? Could it have been known by Puerto Rican leaders? Was it predicted after the fact? No to the first two questions and yes to the second and third. Hence, unforeseen consequences forged PR's economic and political future.

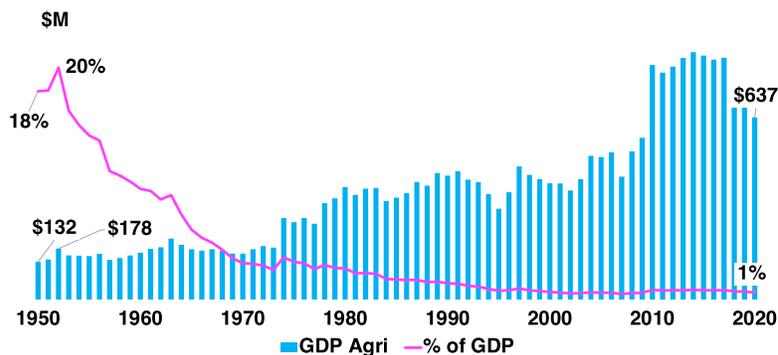
By the 1940s, a new political party, the Popular Democratic Party (PDP), emerged under the leadership of Luis Muñoz Marín. He focused on the foreign-owned sugar plantations and on the consequences of diversifying the economy. With Governor Tugwell (a Black Swan who, unlike most of his predecessors, cared about PR), as precursor of badly needed institutional and administrative changes in the 1940s, Muñoz and the PDP established the Development Company to promote manufacturing; the Development Bank to assist the government to finance infrastructure; a Planning Board to coordinate growth efforts and gather data; and a Budget Bureau to oversee government revenues and expenses.

In 1948, Muñoz became Puerto Rico's first elected governor. In the fifties, benefiting from Tugwell's reorganization of government administration, the stage was set for a change in economic sectors. The Governor sold the state-owned cement, bottle, and paper factories. A generation of better paying jobs and improvement in social equity followed. From this period, we learned that not all planning efforts can be forecasted. There were events, Black Swan events, such as, the cession of PR to the US in 1898, the Great Depression of 1929, World War II, a disciplined Governor and a new political party, that were random, had a huge impact in PR, and many analysts have concluded they were foreseeable after they occurred. Was the PPD the next Black Swan in PR?

III. PR – Black Swans in The Shining Star of the Caribbean (1950s to 1974)

By the end of the 1950s, Puerto Rico had become a Commonwealth within the US. The Government was seriously engaged in planning and promotion activities, particularly in manufacturing. It had undertaken land reform, initiated investments in infrastructure, sold the state-owned factories, and implemented Operation Bootstrap, an economic strategy geared to more industrialization. “The PR model was to be writ large for Latin America.”¹⁰ In relative terms, Agriculture fell from 18% of GDP in 1950 to 3% in 1970. **(Figure 3)** How could this sector decline so quickly? Was this an unforeseen or a deliberate consequence of Puerto Rico’s rapid transformation in its manufacturing sector, from lace (apparel industry) to technology (pharmaceuticals and petrochemicals) with imported capital from the US? Whatever the answer, the consequence remains the same: manufacturing grew in absolute and relative terms while agriculture grew but in relative terms, it languished. In hindsight, Puerto Rico shed concentration in one economic sector for another, but this time on a sector more dependent on investment and trade with the US, and on industrial tax incentives and exemptions.

Figure 3
Negative contribution of agriculture



During this period (1950 –1970), the island’s GDP in nominal dollars grew nearly seven fold. Most sectors, excluding Agriculture, posted impressive and similar gains. Although Government’s contribution in nominal dollars also grew six fold, its contribution could have been even higher since public investment in infrastructure took place thru public corporations and these were classified in other economic sectors, such as, construction, and transportation.

¹⁰ Weisskoff, R., *Factories and Food Stamps, The Puerto Rico Model of Development*, John Hopkins University Press, 1985, p. 120.

Figure 4

PR's's Gross Domestic Product (GDP) by Sector

Sector	1950	1960	1970
GDP \$millions	724	1,692	5,035
Agriculture	132	164	161
Construction	30	101	379
Manufacturing	120	366	1,190
Trade	144	319	898
Transportation & Information	61	156	439
Finance, Ins, RE	75	198	614
Services	45	141	512
Government	75	187	610
Discrepancy	42	60	232

Percent Distribution of GDP by Economic Sector			
Sector	1950	1960	1970
GDP %	100%	100%	100%
Agriculture	18%	10%	3%
Construction	4%	6%	8%
Manufacturing	17%	22%	24%
Trade	20%	19%	18%
Transportation & Information	8%	9%	9%
Finance, Ins, RE	10%	12%	12%
Services	6%	8%	10%
Government	10%	11%	12%
Discrepancy	6%	4%	5%

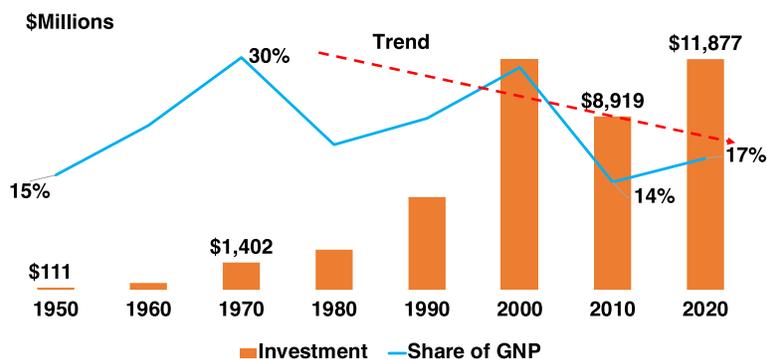
Source: PR Planning Board & Income & Product

A. Operation Industrialization

The industrialization of the fifties was an extraordinary achievement. Manufacturing grew from 17% of GDP in 1950 to 24% by 1970. During that same period, Construction doubled its share in GDP, from 4% to 8%. As more banks provided badly needed credit, finance, insurance and real estate sectors also gained share in PR's GDP. Investment was the driver of economic growth.

Figure 5

Investment as engine of growth



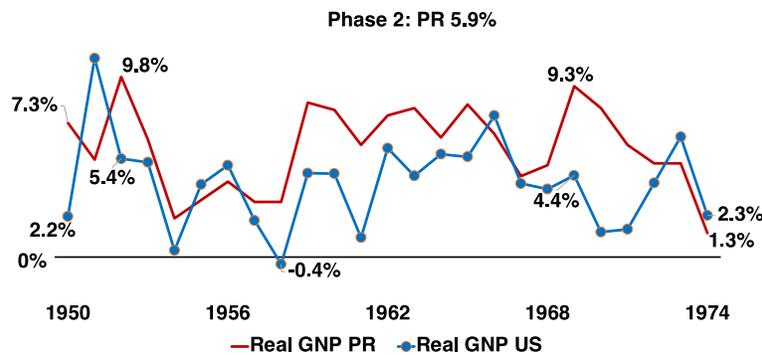
During this period (1950-1970), the Island economy posted real rates of GNP growth that surpassed those of the US. This second phase ended in 1974 after experiencing an annual 5.9% real economic growth in PR's GDP. Was this growth sustainable?¹¹

However, "...three major problems unfolded from industrialization. First, the programs did not employ enough people. Second, they did not employ the former farm workers and farmers. Third, there was no necessary connection between production in the new factories and the needs of the local people."¹²

The Cuban Revolution in 1959 was a positive Black Swan for the PR. Migration of experienced business owners from Cuba to Puerto Rico stimulated retail and wholesale trade. Tourism also was a winner. The US naval and army bases in PR were reinforced to prevent "communism" from taking over the Caribbean. Puerto Rico was the poster child of democracy and capitalism. PR became "The Showcase of Democracy in the Caribbean".

Figure 6

A positive growth path, PR v. US



Under the new political relation of the PR Commonwealth with the US, the new economic policy model for Puerto Rico relied on free trade with US, cheap labor, cheap energy, US and PR tax incentives, and fiscal autonomy to attract foreign capital and technology (mostly from US). The

¹¹ The literature on small island developing states includes author Lino Briguglio in *The Economic Vulnerability of Small Island Developing States*, 1995, who argued "...the economic vulnerability of small island states stem from their small size, limiting their ability to reap economies of scale; high degree of economic openness; dependence on narrow range of exports; excessive dependence on imported energy and other raw materials; their insularity leading to high transport costs; and their fragile ecosystem." Hence, "the success of these economies is dependent to a high degree on conditions outside their control – a condition which sometimes threatens their very economic viability." As I explain in this article, during the fifties and sixties, Puerto Rico overcame many of these special disadvantages with a local government willing to execute economic and social gains, above politics, and with the assistance of its special relationship with the US. Long before Briguglio's theories, Fritz Schumacher published his book *Small is Beautiful* in 1973. He developed the philosophy advancing small, appropriate technologies, policies, and politics as a superior alternative to the mainstream ethos of "bigger is better". In my opinion, small size is not necessarily a disadvantage. Puerto Rico has forgotten to take advantage of its size in a global world where distance has died with the internet and where technology with education provides many opportunities, if we are willing to seize them.

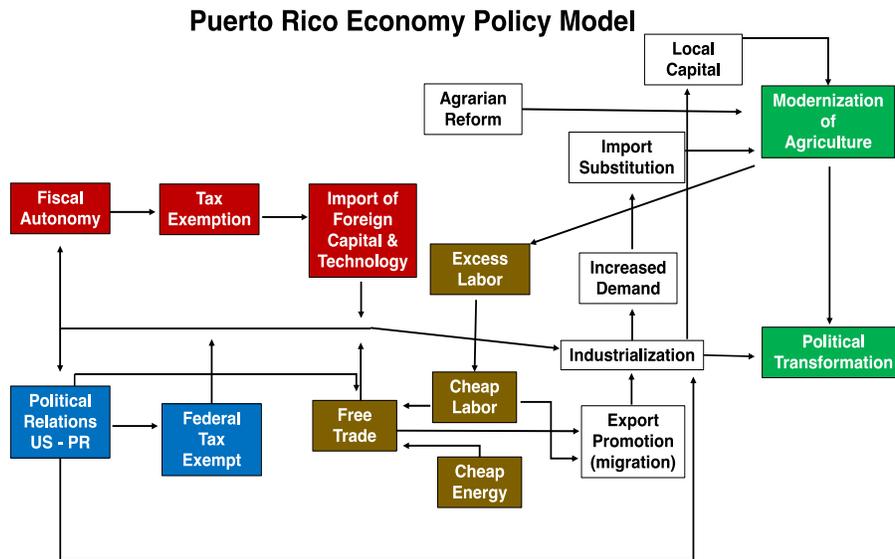
¹² *Ibid*, p. 120.

approval of the PR Industrial tax incentives law proved to be a powerful instrument for economic growth during the 1960s.

B. PR's Economic Policy Model

Some of the deliberately sought end results were: to achieve industrialization; increase exports; increase local demand; migration of excess labor to the US; agrarian reform leading to a modernization of agriculture, local capital formation, and ultimately, political transformation. With the exception of the last three goals, (i.e., those that required the greatest cultural

Figure 7



change), the model appeared to work during this period. But we failed to forecast that the context into which we were inserting change was being transformed by our prior efforts. Originally good ideas became increasingly less good as previously implemented ideas took hold.

Planning can give us a direction to tackle a forecasted future, but we neglect at our peril sources of uncertainty, unpredictable events. Consider PR's dependence on imported capital from the US. As long as labor and energy remained cheap, it was attractive for labor intensive manufacturing industries. While free trade gave PR access to the huge US market, was it foreseeable that at some point, other countries would also enjoy sufficiently similar free trade with US? Was it foreseeable that other countries would be competing for the same foreign investment and with even cheaper labor? Could energy, based solely on oil remain cheap? PR chose to move to an industrial array that paid higher wages, but those industries, such as pharmaceuticals, medical devices, petrochemicals, were more capital intensive. True, these companies paid higher wages, but they failed to generate many jobs.¹³ And, given that a change

¹³ Other economists, such as James Dietz have a harsher criticism of Operation Bootstrap. "As a development strategy in the wider sense of the term, it has been a failure. Operation Bootstrap, then, is a monument not to economic progress but to the costs and dangers inherent in a development program based upon capital-intensive,

in inequality (e.g., some only have access to the new higher paying jobs) is more socially disruptive than static inequality, this added new tensions to the PR society. Especially so when the previously prevalent array of opportunity costs (e.g., for staying in school) are fundamentally shifted towards favoring those already benefiting from access to those higher paying jobs. Puerto Rico then faced the Black Swan problem: “How can we know the future, given knowledge of the past?”¹⁴ During this phase and as we shall see in the next one, Puerto Rico relied on past performance of capital-intensive, export-oriented, foreign-owned US companies. How well did PR adjust to a changing and random environment?

IV. PR – At a Crossroads (1974 to the present)

A. The Oil Shock Black Swans

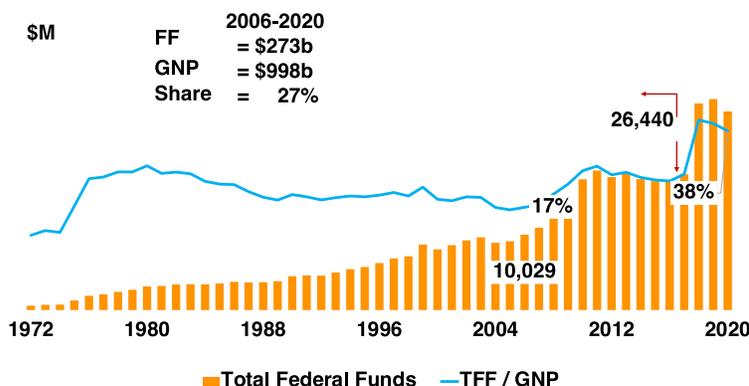
An important event occurred in October 1973 when the Organization of Arab Petroleum Countries led by Saudi Arabia proclaimed an oil embargo. The price of oil rose more than fourfold from \$2.90 a barrel before the embargo to \$11.65 a barrel in January 1974. This was the first Black Swan of this period. It was an unforeseen outlier that caused significant hardship globally, and after it occurred, many analysts tied it to the USA's support of Israel that avoided Israel's defeat during the Yom-Kippur War of 1973.

As a result of this first oil shock, Puerto Rico experienced its first economic recession in modern times in 1975. Though real GNP growth was -1.9% in that year, it quickly recovered to 2.2% in 1976 and continued with very positive growth of 5.4% in 1979. The extension of the US Food Stamp program to PR in 1974 quickly led to economic recovery. But this Black Swan also has negative consequences for the Island. Though it benefits the needy, it also is said this program took away part of the incentive of people to work. Food Stamps had and continue to have a huge impact in the Island since close to 50% of all families receive this benefit because they live below the US poverty level. Food Stamps increased PR's dependence on federal funds after 1974, an unintended result of the economic policy model discussed in the previous section and further intensified.

foreign owned, vertically integrated, and export oriented corporate expansion. ... Only through expanded state welfare expenditures and through migration has the economic crisis been prevented from deteriorating into chaos.” Dietz, op. cit., p. 309.

¹⁴ Taleb, p. 40.

**Figure 8
Dependence on Federal Funds**



To the extent food stamps keep children nutritionally balanced and in school, food stamps improve PR's long term prospects for growth; whereas to the extent food stamps merely fostered retreat from productive activities (is parenting a productive activity?) the program reduces PR's long term prospects. Every solution that focuses solely on the symptoms of a problem instead of upon reducing the problem plants the seeds for new and/or larger problems in the future: not infrequently in the form of new Black Swans.

Sparked by the Iranian Revolution, (itself a Black Swan), another oil shock started in 1979. Again, few forecasted another oil shock to take place after the dire consequences of the first. But it happened; it had significant impact globally, and in retrospect many analysts claimed it was predictable. Oil prices skyrocketed almost three fold from \$13 per barrel in mid-1979 to \$34 per barrel in mid-1980. With the reduction in oil production, crude oil buyers panicked and increased their crude oil inventories. Oil on the spot market climbed to \$50 per barrel. Inflation and interest rates were in double-digit territory. Oil producers globally started investing in exploration and production. In 1979 Puerto Rico claimed it would engage in “energy reform” and move to renewable energy.¹⁵ But, as soon as oil prices started declining, this reform was soon forgotten.

B. The Mighty Black Swan of Section 936

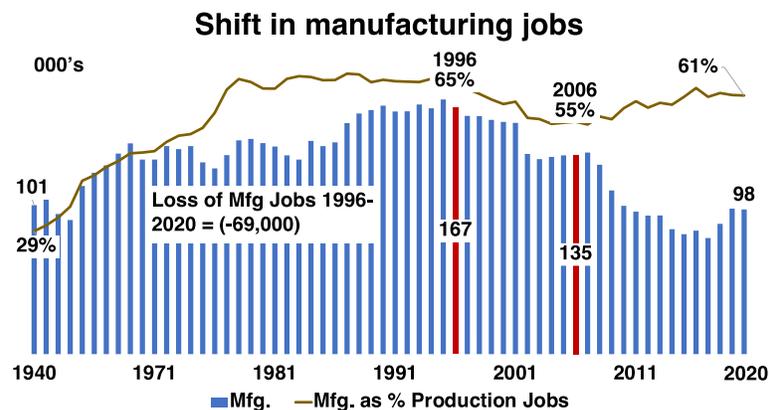
In 1976, US Congress replaced Section 931 of the US tax code with Section 936 (a Black Swan), a section that “provided a 936 corporation a special credit to fully offset the Federal tax on income from a trade or business in PR or from qualified possession source investment income. A US parent corporation can, in turn, offset dividends received from a wholly owned 936 subsidiary with a 100 percent dividends-received deduction, which frees the dividend income from Federal tax.”¹⁶ The original Section 931 possessions corporation exemption was enacted to expand trade with the Philippines and the Far East. The Philippines had ceased to be a US

¹⁵ Oficina de Energía, La Política Energética de Puerto Rico, Un primer paso, junio 1979

¹⁶ US Department of The Treasury, The Operation and Effect of the Possessions Corporation System of Taxation, Fourth Report, February 1983, p. 9.

possession in 1946. Now, the argument in favor of the new Section 936 was that since Puerto Rico was paying US minimum wage while losing its apparel companies to other low wage countries. The extension of this Section 936 to Puerto Rico was expected to “.. assist Puerto Rico in obtaining employment-producing investments.”¹⁷ And it did generate well-paid manufacturing jobs with pharma production going to the US and other world markets. **(Figure 9)** Puerto Rico had arrived. No doubt, this Black Swan event was an outlier which did encourage massive investments in capital intensive industries, such as more pharmaceuticals, medical devices, and electronics, among others. US Treasury however raised concerns that it was losing revenues on account of Section 936 in PR and computed that this incentive per job created in PR was too steep.¹⁸ 936 manufacturing corporations increased their share of PR’s GDP from 14% in 1972 to 39% in 1991;

Figure 9



personal income grew 23%; government revenues climbed 20%, and consumption recorded 24% growth. In terms of the financial sector, total 936 funds in PR grossed \$15b, of which \$5.7b (30 to 40%) were deposits in commercial banks. These were no small contributions to PR’s economy.¹⁹

In 1982, President Reagan announced the Caribbean Basin Initiative. PR would play a key role by supporting 936 corporations to establish twin companies in some 13 English-speaking countries in the Caribbean.²⁰ Though PR tried to adjust to a changing political environment in the US, It was foreseeable that the success of the 936 program would breed the seed of its destruction. The incentive was phased out, beginning in 1996, with the assistance of then PR Governor Pedro Rosello, who belonged to the New Progressive Party (NPP), and who did not

¹⁷ Ibid, p. 7.

¹⁸ Ibid, “In 1980, the tax savings per employee averaged \$59,000 per employee in the pharmaceutical industry and \$4,000 in the low-technology, labor intensive industries.” P. 7.

¹⁹ Calero, H., *The Impact of Section 936 on Puerto Rico’s Economy and Construction Sector*, An Executive Summary, April 1993, p. 6 and p. 31.

²⁰ Commonwealth of PR, Economic Development Administration, *The Role of Puerto Rico within the Caribbean Basin Initiative*, December 1985.

negotiate a substitute for this powerful incentive.²¹ Congress gave PR a 10 year period to end the 936 Program during which no new 936 corporations could reap said benefits. PR's continued industrialization and development came to a halt. Price Waterhouse estimated a loss of between 11% and 16% in 5 years in PR's GNP. PR lost 69,000 jobs from 1996 thru 2020 and has been in a deep recession since 2007 when Section 936 was finally phased-out to the present.²²

The end of this program was a call to do something, since

“...Puerto Rico is at an important crossroads as it seeks to develop and implement a strategy for future growth. Evolution of the global economy and developments within its own region dictate that the policies it pursued in the past will not work for the future. Puerto Rico cannot continue to rely on tax advantages as the primary attraction for multinational firms. Instead, Puerto Rico must diversify and strengthen its economy by developing its own dynamic private businesses and the jobs that they will bring.”²³

However, political tribalism among the pro-Commonwealth or the Popular Democratic Party (PDP) with close to 45% of voters and the pro-independence or the Puerto Rican Independence Party (PIP) accounting for close to 4% of voters at that time, were not effective in stopping the pro-statehood or the New Progressive Party (NPP) Governor, from preventing US Congress from eliminating Section 936 or at best insisting on negotiating an equivalent incentive substitute.

C. Occurrence of More Black Swans

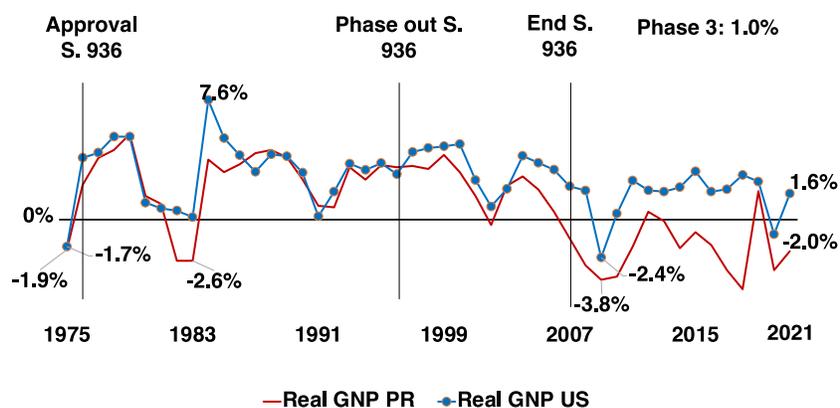
And then came the attack on the twin towers of the World Trade Center in New York on September 11, 2001. This Black Swan event caused close to 3,000 deaths and generated a visceral negative reaction towards the Islamic Al Qaeda extremist group and other Arab nations. The negative effects on the US economy were immediate. Jobs were lost and the financial markets tumbled. As on the heels of the second oil shock, Puerto Rico's economy also felt the impact of 9/11. Its real GNP growth was -0.3% in 2002. Puerto Rico continued on its path mirroring the US economy, but slowly decelerating. During this phase (1974 – to the present), real GNP growth was barely an average annual 1.0% with lots of negative growth rates throughout the period.

²¹ Governor Pedro Rosello belonged to a political party that favors PR becoming a state. Section 936 was viewed as an obstacle to achieving this “political transformation” since no other state in the Mainland qualified for Section 936. Puerto Rico ended without the benefits of Section 936 in 2006, and without negotiating any substitute replacing this incentive. As yet, PR has not become a US state. The difficulty in predicting outcomes is not having a clear idea of the likely consequences of an event.

²² Curet, Eliezer, *El Desgobierno de Roselló y Cifuentes*, Management Aid Center, 1996, pp. 364-365.

²³ Collins, Bosworth, Soto-Class, Editors, *The Economy of Puerto Rico, Restoring Growth*, Brookings Institution Press, 2006, p.585.

Figure 10
Diverging growth paths, PR v. US



What did Puerto Rico do to tackle this deceleration? Although Taleb argues “we cannot truly plan, because we do not understand the future”, it is no less true that not planning is also a choice. However, then Governor Sila M. Calderón decided to take the challenge and engaged in what later became known as PR 2025²⁴. This was a visioning exercise of where we wanted the Island to be in 2025 together with a diagnostic and strategic options to achieve that vision. It was not an econometric model with economic forecasts. Rather, it was directional with specific actions leading to achieve an overarching vision in 2025 together with sector sub-visions. To this day, this Plan remains one of the most comprehensive initiatives to revamp Puerto Rico’s economy in all its dimensions. However, with a change of Governor in 2004, the Plan was not implemented. Black Swans which alter what you can know and which acts are attractive.

Following the 2001 events, came the Black Swan of the Great Recession of 2008. The global effects of financial institutions “too big to fail” could not be allowed. A huge US bailout of key financial institutions and other major US corporations was executed under the watch of US President Obama. Puerto Rico banks had not engaged so intensively in the real estate bubble/subprime mortgage crisis as their US and European colleagues. Although variable rate mortgages were not prevalent in Puerto Rico, consumers were highly debt-ridden. It was not surprising then that the island economy would also experience the effects of massive subprime lending on the mainland. Real GNP growth in 2008 reached -2.9% and escalated to -3.8% in 2009. Did PR learn a lesson from this Black Swan? Once again, these events highlighted the “openness” of the island economy and its integration to the US banking system and financial markets. By now, we were supposed to know what was going on and hedge for the “improbable”. We did not.

D. A Lack of Fiscal Discipline in the Making

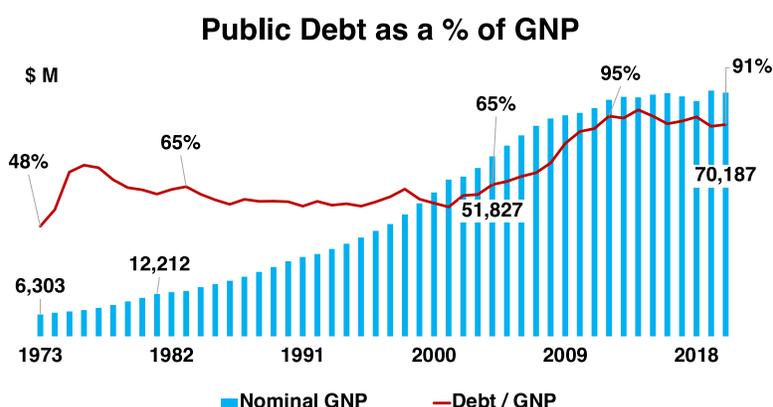
As background to the next Black Swan, we need to review what was happening in terms of fiscal discipline. During the first oil shock and subsequent recession in 1975, then Governor Rafael

²⁴ Kearney, A. T., PR 2025, 2002

Hernández Colón understood a big change had taken place. He wanted to be prepared and asked well-known economist James Tobin to analyze the economic and financial prospects of the island. As Tobin indicated “...none of us foresaw then how rapidly and drastically the national and international economic climate would deteriorate. Nor did we foresee at that time the severe impact of US recession on the finances of state and local governments, and of the Commonwealth, and the sharp decline in investors’ confidence in tax-exempt bonds.”²⁵

Though Tobin acknowledged there were circumstances beyond the Island’s control (oil markets), he concluded that “The trends of government expenditure, government enterprise deficits, Puerto Rican debt, and costs of production were not sustainable even with favorable economic weather overseas.”²⁶ By 1975, PR’s public debt, denominated in USA dollars, had reached 71% of nominal GNP.

Figure 11



One of Tobin’s main recommendations was for PR to maintain fiscal discipline, keeping public debt close to 50% of GNP and government expenses to be held at 3 to 4% growth over the next 3 years. Since growth in jobs and output depend on investment, funds must be found internally and finally, “What we seek from you (as Governor of PR) now is an immediate program of investment, as your participation in a full and coherent program to revitalize the Puerto Rican economy.”²⁷

Although Governor Hernandez Colón lost the election in 1976, the following Governors, including two additional terms for Hernandez Colón seemed to have kept public debt at 65% of GNP. The problem was that, though the percentage seemed stable, both GNP and public debt kept rising.²⁸ Growth of fiscal revenues decelerated throughout this period while public debt kept

²⁵ Tobin, J., Report to the Governor, The Committee to Study Puerto Rico’s Finances, December 11, 1975, Transmission cover letter.

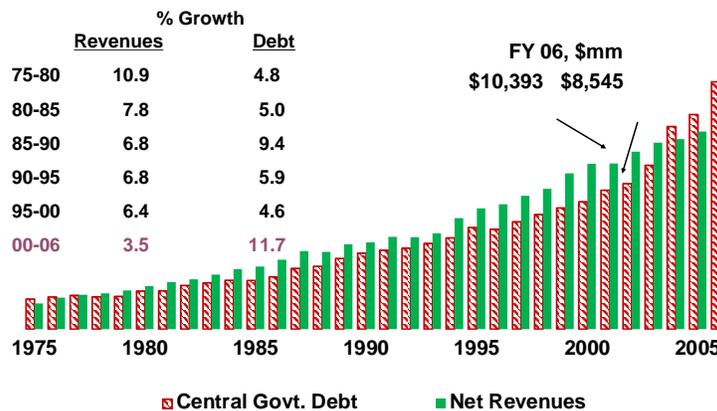
²⁶ Ibid, Transmittal letter, p. 1.

²⁷ Ibid, Transmittal letter, p. 6.

²⁸ From 1993 thru 2001, Governor Pedro Rosello engaged in many infrastructure projects, for which no cost-benefit or feasibility analysis was undertaken. The urban train is an example and it continues to require operational subsidies. These projects were financed with increased public debt. Curet, op. cit., p. 388-389.

growing. During the period 2000-06, after the Black Swan of 9/11 and just before the Great Recession of 2008, revenues grew 3.5% compared with 11% in public debt. Could these trends hint PR's fiscal problems have kept mounting? Did we learn anything from the first and second recessions; from Tobin's analysis and recommendations? Unfortunately, the answer is no. Complaisant with continued dependence on federal funds and the hope for a replacement of Section 936, Puerto Rico continued to predict unrealistic (but politically palatable) outcomes.

Figure 12
Revenues vs Central Govt. Debt



Then, the unthinkable, not honoring PR's Constitutional guarantee for General Obligation (GOs) bonds, took place. The Black Swan of PR's default on its public debt took place on August 2015. And Puerto Rico did not have access to the US municipal bankruptcy law. For many decades, PR bonds had enjoyed high investment grade classifications. True, the economy has been in deep recession since 2007 and continues to this day, but PR bonds carried triple tax exemption in US municipal markets and they still managed to maintain investment grade from the major credit rating agencies. Fiscal deficits were mounting, but nobody could foresee that even the PR General Obligation Bonds (GOs) with our Constitutional guarantee would default. The shock reverberated throughout the US municipal bond market and, of course, in retrospect, analysts were quick to point out that PR would not be able to service its public debt. Unthinkable, a US territory facing the largest "bankruptcy" in US history. Despite local efforts to legislate a bankruptcy law for PR, Congress decided to legislate the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA) on June 30, 2016. Now, Puerto Rico would be supervised by a non-elected 7 member Board, charged with returning PR to fiscal discipline with balanced fiscal budgets. PROMESA afforded the protection of Title III (technically not to be designated as "bankruptcy") to restructure PR's public debt. At the time of writing this article, a substantial part of PR's \$70 billion plus close to \$50 billion in unfunded pension liabilities has been restructured. However, after 6 years the PROMESA Board has not yet completed all its assignments.

Has Puerto Rico allowed the improbable Black Swans to control it? Did PR have any choice? Or was PR at the mercy of external Black Swans radically altering PR's forecasted futures? After Hurricanes Irma and Maria in September 2017, the Island was economically devastated. HCCG estimated Maria caused economic damages ranging from \$67.1b to \$159.5b, including

infrastructure and loss of fiscal revenues.²⁹ “True, PR cannot avoid the paths of hurricanes, but the collapse of electricity, communications, drinking water, roads, private business is proof that PR did not have an effective disaster recovery plan.”³⁰ .

Disaster recovery on the mainland is planned well in advance BECAUSE each utility can and does contract with "distant" sister utilities to come to their aid in times of trouble. They pair up based upon their preferred technologies and equipment providers. Help arrives with extra trucks carrying staff and all the tools and repair equipment that might be needed. They arrive fully trained. They start driving as soon as the weather forecast is threatening and wait just outside the disaster area; only entering after the storm has passed. That is not feasible on an island like Puerto Rico, where maritime and even air transportation are required. Ground transportation will also be especially difficult since the island has a major mountain running down its center. Thus, the most competent utility manager on an island is doomed to initiate disaster recovery weeks behind any mainland counterpart. This is a constraint Puerto Rico faces.

Congress approved federal emergency funds, but they have not been flowing as fast as expected. Even to this date, there are still families without proper homes, electricity, water, and roads that require massive investments and await the efforts of a diligent local government management to interact with the federal agencies. Still, questions without answers.

We end this section with two additional Black Swans: Covid 19 and the Russia-Ukraine War. Again, two events which epitomize randomness. They are definitely outliers that have caused significant impacts throughout the globe and which, again, after the fact, you could say they were predictable. For instance, the Spanish Flu of 1918 was a huge epidemic – if the past is to be repeated this was bound to take place once again. True, but nobody knew exactly when and thus routine political budgetary inertia prevented nearly everyone from being prepared.

Analogously, analysts may say that the Russia Ukraine War was to be predicted since Russia had already invaded Ukraine in 2014 and Putin made no secret of his desire to reestablish the Soviet empire's geographic dimensions. True, but nobody could foresee Russia's aggression to a neighboring country, which resisted its invasion. Worldwide, oil markets are in disarray with the price of oil escalating to more than \$100 per barrel and unleashing massive inflation. Unless, of course, they had noticed nearly 50% of the world's wheat arrived via the Black Sea having originate in Ukraine or Russia; or have noticed that nearly 30% of Europe's energy supply came from Russia; or have noticed that nearly 20% of the world's fertilizer supply came from those countries. Puerto Rico has not been exempt from the impact of these two most recent Black Swans. These Black Swans were not predicted, have huge consequences, and in retrospect they might have been accurately forecasted. What lessons has Puerto Rico learned?

V. Reflecting on a Future Course for PR

A. Lessons Not Learned

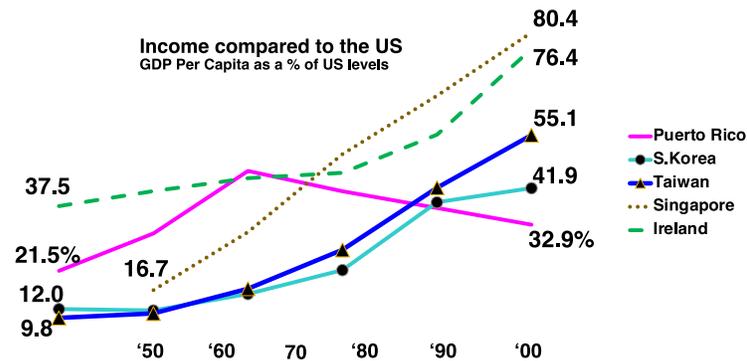
²⁹ H. Calero Consulting Group, Inc., *How Hurricane Maria Forges PR Economic Future*, March 2018, pp. 13-27.

³⁰ *Ibid*, pp. 3-4.

After 7 decades, Puerto Rico has experienced failures and successes: from a “stricken land” in the 1940s to Operation Bootstrap, a strategy of industrialization and growth in 1950 thru 1970, to Section 936, another strategy of investment and growth from 1976 thru 2006, to “bankruptcy” with a US Congress mandated oversight board in 2016. As a result, Puerto Rico has lagged the US and other countries since the 1970s. To date, the Island continues deep in economic recession, artificially surviving with the slow disbursement of federal emergency, Covid 19 rescue and other federal funds.

Figure 13

PR has lagged the US and other countries thru 2000



As with the 1975 crisis, today

“...Puerto Rico faces a critical economic situation, with potential dangers to all of us who live and do business on the Island. We know that our competitiveness has declined in recent years.”³¹ Still, Puerto Rico in the 21st century as in the 1940s “...suffers from a structurally disarticulated economy. Local demand is articulated to an external supply source (imports); local supply is articulated to an external demand source (exports). This has required federal and commonwealth spending and the subsidization of housing, food, and public utilities at a level unique among capitalist market economies.”³²

Is Puerto Rico resolved to focus on another path to economic growth? Can Puerto Rico attribute its current economic failures to random, external Black Swans outside our control? My unequivocal reply is “NO”.

Renowned journalist and author Alex Maldonado in his most recent book: *Boom and Bust in Puerto Rico, How Politics Destroyed an Economic Miracle* seeks an answer to the question of who is to blame for the current economic and political crisis in Puerto Rico? He provides an alternate explanation in terms of the PR-US relationship: a history of misunderstanding of two distinct peoples, which continues to this day. “For the Americans, the history of the US-PR relationship has been a history of unrelenting good will and generosity. For much of the Puerto

³¹ Tobin, Transmittal letter, p. 6.

³² Dietz, J., op. cit. p. 309.

Rican leadership, never more than in the current crisis, a history of colonial mismanagement.”³³ The question of how to right this wrong, remains unanswered in Maldonado’s book.

Since Black Swans are insufficiently forecasted, cause extreme impact and appear easily predictable **only** in retrospect, what can we learn from them? In my opinion, we need to focus on what makes sense to us. Taleb reminds us that since Black Swans are unpredictable, and when they happen, they have significant consequences, we need to adjust to their existence. We cannot simply generalize from available information or expect past performance to guide us into the future. Since we act under conditions of incomplete information, we need to “think out of the box”. We need to plan considering the likelihood of random events, which we know will impact us, even if we do not know when they will occur. Nobody said this was an easy task, but it will take guts to do it!

Sometimes reviewing the past can be helpful. On February 11, 1964, then Governor Luis Muñoz Marín pronounced his 12-page State of the Union message to the PR Legislature. His speech was entitled: “The Purpose of Puerto Rico” (“El Propósito de PR” in Spanish). It outlined 6 strategic guidelines to achieve this “purpose”.³⁴

1. Education for all, with quality, quantity, and depth
2. Health for all
3. A home for each family
4. Balance between urban and rural with an orderly development of cities
5. More participation of local capital and local business
6. Eradication of extreme poverty

For Muñoz, education was at the top of the list and not merely as an instrument of training for the labor market. Instead, his idea of education was a never-ending learning process, which did not finish with a title from high school or university. He emphasized the role of teachers based

on the numbers of lives they touch. Universities have a role to play in teaching and research. Education for adults must be emphasized. This message was not meant to be a comprehensive plan, rather an overarching vision of where our economic development should be headed. It emphasized equilibrium and balance among these 6 guidelines. Muñoz acknowledged this was an uphill challenge, but no more than the economic and social transformation that was achieved from the 1940’s to the economic growth of the 1970’s. He recognized the enormous role of the PR Planning Board in executing a plan to achieve these goals. Today, the PR Planning Board is under the umbrella of the Department of Economic Development and has been relegated to a clerical role of publishing the national accounts and not even on a timely fashion.

³³ Maldonado, A. W., *Boom and Bust in Puerto Rico, How Politics Destroyed an Economic Miracle*, Notre Dame Press, 2021.

³⁴ Muñoz Marín, Luis, *Propósito de Puerto Rico (Segunda parte sobre el Estado del País)*, 11 de febrero de 1964

In 2003, Governor Sila Calderon retained the services of AT Kearney, Inc. thru the PR Economic Development Administration (today's PR Department of Economic Development) to prepare an economic plan for 2025. To this day, it is the most comprehensive plan that has yet to be implemented after two decades of its unveiling. That plan had an overarching vision of where Puerto Rico wanted to be in 2025. This vision was further subdivided into four dimensions of the PR economy, mainly: the economy, health, culture, and the environment. For each of 18 sub-sectors, a specific vision was defined. Furthermore, the process was participatory, including, businesses, students, universities, (NGOs), and people from all walks of life. Out of this process, a comprehensive plan with immediate, short, medium, and long term recommendations was prepared. Finally, this plan was entrusted to a non-profit entity (NGO), to oversee the implementation of this plan. The entity (a.k.a., non-governmental organization, NGO) was formed, a board of trustees was designated, office space was rented, an Executive Director was hired, but the initiative soon died for lack of funds and an election of a new governor. The plan never was acted upon.

Yes, seven decades have elapsed since the 1950s, two decades since PR 2025, and we are still desperately seeking lofty, yet seemingly unachievable goals, but with different emphasis. There is nothing new, except our lack of execution of our vision. There are many sound and loud voices with a call to action for the current and future generations. Puerto Rico's economic transformation has been a journey and has not finished. It is still work in progress.